CKD

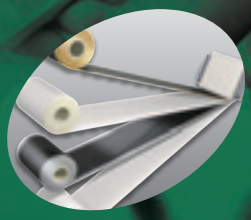
Equipment related to rechargeable batteries P4* Series

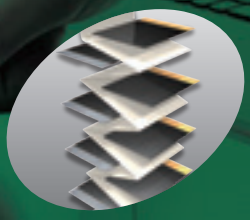
Material restrictions

Dry environment
DEW POINT -70°C

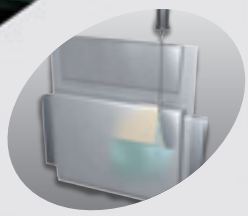
Stable operation

Fights dust and its generation


Winding


Stacking


TAB Welding


Immersion

CKD Corporation
CC-1226AA 4

Rechargeable battery manufacturing process

Each manufacturing process in the manufacture of rechargeable batteries requires support for a variety of environments, such as dust/explosion-proof/vacuum/ultra-dry and material restrictions.

1 Electrode material

Counters dust generation · Counters dust



1 Electrode material 2 Electrolyte 3 Separator

2 Electrode manufacturing process

Material restrictions · Counters dust generation · Counters dust



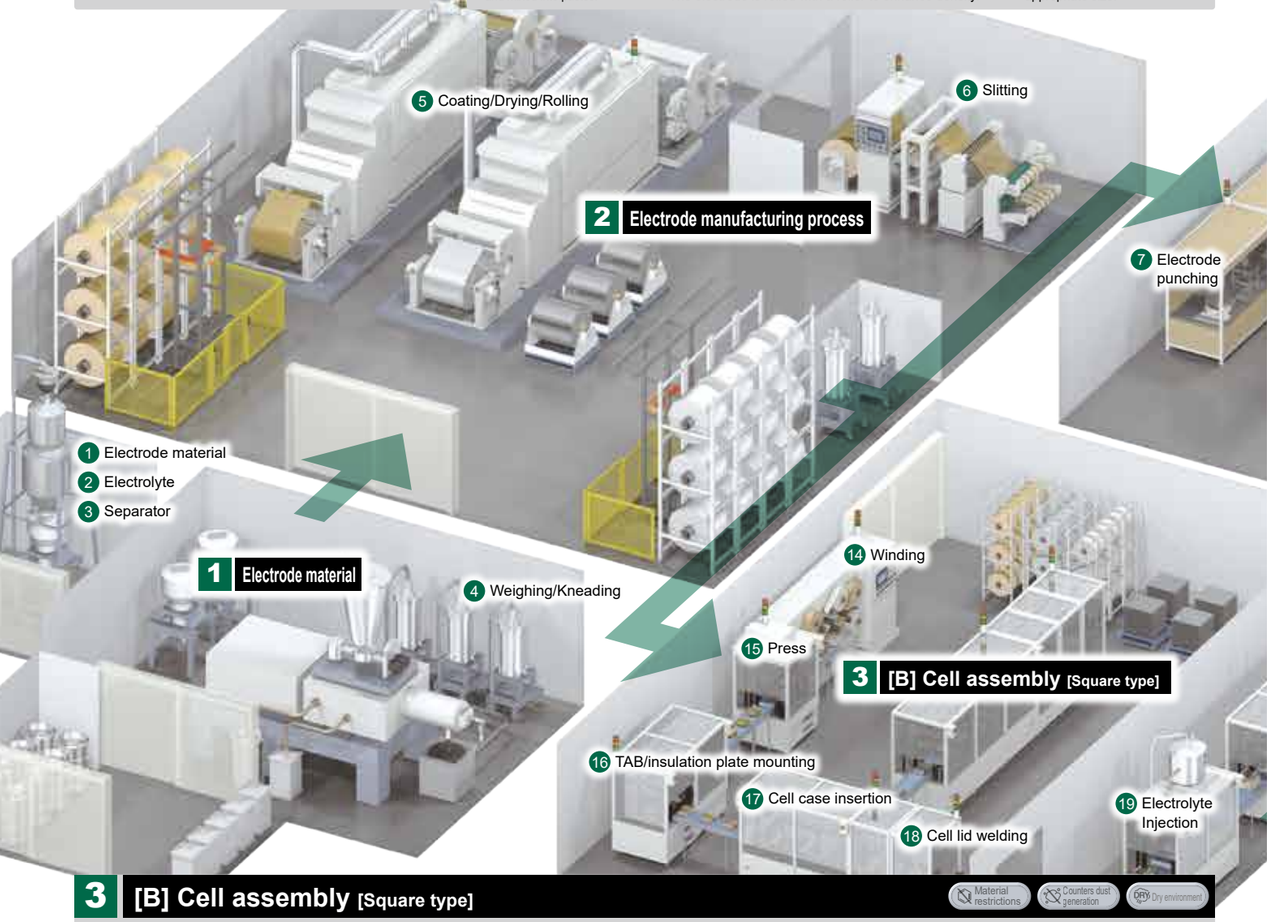
4 Weighing/Kneading
The cathode/anode materials are measured in proper amounts and mixed into pastes.



5 Coating/Drying/Rolling
The electrode material is uniformly applied to the metal foil. It is speed dried by hot air and moisture is evaporated. The electrode is rolled with a roller to enhance density.

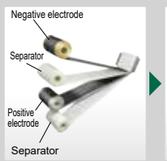


6 Slitting
Rolls of electrode material and separator are cut into the appropriate size.



3 [B] Cell assembly [Square type]

Material restrictions · Counters dust generation · Dry environment



14 Winding
Separators are sandwiched between the anode and cathode elements and wound.



15 Press
The wound elements are pressed.



16 TAB/Insulated plate mounting
The terminals (TAB) and insulating plates are joined for power input and output.



17 Cell case insertion
The wound body is inserted into the cell case.



18 Cell lid welding
The cell case and lid are laser-welded.



19 Electrolyte Injection
Electrolyte is injected into the battery.

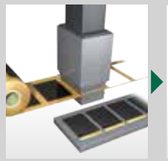


20 Welding of the filler plug
The filler plug is welded to completely seal the battery cell.

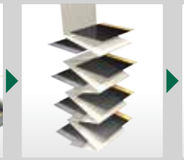
Equipment related to rechargeable batteries P4* Series

3 [A] Cell assembly [Laminate type]

Material restrictions · Counters dust generation · Dry environment



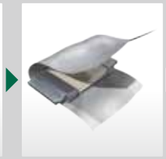
7 Electrode punching
The positive and negative electrode plates are punched into a predetermined size with a mold.



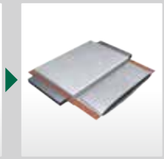
8 Stacking
The electrode and separator are alternately stacked with high speed and high-precision.



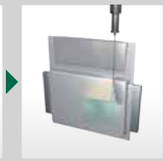
9 TAB welding
The connection terminals (TAB) are joined for power input and output.



10 Laminate
The electrode laminate is wrapped with exterior coating.



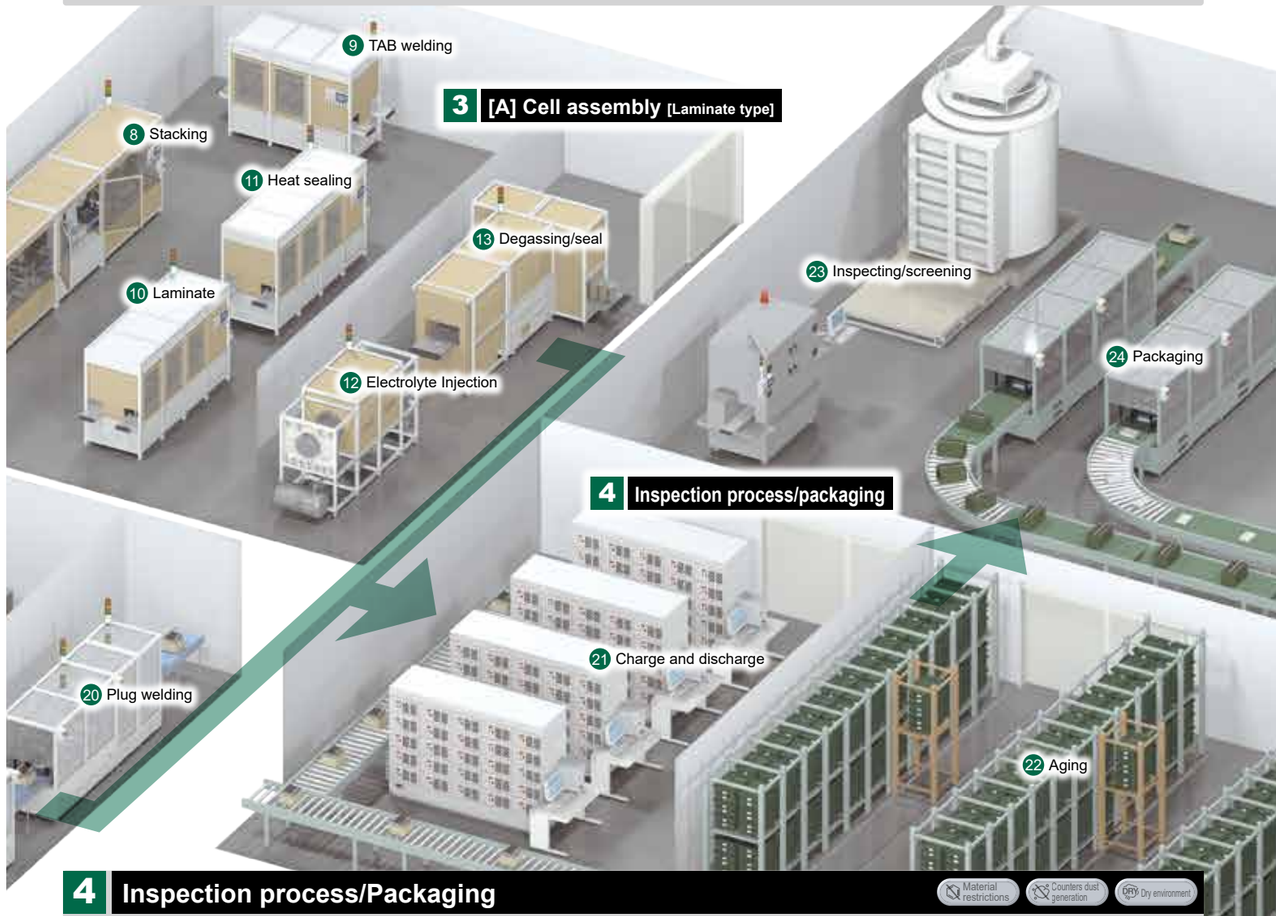
11 Heat sealing
Heat is applied to adhere the 3 sides of the cell.



12 Electrolyte Injection
Electrolyte is injected into the battery.



13 Degassing/seal
The generated gas is removed, and heat is applied to seal the battery cell.



4 Inspection process/Packaging

Material restrictions · Counters dust generation · Dry environment



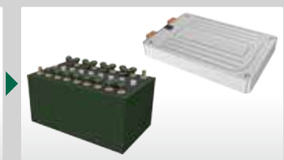
21 Charge / Discharge
The battery is activated by repeatedly charging and discharging.



22 Aging
The fully charged battery cell is left at a predetermined temperature for a fixed period.



23 Inspection/Screening
Various performances as a product are determined.



24 Packaging
Battery cells are stacked and sealed in the case.

Contributes to "Stable operation" and "Long service life components" for equipment that never stops.

With the progress of rechargeable and next-generation battery development, we have responded to the demand for components with improved dry environmental performance. Our products are compatible with the production stability of the manufacturing process and consistently meet the needs of rechargeable battery manufacturing, from electrode production to packaging.



Material restrictions

Restrict materials for component parts.

Restricts the use of materials and surface treatments inappropriate for the rechargeable battery manufacturing process.

- Cu — Limited copper material
- Zn — Limited zinc material
- Ni — Limited nickel-based material
- EZu — Limited zinc plating
- ENi — Limited electrolytic nickel plating

Dry environment

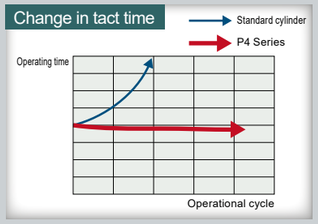
Long service life even in -70°C dew point environments

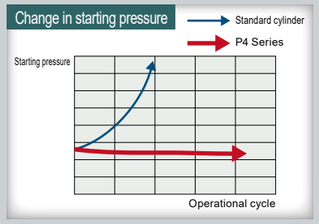
Adopted grease compatible with ultra-dry environments. Retains the smooth operation of the sliding part for long periods, even in dry environments.

Stable operation

Contributing to a system that never stops

Uses a special grease that supports low dew points and high frequency use. Contributes to stable operation of equipment.





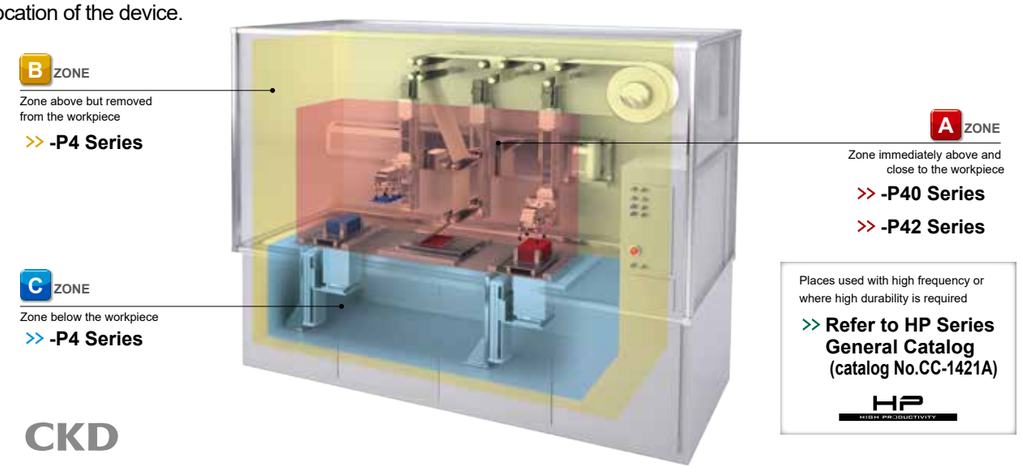
Fights dust and its generation

Suppresses dust generation of metal wear powder

Equipped with a local exhaust function (vacuum treatment port). Prevents contamination of the electrodes or cell by not leaking the metal wear powder outside.

Series Zoning

Compatible models are available in 2 grades (P4 Series, P40 Series) according to the atmosphere and installation location of the device.



Contributes to the needs of all types of rechargeable batteries and next-generation battery manufacturing processes.

Material limitations for the flow path part/sliding part

* Trace amounts present in the alloy are excluded.

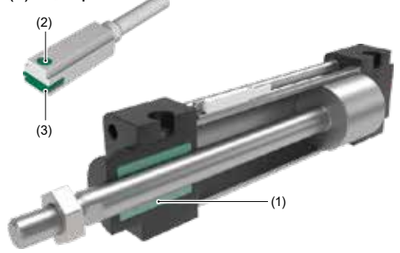
Same mounting size as standard

-P4 Series

The use of copper, zinc, and nickel-based materials and electrolytic nickel plating is limited in the construction of the flow path part and sliding part.

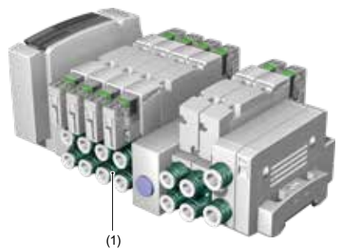
Cylinder

(1) Copper-based bearing
→ Cast iron-based bearing
(2) SUS screw
(3) SUS plate



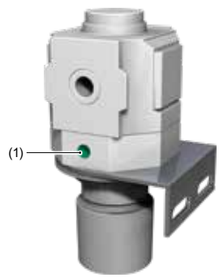
Pneumatic valves

(1) SUS fitting



Regulator

(1) Exhaust port



Electric actuator

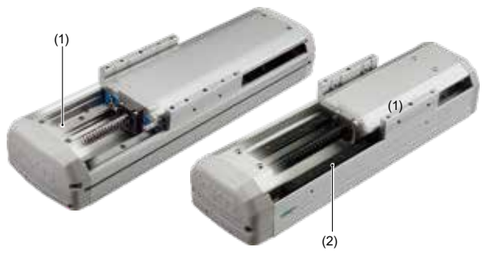
Same mounting size as standard

We offer a wide range of motor-equipped (stepping motor) and motorless (servo motor/stepping motor) variations.

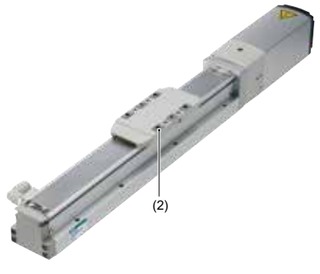
Electrolyte proof specifications

Improved environmental resistance with raydent equivalent processing.
(1) Standard (2) Anti-rust treated

●Motorless specifications



●Motor specification



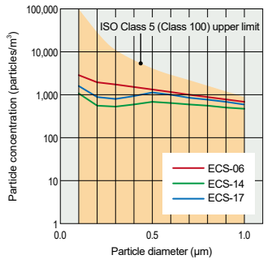
Low contamination specifications

(1) Counters dust generation

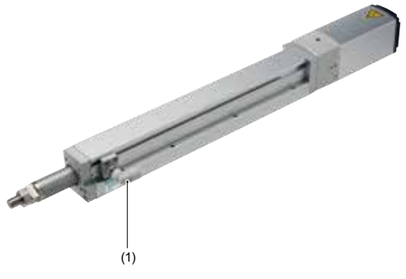
●Motorless specifications

Class 100 or equivalent with vacuum treatment port.





●Motor specification



Material limitations for all parts

* Electrical components (coil, circuit, wiring section, etc.) are excluded.
* Trace amounts present in the alloy are excluded.

Same mounting size as standard

-P40 Series

The use of copper, zinc, and nickel-based materials, zinc plating, and electrolytic nickel plating is limited in the construction of all parts.

Cylinder

(1) Electroless Ni plating



Pneumatic valves

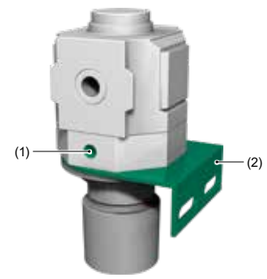
(1) SUS screw
(2) SUS fitting
Electric circuit unit IP65*

*D-sub-connector specifications are IP40.



Regulator

(1) Exhaust port
(2) Electroless Ni plating



* Our standard cylinder comparison

Material limitations for all parts

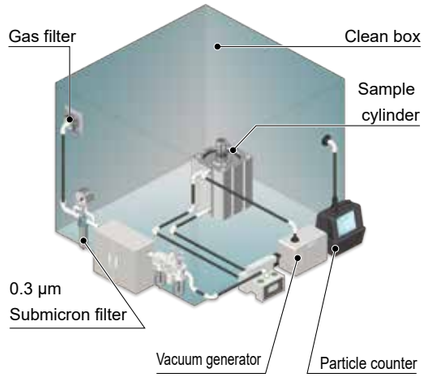
-P42 Series

Local exhaust function (vacuum treatment port) is added to P40 specifications. Prevents metal powder from contaminating the electrode and cell, and reduces product failure of rechargeable batteries. In addition, SUS is used in piston rods.

Cylinder

(1) Vacuum treatment
*Dimensions differs from standard.





Test method

The cylinder is operated in a clean box, and dust generation rate is measured.

Test conditions

Supply pressure	0.5 MPa
Cylinder speed	200 mm/s
Frequency	30cpm
Load	No load

For more information about the -P41 Series, please contact our sales department.

Compact cylinder

SSD2 Series



Guided cylinder

STG Series



Rodless cylinder

SRL3 Series



Compact cylinder

SMG Series



Twin rod cylinder

STR2 Series



Linear slide cylinder Standard model

LCR Series



Table rotary actuator

GRC Series



Linear Slide Hand

LSH Series



Parallel hand

LHAG Series



Compact wide parallel hand

HMF Series



Ultra thin parallel hand

HLD Series



Precise suction plate

PVP Series



Fine buffer

FBU2 Series



Air bearing actuator

LBC Series



Cylinder switch



Pilot operated 3, 5-port valve

4G Series



Direct acting 3-port valve

3QR Series



Electric actuator

EBS-L/G, EBR-L/G, EKS-L Series



Electric actuator

ETS/ECS Series



Suction pad

VSP Series



Vacuum ejector

VSX/VSXM Series



Vacuum filter

VSFU Series



Vacuum regulator

VRA2000 Series



Super heatless dryer

SHD Series



High polymer membrane air dryer

SU Series



Super dryer (High polymer membrane air dryer)

SD Series



Nitrogen Gas Extraction Unit

NS Series



Medium main line filter

AF2 Series



Air filter

F3000 Series



Precision regulator

RP/RPE Series



Electro-pneumatic regulator

EVD/EVR Series



Pressure

G40D/G41D/ G49D/G50D Series



Digital pressure sensor

PPX Series



Compact flow rate sensor

FSM3 Series



With spool position detection Residual pressure exhaust valve

SNS Series



Speed controller with adjusting dial

DSC Series



Speed controller, elbow

SC3F Series



Fitting, tube



2, 3-port solenoid valve for dry air

AB/ADK-Z Series



Valve for high vacuum

AVB Series



Air operated valve for chemical liquids

AMD
Part **3R** Series



Clean cylinder valve

LAD Series



Air operated ball valve

CHB/CHG Series



Diaphragm cylinder valve

NAD Series



Compatible with more than 100 models
A line-up that can contribute to the evolving rechargeable battery manufacturing processes

Compatible products

P4 Series Material restrictions (sliding part) P42 Series Material restrictions (all parts) + vacuum treatment port
P40 Series Material restrictions (all parts)

Standards compliant products

CE · · ·European Standards compliant products
Ex · · ·ATEX Directive compliant products

Pneumatic actuator

Notes: Metal wear powder (copper-based metal is not included) from the mounting part will occur in oscillation mounting formats such as clevis mounting. To order a switch, refer to the switch compatibility table on pages 23 to 26 and order using the listed order model No.

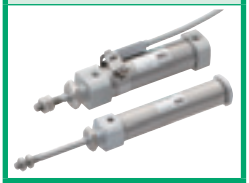
Standard

*1: Zinc plating is used for the sealing washer.
*2: Zinc plating is used for the cushion packing.

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

SCPD3

Pencil shaped cylinder



Page 2

How to order: SCPD3-[Variation]L-[Mounting]- [Bore size]-[Stroke length]-[Switch]-[Number]- [Option]P4□[Accessory]

Applicable bore size		Double acting/ single rod	Double acting/ high load	Single acting/ push	Single acting/ pull	Double acting/ double rod	Double acting/ fine speed	Double acting/ low speed	Double acting/ heat resistance	Double acting/ rubber-air cushioned	Double acting/ rotation-stop	Double acting/ with valve
			K	SCPS3	SCPH3	D	F	O	T	* C	M	V
ø6 to 16	P4	●		○	○	○				○	○	
	P40	●		○	○	○				○	○	
	P42	▲				▲				▲		

CMK2

Ex

Small bore size cylinder



Page 4

How to order: CMK2-[Variation]-[Mounting]- [Bore size][Cushion]-[Stroke length]-[Switch]-[Number]- [Option]P4□[Accessory]

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Single acting/ push	Single acting/ pull	Double acting/ double rod	Double acting/ back to back	Stroke adjustable (push)	Stroke adjustable (pull)	Double acting/ fine speed	Double acting/ heat resistance	Double acting/ rubber-air cushioned	Double acting/ with speed controller	Double acting/ rotation-stop	Double acting/ coolant proof	Double acting/ low hydraulic	Double acting/ air cushion
			Q	S	SR	D	B	P	R	F	T	* C	Z	M	G2/G3	H	C
ø20 to 40	P4	●	●	○	○	○	○	○	○			○	○	▲			○
	P40	●	●	○	○	○	○	○	○*1			○	▲	▲			○*2
	P42																

SCM

Ex

Round shaped cylinder



Page 6

How to order: SCM-[Variation]-[Mounting]- [Bore size][Cushion]-[Stroke length]-[Switch]-[Number]-[Switch mounting][Option]P4□[Accessory]

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Single acting/ push	Single acting/ pull	Double acting/ double rod	Double acting/ back to back	Double acting/ two-stage	Stroke adjustable (push)	Stroke adjustable (pull)	Double acting/ low speed	Double acting/ low friction	Double acting/ heat resistance	Double acting/ rubber scraper	Double acting/ tandem	Double acting/ direct mounting foot	Double acting/ rotation-stop
			Q	X	Y	D	B	W	P	R	O	U	T	G	W4	LD	M
ø20 to 100	P4	●	●	○	○	○	○	○	○	○				○ ø40 and over	○	○	▲
	P40	●*2	●*2	○	○	○*2	○	○	○	○*1				○*2 ø40 and over	○	○	▲
	P42	▲*2	▲*2			▲*2	▲	▲	▲	▲*1					▲	▲	

SCG

Ex

Tie rod cylinder



Page 8

How to order: SCG-[Variation]-[Mounting]- [Bore size][Cushion]-[Stroke length]-[Switch]-[Number]- [Option]P4□[Accessory]

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Double acting/ double rod	Double acting/ low speed	Double acting/ low friction	Double acting/ rubber scraper	Double acting/ rotation-stop	Double acting/ coolant proof	Double acting/ anti-spatter adherence
			Q	D	O	U	G	M	G2/G3	G1/G4
ø32 to 100	P4	●	●	○			○			
	P40	●*2	●*2	○*2			○*2			

SCS2

Medium bore size cylinder



Page 10

How to order: SCS2-N-[Mounting]- [Bore size][Cushion]-[Stroke length]-[Option]P4[Accessory]

Applicable bore size		Double acting/ Lubrication	Double acting/ No lubrication	Double acting/ With switch	Stroke Adjustable (Push)	Double acting/ Heat resistance	Double acting/ Double rod	Double acting/ Back to back	Double acting/ Two-stage	Double acting/ Low hydraulic	Double acting/ Powerful Scraper
			N	LN	P	T	D	B	W	H	G
ø125 to 250	P4		○	○	▲		▲	▲	▲		▲

SCA2

Medium bore size cylinder



Page 12

How to order: SCA2-[Mounting]- [Bore size][Cushion]-[Stroke length]-[Switch]-[Number]-P4, [Accessory]

Applicable bore size		Double acting/ single rod
ø40 to Φ100	P4	▲
	P40	▲*2

Pneumatic actuator

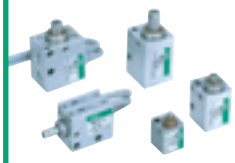
Notes: Metal wear powder (copper-based metal is not included) from the mounting part will occur in oscillation mounting formats such as clevis mounting. To order a switch, refer to the switch compatibility table on pages 23 to 26 and order using the listed order model No.

Space saving structure

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

MDC2

Compact direct mounting cylinder



Page 14

How to order: MDC2-L-[Bore size]-[Stroke length]-[Switch]-[Number]-P4□

Applicable bore size		Double acting/ single rod	Single acting/ push	Single acting/ pull	Double acting/ fine speed
			X	Y	F
ø6 to 10	P4	●	○	○	
	P40	●	○	○	
	P42	▲			

SSD2

Compact cylinder



Page 16

How to order: SSD2-[Variation]L-[Bore size]-[Stroke length]-[Switch]-[Number]- [Option]P4□- [Mounting bracket]- [Accessory]

Applicable bore size		Double acting/ single rod	Double acting/ single rod High load	Double acting/ single rod long stroke length	Single acting/ push	Single acting/ pull	Double acting/ rubber-air cushioned High load	Double acting/ position locking	Double acting/ double rod	Double acting/ back to back	Double acting/ two-stage	Double acting/ fine speed	Double acting/ low speed	Double acting/ low friction High load	Double acting/ heat resistance	Double acting/ packing Fluoro rubber	Double acting/ rubber scraper	Double acting/ rotation-stop
			K		X	Y	KC	Q	D	B	W	F	0	KU	T1	T2	G	M
ø12 to 200	P4	●	●	○	○	○	○	○	○	○	○					○	○	▲
	P40	●	●	○	○	○	○	○	○	○	▲					○	○	▲
	P42	▲	▲	▲			▲	▲	▲	▲	▲					▲		

SSD

Compact cylinder



Page 20

How to order: SSD-[Variation]L-[Bore size]-[Stroke length]-[Switch]-[Number]- [Option]P4□- [Mounting bracket]- [Accessory]

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Single acting/ push	Single acting/ pull	Double acting/ double rod	Double acting/ back to back	Double acting/ two-stage	Double acting/ fine speed	Double acting/ low speed	Double acting/ heat resistance	Double acting/ rubber scraper	Double acting/ anti-spatter adherence	Double acting/ coolant proof	Double acting/ double rod/ anti-spatter adherence	Double acting/ rotation-stop
			Q	X	Y	D	B	W	F	O	T	G	G1/G4	G2/G3	DG1 DG4	M
ø12 to 160	P4	●	●	○	○	○	○	○				○				▲
	P40	●	●	○	○	○	○	○				○				▲
	P42	▲	▲			▲	▲	▲								

SSD-K

Compact cylinder high load



Page 22

How to order: SSD-K[Variation] L-[Bore size]-[Stroke length]-[Switch]-[Number]- [Option]P4□- [Mounting bracket]- [Accessory]

Applicable bore size		Double acting/ single rod	Double acting/ fine speed	Double acting/ low friction	Double acting/ rubber-air cushioned	Double acting/ rubber scraper	Double acting/ anti-spatter adherence	Double acting/ coolant proof
			F	U	* C	G	G1/G4	G2/G3
ø12 to 160	P4	●			○	○		
	P40	●			○	○		
	P42	▲			▲			

SSG

Guided super compact cylinder



Page 24

How to order: SSG-L-[Bore size]-[Stroke length]-[Switch]-[Number]-P4□

Applicable bore size		Double acting
ø12 to 100	P4	●
	P40	●
	P42	

MSD/MSDG

Small compact cylinder



Page 26

How to order: MSD/MSDG-L-[Bore size]-[Stroke length]-[Switch]-[Number]- [Piping port position]P4□

Applicable bore size		Double acting/ single rod	Double acting/ single rod high load	Single acting/ push	Single acting/ pull	Double acting/ fine speed
			K	X	Y	F
MSD ø6 to 16	P4	●	●	○	○	
	P40	●	●	○	○	

Applicable bore size		Double acting/ guided	Double acting/ guided/ fine speed
			F
MSDG ø6 to 16	P4	●	
	P40	●	

Pneumatic actuator

Notes: Metal wear powder (copper-based metal is not included) from the mounting part will occur in oscillation mounting formats such as clevis mounting. To order a switch, refer to the switch compatibility table on pages 23 to 26 and order using the listed order model No.

Space saving structure

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

SMG

Compact cylinder



Page 30

How to order: SMG-L-[Mounting]- [Bore size]-[Stroke length]-[Switch]-[Number]-P4□

Applicable bore size		Double acting/ single rod	Single acting/ push	Single acting/ pull	Double acting/ fine speed	Double acting/ rotation-stop
			X	Y	F	M
ø6 to 32	P4	●	○	○		○
	P40	●	○	○		○
	P42	▲				▲

FC*

Flat cylinder



Page 32

How to order: FCD/FCS/FCH-L-[Bore size]-[Stroke length]-[Switch]-[Number]- [Option]P4□

Applicable bore size		Double acting/ single rod	Single acting/ push	Single acting/ pull	Double acting/ double rod
		FCD	FCS	FCH	FCD-D
ø25 to 63	P4	○	○	○	○
	P40	○	○	○	○

STK

Stopper cylinder



Page 34

How to order: STK-[I.D.]-[Stroke length]-[Switch]-[Number]- [Option]P4□

Applicable bore size		Double acting/ single rod	Single acting/ push	Single acting/ pull	
			X	Y	
ø20 to 50	P4	●		○	Contact CKD for other variations.
	P40	●		○	

MVC

Compact cylinder with suction pad



Page 36

How to order: MVC-[Bore size]-[Stroke length]-[Switch]-[Number]- [Pad type]-[Buffer]-P4□

Applicable bore size		Double acting
ø6, ø10	P4	●
	P40	●

With brake

ULK/ULKP

Brake cylinder



Page 38

How to order: ULK-[Mounting]- [Bore size]-[Stroke length]-[Switch]-[Number]- [Option]P4□[Accessory]

Applicable bore size		Double acting	Double acting/ With solenoid valve
			V
ø16 to 40	P4	▲	
	P40	▲	

Note: Standard grease used

USSD

Position locking compact cylinder



Page 42

How to order: USSD-L-[Bore size]-[Stroke length] -[Lock direction]-[Switch]-[Number]- [Option]P4□- [Mounting bracket]

Applicable bore size		Double acting	Double acting/ High load
			K
ø20 to 100	P4	○	○
	P40	○	○

Note: Standard grease used

Pneumatic actuator

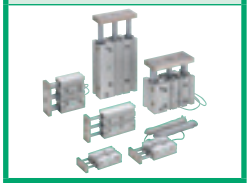
Notes: Metal wear powder (copper-based metal is not included) from the mounting part will occur in oscillation mounting formats such as clevis mounting. To order a switch, refer to the switch compatibility table on pages 23 to 26 and order using the listed order model No.

Combined functions

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

STG-B/M

Guided cylinder



Page 44

How to order: STG-[Bearing]- [Bore size]-[Stroke length]-[Switch]-[Number]- [Option]P4□

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Double acting/ rubber-air cushioned	Double acting/air cushioned	Double acting/ rubber scraper	Double acting/coil scraper	Double acting/ coolant proof	Double acting/ anti-spatter adherence
			Q	* C	C	G	G1	G2/G3	G4
ø12 to 100	P4	●	●	○	○	○			
	P40	●	●	○	○	○			
	P42	▲	▲	▲	▲				

*1: Not compatible with STG-K.

STM-B/M

Guided cylinder



Page 46

How to order: STM-[Bearing]- [Bore size]-[Stroke length]-[Switch]-[Number]-[Option]-P4□

Applicable bore size		Double acting/ single rod
ø6/10	P4	○
	P40	○
	P42	▲

STS/L-B/M

Guided cylinder



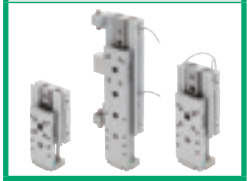
Page 48

How to order: STS/STL-[Bearing]- [Bore size]-[Stroke length]-[Switch]-[Number]-P4□

Applicable bore size		Double acting/ Single rod	Double acting/ position locking	Double acting/air cushioned	Double acting/ rubber scraper
			Q	C	G
ø8 to 100	P4	●	▲	▲	▲
	P40	●	▲	▲	▲
	P42	▲	▲	▲	

LCR

Linear slide cylinder



Page 52

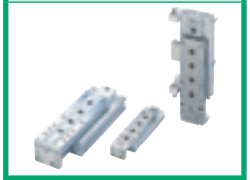
How to order: LCR-[Variation]-[Bore size]-[Stroke length]-[Switch]-[Number]- [Option]P4□

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Double acting/ fine speed
			Q	F
ø6 to 25	P4	●	●	
	P40	●	●	
	P42	▲	▲	

*1: Even when P40 is selected for the external stopper option, Electrolytic nickel plating is used for the stopper part.

LCG

Linear slide cylinder



Page 56

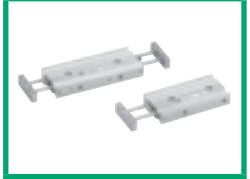
How to order: LCG-[Variation]-[Bore size]-[Stroke length]-[Switch]-[Number]- [Option]P4□

Applicable bore size		Double acting/ single rod	Double acting/ position locking
			Q
ø6 to 25	P4	●	●
	P40	●	●
	P42	▲	▲

*1: Even when P40 is selected for the external stopper option, electrolytic nickel plating is used for the stopper part.
*2: If P4 is chosen, rust proofing (option code: U) is recommended for LCG-20, 25. (ø20, ø25 P40 has rust proofing added.)

STR2

Twin rod cylinder



Page 60

How to order: STR2-[Bearing][Variation]-[Bore size]-[Stroke length]-[Switch]-[Number]- [Option]P4□

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Double acting/ fine speed	Double acting/ low speed	Double acting/ double rod
			Q	F	O	D
ø6 to 32	P4	●	●			○
	P40	●	●			○
	P42	▲	▲			▲

Pneumatic actuator

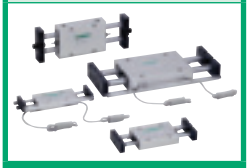
Note: To order a switch, refer to the switch compatibility table on pages 23 to 26 and order using the listed order model No.

Combined functions

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

UCA2

Unit cylinder



Page 62

How to order: UCA2-[Fixing method]- [Bore size]-[Stroke length]-[Switch]-[Number]- [Option]P4□

Applicable bore size		Metal bush Bearing Type	Ball Bearing Type
			B
ø10 up 32	P4	●	●
	P40	●	●

Rodless

SRL3

Rodless cylinder



Page 64

How to order: SRL3-[Variation]-[Mounting]- [Bore size][Cushion]-[Stroke length]-[Switch]-[Number]- [Option]P4□

Applicable bore size		Double acting/ standard	Double acting/ position locking	Double acting/ resin guide	Resin guide/ position locking
			Q	G	GQ
ø12 to 100	P4	●	●		
	P40	●	●		

SRM3

Rodless cylinder with high precision guide



Page 66

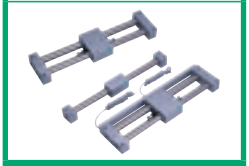
How to order: SRM3-[Variation]-[Mounting]- [Bore size][Cushion]-[Stroke length]-[Switch]-[Number]- [Option]P4□

Applicable bore size		Double acting/ standard	Double acting/ position locking
			Q
ø25/32 40/63	P4	●	●
	P40	●	●

*1: Square nut, a standard accessory, is not included.
*2: The grease nipple is not assembled.
*3: If the switch model No. is not selected, select "CO" (for reed switch), "C1" (for proximity switch) after [stroke].

MRL2

Magnet rodless cylinder



Page 68

How to order: MRL2-[Variation]-[Mounting]- [Bore size][Cushion]-[Stroke length]-[Switch]-[Number]- [Option]P4□

Applicable bore size		Double acting/ basic
ø6 to 32	P4	●
	P40	●

*1: Electrolytic nickel plating is used in the magnet.

MRG2

Magnet rodless cylinder with high precision guide



Page 70

How to order: MRG2-[Variation]-[Mounting]- [Bore size][Cushion]-[Stroke length]-[Switch]-[Number]- [Option]P4□

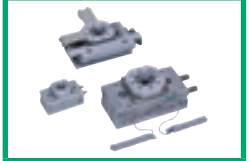
Applicable bore size		Double acting/ basic
ø10/16/25	P4	●
	P40	▲

*1: Electrolytic nickel plating is used in the magnet.

Rotary actuator

GRC

Table Rotary actuator



Page 72

How to order: GRC-[K]-[Torque size]-[Angle]-[Switch]-[Number]- [Option]P4□

Applicable size		Standard	High accuracy	Fine speed	High accuracy/ fine speed
			K	F	KF
Torque 0.5 to 8.1 N•m	P4	●	●		
	P40	●(*1)	●(*1)		
	P42	▲	▲		

*1: Even when P40 is selected for the external stopper option, electrolytic nickel plating is used for the stopper part.
*2: Zinc plating is used in part of the bearings - the sealing washer of the angle adjustment unit.

Pneumatic actuator

Notes To order a switch, refer to the switch compatibility table on pages 23 to 26 and order using the listed order model No.

Air bearing actuator

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

LBC

Air bearing actuator



Page 74

How to order	LBC-[Thrust]

	LBC
P4	Standard compliance

Hand/chuck

HAP

Parallel hand



Page 76

How to order	HAP-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting	Single acting Normally open	Single acting Normally closed
			O	C
ø20/ 25/40	P4	●	●	●
	P40	●	●	●

BHA

Compact cross roller parallel hand



Page 78

How to order	BHA-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting	Single acting Normally open	Single acting Normally closed
			O	C
ø12/16/ 20/25	P4	●	●	●
	P40	●	●	●

LHA

Linear guide hand



Page 80

How to order	LHA-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting	Single acting Normally open	Single acting Normally closed
			O	C
ø6 to 32	P4	●	●	●
	P40	●	●	●

LHAG

Ex

Linear guide hand (with rubber cover)



Page 82

How to order	LHAG-[Size]-[Option]-[Switch]-[Number]P4□

Applicable bore size		Double acting	Single acting/ Normally open	Single acting/ Normally closed
			O	C
ø12 to 32	P4	●	●	●
	P40	●	●	●

BHG

Compact crossover roller parallel hand (with rubber cover)



Page 84

How to order	BHG-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting	Single acting Normally open	Single acting Normally closed
			O	C
ø12/16/ 20/25	P4	●	●	●
	P40	●	●	●

HKP

Cross roller parallel hand



Page 86

How to order	HKP-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting	Single acting Normally open	Single acting Normally closed	Rubber cover (Nitrile rubber)
			O	C	G
ø32 to 80	P4	●	●	●	●
	P40	●	●	●	●

Note: 80 cs is double-acting only

Pneumatic actuator

Notes To order a switch, refer to the switch compatibility table on pages 23 to 26 and order using the listed order model No.

Hand/chuck

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

HCP
Lateral parallel hand



Page 88

How to order	HCP-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting
ø12/20/32	P4	●
	P40	●

HLB
Bearing thin parallel hand



Page 90

How to order	HLB-[Size]-[Switch]-[Number]-P4□

Applicable bore size		Double acting
ø12/15/20	P4	▲
	P40	▲

HLBG
Bearing thin parallel hand (With rubber cover)



Page 92

How to order	HLBG-[Size]-[Switch]-[Number]-P4□

Applicable bore size		Double acting
ø12/15/20	P4	●
	P40	●

HMF
Compact wide parallel hand



Page 94

How to order	HMF-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting		
		Standard	Long stroke 1	Long stroke 2
			L1	L2
ø12 x 2 to ø40x2	P4	●	●	●
	P40	●	●	●

HLC
Thin long stroke parallel hand



Page 96

How to order	HLC-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting
ø8 x 2 to ø30 x 2	P4	●
	P40	●

HLD
Ultra thin parallel hand



Page 100

How to order	HLD-[Size]-[Switch]-[Number]-P4□

Applicable bore size		Double acting
ø8×4 to ø20×4	P4	●
	P40	●

HLF2
Low-profile long stroke hand



Page 102

How to order	HLF2-[Size]-[Stroke length]-[Switch]-[Number]-P4□

Applicable bore size		Double acting
ø8×2 to ø20×2	P4	▲
	P40	▲

Pneumatic actuator

Notes To order a switch, refer to the switch compatibility table on pages 23 to 26 and order using the listed order model No.

Hand/chuck

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

HMD

Thin wide angle hand



Page 104

How to order: HMD-[Size]-[Switch]-[Number]-P4□

Applicable bore size		Double acting
		Standard
ø16/25	P4	●
	P40	●

BHE

Centering hand



Page 106

How to order: BHE-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting			
		Standard	Open stroke adjustment mechanism	Close stroke adjustment mechanism	Open and close stroke adjustment mechanism
			D	E	DE
ø12 to 32	P4	●	●	●	●
	P40	●	●	●	●

CKG

3-way finger bearing chuck (With rubber cover)



Page 108

How to order: CKG-[Size]-[Option]G-[Switch]-[Number]-P4□

Applicable bore size		Double acting	Single acting Normally open	Single acting Normally closed
			O	C
ø16/25/ 32/40/50	P4	●	●	●
	P40	●	●	●

CKL2

Powerful chuck



Page 110

How to order: CKL2-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting	Single acting Normally open	Single acting Normally closed
			O	C
ø20/25/32/40/ 50/63/80/100	P4	●	●	●
	P40	●	●	●

CKLB2

2-way powerful chuck



Page 112

How to order: CKLB2-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting	Single acting Normally open	Single acting Normally closed
			O	C
ø20/25/32/40/ 50/63/80/100	P4	●	●	●
	P40	●	●	●

CKF

Hollow chuck



Page 114

How to order: CKF-[Size]-[Option]-[Switch]-[Number]-P4□

Applicable bore size		Double acting	Single acting Normally open	Single acting Normally closed
			O	C
ø30 to 80	P4	▲	▲	▲
	P40	▲	▲	▲

Pneumatic actuator

Notes To order a switch, refer to the switch compatibility table on Intro pages 23 to 26 and order using the listed order model No.

Related products

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

NCK

Shock absorber



Page 118

How to order	NCK-[Mounting]-[Series]-[Option]-P4□

Applicable size		Basic
All sizes	P4	●
	P40	●

FCK

Shock absorber



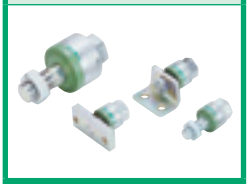
Page 120

How to order	FCK-[Series]-[Option]-P4

Applicable size		Low speed	Medium speed	High speed
		L	M	H
FCK-*-0.15 to 8.1	P4	●	●	●

FJ

Floating fitting



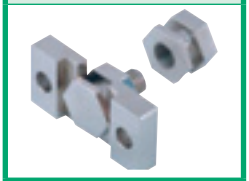
Page 122

How to order	FJ-*-3-P4/FJ-*-4-P4/FJ-*-5-P4

Applicable size		Basic	Foot	Flange
FJ-*-3 FJ-*-4 FJ-*-5	P4	●	●	●
	P40	▲	▲	▲
FJ-*-6 to 45	P4	Standard compliance		
	P40	▲		

FK

Simplified floating fitting



Page 123

How to order	FK-[Thread size]-P40

Applicable size		Male thread	Female thread
		N	
All sizes	P4	Standard compliance	
	P40	●	●

Cylinder switch

T/F/M/K

Cylinder switch



Page 124

[How to order switch]

If you order switches for the P4 Series separately, do as follows.
SW-□□□-P4 example SW-T2H-P4
(*1) When ordering Low-Voltage Directive compliant products separately, do as follows.
SW-□□□-ST-P4 example SW-T5H-ST-P4
(*2)If you order products with resin connector Discrete, do as follows. Applies to the above T2H, T2YH, T2WH, K2YH, M2WV, F2H only.
SW-□□□-P4J example SW-T2H-P4J

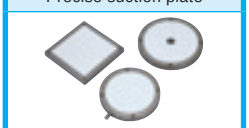
[Incorporated switch]

For cylinder specification P4 and P40, switch indicating "P4" is supplied. Cylinder mountable switch differs according to each cylinder.
Refer to the switch compatibility table on pages 23 to 26.
Example)GRC: Reed switch TO* and T5* cannot be mounted.
SRM3: Proximity 1-color display T2*, T3* cannot be installed.

Vacuum components

PVP

Precise suction plate



Page 130

How to order	PVP-[Shape]- [Porous material size]- [Vacuum port position]- [Option]

	PVP
P4	Standard compliance

Vacuum components

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

VSP

Suction pad



Page 132

How to Order	
Suction pad	VSP-[Holder shape][Pad diameter/pad size] [stroke option] [Pad shape][Pad material][Surface-treated]- [Port size/shape]-[Pad Swing]-P4
Pad rubber only	VSPG-[Pad diameter/pad size][Pad shape][Pad material][Surface-treated]
Pad rubber + set with fixing screw	VSPG-[Pad diameter/pad size][Pad shape][Pad material][Surface-treated]A-P4

	Suction pad	Pad rubber only	Pad rubber + set with fixing screw
	VSP	VSPG	VSPG*A
P4	●	Standard compliance	●

*1: Holder shape: LFC, LFD is not supported.
*2: Only Blank stroke option is available for models other than HC holder shape.
*3: Holder shape: HD, HDW, HE and HEW are pad shape: L and LB only.
*4: Pad material: N, E, NE, G and NH are not supported.
*5: Port sizes/shapes: 2, 8, 10 and 12 are not supported.
*6: Free holders (F1, F2) and position locking valve (V) are not supported.

FBU2

Fine buffer



Page 134

How to order	FBU2-[shape]- [Bearing precision]- [Pressure]-[Buffer stroke length] -[Tail shape]- [Head shape]

	FBU2
P4	Standard compliance

VSX/VSXM

Vacuum ejector (SELVACS)



Page 137

How to order	
Single unit	VSX-[Vacuum characteristics][Nozzle diameter][Valve]-[Port]-3-[Switch specifications]- [Mounting method]-P4
Manifold	VSXM-[Vacuum characteristics][Nozzle diameter][Valve]-[Port]-3-[Station No.]- [Switch specifications]-P4

	VSX	VSXM
Port size	ø4, ø6	ø4, ø6, ø8, ø10
P4	●	▲

*1: Applicable only for common exhaust.

VSXP/VSXPM

Vacuum switching unit (SELVACS)



Page 140

How to order	
Single unit	VSXP-[Valve][Port]-3-[Switch specifications]- [Mounting method]-P4
Manifold	VSXPM-[Valve][Port]-3-[Station No.]- [Switch specifications]-P4

	VSXP	VSXPM
Port size	ø4, ø6	ø4, ø6, ø8, ø10
P4	●	▲

*1: Applicable only for 2-way valve.

VFA1000/3000/4000

Vacuum filter



Page 143

How to order	VFA1000/3000/4000-[Bore size]- [Option]P4- [Attachment]

	VFA1000	VFA3000	VFA4000
Port size	Rc1/8, 1/4	Rc1/4, 3/8	Rc3/8, 1/2
P4	●	●	●

Note:Metal bowl is not available.

VRA2000

Vacuum regulator



Page 144

How to order	VRA2000-[Bore size]- [Option]P4

	VRA2000
Port size	Rc1/4,3/8
P4	●

*1: Available pressure gauge is PPX only.
*2: Pressure gauge/pressure sensor must be ordered separately. (Attachment options not available.)

VSFU

Vacuum filter (SELVACS)



Page 145

How to order	VSFU-[Filter size]-[Bore size]-P4, FSL[Filter size]-[Bore size]-[Bracket]-P4

	VSFU	FSL
Port size	ø4, ø6, ø8, ø10	ø4, ø6, ø8, ø10
P4	●	▲

Pneumatic valves

How to order P4 Series

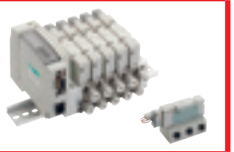
"-P4": Indicates the product that requires modification to SUS fitting with P4 specification against standard products.
P4 compliant as standard: Indicates products that comply with P4 specifications as standard products and do not require "-P4" at the end of the model number.

P4 Series (flow path, sliding part material restrictions)

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

Pilot operated 3, 5-port valve

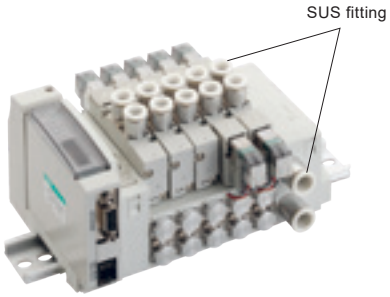
4G CE
Pilot operated 5-port valve 4G Series



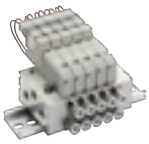
Page 148

Descriptions		4GA/B1	4GA/B2	4GA/B3	4GA/B4
Valve width [mm]		10	15	18	24.3
Flow characteristics [dm^3/(s·bar)]	P → A/B	0.86 to 1.4	1.7 to 2.6	2.9 to 4.5	6.3 to 11.0
	A/B→R	0.7 to 1.3	2.1 to 2.9	3.3 to 4.2	6.8 to 13.9
Max. working pressure [MPa]		0.7			
Min. working pressure [MPa]		0.2			
Proof pressure [MPa]		1.05			
Ambient temperature [°C]		-5 to 55 (no freezing)			
Fluid temperature [°C]		5 to 55			
Rated voltage [V]		12 DC, 24 DC, 3 DC, 5 DC, 100 AC, 200 AC			

* 1:4G4 Series is not compatible with 3 VDC, 5VDC, or 200 VAC.

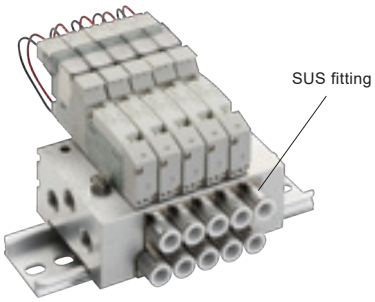


4G CE
Pilot operated 5-port valve 4G Series



Page 278

Descriptions		4GD/E1	4GD/E2	4GD/E3
Valve width		10	15	18
Flow characteristics [dm^3/(s·bar)]	P → A/B	0.86 to 1.4	1.7 to 2.5	3.0 to 4.5
	A/B→R	0.7 to 1.3	2.1 to 2.9	3.3 to 4.2
Max. working pressure [MPa]		0.7		
Min. working pressure [MPa]		0.2		
Proof pressure [MPa]		1.05		
Ambient temperature [°C]		-5 to 55 (no freezing)		
Fluid temperature [°C]		5 to 55		
Rated voltage [V]		12 DC, 24 DC, 100 AC		



How to order	
Single unit	$\frac{3}{4}$G $\frac{A}{D}$ [Size][Switching section]0R-[Bore size]- [Wiring][Option]-[Voltage]-P4
Manifold Replacement valve	$\frac{3}{4}$G $\frac{A}{D}$ [Size][Switching section]9R-[Bore size]- [Wiring][Option]-[Voltage]-P4
M4G Series (Metal base)	M $\frac{3}{4}$G $\frac{A/D}{B/E}$ [Size][Switching section]0R-[Bore size]- [Wiring][Option][Mount type]-[Station No.]- [Voltage]-P4
MN4G Series (Block manifold)	MN $\frac{3}{4}$G $\frac{A/D}{B/E}$ [Size][Switching section]0R-[Bore size]- [Wiring][Option]-[Station No.]- [Voltage]-P4
Single unit (Large flow rate)	4G $\frac{A}{B}$4 [Switching section]0-[Bore size]- [Wiring][Option]-[Voltage]-P4

	4G Series		M4G Series *5) *6)			MN4G Series *7) *9)	
	Push-in fitting straight (Model No.: C*)	Screw-in (Model No.: M5, 06, 08)	Push-in fitting straight (Model No.: C*)	Push-in fitting elbow (Model No.: CL/,CD/)	Screw-in (Model No.: M5, 06, 08)	Push-in fitting straight (Model No.: C*)	Push-in fitting elbow (Model No.: CL/,CD/)
P4	● *8)	●	● *8)		●	● *8)	

*1: Base piping (B) type Discrete and 4GA/D1-M5 type are standard products and equivalent to P4 specifications.
*2: Copper-free material applies to flow rate part.
*3: Refer to "Pneumatic Valves (Catalog No.CB-023SA)" for serial communication specifications.
*4: Push-in fitting elbow is not supported.
*5: Due to the attached M5 plug change, external pilot is available with P4 specification with or without fitting.
*6: In-stop valve spacer and spacer pilot check valve are not supported.
*7: External pilot specification is not available as standard.
*8: The following are not supported for push-in fitting straight.
$\frac{3}{4}$G $\frac{A}{B}$1,MN4G $\frac{A}{B}$1:CF,C18
$\frac{3}{4}$GA/D3:C6,C10
$\frac{3}{4}$GB/E3:C6
$\frac{3}{4}$GA4:C10,C12
*9: Atmosphere opening type cannot be selected for MN4G end block and supply and exhaust block.
*10: Contact CKD for European Standards compliant products.

Pilot check valve

4G2R-PCS
Pilot check valve



Page 179

Descriptions	4G2R-PCS-P4
Flow characteristics [dm^3/(s·bar)]	2.2
Max. working pressure [MPa]	0.7
Min. working pressure [MPa]	0.2
Proof pressure [MPa]	1.05
Ambient temperature [°C]	-5 to 55 No freezing
Fluid temperature [°C]	5 to 55

4G1R-PC
Pilot check valve



Page 178

Descriptions	4G1R-PC
Valve width [mm]	10
Flow characteristics[dm^3/(s·bar)]	0.3
Max. working pressure [MPa]	0.7
Min. working pressure [MPa]	0.2
Proof pressure [MPa]	1.05
Ambient temperature [°C]	-5 to 55 (No freezing)
Fluid temperature [°C]	5 to 55

Compatible products: P4 Series Material restrictions (sliding part); P40 Series Material restrictions (all parts)

Standards compliant products: CE · · ·European Standards compliant products; Ex · · ·ATEX Directive compliant products

Pneumatic valves

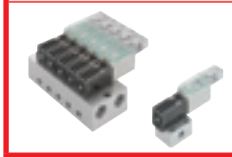
Direct acting 3-port valve

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

The direct acting 3-port valve 3QR Series supports P4 Series as standard.

3QRA/B CE

Direct acting 3-port solenoid valve



Page 362

Descriptions		Standard	Large flow rate
Flow characteristics [dm³/(s·bar)]	P→A	0.3	0.36
	A→R	0.32 to 0.36	0.38 to 0.4
Max. working pressure [MPa]		0.7	
Min. working pressure [MPa]		−0.1	
Proof pressure [MPa]		1.05	
Ambient temperature [°C]		0 to 50	
Fluid temperature [°C]		5 to 50	
Rated voltage [V]		12 DC, 24 DC	

How to order	
Single unit	3QRB1 [solenoid position]0-M5 - [Electrical connections][Flow rate]- [Voltage]
Replacement valve	3QRA1 [solenoid position]9-M5 - [Electrical connections][Flow rate]- [Voltage]
	3QRB1 [solenoid position]9-00 - [Electrical connections][Flow rate]- [Voltage]
Manifold	M3QRA1 [Solenoid position]0-M5 - [Electrical connections][Flow rate]- [Station No.]- [Voltage]

Note: Supports P4 specifications as standard

3QB CE

Direct acting 3-port solenoid valve



Page 364

Descriptions		3QB1-H	3QB1-HP	3QB1-HV
Flow characteristics [dm³/(s·bar)]	P→A	0.11	0.11	0.18
	A→R	0.11	0.11	0.11
Max. working pressure [MPa]		0.3	0.65	0
Min. working pressure [MPa]		−0.1	0.1	−0.1
Proof pressure [MPa]		1.05		
Ambient temperature [°C]		0 to 50		
Fluid temperature [°C]		5 to 50		
Rated voltage [V]		24 DC		

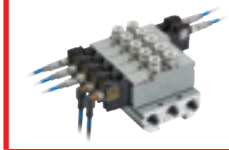
How to order	
Single unit	3QB1 [Solenoid position]0-M5 - [Electrical connections]H [Pressure specification]- [Voltage]
Manifold Replacement valve	3QB1 [Solenoid position]9-00- [Electrical connections]H [Pressure specification]- [Voltage]
Manifold	M3QB1 [Solenoid position]0-M5- [Electrical connections]H [Pressure specification]- [Station No.]- [Voltage]

Note: Supports P4 specifications as standard

Explosion-proof 3, 5-port valve

4G EJ/EX CE

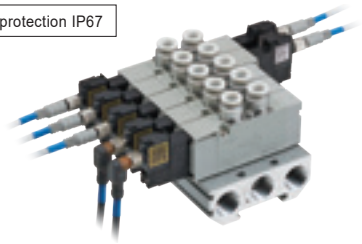
Intrinsically safe explosion-proof pilot 3, 5-port valve 4G EJ/EX Series



Page 372

Descriptions		4GD/E1	4GD/E2	4GD/E3	4GD/E4
Valve width		10	15	18	24.3
Flow characteristics [dm³/(s·bar)]	P → A/B	0.86 to 1.4	1.7 to 2.5	3.0 to 4.5	6.3 to 11.0
	A/B→R	0.7 to 1.3	2.1 to 2.9	3.3 to 4.2	6.8 to 13.9
Max. working pressure [MPa]		0.7			
Min. working pressure [MPa]		0.2			
Proof pressure [MPa]		1.05			
Ambient temperature [°C]		−5 to 55°C (no freezing)			
Fluid temperature [°C]		5 to 55°C			
Rated voltage [V]		12 DC			
Explosion-proof grade		Ex ib IIC T4 Gb			
Standards		JPEx (Japan), IECEx (International), GBEx (China), KCs (South Korea)			
Degree of protection		IP67			

Degree of protection IP67



How to order	
Single unit	$\frac{3}{4}$G $\frac{D}{E}$ [Size] [Solenoid position]0 $\frac{EJ}{EX}$ -[ConnectionBore size]- [Electric wireConnection][Option]-4-P4
Manifold Replacement valve	$\frac{3}{4}$G $\frac{D}{E}$ [Size][Solenoid position] 9 $\frac{EJ}{EX}$ -[ConnectionBore size]- [Electric wireConnection][Option]-4-P4
Manifold	M $\frac{3}{4}$G $\frac{D}{E}$ [Size] [Solenoid position]0 $\frac{EJ}{EX}$ -[ConnectionBore size]- [Electric wireConnection][Option][Mount type]-[Station No.]-4 -P4

P40 Series (Material restrictions for all parts)

W4G CE

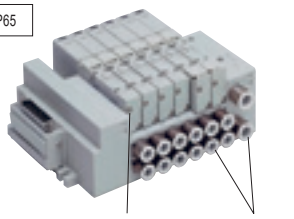
Plug-in manifold W4G Series



Contact CKD for details.

Descriptions		W4G2	W4G4
Valve width		15	24.3
Flow characteristics [dm³/(s·bar)]	P → A/B	1.7 to 2.4	6.4 to 7.7
	A/B→R	1.7 to 2.5	6.4 to 8.3
Max. working pressure [MPa]		0.7	1.0
Min. working pressure [MPa]		0.2	0.2
Proof pressure [MPa]		1.05	1.5
Ambient temperature [°C]		−5 to 55°C (no freezing)	
Fluid temperature [°C]		5 to 55°C	
Rated voltage [V]		12 DC, 24 DC	
Degree of protection		IP65	

Degree of protection IP65



How to order	
Single unit	W4G $\frac{B}{Z}$ [Size][Switching section]0-[Bore size]- [Wiring][Option]-[Voltage]-P40
Manifold Replacement valve	W $\frac{3}{4}$G $\frac{A}{B}$ [Size][Switching section]9-[Bore size]-[Option]-[Voltage]-P40
Individual wiring manifold Reduced wiring manifolds	MW $\frac{3}{4}$G $\frac{A}{B}$ [Size][Switching section]0-[Bore size]- [Wiring][Option]-[Station No.]- [Voltage]-P40

	MW4G $\frac{A}{B}$2 Series	MW4G $\frac{B}{Z}$4 Series
Electrical connections	R1, T10, T20, T30, T51, T8D*, T8G*	R1,T10,T6D1,T6G1,T7EC*
Manual override	Blank, M	
Available options	H, A, F, Z6	H, A, F, Z1, Z3

	W4G2 Series	W4G4 Series	
	Push-in fitting Straight type (Model No.: C*)	Screw-in fitting (Model No.: 08, 10)	Push-in fitting Straight type (Model No.: C*)
P40	●	●	●* Excluding C12

*1: Refer to "Pneumatic Valves (Catalog No.CB-023SA)" for serial communication specifications.
*2: M12 connector is resin connector.
*3: End block atmosphere release/common exhaust type is not available.
*4: Manifold external pilot specification is not available as standard.
*5: Maximum size is C10 for push-in fitting straight.
*6: Push-in fitting elbow is not applicable.
*7: The degree of protection is equivalent to IP40 for T30 and T51.
8: M12 connector is used for T7EC and FG terminal is used for T8G*. These are copper-based metal + nickel plating.
*9: Contact CKD when ordering parts only.
*10: Contact CKD for other options.
*11: Accessories cannot be selected from the manifold specifications sheet. Contact CKD separately.
*12: Contact CKD for European Standards compliant products.

W4G2-PC CE

Spacer pilot check valve



Contact CKD for details.

Descriptions	W4G2-PC-P40
Flow characteristics [dm³/(s·bar)]	0.8
Max. working pressure [MPa]	0.7
Min. working pressure [MPa]	0.2
Proof pressure [MPa]	1.05
Ambient temperature [°C]	−5 to 55 (No freezing)
Fluid temperature [°C]	5 to 55

Compatible products

P4 Series Material restrictions (sliding part)
P40 Series Material restrictions (all parts)

Standards compliant products

CE・・・European Standards compliant products
Ex・・・ATEX Directive compliant products

Pneumatic auxiliary components

Note:The photos on this page are standard products. Appearance may differ from actual P4 specification products.

Clean air components

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

SU300$^{D}_{E}$-W/SU400$^{D}_{E}$-W

Super dryer (High polymer membrane air dryer)



Page 416

How to order	SU301$^{D}_{E}$/302$^{D}_{E}$/401$^{D}_{E}$/402$^{D}_{E}$- [Inlet air pressure]-W-[Unit]-[Option]-P4□

	SU
Port size	Rc3/8
P4	●
P40	▲

*1: Applicable only for common exhaust.
*2: Auto-drain is not available.
*3: For unit option C3, zinc die-casting is used in the diaphragm part of the regulator. For pressure adjustment springs without regulator gas contact and pressure adjustment screws in P40, zinc plating is used.

SD300$^{D}_{E}$-W/SD400$^{D}_{E}$-W

Super dryer (High polymer membrane air dryer)



Page 416

How to order	SD30□ □/SD40 □ □-[Inlet air pressure]-W-[Option]-P4□

	SD
Port size	Rc3/8
P4	●
P40	▲

*1: Applicable only for common exhaust.

SU3000-W/SU4000-W

Super dryer (High polymer membrane air dryer)



Page 424

How to order	SU30□ □/SU40 □ □-[Outlet air atmospheric dew point]- [Inlet air pressure]-W-[Option]-P4□

	SU
Port size	Rc3/8, 1/2
P4	●
P40	▲

*1: Applicable only for common exhaust.
*2: Auto-drain is not available.
*3: For unit option C3, zinc die-casting is used in the diaphragm part of the regulator. For pressure adjustment springs without regulator gas contact and pressure adjustment screws in P40, zinc plating is used.

SD3000/4000

Super dryer (High polymer membrane air dryer)



Page 427

How to order	SD30□ □/SD4 □ □ □-[Outlet air atmospheric dew point]- [Inlet air pressure]-[Option]-P4□

	SD
Port size	Rc3/8, 1/2
P4	●
P40	▲

*1: Applicable only for common exhaust.

SHD

Desiccant air dryers



Page 431

How to order	Contact CKD for model numbers.

	SHD
P4	▲

AF2

Medium main line filter



Page 434

How to order	AF2-[Flow rate classification][Element] [Bore size]-P4

	AF2
Port size	Rc1,1 1/4,1 1/2,2,2 1/2
P4	▲

AF3000/AF5000

Large main line filter



Page 435

How to order	AF3 □ □ □/AF5□ □-[Bore size]-[Option]-P4

	AF3000/AF5000
Port size	Flange 2B, 3B, 4B, 6B, 8B
P4	▲

Pneumatic auxiliary components

Clean air components

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

RB500

Compact regulator



Page 447

How to order	RB500-[Direction][Bore size]-NT[option]P4□

	RB500
Port size	Push-in fitting ø4/ø6
P4	●
P40	▲

*1: Pressure gauge/pressure sensor must be ordered separately. (Pressure gauge option is "T" only)
*2: Non-relief only is available.
*3: Only straight direction is available for fittings.
*4: For pressure adjustment springs without gas contact and pressure adjustment screw units in P40, zinc plating is used.

RP1000/2000

Precision regulator



Page 448

How to order	RP1000/2000-[Bore size]- [Pressure range]P4□- [Bracket]

	RP1000	RP2000
Port size	Rc1/4	Rc3/8
P4	●	●
P40	▲	▲

*1: Pressure gauge/pressure sensor must be ordered separately. (Attachment options not available.)
*2: Zinc plating is used for pressure adjustment springs without gas contact in P40.
*3: Dimensions differs from the standard products. There are mounting restrictions because of bleed port connection. Check the dimensions for each case.

RPE

Precision regulator



Page 452

How to order	RPE1000-[Port size]- [Pressure range] P4-[Bracket]

	RPE1000
P4	●

*1: Pressure gauge/pressure sensor must be ordered separately. (Attachment options not available.)
*2: RPE1000 dimensions are different from the standard dimensions.

EVD CE

Electro-pneumatic regulator



Page 454

How to order	Standard: EVD-1/3 [pressure control range]- [Input signal][Port size][Output signal]-[Option]-3-P4 IO-Link type: EVD-1/3 [pressure control range]-C [port size][Unit change]-[Option]-3-P4

	EVD-1100/1500/1900	EVD-3100/3500/3900
Port size	Rc1/4	Rc1/4, Rc3/8
P4	●	●

Note: The bracket option of EVD-1*00-*-P4 is blank or L11 (L type, wall mounted for exhaust fitting).
Standard B1 and L1 types cannot be selected.

F1000/F2000/F3000/ F4000/F6000/F8000

Filter



Page 463

How to order	F1000/2000/3000/4000/6000/8000-[Bore size]-W-[Option]P4□- [Bracket]

	F1000-W	F2000-W	F3000-W	F4000-W	F6000-W	F8000-W
Port size	Rc1/8, 1/4	Rc1/4, 3/8	Rc1/4, 3/8	Rc1/4, 3/8,1/2	Rc3/4,1	Rc3/4,1
P4	●	●	●	●	●	●
P40		●	●	●	●	

*1: Auto-drain is not available.
*2: Metal bowl is not available.
*3: Y element is not available for P40.

M1000/M2000/M3000/ M4000/M6000/M8000

Oil mist filter



Page 466

How to order	M1000/2000/3000/4000/6000/8000-[Bore size]-W-[Option]P4□- [Bracket]

	M1000-W	M2000-W	M3000-W	M4000-W	M6000-W	M8000-W
Port size	Rc1/8, 1/4	Rc1/4, 3/8	Rc1/4, 3/8	Rc1/4, 3/8,1/2	Rc3/4,1	Rc3/4,1
P4	●	●	●	●	●	●
P40		●	●	●	●	

*1: Auto-drain is not available.
*2: Metal bowl is not available.
*3: With differential pressure indicator option is not available.

R1000/R2000/R3000/ R4000/R6000/R8000

Regulator
Reverse regulator



Page 468

How to order	R1□00/2□00/3□00/4□00/6□00/8□00-[Bore size]-W-[Option]P4□- [Pipe adaptor set] [Bracket]

	R1000-W R1100-W	R2000-W R2100-W	R3000-W R3100-W	R4000-W R4100-W	R6000-W R6100-W	R8000-W R8100-W
Port size	Rc1/8, 1/4	Rc1/4, 3/8	Rc1/4, 3/8	Rc1/4, 3/8,1/2	Rc3/4,1	Rc3/4,1
P4	●	●	●	●	●	●
P40		▲	▲	▲	▲	

*1: Pressure gauge/pressure sensor must be ordered separately. (Pressure gauge option is "T", "T8", "T6" only)
*2: R1 option is not available.
*3: R6000 Dimensions is different from the standard.
*4: For pressure adjustment springs without gas contact and pressure adjustment screw units in P40, zinc plating is used.
*5: R2 option is not available.
*6: For R1000, R1100, R8000, and R8100, only non-relief (option code: N) is available.
*7: Zinc die-casting is used in the diaphragm part of R3000 to R8000 and R3100 to 8100.

Compatible products

P4 Series Material restrictions (sliding part)
P40 Series Material restrictions (all parts)

Standards compliant products

CE・・・European Standards compliant products
Ex・・・ATEX Directive compliant products

Pneumatic auxiliary components

Clean air components

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

W1000/W2000/W3000/W4000/W8000

Filter/Regulator Reverse regulator/ Regulator



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How to order	W1□00/2□00/3□00/4□00/8□00-[Bore size]-W-[Option]P4□- [Pipe adaptor set] [Bracket]

	W1000-W W1100-W	W2000-W W2100-W	W3000-W W3100-W	W4000-W W4100-W	W8000-W W8100-W
Port size	Rc1/8, 1/4	Rc1/4, 3/8	Rc1/4, 3/8	Rc1/4, 3/8,1/2	Rc3/4,1
P4	●	●	●	●	●
P40		▲	▲	▲	

*1: Pressure gauge/pressure sensor must be ordered separately. (Pressure gauge option is "T", "T8", "T6" only)
*2: Auto-drain is not available.
*3: Metal bowl is not available.
*4: R1 option is not available.
*5: For pressure adjustment springs without gas contact and pressure adjustment screw units in P40, zinc plating is used.
*6: R2 option is not available.
*7: For W1000, W1100, W8000, and W8100, only non-relief (option code: N) is available.
*8: Zinc die-casting is used in the diaphragm part of W3000 to W8000 and W3100 to W8100.
*9: Y element is not available for P40.

FX

Drain separator



Page 488

How to order	FX1004/1011/1037-[Port size]-W-[Option]-P4-[Attachment]

	FX1004	FX1011	FX1037
Port size	Rc1/4, 3/8	Rc1/4, 3/8, 1/2	Rc3/4, 1
P4	●	●	●
P40	▲	▲	▲

*1: Auto-drain is not available.
*2: Metal bowl is not available.

G40D/G41D/G49D/G59D

Pressure gauge



Page 492

How to order	G40D/G41D/G49D/G59D-[Bore size]-P [Pressure]-P4

	G40D	G41D	G49D	G59D
	Display ø42.5 with safety marker	Display ø42 with limit marker	Display ø42	Display ø52
Port size	R 1/8	R1/8,1/4	R 1/8	1/4
P4	●	●	●	●

FCS500/FCS1000

Inline clean filter



Page 495

How to order	FCS500/FCS1000-[H push-in fitting bore size]- [Attachment]-P40

	FCS500		FCS1000	
Port size	Push-in fitting ø4 to 8	Screw type/ SUS type (P9)	Push-in fitting ø8 to 12	Screw type/ SUS type (P9)
P4		Supports P4 specifications as standard		Supports P4 specifications as standard
P40	▲	Supports P40 specifications as standard	▲	Supports P40 specifications as standard

FAC

Clean exhaust filter



Page 496

How to order	FAC10/100/200-[Port size] FAC3000-[Port size]- [Attachment]

	FAC10	FAC100	FAC200	FAC3000
Port size	ø4, 6, 8, 10	R1/8, 1/4	R3/8, 1/2	Rc3/8, 1/2
P4	Standard compliance			

P1100/P4100/P8100 CE

Pressure switch



Page 500

How to order	P1100/P4100/P8100-[Bore size][Branch direction]-W-P4- [Attachment]- [Lead wire length]

	P1100	P4100	P8100
Port size	Rc1/8, 1/4	Rc1/4, 3/8, 1/2	Rc3/4, 1
P4	▲	●	▲

*1: The atmospheric pressure inlet port is M5.
*2: Fitting attachment option for atmospheric introduction port is not available.

APS CE

Compact mechanical pressure switch



Page 502

How to order	APS-[Piping port position/bore size/scale plate direction] [Lead wire length]-W-[Option]-P4

	APS
Port size	Rc1/8
P4	●

*1: The atmospheric pressure inlet port is M5.
*2: Fitting attachment option for atmospheric introduction port is not available.

Compatible products

P4 Series Material restrictions (sliding part)
P40 Series Material restrictions (all parts)

Standards compliant products

CE・・・European Standards compliant products
Ex・・・ATEX Directive compliant products

Pneumatic auxiliary components

Clean air components

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

PPX

Digital pressure sensor



Page 504

How to order	PPX-R10P-6M-J-P40/PPX-R10N-6M-J-P40

	PPX
Port size	Rc1/8 M5 female thread
P4	Standard compliance
P40	● Product is limited to the above model numbers

*1: Bracket mounting is not possible for P40.
*2: P40 is compatible only with PPX-R10P-6M-J-P40/PPX-R10N-6M-J-P40.
*3: P40 Connector must be ordered separately. PPX-C2-FL401967-P40

FSM3

Compact flow rate sensor (RAPIFLOW)



Page 508

How to order	FSM3-[Display][Flow rate range] [Flow direction][Body material/applicable fluids][Port size][Piping specifications][Output specifications] [Unit specifications][Valve option]-[Lead wire][Mounting attachments] [Included documents]- [Clean-room specifications]

	FSM3
P4	Standard compliance

*1: Stainless steel body is P4 compatible as standard.
*2: Resin body and products with needle valve are not P4 compatible.

V3301

Slow start valve



Page 520

How to order	V3301-[Bore size]-W-FL □

	V3301
Port size	Rc1/4 to Rc1/2
P4	▲
P40	▲

Note: Only LS is available for electrical connection.

V3000/V3010/V6010

Residual pressure exhaust valve



Page 521

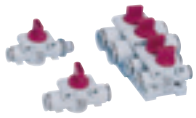
How to order	V3000/V3010/V6010-[Bore size]-W-[Option]P4 □- [Attachment]

	V3000/V3010	V6010
Port size	Rc1/4 to Rc1/2	Rc3/4, Rc1
P4	●	●
P40	▲	▲

*1: For P40, zinc plating is used in the exhaust air flow path part.

2QV

Quick valve



Page 523

How to order	2QV-[Bore size]-P4

	2QV
Port size	ø4, ø6, ø8, ø10, ø12
P4	●

SNS

Residual pressure exhaust valve with spool position detection



Page 524

How to order	SNS-[Station No.]- [Bore size]-[Option]-3

	SNS
Port size	Rc3/8,Rc1/2
P4	Standard compliance

Products certified for safety standard ISO13849-1

Speed controller

SCL2/SCD2

Speed controller Line type



Page 528

How to order	SCL2-[Body size]-[Compatible tube O.D.]-P4 * Needle valve is not available now.

	SCL2/SCD2
Port size	ø4, ø6, ø8, ø10
P4	●

Note: Only ● part of the table below is supported.

		Body size			
		04	06	08	10
Compatible tube O.D.	H44	●			
	H66		●		
	H88			●	
	H1010				●

Compatible products

P4 Series Material restrictions (sliding part)
P40 Series Material restrictions (all parts)

Standards compliant products

CE・・・European Standards compliant products
Ex・・・ATEX Directive compliant products

Pneumatic auxiliary components

Speed controller

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

SC3W

Speed controller, elbow



Page 530

How to order	SC3W-[Port size]- [Compatible tube O.D.]-[Option]-P4

	SC3W
Port size	M3, M5, R1/8, 1/4, 3/8, 1/2
P4	●

*1: The dimensions of pipe size M5 product is different from the standard SC3W.
*2: Compatible tube O.D. 3 (ø3, 2) is not available.
*3: Option is meter-in only.

DSC

Speed controller with adjusting dial



Page 532

How to order	
Standard	DSC-[Port size]- [Compatible tube O.D.]- [Control method][Flow rate]-P4
Compact	DSC-C-[Port size]- [Compatible tube O.D.]- [Control method][Flow rate]-P4

	DSC	DSC-C
Port size	M5, R1/8, 1/4, 3/8, 1/2	M5,R1/8
P4	●	▲

SC3F/SCLF

Speed controller
Polypropylene resin



Page 535

How to order	SC3F/SCLF-[Piping size]-[Compatible tube O.D.]-[Option]-P4

	SC3F	SCLF
Port size	M3, M5, R1/8, R1/4, R3/8, R1/2	ø4, ø6, ø8, ø10, ø12
P4	●	●

Fitting

FTS4-FPL

Miniature fitting



Page 537

How to order	FTS4-M3-P4, FPL-M5-P4

	FTS4	FPL
Port size	M3	M5
P4	▲	▲

Note: M3 gasket dimensions are different from the standard dimensions.

ZW

Fitting (stainless steel)



Page 538

How to order	ZW-[Shape][Compatible tube O.D.]- [Piping size] -P4

	ZW
Port size	ø4, ø6, ø8, ø10, ø12
P4	●

ZSF

Fitting (polypropylene resin)



Page 545

How to order	ZSF-[Shape][Compatible tube O.D.]- [Piping size] -P4

	ZSF
Port size	ø4, ø6, ø8, ø10, ø12
P4	●

Auxiliary valve

QEL

Quick exhaust valve inline type



Page 546

How to order	QEL-[Tube O.D.]-P4

	QEL
Port size	ø4, ø6
P4	▲

*1: Applicable only for type with exhaust port fitting.

Compatible products

P4 Series Material restrictions (sliding part)
P40 Series Material restrictions (all parts)

Standards compliant products

CE・・・European Standards compliant products
Ex・・・ATEX Directive compliant products

Pneumatic auxiliary components

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

Auxiliary valve

QEV2

Quick exhaust valve



Page 548

How to order	QEV2-[Port size]- [Option][Accessory]

	QEV2
Port size	Rc1/8 to 1
P4	Standard compliance

SHV2

Shuttle valve



Page 550

How to order	SHV2-[Port size]- [Option][Accessory]

	SHV2
Port size	Rc1/8 to 1
P4	Standard compliance

Note: Select a fluoro rubber specification

CHV2

Check valve



Page 552

How to order	CHV2-[Port size]-[Flow rate] -[Option][Accessory]

	CHV2
Port size	Rc1/8 to 1/1/2
P4	Standard compliance

Note: Select a fluoro rubber specification

Silencer

SMW2

Metering valve with silencer



Page 553

How to order	SMW2-[Port size]

	SMW2
Port size	R1/8, 1/4
P4	Standard compliance

FA

Exhaust cleaner



Page 554

How to order	FA [Series classification]31-[Port size]- [Option]

	FA
Port size	Rc3/8 to 2
P4	Standard compliance

Tube

UP/F/U/NU/KX/SR2

Tube



Page 556

How to order	Tube-[Size]-[Option]

	UP/F/U/NU/KX/SR2
O.D.	ø1.8,ø3.2,ø4,ø6,ø8, ø10,ø12,ø15
P4	Standard compliance

ET

Fluoro resin tube

Page 560

How to order	ET-[Size]- [Option]

	ET
O.D.	ø4, ø6, ø8, ø10, ø12
P4	Standard compliance

Compatible products

P4 Series Material restrictions (sliding part)
P40 Series Material restrictions (all parts)

Standards compliant products

CE・・・European Standards compliant products
Ex・・・ATEX Directive compliant products

Pneumatic auxiliary components

Tube

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

PFH/S

Polyolefin tube



Page 561

How to order	PF[type]- [Size]-[Option]-P4

	PFH/S
O.D.	ø4, ø6, ø8, ø10, ø12
P4	●

Gas generator

NS

Nitrogen Gas Extraction Unit



Page 564

How to order	NS-[Body size][Membrane unit size][Number of units][Bore size][Option] [Installation direction]-P4

Port size	Rc3/8,Rc1
P4	▲

*1: Applicable only for common exhaust.

Fluid control components

Fluid control components

AB3/AB4-Z GAB3/GAB4-Z

General purpose valve for dry air



Page 568

How to order	
Single unit	AB [Model No.]- [Port size]- [Orifice size]- [Body material/sealant combination] [Coil] [Option]ZP4□- [Voltage]
Manifold	GAB [Model No.][Thread]- [Orifice size]- [Station No.]- [Body material/sealant combination] [Coil] [Option]ZP4□- [Voltage]

	AB3/AB4-Z GAB3/GAB4-Z
Classification	Direct acting 2-port valve for dry air
Body material	Stainless steel
P4	●
P40	●

*1: Body material Select from stainless steel products.
*2: Body material/Seal combination code M only.
*3: Pipe material is SUS316.

AG3/AG4-Z GAG3/GAG4-Z

General purpose valve for dry air



Page 572

How to order	
Single unit	AG [Model No.][Port size]- [Orifice size]- [Body material/sealant combination] [Coil] [Option]ZP4□- [Voltage]
Manifold	GAG [Model No.][NO port size]- [Orifice size]- [Station No.]- [Body material/sealant combination] [Coil] [Option]ZP4□- [Voltage]

	AG3/AG4-Z GAG3/GAG4-Z
Classification	Direct acting 3-port valve for dry air
Body material	Stainless steel
P4	●
P40	●

*1: Body material Select from stainless steel products.
*2: Body material/Seal combination code M only.
*3: Pipe material is SUS316.

ADK11-Z

General purpose valve for dry air



Page 578

How to order	ADK11-[Port size]- [Body material/sealant combination] [Coil] [Option]ZP4□- [Voltage]

	ADK11-Z
Classification	Pilot kick 2-port valve for dry air
Body material	Stainless steel
P4	●
P40	●

*1: Body material Select from stainless steel products.
*2: Body material/Seal combination code M only.
*3: Pipe material is SUS316.

EXA

Pilot operated 2-port solenoid valve for air



Page 580

How to order	EXA-[Port size]- [Sealant material][Coil][Option]-[Voltage]

	EXA
Port size	Rc1/4,3/8,G1/4,3/8,1/4NPT,3/8NPT
P4	Standard compliance

Fluid control components

Fluid control components

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

CHB

Air operated 2-port ball valve



Page 582

How to order	CHB-[Port size]- [Body material]-P4

	CHB-N
Port size	Rc3/8, 1/2, 3/4, 1, 1 1/4, 1 1/2, 2
P4	●

Note: Body material code N only.

CHG

Air operated 3-port ball valve



Page 584

How to order	CHG-[Port size]- [Body material]-P4

	CHG-N
Port size	Rc1/2, 3/4, 1, 1 1/4, 1 1/2, 2
P4	●

Note: Body material code N only.

SAB/SVB

Air operated 2-port valve



Page 586

How to order	SAB [Actuation][Working fluid]- [Port size][Thread/flange]-[Body/sealant combination][Other options]-[Assembly direction]-P4
	SVB [Actuation][Working fluid]- [Port size][Thread/flange]-[Body/sealant combination][Coil][Other options]-[Assembly direction]- [Voltage]-P4

	SAB	SVB
Port size	Rc1/4 to Rc2, 32 flange, 40 flange, 50 flange	Rc1/4 to Rc2, 32 flange, 40 flange, 50 flange
P4	●	▲

NAB/GNAB

Air operated 2-port valve



Page 596

How to order	
Single unit	NAB [Actuation][Working fluid]- [Port size]- [Cylinder cover/body/sealant combination] [Option]-P4
Manifold	GNAB [Actuation][Working fluid]- [Air supply category]- [Manifold station No.]- [Cylinder cover/body/sealant combination]-P4

	NAB/GNAB
Port size	Rc1/4, 3/8
P4	●

NAD/GNAD

Diaphragm cylinder valve



Page 600

How to order	
Single unit	NAD [Actuation][Working fluid]-[Port size]- [Body/sealant combination] [Option]]-P4
Manifold	GNAD [Actuation][Working fluid]- [Air supply category]- [Manifold station No.]- [Cylinder cover/sub-plate/body/sealant combination]-P4

	NAD
Port size	Rc3/8
P4	●

LAD

Diaphragm cylinder valve



Page 602

How to order	LAD [Actuation]-[Port size]- [Material combination] [Option]-P4

	LAD
Port size	Rc3/8, 1/2, 3/4, 1
P4	●

NP13/NP14 CE

3-port solenoid valve for air



Page 604

How to order	NP1 [Actuation]- [Port size]-1[Coil housing][Option]-[Voltage]-P4

	NP13/NP14
Bore size	Rc3/8 to Rc2
P4	●

*1: Coil option is 2G, 2H, 2GS, 2HS only.
*2: Voltage: 24 VDC only.
*3: Rc1 1/4 to Rc2 is a made-to-order product.

Fluid control components

Fluid control components

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

NAP11

Air operated 3-port valve



Page 606

How to order	NAP11-[port size]- [Body/sealant combination] -P4

	NAP11
Port size	Rc3/8 to 2
P4	●

NVP11 CE

Air operated 3-port valve with solenoid valve



Page 607

How to order	NVP11-[port size]- [Body/sealant combination] [Coil housing] [Option]]-[Voltage]-P4

	NVP11
Port size	Rc3/8 to 2
P4	●

*1: Coil option is 2G, 2H, 2GS, 2HS only.
*2: Voltage: 24 VDC only.
*3: Rc1 1/4 to Rc2 is a made-to-order product.

SNP

3-port solenoid valve with spool position detection



Page 608

How to order	SNP-[Station No.]- [Port size]- [Sealant material][Coil option][Limit switch][Bracket][Silencer]-[Voltage]-P4

	SNP
Port size	Rc3/8, 1/2, 3/4
P4	●

HVB

Solenoid valve for high vacuum



Page 612

How to order	HVB2 to 5 Series: HVB[Series size]12-[Connection method]- [Orifice size]- [Coil option] [Mounting plate]- [Voltage]
	HVB6, 7 Series:HVB[Series size]12-[Connection method]- [OrificeDiameter][Thermal class]-[Option]-[Voltage]

	HVB2 to 5	HVB6, 7
P4	Standard compliance	

*1: Fluorine grease is used.

Wet Fine system

AMD**3R

Air operated valve for chemical liquids



Page 616

How to order	AMD[Size][Actuation]3R-[Connection method]- [Actuator option] [Body option] [Operating port direction][Mounting method]

	AMDZ*3R	AMD0*3R	AMD3*3R	AMD4*3R	AMD5*3R
Connection	1/8", 1/4"	1/4", 3/8"	3/8", 1/2"	3/4"	1 "
P4	Standard compliance				

*1:AMDZ*3R, 0*3R, 4*3R, and 5*3R specifications are described in Wet Fine System/High Purity Chemical Liquid System (Catalog No. CB-031A).

Dry Fine system

AVB

Air operated valve for high vacuum



Page 618

How to order	AVB**7-X****,AVB**3-X****

	AVB**7	AVB**3
Port size	NW16, NW25, NW40, NW50, NW63	NW25, NW40, NW50, NW80
P4	▲	

Note: Use after checking the compatibility of the working fluid with the gas-contacting materials.

Electric actuator

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

EBS-G

Electric actuator



Page 622

How to order	EBS-[Body size] G[Motor mounting direction]- [Screw lead] [Stroke length] [Brake] [Encoder] N-C [Relay cable] - [Anti-rust treatment][Fitting]-P4

	EBS-G
P4	●

EBR-G

Electric actuator



Page 624

How to order	EBR-[Body size] G[Motor mounting direction]- [Mounting]- [Screw lead] [Stroke length] [Brake] [Encoder] N-C [Relay cable] - [Fitting]-P4

	EBR-G
P4	●

EBS-L

Electric actuator



Page 626

How to order	EBS-[Body size][Motor][Motor mounting direction]-[Screw lead][Stroke length][Brake] NN-[Mounted motor specification] [Motor size][Origin sensor][Limit sensor]-[Anti-rust treatment]-P4

	EBS-L
P4	●

Note: The attached origin sensor and limit sensor do not have material restrictions on the components.

EBR-L

Electric actuator



Page 630

How to order	EBR-[Body size][Motor][Motor mounting direction]-00-[Screw lead][Stroke length][Brake]NN-[Mounted motor specification][Motor size][Origin sensor][Limit sensor]-P4

	EBR-L
P4	●

Note: The attached origin sensor and limit sensor do not have material restrictions on the components.

ETS

Electric actuator



Page 634

How to order	ETS-[Body size]-[Screw lead][Stroke length]-[Motor mounting direction][Mounted motor specification][Motor size][Brake] [Origin sensor][Limit sensor][Grease nipple][Positioning pin hole]- [Magnet slider method]- [Anti-rust treatment]-P4

	ETS
P4	●

Note: The attached origin sensor and limit sensor do not have material restrictions on the components.

ECS

Electric actuator



Page 638

How to order	ECS-[Body size]-[Screw lead][Stroke length]-[Motor mounting direction][Mounted motor specification][Motor size][Brake] [Origin sensor][Limit sensor][Grease nipple][Positioning pin hole]- [Magnet slider method]- [Anti-rust treatment]-P4

	ECS
P4	●

Note: The attached origin sensor and limit sensor do not have material restrictions on the components.

EKS

Electric actuator



Page 642

How to order	EKS-[Body size][Motor][Motor mounting direction]-[Screw lead][Stroke length][Brake] NN-[Mounted motor specification] [Motor size] [Motor shaft fixing method][Origin sensor] [Limit sensor] [Anti-rust treatment]N-P4

	EKS
P4	●
P40	●

Note: The attached origin sensor and limit sensor do not have material restrictions on the components.

Switch Compatibility Table (axial lead wire takeout)

*1: The cylinder equipped model No. is the order model No. in the table below.
*2: For discrete switch model numbers, add -P4 to the end of the basic switch model number in the table below.
*3: * products are with resin connector specifications.
*4: SSD does not support F switch selection.

| Compatibility \ Shape | T type | | |

Switch Compatibility Table (axial lead wire takeout)

*1: The cylinder equipped model No. is the order model No. in the table below.
*2: For discrete switch model numbers, add -P4 to the end of the basic switch model number in the table below.
*3: * products are with resin connector specifications.
*4: SSD does not support F switch selection.

| Compatibility \ Shape | T type | | |

Rechargeable battery compatible component P4* Series

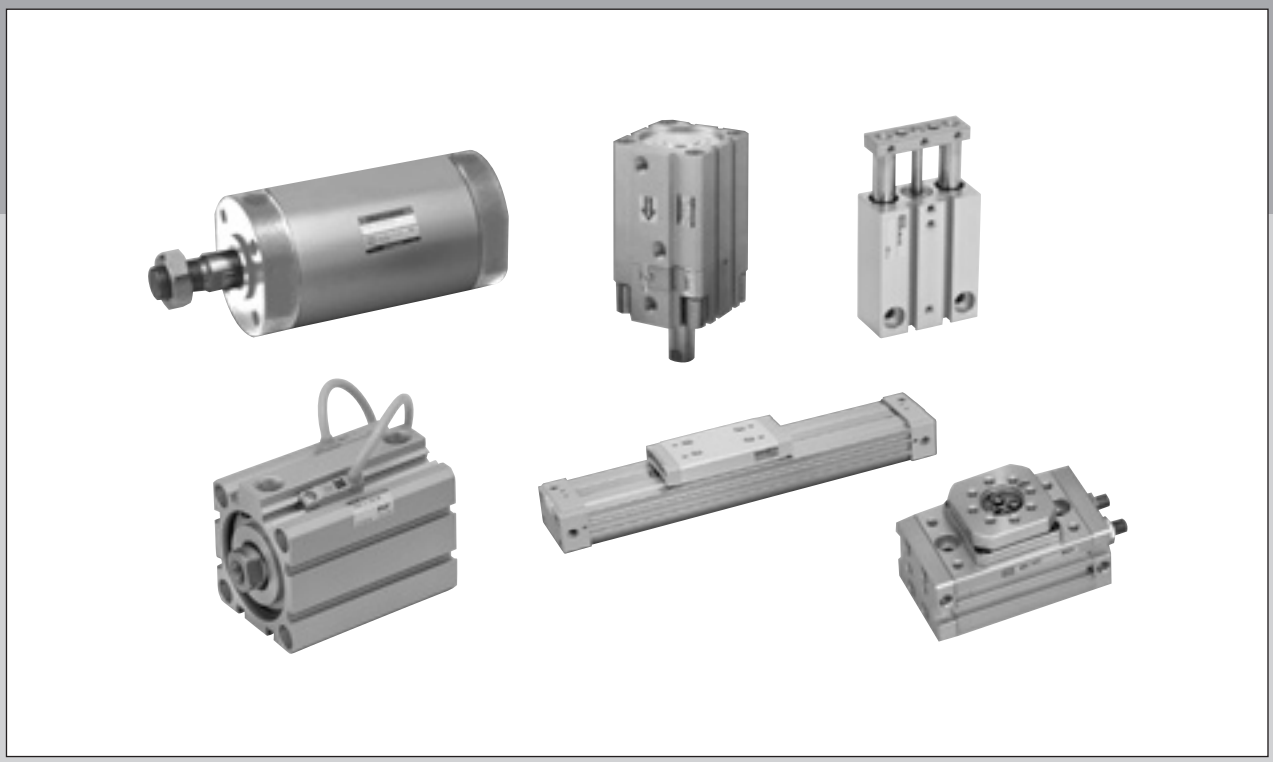
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CKD

Pneumatic actuator

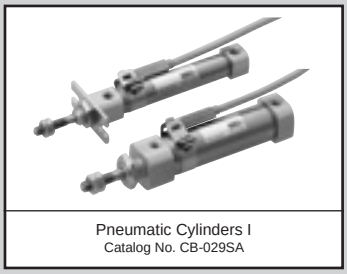
Pneumatic cylinders



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To order a switch, refer to the switch compatibility table on Intro Pages 23 to 26 and order using the listed order model No.



Pneumatic Cylinders I
Catalog No. CB-029SA

Pencil shaped cylinder Double acting/ Single rod

SCPD3 Series

● Bore size: ø6/ø10/ø16

JIS symbol 

RoHS

Specifications

Item		SCPD3 SCPD3-L		
Bore size	mm	ø6	ø10	ø16
Actuation		Double acting		
Working fluid		Compressed air		
Max. working pressure	MPa	1.0		
Min. working pressure	MPa	0.15	0.1	
Proof pressure	MPa	1.6		
Ambient temperature	°C	-10 to 60 (no freezing)		
Port size		M5		
Stroke tolerance	mm	+1.0 0		
Working piston speed	mm/s	50 to 750		
Cushion		Rubber cushion		
Lubrication		Not available		
Allowable absorbed energy	J	0.012	0.041	0.162

Stroke

Bore size (mm)		Standard Stroke (mm)	Max. Stroke (mm)	Available Stroke (mm)	Min. Stroke (mm)
SCPD3	ø6	15/30/45/60	100	105	5
	ø10		200	210	
	ø16		260	270	

Note: The custom Stroke is available in 1 mm increments.

How to order switch mounting bracket

P4	SCPD3-T-[Bore size]
P40	SCPD3-T-[Bore size]-P40

How to order mounting bracket P4

Bore size / Mounting bracket	ø6	ø10	ø16
Foot (LS)	P2-LS-6	P2-LS-10	P2-LS-16
Flange (FA)	P2-FA-6	P2-FA-10	P2-FA-16

Note: The foot (LS) type mounting bracket is provided as 1 pc./set.

Brackets for rotation stop (M)

Bore size (mm) / Mounting bracket	ø10	ø16
Foot (LS)	P2-LS-10M	P2-LS-16M
Flange (FA)	P2-FA-10M	P2-FA-16M

Note: The foot (LS) type mounting bracket is provided as 1 pc./set.

How to order mounting bracket P40

Bore size / Mounting bracket	ø6	ø10	ø16
Foot (LS)	P2-LS-6-P40	P2-LS-10-P40	P2-LS-16-P40
Flange (FA)	P2-FA-6-P40	P2-FA-10-P40	P2-FA-16-P40

Note: The foot mounting bracket is provided as 1 pc./set.

Brackets for rotation stop (M)

Bore size (mm) / Mounting bracket	ø10	ø16
Foot (LS)	P2-LS-10M-P40	P2-LS-16M-P40
Flange (FA)	P2-FA-10M-P40	P2-FA-16M-P40

Note: The foot (LS) type mounting bracket is provided as 1 pc./set.

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Double acting/ high load	Single acting/ push	Single acting/ pull	Double acting/ double rod	Double acting/ fine speed	Double acting/ low speed	Double acting/ heat resistance	Double acting/ rubber-air cushioned	Double acting/ Rotation-stop (*5)	Double acting/ With valve
			K	SCPS3	SCPH3	D	F	O	T	*C	M	V
ø6 to 16	P4	●		○	○	○				○	○	
	P40	●		○	○	○				○	○	
	P42	▲				▲				▲		

●: Applicable models ○: Semi-applicable models ▲:Contact CKD for details. ▭: Not applicable

How to order

Without switch (without magnet for switch)

SCPD3 - 00 - 10 - 15 - O — P4 P40 Y

With switch (built-in magnet for switch)

SCPD3-L - 00 - 10 - 15 - O - SW11 - R - P4 P40 Y

Ⓐ Model No.

Ⓑ Mounting *1

Ⓒ Bore size

Ⓓ Stroke

Ⓔ Head side port direction *1

Ⓕ Switch model No. *2, *4

Ⓖ Switch quantity

Ⓗ Accessory *3

Code	Description
Ⓐ Model No.	
SCPD3	Double acting
SCPD3-L	Double acting/with switch

Ⓑ Mounting				
Bore size (ø)		6	10	16
00	Basic	●	●	●
LS	Axial foot (one side) (rod side)	●	●	●
FA	Rod side flange	●	●	●
CB	Clevis bracket (pin and snap ring attached)		●	●

Ⓒ Bore size (mm)	
6	ø6
10	ø10
16	ø16

Ⓓ Stroke (mm)

Bore size	Stroke	Available Stroke	Custom Stroke
ø6	**5 to 100**	**105**	In 1 mm increments
ø10	**5 to 200**	**210**	
ø16	**5 to 260**	**270**	

Ⓔ Head side port direction	
Blank	Vertical
O	Axial direction

Ⓕ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓖ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

Ⓗ Accessory				
Bore size (ø)		6	10	16
I	Rod eye		●	●
Y	Rod clevis (pin and snap ring attached)		●	●
B1	Eye bracket		●	●
B2	Clevis bracket		●	●

Precautions for model No. selection

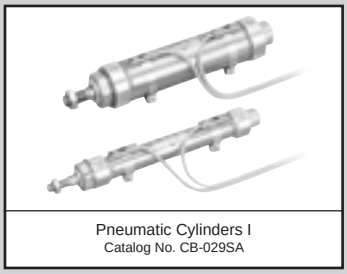
*1: "CB" mounting is not available when the port direction is "0" (axial direction).
*2: Magnet is not built into the type without switch.
*3: "I" and "Y" cannot be selected together.
*4: Switches are shipped with the product.
*5: Bore size 6 of rotation-stop is not available.

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)	Compatible tube O.D.		Page
		M5	4(ø4)	6(ø6)	
SC3W-M5-*-P4		●	●	●	530

Specify the compatible tube O.D. code for *.



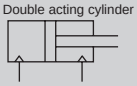
Pneumatic Cylinders I
Catalog No. CB-029SA

Small bore size cylinder
Double acting/ Single rod

CMK2 Series

● Bore size:ø20/ø25/ø32/ø40

JIS symbol ● Double acting cylinder single rod



RoHS CAD

Specifications

Descriptions	CMK2			
Bore size mm	ø20	ø25	ø32	ø40
Actuation	Double acting			
Working fluid	Compressed air			
Max. working pressure MPa	1.0			
Min. working pressure MPa	0.1			
Proof pressure MPa	1.6			
Ambient temperature °C	-10 to 60 (no freezing)			
Port size	Rc1/8			
Stroke tolerance mm	$^{+2.0}_{0}$ (up to 200), $^{+2.4}_{0}$ (over 200)			
Working piston speed mm/s	50 to 500			
Cushion	Rubber cushion			
Lubrication	Not available			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke

Bore size(mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø20	25/50/75/100/ 150/200/250/ 300	750	5
ø25			
ø32			
ø40			

*1: The custom Stroke is available in 1mm increments.
*2: One side foot (LS) has the max. stroke length of 50mm.

How to order switch mounting bracket

P4	CMK2-T-[Bore size]
P40	CMK2-T-[Bore size]-P40

How to order mounting bracket P4

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Axial foot (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Eye bracket (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Clevis bracket (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

*1: Regarding mounting brackets, mounting nuts and toothed washers are attached with the axial foot type and flange type. Trunnions are supplied with mounting nuts.
*2: For axial foot types (two-sided), 2 sets of "M1-LB0** or [Bore size]" in the table above are required.

How to order mounting bracket P40

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Axial foot (LB/LS)	M1-LB-20-P40	M1-LB-25-P40	M1-LB-30-P40	M1-LB-30-P40
Flange (FA/FB)	M1-FA-20-P40	M1-FA-25-P40	M1-FA-30-P40	M1-FA-30-P40
Trunnion (TA/TB)	M1-TA-20-P40	M1-TA-25-P40	M1-TA-30-P40	M1-TA-30-P40
Eye bracket (CA)	M1-CA-20-P40	M1-CA-25-P40	M1-CA-30-P40	M1-CA-30-P40
Clevis bracket (CB)	M1-CB-20-P40	M1-CB-25-P40	M1-CB-30-P40	M1-CB-30-P40

*1: For axial foot types (two-sided), 2 sets of "M1-LB-** or [Bore size]-P40" in the table above are required.
*2: Regarding mounting brackets, mounting nuts are attached with the axial foot type, flange type and trunnion type.

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Single acting/ push	Single acting/ pull	Double acting/ double rod	Double acting/ back to back	Stroke adjustable (push)	Stroke adjustable (pull)	Double acting/ fine speed	Double acting/ heat resistance	Double acting/ rubber-air cushioned	Double acting/ with speed controller	Double acting/ rotation-stop	Double acting/ coolant proof	Double acting/ low hydraulic	Double acting/ air cushion
			Q	S	SR	D	B	P	R	F	T	*C	Z	M	G2/G3	H	C
ø20 to 40	P4	●	●	○	○	○	○	○	○			○	○	▲			○
	P40	●	●	○	○	○	○	○	○*1			○	▲	▲			○*2
	P42																

●: Applicable models
○: Semi-applicable models
▲:Contact CKD for details.
▭: Not applicable

*1: Zinc plating is used for the sealing washer.
*2: Zinc plating is used for the cushion packing.

How to order

Without switch (built-in magnet for switch)

CMK2 - 00 - 20 - 100 — P4 / P40 — Y

With switch (built-in magnet for switch)

CMK2 - 00 - 20 - 100 - SW11 - R - M — P4 / P40 — Y

Ⓐ Mounting *1
Ⓑ Bore size
Ⓒ Stroke
Ⓓ Switch model No.
Ⓔ Switch quantity *4
Ⓕ Option
Ⓖ Accessory *2

Code	Description
Ⓐ Mounting	
00	Basic
LB	Axial foot (both sides)
LS	Axial foot (one side)
FA	Rod side flange
FB	Head side flange
CA	Eye bracket
CC	Eye bracket integrated
CB	Clevis Bracket (pin and split washer pin included)
TA	Rod side trunnion
TB	Head side trunnion
Ⓑ Bore size (mm)	
20	ø20 *5
25	ø25 *5
32	ø32
40	ø40

Ⓒ Stroke (mm)

Bore size	Stroke	Custom Stroke
ø20	**5 to 750**	**In 1 mm increments**
ø25	**5 to 750**	
ø32	**5 to 750**	
ø40	**5 to 750**	

Ⓓ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓔ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3
Ⓕ Option	
M	Piston rod, rod nut material (stainless steel) *5
V	Boss cutoff
Ⓖ Accessory	
I	Rod eye
Y	Rod clevis (pin and split washer pin attached)
B2	Clevis bracket (pin and snap ring included)

⚠ Precautions for model No. selection

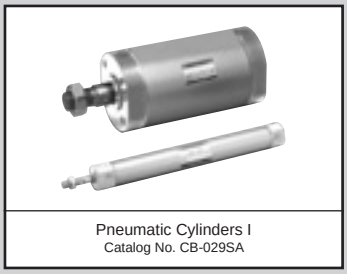
*1 : One side foot (LS) has the max. stroke length of 50mm.
*2: "I" and "Y" cannot be selected together.
*3: Refer to "Pneumatic Cylinders I (Catalog No.CB-029SA)" for made-to-order specifications of rod end form.
*4: Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
*5: For 20 or 25 bore size, the rod material is stainless steel as standard and the rod nut is zinc chromate. If a stainless steel rod nut is necessary, select the "M" option code.

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)	Compatible tube O.D.			Page
		1/8	4(ø4)	6(ø6)	8(ø8)	
SC3W-6-*-P4		●	●	●	●	530

Specify the compatible tube O.D. code for *.



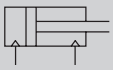
Pneumatic Cylinders I
Catalog No. CB-029SA

Round shaped cylinder Double acting/ Single rod

SCM Series

● Bore size:ø20/ø25/ø32/ø40
ø50/ø63/ø80/ø100

JIS symbol



RoHS CAD

Specifications

Item		SCM							
Bore size mm		ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting							
Working fluid		Compressed air							
Max. working pressure MPa		1.0							
Min. working pressure MPa		0.1				0.05			
Proof pressure MPa		1.6							
Ambient temperature °C		-10 to 60 (no freezing)							
Port size	With rubber cushion	Rc1/8				Rc1/4		Rc3/8	Rc1/2
	With air cushion	M5		Rc1/8		Rc1/4		Rc3/8	Rc1/2
Stroke tolerance mm	With rubber cushion	+1.4 0 (up to 1000)			+1.4 0 (up to 1500)	+2.3 0 (up to 1000),		+2.7 0 (up to 1500)	
	With air cushion	+1.4 0 (up to 1000)			+1.4 0 (up to 1500)	+1.4 0 (up to 1000),		+1.8 0 (up to 1500)	
Working piston speed mm/s		30 to 1000 (Operate within the allowable absorbed energy.)							
Cushion		Either rubber cushion or air cushion can be selected.							
Effective air cushion length mm		8.1	8.1	8.6	8.6	13.4	13.4	15.4	15.4
Lubrication		Not available							
Allowable absorbed energy J	With rubber cushion	0.1	0.2	0.5	0.9	1.6	1.6	3.3	5.8
	With air cushion	0.8	1.2	2.5	3.7	8.0	14.4	25.4	45.6
	Without cushion	-	-	-	-	0.057	0.057	0.112	0.153

*1: The values of "No cushion" of allowable absorbed energy are the allowable absorbed energy of either the head side for air cushion code "R" or the rod side for air cushion "H".
*2: Without a cushion, large energy generated by the external load cannot be absorbed. Provide a shock absorber on the outside.

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke(mm)	Min. Stroke (mm)
ø 20	25, 50, 75, 100, 125, 150, 200, 250, 300	1000	10
ø25			
ø32			
ø40		1500	
ø50			
ø63			
ø80			
ø100			

*1:The custom Stroke is available in 1 mm increments.

How to order switch mounting bracket

	[Rail] Mounting rail	[Band] Mounting bracket set + Band
P4	SCM-T-[Bore size]	SCM-Z-[Bore size]
P40	-[Stroke length]	SCM-Z-[Bore size]-P40

*1: Indicate X if the stroke length exceeds 300 mm. If exceeding 300 mm, a short rail (with 100 mm switch adjustment travel distance) will be included per switch.
*2: If indicating X when ordering mounting rails only, order the same number of rails as that of applicable switches.

How to order mounting bracket P4

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCM-LB-20	SCM-LB-25	SCM-LB-32	SCM-LB-40	SCM-LB-50	SCM-LB-63	SCM-LB-80	SCM-LB-100
Flange (FA/FB)	SCM-FA-20	SCM-FA-25	SCM-FA-32	SCM-FA-40	SCM-FA-50	SCM-FA-63	SCM-FA-80	SCM-FA-100
Eye bracket (CA)	SCM-CA-20	SCM-CA-25	SCM-CA-32	SCM-CA-40	SCM-CA-50	SCM-CA-63	-	-
Clevis bracket (CB)	-	-	-	-	-	-	SCM-CB-80	SCM-CB-100
Trunnion (TA/TB)	SCM-TA-20	SCM-TA-25	SCM-TA-32	SCM-TA-40	SCM-TA-50	SCM-TA-63	-	-

How to order mounting bracket P40

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCM-LB-20-P40	SCM-LB-25-P40	SCM-LB-32-P40	SCM-LB-40-P40	SCM-LB-50-P40	SCM-LB-63-P40	SCM-LB-80-P40	SCM-LB-100-P40
Flange (FA/FB)	SCM-FA-20-P40	SCM-FA-25-P40	SCM-FA-32-P40	SCM-FA-40-P40	SCM-FA-50-P40	SCM-FA-63-P40	SCM-FA-80-P40	SCM-FA-100-P40
Eye bracket (CA)	SCM-CA-20-P40	SCM-CA-25-P40	SCM-CA-32-P40	SCM-CA-40-P40	SCM-CA-50-P40	SCM-CA-63-P40	-	-
Clevis bracket (CB)	-	-	-	-	-	-	SCM-CB-80-P40	SCM-CB-100-P40
Trunnion (TA/TB)	SCM-TA-20-P40	SCM-TA-25-P40	SCM-TA-32-P40	SCM-TA-40-P40	SCM-TA-50-P40	SCM-TA-63-P40	-	-

*1: All mounting brackets have mounting bolts attached.
*2: The foot mounting bracket is provided as 2 pcs./set.

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Single acting/ push	Single acting/ pull	Double acting/ double rod	Double acting/ back to back	Double acting/ two-stage	Stroke adjustable (push)	Stroke adjustable (pull)	Double acting/ low speed	Double acting/ low friction	Double acting/ heat resistance	Double acting/ rubber scraper	Double acting/ tandem	Double acting/ direct mounting foot	Double acting/ rotation-stop
			Q	X	Y	D	B	W	P	R	O	U	T	G	W 4	LD	M
ø20 to 100	P4	●	●	○	○	○	○	○	○	○				○ ø40 and over	○	○	▲
	P40	●*2	●*2	○	○	○*2	○	○	○	○*1				○*2 ø40 and over	○	○	▲
	P42	▲*2	▲*2			▲*2	▲	▲	▲	▲*1					▲	▲	

●: Applicable models
○: Semi-applicable models
▲:Contact CKD for details.
▭: Not applicable

*1: Zinc plating is used for the sealing washer.
*2: Zinc plating is used for the cushion packing. (excluding ø50, ø63)

How to order

Without switch (built-in magnet for switch)

SCM - LB - 40 B - 100 ——— M P4/P40 I

With switch (built-in magnet for switch)

SCM - LB - 40 B - 100 - SW11 - D - ○ M P4/P40 I

Ⓐ Mounting *1

Ⓑ Bore size

Ⓒ Cushion

Ⓓ Stroke

Ⓔ Switch model No. *3

Ⓕ Switch quantity

Ⓖ Switch mounting

Ⓗ Option *4

Ⓘ Accessory *5

Code	Description								
Ⓐ Mounting									
	Bore size (ø)	20	25	32	40	50	63	80	100
00	Basic	●	●	●	●	●	●	●	●
LB	Axial foot	●	●	●	●	●	●	●	●
FA	Rod side flange	●	●	●	●	●	●	●	●
FB	Head side flange	●	●	●	●	●	●	●	●
CA	Eye bracket	●	●	●	●	●	●		
CB	Clevis bracket (pin and snap ring attached)							●	●
TA	Rod side trunnion	●	●	●	●	●	●		
TB	Head side trunnion	●	●	●	●	●	●		

Ⓑ Bore size (mm)	
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

Ⓒ Cushion	
B	With two-sided air cushion
R	Rod side air cushioned
H	Head side air cushioned
D	With two-sided rubber cushion

Ⓓ Stroke (mm)

Bore size	Stroke *2	Custom Stroke
ø20 to ø32	**10 to 1000**	**In 1 mm increments**
ø40 to ø100	**10 to 1500**	

Ⓔ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓕ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3
4	4 (when there are more than 4 switches, indicate switch quantity.)

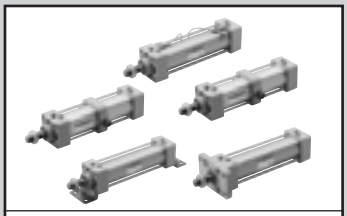
Ⓖ Switch mounting	
Blank	Rail method
Z	Band method

Ⓗ Option	
Q	Switch rail attached at shipment
M	Piston rod, rod nut material (stainless steel)

Ⓘ Accessory									
	Bore size (ø)	20	25	32	40	50	63	80	100
I	Rod eye	●	●	●	●	●	●	●	●
Y	Rod clevis (pin and snap ring attached)	●	●	●	●	●	●	●	●
B1	Eye bracket							●	●
B2	Clevis bracket	●	●	●	●	●	●		

Precautions for model No. selection

*1: Mounting bracket will be shipped with the product.
*2: Refer to the previous page for the min. stroke length.
*3: When the bore size is ø20 to ø40 and switch mounting is the rail type, SW19, SWBW, SWCC, SWDK, SWDL, and SWDM cannot be mounted.
*4: "Q" (switch rail attached at shipment) is not available for "Z" switch mounting.
*5: "I" and "Y" cannot be selected together.
*6: Refer to "Pneumatic Cylinders I (Catalog No.CB-029SA)" for made-to-order specifications of rod end form.
*7: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.
*8: Speed controllers are available as a related product. Contact CKD for details.



Pneumatic Cylinders I
Catalog No. CB-029SA

Tie rod cylinder Double acting/ Single rod

SCG Series

● Bore size:ø32/ø40/ø50/ø63/ø80/ø100

JIS symbol 

RoHS CAD

Specifications

Descriptions		SCG					
Bore size mm		ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		1.0					
Min. working pressure MPa		0.05					
Proof pressure MPa		1.6					
Ambient temperature °C		-10 to 60 (no freezing)					
Port size		Rc1/8	Rc1/4		Rc3/8		Rc1/2
Stroke tolerance mm	With rubber cushion	$^{+1.4}_{0}$ (up to 1000), $^{+1.8}_{0}$ (1001 to 1500)					
	With air cushion	$^{+1.0}_{0}$ (up to 360), $^{+1.4}_{0}$ (361 to 1000), $^{+1.8}_{0}$ (1001 to 1500)					
Working piston speed mm/s		30 to 1000 (Operate within the allowable absorbed energy.)					
Cushion		Either air cushion or rubber cushion can be selected					
Effective air cushion length mm		8.6	8.6	13.4	13.4	15.4	15.4
Lubrication		Not available					
Allowable absorbed energy J	With rubber cushion	0.5	0.9	1.6	1.6	3.3	5.8
	With air cushion	2.5	3.7	8.0	14.4	25.4	45.6

Stroke

Bore size(mm)	Standard Stroke(mm)	Max. Stroke(mm)	Available stroke length	Min. Stroke(mm)
ø32	25/50/75/100 150/200/250 300/350/400 450/500	600	700	1
ø40			800	
ø50			1200	
ø63			1200	
ø80		700	1400	
ø100		800	1500	

*1: The custom Stroke is available in 1mm increments.
*2: If the max. Stroke is exceeded, product specifications may not be met, depending on operating conditions, Contact CKD for details.

How to order switch mounting bracket

P4	SCG-T-[Bore size]
P40	SCG-T-[Bore size]-P40

How to order mounting bracket P4

Bore size (mm) / Mounting bracket	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCG-LB-32	SCG-LB-40	SCG-LB-50	SCG-LB-63	SCG-LB-80	SCG-LB-100
Flange (FA) (FB) *1	SCG-FA-32	SCG-FA-40	SCG-FA-50	SCG-FA-63	SCG-FA-80	SCG-FA-100
Eye bracket (CA)	SCG-CA-32	SCG-CA-40	SCG-CA-50	SCG-CA-63	SCG-CA-80	SCG-CA-100
Clevis bracket (CB)	SCG-CB-32-P4	SCG-CB-40-P4	SCG-CB-50-P4	SCG-CB-63-P4	SCG-CB-80-P4	SCG-CB-100-P4

How to order mounting bracket P40

Bore size (mm) / Mounting bracket	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SCG-LB-32-P40	SCG-LB-40-P40	SCG-LB-50-P40	SCG-LB-63-P40	SCG-LB-80-P40	SCG-LB-100-P40
Flange (FA) (FB) *1	SCG-FA-32-P40	SCG-FA-40-P40	SCG-FA-50-P40	SCG-FA-63-P40	SCG-FA-80-P40	SCG-FA-100-P40
Eye bracket (CA)	SCG-CA-32-P40	SCG-CA-40-P40	SCG-CA-50-P40	SCG-CA-63-P40	SCG-CA-80-P40	SCG-CA-100-P40
Clevis bracket (CB)	SCG-CB-32-P40	SCG-CB-40-P40	SCG-CB-50-P40	SCG-CB-63-P40	SCG-CB-80-P40	SCG-CB-100-P40

Note: The foot mounting bracket (LB) is provided as 2 pcs./set.

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Double acting/ double rod	Double acting/ low speed	Double acting/ low friction	Double acting/ rubber scraper	Double acting/ rotation-stop	Double acting/ coolant proof	Double acting/ anti-spatter adherence
			Q	D	O	U	G	M	G2/G3	G1/G4
ø32 to 100	P4	●	●	○			○			
	P40	●*	●*	○*			○*			

●: Applicable models ○: Semi-applicable models
▲:Contact CKD for details. ▭: Not applicable

*: Zinc plating is used for the cushion packing.

How to order

Without switch

SCG - LB - 40 B - 100 —— M P4/P40 I

With switch

SCG - LB - 40 B - 100 - SW11 - R - M P4/P40 I

Model No.
Ⓐ Mounting *1
Ⓑ Bore size
Ⓒ Cushion
Ⓓ Stroke
Ⓔ Switch model No.
Ⓕ Switch quantity *2
Ⓖ Option
Ⓗ Accessory *3

Code	Description
Ⓐ Mounting	
00	Basic
LB	Axial foot
FA	Rod side flange
FB	Head side flange
CA	Eye bracket
CB	Clevis bracket (pin and split pin attached)
TA	Rod side trunnion
TB	Head side trunnion
TC	Intermediate trunnion
Ⓑ Bore size (mm)	
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
Ⓒ Cushion	
B	Two-sided air cushion (basic)
D	Two-sided rubber cushion
Note: The rubber cushioned type has a longer total length than the air cushioned type.	

Ⓓ Stroke (mm)

Bore size	Stroke	Available Stroke	Custom Stroke
ø32	1 to 600	700	In 1 mm increments
ø40		800	
ø50		1200	
ø63			
ø80	1 to 700	1400	
ø100	1 to 800	1500	

Ⓔ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓕ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3
Ⓖ Option	
M	Piston rod, rod nut material (stainless steel)
Ⓗ Accessory	
I	Rod eye
Y	Rod clevis (pin and split pin attached)
B1	Eye bracket
B2	Clevis bracket (pin and split pin attached)
B3	Eye bracket
B4	Trunnion No. 2 bracket (2 pcs./set)

⚠ Precautions for model No. selection

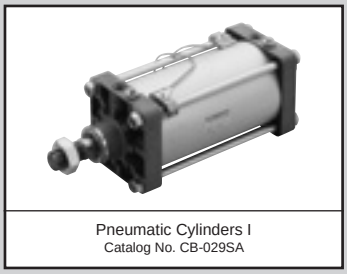
*1: Mounting bracket will be shipped with the product. Trunnion types (TA, TB, TC) are assembled at shipment.
*2: When selecting TA or TB mounting, the switch quantity is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.
*3: "I" and "Y" cannot be selected together.

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R) 1/8	1/4	3/8	1/2	Compatible tube O.D. 4(ø4)	6(ø6)	8(ø8)	10(ø10)	12(ø12)	Page
SC3W-6-*-P4		●				●	●	●			530
SC3W-8-*-P4			●				●	●	●		
SC3W-10-*-P4				●				●	●	●	
SC3W-15-*-P4					●				●	●	

Specify the compatible tube O.D. code for *.



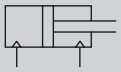
Pneumatic Cylinders I
Catalog No. CB-029SA

Medium bore size cylinder
Double acting/ Single rod/no-lubrication

SCS2 Series

● Bore size:ø125/ø140/ø160/ø180/ø200/ø250

JIS symbol



RoHS

Specifications

Descriptions		SCS2-N/SCS2-LN					
Bore size mm		ø125	ø140	ø160	ø180	ø200	ø250
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		1.0					
Min. working pressure MPa		0.05					
Proof pressure MPa		1.6					
Ambient temperature °C		−5 to 60 (However, no freezing)					
Port size		Rc 1/2	Rc 3/4				Rc1
Stroke tolerance mm		$^{+1.0}_{0}$ (up to 300), $^{+1.4}_{0}$ (up to 1000), $^{+1.8}_{0}$ (up to 1200)					
Working piston speed mm/s		20 to 1000 (Operate within the absorbed energy.)					
Cushion		Air cushion					
Effective air cushion length mm		21.6	21.6	21.6	21.6	26.6	26.6
Lubrication		Not available					
Allowable absorbed energy J	Cushioned	63.5	91.5	116	152	233	362
	Without cushion	0.371	0.386	0.386	0.958	1.08	2.32
		Without a cushion, large energy generated by the external load cannot be absorbed. We recommend using an external shock absorber.					

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Available Stroke (mm)	Min. Stroke (mm)	Trunnion Min. Stroke (mm)
ø125	50/75/100/150/200/250/300	800	2000	1	23
ø140					25
ø160			1947		27
ø180		900	1525		28
ø200		945	945		28
ø250		751	751		28

*1: The custom stroke length is available in 1 mm increments.
*2: If the max. Stroke is exceeded, product specifications may not be met, depending on operating conditions. Contact CKD in this case.

Compatibility table by variation

Applicable bore size		Double acting/ Lubrication	Double acting/ No lubrication	Double acting/ With switch	Stroke adjustable (Push)	Double acting/ Heat resistance	Double acting/ Double rod	Double acting/ Back to back	Double acting/ Two-stage	Double acting/ Low hydraulic	Double acting/ Powerful Scraper
			N	LN	P	T	D	B	W	H	G
ø125 to 250	P4		○	○	▲		▲	▲	▲		▲

●: Applicable models ○: Semi-applicable models ▲:Contact CKD for details. □: Not applicable

How to order

●No-lubrication without switch

SCS2-N — LB - 125 B - 50 ——— P4 Y

●No-lubrication with switch

SCS2-LN — LB - 125 B - 50 — SW11 - R - P4 Y

Model No. | Ⓐ Mounting *1 | Ⓑ Bore size | Ⓒ Cushion | Ⓓ Stroke | Ⓔ Switch model No. | Ⓕ Switch quantity | Ⓖ Option *2 | Ⓗ Accessory *3

Code	Description
Ⓐ Mounting	
00	Basic
LB	Axial foot
FA	Rod side flange
FB	Head side flange
CA	Eye bracket
CB	Clevis bracket (Pin and snap ring attached)
TC	Intermediate trunnion
TA	Rod side trunnion
TB	Head side trunnion

Ⓑ Bore size (mm)	
125	ø125
140	ø140
160	ø160
180	ø180
200	ø200
250	ø250

Ⓒ Cushion	
B	Both sides cushioned
R	Rod side cushioned
H	Head side cushioned
N	Without cushion

Ⓓ Stroke (mm)

Bore size	Stroke	Available Stroke	Custom Stroke
ø125 to ø140	**1 to 800**	**2000**	**In 1 mm increments**
ø160	**1 to 800**	**1947**	
ø180	**1 to 900**	**1525**	
ø200	**1 to 945**	**945**	
ø250	**1 to 751**	**751**	

Ⓔ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓕ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3
4	4

Ⓖ Option		
M	Piston rod, rod nut material (Stainless steel)	
Blank	Cushion needle position (standard)	Standard
R	Cushion needle position R	
S	Cushion needle position S	
T	Cushion needle position T	

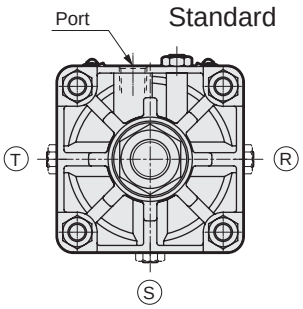
Ⓗ Accessory	
I	Rod eye
Y	Rod clevis (Pin and snap ring attached)
B1	Eye bracket
B2	Clevis bracket (Pin and snap ring attached)

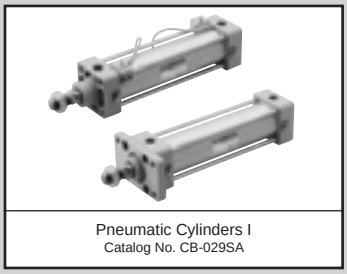
⚠ Precautions for model No. selection

*1: Supporting hole is available custom made for ø125 to 160 only. Contact CKD Sales for details.
*2: Check below for the cushion needle position indication.
*3: "I" and "Y" cannot be selected together.
*4: Made-to-order product. Contact CKD Sales for details.

Cushion needle position

(Needle position with the port on the top when viewed from the rod end)





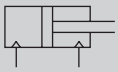
Pneumatic Cylinders I
Catalog No. CB-029SA

Medium bore size cylinder
Double acting/ Single rod/with switch

SCA2 Series

● Bore size: ø40/ø50/ø63/ø80/ø100

JIS symbol



Specifications

Descriptions		SCA2				
Tubel.D. mm		ø40	ø50	ø63	ø80	ø100
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure MPa		0.05				
Proof pressure MPa		1.6				
Ambient temperature °C		–10 to 60 (whereand, no freezing)				
Port size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (up to 360), $^{+1.4}_{0}$ (up to 800)				
Working piston speed mm/s		50 to 1000 (Use within the allowable absorbed energy.)				
Cushion		Air cushion				
Effective air cushion length		14.6	16.6	16.6	20.6	23.6
Lubrication		Not available				
Allowable absorbed energy J	Cushioned	4.29	8.37	15.8	27.9	49.8
	Without cushion	0.067	0.079	0.079	0.201	0.301
		Without a cushion, large energy generated by the external load cannot be absorbed. We recommend using an external shock absorber.				

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Available Stroke (mm)	Min.Stroke (mm)
ø40	25/50/75/100/150/ 200/250/300/350/ 400/450/500	600	1600	1
ø50			2000	
ø63			2500	
ø80		700		
ø100		800		

*1: The custom stroke length is available in 1 mm increments.
***2: If the max. stroke length is exceeded, product specifications may not be met, depending on operating conditions. Contact CKD in this case.**

Compatibility table by variation

Applicable bore size		Double acting/ single rod
ø40 to ø100	P4	▲
	P40	▲*

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭: Not applicable

*: Zinc plating is used for the cushion packing.

How to order

Without switch (built-in magnet for switch)

SCA2 — LB - 40 ○ B - 100 ——— S P4/P40 I

With switch (built-in magnet for switch)

SCA2 — LB - 40 ○ B - 100 - SW11 - R - S P4/P40 I

Ⓐ Mounting *1

Ⓑ Bore size

Ⓒ Port thread

Ⓓ Cushion

Ⓔ Stroke

Ⓕ Switch Model No. *2

Ⓖ Switch quantity *3

Ⓗ Option *4

Ⓘ Accessory *5

Code	Description
Ⓐ Mounting	
00	Basic
LB	Axial foot
FA	Rod side flange
FB	Head side flange
FC	Head side special flange
CA	Eye bracket
CB	Clevis bracket (pin and snap ring attached)
TC	Intermediate trunnion
TA	Rod side trunnion
TB	Head side trunnion
TF	Intermediate hole trunnion(ø40 cannot be selected)
TD	Rod side hole trunnion(ø40 cannot be selected)
TE	Head side hole trunnion(ø40 cannot be selected)
Ⓑ Bore size (mm)	
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
Ⓒ Port thread	
Blank	RcNe#
N	NPTNe#
G	GNe#
Ⓓ Cushion	
B	Both sides cushioned
R	Rod side cushioned
H	Head side cushioned
N	Without cushion

Ⓔ Stroke (mm)

Bore size	Stroke	Available Stroke	Custom Stroke
ø40	**1 to 600**	**1600**	**In 1 mm increments**
ø50	**1 to 600**	**2000**	
ø63	**1 to 600**	**2500**	
ø80	**1 to 700**	**2500**	
ø100	**1 to 800**	**2500**	

Ⓕ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
*** Lead wire length**	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)
Ⓖ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3
Ⓗ Option	
M	Piston rod material (stainless steel)
Blank	Cushion needle position R (standard)
S	Cushion needle position S
T	Cushion needle position T
Ⓘ Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring attached)
B3	Eye bracket
B4	Trunnion No. 2 bracket (2 pcs./set)

Precautions for model No. selection

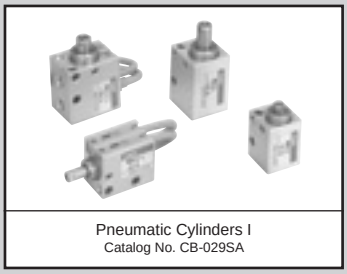
*1: Mounting bracket will be shipped with the product. (Trunnion types are assembled at shipment.)
*2: Switches are shipped with the product.
*3: When selecting TA, TD, TB or TE mounting, the switch quantity is limited to "H" (1 on head side) for TA and TD, and "R" (1 on rod side) for TB and TE.
*4: When selecting TA, TD, TB or TE mounting form, the cushion needle position is blank and fixed at S, and cannot be selected.
*5: "I" and "Y" cannot be selected together.
*6: Made to order. Contact CKD Sales for details.

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)				Compatible tube O.D.						Page
		1/8	1/4	3/8	1/2	4(ø4)	6(ø6)	8(ø8)	10(ø10)	12(ø12)		
SC3W-6-*-P4		●				●	●	●				530
SC3W-8-*-P4			●				●	●	●			
SC3W-10-*-P4				●				●	●	●		
SC3W-15-*-P4					●				●	●		

Specify the compatible tube O.D. code for *.



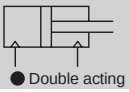
Pneumatic Cylinders I
Catalog No. CB-029SA

Compact direct mounting cylinder Double acting/ Single rod

MDC2 Series

●Bore size: ø6,ø8,ø10

JIS symbol



RoHS CAD

Specifications

Item	MDC2/MDC2-L (with switch)		
Bore size mm	ø6	ø8	ø10
Actuation	Double acting		
Working fluid	Compressed air		
Max. working pressure MPa	0.7		
Min. working pressure MPa	0.15		0.1
Proof pressure MPa	1.05		
Ambient temperature °C	-10 to 60 (no freezing) *1		
Port size	M3		M5
Stroke tolerance mm	+0.5 0		
Working piston speedmm/s	50 to 500		
Cushion	No		
Lubrication	Not available		
Allowable absorbed energy J	This product cannot absorb the energy generated by an external load mounted on the cylinder. When using the product with no load, separately provide a shock absorber on the outside.		

*1: When using the proximity switch, use at 40°C or less.

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Switch 2Min. Stroke with stopper (mm)		With 1 switchesMin. Stroke (mm)	
			Reed switch	Proximity switch	Reed switch	Proximity switch
ø6	4/6/8	8	6	4 (8)	4	4
ø8	4/6/8	8	8	4 (8)	4	4
ø10	4/6/10	10	6	4 (10)	4	4

*1: Products with Stroke other than standard Stroke are not available.
*2: F2Y, F3Y or F3P have the min. Stroke as the dimensions in ( ).

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Single acting/ push	Single acting/ pull	Double acting/ fine speed
			X	Y	F
ø6 to 10	P4	●	○	○	
	P40	●	○	○	
	P42	▲			

●: Applicable models ○: Semi-applicable models ▲:Contact CKD for details. ▭: Not applicable

How to order

● Without switch

MDC2 - 6 - 4 ——— P4 / P40

● With switch

MDC2-L - 6 - 4 - SW81 - R - P4 / P40

Ⓐ Model No.
Ⓑ Bore size
Ⓒ Stroke
Ⓓ Switch model No. *1 *2 *3
Ⓔ Switch quantity

Code	Description	
Ⓐ Model No.		
MDC2	Double acting/ Single rod	Without switch
MDC2-L	Double acting/ Single rod	With switch
Ⓑ Bore size		
6	ø6	
8	ø8	
10	ø10	
Ⓒ Stroke (mm)		
4	4 (ø6 to ø10)	
6	6 (ø6 to ø10)	
8	8 (ø6, ø8)	
10	10 (ø10)	
Ⓓ Switch model No.		
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.		
Ⓔ Switch quantity		
R	1 on rod side	
H	1 on head side	
D	2	

⚠ Precautions for model No. selection

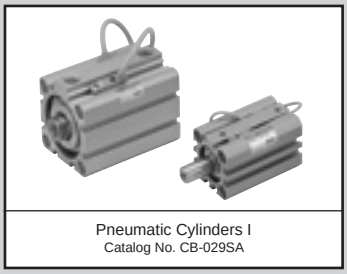
*1: Min. stroke length with two reed switches is 6 mm for ø6, 8 mm for ø8, and 6 mm for ø10.
*2: For MDC2 with reed switch, the cylinder cannot be mounted on a magnetic substance (iron plate, etc.). Otherwise, this could lead to switch detection malfunction.
*3: When using MDC2-L-6 with reed switch, use a non-magnetic bolt (stainless steel hexagon socket head cap screw, etc.) for cylinder mounting bolt. Otherwise, this could lead to switch detection malfunction.

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)			Compatible tube O.D.			Page
		M3	M5	1/8	4(ø4)	6(ø6)	8(ø8)	
SC3W-M3-*-P4		●			●			530
SC3W-M5-*-P4			●		●	●		

Specify the compatible tube O.D. code for *.



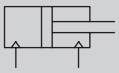
Pneumatic Cylinders I
Catalog No. CB-029SA

Compact cylinder Double acting/ Single rod

SSD2 Series

●Bore size:ø12/ø16/ø20/ø25/ø32/ø40/ ø50/ø63/ø80/ø100

JIS symbol



Specifications

Item		SSD2 SSD2-L (with switch)									
Bore size mm		ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting									
Working fluid		Compressed air									
Max. working pressure MPa		1.0									
Min. working pressure MPa		0.1							0.05		
Proof pressure MPa		1.6									
Ambient temperature °C		-10 to 60 (no freezing)									
Port size		M5				Rc1/8 *1		Rc1/4		Rc3/8	
Stroke tolerance mm	With rubber cushion	+2.0 0									
	Without cushion	+1.0 0									
Working piston speed mm/s		50 to 500							50 to 300		
Cushion		With or without cushion can be selected									
Lubrication		Not available									
Allowable absorbed Energy J	With rubber cushion	0.03	0.05	0.10	0.16	0.16	0.44	0.75	0.78	2.51	3.92
	Without cushion	0.004	0.01	0.016	0.021	0.025	0.092	0.1	0.12	0.27	0.56

*1: The ø32 bore size with a 5 mm stroke and without a switch has a port size of M5.

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø12	5/10/15/20 25/30	30	1
ø16			
ø20	5/10/15/20/25 30/35/40/45/50	50	
ø25			
ø32	5/10/15/20/25/30/ 35/40/45/50/75/100	100	
ø40			
ø50	10/15/20/25 30/35/40/45/50 75/100		
ø63			
ø80			
ø100			

*1:If the stroke exceeds the max. Stroke, consult with CKD Sales.

[Stroke table]

Stroke (mm)		Applicable bore size									
		12	16	20	25	32	40	50	63	80	100
Standard Stroke	5	●	●	●	●	●	●				
	10	●	●	●	●	●	●	●	●	●	●
	15	●	●	●	●	●	●	●	●	●	●
	20	●	●	●	●	●	●	●	●	●	●
	25	●	●	●	●	●	●	●	●	●	●
	30	●	●	●	●	●	●	●	●	●	●
	35			●	●	●	●	●	●	●	●
	40			●	●	●	●	●	●	●	●
	45			●	●	●	●	●	●	●	●
	50			●	●	●	●	●	●	●	●
	75					●	●	●	●	●	●
	100					●	●	●	●	●	●
Min. Stroke (mm) *1		1									
Max. Stroke (mm)		30		50		100					
Custom Stroke *2		In 1 mm increments									

1: Less than 5 mm with 1-color display switch and less than 10 mm with the 2-color display, off-delay, AC magnetic field proof, T1 or T8* switch are not available. Refer to "Pneumatic Cylinders I (Catalog No. CB-029SA)" for the min. stroke length with switch.

*2: The dimensions of the total length with the custom stroke are handled the same as the next longer standard Stroke.

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Double acting/ single rod High load	Double acting/ single rod long Stroke	Single acting/ push	Single acting/ pull	Double acting/ rubber-air cushioned High load	Double acting/ position locking	Double acting/ double rod	Double acting/ back to back	Double acting/ two-stage	Double acting/ fine speed	Double acting/ low speed	Double acting/ low friction High load	Double acting/ heat resistance	Double acting/ packing Fluoro rubber	Double acting/ rubber scraper	Double acting/ rotation-stop
			K		X	Y	KC	Q	D	B	W	F	0	KU	T1	T2	G	M
ø12 to 200	P4	●	●	○	○	○	○	○	○	○	○					○	○	▲
	P40	●	●	○	○	○	○	○	○	○	▲					○	○	▲
	P42	▲	▲	▲			▲	▲	▲	▲	▲					▲		

●: Applicable models
○: Semi-applicable models
▲:Contact CKD for details.
: Not applicable

How to order

Without switch (without magnet for switch)

SSD2 - 12 ○ - 5 ——— N P4/P40 - LB - I

With switch (built-in magnet for switch)

SSD2-L - 12 ○ - 10 - SW11 - R - N P4/P40 - LB - I

A Model No.
B Bore size
C Cushion
D Stroke
E Switch model No. *1 *2 *3 *8 *9
F Switch quantity
G Option*4
H Mounting bracket *5 *6
I Accessory *7

Code	Description
A Model No.	
SSD2	Double acting/ Single rod
SSD2-L	Double acting/ Single rod/with switch
B Bore size (mm)	
12	ø12
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
C Cushion	
Blank	Without cushion
D	With rubber cushion
D Stroke (mm)	
	Refer to the Stroke table.
E Switch model No.	
	Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.
F Switch quantity	
R	1 on rod side
H	1 on head side
D	2
G Option	
	Bore size (mm): 12 16 20 25 32 40 50 63 80 100
Blank	Rod end female thread: ● ● ● ● ● ● ● ● ● ●
N	Rod end male thread: ● ● ● ● ● ● ● ● ● ●
M *4	Piston rod material (stainless steel): ● ● ● ● ● ● ● ● ● ● / ● ● ● ● ● ● ● ● ● ● / ● ● ● ● ● ● ● ● ● ●
H Mounting bracket	
Blank	Without mounting bracket
LB	Axial foot type
CB	Clevis bracket (pin and snap ring attached)
FA	Rod side flange
FB	Head side flange
I Accessory (available when rod end male thread "N" is selected)	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)

Precautions for model No. selection

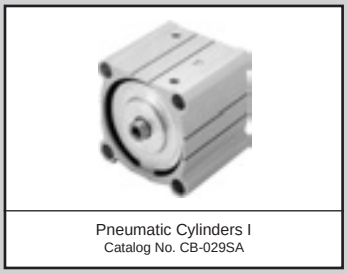
1: ø12,T2YD switch cannot be installed on ø16.
2: T8 switch cannot be installed on ø12 to ø32.
*3: The F type switch can only be mounted on the piping port surface with a bore size of ø20, 25.
*4: Piston rod material of ø12 to ø25 is stainless steel as standard. C-snap ring will be stainless steel, not steel. The rod end male thread nut is stainless steel.
*5: The mounting bracket is attached at shipment.
*6: The projection dimension of piston rod WF when LB or FA is selected is different from that of the standard. Refer to "Pneumatic Cylinders I (Catalog No. CB-029SA)" for details. The number of the specified protruding dimension will be added at the end of the model No. printed on the metal plate on the body.
*7: "I" and "Y" cannot be selected together.
*8: The F switch with L lead wire on ø20 models cannot be selected on Strokes of 15 mm or under.
*9: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.
*10: 5 m lead wire for the F switch is made to order.

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)			Compatible tube O.D.				Page
		M5	1/8	1/4	4 (ø4)	6 (ø6)	8 (ø8)	10 (ø10)	
SC3W-M5- *-P4		●			●	●			530
SC3W-6- *-P4			●		●	●	●		
SC3W-8- *-P4				●		●	●	●	

Specify the compatible tube O.D. code for *.

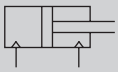


Pneumatic Cylinders I
Catalog No. CB-029SA

Compact cylinder Double acting/ Single rod (large bore size)

SSD2 Series

●Bore size:ø125/ø140/ø160/ø180/ø200

JIS symbol 

RoHS CAD

Specifications

Item		SSD2 SSD2-L (with switch)				
Bore size mm		ø125	ø140	ø160	ø180	ø200
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0			0.7	
Min. working pressure MPa		0.05				
Proof pressure MPa		1.6			1.05	
Ambient temperature °C		-10 to 60 (no freezing)				
Port size		Rc3/8			Rc1/2	
Stroke tolerance mm		$^{+2.0}_{0}$				
Working piston speed mm/s		50 to 300			20 to 300	
Cushion		With rubber cushion (standard)				
Lubrication		Not available				
Allowable absorbed Energy J	With rubber cushion	6.52	6.52	7.78	12.4	
	Without cushion	-				

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø125	10, 20, 30, 40, 50 75, 100, 125, 150 175, 200, 250, 300	300	1
ø140			
ø160			
ø180			
ø200			

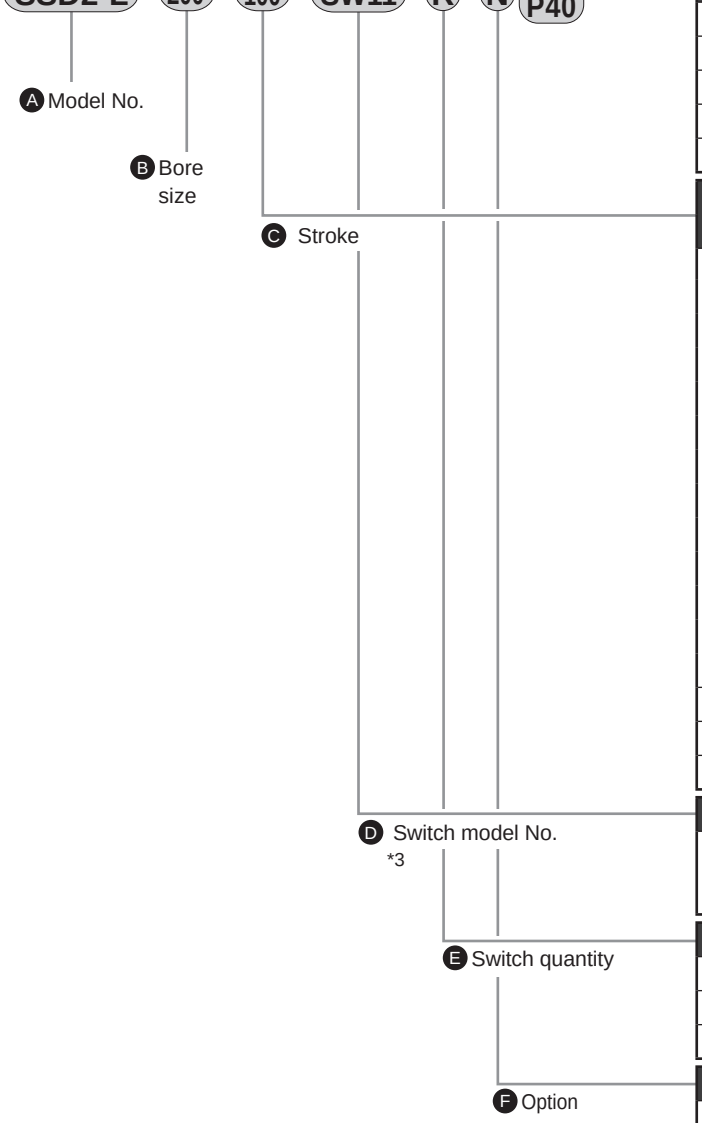
How to order

Without switch

SSD2 - **125** - **50** ——— **N** **P4 P40**

With switch

SSD2-L - **200** - **100** - **SW11** - **R** - **N** **P4 P40**



Code	Description
A Model No.	
SSD2	Double acting/ Single rod
SSD2-L	Double acting/ Single rod/with switch

B Bore size (mm)	
125	ø125
140	ø140
160	ø160
180	ø180
200	ø200

C Stroke (mm)		Applicable bore size				
		ø125	**ø140**	**ø160**	**ø180**	**ø200**
Standard Stroke	10	●	●	●	●	●
	20	●	●	●	●	●
	30	●	●	●	●	●
	40	●	●	●	●	●
	50	●	●	●	●	●
	75	●	●	●	●	●
	100	●	●	●	●	●
	125	●	●	●	●	●
	150	●	●	●	●	●
	175	●	●	●	●	●
	200	●	●	●	●	●
	250	●	●	●	●	●
	300	●	●	●	●	●
Min. Stroke (mm) *1		1				
Max. Stroke (mm)		300				
Custom Stroke *2		In 1 mm increments				

D Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

E Switch quantity	
R	1 on rod side
H	1 on head side
D	2

F Option	
Blank	Rod end female thread
N	Rod end male thread

Precautions for model No. selection

1: Less than 5 mm for 1-color display switch, less than 10mm for the 2-color display, off-delay, AC magnetic field proof, T1, T8* switches are not available. Refer to "Pneumatic Cylinders I (Catalog N o.C B-029SA)" for the switch quantity and the min. stroke length.

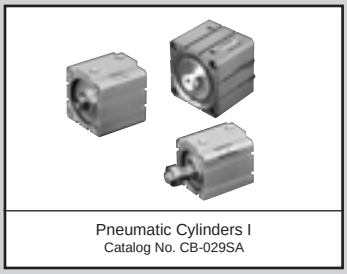
*2: Total length dimension with custom Stroke is handled as the custom stroke dedicated length.

*3: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

Related products

Speed controller												
Model No.	Appearance	Port size(Rc or R)				Compatible tube O.D.					Page
		1/8	1/4	3/8	1/2	4 (ø4)	6(ø6)	8(ø8)	10 (ø10)	12(ø12)	
SC3W-10-*-P4				●				●	●	●	530
SC3W-15-*-P4					●				●	●	

Specify the compatible tube O.D. code for *.



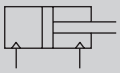
Pneumatic Cylinders I
Catalog No. CB-029SA

Compact cylinder Double acting/ Single rod

SSD Series

●Bore size:ø12/ø16/ø20/ø25/ø32/ø40/ø50/ ø63/ø80/ø100/ø125/ø140/ø160

JIS symbol



RoHS CAD

Specifications

Item		SSD SSD-L (With switch)												
Bore size mm		ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160
Actuation		Double acting												
Working fluid		Compressed air												
Max. working pressure MPa		1.0												
Min. working pressure MPa		0.1							0.05					
Proof pressure MPa		1.6												
Ambient temperature °C		-10 to 60 (no freezing)												
Port size		M5				Rc 1/8		Rc 1/4		Rc 3/8				
Stroke Tolerancemm	With rubber cushion	+2.0 0												
	Without cushion	+1.0 0										-		
Working piston speed mm/s		50 to 500							50 to 300					
Cushion		With or without cushion can be selected										With rubber cushion (standard)		
Lubrication		Not available												
Allowable absorbed Energy J	With rubber cushion	0.03	0.05	0.10	0.16	0.16	0.44	0.75	0.78	2.51	3.92	6.52	6.52	7.78
	Without cushion	0.004	0.01	0.016	0.021	0.025	0.092	0.1	0.12	0.27	0.56	-		

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø12	5, 10, 15, 20, 25, 30	*1) 30	1
ø16			
ø20	5, 10, 15, 20, 25, 30, 40, 50	*1) 50	
ø25			
ø32			
ø40			
ø50			
ø63	5, 10, 20, 30, 40, 50	*1) 50	
ø80			
ø100			
ø125	10, 20, 30, 40 50, 60, 70, 80 90, 100	300	
ø140			
ø160			

*1)ø12 to ø100 is a high load type if the standard stroke is exceeded. Refer to page 22 for specifications.

(Stroke table)

Stroke (mm)	Applicable bore size												
	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160
Standard Stroke 5	●	●	●	●	●	●	●	●	●	●			
10	●	●	●	●	●	●	●	●	●	●	●	●	●
15	●	●	●	●	●	●	●						
20	●	●	●	●	●	●	●	●	●	●	●	●	●
25	●	●	●	●	●	●	●						
30	●	●	●	●	●	●	●	●	●	●	●	●	●
40			●	●	●	●	●	●	●	●	●	●	●
50			●	●	●	●	●	●	●	●	●	●	●
60											●	●	●
70											●	●	●
80											●	●	●
90											●	●	●
100											●	●	●
Min. Stroke (mm) *1	1												
Max. Stroke (mm)	30		50								300		
Custom Stroke *2	In 1 mm increments												

If the standard stroke is exceeded, the high load type (K) is used. Refer to page 22 for specifications and "Pneumatic Cylinders I (Catalog No.CB-029SA)" for details.

1: Less than 5 mm with 1-color display switch and less than 10 mm with the 2-color display, off-delay, AC magnetic field proof, T1 or T8* switch are not available. Refer to "Pneumatic Cylinders I (Catalog No. CB-029SA)" for the number of installed switches and the minimum Stroke.

*2: Custom Stroke of ø12 to ø100 and ø125 to ø160 is handled differently as follows. Please be careful. The dimensions of the total length with the custom Stroke [ø12 to ø100] are handled the same as the next longer standard Stroke. Total length dimension with custom Stroke [ø125 to ø160] is handled as the custom stroke dedicated length.

How to order mounting bracket P4

Bore size (mm) / Mounting bracket	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160
Foot (LB)	SSD-LB-12	SSD-LB-16	SSD-LB-20	SSD-LB-25	SSD-LB-32	SSD-LB-40	SSD-LB-50	SSD-LB-63	SSD-LB-80	SSD-LB-100	SSD-LB-125	SSD-LB-140	SSD-LB-160
Foot (LB2)	SSD-LB2-12	SSD-LB2-16	SSD-LB2-20	SSD-LB2-25	SSD-LB2-32	SSD-LB2-40	SSD-LB2-50	SSD-LB2-63	SSD-LB2-80	SSD-LB2-100	-	-	-
Flange (FA/FB)	SSD-FA-12	SSD-FA-16	SSD-FA-20	SSD-FA-25	SSD-FA-32	SSD-FA-40	SSD-FA-50	SSD-FA-63	SSD-FA-80	SSD-FA-100	-	-	-
Clevis bracket (CB)	SSD-CB-12	SSD-CB-16	SSD-CB-20	SSD-CB-25	SSD-CB-32	SSD-CB-40	SSD-CB-50	SSD-CB-63	SSD-CB-80	SSD-CB-100	SSD-CB-125	SSD-CB-140	SSD-CB-160
Clevis bracket (CB2)	SSD-CB2-12	SSD-CB2-16	SSD-CB2-20	SSD-CB2-25	SSD-CB2-32	SSD-CB2-40	SSD-CB2-50	SSD-CB2-63	SSD-CB2-80	SSD-CB2-100	-	-	-

*1: The foot mounting bracket is provided as 2 pcs./set.
*2: For the P40 Series mounting bracket, indicate -P40 at the end of the model No.

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Single acting/ push	Single acting/ pull	Double acting/ double rod	Double acting/ back to back	Double acting/ two-stage	Double acting/ fine speed	Double acting/ low speed	Double acting/ heat resistance	Double acting/ rubber scraper	Double acting/ anti-spatter adherence	Double acting/ coolant proof	Double acting/ double rod/ anti-spatter adherence	Double acting/ rotation-stop
			Q	X	Y	D	B	W	F	O	T	G	G1/G4	G2/G3	DG1 DG4	M
ø12 to 160	P4	●	●	○	○	○	○	○				○				▲
	P40	●	●	○	○	○	○	○				○				▲
	P42	▲	▲			▲	▲	▲								

●: Applicable models
○: Semi-applicable models
▲:Contact CKD for details.
▭: Not applicable

How to order

Without switch

SSD - 12 ○ - 5 ——— N P4/P40 - LB - I

With switch

SSD-L - 12 ○ - 5 - SW11 - R - N P4/P40 - LB - I

2-color display/off-delay, with T1* switch (ø12, ø16 only)

SSD-L1 - 12 ○ - 10 - SW31 - R - N P4/P40 - LB - I

Ⓐ Model No.
Ⓑ Bore size
Ⓒ Cushion
Ⓓ Stroke
Ⓔ Switch model No.
*1
*2
*9
Ⓕ Switch quantity
Ⓖ Option
*3
Ⓗ Mounting bracket
*5
*6
*10
Ⓘ Accessory
*6

Code	Description
Ⓐ Model No.	
SSD	Double acting/ Single rod
SSD-L	Double acting/ Single rod/with switch
SSD-L1	ø12, ø16, 2 color display, off-delay, with T1* switch
Ⓑ Bore size (mm)	
12	ø12
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
125	ø125
140	ø140
160	ø160
Ⓒ Cushion	
Blank	Without cushion (ø125 and over have rubber cushion)
D	With rubber cushion (ø12 to ø100)
Ⓓ Stroke (mm)	
Refer to the Stroke table.	
Ⓔ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓕ Switch quantity	
R	1 on rod side
H	1 on head side
D	2

Ⓖ Option

	Bore size (mm)	12	16	20	25	32	40	50	63	80	100	125	140	160
Blank	Rod end female thread	●	●	●	●	●	●	●	●	●	●	●	●	●
N	Rod end male thread	●	●	●	●	●	●	●	●	●	●	●	●	●
P6	Copper and PTFE free specs	Supported as standard							●	●	●			
S	Dedicated unit for custom Stroke	●	●	●	●	●	●	●	●	●	●	Supported as standard		
M	Piston rod material (stainless steel)	●	●	●	●	●	●	●	●	●	●			

Ⓗ Mounting bracket	
LB	Axial foot type
LB2	Axial foot (compact)
CB	Clevis bracket (pin and snap ring attached)
CB2	Clevis bracket (compact)(Pin and snap ring attached)
FA	Rod side flange
FB	Head side flange
Ⓘ Accessory (Rod end male thread"N"is selected.)	
I	Rod eye
I2	Rod eye (compact)
Y	Rod clevis (pin and snap ring attached)
Y2	Rod clevis (compact) (pin and snap ring attached)

⚠ Precautions for model No. selection

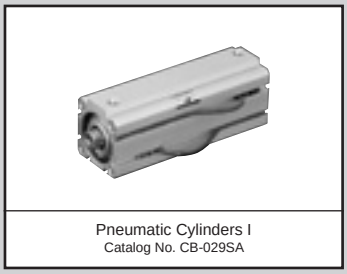
*1: ø12 to ø16 cannot be equipped with a strong magnetic field proof switch.
2: T8 switch cannot be installed on ø12 to ø32.
*3: Piston rod material of ø12 to ø25 is stainless steel as standard. C-snap ring will be stainless steel, not steel. The rod end male thread nut is stainless steel.
*4: The mounting bracket is attached at shipment.
*5: The projection dimension of piston rod WF when LB2 or FA is selected is different from that of the standard. Dimensions are in "Pneumatic Cylinders I (Catalog No. CB-029SA)" and the number of the specified projection dimension will be added at the end of the model No. printed on the metal plate on the body.
*6: "I" and "Y" cannot be selected together.
*7: Refer to "Pneumatic Cylinders I (Catalog No. CB-029SA)" for made to order specifications of rod end.
*8: Refer to "Pneumatic Cylinders I (Catalog No.CB-029S)" for combinations of variations and options.
*9: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.
*10: ø125 to ø160 is only available for LB and CB.

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)				Compatible tube O.D.					Page
		M5	1/8	1/4	3/8	4 (ø4)	6(ø6)	8(ø8)	10 (ø10)	12(ø12)	
SC3W-M5-*-P4		●				●	●				530
SC3W-6- *-P4			●			●	●	●			
SC3W-8- *-P4				●			●	●	●		
SC3W-10-*-P4					●			●	●	●	

Specify the compatible tube O.D. code for *.



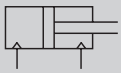
Pneumatic Cylinders I
Catalog No. CB-029SA

Compact cylinder Double acting/ Single rod/high load

SSD-K Series

●Bore size:ø12/ø16/ø20/ø25/ø32
ø40/ø50/ø63/ø80/ø100

JIS symbol



RoHS CAD

Specifications

Item	SSD-K SSD-KL (with switch)									
Bore size mm	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation	Double acting									
Working fluid	Compressed air									
Max. working pressure MPa	1.0									
Min. working pressure MPa	0.1							0.05		
Proof pressure MPa	1.6									
Ambient temperature °C	-10 to 60 (no freezing)									
Port size	M5				Rc 1/8		Rc 1/4		Rc 3/8	
Stroke tolerance mm	+2.0 0									
Working piston speed mm/s	50 to 500							50 to 300		
Cushion	Rubber cushion									
Lubrication	Not available									
Allowable absorbed energy J	0.04	0.09	0.16	0.16	0.40	0.63	0.98	1.56	2.51	3.92

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke(mm)
ø12	5, 10, 15, 20, 25, 30, 40, 50	*2) 100	1
ø16			
ø20		*2) 200	
ø25	10,15, 20, 25, 30, 40 50, 60, 70, 80, 90, 100	*2) 300	
ø32			
ø40			
ø50			
ø63	10, 20, 30, 40, 50 60, 70, 80, 90, 100		
ø80			
ø100			

*1) The custom stroke length is available in 1 mm increments. However, the total length is the same as that of the next longer standard stroke length.
*2) Stroke length over standard to maximum is available per 10 mm increments.
(Example) ø16: 60, 70, 80, 90, 100
*3) From 101 to 200 for ø20, 151 to 300 for ø25 to ø50, or 201 to 300 for ø63 to ø100, internal structure and total length are different in some products.

[Stroke table]

Stroke (mm)		Applicable bore size									
		ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Standard Stroke	5	●	●	●							
	10	●	●	●	●	●	●	●	●	●	●
	15	●	●	●	●	●	●	●			
	20	●	●	●	●	●	●	●	●	●	●
	25	●	●	●	●	●	●	●			
	30	●	●	●	●	●	●	●	●	●	●
	40	●	●	●	●	●	●	●	●	●	●
	50	●	●	●	●	●	●	●	●	●	●
	60				●	●	●	●	●	●	●
	70				●	●	●	●	●	●	●
	80				●	●	●	●	●	●	●
	90				●	●	●	●	●	●	●
	100				●	●	●	●	●	●	●
Min. Stroke (mm) *1		1									
Max. Stroke (mm)		100		200	300						
Custom Stroke *2		In 1 mm increments									

1: Less than 5 mm for 1-color display switch, less than 10mm for the 2-color display, off-delay, AC magnetic field proof, T1, T8* switches are not available.
Refer to "Pneumatic Cylinders I (Catalog No. CB-029SA)" for the number of installed switches and the minimum stroke length.
*2: The total length is the same as that of the next longer standard stroke.

How to order mounting bracket P4

Bore size (mm) / Mounting bracket	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	SSD-LB-12	SSD-LB-16	SSD-LB-20	SSD-LB-25	SSD-LB-32	SSD-LB-40	SSD-LB-50	SSD-LB-63	SSD-LB-80	SSD-LB-100
Foot (LB2)	SSD-LB2-12	SSD-LB2-16	SSD-LB2-20	SSD-LB2-25	SSD-LB2-32	SSD-LB2-40	SSD-LB2-50	SSD-LB2-63	SSD-LB2-80	SSD-LB2-100
Flange (FA/FB)	SSD-FA-12	SSD-FA-16	SSD-FA-20	SSD-FA-25	SSD-FA-32	SSD-FA-40	SSD-FA-50	SSD-FA-63	SSD-FA-80	SSD-FA-100
Clevis bracket (CB)	SSD-CB-12	SSD-CB-16	SSD-CB-20	SSD-CB-25	SSD-CB-32	SSD-CB-40	SSD-CB-50	SSD-CB-63	SSD-CB-80	SSD-CB-100
Clevis bracket (CB2)	SSD-CB2-12	SSD-CB2-16	SSD-CB2-20	SSD-CB2-25	SSD-CB2-32	SSD-CB2-40	SSD-CB2-50	SSD-CB2-63	SSD-CB2-80	SSD-CB2-100

*1: The foot mounting bracket is provided as 2 pcs./set.
*2: For the P40 Series mounting bracket, indicate -P40 at the end of the model No.

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Double acting/ fine speed	Double acting/ low friction	Double acting/ rubber-air cushioned	Double acting/ rubber scraper	Double acting/ anti-spatter adherence	Double acting/ coolant proof
			F	U	*C	G	G1/G4	G2/G3
ø12 to 160	P4	●			○	○		
	P40	●			○	○		
	P42	▲			▲			

●: Applicable models ○: Semi-applicable models ▲:Contact CKD for details. ▭: Not applicable

How to order

Without switch

SSD-K - 12 - 5 ——— N P4/P40 - LB - I

With switch

SSD-KL - 12 - 5 - SW11 - R - N P4/P40 - LB - I

Ⓐ Tube Bore size

Ⓑ Stroke

Ⓒ Switch model No. *1 *8

Ⓓ Switch quantity

Ⓔ Option *2

Ⓕ Mounting bracket *3 *4

Ⓖ Accessory *5

Code	Description
Ⓐ Bore size (mm)	
12	ø12
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
Ⓑ Stroke (mm)	
Refer to the Stroke table.	
Ⓒ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓓ Switch quantity	
R	1 on rod side
H	1 on head side
D	2

Ⓔ Option

Bore size (ø)		12	16	20	25	32	40	50	63	80	100
Blank	Rod end female thread	●	●	●	●	●	●	●	●	●	●
N	Rod end male thread	●	●	●	●	●	●	●	●	●	●
S	Dedicated unit for custom stroke	●	●	●	●	●	●	●	●	●	●
M	Piston rod material (stainless steel)	●	●	●	●	●	●	●	●	●	●

Ⓕ Mounting bracket	
LB	Axial foot type
LB2	Axial foot (compact)
CB	Clevis bracket (pin and snap ring attached)
CB2	Clevis bracket (compact) (pin and snap ring attached)
FA	Rod side flange
FB	Head side flange
Ⓖ Accessory(Rod end male thread"N"is selected.)	
I	Rod eye
I2	Rod eye (compact)
Y	Rod clevis (pin and snap ring attached)
Y2	Rod clevis (compact) (pin and snap ring attached)

Precautions for model No. selection

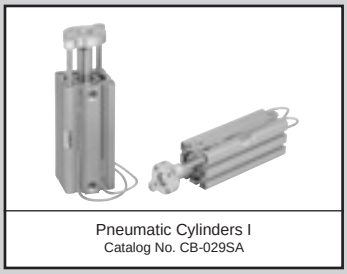
*1: ø12 to ø16 cannot be equipped with an AC magnetic field proof switch or T8 * switch.
*2: Piston rod material of ø12 to ø25 is stainless steel as standard. C-snap ring will be stainless steel, not steel. The rod end male thread nut is stainless steel.
*3: The mounting bracket is attached at shipment.
*4: The projection dimension of piston rod WF when LB2 or FA is selected is different from that of the standard. Refer to "Pneumatic Cylinders I (Catalog No. CB-029SA)" for dimensions. Also, the printed model No. on the metal plate on the body appears at the end. The specified overhang length model No. will be printed.
*5: "I" and "Y" cannot be selected together.
*6: Refer to "Pneumatic Cylinders I (Catalog No.CB-029SA)" for made-to-order specifications of rod end form.
*7: Refer to "Pneumatic Cylinders I (Catalog No. CB-029SA)" for combinations of variations and options.
*8: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)				Compatible tube O.D.					Page
		M5	1/8	1/4	3/8	4 (ø4)	6(ø6)	8(ø8)	10 (ø10)	12(ø12)	
SC3W-M5-*-P4		●				●	●				530
SC3W-6-*-P4			●			●	●	●			
SC3W-8-*-P4				●			●	●	●		
SC3W-10-*-P4					●			●	●	●	

Specify the compatible tube O.D. code for *.

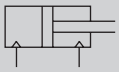


Pneumatic Cylinders I
Catalog No. CB-029SA

Guided super compact cylinder Double acting/ Single rod

SSG Series

●Bore size:ø12/ø16/ø20/ø25/ø32/ø40/ ø50/ø63/ø80/ø100

JIS symbol 

RoHS CAD

Specifications

Item Item		SSG									
Bore size mm		ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting									
Working fluid		Compressed air									
Max. working pressure MPa		1.0									
Min. working pressure MPa		0.15				0.1					
Proof pressure MPa		1.6									
Ambient temperature °C		-10 to 60 (no freezing)									
Port size		M5				Rc1/8 *1		Rc1/4		Rc3/8	
Stroke tolerance mm	Without cushion	+1.0 0									
	With rubber cushion	+2.0 0									
Working piston speed mm/s		50 to 500						50 to 300			
Cushion		With a rubber cushion or without can be selected.									
Lubrication		Not available									
Allowable absorbed energy J	Without cushion	0.004	0.01	0.016	0.021	0.025	0.092	0.1	0.12	0.27	0.56
	With rubber cushion	0.03	0.05	0.10	0.16		0.44	0.75	0.78	2.51	3.92

*1: The ø32 bore size with a 5 mm stroke and without a switch has a port size of M5.

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø12	5/10/15/20/25/30	30	1
ø16			
ø20	5/10/15/20/25/30/35/40/45/50	50	
ø25			
ø32	5/10/15/20/25/30/35/40/45/50/ 75/100	100	
ø40			
ø50	10/15/20/25/30/35/40/45/50 75/100		
ø63			
ø80			
ø100			

*1: The custom Stroke is available in 1 mm increments. The dimensions of the total length with the custom stroke are handled the same as the next longer standard stroke.

Related products

Speed controller											
Model No.	Appearance	Port size (Rc or R)				Compatible tube O.D.					Page
		M5	1/8	1/4	3/8	4 (ø4)	6(ø6)	8(ø8)	10 (ø10)	12(ø12)	
SC3W-M5-*-P4		●				●	●				530
SC3W-6-*-P4			●			●	●	●			
SC3W-8-*-P4				●			●	●	●		
SC3W-10-*-P4					●		●	●	●	●	

Specify the compatible tube O.D. code for *.

Compatibility table by variation

Applicable bore size		Double acting
ø12 to 100	P4	●
	P40	●
	P42	

●: Applicable models ○: Semi-applicable models ▲:Contact CKD for details. ▭: Not applicable

How to order

Without switch

SSG - 12 D - 10 - P4 P40

With switch

SSG-L - 12 D - 10 - SW11 - R - P4 P40

2-color display/off-delay, with T1* switch (ø12/ø16 only)

SSG-L1 - 12 D - 10 - SW31 - R - P4 P40

Ⓐ Model No.

Ⓑ Bore size

Ⓒ Cushion

Ⓓ Stroke

Custom Stroke
Available in 1 mm increments. (Less than 5 mm with switch is not available) Note that the dimensions of the total length with the custom Stroke are handled the same as the longer standard Stroke.

Ⓔ Switch model No.
*1
*2
*3
*4
*5

Ⓕ Switch quantity

Code	Description
Ⓐ Model No.	
SSG	Double acting/ Single rod
SSG-L	Double acting/ Single rod/with switch
SSG-L1	ø12,ø16 2-color display, off-delay,T1* with switch
Ⓑ Bore size (mm)	
12	ø12
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
Ⓒ Cushion	
Blank	Without cushion
D	With two-sided rubber cushion

Ⓓ Stroke (mm)

		Bore size (ø)									
		12	16	20	25	32	40	50	63	80	100
5	5	●	●	●	●	●	●				
10	10	●	●	●	●	●	●	●	●	●	●
15	15	●	●	●	●	●	●	●	●	●	●
20	20	●	●	●	●	●	●	●	●	●	●
25	25	●	●	●	●	●	●	●	●	●	●
30	30	●	●	●	●	●	●	●	●	●	●
35	35			●	●	●	●	●	●	●	●
40	40			●	●	●	●	●	●	●	●
45	45			●	●	●	●	●	●	●	●
50	50			●	●	●	●	●	●	●	●
75	75					●	●	●	●	●	●
100	100					●	●	●	●	●	●

Ⓔ Switch model No.

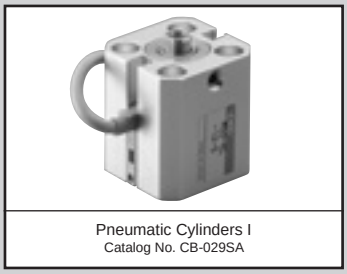
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓕ Switch quantity

R	1 on rod side
H	1 on head side
D	2
T	3

⚠ Precautions for model No. selection

1: T0 and T5* switches cannot be mounted on the ø12, ø16 5 mm Stroke.
2: T2YD switch cannot be installed on ø12, ø16.
3: T8 switch cannot be installed on ø12 to ø32.
*4: The F type switch can only be mounted on the piping port surface with a bore size of ø25.
*5: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.



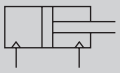
Pneumatic Cylinders I
Catalog No. CB-029SA

Small compact cylinder Double acting/ Single rod

MSD Series

●Bore size:ø6/ø8

JIS symbol



Double acting

RoHS CAD

Specifications

Item	MSD MSD-L (with switch)
Bore size mm	ø6, ø8
Actuation	Double acting
Working fluid	Compressed air
Max. working pressure MPa	1.0
Min. working pressure MPa	0.15
Proof pressure MPa	1.6
Ambient temperature °C	−10 to 60 (no freezing)
Port size	M3
Stroke tolerance mm	+0.5 0
Working piston speed mm/s	50 to 500
Cushion	No
Lubrication	Not available
Allowable absorbed energy J	This product cannot absorb the energy generated by an external load mounted on the cylinder. When using the product with no load, separately provide a shock absorber on the outside.

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke with two switches (mm)		Min. Stroke with one switch (mm)	
			Reed switch	Proximity switch	Reed switch	Proximity switch
ø6	5/10/15/20/25/30	30	10	5 (10)	5	5
ø8	5/10/15/20/25/30	30	10	5 (10)	5	5

*1: Products with Stroke other than standard Stroke are not available.
*2: F2Y, F3Y or F3P have the min. Stroke as the dimensions in ( ).

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Double acting/ single rod high load	Single acting/ push	Single acting/ pull	Double acting/ fine speed
			K	X	Y	F
MSD ø6 to 16	P4	●	●	○	○	
	P40	●	●	○	○	

●: Applicable models ○: Semi-applicable models ▲:Contact CKD for details. ▭: Not applicable

How to order

● Without switch (without magnet for switch)

MSD - 6 - 5 ——— R **P4 P40**

● With switch (built-in magnet for switch)

MSD-L - 6 - 5 - SW81 - R - R **P4 P40**

Ⓐ Model No.
Ⓑ Bore size
Ⓒ Stroke
Ⓓ Switch model No. *1
Ⓔ Switch quantity
Ⓕ Piping port position *2

Code	Description	
Ⓐ Model No.		
MSD	Double acting/Single rod	Without switch
MSD-L		With switch
Ⓑ Bore size(mm)		
6	ø6	
8	ø8	
Ⓒ Stroke(mm)		
5	5	
10	10	
15	15	
20	20	
25	25	
30	30	
Ⓓ Switch model No.		
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.		
Ⓔ Switch quantity		
R	1 on rod side	
H	1 on head side	
D	2	
Ⓕ Piping port position		
Blank	Front piping	
R	Rear piping	

⚠ Precautions for model No. selection

*1: For ø6 to ø8 with switch, use a non-magnetic (stainless steel, etc.) mounting bolt.
*2: For rear piping, body side installation is possible. Note that 2 bolts are used for rod side mounting and head side mounting.

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)			Compatible tube O.D.			Page
		M3	M5	1/8	4(ø4)	6(ø6)	8(ø8)	
SC3W-M3-*-P4		●			●			530

Specify the compatible tube O.D. code for *.



Pneumatic Cylinders I
Catalog No. CB-029SA

Small guided compact cylinder
Double acting/guided/with switch

MSDG-L Series

●Bore size:ø6/ø8/ø12/ø16

RoHS CAD

Specifications

Item		MSDG-L (With switch)			
Bore size mm		ø6	ø8	ø12	ø16
Actuation		Double acting			
Working fluid		Compressed air			
Max. working pressure MPa		1.0			
Min. working pressure MPa		0.2	0.15	0.1	
Proof pressure MPa		1.6			
Ambient temperature °C		5 to 60			
Port size	Body side surface port	M3		M5	
	Rear common port	M3		M3	
Stroke tolerance mm		+2.0 0			
Working piston speed mm/s		50 to 500			
Cushion		With rubber cushion			
Lubrication		Not available			
Allowable absorbed energy J		0.004	0.014	0.044	0.110

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. stroke length with two switches (mm)		Min. stroke length with one switch (mm)	
			Reed switch	Proximity switch	Reed switch	Proximity switch
ø6	5/10/15/20/25/30	30	10	5	5	5
ø8	5/10/15/20/25/30	30	10	5	5	5
ø12	5/10/15/20/25/30	30	10	5	5	5
ø16	5/10/15/20/25/30	30	10	5	5	5

Note: Products with Stroke other than standard Stroke are not available.

Compatibility table by variation

Applicable bore size		Double acting/ guided	Double acting/ guided/ fine speed
			F
MSDG ø6 to 16	P4	●	
	P40	●	

●: Applicable models ○: Semi-applicable models ▲:Contact CKD for details. ▭: Not applicable

How to order

● With switch (built-in magnet for switch)

MSDG-L - 6 - 30 - SW81 - D - R - P4 P40

Double acting
Guided

Ⓐ Bore size

Code	Description
Ⓐ Bore size(mm)	
6	ø6
8	ø8
12	ø12
16	ø16

Ⓑ Stroke

Ⓑ Stroke(mm)	
5	5
10	10
15	15
20	20
25	25
30	30

Ⓒ Switch model No.
*1
*2

Ⓒ Switch model No.
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓓ Switch quantity

Ⓓ Switch quantity	
R	1 on rod side
H	1 on head side
D	2

Ⓔ Piping port position
*3

Ⓔ Piping port position	
Blank	Front piping
R	Rear piping

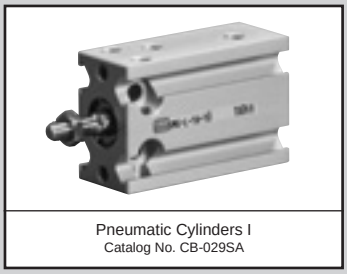
⚠ Precautions for model No. selection

*1: When using ø6, ø8 with switch, use a non-magnetic (stainless steel, etc.) mounting bolt.
*2: When using a proximity switch with ø12, ø16, use a non-magnetic (stainless steel, etc.) through bolt.
*3: For rear piping, body side installation is possible.

Related products

Speed controller									
Model No.	Appearance	Port size (Rc or R)			Compatible tube O.D.			Page
		M3	M5	1/8	4(ø4)	6(ø6)	8(ø8)	
SC3W-M3-*-P4		●			●			530
SC3W-M5-*-P4			●		●	●		

Specify the compatible tube O.D. code for *.



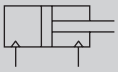
Pneumatic Cylinders I
Catalog No. CB-029SA

Compact cylinder Double acting/ Single rod

SMG Series

●Bore size:ø6/ø10/ø16/ø20/ø25/ø32

JIS symbol



Double acting

RoHS CAD

Specifications

Item		SMG SMG-L (with switch)					
Bore size	mm	ø6	ø10	ø16	ø20	ø25	ø32
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure	MPa	0.7					
Min. working pressure	MPa	0.12	0.06		0.05		
Proof pressure	MPa	1.05					
Ambient temperature	°C	-10 to 60 (no freezing)					
Port size		M5					Rc1/8
Stroke tolerance	mm	+1.5 0					
Working piston speed	mm/s	50 to 500					
Cushion		With rubber cushion					
Lubrication		Not available					
Allowable absorbed energy	J	0.012	0.036	0.1	0.1	0.19	0.5

Stroke

Bore size (mm)	Standard Stroke (mm)	Min. Stroke (mm)
ø6	5, 10, 15, 20, 25, 30, 40, 50, 60	5
ø10		
ø16		
ø20	5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100	
ø25		
ø32		

*1:The custom Stroke is available in 5 mm increments. However, the total length is the same as that of the next longer standard Stroke.

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Single acting/ push	Single acting/ pull	Double acting/ fine speed	Double acting/ rotation-stop
			X	Y	F	M
ø6 to 32	P4	●	○	○		○
	P40	●	○	○		○
	P42	▲				▲

●: Applicable models ○: Semi-applicable models ▲:Contact CKD for details. ▭: Not applicable

How to order

Without switch (without magnet for switch)

SMG - 32 - 25 ——— P4 / P40

With switch (built-in magnet for switch)

SMG-L - 32 - 25 - SW51 - R - P4 / P40

Code	Description
Ⓐ Model No.	
SMG	Double acting
SMG-L	Double acting/with switch

Ⓐ Model No.

Ⓑ Bore size (mm)	
6	ø6
10	ø10
16	ø16
20	ø20
25	ø25
32	ø32

Ⓑ Bore size

Ⓒ Stroke (mm)		Applicable bore size					
		ø6	**ø10**	**ø16**	**ø20**	**ø25**	**ø32**
Standard Stroke	**5**	●	●	●	●	●	●
	10	●	●	●	●	●	●
	15	●	●	●	●	●	●
	20	●	●	●	●	●	●
	25	●	●	●	●	●	●
	30	●	●	●	●	●	●
	40	●	●	●	●	●	●
	50	●	●	●	●	●	●
	60	●	●	●	●	●	●
	70				●	●	●
	80				●	●	●
	90				●	●	●
	100				●	●	●

Ⓒ Stroke

Ⓓ Switch model No.
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓓ Switch model No.

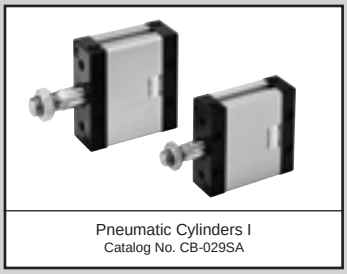
Ⓔ Switch quantity	
R	1 on rod side
H	1 on head side
D	2

Ⓔ Switch quantity

Related products

Speed controller							
Model No.	Appearance	Port size (Rc or R)		Compatible tube O.D.			Page
		M5	1/8	4 (ø4)	6 (ø6)	8 (ø8)	
SC3W-M5- *-P4		●		●	●		530
SC3W-6- *-P4			●	●	●	●	

Specify the compatible tube O.D. code for *.

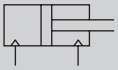


Pneumatic Cylinders I
Catalog No. CB-029SA

Flat compact cylinder Double acting/ Single rod

FCD Series

●Bore size:ø25/ø32/ø40/ø50/ø63

JIS symbol 

RoHS CAD

Specifications

Item	FCD FCD-L				
Bore size mm	ø25 or equiv.	ø32 or equiv.	ø40 or equiv.	ø50 or equiv.	ø63 or equiv.
Actuation	Double acting				
Working fluid	Compressed air				
Max. working pressure MPa	0.7				
Min. working pressure MPa	0.07				
Proof pressure MPa	1.05				
Ambient temperature °C	-10 to 60 (no freezing)				
Port size	M5		Rc1/8		Rc1/4
Stroke tolerance mm	$^{+0.5}_{0}$ (up to 50)				
Working piston speed mm/s	50 to 500				
Cushion	No				
Lubrication	Not available				
Allowable absorbed energy J	0.015	0.02	0.026	0.04	0.05

Rotation-stop precision/Allowable torque

Item	ø25 or equiv.	ø32 or equiv.	ø40 or equiv.	ø50 or equiv.	ø63 or equiv.
Non-rotating accuracy *2	±1°	±0.8°	±0.5°	±0.5°	±0.5°
Allowable torque N·m	1	1.6	2.5	3.9	5.9

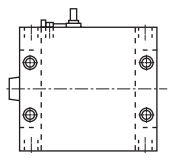
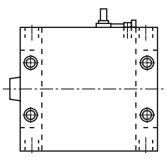
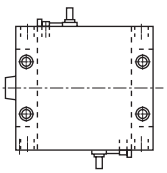
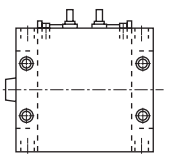
*1: Avoid applying rotation torque with impact, or with violent changes in torque load direction.
*2: "Non-rotating accuracy" is the value when a torque load equivalent to 10% of "allowable torque" is applied to the end of the piston rod.

Stroke

Model No.	Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
FCD	ø25, ø32 ø40, ø50 ø63 or equiv.	5/10/15/20/25 30/40/50	50	1

*1: The custom stroke is available in 1 mm increments.
*2: The min. Stroke varies depending on switch mounting method. Refer to the following table.

Min. Stroke with switch

1		2	
Rod side mount	Head side mount	Different surface mounting	Same surface mounting
			
10 mm		15 mm	35 mm (ø25/32/40/50) 30 mm (ø63)

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Single acting/ push	Single acting/ pull	Double acting/ double rod
		FCD	FCS	FCH	FCD-D
ø25 to 63	P4	○	○	○	○
	P40	○	○	○	○

●: Applicable models ○: Semi-applicable models ▲:Contact CKD for details. ▭: Not applicable

How to order

Without switch

FCD - 25 - 10 ——— N P4 P40

With switch

FCD-L - 25 - 10 - SW71 - R - N P4 P40

Ⓐ Model No.
Ⓑ Bore size
Ⓒ Stroke
Ⓓ Switch model No.
Ⓔ Switch quantity
Ⓕ Option

Code	Description
Ⓐ Model No.	
FCD	Double acting
FCD-L	Double acting/with switch
Ⓑ Bore size (mm)	
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63

Ⓒ Stroke (mm)		
Bore size	**Stroke**	**Custom Stroke**
ø25 to ø63	**1 to 50**	**In 1 mm increments**

Ⓓ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓔ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

Ⓕ Option	
Blank	Rod end female thread
M	Piston rod, rod nut material (stainless steel)
N	Rod end male thread
R	With spigot

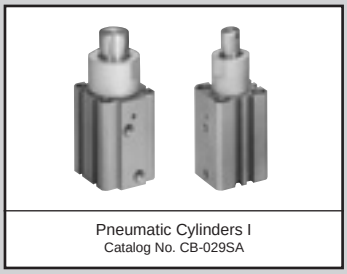
⚠ Precautions for model No. selection

*1:Made-to-order product. Contact CKD Sales for details.

Related products

Speed controller									
Model No.	Appearance	Port size (Rc or R)			Compatible tube O.D.				Description page
		M5	1/8	1/4	4 (ø4)	6 (ø6)	8 (ø8)	10 (ø10)	
SC3W-M5-*-P4		●			●	●			530
SC3W-6-*-P4			●		●	●	●		
SC3W-8-*-P4				●		●	●	●	

Specify the compatible tube O.D. code for *.



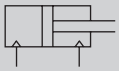
Pneumatic Cylinders I
Catalog No. CB-029SA

Stopper cylinder Double acting/round rod end

STK Series

●Bore size:ø20/ø32/ø40/ø50

JIS symbol



Double acting

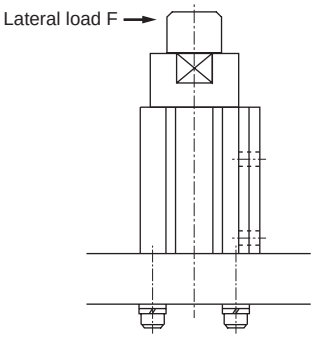
Specifications

Item		STK			
Bore size	mm	ø20	ø32	ø40	ø50
Actuation		Double acting			
Working fluid		Compressed air			
Max. working pressure	MPa	1.0			
Min. working pressure	MPa	0.15	0.1		
Proof pressure	MPa	1.6			
Ambient temperature	°C	-10 to 60 (no freezing)			
Port size		M5	Rc1/8		Rc1/4
Stroke tolerance	mm	+2.0 0			
Working piston speed	mm/s	50 to 500			
Cushion		With rubber cushion			
Lubrication		Not available			
Rod end shape		Round rod type			
Allowable absorbed energy	J	Refer to the following figure			

Allowable lateral load

Unit: N

Bore size	Stroke				
	10	15	20	25	30
ø20	106.5	99.4	93.2	-	-
ø32	272.8	254.6	238.7	-	-
ø40	-	-	371.3	352.1	334.8
ø50	-	-	582.8	552.8	525.8



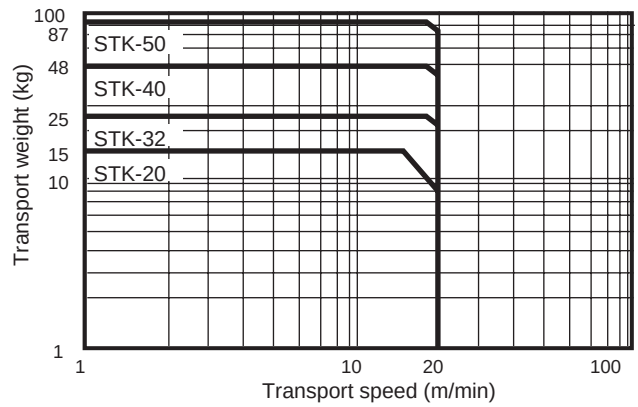
Stroke

Bore size (mm)	Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)	Min. stroke with switch (mm)
ø20	10, 15, 20	20	10	10
ø32				
ø40	20, 25, 30	30	20	20
ø50				

Note: Products other than standard Stroke are made-to-order products.

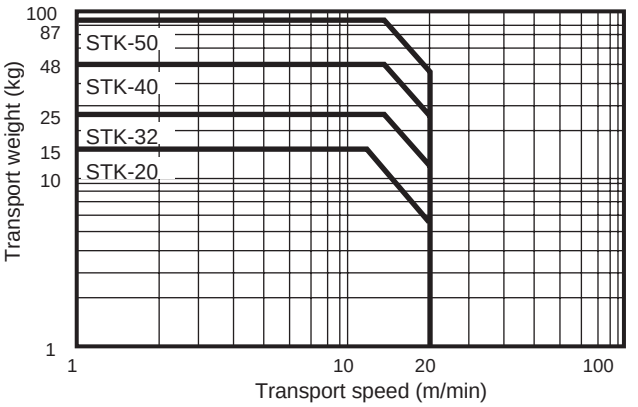
A. Rod side mount

Fig. 1 Allowable absorbed energy value



B. Head side mount

Fig. 2 Allowable absorbed energy value



(Note) Rod end form: Compatible with all round rod types/chamfered types/rollers.

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Single acting/ push	Single acting/ pull	Contact CKD for other variations.
			X	Y	
ø20 to 50	P4	●		○	
	P40	●		○	

●: Applicable models ○: Semi-applicable models ▲:Contact CKD for details. ▭: Not applicable

How to order

Without switch

STK - 20 - 10 ——— N11 P4 P40

With switch

STK - 20 - 10 - SW11 - R - N11 P4 P40

Ⓐ Bore size

Ⓑ Stroke

Ⓒ Switch model No. *1

Ⓓ Switch quantity

Ⓔ Option

Code	Description
Ⓐ Bore size (mm)	
20	ø20
32	ø32
40	ø40
50	ø50

Ⓑ Stroke (mm)

Bore size		ø20	ø32	ø40	ø50
10	10	●	●		
15	15	●	●		
20	20	●	●	●	●
25	25			●	●
30	30			●	●

Ⓒ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓓ Switch quantity	
R	1 on rod side
H	1 on head side
D	2

Ⓔ Option	
Blank	Rod end no thread
N11	With rod end female thread

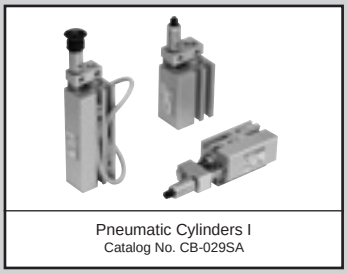
⚠ Precautions for model No. selection

*1:Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

Related products

Speed controller									
Model No.	Appearance	Port size (Rc or R)			Compatible tube O.D.				Description page
		M5	1/8	1/4	4 (ø4)	6 (ø6)	8 (ø8)	10 (ø10)	
SC3W-M5-*-P4		●			●	●			530
SC3W-6-*-P4			●		●	●	●		
SC3W-8-*-P4				●		●	●	●	

Specify the compatible tube O.D. code for *.



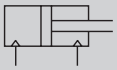
Pneumatic Cylinders I
Catalog No. CB-029SA

Compact cylinder with suction pad Double acting

MVC Series

●Bore size:ø6,ø10

JIS symbol



● Double acting

RoHS CAD

Specifications

Item	MVC	
Bore size mm	ø6	ø10
Actuation	Double acting	
Working fluid	Compressed air	
Max. working pressure MPa	0.7	
Min. working pressure MPa	0.15	0.1
Proof pressure MPa	1.05	
Vacuum port pressure	-101 kPa to 0.6 MPa *1	
Ambient temperature °C	0 to 60 (no freezing) *2	
Port size	M3	M5
Stroke tolerance mm	+1.0 0	
Working piston speed mm/s	50 to 500	
Cushion	Rubber cushion	
Non-rotating accuracy degrees	±0.5 (*3)	
Lubrication	Not available	
Applicable pad	Refer to "How to order" on the following page or the table below for details.	
Allowable absorbed energy J	0.0046	0.035

With buffer specifications

Specifications other than below are the same as at left.

Item	MVC-*-*-B
Buffer Stroke mm	4
BarBuffer spring load N	When set: 1.3 Operated: 1.62 (buffer Stroke of 4 mm operated)
Non-rotating accuracy (reference value)°	±2.6 (ø6), ±2.0 (ø10)(*3)

*1: Do not use the cylinder within buffer stroke of 4 mm or larger. This may cause malfunction.
*2: The value of non-rotating accuracy indicates the value of the pull end (pull). As the value of the push end (push) varies depending on the Stroke, contact CKD separately.
*3: Initial value at the pull end.

*1: Application of pressure from the vacuum port can be performed only at vacuum burst. In addition, use burst pressure equal to the cylinder working pressure or less for this process.
*2: When using MVC with proximity switch, use the cylinder at ambient temperature of 40°C or less. Otherwise, this could lead to switch detection malfunction.
*3: Initial value at the pull end.

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke with two switches (mm)		Min. Stroke with one switch (mm)	
			Reed switch	Proximity switch	Reed switch	Proximity switch
ø6	5/10/15/20/25/30	30	10	5 (10)	5	5
ø10	5/10/15/20/25/30	30	10	5 (10)	5	5

*1: Products with Stroke other than standard Stroke are not available.
*2: F2Y, F3Y or F3P have the min. Stroke indicated in ( ).

■ Theoretical lifting force

● Circular pad

(N)

Pad diameter (ø mm))	2	3.5	5	6	8	10
Suction area (cm^2) / Vacuum pressure	0.031	0.096	0.196	0.282	0.502	0.785
-93.3 kPa	0.284	0.873	1.765	2.550	4.511	7.061
−80.8 kPa	0.245	0.745	1.569	2.158	3.923	6.080
−66.7 kPa	0.206	0.618	1.275	1.863	3.236	5.099
−53.4 kPa	0.167	0.500	0.981	1.471	2.550	4.021
−40.0 kPa	0.118	0.373	0.785	1.079	1.961	3.040

Values in table are calculated values.

■ Pad material and characteristics

Item / Material	Hardness HS	Tensile strength N/cm^2	Tearing strength N/cm^2	Stretch %	Heat resistance temperature °C	Oil resistance	Sunlight resistance	Ozone resistance	Acid resistance	Anti-Alucid	Abrasion resistance	Electrical insulation property	Gas permeation resistance
Nitrile rubber (NBR)	50° to 90°	686 to 1961	313 to 490	150 to 620	−26 to 120	◎	x	x	△	○	◎	x	○
Silicone rubber (SI)	54° to 80°	441 to 784	117 to 411	100 to 300	−60 to 250	△	◎	◎	△	○	x	◎	x
Urethane rubber (U)	50° to 80°	686 to 4315	588 to 1961	310 to 750	−20 to 75	△	◎	◎	x	x	◎	○	○
Fluoro rubber (FKM)	58° to 90°	931 to 1765	166 to 470	100 to 350	−10 to 230	◎	◎	◎	◎	△	◎	◎	◎

This table shows the general characteristics of synthetic rubber available from CKD.
◎: Ideal for use ○: Suitable for use △: Suitable for use under some conditions x: Unsuitable for use

Compatibility table by variation

Applicable bore size		Double acting
		MVC
ø6, ø10	P4	●
	P40	●

●: Applicable models ○: Semi-applicable models ▲:Contact CKD for details. ▭: Not applicable

How to order

● Without switch

MVC - 6 - 10 ——— P2A - B - P4 / P40

● With switch

MVC - 6 - 10 - SW81 - R - P2A - B - P4 / P40

Model No.
Ⓐ Bore size
Ⓑ Stroke
Ⓒ Switch model No.
Ⓓ Switch quantity
Ⓔ Pad type
Ⓕ Buffer

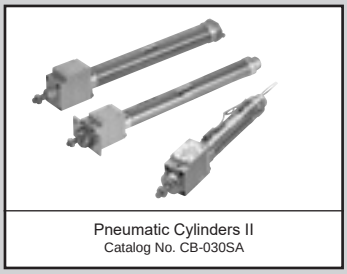
Code	Description
Ⓐ Bore size (mm)	
6	ø6
10	ø10
Ⓑ Stroke (mm)	
5, 10, 15, 20, 25, 30	
Ⓒ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓓ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
Ⓔ Pad type	
Blank	Without pad
P2A	Material: Nitrile rubber
P3.5A	
P5A	
P6A	
P8A	
P10A	
P2AU	Material: Urethane rubber
P3.5AU	
P5AU	
P6AU	
P8AU	
P10AU	
P2AS	Material: Silicone rubber
P3.5AS	
P5AS	
P6AS	
P8AS	
P10AS	
P2AF	Material: Fluoro rubber
P3.5AF	
P5AF	
P6AF	
P8AF	
P10AF	
Ⓕ Buffer	
Blank	Without buffer
B	With buffer

* Consult with CKD as support is also available for pad types other than the above.

Related products

Speed controller						
Model No.	Appearance	Port size (Rc or R)		Compatible tube O.D.		Page
		M3	M5	4 (ø4)	6(ø6)	
SC3W-M3-*-P4		●		●		530
SC3W-M5-*-P4			●	●	●	

Specify the compatible tube O.D. code for *.



Pneumatic Cylinders II
Catalog No. CB-030SA

Brake cylinder Double acting/ Single rod

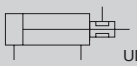
ULK Series

Brake cylinder Double acting/ Single rod

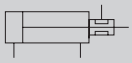
ULKP Series

● Bore size: ø16/ø20/ø25/ø32/ø40

JIS symbol ● Double acting



ULK



ULKP

Specifications

Item		ULKP/ULKP-L	ULK			
Bore size mm		ø16	ø20	ø25	ø32	ø40
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Min. working pressure	Brake section MPa	0.3				
	Cylinder section MPa	0.15				
Proof pressure MPa		1.6				
Ambient temperature °C		-10 to 60 (no freezing)				
Port size	Brake section	M5	Rc1/8			
	Cylinder	M5	Rc1/8			
Stroke tolerance mm		$^{+1.0}_{0}$	$^{+2.0}_{0}$ (up to 200) $^{+2.4}_{0}$ (201 up)			
Working piston speed mm/s		50 to 500				
Cushion		Rubber cushion				
Lubrication		Not available				
Stopping accuracy mm		±1.5(300mm/s, no load) *1	±1.0 (300 mm/s, no load)			
Holding force N		160	251	393	643	1005
Allowable absorbed energy J		0.162	0.166	0.308	0.424	0.639

*1: If the brake section is left pressurized, a delayed response may occur resulting in misalignment of the stop position.

Stroke

Model No.	Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ULKP/ULKP-L	ø16	15/30/45/60	260	5
ULK	ø20	25/50 /75/100/150 200/250/300	700	5
	ø25			
	ø32			
	ø40			

*1: The custom Stroke is available in 1 mm increments.

Related products

Speed controller					
Model No.	Appearance	Port size (Rc or R)	Compatible tube O.D.		Page
		M5	4(ø4)	6(ø6)	
SC3W-M5-*-P4		●	●	●	530

Specify the compatible tube O.D. code for *.

Compatibility table by variation

Applicable bore size		Double acting
ø16 to 40	P4	▲
	P40	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

Note: Standard grease used

How to order

Without switch

ULKP — 00 - 16 - 60 - 0 — P4 P40 Y

With switch

ULKP-L - 00 - 16 - 60 - 0 - SW71 - R - P4 P40 Y

Ⓗ Accessory *2

Ⓐ Model

Ⓑ Mounting

Ⓒ Bore size

Ⓓ Stroke

Ⓔ Head side port direction

Ⓕ Switch model No.

Ⓖ Switch quantity

Code	Description
Ⓐ Model	
ULKP	Double acting
ULKP-L	Double acting with switch
Ⓑ Mounting	
00	Basic
LS	Axial foot (one side) (rod side)
FA	Rod side flange
CB	Clevis bracket
Ⓒ Bore size	
16	ø16
Ⓓ Stroke	
Bore size	**Stroke** / **Custom Stroke**
ø16	**5 to 260** / **In 1 mm increments**
Ⓔ Head side port direction	
Blank	Vertical
0	Axial direction (*1)
Ⓕ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓖ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3
Ⓗ Accessory	***2**
I	Rod eye
Y	Rod clevis (pin, washer, split pin attached)
B1	Eye bracket
B2	Clevis bracket (pin, snap ring attached)

⚠ Precautions for model No. selection

*1: CB mounting is not available for port direction/axial direction.
*2: "I" and "Y" cannot be selected together.
*3: Made-to-order product. Contact CKD Sales for details.

How to order

Without solenoid valve

ULK - 00 - 20 - 100 - SW11 - R - V - P4 P40 - I

Model No.

Code	Description
A Mounting	
00	Basic
LB	Axial foot
FA	Rod side flange
CA	Eye bracket
CC	Eye bracket integrated
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)

20	ø20
25	ø25
32	ø32
40	ø40

C Stroke (mm)

Bore size	Stroke	Custom Stroke
ø20	**5 to 700**	**In 1 mm increments**
ø25	**5 to 700**	
ø32	**5 to 700**	
ø40	**5 to 700**	

D Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

E Switch quantity

R	1 on rod side
H	1 on head side
D	2
T	3

F Option

M	Piston rod, rod nut material (stainless steel)
V	Boss cutoff

G Accessory

I	Rod eye
Y	Rod clevis (pin, washer, split pin attached)
B2	Clevis bracket (pin, snap ring attached)

Precautions for model No. selection

*1: "I" and "Y" cannot be selected together.
*2: Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
*3: For made to order specifications of rod end form,Refer to "Pneumatic Cylinders II" (Catalog No.CB-030SA).
*4: Made-to-order product. Contact CKD Sales for details.

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)	Compatible tube O.D.			Page
		1/8	4(ø4)	6(ø6)	8(ø8)	
SC3W-6-*-P4		●	●	●	●	530

Specify the compatible tube O.D. code for *.

How to order ULKP Series mounting bracket P4/P40

Bore size (mm) / Mounting bracket	P4	P40
	ø16	ø16
Foot (LS)	P2-LS-16	P2-LS-16-P40
Flange (FA)	P2-FA-16	P2-FA-16-P40

Note: The foot mounting bracket is provided as 1 pc./set.

How to order ULK Series mounting bracket P4

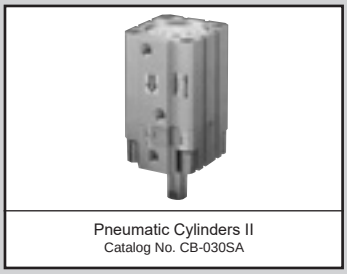
Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Axial foot (LB)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Eye bracket (CA)	M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40

*1: Regarding mounting brackets, mounting nuts and toothed washers are attached with the axial foot type and flange type. Trunnions are supplied with mounting nuts.
*2: For the axial foot (both sides), two sets of "M1-LB-** or [bore size]" are required in the table above.

How to order ULK Series mounting bracket P40

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Axial foot (LB)	M1-LB-20-P40	M1-LB-30-P40	M1-LB-30-P40	M1-LB-30-P40
Flange (FA)	M1-FA-20-P40	M1-FA-30-P40	M1-FA-30-P40	M1-FA-30-P40
Eye bracket (CA)	M1-CA-20-P40	M1-CA-30-P40	M1-CA-30-P40	M1-CA-30-P40
Trunnion (TA/TB)	M1-TA-20-P40	M1-TA-30-P40	M1-TA-30-P40	M1-TA-40-P40

*1: For the axial foot (both sides), two sets of "M1-LB-** or [bore size]-P40" are required in the table above.
*2: Regarding mounting brackets, mounting nuts are attached with the axial foot type, flange type and trunnion type.



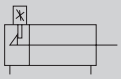
Pneumatic Cylinders II
Catalog No. CB-030SA

Position locking compact cylinder

USSD/USSD-K Series

●Bore size:ø20/ø25/ø32/ø40/ø50/ø63/ø80/ø100

JIS symbol



RoHS CAD

Common specifications

Item		USSD/USSD-K							
Bore size	mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting							
Working fluid		Compressed air							
Max. working pressure	MPa	1.0							
Min. working pressure	MPa	0.25 (no load) Note							
Proof pressure	MPa	1.6							
Ambient temperature	°C	-10 to 60 (no freezing)							
Port size		M5		Rc1/8		Rc1/4		Rc3/8	
Stroke tolerance	mm	USSD: $^{+1.0}_{0}$				USSD-K: $^{+2.0}_{0}$			
Working piston speed	mm/s	50 to 500					50 to 300		
Cushion		USSD: None USSD-K: Rubber cushion							
Lubrication		Not available							
Lock force	N	150	235	386	603	943	1497	2464	3847
Option		Rod end male thread (N)							
Allowable absorbed Energy J	Without cushion	0.016	0.021	0.025	0.092	0.1	0.12	0.27	0.56
	With cushion	0.157	0.157	0.402	0.628	0.98	1.56	2.51	7.92

Note: Depending on the installation condition, piston rod may start moving at 0.05 MPa. Therefore, pay attention to residual and exhaust pressure.

Individual specifications

Model No.		USSD (double acting single rod)	USSD-K (double acting single rod/high load)
Stroke tolerance	mm	+1.0 0	+2.0 0
Cushion		No	Rubber cushion

Stroke

Model	Bore size (mm)	Standard Stroke (mm) (*4)	Max. Stroke (mm)	Min. Stroke (mm)	Min. stroke with switch (mm)
USSD	ø20	5, 10, 15, 20, 25, 30	30	1 (*3)	5 (*4)
	ø25, ø32, ø40, ø50	5, 10, 15, 20, 25, 30, 40, 50	50		
	ø63, ø80, ø100	5, 10, 20, 30, 40, 50			
USSD-K	ø20	5, 10, 15, 20, 25, 30, 40, 50	200 (*1)		5 (*4)
	ø25, ø32, ø40, ø50	10, 15, 20, 25, 30, 40, 50 60, 70, 80, 90, 100	300 (*1)		
	ø63, ø80, ø100	10, 20, 30, 40, 50, 60, 70 80, 90, 100			

*1: Stroke over standard to maximum is available in increments of 10. (Example) USSD-K-20: 60, 70, 80, 90, 100 .....
Dimensions of custom Stroke (example: 64 mm Stroke) are the same as the next longer Stroke (example: 70 mm Stroke).
*2: The custom Stroke is available in 1 mm increments. However, the total length is the same as that of the next longer standard Stroke.
*3: The min. Stroke is available from 1 mm. Take into account the stroke tolerance when placing an order.
4: Less than 10 mm is not available for 2-color display, off-delay, strong magnetic field proof, or with T1 or T8* switch.

Dimensions for ordering mounting bracket P4

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Foot (LB)	USSD-LB-20	USSD-LB-25	USSD-LB-32	USSD-LB-40	USSD-LB-50	USSD-LB-63	USSD-LB-80	USSD-LB-100
Clevis bracket (CB)	SSD-CB-20	SSD-CB-25	SSD-CB-32	SSD-CB-40	SSD-CB-50	SSD-CB-63	SSD-CB-80	SSD-CB-100

*1: The foot mounting bracket is provided as 2 pcs./set.

Related products

Speed controller											
Model No.	Appearance	Port size (Rc or R)				Compatible tube O.D.					Page
		M5	1/8	1/4	3/8	4 (ø4)	6(ø6)	8(ø8)	10 (ø10)	12(ø12)	
SC3W-M5-*-P4		●				●	●				530
SC3W-6-*-P4			●			●	●	●			
SC3W-8-*-P4				●			●	●	●		
SC3W-10-*-P4					●			●	●	●	

Specify the compatible tube O.D. code for *.

Compatibility table by variation

Applicable bore size		Double acting	Double acting/ High load
			K
ø20 to 100	P4	○	○
	P40	○	○

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

Note: Standard grease used

How to order

● Without switch

USSD-K – 20 – 5 – F ——— N P4 P40 – LB

● With switch

USSD-KL – 20 – 5 – F – SW11 – R – N P4 P40 – LB

Ⓐ Model No.

Code	Description
Ⓐ Model No.	
USSD	Double acting
USSD-L	Double acting/with switch
USSD-K	Double acting/high load
USSD-KL	Double acting/high load/with switch

Ⓑ Bore size (mm)

Code	Description
Ⓑ Bore size (mm)	
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

Ⓒ Stroke (mm)

Code	Description
Ⓒ Stroke (mm)	
Refer to the Stroke table.	

Ⓓ Lock direction

Code	Description
Ⓓ Lock direction	
F	Forward locking
B	Backward locking

Ⓔ Switch model No. *2 *3

Code	Description
Ⓔ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	

Ⓕ Switch quantity

Code	Description
Ⓕ Switch quantity	
R	1 on rod side
H	1 on head side
D	2

Ⓖ Option

Code	Description
Ⓖ Option	
Blank	Rod end female thread
N	Rod end male thread

Ⓗ Mounting bracket *1 *3

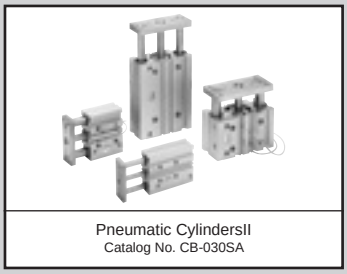
Code	Description
Ⓗ Mounting bracket	
LB	Axial foot type
CB	Clevis bracket (pin and snap ring attached)

Ⓒ Stroke

Series	Stroke (mm)		Bore size (mm) ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
USSD	Standard Stroke	5	●	●	●	●	●	●	●	●
		10	●	●	●	●	●	●	●	●
		15	●	●	●	●	●			
		20	●	●	●	●	●	●	●	●
		25	●	●	●	●	●			
		30	●	●	●	●	●	●	●	●
		40		●	●	●	●	●	●	●
		50		●	●	●	●	●	●	●
	Min. Stroke	*5	1							
	Custom Stroke	*5	1							
USSD-K	Standard Stroke	5	●							
		10	●	●	●	●	●	●	●	●
		15	●	●	●	●	●			
		20	●	●	●	●	●	●	●	●
		25	●	●	●	●	●			
		30	●	●	●	●	●	●	●	●
		40	●	●	●	●	●	●	●	●
		50	●	●	●	●	●	●	●	●
		60		●	●	●	●	●	●	●
		70		●	●	●	●	●	●	●
		80		●	●	●	●	●	●	●
		90		●	●	●	●	●	●	●
		100		●	●	●	●	●	●	●
	Min. Stroke	*5	1							
	Custom Stroke	*5	1							

⚠ Precautions for model No. selection

*1: The mounting bracket is attached at shipment.
2: T8 switch cannot be mounted for USSD-*L bore size ø20 to ø32.
*3: Switches and mounting brackets are shipped with the product. Contact CKD if assembling before shipment is necessary.
*4: Made-to-order product. Contact CKD Sales for details.
5: Total length dimensions,The dimensions are the same as those of the next longer standard Stroke. (Less than 5 mm with switch is not available). Less than 10 mm with 2-color display, off-delay, or T1 or T8* switch is not available.



Pneumatic CylindersII
Catalog No. CB-030SA

Guided cylinder Double acting/ Single rod

STG-M/B Series

●Bore size:ø12/ø16/ø20/ø25/ø32/ø40
ø50/ø63/ø80/ø100

JIS symbol 

RoHS CAD

Specifications

Item	STG-M/B									
Bore size mm	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation	Double acting									
Working fluid	Compressed air									
Max. working pressure MPa	1.0									
Min. working pressure MPa	0.15				0.1					
Proof pressure MPa	1.6									
Ambient temperature °C	-10 to 60 (no freezing)									
Port size	M5		Rc1/8				Rc1/4		Rc3/8	Rc3/8
Stroke tolerance mm	+2.0 0									
Working piston speed mm/s	50 to 500							50 to 300		
Cushion	With rubber cushion									
Lubrication	Not available									
Allowable absorbed energy J	0.056	0.088	0.157	0.157	0.401	0.627	0.980	1.560	2.510	3.92

Stroke

Bore size	Standard Stroke (mm)	Max. Stroke (mm)	Min.Stroke (mm)	Min. stroke with switch (mm)
ø12	10/20/30/40/50/75/100 125/150/175/200/250	250	5	5 (10) *2
ø16				
ø20	20/30/40/50/75/100/125 150/175/200/250/300/350/400	400		
ø25				
ø32	25/50/75/100 125/150/175 200/250/300 350/400			
ø40				
ø50				
ø63				
ø80				
ø100				

*1: The custom Stroke is available in 5 mm increments. However, the total dimensions are the same as the longer standard Stroke. A dedicated body with dimensions matched to the Stroke is available. Contact CKD for details.
*2: For types with one or two switches. The value in ( ) is the min. Stroke for switches of the 2-color display and AC magnetic field proof.

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)				Compatible tube O.D.					Page
		M5	1/8	1/4	3/8	4(ø4)	6(ø6)	8(ø8)	10(ø10)	12(ø12)	
SC3W-M5-*-P4		●				●	●				530
SC3W-6-*-P4			●			●	●	●			
SC3W-8-*-P4				●			●	●	●		
SC3W-10-*-P4					●			●	●	●	

Specify the compatible tube O.D. code for *.

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Double acting/ rubber-air cushioned	Double acting/air cushioned	Double acting/ rubber scraper	Double acting/coil scraper	Double acting/ coolant proof	Double acting/ anti-spatter adherence
			Q	*C	C	G	G1	G2/G3	G4
ø12 to 100	P4	●	●	○	○	○			
	P40	●	●	○	○	○			
	P42	▲	▲	▲	▲				

●: Applicable models ○: Semi-applicable models ▲:Contact CKD for details. ▭:Not applicable

*1:Not compatible with STG-K.

How to order

Without switch (built-in magnet for switch)

STG - M - 32 - 25 — P4 / P40

With switch (built-in magnet for switch)

STG - M - 32 - 25 - SW11 - R - P4 / P40

Model No.

Ⓐ Bearing

Ⓑ Bore size

Ⓒ Stroke

Ⓓ Switch model No. *1 *2

Ⓔ Switch quantity

Code	Description
Ⓐ Bearing	
M	Metal bush bearing
B	Ball bearing

Ⓑ Bore size (mm)	
12	ø12
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100

Ⓒ Stroke (mm)		Applicable bore size									
		ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Standard Stroke	10	●	●								
	20	●	●	●	●						
	25					●	●	●	●	●	●
	30	●	●	●	●						
	40	●	●	●	●						
	50	●	●	●	●	●	●	●	●	●	●
	75	●	●	●	●	●	●	●	●	●	●
	100	●	●	●	●	●	●	●	●	●	●
	125	●	●	●	●	●	●	●	●	●	●
	150	●	●	●	●	●	●	●	●	●	●
	175	●	●	●	●	●	●	●	●	●	●
	200	●	●	●	●	●	●	●	●	●	●
	250	●	●	●	●	●	●	●	●	●	●
	300			●	●	●	●	●	●	●	●
	350			●	●	●	●	●	●	●	●
	400			●	●	●	●	●	●	●	●
Min. Stroke *5		**5(10)**									
Custom Stroke *3, *4		**In 5 mm increments**									

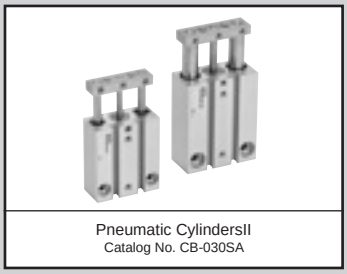
Ⓓ Switch model No.

Refer to the switch model No. Refer to the compatibility table on Intro Pages 23 to 26.

Ⓔ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

⚠ Precautions for model No. selection

*1: T8H/V switch cannot be installed on STG-12 or 16.
*2: Switches are shipped with the product.
*3: Total length dimensions, The dimensions are the same as the longer standard stroke.
*4: A dedicated body with dimensions matched to the Stroke is available. Contact CKD for details.
*5: The value in ( ) is the min. stroke length for switches of the 2-color display and AC magnetic field proof.

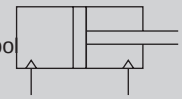


Pneumatic CylindersII
Catalog No. CB-030SA

Guided cylinder Double acting/ Single rod

STM-M/B Series

● Bore size:ø6, ø10

JIS symbol 

RoHS CAD

Specifications

Descriptions	STM-M/B	
Bore size mm	ø6	ø10
Actuation	Double acting	
Working fluid	Compressed air	
Max. working pressure MPa	0.7	
Min. working pressure MPa	0.15	
Proof pressure MPa	1.05	
Ambient temperature °C	-10 to 60 (no freezing)	
Port size	M3	
Stroke tolerance mm	+1.5 0	
Working piston speed mm/s	50 to 500	
Cushion	With rubber cushion	
Lubrication	Not available	
Allowable absorbed energy J	0.008	0.054

Stroke

Bore size	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke	Min. stroke with switch
ø6	5/10/15	15	5	5
ø10	5/10/15/20	20		

Note: Products other than standard stroke are made-to-order products.

Compatibility table by variation

Applicable bore size		Double acting/ single rod
ø6/ 10	P4	○
	P40	○
	P42	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

How to order

Without switch (built-in magnet for switch)

STM - M - 10 - 15 ——— A - P4 P40

With switch (built-in magnet for switch)

STM - M - 10 - 15 - SW83 - D - A - P4 P40

A Bearing

B Bore size

C Stroke

D Switch model No. *1

E Switch quantity

F Option

Code	Item
A Bearing	
M	Metal bush bearing
B	Ball bearing
B Bore size (mm)	
6	ø6
10	ø10

C Stroke (mm)

		Bore size	
		6	10
5	5	●	●
10	10	●	●
15	15	●	●
20	20		●

D Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

E Switch quantity	
R	1 on rod side
H	1 on head side
D	2

F Option	
A	Side mounting
R	Rear piping

⚠ Precautions for model No. selection

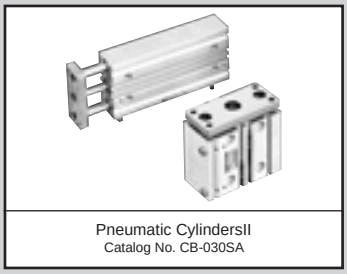
*1: When using a 2-color display proximity switch for STM-B-6, avoid mounting the cylinder on a magnetic substance such as a metal plate. This could lead to switch detection malfunction.

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)			Compatible tube O.D.			Page
		M3	M5	1/8	4(ø4)	6(ø6)	8(ø8)	
SC3W-M3-*-P4		●			●			530
SC3W-M5-*-P4			●		●	●		

Specify the compatible tube O.D. code for *.



Pneumatic CylindersII
Catalog No. CB-030SA

Guided cylinder Double acting/ Single rod

STS/STL- $^{M}_{B}$ Series

● Bore size: ø8/ø12/ø16/ø20/ø25/ø32
ø40/ø50/ø63/ø80/ø100

JIS symbol 

Specifications

Item	STS-M/B STL-M/B										
Bore size mm	ø8	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation	Double acting										
Working fluid	Compressed air										
Max. working pressure MPa	1.0										
Min. working pressure MPa	0.15					0.1					
Proof pressure MPa	1.6										
Ambient temperature °C	-10 to 60 (no freezing)										
Port size	M5					Rc1/8		Rc1/4		Rc3/8	
Stroke tolerance mm	+2.0 0										
Working piston speed mm/s	50 to 500								50 to 300		
Cushion	With rubber cushion										
Lubrication	Not available										
Allowable absorbed energy J	0.029	0.056	0.088	0.157	0.157	0.401	0.627	0.980	1.560	2.510	3.92

Stroke

● Short Stroke STS

Bore size	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)	Min. stroke with switch (mm)
ø8	10,20,30 40,50	50	5	5 With one or two switches
ø12				
ø16				
ø20	25,50			
ø25				
ø32				
ø40				
ø50				
ø63				
ø80	25,50,75,100	100		
ø100				

● Long Stroke STL

Bore size	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)	Min. stroke with switch (mm)
ø8	50,75,100 125,150 175,200	200	50	50 With one or two switches
ø12				
ø16				
ø20	50,75,100 125,150,175 200,225,250 275,300,325 350,375,400	400	30	30 With one or two switches
ø25				
ø32				
ø40				
ø50				
ø63				
ø80	75,100,125,150,175 200,225,250,275,300 325,350,375,400		55	55 With one or two switches
ø100	75,100,125,150,175,200	200		

Note:The custom stroke is available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke.

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Double acting/air cushioned	Double acting/ rubber scraper
			Q	C	G
ø8 to 100	P4	●	▲	▲	▲
	P40	●	▲	▲	▲
	P42	▲	▲	▲	

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

●Short Stroke

Without switch (built-in magnet for switch)

STS-M-8○-10——— P4 P40

With switch (built-in magnet for switch)

STS-M-8○-10-SW11-R- P4 P40

●Long stroke

Without switch (built-in magnet for switch)

STL-M-8○-50——— P4 P40

With switch (built-in magnet for switch)

STL-M-8○-50-SW11-R- P4 P40

Model No.

Ⓐ Bearing

Ⓑ Bore size

Ⓒ Port thread

Ⓓ Stroke

Ⓕ Switch quantity

■ Custom Stroke
Available in 5 mm increments. However, the total length is the same as that of the next longer standard Stroke.

Ⓔ Switch model
For the 2-color display, T1H/V, T8H/V and strong magnetic field proof switches for ø40 and over, insert "L1" with "-" between Items Ⓐ and Ⓑ. For ø80, ø100, the 2-color display, T1H/V, T8H/V and AC magnetic field proof switches cannot be retrofitted on a previously purchased standard product. In this case, order the model No. with "L1" inserted between Items Ⓐ and Ⓑ.
Example)STS-M-L1-80-50-P4

Code	Description
Ⓐ Bearing	
M	Metal bush bearing
B	Ball bearing
Ⓑ Bore size (mm)	
8	ø8
12	ø12
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100 (made to order)
Ⓒ Port thread	
Blank	M5 (ø8 to ø25)
	Rc thread (ø32 to ø100)
NN	NPT thread (ø32 and over) (made to order)
GN	G thread (ø32 and over) (made to order)
Ⓓ Stroke (mm)	
Refer to the Stroke table on the following page.	
Ⓔ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
*** Lead wire length**	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)
Ⓕ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

⚠ Precautions for model No. selection

*1: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

D Stroke

Series	Stroke (mm)		Applicable bore size										
			ø8	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
STS	Standard Stroke	10	●	●	●								
		20	●	●	●								
		25				●	●	●	●	●	●	●	●
		30	●	●	●								
		40	●	●	●								
		50	●	●	●	●	●	●	●	●	●	●	●
		75										●	●
		100										●	●
	Min. Stroke *1		5										
	Custom Stroke *1,*2		In 5 mm increments										
STL	Standard Stroke	50	●	●	●	●	●	●	●	●	●		
		75	●	●	●	●	●	●	●	●	●	●	●
		100	●	●	●	●	●	●	●	●	●	●	●
		125	●	●	●	●	●	●	●	●	●	●	●
		150	●	●	●	●	●	●	●	●	●	●	●
		175	●	●	●	●	●	●	●	●	●	●	●
		200	●	●	●	●	●	●	●	●	●	●	●
		225				●	●	●	●	●	●	●	
		250				●	●	●	●	●	●	●	
		275				●	●	●	●	●	●	●	
		300				●	●	●	●	●	●	●	
		325				●	●	●	●	●	●	●	
		350				●	●	●	●	●	●	●	
		375				●	●	●	●	●	●	●	
		400				●	●	●	●	●	●	●	
	Min. Stroke *1		50			30						55	
	Custom Stroke *1, *2		In 5 mm increments										

*1: The total dimensions are the same as the longer standard Stroke.
*2: Special total length for custom Stroke can be provided when a custom Stroke is used. (Made to order)

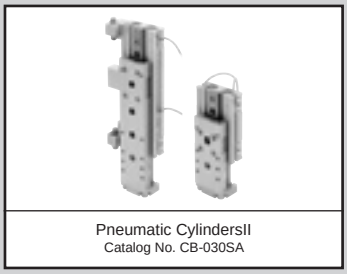
Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)				Compatible tube O.D.					Page
		M5	1/8	1/4	3/8	4(ø4)	6(ø6)	8(ø8)	10(ø10)	12(ø12)	
SC3W-M5-*-P4		●				●	●				530
SC3W-6-*-P4			●			●	●	●			
SC3W-8-*-P4				●			●	●	●		
SC3W-10-*-P4					●			●	●	●	

Specify the compatible tube O.D. code for *.

MEMO

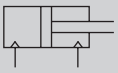


Pneumatic CylindersII
Catalog No. CB-030SA

Linear slide cylinder Double acting/ Single rod

LCR Series

●Bore size: ø6/ø8/ø12/ø16/ø20/ø25

JIS symbol 

RoHS CAD

Specifications

Item		LCR					
Bore size mm		ø6	ø8	ø12	ø16	ø20	ø25
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		0.7					
Min. working pressure MPa		0.15 (*1)					
Proof pressure MPa		1.05					
Ambient temperature °C		-10 to 60 (no freezing)					
Port size	Main body side	M3	M5			Rc1/8	
	Main body back	-	M3			M5	Rc1/8
Stroke tolerance mm		+2.0 0 (*2)					
Working piston speed mm/s		50 to 500 (*3)					
Cushion		With rubber cushion					
Lubrication		Not available					
Allowable absorbed energy J		Refer to the following table.					

*1: 0.2 MPa when using ø6 shock absorber type stopper.
*2: Note that there will be a slight gap between the end plate and floating bush if no stopper is attached.
*3: Keep within 50 to 200 mm/s when using a stroke adjusting stopper.
*4: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing type.

Stroke

Bore size (mm)	Standard Stroke (mm)
ø6	10, 20, 30, 40, 50
ø8	10, 20, 30, 40, 50, 75
ø12	10, 20, 30, 40, 50, 75, 100
ø16	10, 20, 30, 40, 50, 75, 100, 125
ø20	10, 20, 30, 40, 50, 75, 100, 125, 150
ø25	10, 20, 30, 40, 50, 75, 100, 125, 150

Note: Products with Strokes other than the above are not available.

With buffer specifications

Specifications other than the below are same as the above common specifications.

Item		Description					
Bore size mm		ø6	ø8	ø12	ø16	ø20	ø25
Buffer Stroke mm		4		9		10	
Buffer part	When set N	3	5	10	13	17	21
Spring load	When operated N	7	8	14	20	25	29

*1: In the type with buffer, adjusting the rod side Stroke will shorten the buffer Stroke and increase the spring load when set.
*2: Keep the buffer Stroke less than the Stroke above. Otherwise, malfunctions or damage may result.

LCR allowable absorbed energy (Eo)

Bore size	Standard (J)	With stroke adjusting stopper (J)	With shock absorber stopper (J)
ø6	0.025	0.0032	0.14
ø8	0.058	0.0032	0.25
ø12	0.112	0.014	0.25
ø16	0.176	0.043	0.65
ø20	0.314	0.055	1.3
ø25	0.314	0.14	1.3

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)					Compatible tube O.D.					Description page
		M3	M5	1/8	1/4	3/8	4(ø4)	6(ø6)	8(ø8)	10 (ø10)	12(ø12)	
SC3W-M3-*-P4		●	●				●					530
SC3W-M5-*-P4			●				●	●				
SC3W-6-*-P4				●			●	●	●			

Specify the compatible tube O.D. code for *.

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Double acting/ fine speed
			Q	F
ø6 to 25	P4	●	●	
	P40	●	●	
	P42	▲	▲	

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

*1: Even when P40 is selected for the external stopper option, electrolytic nickel plating is used for the stopper part.

How to order

Without switch (built-in magnet for switch)

LCR - 8 - 40 ——— S506 DTBLN P4 P40

With switch (built-in magnet for switch)

LCR - 12 - 40 - SW81 - R - S506 DTBLN P4 P40

Model No.
A Tube Bore size
B Stroke
D Switch quantity
F Option
C Switch model No.
E Stopper

Code	Description
A Bore size	
6	ø6
8	ø8
12	ø12
16	ø16
20	ø20
25	ø25

B Stroke (mm)

		Bore size (ø)					
		6	8	12	16	20	25
10	10	●	●	●	●	●	●
20	20	●	●	●	●	●	●
30	30	●	●	●	●	●	●
40	40	●	●	●	●	●	●
50	50	●	●	●	●	●	●
75	75		●	●	●	●	●
100	100			●	●	●	●
125	125				●	●	●
150	150					●	●

C Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

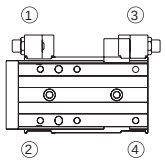
D Switch quantity	
R	1 on rod side
H	1 on head side
D	2

E Stopper

Refer to "Stopper" on page 54.

F Option		
Blank	Port on stopper: without port	
D	Port on stopper: side and bottom ports	*2, *9
Blank	Stopper block material: Steel	
T	Stopper block material: steel (nitriding)	*2
B With buffer		*3
B	Without switch groove	
BL	With switch groove	
Plug included		
Blank	No	
N	With side piping port plug (not available for ø6, ø25)	*6

● Stopper position



⚠ Precautions for model No. selection

*1: The port positions of the standard without stopper are ① and ③ in the figure below.
*2: Can be selected for the type with stopper only.
*3: Refer to the selection table on page 55 for combinations of options.
*4: A1**, A2**, A5** and A6** of ø6 to ø8 with 10 mm stroke length or less and ø12 to ø25 with 20 mm stroke length or less are made-to-order since they are not adjustable using the standard stopper, so they are made to order.
*5: Select the F□H type switch when using the type with two switches with S*** or A*** for ø6 to ø8-30st or less.
*6: Select when using rear piping.
*7: Can be selected only when using stroke adjusting stopper (S) and one side mixed type (C).
*8: When selecting W3 to 6 (two-sided combined stopper) with ø6 (full st), ø 8-20st, 30st, ø12-30st to 50st, and ø 16-30st to 50st, use the axial lead wire type when using with two switches or the head side.
*9: Cannot be selected when choosing two-sided combined type (W).
*10: The adjustable stroke range when choosing both-sided combined use (W) is ø6: 9 mm, ø8: 13.5 mm, ø12: 14.5 mm, ø16: 15 mm, ø20: 13 mm, ø25: 10 mm.
*11: The stroke adjusting stopper for 0.3MPa and over working pressure is the metal sealing type.

[Ⓔ Stopper]

Code	Description	
Ⓔ Stopper		
Blank	No option	
S Stroke adjusting stopper		
S1**	Stopper position ① (can be changed to ④)	Stopper installation position
S2**	Stopper position ② (can be changed to ③)	
S3**	Stopper position ③ (can be changed to ②)	
S4**	Stopper position ④ (can be changed to ①)	
S5**	Stopper position ①, ③	
S6**	Stopper position ②, ④	
A Shock absorber stopper		
A1**	Stopper position ① (can be changed to ④)	Stopper installation position
A2**	Stopper position ② (can be changed to ③)	
A3**	Stopper position ③ (can be changed to ②)	
A4**	Stopper position ④ (can be changed to ①)	
A5**	Stopper position ①, ③	
A6**	Stopper position ②, ④	
W Two-sided combined double stopper(Shock absorber stopper, metal stopper)		***8 /*10**
W1**	A1 + metal stopper	Stopper installation position
W2**	A2 + metal stopper	
W3**	A3 + metal stopper	
W4**	A4 + metal stopper	
W5**	A5 + metal stopper	
W6**	A6 + metal stopper	

Code	Description	
C One side hybrid stopper mix (shock absorber stopper, stroke adjusting stopper)		
C1**	A1 + S3	Stopper installation position
C2**	A2+S4	
C3**	A3+S1	
C4**	A4+S2	

**** part Adjustable stroke range** ●Compatible with all. ▲Compatible with some. ***7**

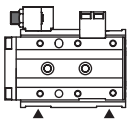
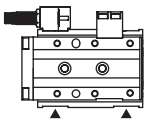
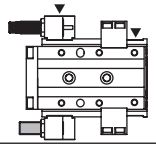
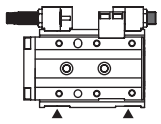
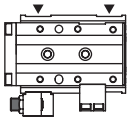
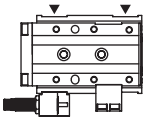
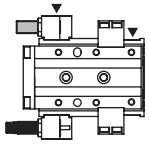
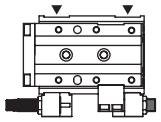
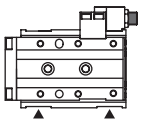
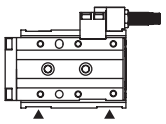
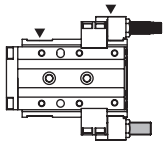
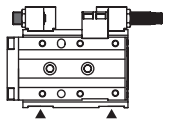
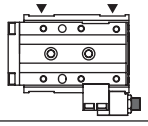
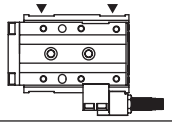
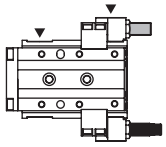
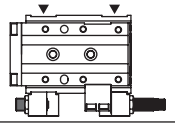
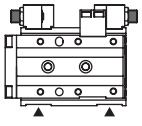
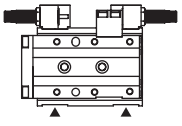
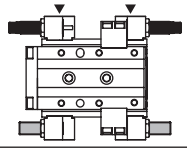
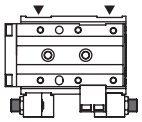
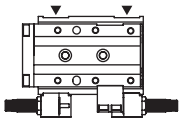
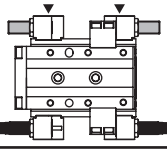
	Protruding end	Return end	Stopper model No. S	A	W	C
Blank	5 mm or none	5 mm or none	●	–	–	●
02	15 mm or none	15 mm or none	●			●
03	25 mm or none	25 mm or none	●			●
04	15 mm	5 mm	▲			–
05	25 mm	5 mm	▲			–
06	5 mm	15 mm	▲			–
07	5 mm	25 mm	▲			–

Note:When changing the stopper position from the head side to the rod side, the stopper must be purchased separately according to the stroke length and adjustable stroke length. Refer to "Precautions when purchasing the stopper separately" on the following page. A1, A2 and adjustable Stroke of 15 mm and 25 mm may not be available depending on the Stroke.

Stopper model No. selection method

1 Stopper combination table

Model No.-[①Stopper type] [② Stopper position][③] Example)LCR-8-40-[S] [5]06

Stopper position model No. [②]	Stroke adjustable (one side) [S]	Shock absorber (One side) [A]	Two-sided combined double stopper [W]	One side hybrid stopper mix [C]
	Stopper model No. [①]			
[1]	[S1] 	[A1] 	[W1] 	[C1] 
[2]	[S2] 	[A2] 	[W2] 	[C2] 
[3]	[S3] 	[A3] 	[W3] 	[C3] 
[4]	[S4] 	[A4] 	[W4] 	[C4] 
[5]	[S5] 	[A5] 	[W5] 	
[6]	[S6] 	[A6] 	[W6] 	

▲shows the piping direction. When choosing two-sided combined type (W), the stopper bracket comes with piping on both sides. ▲The stopper bracket on the reverse side of (piping direction) is provided with a plug.

■: Shock absorber stopper
■: Stroke adjusting stopper (adjusting range 5 mm)
■: Metal adjusting stopper (adjusting range 15 mm)

LCR Double acting/ Single rod selection table

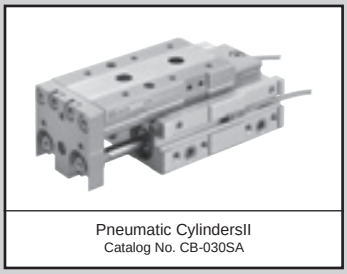
(Combination with stroke adjusting stopper, shock absorber stopper)

●: Available —: Not available

Model No.	Stopper type		Stroke adjustable																									
	Stopper code		S1			S2			S3			S4			S5							S6							
			Adjustment length code																									
	Bore size	Stroke	Blank	02	03	Blank	02	03	Blank	02	03	Blank	02	03	Blank	02	03	04	05	06	07	Blank	02	03	04	05	06	07
LCR	ø6, ø8	10	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-
		20 or more	●	●	-	●	●	-	●	●	-	●	●	-	●	●	-	●	-	●	-	●	●	-	●	-	●	-
	ø12 to ø25	10	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-
		20	●	●	-	●	●	-	●	●	●	●	●	●	●	●	-	●	-	●	●	●	●	-	●	-	●	●
		30 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
LCR-B, BL	ø6, ø8	10	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-
		20 or more	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-
	ø12 to ø25	10	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-
		20	●	●	-	●	●	-	●	●	●	●	●	●	●	●	-	●	-	●	●	●	●	-	●	-	●	●
		30 or more	●	●	-	●	●	-	●	●	●	●	●	●	●	●	-	●	-	●	●	●	●	-	●	-	●	●

Model No.	Stopper type		Shock absorber						Two-sided combined double stopper						One side hybrid stopper mix													
	Stopper code		A1	A2	A3	A4	A5	A6	W1	W2	W3	W4	W5	W6	C1			C2			C3			C4				
															Adjustment length code													
	Bore size	Stroke													Blank	02	03	Blank	02	03	Blank	02	03	Blank	02	03		
LCR	ø6, ø8	10	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	-	-	●	-	-		
		20 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-	●	●	-	●	●	-	●	●	-		
	ø12 to ø25	10	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	-	-	●	-	-		
		20	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	●	-	●	●	-		
		30 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
LCR-B, BL	ø6, ø8	10	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	-	-	●	-	-		
		20 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-	●	●	-	●	-	-	●	-	-		
	ø12 to ø25	10	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	-	-	●	-	-		
		20	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	●	-	●	●	-		
		30 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-	●	●	-		

The table above also applies to combinations with option code D (with port on stopper) or T (steel stopper block (nitriding)).

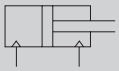


Pneumatic CylindersII
Catalog No. CB-030SA

Linear slide cylinder Double acting/ Single rod

LCG Series

●Bore size:ø6/ø8/ø12/ø16/ø20/ø25

JIS symbol 

RoHS CAD

Specifications

Item		LCG					
Bore size mm		ø6	ø8	ø12	ø16	ø20	ø25
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		0.7					
Min. working pressure MPa		0.15 (*1)					
Proof pressure MPa		1.05					
Ambient temperature °C		-10 to 60 (no freezing)					
Port size	Main body side	M3	M5			Rc1/8	
	Main body back	M3				M5	Rc1/8
Stroke tolerance mm		+2.0 0 (*2)					
Working piston speed mm/s		50 to 500 (*3)					
Cushion		With rubber cushion					
Lubrication		Not available					
Allowable absorbed energy J		Refer to the following table.					

*1: 0.2 MPa when using ø6 shock absorber type stopper.
*2: Note that there will be a slight gap between the end plate and floating bush if no stopper is attached.
*3: Keep within 50 to 200 mm/s when using a stroke adjusting stopper.
*4: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing type.

Stroke

Bore size (mm)	Standard Stroke (mm)
ø6	10, 20, 30, 40, 50
ø8	10, 20, 30, 40, 50, 75
ø12	10, 20, 30, 40, 50, 75, 100
ø16	10, 20, 30, 40, 50, 75, 100, 125
ø20	10, 20, 30, 40, 50, 75, 100, 125, 150
ø25	10, 20, 30, 40, 50, 75, 100, 125, 150

Note: Products with Strokes other than the above are not available.

With buffer specifications

Specifications other than the below are same as the above common specifications.

Item		Description					
Bore size mm		ø6	ø8	ø12	ø16	ø20	ø25
Buffer Stroke mm		4		9		10	
Buffer part	When set N	3	5	10	13	17	21
Spring load	When operated N	7	8	14	20	25	29

*1: In the type with buffer, adjusting the rod side Stroke will shorten the buffer Stroke and increase the spring load when set.
*2: Keep the buffer Stroke less than the Stroke above. Otherwise, malfunctions or damage may result.

LCG allowable absorbed energy (Eo)

Bore size	Standard (J)	With stroke adjusting stopper (J)	With shock absorber stopper (J)
ø6	0.025	0.0032	0.14
ø8	0.058	0.0032	0.25
ø12	0.112	0.014	0.25
ø16	0.176	0.043	0.65
ø20	0.314	0.055	1.3
ø25	0.314	0.14	1.3

Related products

Speed controller								
Model No.	Appearance	Port size (Rc or R)			Compatible tube O.D.			Description page
		M3	M5	1/8	4 (ø4)	6(ø6)	8(ø8)	
SC3W-M3-*-P4		●			●			530
SC3W-M5-*-P4			●		●	●		
SC3W-6-*-P4				●	●	●	●	

Specify the compatible tube O.D. code for *.

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Double acting/ position locking
			Q
ø6 to 25	P4	●	●
	P40	●	●
	P42	▲	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

*1: Even when P40 is selected for the external stopper option, electrolytic nickel plating is used for the stopper part.
*2: If P4 is chosen, rust proofing (option code: U) is recommended for LCG-20, 25.
(ø20, ø25 P40 has rust proofing added.)

How to order (ø6 to ø16)

Without switch (built-in magnet for switch)

LCG - 8 - 40 ——— S5 P4 P40

With switch (built-in magnet for switch)

LCG - 12 - 40 - SW81 - R - A1DT P4 P40

- LCG: Model No.
- 12: A Tube Bore size
- 40: B Stroke
- SW81: C Switch model No.
- R: D Switch quantity
- A1DT: E Option
- P4 P40: Model No.

Code	Description
A Bore size	
6	ø6
8	ø8
12	ø12
16	ø16

B Stroke (mm)

		Bore size (ø)			
		6	8	12	16
10	10	●	●	●	●
20	20	●	●	●	●
30	30	●	●	●	●
40	40	●	●	●	●
50	50	●	●	●	●
75	75		●	●	●
100	100			●	●
125	125				●

C Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

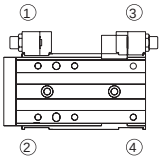
D Switch quantity	
R	1 on rod side
H	1 on head side
D	2

E Option		
Blank	No option	
S Stroke adjusting stopper		
5 mm stroke adjustment on one side *2, *4		
S1**	Stopper position ① (can be changed to ④)	Stopper installation position
S2**	Stopper position ② (can be changed to ③)	
S3 **	Stopper position ③ (can be changed to ②)	
S4**	Stopper position ④ (can be changed to ①)	
S5**	Stopper position ①, ③	
S6**	Stopper position ②, ④	
A Shock absorber stopper *2, *4		
A1**	Stopper position ① (can be changed to ④)	Stopper installation position
A2**	Stopper position ② (can be changed to ③)	
A3 **	Stopper position ③ (can be changed to ②)	
A4**	Stopper position ④ (can be changed to ①)	
A5**	Stopper position ①, ③	
A6**	Stopper position ②, ④	
**** part**		
Blank	Port on stopper: without port	
D	Port on the stopper:With side and bottom ports	*3
Blank	Stopper block material: Steel	
T	Stopper block material: steel (nitriding) *3	
B With buffer		*4
B	Without switch groove	
BL	With switch groove	
Plug included		
Blank	No	
N	With side piping port plug (not available for ø6)	

Precautions for model No. selection

*1: The port positions of the standard without stopper are ① and ③ in the figure below.
*2: Combination of the stroke adjusting stopper and shock absorber stopper is made to order.
*3: Can be selected for the type with stopper only.
*4: Refer to the selection table below for combinations of options.
*5: A1**, A2**, A5** and A6** of ø6 to ø8 with 10 mm stroke length or less and ø12/ø16 with 20 mm stroke length or less are made to order since adjustment is not possible with the standard stopper.
*6: When two switches are necessary for the type with S*** or A***of ø6 to ø8 with 30 mm stroke length or less, select the F□H type switch.
*7: The anti-rust type is made to order.
*8: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing type.

● Stopper position



LCG Double acting/ Single rod selection table

(Combination with stroke adjusting stopper, shock absorber stopper)

○:Available —: Not available

Model No. code	Option code		Stroke adjusting stopper						Shock absorber stopper					
	Bore size	Stroke	S1	S2	S3	S4	S5	S6	A1	A2	A3	A4	A5	A6
LCG	ø6, ø8	10	○	○	○	○	○	○	—	—	○	○	—	—
		20 or more	○	○	○	○	○	○	○	○	○	○	○	○
LCG-B, BL	ø12 to ø25	10 to 20	○	○	○	○	○	○	—	—	○	○	—	—
		30 or more	○	○	○	○	○	○	○	○	○	○	○	○

The table above also applies to combinations with option code D (with port on stopper) or T (steel stopper block (nitriding)).

How to order (ø20, ø25)

Without switch (built-in magnet for switch)

LCG - 20 - 40 ——— S5 U P4 P40

With switch (built-in magnet for switch)

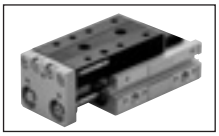
LCG - 20 - 40 - SW81 - R - A1DT U P4 P40

- Model No.
- A Tube Bore size
- B Stroke
- C Switch model No.
- D Switch quantity
- E Option
- F Anti-rust treatment

Precautions for model No. selection

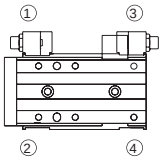
*1: The port positions of the standard without stopper are ① and ③ in the figure below.
*2: Combination of the stroke adjusting stopper and shock absorber stopper is made to order.
*3: Can be selected for the type with stopper only.
*4: Refer to the selection table below for combinations of options.
*5: A1**, A2**, A5** and A6** with 20 mm stroke length or less are made to order since adjustment is not possible with the standard stopper.
*6: The table is alloy steel. To prevent rust, select "U" for an environment where the temperature and humidity is high or condensation may occur on the product surface.
*7: The stroke adjusting stopper for 0.3 MPa and over working pressure is the metal sealing type.

Rust-proof (ø20,25)



Anti-corrosion treatment is applied to the table surface and rail surface to reduce the occurrence of rust in humid environments such as near ionizers.
The table and rail are black.

● Stopper position



Code	Description	
A Bore size		
20	ø20	
25	ø25	
B Stroke (mm)		
10	10	
20	20	
30	30	
40	40	
50	50	
75	75	
100	100	
125	125	
150	150	
C Switch model No.		
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.		
D Switch quantity		
R	1 on rod side	
H	1 on head side	
D	2	
E Option		
Blank	No option	
S Stroke adjusting stopper 5 mm stroke adjustment on one side *2, *4		
S1**	Stopper position ① (can be changed to ④)	Stopper installation position
S2**	Stopper position ② (can be changed to ③)	
S3 **	Stopper position ③ (can be changed to ②)	
S4**	Stopper position ④ (can be changed to ①)	
S5**	Stopper position ①, ③	
S6**	Stopper position ②, ④	
A Shock absorber stopper *2, *4		
A1**	Stopper position ① (can be changed to ④)	Stopper installation position
A2**	Stopper position ② (can be changed to ③)	
A3 **	Stopper position ③ (can be changed to ②)	
A4**	Stopper position ④ (can be changed to ①)	
A5**	Stopper position ①, ③	
A6**	Stopper position ②, ④	
**** part**		
Blank	Port on stopper: without port	
D	Port on the stopper:With side and bottom ports *3	
Blank	Stopper block material: Steel	
T	Stopper block material: Steel (Nitriding) *3	
B With buffer		*4
B	Without switch groove	
BL	With switch groove	
Plug included		
Blank	None	
N	With side piping port plug (not available for ø25)	
F Anti-rust treatment		
Blank	None	
U	Rust proof (guide only)	*6

LCG Double acting/ Single rod selection table

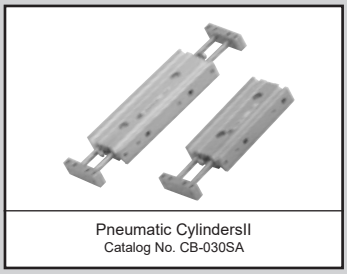
(Combination with stroke adjusting stopper, shock absorber stopper)

○:Available —: Not available

Model No. code	Option code		Stroke adjusting stopper						Shock absorber stopper					
	Bore size	Stroke	S1	S2	S3	S4	S5	S6	A1	A2	A3	A4	A5	A6
LCG	ø6, ø8	10	○	○	○	○	○	○	—	—	○	○	—	—
		20 or more	○	○	○	○	○	○	○	○	○	○	○	○
	ø12 to ø25	10 to 20	○	○	○	○	○	○	—	—	○	○	—	—
		30 or more	○	○	○	○	○	○	○	○	○	○	○	○

The table above also applies to a combination with option code D (with port on the stopper) or T (alloy steel stopper block (nitriding)).

MEMO



Pneumatic CylindersII
Catalog No. CB-030SA

Twin rod cylinder Double acting/standard

STR2-M/B Series

●Bore size:ø6/ø10/ø16/ø20/ø25/ø32

JIS symbol



RoHS CAD

Specifications

Item		STR2-M (metal bush bearing) STR2-B (ball bearing)					
Bore size mm		ø6	ø10	ø16	ø20	ø25	ø32
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		0.7					
Min. working pressure MPa		0.2	0.15	0.1			
Proof pressure MPa		1.05					
Ambient temperature °C		-10 to 60 (no freezing)					
Port size		M5					Rc1/8
Stroke tolerance mm		+2.0 0					
Adjustable stroke rangemm		0 to −5					
Working piston speedmm/s		50 to 500					
Non-rotating accuracy	STR2-M	±0.4°	±0.3°			±0.2°	
	STR2-B	±0.2°	±0.1°			±0.3°	
Piston rod	STR2-M	Metal bush bearing					
Bearing	STR2-B	Ball bearing					
Cushion		Rubber cushion					
Lubrication		Not available					
Allowable absorbed energy J	PUSH	0.008	0.061	0.181	0.303	0.68	1.3
	PULL	0.059	0.083	0.083	0.127	0.237	0.311

Stroke

Bore size	Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)	Min. stroke with switch (mm)
ø6	10,20,30,40,50	50	5	10
ø10				
ø16	10,20,30,40,50 60,70,80,90,100	100 *1		
ø20				
ø25				
ø32				

*1: In the case of rear piping:
- ø16: 70
- ø20/ø25: 60
- ø32: 50

*2: Custom Stroke
Available in 1 mm increments.
However, the total length is the same as that of the next longer standard Stroke.

Compatibility table by variation

Applicable bore size		Double acting/ single rod	Double acting/ position locking	Double acting/ fine speed	Double acting/ low speed	Double acting/ double rod
			Q	F	O	D
ø6 to 32	P4	●	●			○
	P40	●	●			○
	P42	▲	▲			▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

How to order

Without switch (built-in magnet for switch)

STR2 - M - 16 - 30 ——— R P4 P40

With switch (built-in magnet for switch)

STR2 - M - 16 - 30 - SW51 - R - R P4 P40

Model No.

Ⓐ Bearing

Ⓑ Bore size

Ⓒ Stroke *1

■ The custom Stroke is available in 1 mm increments.

Ⓓ Switch model No. *2

Ⓔ Switch quantity

Ⓕ Option *3

Code	Description
Ⓐ Bearing	
M	Metal bush bearing
B	Ball bearing
Ⓑ Bore size(mm)	
6	ø6
10	ø10
16	ø16
20	ø20
25	ø25
32	ø32

Ⓒ Stroke(mm)

Bore size	Stroke	Available Stroke	Intermediate Stroke
ø6	**5 to 50**	**100**	**In 1 mm increments**
ø10	**5 to 50**		
ø16	**5 to 100**	**150**	
ø20	**5 to 100**		
ø25	**5 to 100**		
ø32	**5 to 100**		

Ⓓ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

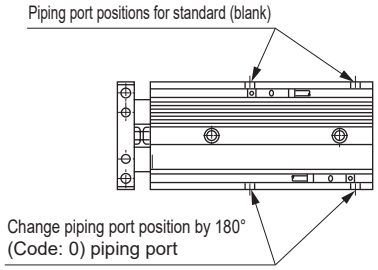
Code	Description
Ⓔ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
Ⓕ Option	
O	Change piping port position by 180°
R	Rear piping

⚠ Precautions for model No. selection

*1: The max stroke length of rear piping "R" is:
- ø6/10: 50 strokes
- ø16: 70 strokes
- ø20/25: 60 strokes
- ø32: 50 strokes

*2: STR2-B-6 and 10 are not compatible with a reed switch.

*3: The piping port positions for "O" are as shown in the figure below.

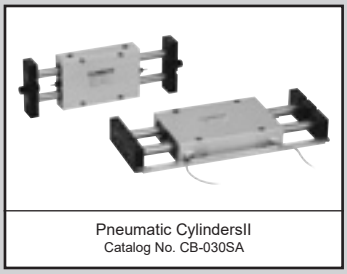


Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)			Compatible tube O.D.			Page
		M3	M5	1/8	4(ø4)	6(ø6)	8(ø8)	
SC3W-M5-*-P4			●		●	●		530
SC3W-6-*-P4				●	●	●	●	

Specify the compatible tube O.D. code for *.



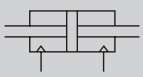
Pneumatic CylindersII
Catalog No. CB-030SA

Unit cylinder Ball bearing/with switch

UCA2-B Series

●Bore size:ø10/ø16/ø25/ø32

JIS symbol



RoHS CAD

Specifications

Item	UCA2-B UCA2-BL (with switch)			
Bore size mm	ø10	ø16	ø25	ø32
Actuation	Double acting			
Working fluid	Compressed air			
Max. working pressure MPa	1.0			
Min. working pressure MPa	0.15		0.1	
Proof pressure MPa	1.5			
Ambient temperature °C	-10 to 60 (no freezing)			
Port size	M5		Rc1/8	
Stroke tolerance mm	+1.0 0			
Working piston speedmm/s	30 to 300			
Non-rotating accuracy *1	±0.04°	±0.03°	±0.015°	±0.015°
Max. operating frequency cycles/min.	30			
Cushion	Shock absorber integrated			
Lubrication	Not available			
Allowable absorbed energy J	0.25	0.65	2.4	4.5

*1: Value when stroke length = 0 (excluding deflection of the piston rod)

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)	Min. stroke with switch (mm)
ø10	25/50/75/100	100	25	10: With 1 switch 20: Switch2 75: With 3 switches
ø16	25/50/75/100 125/150/175/200	200		
ø25				
ø35				

Note: Products with Stroke other than standard Stroke are not available.

Compatibility table by variation

Applicable bore size		Metal bush Bearing Type	Ball Bearing Type
			B
ø10 up 32	P4	●	●
	P40	●	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

How to order

Without switch

UCA2-B — X - 10 - 25 ——— P1A P4 P40

With switch

UCA2-BL - X - 10 - 25 - SW11 - RA - P1A P4 P40

Ⓐ Fixing method

Ⓑ Bore size

Ⓒ Stroke

Ⓓ Switch model No. *1

Ⓔ Switch quantity *2

Ⓕ Option *3

Code	Description
Ⓐ Fixing method	
X	Body fixing
Y	Plate fixing

Ⓑ Bore size (mm)	
10	ø10
16	ø16
25	ø25
32	ø32

Ⓒ Stroke (mm)

Bore size(ø)		10	16	25	32
25	25	●	●	●	●
50	50	●	●	●	●
75	75	●	●	●	●
100	100	●	●	●	●
125	125		●	●	●
150	150		●	●	●
175	175		●	●	●
200	200		●	●	●

Ⓓ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓔ Switch quantity		
RA	1	Plate A side
RB		Plate B side
D	2	
T	3	

Ⓕ Option		
P1A	Single adjustment Stopper	Plate A side
P1B		Plate B side
P2	Double adjusting stoppers	

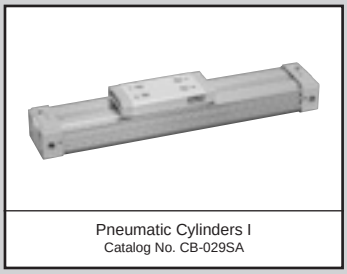
Precautions for model No. selection

*1: Magnet is not built into the type without switch. For specifications with switch but without switch installed, a magnet and magnet rail are mounted but a switch rail is not.
*2: Min. Stroke with three switches is 75 (mm).
*3: Difference between side A and side B is described in the dimensions.

Related products

Speed controller							
Model No.	Appearance	Port size (Rc or R)		Compatible tube O.D.			Page
		M5	1/8	4 (ø4)	6(ø6)	8(ø8)	
SC3W-M5-*-P4		●		●	●		530
SC3W-6-*-P4			●	●	●	●	

Specify the compatible tube O.D. code for *.



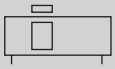
Pneumatic Cylinders I
Catalog No. CB-029SA

Rodless cylinder Double acting

SRL3 Series

●Bore size: ø12, ø16, ø20, ø25, ø32
ø40, ø50, ø63, ø80, ø100 equiv.

JIS symbol



RoHS CAD

Specifications

Item	SRL3									
Bore size mm	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation	Double acting									
Working fluid	Compressed air									
Max. working pressure MPa	0.7									
Min. working pressure MPa	0.2			0.1				0.05		
Proof pressure MPa	1.05									
Ambient temperature °C	5 to 60									
Port size	M5		Rc 1/8		Rc 1/4		Rc 3/8		Rc 1/2	
Stroke tolerance mm	$^{+2.0}_{0}$ (Up to 1000), $^{+2.5}_{0}$ (Up to 3000), $^{+3.0}_{0}$ (Up to 5000)									
Working piston speed mm/s	50 to 2000 (Standard port piping)(*1)									
Cushion	Air cushion									
Lubrication	Not available									

*1: For common port piping, working piston speeds vary depending on stroke length. Contact CKD.

Allowable absorbed energy

Bore size (mm)	Cushioned		Without cushion	Shock absorberwith(Initial set point)	
	Allowable absorbed energy (J)	Cushion stroke (mm)	Allowable absorbed energy (J)	Absorbed energy (J)	Effective Stroke (mm)
ø12 or equiv.	0.03	14.5	0.003	2.4	5.5
ø16 or equiv.	0.22	19.2	0.007	2.4	5.5
ø20 or equiv.	0.59	22.2	0.010	5.7	7
ø25 or equiv.	1.40	20.9	0.015	10	9
ø32 or equiv.	2.57	23.5	0.030	18	13
ø40 or equiv.	4.27	23.9	0.050	50	16.5
ø50 or equiv.	9.13	24.9	0.072	86	21
ø63 or equiv.	17.4	29.6	0.138	86	21
ø80 or equiv.	40	45.8	0.393	143	25
ø100 or equiv.	67	45.8	0.622	143	25

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø12 or equiv.	200/300 400/500 600/700 800/900 1000	5000	1
ø16 or equiv.			
ø20 or equiv.			
ø25 or equiv.			
ø32 or equiv.			
ø40 or equiv.			
ø50 or equiv.			
ø63 or equiv.			
ø80 or equiv.			
ø100 or equiv.			

* The custom Stroke is available in 1 mm increments.

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)					Compatible tube O.D.					Page
		M5	1/8	1/4	3/8	1/2	4(ø4)	6(ø6)	8(ø8)	10(ø10)	12(ø12)	
SC3W-M5-*-P4		●					●	●				530
SC3W-6-*-P4			●				●	●	●			
SC3W-8-*-P4				●				●	●	●		
SC3W-10-*-P4					●				●	●	●	
SC3W-15-*-P4						●				●	●	

Specify the compatible tube O.D. code for *.

Compatibility table by variation

Applicable bore size		Double acting/ standard	Double acting/ position locking	Double acting/ resin guide	Resin guide/ position locking
			Q	G	GQ
ø12 to 100	P4	●	●		
	P40	●	●		

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

How to order

Without switch

SRL3 - 00 - 12 B - 200 — B P4 P40

With switch

SRL3 - 00 - 12 B - 200 - SW40 - R - B P4 P40

Ⓐ Mounting *1, *2

Ⓑ Bore size

Ⓒ Cushion

Ⓓ Stroke

Ⓔ Switch model No.

Ⓕ Switch quantity

Ⓖ Option *3, *4 *5, *6

Code	Description
Ⓐ Mounting	
00	Basic
LB	Axial foot
LB1	Axial foot (ø12 to ø32 only)
Ⓑ Bore size (mm)	
12	ø12
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
Ⓒ Cushion	
B	Both sides cushioned
R	R side cushioned
L	L side cushioned
N	Without cushion
Ⓓ Stroke (mm)	
Bore size	**Stroke** / **Custom Stroke**
ø12 to ø100	**1 to 5000** / **In 1 mm increments**
Ⓔ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓕ Switch quantity	
R	1 on R side
L	1 on L side
D	2
T	3
4	4 (when there are more than 4 switches, indicate switch quantity.)

Ⓖ Option

	Bore size (ø)	12	16	20	25	32	40	50	63	80	100
A	Both-side full Stroke adjustable,With shock absorber	●	●	●	●	●	●	●	●	●	●
A1	Full Stroke adjustableTidyRsideonly,With shock absorber	●	●	●	●	●	●	●	●	●	●
A2	Full Stroke adjustableTidyLsideonly,With shock absorber	●	●	●	●	●	●	●	●	●	●
A3	Full stroke adjustable with retrofitting adjusting bracket	●	●	●	●						
Y	Floating fitting	●	●	●	●	●	●	●	●	●	●
Y1	Thin floating fitting	●	●	●	●	●	●	●	●		
L*	Intermediate support bracket (for 00, LB)	●	●	●	●	●	●	●	●	●	●
N*	Intermediate support bracket (for LB1)	●	●	●	●	●					
H	Larger thread for table installation	●	●	●							
U	Height adjustment plate	●	●	●	●	●	●	●	●	●	●
Blank	Port position: F (Standard) / Cushion needle position: F (Standard)	●	●	●	●	●	●	●	●	●	●
R	Port position: R (Common port) / Cushion needle position: F	●	●	●	●	●	●	●	●	●	●
B	Port position: F / Cushion needle position: B	●	●	●	●	●	●	●	●	●	●
T	Port position: R (Common port) / Cushion needle position: B	●	●	●	●	●	●	●	●	●	●
D	Port position: D / Cushion needle position: F				●	●	●	●	●	●	●
S	Port position: D / Cushion needle position: D					●	●	●	●	●	●
X	Port position: F (Common port) / Cushion needle position: F									●	●

Option selection table

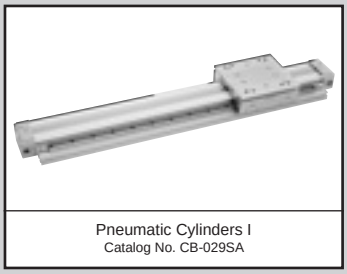
●: Available ▭: Not available

Option	Code	A	A1	A2	A3	Y	Y1	L*	N*	H	U	Blank	R	B	T	D	S	X
		Both-side full stroke length adjustable, with shock absorber	R side full stroke length adjustable, with shock absorber	L side full stroke length adjustable, with shock absorber	Full stroke length adjustable with adjusting bracket to be added later	Floating fitting	Thin floating fitting	Intermediate support bracket (for 00, LB)	Intermediate support bracket (for LB1)	Larger thread for table installation	Height adjustment plate	Port position F, cushion needle position F (standard)	Port position R, cushion needle position F (common port)	Port position F, cushion needle position B	Port position R, cushion needle position B (common port)	Port position D, cushion needle position F	Port position D, cushion needle position D	Port position F, cushion needle position F (common port)
Option	A	⧹				●	●	●	●	●	●	●	●	●	●	●	●	●
	A1		⧹			●	●	●	●	●	●	●	●	●	●	●	●	●
	A2			⧹		●	●	●	●	●	●	●	●	●	●	●	●	●
	A3				⧹	●	●	●	●	●	●	●	●	●	●	●	●	●
	Y					⧹		●	●			●	●	●	●	●	●	●
	Y1						⧹	●	●			●	●	●	●	●	●	
	L*							⧹		●	●	●	●	●	●	●	●	●
	N*								⧹	●	●	●	●	●	●	●	●	
	H									⧹		●	●	●	●	●	●	
	U										⧹	●	●	●	●	●	●	●
	Blank											⧹						
	R												⧹					
	B													⧹				
	T														⧹			
	D															⧹		
	S																⧹	
	X																	⧹

*1: Some combinations are not available depending on the bore size. Be sure to check the Ⓖ Option in "How to order".
*2: LB1 with port position D is not possible. (ø25, ø32)

Precautions for model No. selection

*1: Mounting bracket will be shipped assembled with the product.
*2: For 12, 16, 20, 25 and 32 bore sizes with option code "R" or "T", the mounting type will be "00" or "LB1". (Piping with "LB" is not possible for option codes "R" and "T".)
3: "" of L* and N* indicates the number of sets. When more than one set are necessary, specify "L2" (for LB) or "N2" (for LB1). 2 pcs./set
*4: In the case of the standard with ø12 to ø25, remove the cover, attach a flat nut and install the full stroke length adjusting bracket. A flat nut is attached to option "A3" to enable retrofitting the full stroke length adjusting bracket without removing the cover.
*5: In "H", the thread size for ø12 and ø16 will be "M4" and that for ø20 will be "M5".
*6: Check the option combinations in "Option selection table".



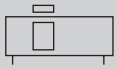
Pneumatic Cylinders I
Catalog No. CB-029SA

High precision guided rodless cylinder

Double acting **SRM3** Series

Double acting/position locking **SRM3-Q** Series

●Bore size:ø25/ø32/ø40/ø63 or equiv.



RoHS CAD

Specifications

Item		SRM3				SRM3-Q			
		Standard/With switch				Position locking/With switch			
Bore size mm		ø25 or equiv.	ø32 or equiv.	ø40 or equiv.	ø63 or equiv.	ø25 or equiv.	ø32 or equiv.	ø40 or equiv.	ø63 or equiv.
Actuation		Double acting				Double acting/Position locking			
Working fluid		Compressed air							
Max. working pressure MPa		0.7							
Min. working pressure MPa		0.15			0.1	0.15			0.1
Proof pressure MPa		1.05							
Ambient temperature °C		5 to 60							
Port size	Cylinder body port	Rc1/8	Rc1/4		Rc3/8	Rc1/8	Rc1/4		Rc3/8
	Position locking port	-				Rc1/8			
Stroke tolerance mm		$^{+2.0}_{0}$ (up to 1000) $^{+2.5}_{0}$ (up to 2000)							
Working piston speed mm/s		50 to 1500 (*1, *2)							
Cushion		Air cushion							
Lubrication		Not available							
Repeatability mm		±0.03							
Position locking mechanism		-				Attached to R side of cover			
Holding force N		-				Max. thrust x 0.7			

*1: For common port piping, working piston speed varies depending on stroke length. Contact CKD.
*2: (1) When the piston moves at 500 to 1500 mm/s, reduce the speed when entering the position locking mechanism to 500 mm/s or less.
(2) To reduce the speed, add an external shock absorber or deceleration circuit.
(3) Apply grease regularly to the sliding part of the lock lever.

Allowable absorbed energy

Bore size (mm)	Cushioned		Without cushion	With shock absorber (initial set point)	
	Allowable absorbed energy (J)	Cushion stroke (mm)	Allowable absorbed energy (J)	Absorbed energy (J)	Effective Stroke (mm)
ø25 or equiv.	1.40	20.9	0.015	10	9
ø32 or equiv.	2.57	23.5	0.030	18	13
ø40 or equiv.	4.27	23.9	0.050	50	16.5
ø63 or equiv.	17.4	29.6	0.138	86	21

Stroke

Bore size(mm)	Standard Stroke (mm)	Max. Stroke (mm)	Min. Stroke (mm)
ø25, ø32 or equiv.	200, 300, 400, 500, 600, 700, 800, 900, 1000	1000	50
ø40, ø63 or equiv.	200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000	2000	80

Note: The custom Stroke is available in 1mm increments.

Compatibility table by variation

Applicable bore size		Double acting/ standard	Double acting/ position locking
			Q
ø25/32 40/63	P4	●	●
	P40	●	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

*1: Square nut, a standard accessory, is not included.
*2: The grease nipple is not assembled.
*3: If the switch model No. is not selected, select "CO" (for reed switch), "C1" (for proximity switch) after [Stroke].

How to order

Without switch

SRM3 - 25 B - 500 — C0 — A P4/P40

With switch

SRM3 - 25 B - 500 - SW40 - R - A P4/P40

Ⓐ Model No. Ⓑ Bore size Ⓒ Cushion Ⓓ Stroke Ⓔ Switch model No. Ⓕ Switch quantity Ⓖ Option *1 *2 *3

Code	Description
Ⓐ Model No.	
SRM3	Standard
SRM3-Q	Position locking
Ⓑ Bore size (mm)	
25	ø25
32	ø32
40	ø40
63	ø63
Ⓒ Cushion	
B	Both sides cushioned
R	R side cushioned
L	L side cushioned
N	Without cushion

Ⓓ Stroke (mm)

Bore size	Stroke	Custom Stroke
ø25	50 to 1000	In 1 mm increments
ø32	50 to 1000	
ø40	80 to 2000	
ø63	80 to 2000	

Ⓔ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

* Select only when the switch model No. is not selected	
C0	With integrated magnet for reed switch
C1	With integrated magnet for proximity switch

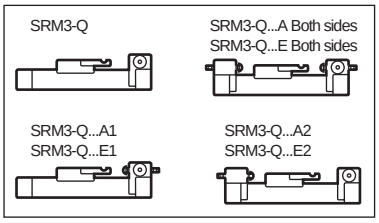
Ⓕ Switch quantity	
R	1 on R side
L	1 on L side
D	2
T	3
4	4 (when there are more than 4 switches, indicate switch quantity.)

Ⓖ Option

Bore size(ø)				25	32	40	63
A	Full Stroke adjustable	Both sides,With shock absorber		●	●	●	●
A1		Rsideonly,With shock absorber		●	●	●	●
A2		L side only,With shock absorber		●	●	●	●
A3		Adjusting bracket to be added later		●	●	●	●
E		Both sides,With light-load shock absorber		●	●	●	●
E1		Rsideonly,With light-load shock absorber		●	●	●	●
E2		Lsideonly,With light-load shock absorber		●	●	●	●
Blank	Port position	F(Standard)	Cushion needle position F(Standard)	●	●	●	●
R		R(Common port)	F	●	●	●	
B		F	B	●	●	●	●
T		R(Common port)	B	●	●	●	
D		D	F	●	●	●	●
S		D	D		●	●	●

Precautions for model No. selection

*1: To install the full stroke length adjusting bracket later, you need to remove the cover and attach a flat nut. A flat nut is attached to option "A3" to enable retrofitting the full stroke length adjusting bracket.
*2: The full stroke length adjusting bracket on R side is provided as standard for position locking. Therefore, if "A1" or "E1" is selected, a shock absorber only is added to R side. In the case of "A", R side is position locking and full stroke length adjustable with shock absorber, and L side is full stroke length adjustable with shock absorber. (Figure below)



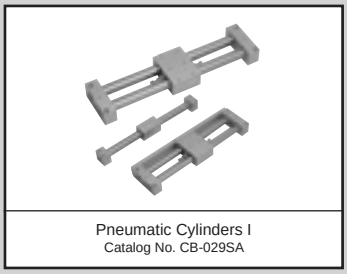
*3: Copper and PTFE free as standard. (Except for type with shock absorber)
*4: The built-in magnet cannot be changed after shipment.

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)				Compatible tube O.D.					Page
		M5	1/8	1/4	3/8	4(ø4)	6(ø6)	8(ø8)	10(ø10)	12(ø12)	
SC3W-6-*-P4			●			●	●	●			530
SC3W-8-*-P4				●			●	●	●		
SC3W-10-*-P4					●			●	●	●	

Specify the compatible tube O.D. code for *.



Pneumatic Cylinders I
Catalog No. CB-029SA

Magnet rodless cylinder

• Basic **MRL2 Series**
• Simplified guide 1-piston **MRL2-G Series**
• simplified guide 2-piston **MRL2-W Series**

●Bore size: ø6, ø10, ø16, ø20, ø25, ø32

JIS symbol



RoHS CAD

Specifications

Item		MRL2(L) , MRL2-G(L) , MRL2-W(L)					
Bore size	mm	ø6	ø10	ø16	ø20	ø25	ø32
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure	MPa	0.7					
Min. working pressure	MPa	0.3 (*1)		0.2			
Proof pressure	MPa	1.05					
Ambient temperature	°C	-10 to 60 (fine speed: 5 to 60) (no freezing)					
Port size		M5				Rc1/8	
Stroke tolerance	mm	$^{+1.5}_{0}$ (up to 1000)			$^{+2.0}_{0}$ (up to 1500)		
Working piston speed	mm/s	50 to 500 (fine speed: 1 to 200)					
Cushion		Rubber cushion					
Lubrication		Not available					
Magnet holding force (*2)	N	19	63	166	294	350	574
Adjustable stroke range (single side) (*3)	mm	3	4	6	8.5	10	10

*1: MRL2-G-6-C (with shock absorber) is 0.4MPa.
*2: The simplified guide 2-piston (W) will be a 2-fold value.
*3: The Stroke of MRL2 (basic) cannot be adjusted.

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Max. value with switch Stroke (mm)	Common piping with switch Max. Stroke (mm)	Max. fine speed Stroke (mm)	Min. Stroke (mm)
ø6	50, 100, 150, 200	300	200	-	300	1
ø10	50, 100, 150, 200, 250, 300	500	300	300	500	
ø16	100,150,200,250,300 , 400,500	1000	500	500	800	
ø20	200,250,300,350,400,500,600,700	1500	700	700	800	
ø25	200,250,300,350,400,500,600,700	1500	700	700	800	
ø32	200,250,300,350,400,500,600,700	1500	700	700	700	

■ The custom stroke length is available in 1 mm increments.

Compatibility table by variation

Applicable bore size		Double acting/ basic
ø6 to 32	P4	●
	P40	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

*1: Electrolytic nickel plating is used in the magnet.

How to order

Without switch

MRL2-W — 6 C — 50 ——— C P4/P40

With switch

MRL2-WL — 6 C — 50 — SW11 — R — C P4/P40

Ⓐ Model No. Ⓑ Bore size Ⓒ Cushion *2 Ⓓ Stroke *3 Ⓔ Switch model No. Ⓕ Switch quantity Ⓖ Option *4

Code		Description
Ⓐ Model No.		
Basic	MRL2	Without switch
	MRL2-L	With switch
Simplified guide 1-piston type	MRL2-G	Without switch
	MRL2-GL	With switch
Simplified guide 2-piston Type	MRL2-W	Without switch
	MRL2-WL	With switch

Ⓑ Bore size (mm)	
6	ø6
10	ø10
16	ø16
20	ø20
25	ø25
32	ø32

Ⓒ Cushion	
Blank	Rubber cushion
C	Rubber-air cushion

Ⓓ Stroke (mm)

Bore size	Stroke	Custom Stroke
ø6	**1 to 300**	**In 1 mm increments**
ø10	**1 to 500**	
ø16	**1 to 1000**	
ø20 to ø32	**1 to 1500**	

Ⓔ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓕ Switch quantity	
R	1 on R side
L	1 on L side
D	2
T	3
4	4 (when there are more than 4 switches, indicate switch quantity.)

Ⓖ Option	
C	With shock absorber (basic cannot be selected.)
S	With scraper (fine speed cannot be selected.)
R	Common piping with switch (Basic and ø6 cannot be selected.)

Precautions for model No. selection

*1: When the cushion is a rubber cushion (blank), the port thread will be the following.
NPT thread: NN G thread: GN

*2: In the case of MRL2-G and W with the "C" rubber-air cushion, the stopper protrudes from the end plate by approximately 1 mm at shipment. Note that the rubber-air cushion may not function if the stopper is moved to adjust the stroke.

*3: Refer to the following table for the max. Stroke with switch.

***4: When selecting common piping with "R" switch, select the type with switch (MRL2-*L) for the model No.**

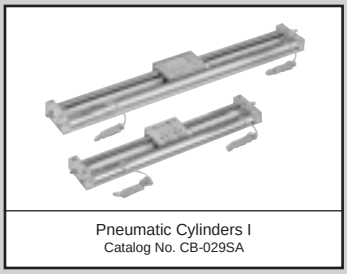
Bore size (mm)	Max. Stroke with switch (mm)
ø6	200
ø10	300
ø16	500
ø20	700
ø25	700
ø32	700

Related products

Speed controller

Model No.	Appearance	Port size (Rc or R)		Compatible tube O.D.			Description page
		M5	1/8	4 (ø4)	6(ø6)	8(ø8)	
SC3W-M5-*-P4		●		●	●		530
SC3W-6-*-P4			●	●	●	●	

Specify the compatible tube O.D. code for *.

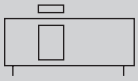


Pneumatic Cylinders I
Catalog No. CB-029SA

Magnet rodless cylinder With high precision guide

MRG2 Series

●Bore size:ø10, ø16, ø25

JIS symbol 

RoHS CAD

Specifications

Item		MRG2		
Bore size	mm	ø10	ø16	ø25
Actuation		Double acting		
Working fluid		Compressed air		
Max. working pressure	MPa	0.7		
Min. working pressure	MPa	0.3 (*1)	0.2	
Proof pressure	MPa	1.05		
Ambient temperature	°C	5 to 60		
Port size		M5		Rc1/8
Stroke tolerance	mm	+1.5 0		
Working piston speed	mm/s	50 to 1000		
Cushion		Shock absorber		
Lubrication		Not available		
Magnet holding force	N	63	166	350
Allowable absorbed energy	J	2.1	5.3	8.7

*1: Due to resistance of the shock absorber, it will take time to reach the stroke end. Take this into consideration upon use.
*2: Products other than standard Stroke are made to order products.

Stroke

Bore size (mm)	Standard Stroke (mm)	Max. Stroke (mm)	Max.Small Stroke (mm)	Min. stroke with switch-K (mm)
ø10	50, 100, 150, 200, 300	300	50	50 (with 2 pcs.)
ø16	50,100,150,200,300,400,500	500		
ø25	50,100,150,200,300,400,500,600,700	700		

Note: Products other than standard Stroke are made-to-order products.

Compatibility table by variation

Applicable bore size		Double acting/ basic
ø10/16/25	P4	●
	P40	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

*1: Electrolytic nickel plating is used in the magnet.

How to order

MRG2 — 10 — 100 — SW11 — D — A — P4 P40

Code	Description			
Ⓐ Bore size (mm)				
10	ø10			
16	ø16			
25	ø25			
Ⓑ Stroke (mm)				
	Bore size ø (mm)	**10**	**16**	**25**
50	50	●	●	●
100	100	●	●	●
150	150	●	●	●
200	200	●	●	●
300	300	●	●	●
400	400		●	●
500	500		●	●
600	600			●
700	700			●
Ⓒ Switch model No.				
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.				
Ⓓ Switch quantity				
R	1 on R side			
L	1 on L side			
D	2			
T	3			
4	4 (when there are more than 4 switches, indicate switch quantity.)			
Ⓔ Option				
A	With both-sided full Stroke adjustable brackets			
A1	With R side full Stroke adjusting bracket			
A2	With L side full Stroke adjusting bracket			

Ⓐ Bore size
Ⓑ Stroke
Ⓒ Switch model No.
Ⓓ Switch quantity
Ⓔ Option *1

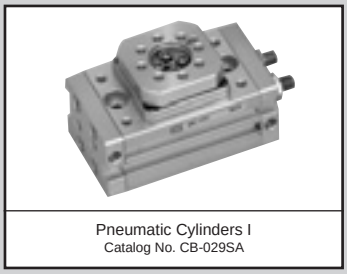
⚠ Precautions for model No. selection

*1: The full Stroke adjustable brackets cannot be retrofitted.

Related products

Speed controller							
Model No.	Appearance	Port size (Rc or R)		Compatible tube O.D.			Page
		M5	1/8	4 (ø4)	6(ø6)	8(ø8)	
SC3W-M5-*-P4		●		●	●		530
SC3W-6- *-P4			●	●	●	●	

Specify the compatible tube O.D. code for *.



Pneumatic Cylinders I
Catalog No. CB-029SA

Table rotary actuator
Basic/high accuracy

GRC/GRC-K Series

●Size:5/10/20/30/50/80

JIS symbol 

RoHS CAD

Specifications

Item			GRC-5	GRC-10 GRC-K-10	GRC-20 GRC-K-20	GRC-30 GRC-K-30	GRC-50 GRC-K-50	GRC-80 GRC-K-80
Size			5	10	20	30	50	80
Theoretical torque Note1		N•m	0.5	1.0	2.0	3.0	5.2	8.1
Actuation			Rack and pinion mechanism					
Working fluid			Compressed air					
Max. working pressure		MPa	1.0					
Min. working pressure *2	Basic	MPa	0.10					
	High accuracy		-	0.15		0.10		
	With external shock absorber		0.25	0.20	0.15			
Proof pressure		MPa	1.6					
Ambient temperature		°C	0 to 60 (no freezing)					
Port size			M5				Rc1/8	
Cushion	Basic/high accuracy		Rubber cushion					
	With external shock absorber		Shock absorber					
	Shock absorber model No.		NCK-0.3		NCK-0.7		NCK-1.2	NCK-2.6
Allowable absorbed energy	Basic/high accuracy	J	0.005	0.008	0.03		0.04	0.11
	With external shock absorber *6		0.46	0.59	1.15	1.71	2.33	2.78
Shock absorber stroke		mm	3.5	3.5	5	5	5.5	6.5
Lubrication			Not available					
Volumetric capacity *3		cm^3 90°	1.3	3.5	7.0	10.5	18.1	28.3
		180°	3.4	6.6	13.4	20.0	34.4	53.7
Oscillating angle adjusting range *4	Basic/high accuracy	90°	0° to 100°					
		180°	90° to 190°					
	With external shock absorber	90°	90°±6°					
		180°	180°±6°					
Oscillating time adjusting range *5 *7		s/90°	0.2 to 1.5					
Table deflection (reference value)		Basic	±0.17°			±0.23°	±0.26°	±0.32°
		High accuracy	-	±0.026°				

*1: The theoretical torque is value at working pressure 0.5 MPa.
*2: To push through the rubber cushion integrated in basic and high accuracy type, 0.3 MPa and over working pressure is required.
*3: Volumetric capacity is value within oscillating angle adjusting range when max. oscillating angle.
*4: Oscillating angle adjusting range is value when adjusted by both side stopper bolts (shock absorber).
*5: Oscillating time adjusting range is value at working pressure 0.5 MPa.
*6: The values in the table indicate the absorbed energy at the maximum oscillation speed.
*7: For types with shock absorbers, this is the time until impact with the tip of the shock absorber (end of the rod). (This is not the oscillation time to the end of the shock absorber stroke.)

Compatibility table by variation

Applicable size		Standard	High accuracy	Fine speed	High accuracy/ fine speed
			K	F	KF
Torque 0.5 to 8.1 N•m	P4	●	●		
	P40	●(*1)	●(*1)		
	P42	▲	▲		

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

*1: Even when P40 is selected for the external stopper option, electrolytic nickel plating is used for the stopper part.
*2: Zinc plating is used in part of the bearings - the sealing washer of the angle adjustment unit.

How to order

● Without switch

GRC - 10 - 90 ——— A1 P4 P40

● With switch

GRC - 30 - 180 - SW11 - R - A2 P4 P40

Ⓐ Model No.
Ⓑ Size
Ⓒ Oscillating angle
Ⓓ Switch model No.
Ⓔ Switch quantity
Ⓕ Option

Code	Item
Ⓐ Model No.	
GRC	Basic
GRC-K	High accuracy

Ⓑ Size (0.5 MPa)			
Model No.	**Theoretical torque**	**GRC**	**GRC-K**
5	0.5 [N•m]	●	–
10	1.0 [N•m]	●	●
20	2.0 [N•m]	●	●
30	3.0 [N•m]	●	●
50	5.2 [N•m]	●	●
80	8.1 [N•m]	●	●

Ⓒ Oscillating angle	
90	90°
180	180°

Ⓓ Switch model No.
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓔ Switch quantity	
R	With clockwise rotation detection 1 piece
L	With counterclockwise rotation detection 1 piece
D	2

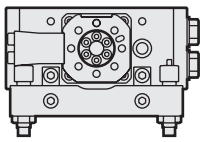
Ⓕ Option	
Blank	Hexagon socket set screw stopper with urethane
A With external shock absorber	
A1	Installation position ①
A2	Installation position ②
A3	External shock absorber retrofitting (mounting groove machined)

⚠ Precautions for model No. selection

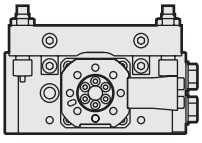
*1: Port position of basic/high accuracy type is provided on the side surface. Other ports are plugged.
*2: The external shock absorber cannot be retrofitted onto the basic/high accuracy type. Select the A3 type as an option if retrofitting.
*3: If an external shock absorber is retrofit on the A3 type, the features will be the same as the A1 type. Consult CKD for A2 type.

External shock absorber mounting drawing

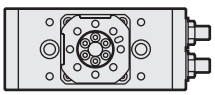
GRC-*-A1 (Installation position ①)



GRC-*-A2 (Installation position ②)



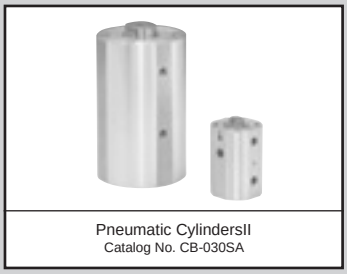
GRC-*-A3 (Installation position ③)



Related products

Speed controller								
Model No.	Appearance	Port size (Rc or R)			Compatible tube O.D.			Page
		M3	M5	1/8	4(ø4)	6(ø6)	8(ø8)	
SC3W-M5-*-P4			●		●	●		530
SC3W-6-*-P4				●	●	●	●	

Specify the compatible tube O.D. code for *.



Pneumatic CylindersII
Catalog No. CB-030SA

Air bearing actuator
Single acting/push

LBC Series

P4 compliant as standard

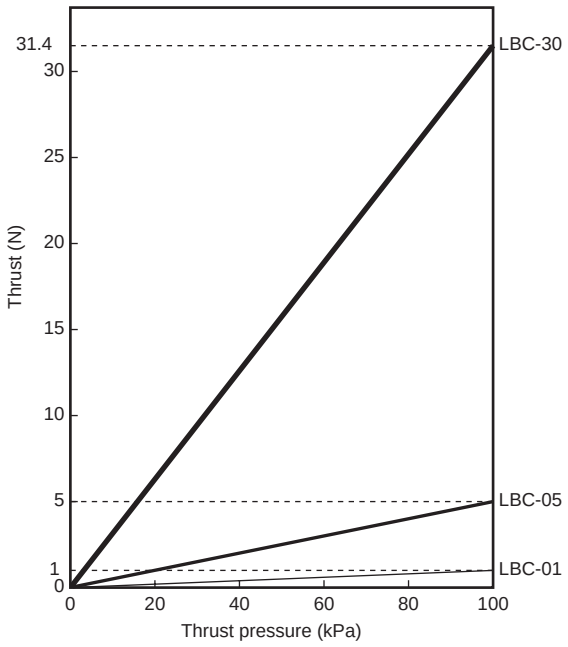
RoHS CAD

Specifications

Item		LBC-01	LBC-05	LBC-30
Actuation		Single acting/push (*1)		
Working fluid		Clean compressed air (JIS B 8392-1: 2003 Grade 1.3.2 or equivalent)		
Working pressure MPa	Air bearing port	0.3 to 0.5		
	Thrust port	0.002 to 0.1		
Ambient temperature °C		5 to 35		
Proof pressure MPa		0.75		
Pressurized area mm^2		10	50	314
Thrust range N		0.02 to 1.0	0.1 to 5.0	0.6 to 31.4
Stroke mm		5^{+1}_{0}		30^{+1}_{0}
Allowable lateral load N		1.2	0.8	4.0
Weight g		50	45	345
Movable part weight (*2) g		5	4.5	65
Bearing part air consumption (*3) ℓ/min		2.5 or less	2.5 or less	7.5 or less

*1: Rod return mechanism is not available.
*2: Movable part weight is: rod, stopper, crossIndicates the total weight of the flat head screw with holes.
*3: Value when bearing pressure is 0.5 MPa

Thrust characteristics



How to order

LBC - 01

Ⓐ Thrust

Code	Description
Ⓐ Thrust	
01	1 N
05	5 N
30	30 N

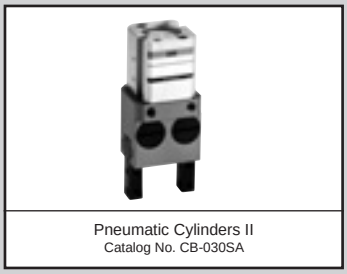
Hand/chuck



CONTENTS

■ Hand	Parallel hand	HAP	76
	Compact cross roller parallel hand	BHA	78
	Linear guide hand	LHA	80
	Linear guide hand (with rubber cover)	LHAG	82
	Compact cross roller parallel hand (with rubber cover)	BHG	84
	Cross roller parallel hand	HKP	86
	Lateral parallel hand	HCP	88
	Bearing thin parallel hand	HLB	90
	Bearing thin parallel hand (with rubber cover)	HLBG	92
	Compact wide parallel hand	HMF	94
	Thin long stroke parallel hand	HLC	96
	Ultra thin parallel hand	HLD	100
	Low-profile long stroke hand	HLF2	102
	Thin wide angle hand	HMD	104
	Centering hand	BHE	106
■ Chuck	3-way finger bearing chuck	CKG	108
	Powerful chuck	CKL2	110
	2-way powerful chuck	CKLB2	112
	Hollow chuck	CKF	114
■ Cylinder switch			124

To order a switch, refer to the switch compatibility table on Intro Pages 23 to 26 and order using the listed order model No.

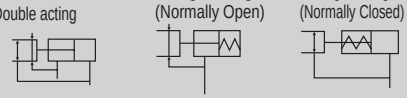


Pneumatic Cylinders II
Catalog No. CB-030SA

Parallel hand Double acting/single acting

HAP-2/3/4CS Series

●Operating Stroke: 16, 26, 41 mm



RoHS CAD

Specifications

Item		HAP		
Size		2CS	3CS	4CS
Bore size	mm	ø20	ø25	ø40
Actuation		Double acting/single acting		
Working fluid		Compressed air		
Max. working pressure	MPa	0.7		
Min. working pressure	MPa	0.3		
Ambient temperature	°C	5 to 60		
Port size		M5		Rc1/8
Operating Stroke	mm	16	26	41
Rod diameter	mm	ø10	ø14	ø16
Capacity of reciprocation	cm^3	4.4	10.8	47.4
Repeatability	mm	±0.03		
Product weight	kg	0.28	0.58	1.52
Lubrication		Not available		

Compatibility table by variation

Applicable bore size		Double acting	Single acting Normally Open	Single acting Normally Closed
			O	C
ø40	P4	●	●	●
	P40	●	●	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

Without switch

HAP - 2CS - O ——— P4 / P40

With switch

HAP - 2CS - O - SW11 - R - P4 / P40

Ⓐ Size

Ⓑ Option *1

Ⓒ Switch model No.

Ⓓ Switch quantity

Code	Description
Ⓐ Size	
2CS	
3CS	
4CS	
Ⓑ Option	
Blank	Standard (double acting)
O	Single acting (Normally Open)
C	Single acting (Normally Closed)
Y1	With attachment (S50C)
Y2	With attachment (MC nylon)
Ⓒ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

⚠ Precautions for model No. selection

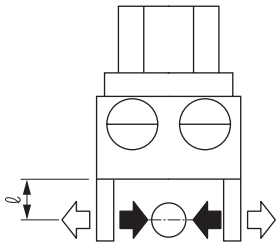
*1: For option Y1 and Y2 attachments, two are included on delivery.

Gripping power performance data

The gripping force in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

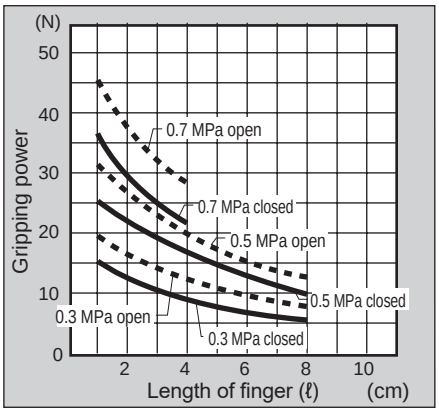
● Open direction(⇦)------(Broken line)

● Close direction(➡)——(shown with continuous line)

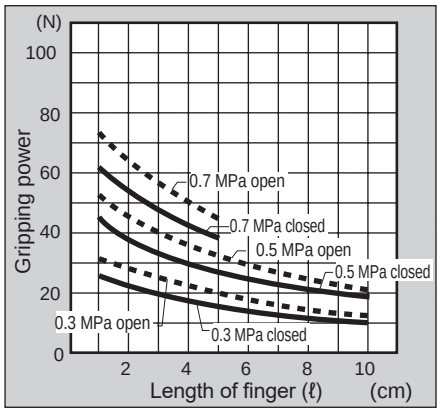


(Note)O type gripping force decreases approximately 20 to 30% in the closed direction compared to double acting. C type gripping force decreases approximately 10 to 20% in the open direction compared to the double acting type.

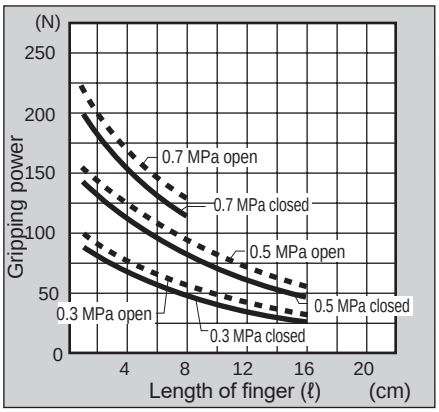
● HAP-2CS

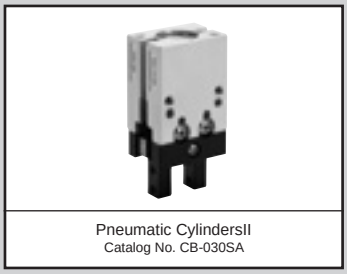


● HAP-3CS



● HAP-4CS



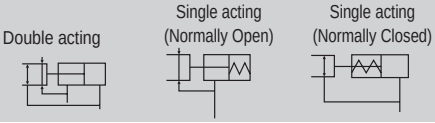


Pneumatic CylindersII
Catalog No. CB-030SA

Compact cross roller parallel hand Double acting/single acting

BHA Series

●Operating Stroke: 5, 9, 11, 15 mm



RoHS CAD

Specifications

Item		BHA			
Size		01CS1	03CS1	04CS1	05CS1
Bore size	mm	ø12	ø16	ø20	ø25
Actuation		Double acting/single acting			
Working fluid		Compressed air			
Max. working pressure	MPa	0.7			
Min. working pressure MPa	Double acting	0.1			
	Normally Open	0.3			
	Normally Closed				
Ambient temperature	°C	5 to 60			
Port size		M3	M5		
Operating Stroke	mm	5	9	11	15
Rod diameter	mm	ø6	ø8	ø10	ø12
Capacity of reciprocation	cm^3	0.32	1.58	2.89	6.32
Repeatability	mm	±0.01			
Product weight	kg	0.100	0.145	0.253	0.420
Lubrication		Not available			

How to order

Without switch

BHA - 01CS1 - O — P4 / P40

With switch

BHA - 01CS1 - O - SW11 - R - P4 / P40

Ⓐ Size

Ⓑ Option *1

Ⓒ Switch model No.

Ⓓ Switch quantity

Code	Description
Ⓐ Size	
01CS1	
03CS1	
04CS1	
05CS1	
Ⓑ Option	
Blank	Standard (double acting)
O	Single acting (Normally Open)
C	Single acting (Normally Closed)
Y1	With attachment (S50C)
Y2	With attachment (MC nylon)
Ⓒ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

Compatibility table by variation

Applicable bore size		Double acting	Single acting Normally Open	Single acting Normally Closed
			O	C
ø12/16 20/25	P4	●	●	●
	P40	●	●	●

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

⚠ Precautions for model No. selection

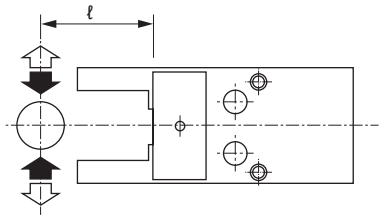
*1:For option Y1 and Y2 attachments, two are included on delivery.

Gripping power performance data

The gripping force in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

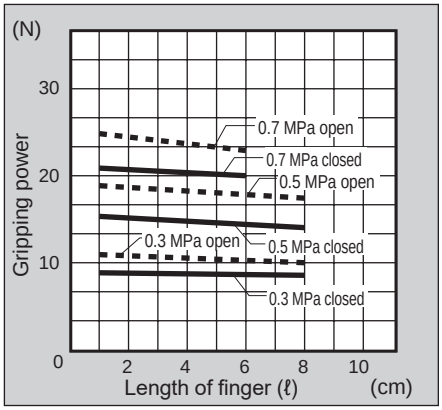
● Open direction(⇦) ------(Broken line)

● Close direction(➡) ——(shown with continuous line)

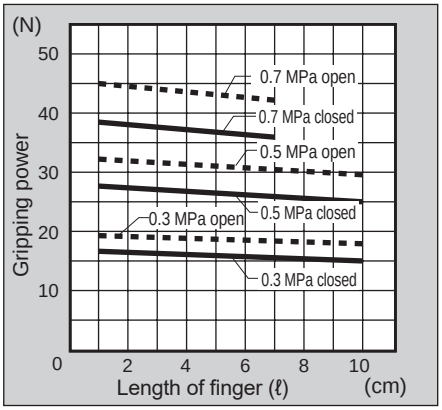


(Note)O type gripping force decreases approximately 20 to 30% in the closed direction compared to double acting. C type gripping force decreases approximately 10 to 20% in the open direction compared to the double acting type.

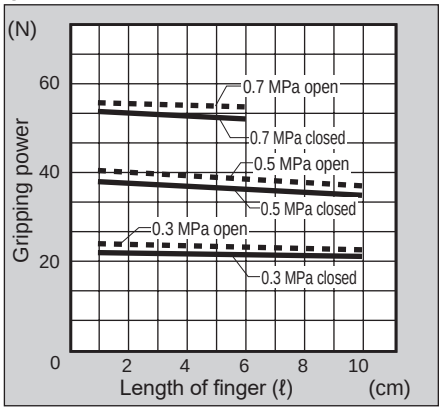
● BHA-01CS1



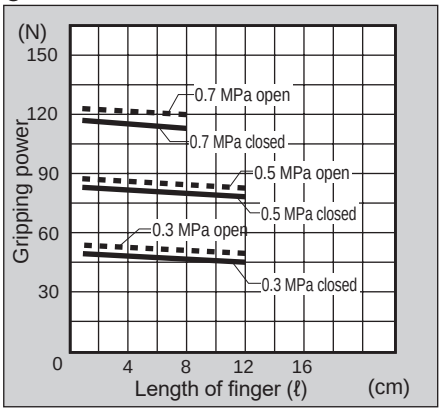
● BHA-03CS1

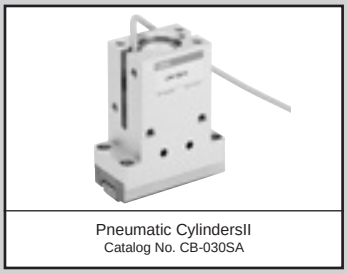


● BHA-04CS1



● BHA-05CS1





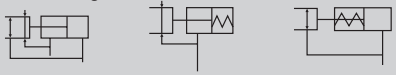
Pneumatic CylindersII
Catalog No. CB-030SA

Linear guide hand Double acting/single acting

LHA Series

●Operating Stroke: 4, 5, 9, 11, 15, 20 mm

Double acting | Single acting (Normally Open) | Single acting (Normally Closed)



RoHS CAD

Specifications

Item		LHA					
Size		006CS	01CS	03CS	04CS	05CS	06CS
Bore size mm		ø6	ø12	ø16	ø20	ø25	ø32
Actuation		Double acting/single acting					
Working fluid		Compressed air					
Max. working pressure MPa		0.7					
Min. working pressure MPa	Double acting	0.15	0.1				
	Single acting	0.3					
Ambient temperature °C		5 to 60					
Port size		M3		M5			
Operating Stroke mm		4	5	9	11	15	20
Rod diameter mm		ø3	ø6	ø8	ø10	ø12	ø16
Capacity of reciprocation cm^3		0.10	0.32	1.58	2.89	6.32	14.07
Repeatability mm		±0.01					
Product weight kg		0.04	0.085	0.15	0.36	0.52	0.82
Lubrication		Not available					

How to order

Without switch

LHA - 03CS - O — P4 P40

With switch

LHA - 03CS - O - SW81 - R - P4 P40

Ⓐ Size

Ⓑ Option

Ⓒ Switch model No.

Ⓓ Switch quantity

Code	Description
Ⓐ Size	
006CS	
01CS	
03CS	
04CS	
05CS	
06CS	
Ⓑ Option	
Blank	Standard (double acting)
O	Single acting (Normally Open)
C	Single acting (Normally Closed)
Ⓒ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

⚠ Precautions for model No. selection

*1:Only the LHA-006CS is provided with the F switch.

Compatibility table by variation

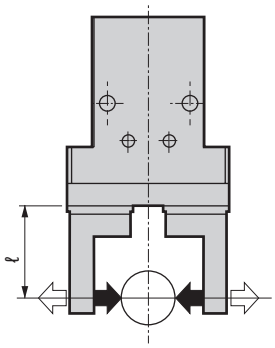
Applicable bore size		Double acting	Single acting Normally Open	Single acting Normally Closed
			O	C
ø6 to 32	P4	●	●	●
	P40	●	●	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

Gripping power performance data

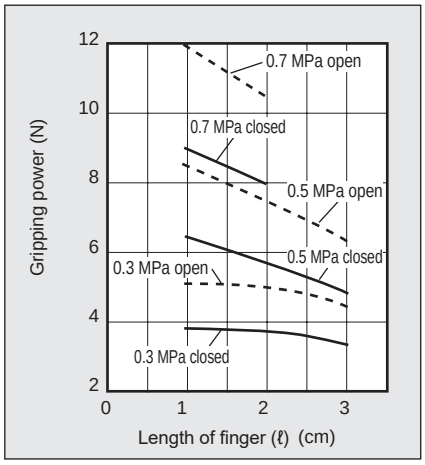
The gripping force in the opening/closing directions with finger length ℓ of hand with a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

- Open direction(⇦)- - - - - - - - - - -(Broken line)
- Close direction(➡)——————(shown with continuous line)

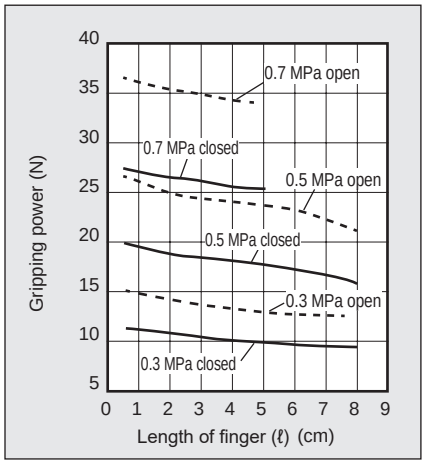


(Note) O type gripping force decreases approximately 20 to 30% in the closed direction compared to double acting.
C type gripping force decreases approximately 10 to 20% in the open direction compared to the double acting type.

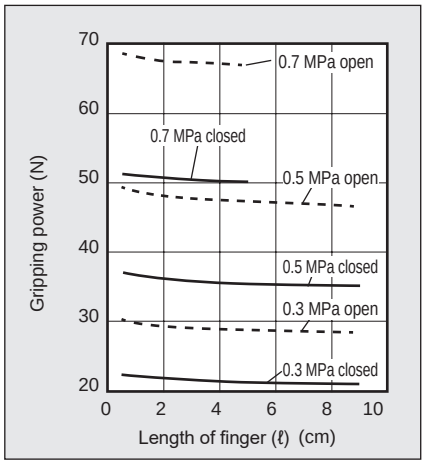
● LHA-006CS



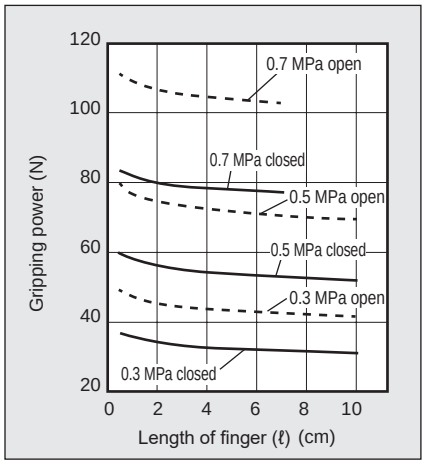
● LHA-01CS



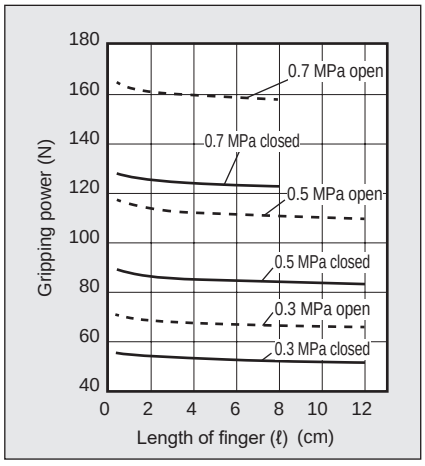
● LHA-03CS



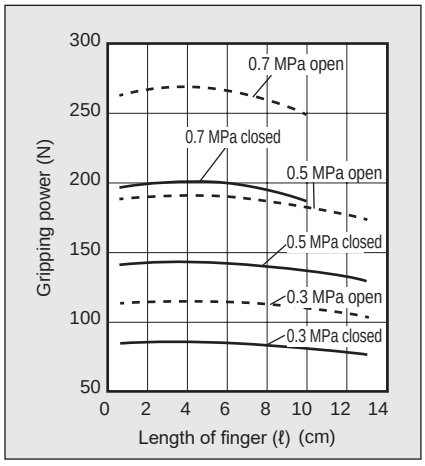
● LHA-04CS

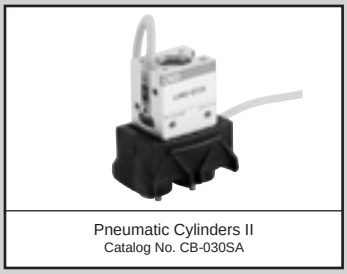


● LHA-05CS



● LHA-06CS





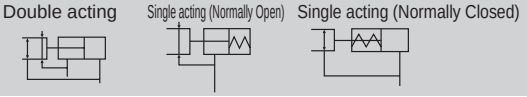
Pneumatic Cylinders II
Catalog No. CB-030SA

Linear guide hand with rubber cover Double acting/single acting

LHAG Series

●Operating Stroke: 5, 9, 11, 15, 20 mm

Double acting Single acting (Normally Open) Single acting (Normally Closed)



RoHS CAD

Specifications

Item		LHAG				
Size		01CS	03CS	04CS	05CS	06CS
Bore size	mm	ø12	ø16	ø20	ø25	ø32
Actuation		Double acting/single acting				
Working fluid		Compressed air				
Max. working pressure	MPa	0.7				
Min. working pressure MPa	Double acting	0.2				
	Single acting	0.3				
Ambient temperature	°C	5 to 60				
Port size		M3		M5		
Operating Stroke	mm	5	9	11	15	20
Rod diameter	mm	ø6	ø8	ø10	ø12	ø16
Capacity of reciprocation	cm^3	0.32	1.58	2.89	6.32	14.07
Repeatability	mm	±0.01				
Product weight	kg	0.09	0.17	0.37	0.57	0.9
Lubrication		Not available				

How to order

Without switch

LHAG - 03CS - O —— P4 / P40

With switch

LHAG - 03CS - O - SW11 - R - P4 / P40

Model No.

Ⓐ Size

Ⓑ Option

Ⓒ Switch model No.

Ⓓ Switch quantity

Code	Description
Ⓐ Size	
01CS	
03CS	
04CS	
05CS	
06CS	
Ⓑ Option	
Blank	Standard (double acting with nitrile rubber guard)
O	Single acting (Normally Open)
C	Single acting (Normally Closed)
F	Fluoro rubber guard
T	Silicone rubber guard
Ⓒ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

Compatibility table by variation

Applicable bore size		Double acting	Single acting/ Normally Open	Single acting/ Normally Closed
			O	C
ø12 to 32	P4	●	●	●
	P40	●	●	●

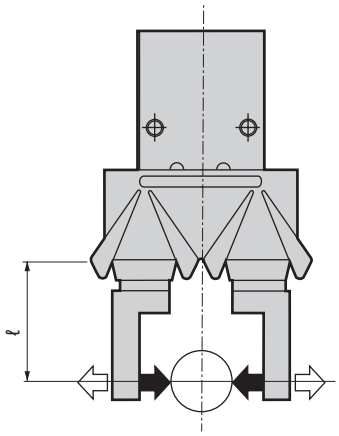
●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable

Gripping power performance data

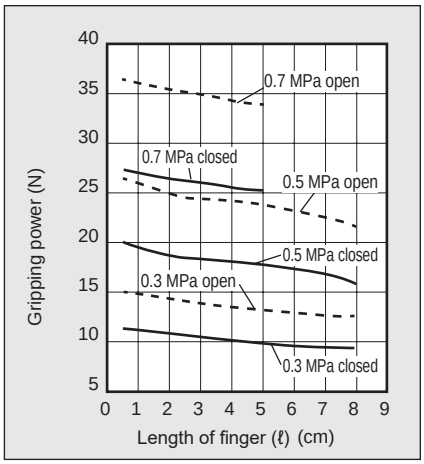
The gripping force in the opening and closing directions with finger length ℓ of hand with a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

- Open direction(⇦)- - - - - - - - - - -(Broken line)
- Close direction(➡)——————(shown with continuous line)

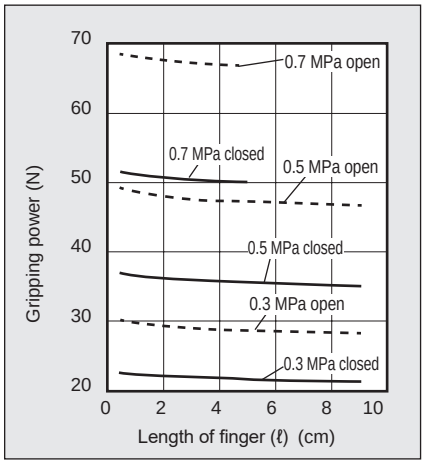
(Note) O type gripping force decreases approximately 20 to 30% in the closed direction compared to double acting.
C type gripping force decreases approximately 10 to 20% in the open direction compared to the double acting type.



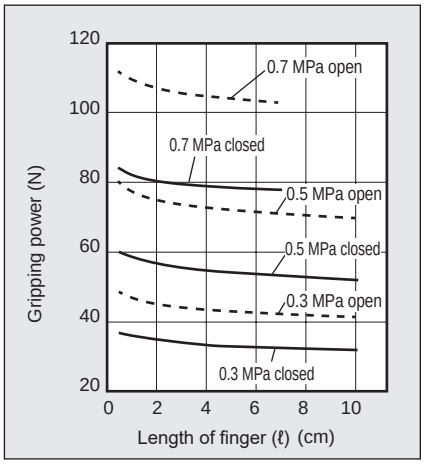
● LHAG-01CS



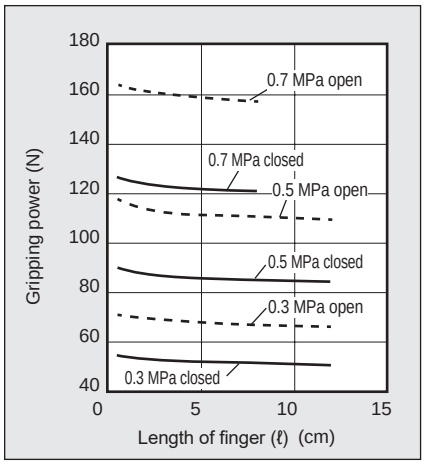
● LHAG-03CS



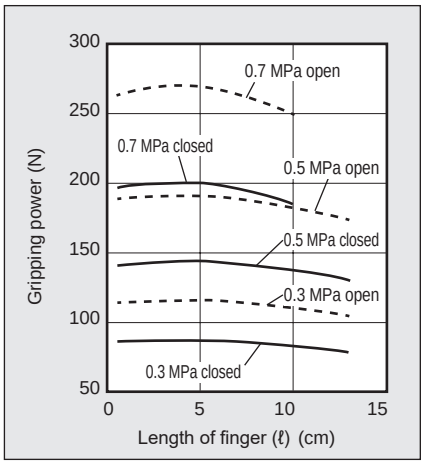
● LHAG-04CS

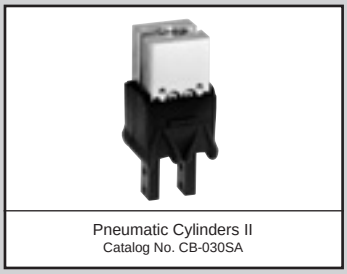


● LHAG-05CS



● LHAG-06CS





Pneumatic Cylinders II
Catalog No. CB-030SA

Compact cross roller parallel hand with rubber cover Double acting/single acting

BHG Series

●Operating Stroke: 5, 9, 11, 15 mm

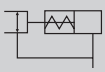
Double acting



Single acting (Normally Open)



Single acting (Normally Closed)



RoHS CAD

Specifications

Item		BHG			
Size		01CS	03CS	04CS	05CS
Bore size	mm	ø12	ø16	ø20	ø25
Actuation		Double acting/single acting			
Working fluid		Compressed air			
Max. working pressure	MPa	0.7			
Min. working pressure MPa	Double acting	0.15			
	Normally Open	0.3			
	Normally Closed				
Ambient temperature	°C	5 to 60			
Port size		M3	M5		
Operating Stroke	mm	5	9	11	15
Rod diameter	mm	ø6	ø8	ø10	ø12
Capacity of reciprocation	cm^3	0.32	1.58	2.89	6.32
Repeatability	mm	±0.01			
Product weight	kg	0.118	0.165	0.238	0.455
Lubrication		Not available			

How to order

Without switch

BHG - 01CS - O — P4 P40

With switch

BHG - 01CS - O - SW11 - R - P4 P40

Ⓐ Size

Ⓑ Option *1

Ⓒ Switch model No.

Ⓓ Switch quantity

Code	Description
Ⓐ Size	
01CS	
03CS	
04CS	
05CS	
Ⓑ Option	
Blank	Standard (double acting)
O	Single acting (Normally Open)
C	Single acting (Normally Closed)
Y1	With attachment (S50C)
Y2	With attachment (MC nylon)
Ⓒ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

Compatibility table by variation

Applicable bore size		Double acting	Single acting Normally Open	Single acting Normally Closed
			O	C
ø12/16 20/25	P4	●	●	●
	P40	●	●	●

●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable

Precautions for model No. selection

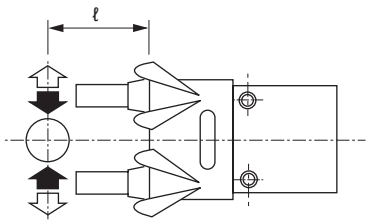
*1: For option Y1 and Y2 attachments, two are included on delivery.

Gripping power performance data

The gripping force in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

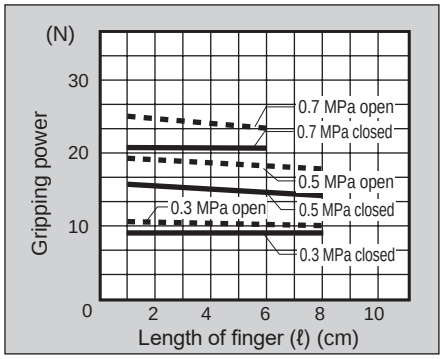
● Open direction(⇦)------(Broken line)

● Closed direction(➡) ——(shown with continuous line)

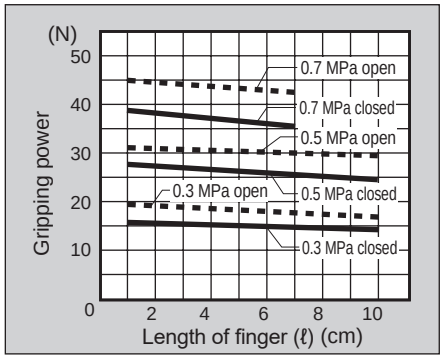


(Note)O type gripping force decreases approximately 20 to 30% in the closed direction compared to double acting. C type gripping force decreases approximately 10 to 20% in the open direction compared to the double acting type.

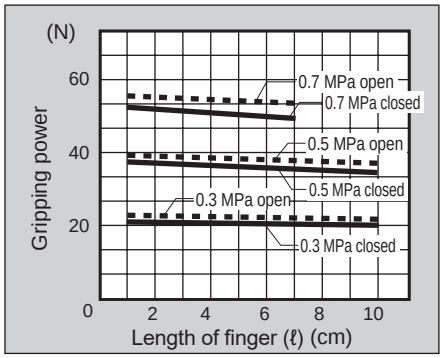
● BHG-01CS



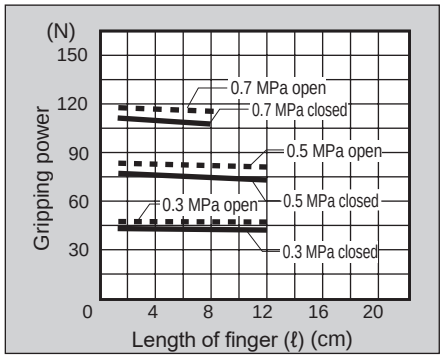
● BHG-03CS

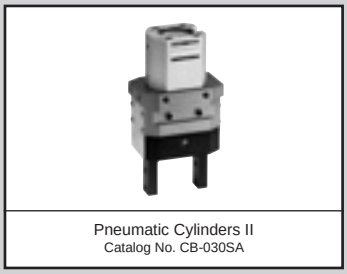


● BHG-04CS



● BHG-05CS



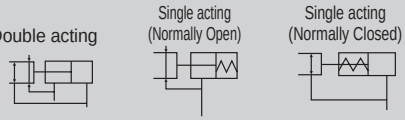


Pneumatic Cylinders II
Catalog No. CB-030SA

Cross roller parallel hand Double acting/single acting

HKP Series

●Operating Stroke:24, 30, 36, 40, 60 mm



RoHS CAD

Specifications

Descriptions		HKP				
Size		32CS	40CS	50CS	63CS	80CS
Bore size mm		ø32	ø40	ø50	ø63	ø80
Actuation		Double acting/single acting				Double acting
Working fluid		Compressed air				
Max. working pressure MPa		0.7				
Min. working pressure[Note] MPa	Double acting	0.1				0.3
	Normally Open	0.3				-
	Normally Closed					
Ambient temperature °C		5 to 60				
Port size		M5	Rc1/8			Rc1/4
Operating Stroke mm		24	30	36	40	60
Rod diameter mm		ø16	ø20	ø28	ø32	ø16
Capacity of reciprocation cm^3		25.3	49.5	89.4	162.9	354.5
Repeatability mm		±0.01				
Product weight kg		1.36	1.95	4.2	5.4	10.6
Lubrication		Not available				

Note:When a rubber cover (option) is attached, the min. working pressure is 0.15MPa for double acting and 0.35MPa for Normally Open/Normally Closed.

Compatibility table by variation

Applicable bore size		Double acting	Single acting Normally Open	Single acting Normally Closed	Rubber cover (Nitrile rubber)
			O	C	G
ø32 to 80	P4	●	●	●	●
	P40	●	●	●	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

Without switch

HKP - 32CS - G ——— P4 P40

With switch

HKP - 32CS - G - SW11 - R - P4 P40

Ⓐ Size
Ⓑ Option
Ⓒ Switch model No.
Ⓓ Switch quantity

Code	Item
Ⓐ Size	
32CS	
40CS	
50CS	
63CS	
80CS	

Ⓑ Option

	Size	32CS	40CS	50CS	63CS	80CS
Blank	Standard (double acting)	●	●	●	●	●
O	Single acting (Normally Open)	●	●	●	●	
C	Single acting (Normally Closed)	●	●	●	●	
G	With rubber cover (nitrile rubber)	●	●	●	●	

Ⓒ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓓ Switch quantity

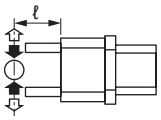
R	1 on open side
H	1 on closed side
D	2

Gripping power performance data

The gripping force in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

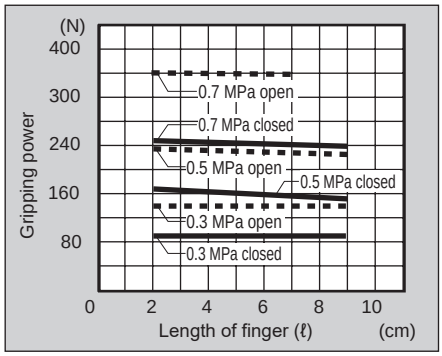
●Open direction (⇦) ····· (shown with broken line)

●Close direction (➡) —— (shown with continuous line)

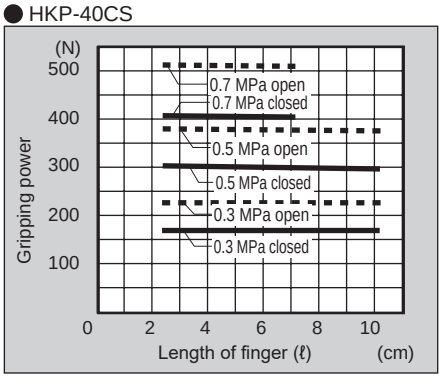


(Note)O type gripping force decreases approximately 20 to 30% in the closed direction compared to double acting. C type gripping force decreases approximately 10 to 20% in the open direction compared to the double acting type.

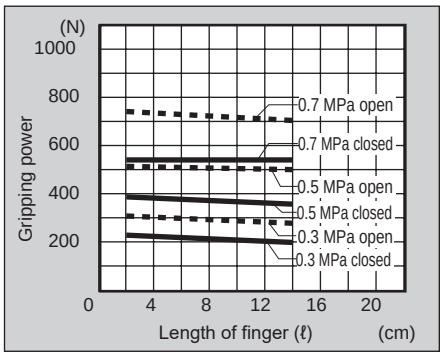
● HKP-32CS



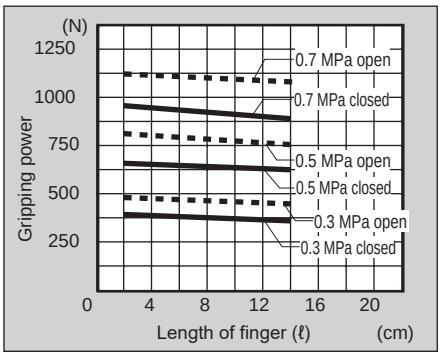
● HKP-40CS



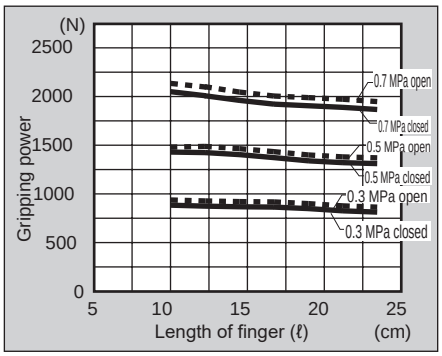
● HKP-50CS

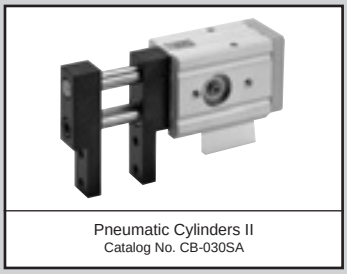


● HKP-63CS



● HKP-80CS





Pneumatic Cylinders II
Catalog No. CB-030SA

Lateral parallel hand Double acting

HCP Series

●Operating Stroke: 20, 30, 40 mm

Double acting



RoHS CAD

Specifications

Item		HCP		
Size		2CS	3CS	4CS
Bore size	mm	ø12	ø20	ø32
Actuation		Double acting		
Working fluid		Compressed air		
Max. working pressure	MPa	0.7		
Min. working pressure	MPa	0.3		
Ambient temperature	°C	5 to 60		
Port size		M5		Rc1/8
Operating Stroke	mm	20	30	40
Rod diameter	mm	ø10	ø12	ø16
Capacity of reciprocation	cm^3	2.3	9.4	32.1
Repeatability	mm	±0.05		
Product weight	kg	0.52	0.98	1.90
Lubrication		Not available		

Compatibility table by variation

Applicable bore size		Double acting
ø12/ 20/32	P4	●
	P40	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

Without switch

HCP - 2CS - Y1 ——— P4 / P40

With switch

HCP - 2CS - Y1 - SW11 - R - P4 / P40

Ⓐ Size

Ⓑ Option
*1

Ⓒ Switch model No.

Ⓓ Switch quantity

Code	Description
Ⓐ Size	
2CS	
3CS	
4CS	
Ⓑ Option	
Blank	Standard (double acting)
Y1	With attachment (S50C)
Y2	With attachment (MC nylon)
Ⓒ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

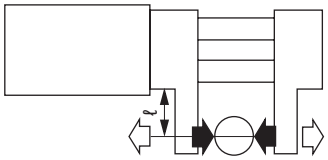
⚠ Precautions for model No. selection

*1:For option Y1 and Y2 attachments, two are included on delivery.

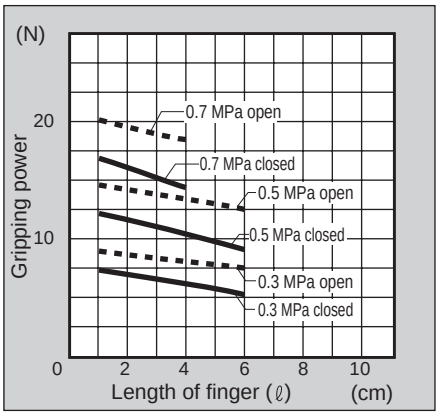
Gripping power performance data

The gripping force in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

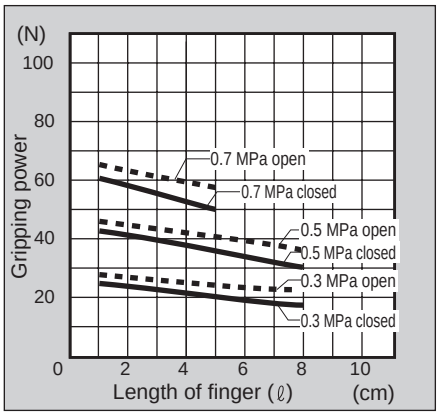
- Open direction (⇦) - - - - - (shown with broken line)
- Closed direction (➡) ——— (shown with continuous line)



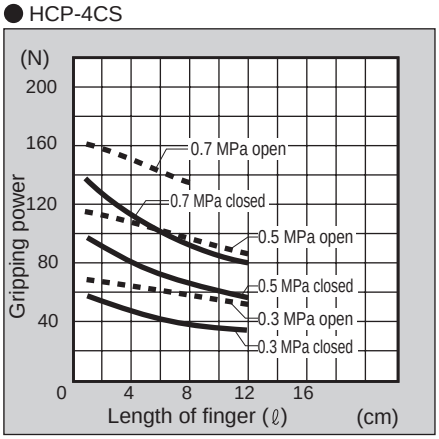
● HCP-2CS

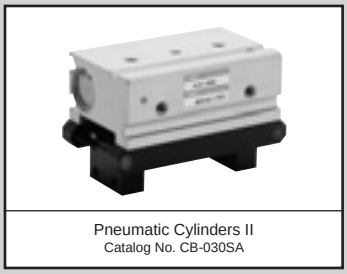


● HCP-3CS



● HCP-4CS





Pneumatic Cylinders II
Catalog No. CB-030SA

Thin parallel hand (bearing guide) Double acting

HLB Series

● Operating Stroke: 13, 18, 23mm

Double acting



RoHS CAD

Specifications

Item		HLB		
Size		12CS	15CS	20CS
Bore size	mm	ø12	ø15	ø20
Actuation		Double acting		
Working fluid		Compressed air		
Max. working pressure	MPa	0.7		
Min. working pressure	MPa	0.1		
Ambient temperature	°C	5 to 60		
Port size		M5		
Operating Stroke	mm	13	18	23
Volumetric capacity (reciprocating)	cm^3	1.47	3.18	7.22
Repeatability	mm	±0.01		
Weight	kg	0.214	0.402	0.678
Lubrication		Not available		

Compatibility table by variation

Applicable bore size		Double acting
ø12/15/20	P4	▲
	P40	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

Without switch (built-in magnet for switch)

HLB - 12CS — P4 / P40

With switch (built-in magnet for switch)

HLB - 12CS - SW51 - R - P4 / P40

Ⓐ Size

Ⓑ Switch model No.

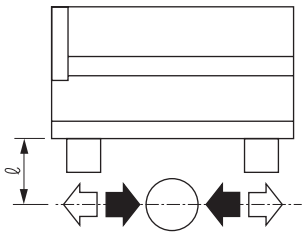
Ⓒ Switch quantity

Code	Description
Ⓐ Size	
12CS	
15CS	
20CS	
Ⓑ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓒ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

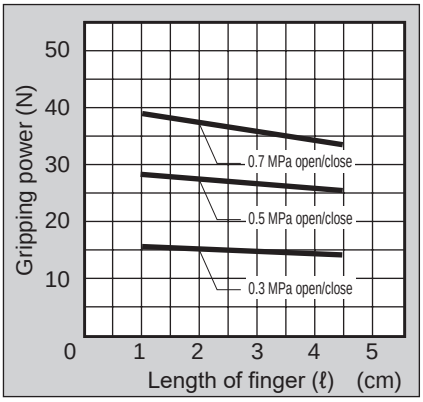
*1:Made-to-order product. Contact CKD Sales for details.

Gripping power performance data

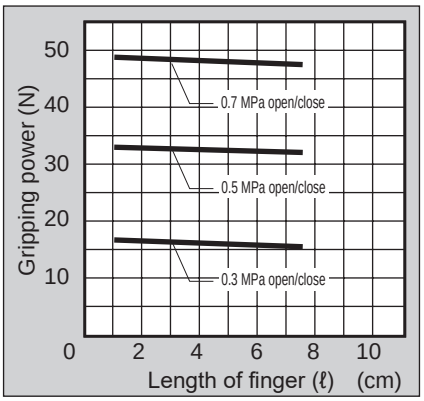
- Gripping power represents the thrust (per finger) in the arrow direction shown in the figure.
- The gripping force in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.
  ● Both open direction (⇦) and close direction (➡) ——— (shown with continuous line)



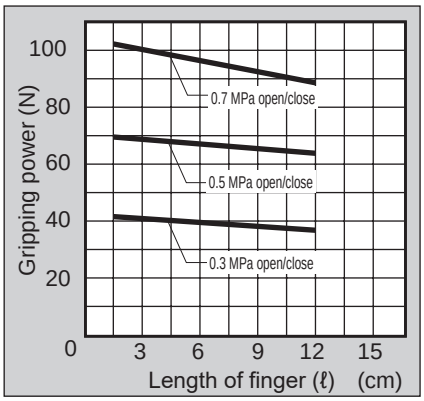
● HLB-12CS

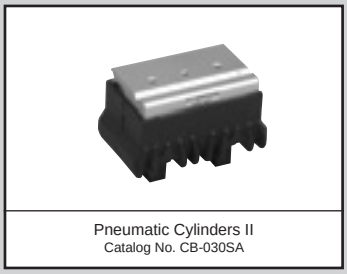


● HLB-15CS



● HLB-20CS





Pneumatic Cylinders II
Catalog No. CB-030SA

Thin parallel hand with rubber cover (bearing guide) Double acting

HLBG Series

●Operating Stroke: 13, 18, 23 mm

Double acting



RoHS CAD

Specifications

Item	HLBG-12CS	HLBG-15CS	HLBG-20CS
Bore size mm	ø12	ø15	ø20
Actuation	Double acting		
Working fluid	Compressed air		
Max. working pressure MPa	0.7		
Min. working pressure MPa	0.2		
Ambient temperature °C	5 to 60		
Port size	M5		
Operating Stroke mm	13	18	23
Capacity of reciprocation cm^3	1.47	3.18	7.22
Repeatability mm	±0.01		
Product weight kg	0.24	0.42	0.75
Lubrication	Not available		

Compatibility table by variation

Applicable bore size		Double acting
ø12/15/20	P4	●
	P40	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

With switch

HLBG - 12CS - SW51 - R - P4 P40

Model No.

Ⓐ Size

Ⓑ Switch model No.

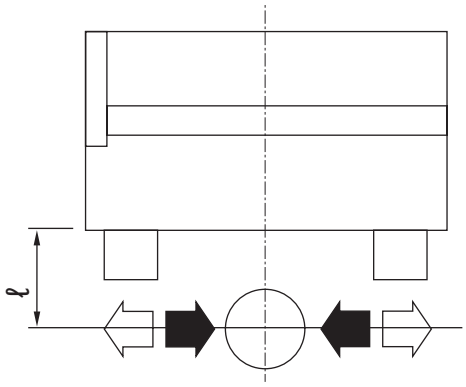
Ⓒ Switch quantity

Code	Description
Ⓐ Size	
12CS	
15CS	
20CS	
Ⓑ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓒ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

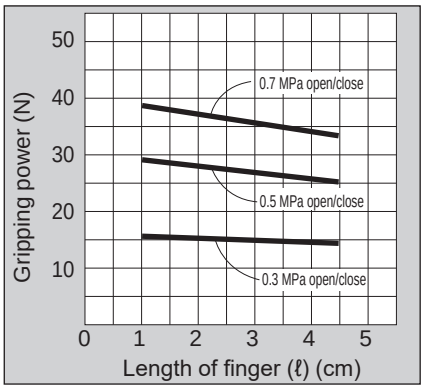
Gripping power performance data

The gripping force in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

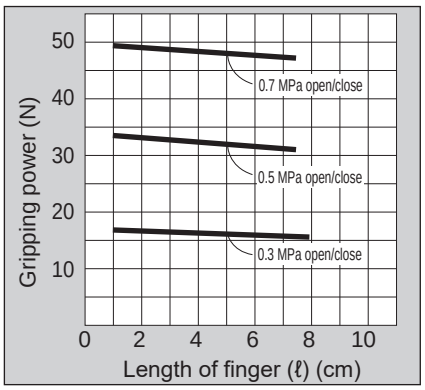
● Both open direction (⇦) and close direction (⬅)
——— (shown with continuous line)



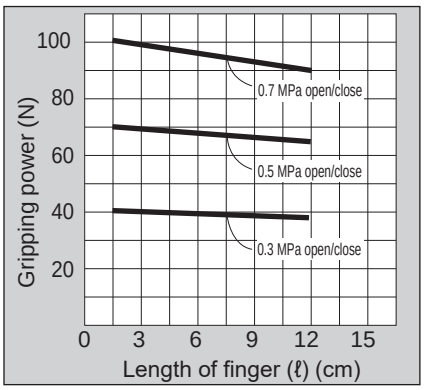
● HLBG-12CS

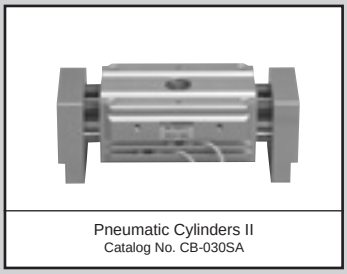


● HLBG-15CS



● HLBG-20CS





Pneumatic Cylinders II
Catalog No. CB-030SA

Compact wide parallel hand (standard/long stroke)

HMF Series

●Operating Stroke: Standard 30, 40, 50, 70, 100 mm
Long stroke 60, 80, 100, 120, 160, 200 mm

Double acting



RoHS CAD

Specifications

Item	HMF-12CS	HMF-16CS			HMF-20CS			HMF-25CS			HMF-32CS			HMF-40CS		
		Standard	L1	L2	Standard	L1	L2	Standard	L1	L2	Standard	L1	L2	Standard	L1	L2
Bore size mm	ø12 x 2	ø16 x 2			ø20 x 2			ø25 x 2			ø32 x 2			ø40x2		
Working fluid	Compressed air															
Max. working pressure MPa	0.7															
Min. working pressure MPa	0.3															
Ambient temperature °C	5 to 60															
Port size	M5										Rc1/8					
Operating Stroke mm	20	30	60	80	40	80	100	50	100	120	70	120	160	100	160	200
Rod diameter mm	ø6	ø8			ø10			ø12			ø16			ø20		
Capacity of reciprocation cm^3	3.4	9.1	18.1	24.1	18.8	37.6	47.0	37.7	75.4	90.5	84.4	145	193	226	301	377
Repeatability mm	±0.1															
Product weight kg	0.31	0.54	0.95	1.12	0.90	1.58	1.77	1.7	2.16	2.3	2.8	3.8	4.8	5.7	7.8	8.8
Lubrication	Not available															

Compatibility table by variation

Applicable bore size		Double acting		
		Standard	Long stroke 1	Long stroke 2
			L1	L2
ø12 x 2 to ø40x2	P4	●	●	●
	P40	●	●	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

HMF - 32CS - L1 - SW11 - R - P4 / P40

Ⓐ Size

Ⓑ Option *1

Ⓒ Switch model No.

Ⓓ Switch quantity

Code	Description
Ⓐ Size	
12CS	
16CS	
20CS	
25CS	
32CS	
40CS	
Ⓑ Option	
Blank	Standard
L1	Long stroke 1
L2	Long stroke 2
Ⓒ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

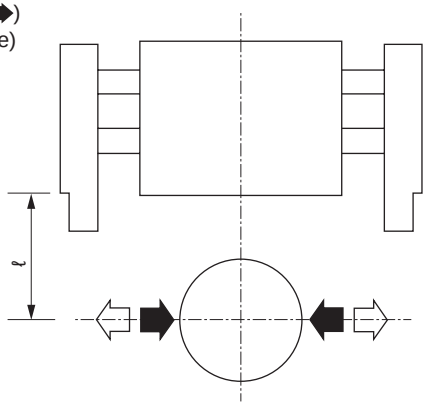
⚠ Precautions for model No. selection

*1: For 12CS, long stroke "L1" and "L2" is not available.

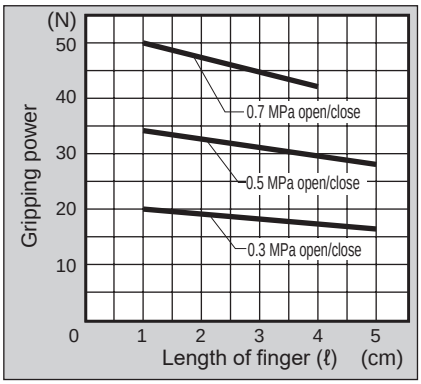
Gripping power performance data

The gripping force with finger length ℓ of hand and a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

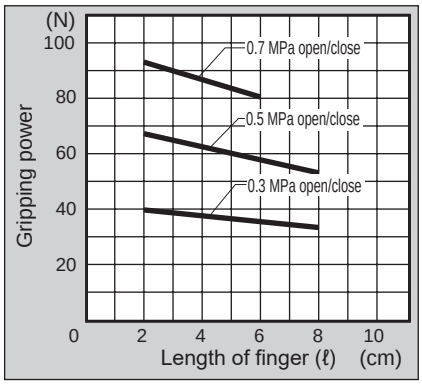
● Both open direction (⇦⇨) and closed direction (➡)
——— (shown with continuous line)



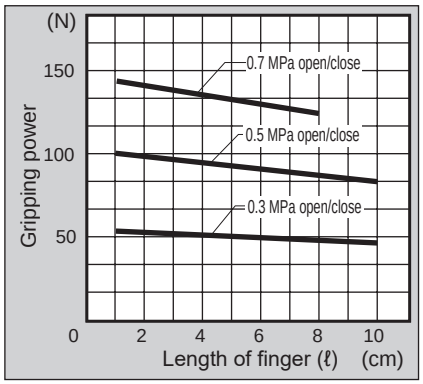
● HMF-12CS



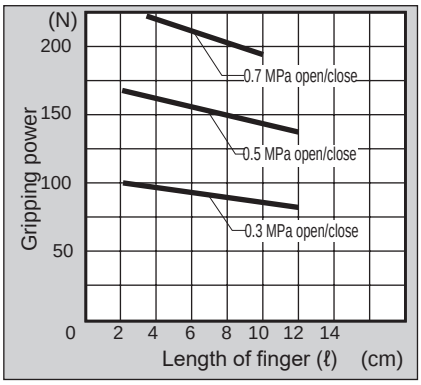
● HMF-16CS



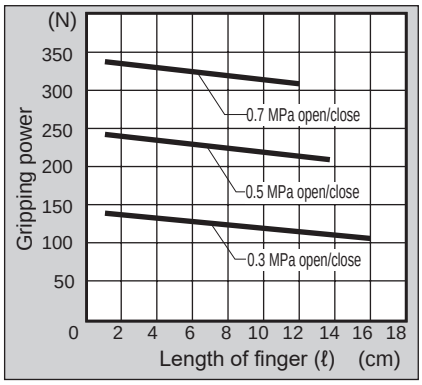
● HMF-20CS



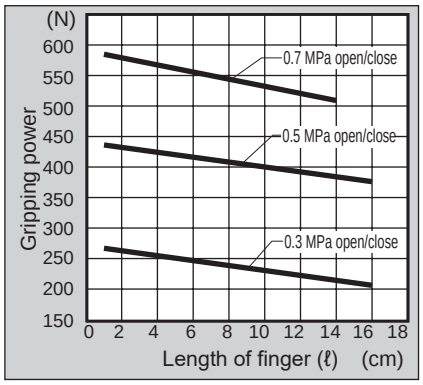
● HMF-25CS

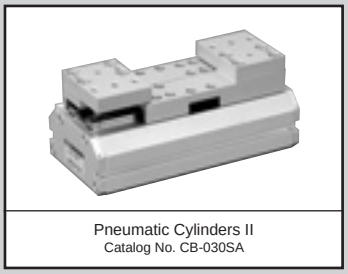


● HMF-32CS



● HMF-40CS





Pneumatic Cylinders II
Catalog No. CB-030SA

Thin long stroke parallel hand Double acting
(Standard/long stroke 1)

HLC Series

●Operating Stroke:Standard 20, 30, 40, 50, 60, 70 mm
Long stroke 1 60, 80, 100, 120, 140 mm

Double acting

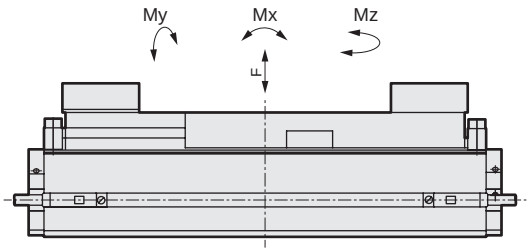


Specifications

Descriptions	HLC											
Size	08CS	12CS		16CS		20CS		25CS		30CS	
	Standard	Standard	L1	Standard	L1	Standard	L1	Standard	L1	Standard	L1
Bore size mm	ø8 x 2	ø12 x 2		ø16 x 2		ø20 x 2		ø25 x 2		ø30 x 2	
Working fluid	Compressed air										
Max. working pressure MPa	0.7										
Min. working pressure MPa	0.2										
Ambient temperature °C	5 to 60										
Port size	M3			M5							
Operating Stroke mm	20	30	60	40	80	50	100	60	120	70	140
Capacity of reciprocation cm^3	2.0	6.8	13.6	16.1	32.2	31.4	62.8	58.9	117.8	99	198
Repeatability mm	±0.01			±0.03							
Product weight kg	0.14	0.29	0.44	0.71	0.85	1.03	1.4	1.62	2.23	2.74	3.69
Lubrication	Not available										

HLC allowable load and allowable moment (static)

Allowable load and allowable moment	F	Mx	Mz	My
Model No.	N	N·m	N·m	N·m
HLC-08CS	102	10	8.5	1.6
HLC-12CS	151	11.9	8.2	4.68
HLC-12CS-L1	151	11.9	8.2	4.68
HLC-16CS	325	27.5	25.6	7.96
HLC-16CS-L1	325	27.5	25.6	10.6
HLC-20CS	306	29.9	27	10.6
HLC-20CS-L1	306	29.9	27	11.2
HLC-25CS	423	105.1	96.4	19.7
HLC-25CS-L1	423	105.1	96.4	19.7
HLC-30CS	694	109.3	116.5	33.3
HLC-30CS-L1	694	109.3	116.5	43.1



Compatibility table by variation

Applicable bore size		Double acting
ø8 x 2 to ø30 x 2	P4	●
	P40	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

HLC - 20CS - L1 - SW11 - R - P4 / P40

Ⓐ Size

Ⓑ Option *1

Ⓒ Switch model No.

Ⓓ Switch quantity

Code	Item
Ⓐ Size	
08CS	
12CS	
16CS	
20CS	
25CS	
30CS	

Ⓑ Option							
	Size	**08CS**	**12CS**	**16CS**	**20CS**	**25CS**	**30CS**
Blank	Standard	●	●	●	●	●	●
L1	Long stroke 1		●	●	●	●	●

Ⓒ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

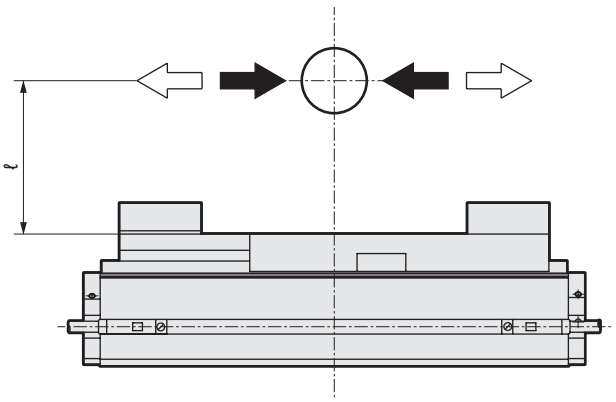
⚠ Precautions for model No. selection

*1: Long stroke "L1" is not available for 08CS.

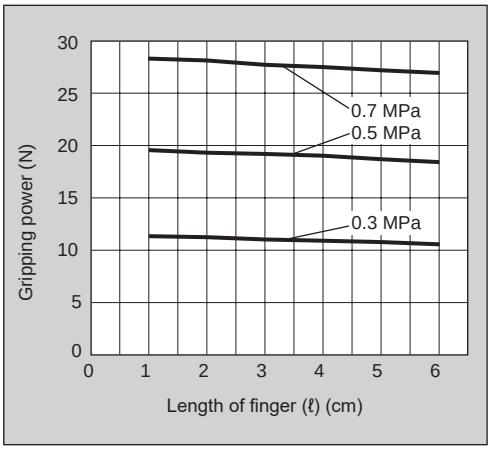
Gripping power performance data

The gripping force with a finger length ℓ of the hand and a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

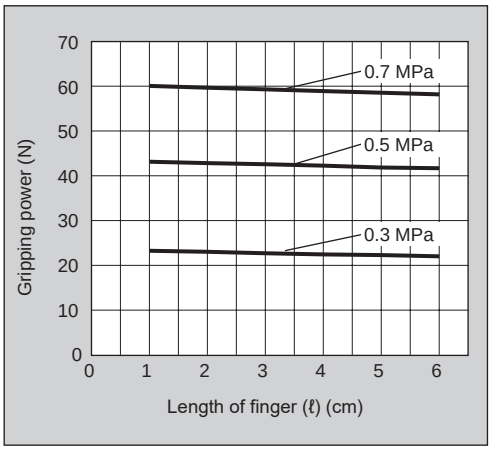
● Both open direction(⇦)and closed direction(➡)
—— (shown with continuous line)



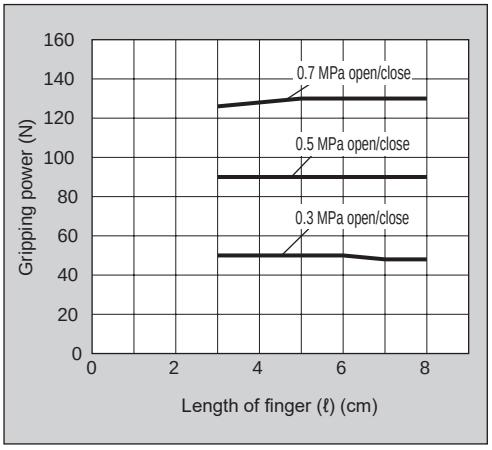
● HLC-08CS



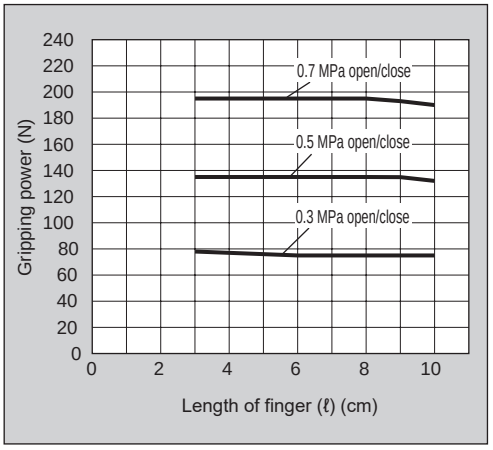
● HLC-12CS



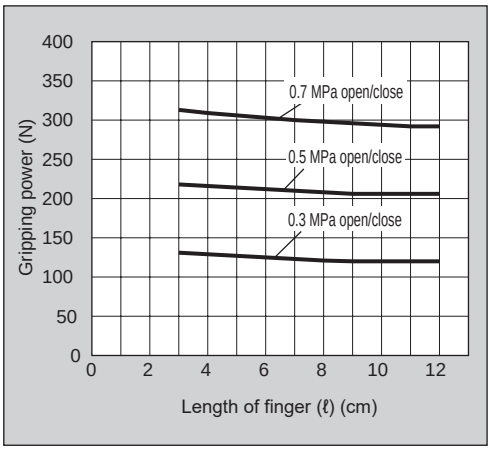
● HLC-16CS



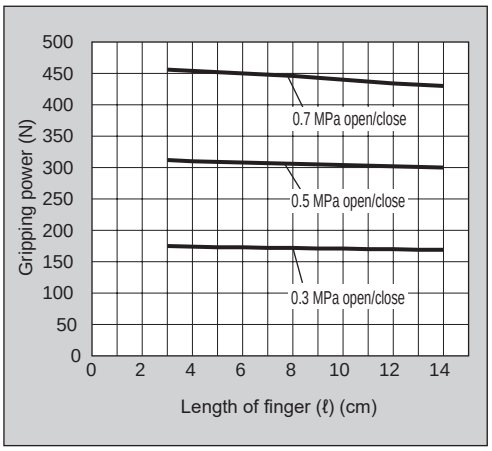
● HLC-20CS



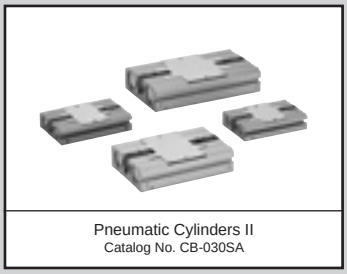
● HLC-25CS



● HLC-30CS



MEMO



Pneumatic Cylinders II
Catalog No. CB-030SA

Ultra thin parallel hand

HLD Series

●Operating Stroke: ø12, 16, 20, 30 mm

RoHS CAD

Specifications

Descriptions	HLD			
Size	08CS	12CS	16CS	20CS
Bore size mm	ø8×4	ø12×4	ø16×4	ø20×4
Working fluid	Compressed air			
Max. working pressure MPa	0.7			
Min. working pressure MPa	0.2			
Ambient temperature °C	5 to 60			
Port size	M3		M5	
Operating Stroke mm	12	16	20	30
Capacity of reciprocation cm^3	3.2	7.8	19.8	43.3
Repeatability mm	±0.01			
Product weight kg	0.23	0.29	0.62	1.05
Lubrication	Not available			

Compatibility table by variation

Applicable bore size		Double acting
ø8×4 → ø20×4	P4	●
	P40	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

HLD - 08CS - SW11 - R - P4 P40

Ⓐ Size

Ⓑ Switch model No.

Ⓒ Switch quantity

Code	Item
Ⓐ Size	
08CS	
12CS	
16CS	
20CS	

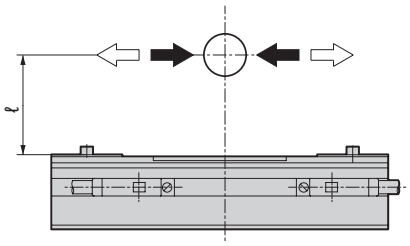
Ⓑ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

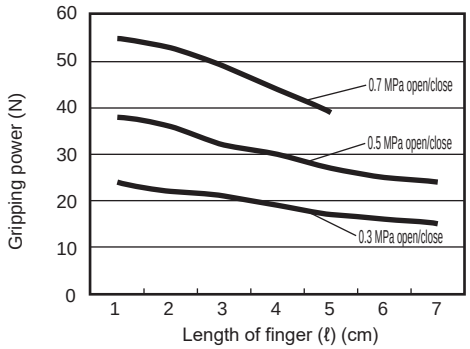
Ⓒ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

Gripping power performance data

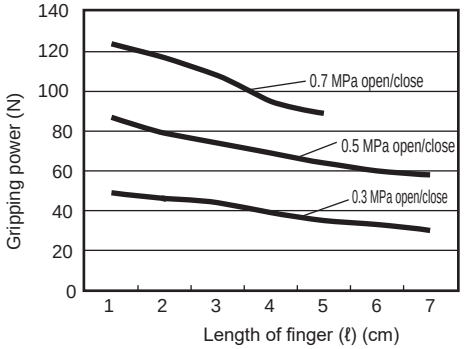
The gripping force with a finger length ℓ of the hand and a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.
● Both open direction(⇦)and closed direction(➡)
—— (shown with continuous line)



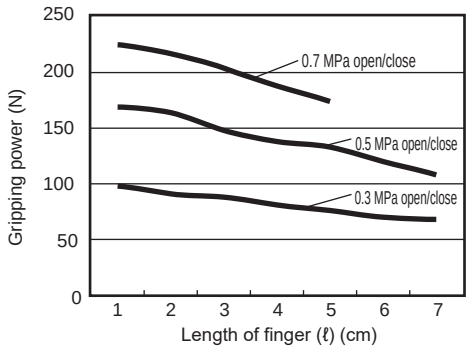
● HLD-08CS



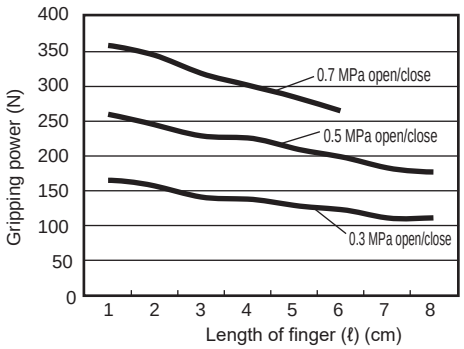
● HLD-12CS

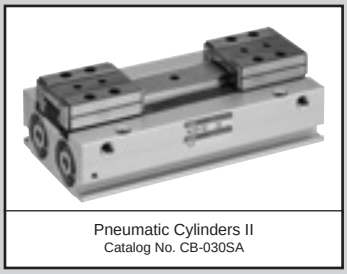


● HLD-16CS



● HLD-20CS





Pneumatic Cylinders II
Catalog No. CB-030SA

Low-profile long stroke hand

HLF2 Series

● Operating Stroke: Standard 12, 16, 20, 24mm
Long stroke: 24, 32, 40, 48, 64, 80, 96mm

Double acting



RoHS CAD

Specifications

Item	HLF2-08CS			HLF2-12CS			HLF2-16CS			HLF2-20CS		
	Standard	L1	L2	Standard	L1	L2	Standard	L1	L2	Standard	L1	L2
Bore size mm	ø8 x 2			ø12 x 2			ø16 x 2			ø20 x 2		
Working fluid	Compressed air											
Max. working pressure MPa	0.7											
Min. working pressure MPa	0.2											
Ambient temperature °C	5 to 60											
Port size	M3			M5								
Operating Stroke mm	12	24	48	16	32	64	20	40	80	24	48	96
Volumetric capacity (reciprocating) cm^3	1.2	2.4	4.8	3.6	7.2	14.4	8.0	16.0	32.0	15.1	30.1	60.2
Repeatability mm	±0.03											
Weight kg	0.09	0.12	0.17	0.17	0.24	0.37	0.34	0.48	0.75	0.62	0.84	1.33
Lubrication	Not available											

Compatibility table by variation

Applicable bore size		Double acting
ø8 x 2 to ø20 x 2	P4	▲
	P40	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

Without switch (built-in magnet for switch)

HLF2 - 12CS - L1 — P4 / P40

With switch (built-in magnet for switch)

HLF2 - 12CS - L1 - SW11 - R - P4 / P40

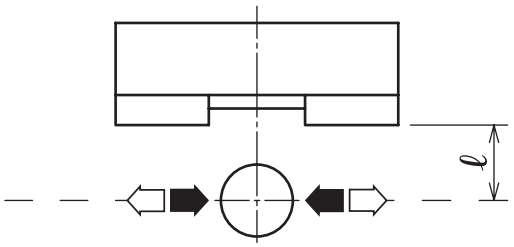
Ⓐ Size
Ⓑ Option
Ⓒ Switch model No.
Ⓓ Switch quantity

Code	Description
Ⓐ Size	
08CS	
12CS	
16CS	
20CS	
Ⓑ Option	
Blank	Standard
L1	Long stroke 1
L2	Long stroke 2
Ⓒ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

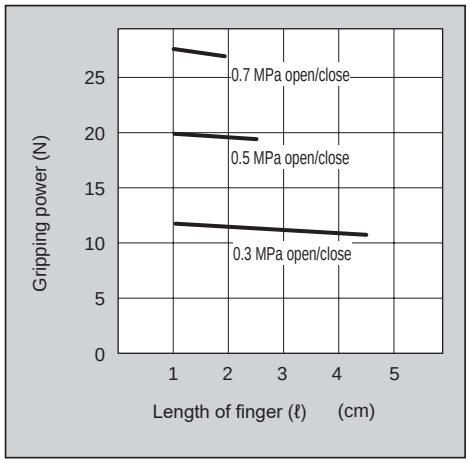
*1:Made-to-order product. Contact CKD Sales for details.

Gripping power performance data

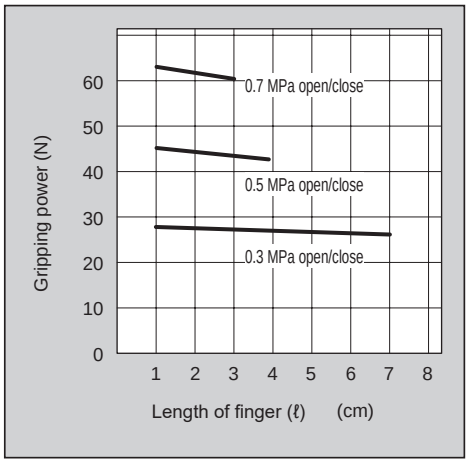
- Gripping power represents the thrust (per finger) in the arrow direction shown in the figure.
- The gripping force with finger length ℓ of hand and a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.
  - ● Both open direction (⇦) and closed direction (⇨)
    —— (shown with continuous line)



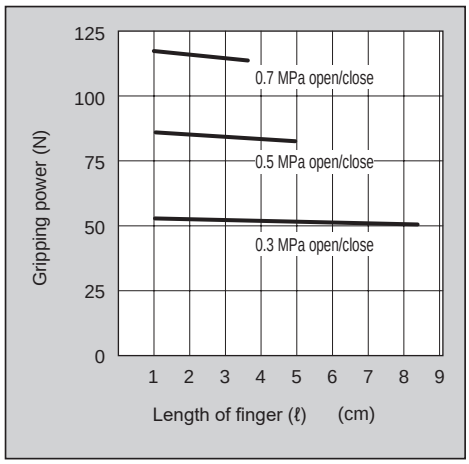
● HLF2-08CS



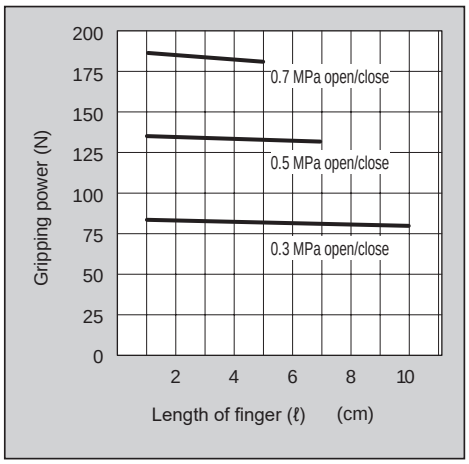
● HLF2-12CS

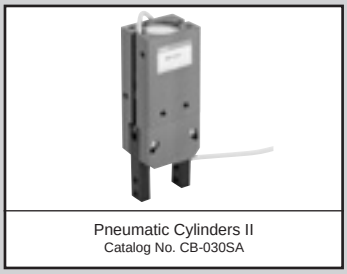


● HLF2-16CS



● HLF2-20CS





Pneumatic Cylinders II
Catalog No. CB-030SA

Thin wide angle hand

HMD Series

●Open/close degree:−4° to 184°

Double acting



RoHS CAD

Specifications

Item		HMD	
Size		16CS	25CS
Bore size	mm	ø16	ø25
Actuation		Double acting	
Working fluid		Compressed air	
Max. working pressure	MPa	0.7	
Min. working pressure	MPa	0.3	
Ambient temperature	°C	5 to 60	
Port size		M3	M5
Open/close degree	°	−4 to 184	
Rod diameter	mm	ø6	ø8
Capacity of reciprocation	cm^3	5.8	19.4
Repeatability	mm	±0.2	
Product weight	kg	0.13	0.38
Lubrication		Not available	

Compatibility table by variation

Applicable bore size		Double acting: Standard
ø16/25	P4	●
	P40	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

Without switch

HMD - 16CS ——— P4 / P40

With switch

HMD - 16CS - SW11 - R - P4 / P40

Model No.

Ⓐ Size

Ⓑ Switch model No.

Ⓒ Switch quantity

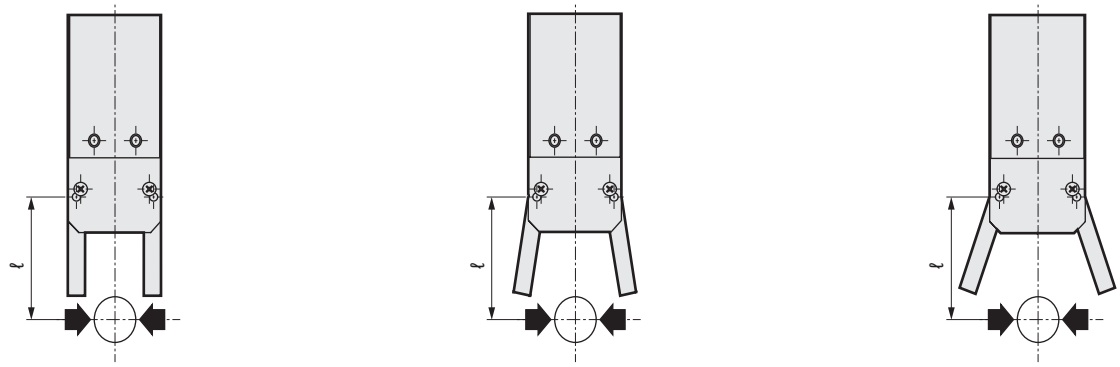
Code	Description
Ⓐ Size	
16CS	
25CS	
Ⓑ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓒ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

Gripping power performance data

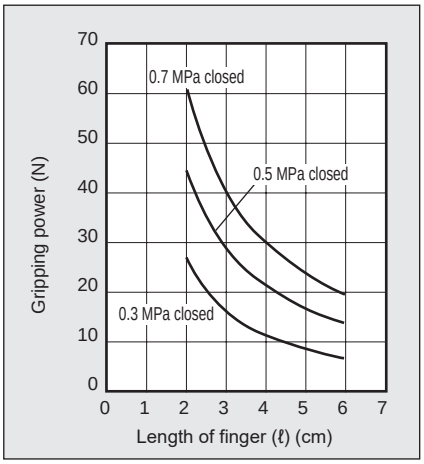
The gripping force with a finger length ℓ of the hand and a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

• Close direction (➡) ——————— (shown with continuous line)

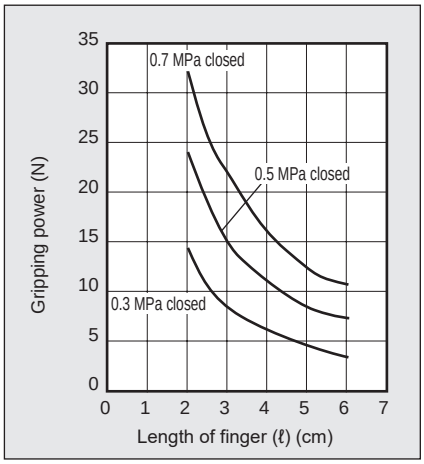
[Parallel] [10°] [20°]



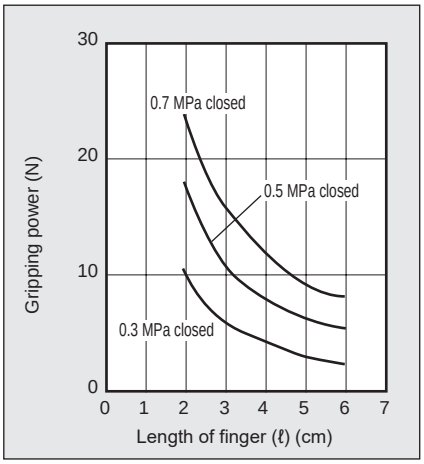
● HMD-16CS



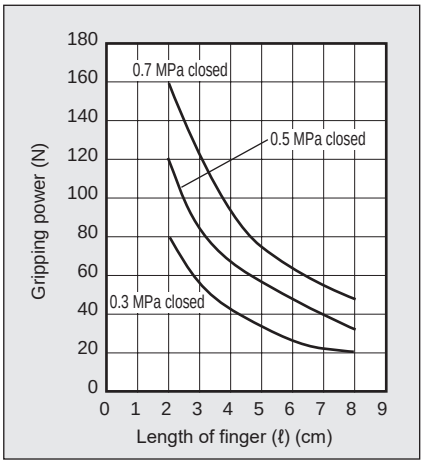
● HMD-16CS



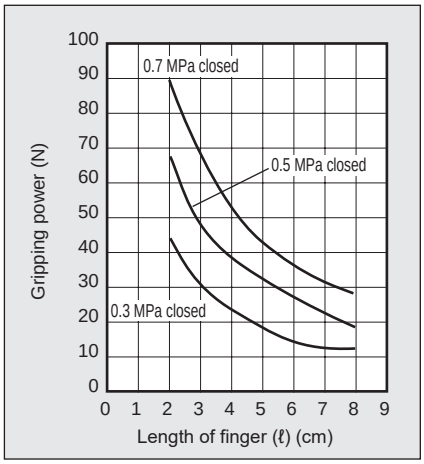
● HMD-16CS



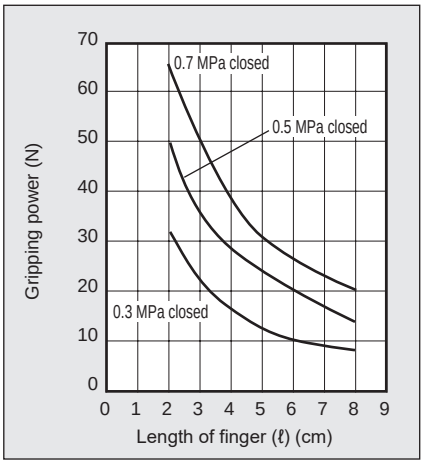
● HMD-25CS

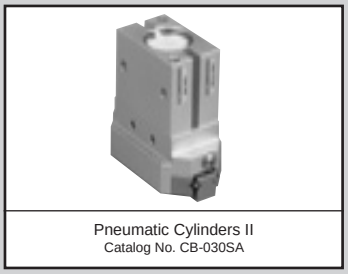


● HMD-25CS



● HMD-25CS





Pneumatic Cylinders II
Catalog No. CB-030SA

Centering hand

BHE Series

●Operating Stroke: 7, 10, 14, 16, 22 mm

Double acting



RoHS CAD

Specifications

Item	BHE-01CS	BHE-03CS	BHE-04CS	BHE-05CS	BHE-06CS
Bore size mm	ø12	ø16	ø20	ø25	ø32
Working fluid	Compressed air				
Max. working pressure MPa	0.7				
Min. working pressure MPa	0.2				
Ambient temperature °C	5 to 60				
Port size	M3		M5		
Operating Stroke mm	7	10	14	16	22
Rod diameter mm	ø6	ø8	ø10	ø12	ø16
Repeatability mm	±0.01				
Centering precision mm	±0.05				
Product weight kg	0.108	0.154	0.260	0.438	1.040
Lubrication	Not available				

Compatibility table by variation

Applicable bore size		Double acting			
		Standard	Open stroke adjustment mechanism	Close stroke adjustment mechanism	Open and close stroke adjustment mechanism
			D	E	DE
ø12 to 32	P4	●	●	●	●
	P40	●	●	●	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

BHE - 03CS - D - SW11 - R - P4 / P40

Ⓐ Size

Ⓑ Option

Ⓒ Switch model No.

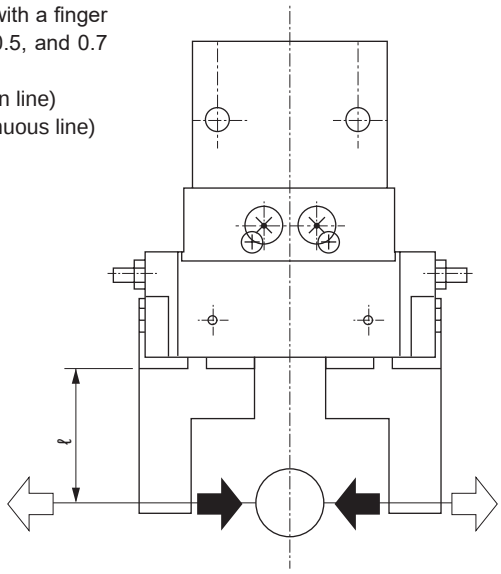
Ⓓ Switch quantity

Code	Description
Ⓐ Size	
01CS	
03CS	
04CS	
05CS	
06CS	
Ⓑ Option	
Blank	Standard
D	Open stroke adjustment mechanism
E	Close stroke adjustment mechanism
DE	Open and close stroke adjustment mechanism
Ⓒ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

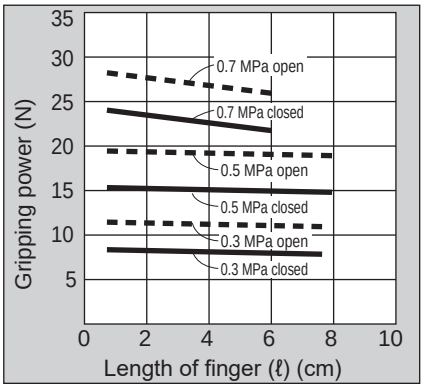
Gripping power performance data

The gripping force in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

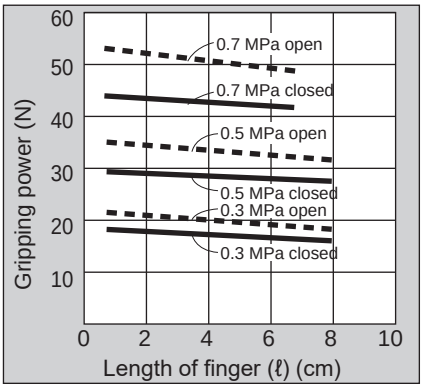
- Open direction (⇦) - - - - - - (shown with broken line)
- Close direction (➡) ——— (shown with continuous line)



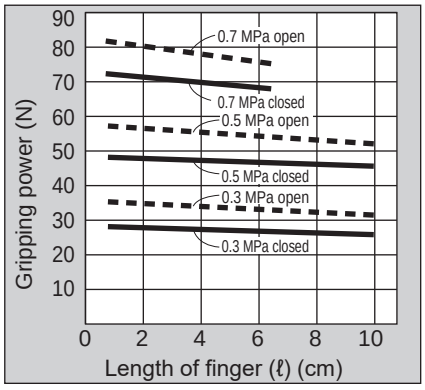
● BHE-01CS



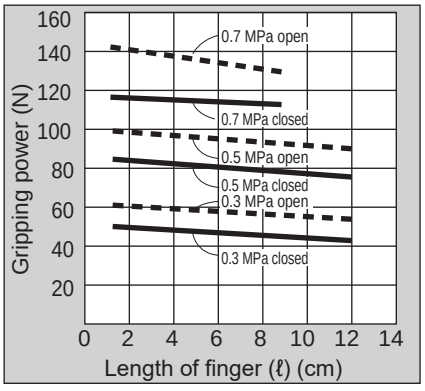
● BHE-03CS



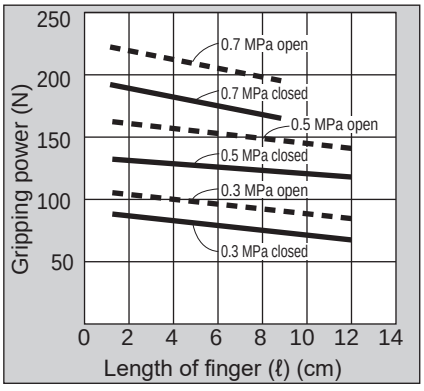
● BHE-04CS



● BHE-05CS



● BHE-06CS



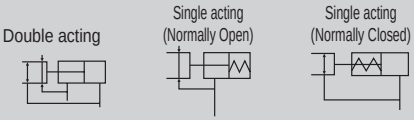


Pneumatic Cylinders II
Catalog No. CB-030SA

3-way jaw bearing chuck Double acting/single acting

CKG Series

●Operating Stroke:6, 8, 11, 16 mm



RoHS CAD

Specifications

Item		CKG				
Size		16CS	25CS	32CS	40CS	50CS
Bore size	mm	ø16	ø25	ø32	ø40	ø50
Actuation		Double acting/single acting				
Working fluid		Compressed air				
Max. working pressure	MPa	0.7				
Min. working pressure[Note] MPa	Double acting	0.1				
	Normally Open	0.3				
	Normally Closed					
Ambient temperature	°C	5 to 60				
Port size		M5				
Operating Stroke	mm	6		8	11	16
Rod diameter	mm	ø9	ø10	ø14	ø18	ø20
Capacity of reciprocation	cm^3	1.0	2.2	5.1	10.1	36.1
Repeatability	mm	±0.01				
Product weight	kg	0.24	0.47	0.80	1.4	2.3
Lubrication		Not available				

Note: When a rubber cover (option) is attached, the min. working pressure is 0.2 MPa for 16CS and 0.15 MPa for 25CS to 50CS.

How to order

Without switch

CKG - 16CS - O ——— P4 / P40

With switch

CKG - 16CS - O - SW11 - R - P4 / P40

Ⓐ Size

Ⓑ Option *1, *2

Ⓒ Switch model No.

Ⓓ Switch quantity

Code	Description
Ⓐ Size	
16CS	
25CS	
32CS	
40CS	
50CS	
Ⓑ Option	
Blank	Standard (double acting)
O	Single acting (Normally Open)
C	Single acting (Normally Closed)
G	With rubber cover (nitrile rubber)
Y11	With attachment (S50C) External chuck (attachment No.: 540 to 710)
Y12	With attachment (S50C) Internal chuck (attachment No.: 610 to 630)
Y21	With attachment (MC nylon) External chuck (attachment No.: 510 to 540, 710)
Y22	With attachment (MC nylon) Internal chuck (attachment No.: 610 to 630)
Ⓒ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

Compatibility table by variation

Applicable bore size		Double acting	Single acting Normally Open	Single acting Normally Closed
			O	C
ø16/25/32/40/50	P4	●	●	●
	P40	●	●	●

●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable

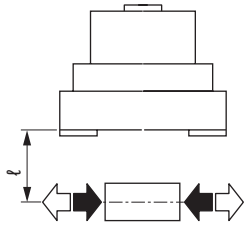
⚠ Precautions for model No. selection

*1: CK G-16CS is Y11, Y21, CK G-25CS-40CS is Y11, Y12, Y21, Y22, CK G-50CS is Y11,Y21 can be ordered.
*2: For option Y11, Y12, Y21 and Y22 attachments, three are included on delivery.

Gripping power performance data

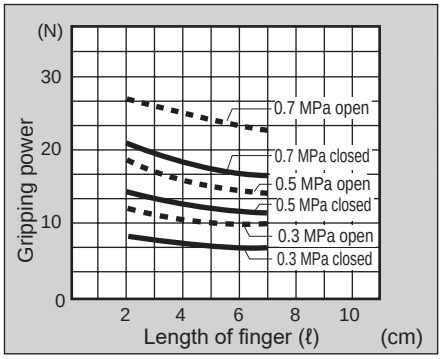
The gripping force in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

- Open direction (⇦) - - - - - (shown with broken line)
- Close direction (⇨) ——— (shown with continuous line)

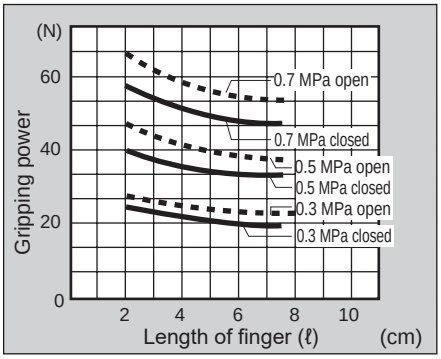


(Note) O type gripping force decreases approximately 20 to 30% in the closed direction compared to double acting.
C type gripping forcedecreases approximately 10 to 20% in the open direction compared to the double acting type.

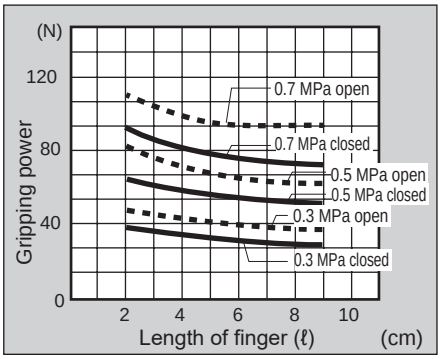
● CKG-16CS



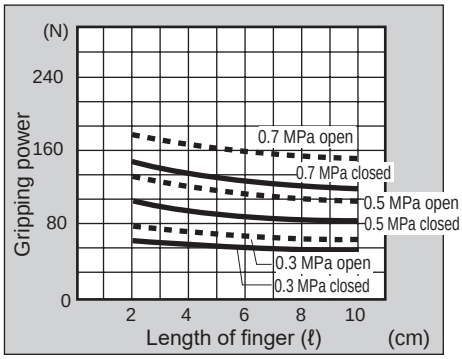
● CKG-25CS



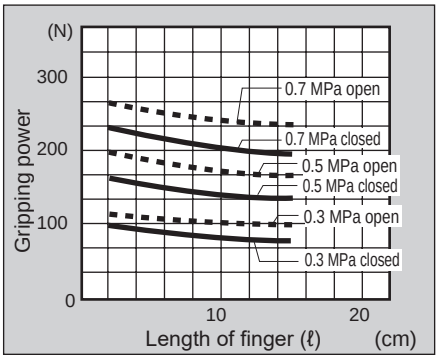
● CKG-32CS

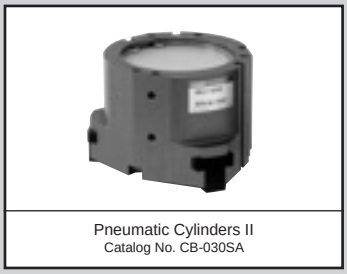


● CKG-40CS



● CKG-50CS





Pneumatic Cylinders II
Catalog No. CB-030SA

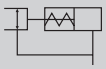
Powerful chuck

CKL2 Series

●Operating Stroke: 5, 6, 8, 10, 12, 16, 20, 23 mm

Double acting 

Single acting (Normally Open) 

Single acting (Normally Closed) 

RoHS CAD

Specifications

Item	CKL2							
Size	20CS	25CS	32CS	40CS	50CS	63CS	80CS	100CS
Bore size mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Working fluid	Compressed air							
Max. working pressure MPa	0.7							
Min. working pressure MPa	0.3							
Ambient temperature °C	5 to 60							
Port size	M5						Rc1/8	
Operating Stroke mm	5	6	8	10	12	16	20	23
Rod diameter mm	ø6	ø8	ø10	ø12	ø14	ø16		ø20
Capacity of reciprocation cm^3	1.8	3.3	7.7	15.6	28.3	60.3	118.2	215.5
Repeatability mm	±0.01							
Product weight kg	0.12	0.19	0.26	0.38	0.59	1.02	2.02	3.45
Lubrication	Not available							

How to order

Without switch

CKL2 - 20CS - O ——— P4 / P40

With switch

CKL2 - 20CS - O - SW11 - R - P4 / P40

Ⓐ Size

Ⓑ Option
*1, *2

Ⓒ Switch model No.

Ⓓ Switch quantity

Code	Description
Ⓐ Size	
20CS	
25CS	
32CS	
40CS	
50CS	
63CS	
80CS	
100CS	

Ⓑ Option	
Blank	Standard (double acting)
O	Single acting (Normally Open)
C	Single acting (Normally Closed)
Y1	With attachment (S50C)
Y2	With attachment (MC nylon)

Ⓒ Switch model No.

Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.

Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

Compatibility table by variation

Applicable bore size		Double acting	Single acting Normally Open	Single acting Normally Closed
			O	C
ø20/25/32/40/50/63/80/100	P4	●	●	●
	P40	●	●	●

●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable

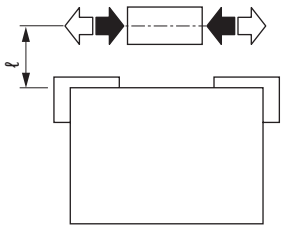
⚠ Precautions for model No. selection

*1: Attachment is commonly used for internal and external diameter chuck.
*2: For option Y1 and Y2 attachments, three are included on delivery.

Gripping power performance data

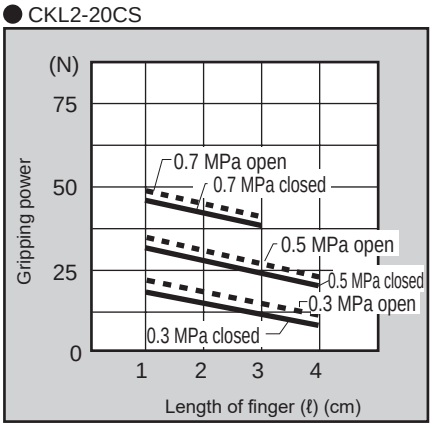
The gripping force in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

- Open direction (⇦) – – – – – (shown with broken line)
- Close direction (➡) ——— (shown with continuous line)

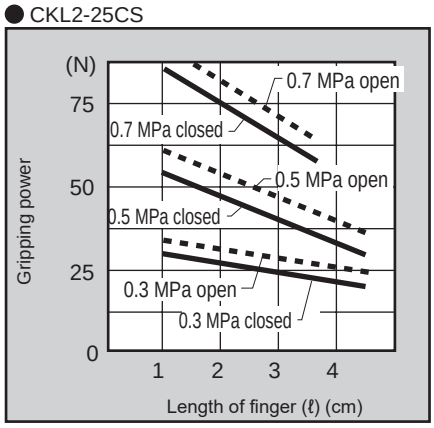


(Note)O type gripping force decreases approximately 20 to 30% in the closed direction compared to double acting.
C type gripping force decreases approximately 10 to 20% in the open direction compared to the double acting type.

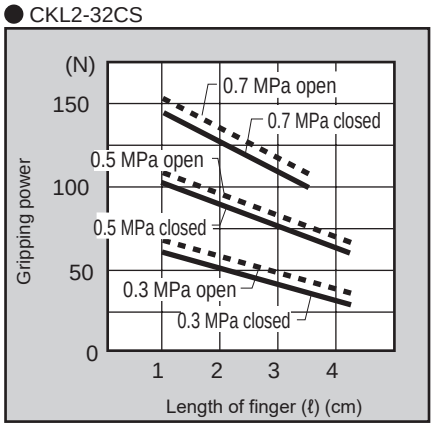
● CKL2-20CS



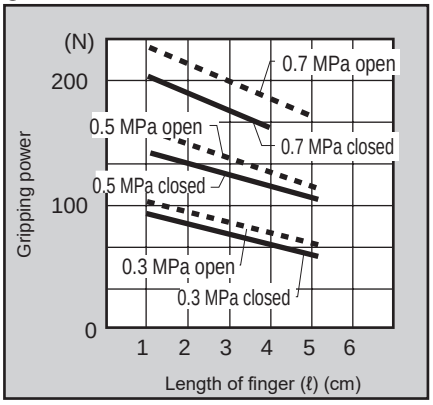
● CKL2-25CS



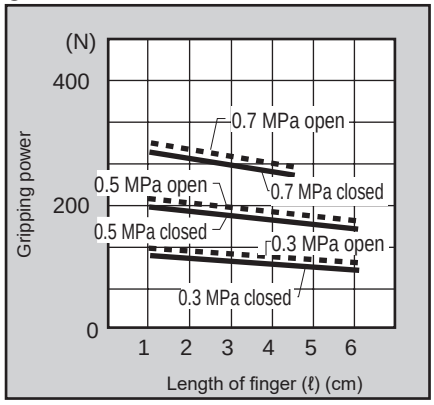
● CKL2-32CS



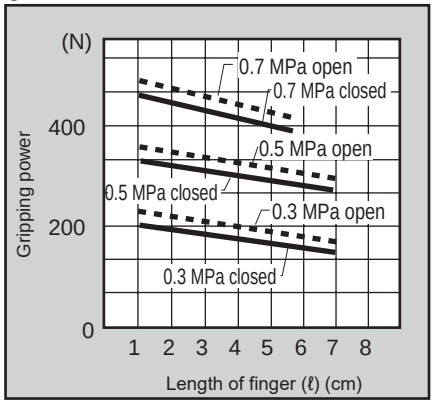
● CKL2-40CS



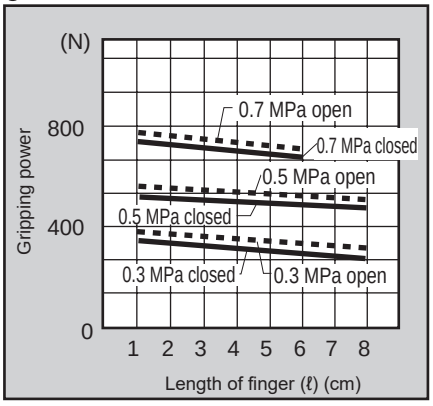
● CKL2-50CS



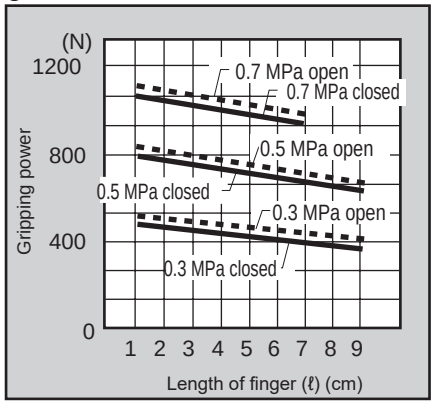
● CKL2-63CS



● CKL2-80CS



● CKL2-100CS





Pneumatic Cylinders II
Catalog No. CB-030SA

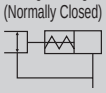
2-way powerful chuck

CKLB2 Series

●Operating Stroke: 5, 6, 8, 10, 12, 16, 20, 23 mm

Double acting 

Single acting (Normally Open) 

Single acting (Normally Closed) 

RoHS CAD

Specifications

Item	CKLB2-20CS	CKLB2-25CS	CKLB2-32CS	CKLB2-40CS	CKLB2-50CS	CKLB2-63CS	CKLB2-80CS	CKLB2-100CS
Bore size mm	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Working fluid	Compressed air							
Max. working pressure MPa	0.7							
Min. working pressure MPa	0.3							
Ambient temperature °C	5 to 60							
Port size	M5						Rc1/8	
Operating Stroke mm	5	6	8	10	12	16	20	23
Rod diameter mm	ø6	ø8	ø10	ø12	ø14	ø16	ø16	ø20
Capacity of reciprocation cm^3	1.8	3.3	7.7	15.6	28.3	60.3	118.2	215.5
Repeatability mm	±0.01							
Product weight kg	0.13	0.20	0.32	0.38	0.58	1.00	2.00	3.53
Lubrication	Not available							

How to order

CKLB2 - 20CS - O - SW11 - R - P4 / P40

Ⓐ Size

Ⓑ Option *1, *2

Ⓒ Switch model No.

Ⓓ Switch quantity

Code	Description
Ⓐ Size	
20CS	
25CS	
32CS	
40CS	
50CS	
63CS	
80CS	
100CS	
Ⓑ Option	
Blank	Standard (double acting)
O	Single acting (Normally Open)
C	Single acting (Normally Closed)
Y1	With attachment Material: S45C
Y2	With attachment Material: MC nylon
Ⓒ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

Compatibility table by variation

Applicable bore size		Double acting	Single acting Normally Open	Single acting Normally Closed
			O	C
ø20/25/32/40/50/63/80/100	P4	●	●	●
	P40	●	●	●

●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable

⚠ Precautions for model No. selection

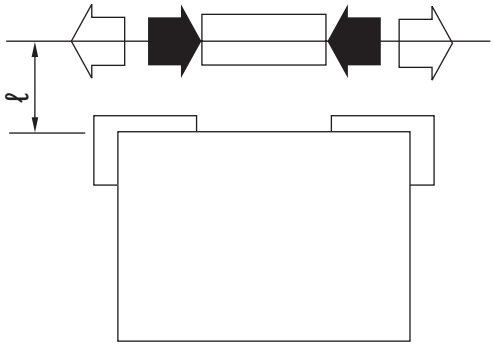
*1: Attachment is commonly used for internal and external diameter chuck.
*2: For attachment of option Y1 and Y2, two are included on delivery.

Gripping power performance data

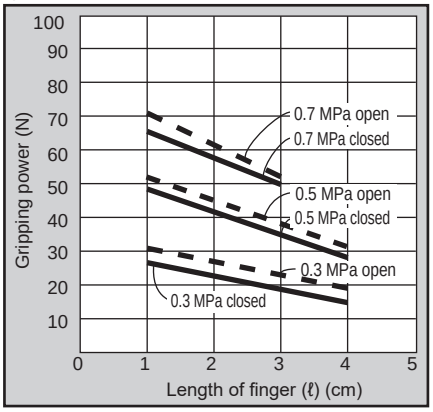
The gripping force in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

- Open direction(⇦) – – – – – – (Broken line)
- Close direction(➡) ———— (shown with continuous line)

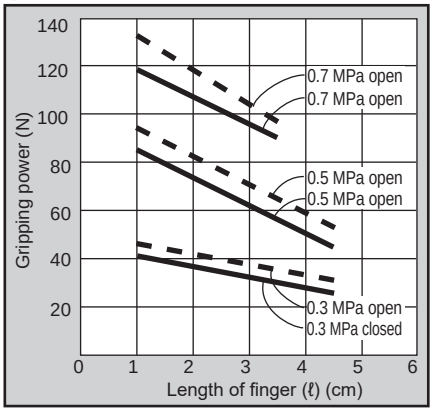
(Note)O type gripping force decreases approximately 20 to 30% in the closed direction compared to double acting. C type gripping force decreases approximately 10 to 20% in the open direction compared to the double acting type.



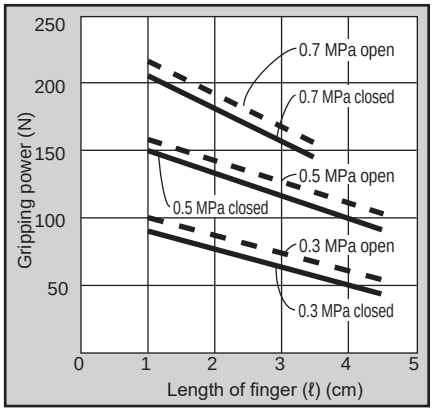
● CKLB2-20CS



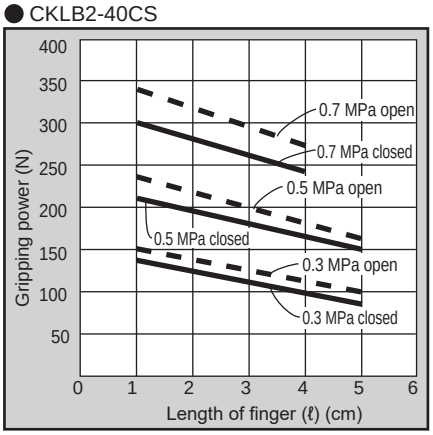
● CKLB2-25CS



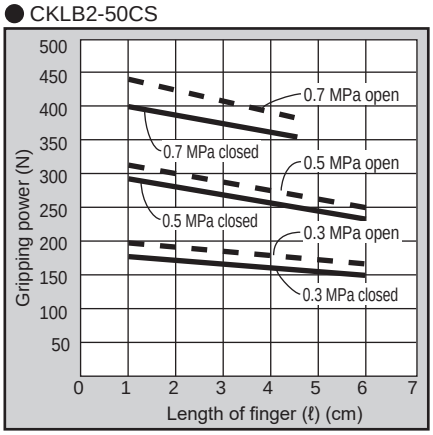
● CKLB2-32CS



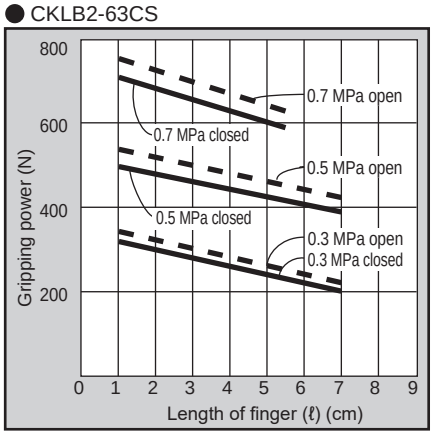
● CKLB2-40CS



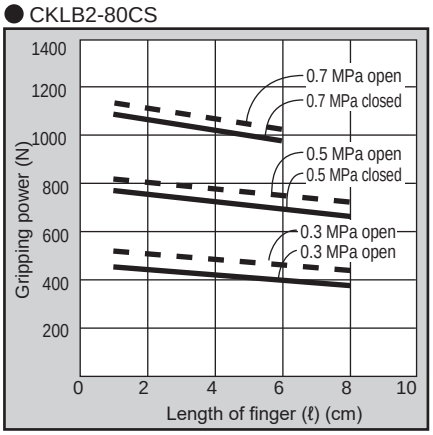
● CKLB2-50CS



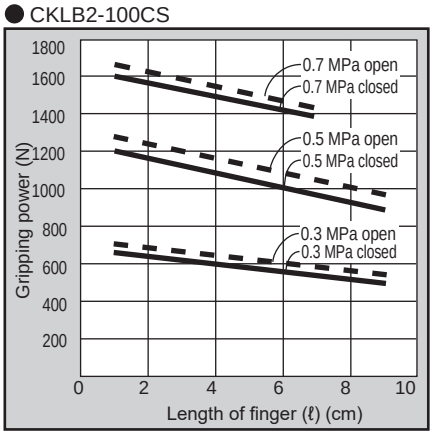
● CKLB2-63CS



● CKLB2-80CS



● CKLB2-100CS





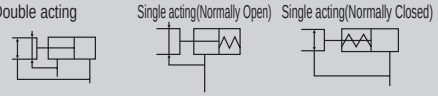
Pneumatic Cylinders II
Catalog No. CB-030SA

Hollow chuck Double acting/single acting

CKF Series

● Operating Stroke: 5, 7, 8, 16mm

Double acting | Single acting(Normally Open) | Single acting(Normally Closed)



RoHS CAD

Specifications

Item		CKF				
Size		15CS	20CS	25CS	30CS	40CS
Bore size	mm	ø30	ø40		ø50	ø80
Actuation		Double acting/single acting				
Working fluid		Compressed air				
Max. working pressure	MPa	0.7				
Min. working pressure	MPa	0.3				
Ambient temperature	°C	5 to 60				
Port size		M5				
Operating Stroke	mm	5		7	8	16
Rod diameter	mm	ø16	ø24		ø28	ø34
Volumetric capacity (reciprocating)	cm^3	2.5	5.2	7.3	13.3	73.2
Hollow diameter	mm	ø5.5	ø8.4	ø10.4	ø12	ø16
Repeatability	mm	±0.03				
Weight	kg	0.29	0.43	0.63	1.2	2.3
Lubrication		Not available				

How to order

Without switch (built-in magnet for switch)

CKF - 15CS - O — P4 / P40

With switch (built-in magnet for switch)

CKF - 15CS - O - SW11 - R - P4 / P40

Ⓐ Size

Ⓑ Option
*1, *2

Ⓒ Switch model No.

Ⓓ Switch quantity

Code	Description
Ⓐ Size	
15CS	
20CS	
25CS	
30CS	
40CS	
Ⓑ Option	
Blank	Standard (double acting)
O	Single acting (Normally Open)
C	Single acting (Normally Closed)
Y11	With attachment (S50C) External chuck (attachment No.: 510 to 540, 710)
Y12	With attachment (S50C) Internal chuck (attachment No.: 610 to 630)
Y21	With attachment (MC nylon) For external diameter chuck(Attachment No.: 510 to 540, 710)
Y22	With attachment (MC nylon) Internal chuck (attachment No.: 610 to 630)
Ⓒ Switch model No.	
Refer to the compatibility table on Intro Pages 23 to 26 for switch model No.	
Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

Compatibility table by variation

Applicable bore size		Double acting	Single acting Normally Open	Single acting Normally Closed
			O	C
ø30 to 80	P4	▲	▲	▲
	P40	▲	▲	▲

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

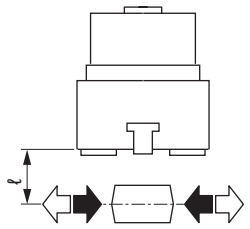
Precautions for model No. selection

*1: Y11 and Y21 are available for CKF-15CS, Y11, Y12, Y21 and Y22 are available for CKF-20 to 30CS, and Y11 and Y21 are available for CKF-40CS.
*2: For option Y11, Y12, Y21 and Y22 attachments, three are included on delivery.
*3: Made-to-order product. Contact CKD Sales for details.

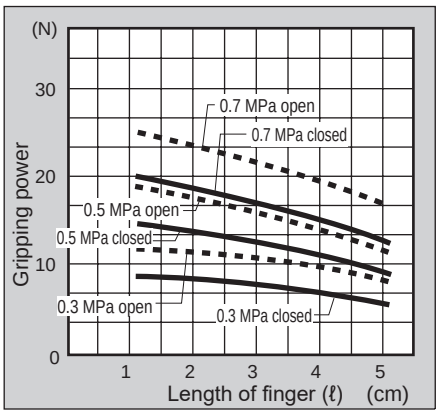
Gripping power performance data

- Gripping power is the thrust (one finger) in the direction of the arrow shown in the figure.
- The gripping force in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

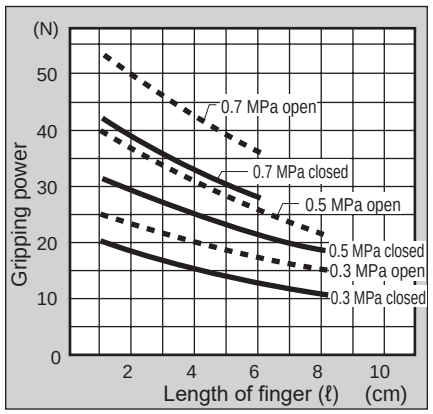
● Open direction (⇦) - - - (Broken line)
● Closed direction (➡) —— (shown with continuous line)



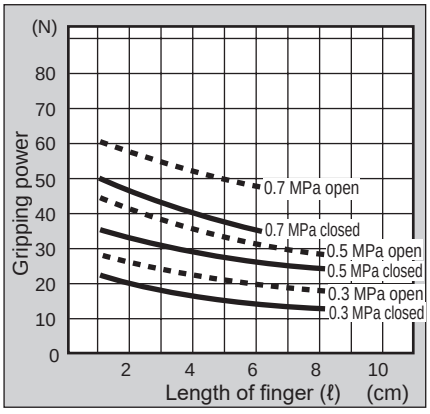
● CKF-15CS



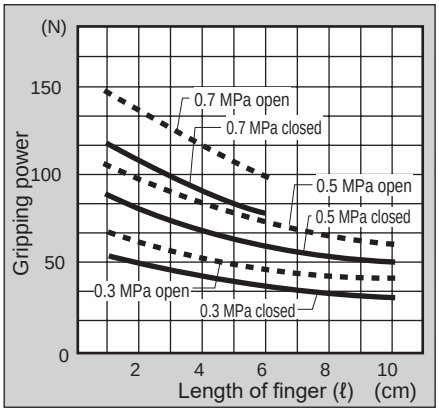
● CKF-20CS



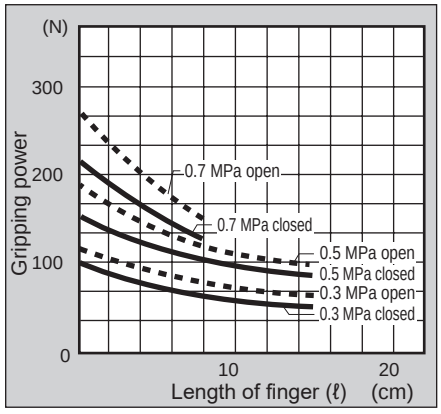
● CKF-25CS



● CKF-30CS

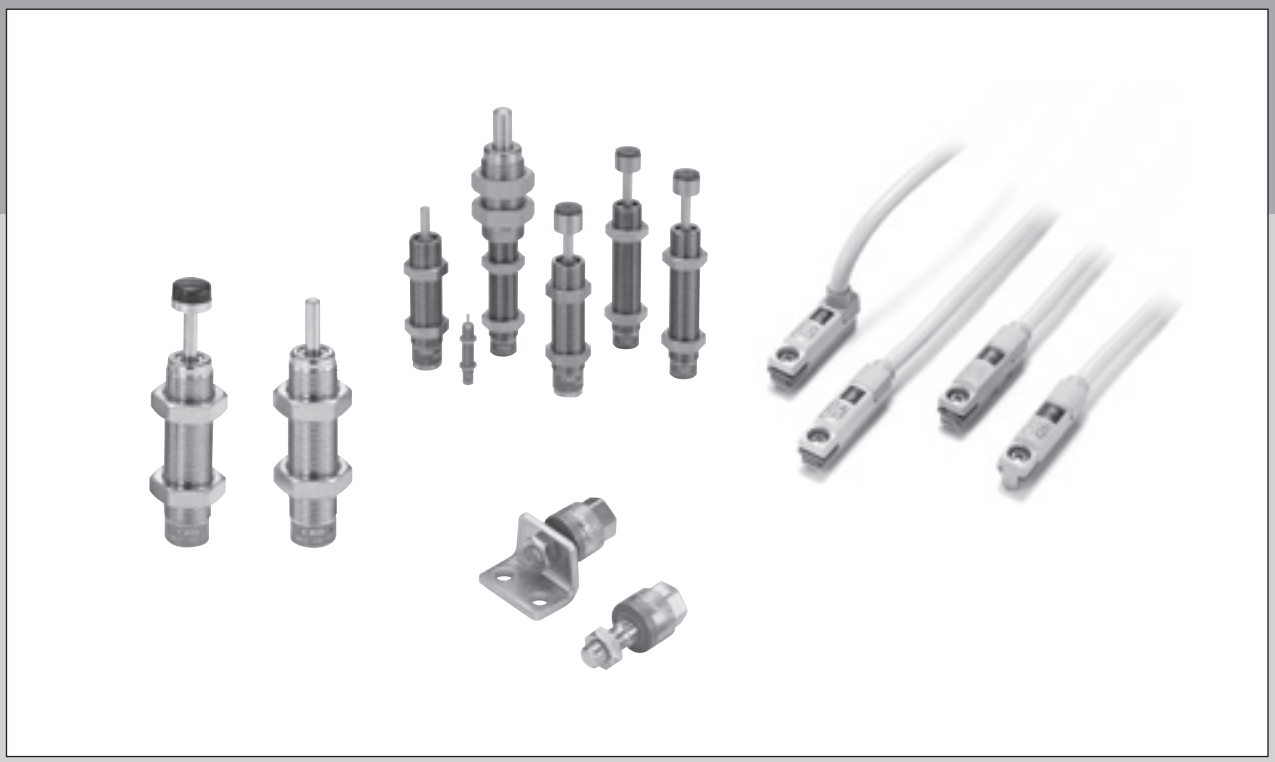


● CKF-40CS



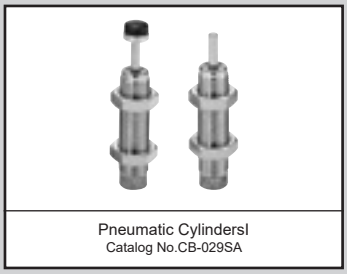
(Note)O type gripping force decreases approximately 20 to 30% in the closed direction compared to double acting. C type gripping force decreases approximately 10 to 20% in the open direction compared to the double acting type.

Related Component/cylinder switch



CONTENTS

■ Related products	Shock absorber	NCK	118
	Shock absorber	FCK	120
	Floating fitting	FJ	122
	Simplified floating fitting	FK	123
■ Cylinder switch			124



Pneumatic Cylindersl
Catalog No.CB-029SA

Shock absorber

NCK Series

●Max. energy absorption:1 to 200J

RoHS CAD

Specifications

Item			NCK							
Series			0.1	0.3	0.7	1.2	2.6	7	12	20
Type/Classification			Without adjuster Spring return							
Max. energy absorption		J	1	3	7	12	26	70	120	200
O.D. thread size		mm	M 8 x 0.75		M 10 x 1.0	M 12 x 1.0	M 14 x 1.5	M 20 x 1.5	M 25 x 1.5	M 27 x 1.5
Stroke		mm	4.5	6	8	10	15	20	25	30
Hourly Max. energy absorption		kJ/hr	4.8	6.3	12.6	21.6	39.0	84.0	86.4	108.0
Max. colliding speed		m/s	1.0	1.5		2.0		2.5	3.0	
Max. operating frequency		cycles/min.	80	35	30		25	20	12	9
Ambient temperature		°C	−10 to 80							
Max. load (resistance)		N	525	1150	2010	2750	4000	7980	10950	15380
Return time		S	0.3 or less					0.4 or less		0.5 or less
Weight		kg	0.009	0.012	0.02	0.04	0.07	0.2	0.3	0.45
Return Spring force	When extended	N	2.9		2.0	2.9	5.9	9.8	16.3	
	When compressed	N	4.5		4.3	5.9	11.8	21.6	33.3	33.9

Compatibility table by variation

Applicable size		Basic
All sizes	P4	●
	P40	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

How to order

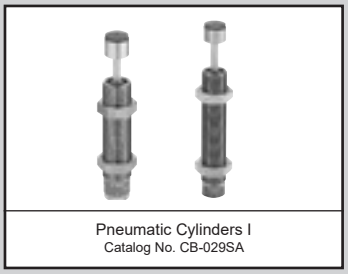
NCK - 00 - 0.7 - N1 - P4 / P40

Ⓐ Mounting
Ⓑ Series
Ⓒ Option *1

Code	Description
Ⓐ Mounting	
00	Basic
FA	Flange
Ⓑ SyrieS (max. energy value)	
0.1	1J
0.3	3J
0.7	7J
1.2	12J
2.6	26J
7	70J
12	120J
20	200J
Ⓒ Option	
Blank	Standard
N1	With stop nut
C	Capped

⚠ Precautions for model No. selection

*1: 3 hexagon nuts are provided for N1 specifications products.



Pneumatic Cylinders I
Catalog No. CB-029SA

Shock absorber

FCK Series

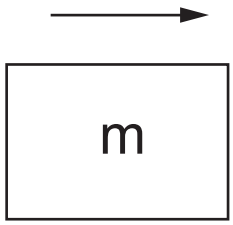
●Max. energy absorption:1.5 to 79.3J

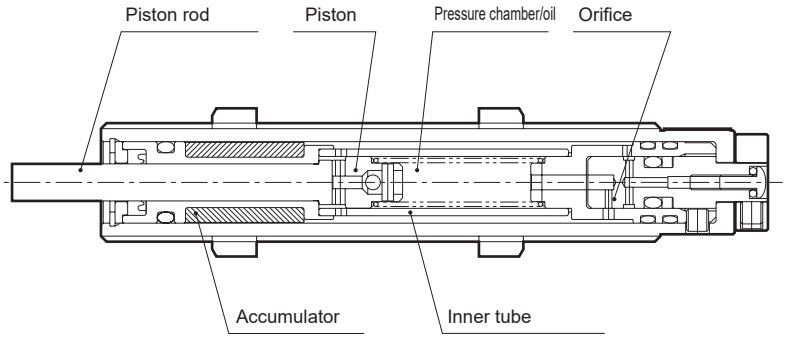
RoHS CAD

Specifications

Item			FCK									
Series			0.15	0.18	0.3	0.5	0.4	0.6	1	3	5	6.5	8.1
Type/Classification			With adjuster Spring return										
Max. energy absorption		J	1.5	1.8	2.9	4.9	3.9	5.9	9.8	29.4	49	63.7	79.3
O.D. thread size		mm	M 10 x 1.0		M 12 x 1.0		M 14 x 1.5		M 16 x 1.5	M 20 x 1.5	M 25 x 1.5		M 27 x 1.5
Stroke		mm	8		10				12	16	30	40	25
per hour Max. energy absorption		kJ/hr	3.5		5.9		8.8		14.1	20.6	29.4	38.2	32.3
Max. colliding speed	L	m/s	0.3 to 1	—	0.3 to 1	—	0.3 to 1	—	0.3 to 1				
	M	m/s	—	0.3 to 2	—	0.3 to 2	—	0.3 to 2	0.3 to 2				
	H	m/s	—	0.7 to 3	—	0.7 to 3	—	0.7 to 3	0.7 to 3				
Max. operating frequency (20°C)		cycles/min.	60										
Ambient temperature		°C	−5 to 70										
Max. load (resistance)	L	N	637		1,470		1,813		2,646	4,900			6,370
	M	N								3,528	3,920		
	H	N											
Return time		S	0.5 or less										
Product weight	Without cap	g	26.5		44		68		108	180	406	—	411
	With cap	g	27		47		73		117	202	436	459	460
Return spring force	when extended	N	2.9		4.9		4.5		5.4	12.0	16.6	23.8	16.2
	When compressed	N	5.9		9.8				14.7	18.0	33.1	71.4	27.2

Operational principle





If an object collides with the piston rod, that action is transmitted to the oil in the pressure chamber attached by the piston and inner tube.
Oil in pressure chamber flows out from orifice provided in inner tube.
Resistance F shown by following formula occurs at that time.
$F=av^2+bv+cx$ (v is colliding speed, and x is travel stroke. a, b, and c are constants.)

Item No. 1 shows the speed square resistance, which is a significant part of the resistance as a whole.
Item No. 2 shows the viscosity resistance, which is a significant part of the resistance if the colliding speed is low.
Item No. 3 shows return force of piston rod. (Can usually be ignored, as the value is miniscule compared to Items 1 and 2.)
The product of resistance generated at this time and the piston rod stroke is the shock absorber absorption energy.
The shock absorber realizes ideal impact absorption by controlling Items 1 and 2.

Compatibility table by variation

Applicable size		Low speed	Medium speed	High speed
		L	M	H
FCK-*-0.15 to 8.1	P4	●	●	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

● Low speed

FCK-L - 0.15 - C - P4

● Medium speed

FCK-M - 0.18 - C - P4

● High speed

FCK-H - 0.18 - C - P4

Ⓐ Model No.

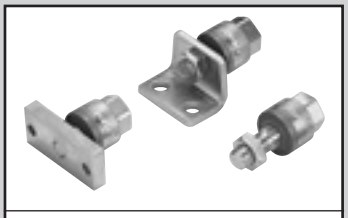
Ⓑ Series (max. energy absorption)

Ⓒ Option
*1

Code	Description	Ⓐ Model No. Low speed FCK-L	Medium speed FCK-M	High speed FCK-H
Ⓑ Series (max. energy absorption)				
0.15	1.5J	●		
0.18	1.8J		●	●
0.3	2.9J	●		
0.4	3.9J	●		
0.5	4.9J		●	●
0.6	5.9J		●	●
1	9.8J	●	●	●
3	29.4J	●	●	●
5	49J	●	●	●
6.5	63.7J	●	●	●
8.1	79.3J	●	●	●
Ⓒ Option				
Blank	Without cap	●	●	●
C	Capped	●	●	●

*1: No cap is available for 6.5 (63.7J).

▭ indicates not available.



Pneumatic Cylinders I
Catalog No. CB-029SA

Floating fitting

FJ Series

●Compatible cylinder bore: ø20 to ø200

RoHS CAD

Specifications

Item / Model No.	Nominal port size of thread x pitch	Max. working tension and compression (kN) *1 Basic	Flange	Foot	Allowable eccentricity(mm)	Oscillating angle	Operating ambient temperature range
FJ-*- 3	M 3 x 0.5	0.019	-	-	0.5	±5°	-10 to 60°C
4	M 4 x 0.7	0.053	-	-	0.5		
5	M 5 x 0.8	0.121	-	-	0.5		
6	M 6 x 1.0	1.08	-	-	0.75		
8	M 8 x 1.0	1.08	1.08	1.08	0.75		
8−1.25	M 8 x 1.25	1.08	1.08	1.08	0.75		
10	M 10 x 1.25	2.45	2.45	2.45	0.75		
12−1.25	M 12 x 1.25	2.45	2.45	2.45	0.75		
12	M 12 x 1.5	2.45	2.45	2.45	0.75		
14	M 14 x 1.5	5.88	5.88	5.88	1.0		
16	M 16 x 1.5	10.8	10.8	10.8	1.5		
18	M 18 x 1.5	10.8	10.8	10.8	1.5		
22	M 22 x 1.5	17.6	17.6	17.6	2.0		
26	M 26 x 1.5	27.5	27.5	27.5	3.0		
30	M 30 x 1.5	60.8	60.8	60.8	3.0		
36	M 36 x 1.5	87.3	87.3	87.3	4.0		
40	M 40 x 1.5	87.3	87.3	87.3	4.0		
45	M 45 x 1.5	108	108	108	4.0		

*1: Max. working tension and compression shows static load.
*2: FJ-8-1.25 and FJ-12-1.25 are optional products. FJ-36, 40 and 45 are made-to-order products.
*3: FJ-6 to 45 is P4 compliant as standard.

How to order

FJ - 0 - 3 - P4

Ⓐ Mounting

Ⓑ Nominal port size of thread x pitch

Code	Description
Ⓐ Mounting	
0	Basic
L	Foot
F	Flange

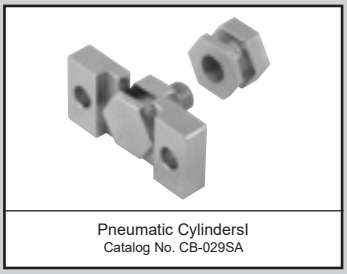
Ⓑ Nominal port size of thread x pitch

	Mounting	O	L	F
3	M 3 x 0.5	●		
4	M 4 x 0.7	●		
5	M 5 x 0.8	●		
6	M 6 x 1.0	●		
8	M 8 x 1.0	●	●	●
8-1.25	M 8 x 1.25	●	●	●
10	M 10 x 1.25	●	●	●
12-1.25	M 12 x 1.25	●	●	●
12	M 12 x 1.5	●	●	●
14	M 14 x 1.5	●	●	●
16	M 16 x 1.5	●	●	●
18	M 18 x 1.5	●	●	●
22	M 22 x 1.5	●	●	●
26	M 26 x 1.5	●	●	●
30	M 30 x 1.5	●	●	●
36	M 36 x 1.5	●	●	●
40	M 40 x 1.5	●	●	●
45	M 45 x 1.5	●	●	●

Compatibility table by variation

Applicable size		Basic	Foot	Flange
FJ-*-3 FJ-*-4 FJ-*-5	P4	●	●	●
	P40	▲	▲	▲
FJ-*-6 to 45	P4	Supports P4 specifications as standard		
	P40	▲		

●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable



Pneumatic Cylindersl
Catalog No. CB-029SA

Simplified floating fitting

FK Series

●Compatible cylinder diameter: ø6 to ø100

as standard P4 compliant

RoHS CAD

Specifications

Model No.		Allowable load *1 (N)	Allowable eccentricity (mm)	Male thread backlash in thrust direction (mm)
Male thread	Female thread			
FK-M3-N	FK-M3	63	±0.3	0.1 to 0.3
FK-M4-N	FK-M4	110		
FK-M5-N	FK-M5	179		
FK-M6-N	FK-M6	253		
FK-M8-N	FK-M8×1.0	462		
-	FK-M8×1.25	462		
FK-M10-N	FK-M10	734		
-	FK-M12	1069		
-	FK-M14	1466		
FK-M16-N	FK-M16	2003	±0.7	
-	FK-M18	2448		
FK-M20-N	-	3130		
-	FK-M22	3896		
-	FK-M26	6219		

*1: Allowable load indicates static load.

How to order

● Simplified floating fitting

FK - M3-N - P40

Model No. | Ⓐ Thread size

Code	Item	
Ⓐ Thread size		
M3-N	M 3 x 0.5	Male thread
M4-N	M 4 x 0.7	
M5-N	M 5 x 0.8	
M6-N	M 6 x 1.0	
M8-N	M 8 x 1.25	
M10-N	M 10 x 1.5	
M16-N	M 16 x 2.0	
M20-N	M 20 x 2.5	
M3	M 3 x 0.5	Female thread
M4	M 4 x 0.7	
M5	M 5 x 0.8	
M6	M 6 x 1.0	
M 8 x 1.0	M 8 x 1.0	
M 8 x 1.25	M 8 x 1.25	
M10	M 10 x 1.25	
M12	M 12 x 1.5	
M14	M 14 x 1.5	
M16	M 16 x 1.5	
M18	M 18 x 1.5	
M22	M 22 x 1.5	
M26	M 26 x 1.5	

Compatibility table by variation

Applicable size		Male thread	Female thread
		N	
All sizes	P4	P4 specs. as standard	
	P40	●	●

●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable



Cylinder switch F/K/M/T Series

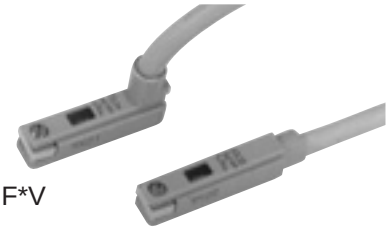
Uses a bend-resistant lead wire as standard.

* There are bore sizes which cannot be combined.

CE



F*S



F*V F*H



F*YV F3PV



F*YH F3PH

Specifications (F Series)

Item	Reed 2-wire	Proximity 2-wire		Proximity 3-wire	Proximity 3-wire	Proximity 3-wire
	F0H/V	F2H/V / F2S	F2YH/F2YV	F3H/V / F3S	F3PH/V	F3YH/F3YV
Applications	Dedicated for programmable controller			For programmable controller, relay		
Output method	-			NPN output	PNP output	NPN output
Power supply voltage	-			10 to 28 VDC	4.5 to 28 VDC	10 to 28 VDC
Load voltage	24 VDC	10 to 30 VDC	24 VDC ±10%	30 VDC or less		
Load current	5 to 20 mA (*1)			50 mA or less		
Current consumption	-			10 mA or less with 24 VDC		
Internal voltage drop	4 V or less			0.5 V or less	0.5 V or less at 30 mA	0.5 V or less
Display lamp	Yellow LED (Lit when ON)	*3	Red/green LED (Lit when ON))	Yellow LED *3 (Lit when ON))	Yellow LED (Lit when ON)	Red/green LED (Lit when ON))
Leakage current	1 mA or less			10 μA or less		
Lead wire length	1 m (oil resistant vinyl cabtyre cable 2-conductor 0.15mm^2)			1 m (oil resistant vinyl cabtyre cable 3-conductor 0.15mm^2)		
Shock resistance	294m/s^2	980m/s^2				
Insulation resistance	20 MΩ and over with 500 VDC megger					
Withstand voltage	No failure after 1 minute of 1,000 VAC application.					
Ambient temperature	-10 to +60°C					
Degree of protection	IEC standards IP67, JIS C0920 (water-tight))					
Contact protection circuit	None	-				
Weight	1 m: 10 g 3 m: 29 g			1 m: 10 g 3 m: 29 g		

*1:The max. load current is 20mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25˚C. (5 to 10mA with 60°C).
*2: With F2S and F3S, if mounting two switches in one groove to enable detection at both ends, mount them so that their set screws face outward.
*3: Indicator lamps for F2S and F3S are red.

[How to order switch]

If you order switches for the P4 Series separately, do as follows.
SW-□□□-P4 example SW-T2H-P4
(*1) When ordering Low-Voltage Directive compliant products separately, do as follows.
SW-□□□-ST-P4 example SW-T5H-ST-P4
(*2)If you order products with resin connector Discrete, do as follows. Applies to the above T2H, T2YH, T2WH, K2YH, M2WV, F2H only.
SW-□□□-P4J example SW-T2H-P4J

[Incorporated switch]

For cylinder specification P4 and P40, switch indicating "P4" is supplied. Cylinder mountable switch differs according to each cylinder.
Refer to the switch compatibility table on Intro Pages 23 to 26.
Example)GRC: Reed switch TO* and T5* cannot be mounted.
SRM3: Proximity 1-color display T2*, T3* cannot be installed.



K*H
K*PH



K*V
K*PV



K*YH



K*YV

Specifications (K Series)

Item	Proximity 2-wire		Proximity 3-wire		
	K2H/K2V	K2YH/K2YV	K3H/V (NPN output)	K3PH/V (PNP output)	K3YH/V (2-color display)
Applications	Dedicated for programmable controller		For programmable controller, relay		
Output method	-		NPN output	PNP output	NPN output
Power supply voltage	-		10 to 28 VDC		
Load voltage	10 to 30 VDC		30 VDC or less		
Load current	5 to 20 mA (*1)		50 mA or less		
Current consumption	-		10 mA or less with 24 VDC	10 mA or less with 24 VDC	10 mA or less with 24 VDC
Internal voltage drop	4 V or less		0.5 V or less		
Display lamp	Red LED (Lit when ON)	Red/green LED (Lit when ON))	Red LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON))
Leakage current	1 mA or less		10 μA or less		
Lead wire length	1 m (oil resistant vinyl cabtyre cable 2-conductor 0.2mm^2)	1 m (oil resistant vinyl cabtyre cable 2-conductor 0.3mm^2)	1 m (oil resistant vinyl cabtyre cable 3-conductor 0.2mm^2)		1 m (oil resistant vinyl cabtyre cable 3-conductor 0.2mm^2)
Shock resistance	980m/s^2				
Insulation resistance	20 MΩ and over with 500 VDC megger	100 MΩ and over with 500 VDC megger	20 MΩ and over with 500 VDC megger		100 MΩ and over with 500 VDC megger
Withstand voltage	No failure after 1 minute of 1,000 VAC application.				
Ambient temperature	-10 to +60°C				
Degree of protection	IEC standards IP67, JIS C0920 (water-tight))				
Weight	1 m: 18 g 3 m: 49 g 5 m: 80 g	1 m: 31 g 3 m: 85 g 5 m: 139 g	1 m: 18 g 3 m: 49 g 5 m: 80 g		1 m: 31 g 3 m: 85 g 5 m: 142 g

Item	Reed 2-wire			
	K0H/K0V		K5H/K5V	
Applications	For programmable controller, relay		For programmable controller, relay, IC circuit (without indicator lamp), serial connection	
Power supply voltage	-			
Load voltage	12/24 VDC	110 VAC	5/12/24 VDC	110 VAC
Load current	5 to 50mA	7 to 20mA	50 mA or less	20 mA or less
Current consumption	-			
Internal voltage drop	3 V or less (for DC, at load current 30mA)		0.1V or less (*3)	
Display lamp	Red LED (Lit when ON)		No indicator lamp	
Leakage current	0mA			
Lead wire length	1 m (oil resistant vinyl cabtyre cable 2-conductor 0.2mm^2)			
Shock resistance	294m/s^2			
Insulation resistance	20 MΩ and over with 500 VDC megger			
Withstand voltage	No failure after 1 minute of 1,000 VAC application.			
Ambient temperature	-10 to +60°C			
Degree of protection	IEC standards IP67, JIS C0920 (water-tight))			
Contact protection circuit	None			
Weight	1 m: 18 g 3 m: 49 g 5 m: 80 g			

*1: The above max. load current is the value at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25˚C. (5 to 10 mA at 60°C)
*2: Installation of K3PH, K3PV onto compatible cylinders is made to order.
*3: Internal resistance 0.5 Ω or less.



M*V



M*H

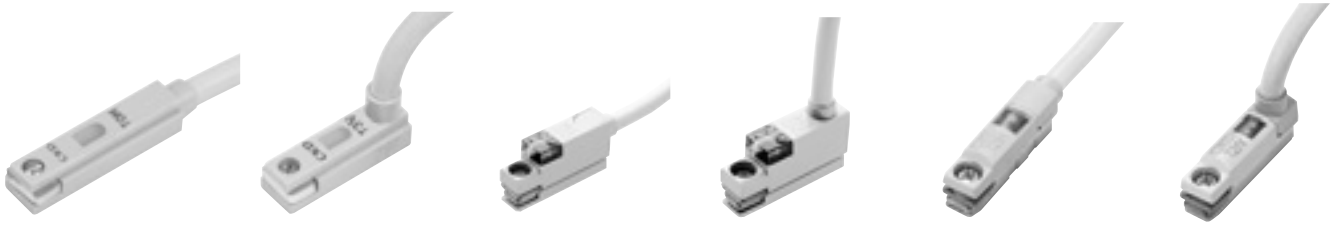
Specifications (M Series)

Item	Proximity 2-wire		Proximity 3-wire		
	M2V/M2H	M2WV(2-color display)	M3H/V (NPN output))	M3PH/V (PNP output)	M3WV (2-color display)
Applications	Dedicated for programmable controller		For programmable controller, relay, IC circuit, compact solenoid valve		
Output method	-		NPN output	PNP output	NPN output
Power supply voltage	-		4.5 to 28 VDC		10 to 28 VDC
Load voltage	10 to 30 VDC		30 VDC or less		
Load current	5 to 30mA		100 mA or less	100 mA or less	100 mA or less
Current consumption	-		10 mA or less with 24 VDC	10 mA or less with 24 VDC	15 mA or less with 24 VDC
Internal voltage drop	4 V or less		0.5 V or less		
Display lamp	Red LED (Lit when ON)	Red/green LED (Lit when ON))	Red LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON))
Leakage current	1 mA or less		10 μA or less	0.05 mA or less	10 μA or less
Lead wire length	1m (Oil resistant vinyl cabtyre cable 2-conductor 0.2mm^2)		1m (Oil resistant vinyl cabtyre cable 3-conductor 0.15mm^2)		
Shock resistance	980m/s^2				
Insulation resistance	100 MΩ and over with 500 VDC megger				
Withstand voltage	No failure after 1 minute of 1,000 VAC application.				
Ambient temperature	-10 to +60°C				
Degree of protection	IEC standards IP67, JIS C0920 (water-tight))				
Weight	1 m: 22 g 3 m: 57 g 5 m: 93 g		1 m: 22 g 3 m: 57 g 5 m: 93 g		

Item	Reed 2-wire			
	M0V/M0H		M5V/M5H	
Applications	For programmable controller, relay		For programmable controller, relay, IC circuit (no indicator lamp), serial connection	
Power supply voltage	-			
Load voltage	12/24 VDC	110 VAC	5/12/24 VDC	110 VAC
Load current	5 to 50mA	7 to 20mA	50 mA or less	20 mA or less
Current consumption	-			
Internal voltage drop	3 V or less (with 30mA load current for DC)		0.1V or less (*4)	
Display lamp	Red LED (Lit when ON)		No indicator lamp	
Leakage current	0mA			
Lead wire length	1 m (oil resistant vinyl cabtyre cable 2-conductor 0.2mm^2)			
Shock resistance	294m/s^2			
Insulation resistance	100 MΩ and over with 500 VDC megger			
Withstand voltage	No failure after 1 minute of 1,000 VAC application.			
Ambient temperature	-10 to +60°C			
Degree of protection	IEC standards IP67, JIS C0920 (water-tight))			
Contact protection circuit	None			
Weight	1 m: 22 g 3 m: 57 g 5 m: 93 g			

*1: M*H is available for SRL3, SRG3, and SRT3.
*2: Refer to the switch compatibility table on Intro Pages 23 to 26 for switch model numbers that can be equipped on cylinders.
*3: Contact CKD separately for cylinder switch with connector.
*4: Internal resistance 0.5 Ω or less.

CE (T1,excluding T8)



T*H/T*WH T*V/T*WV T1H T1V T8H/T*YH T8V/T*YV

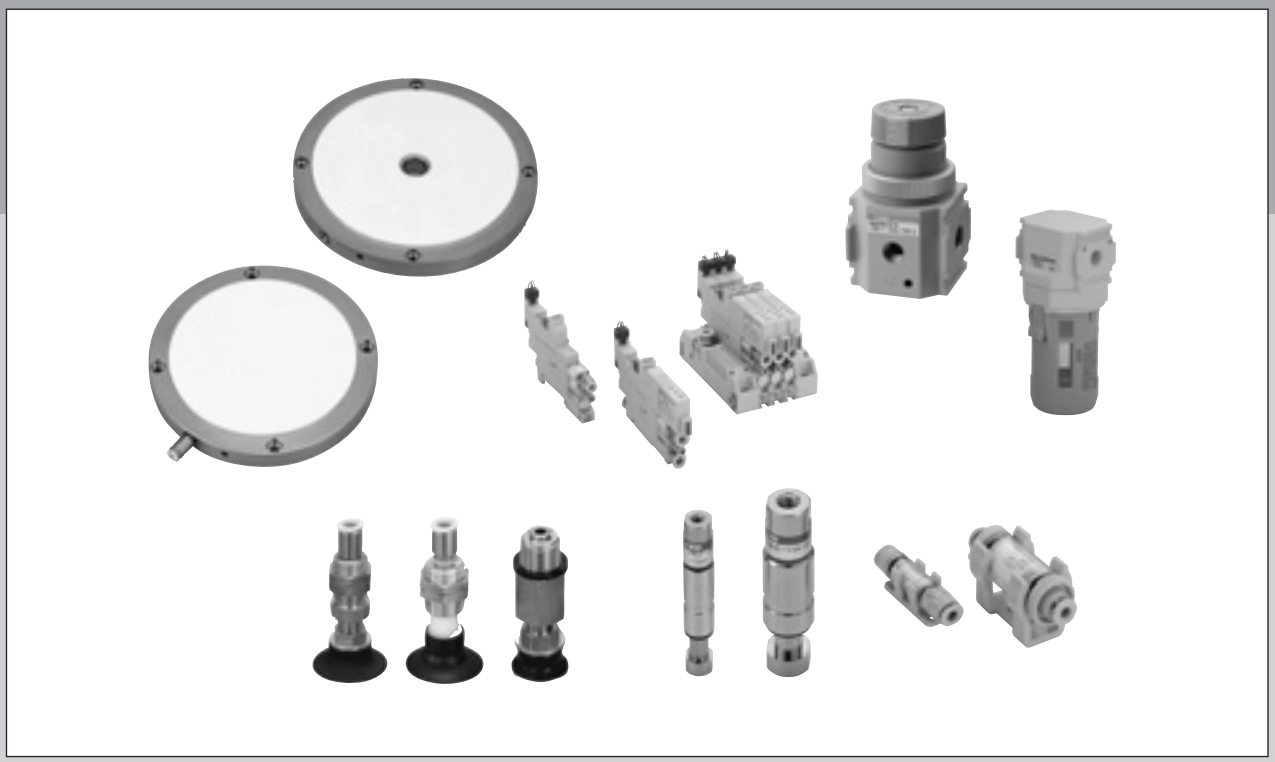
Specifications (T Series)

Item	Proximity 2-wire						Proximity 3-wire			
	T1H/T1V	T2H/T2V	T2HR3/T2VR3 (Bending resistant lead wire)	T2JH/T2JV (Off-delay)	T2YH/T2YV (2-color display)	T2WH/T2WV(2-color display)	T3H/T3V	T3PH/T3PV (PNP output)	T3YH/T3YV (2-color display)	T3WH/T3WV (2-color display)
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller					For programmable controller, relay			
Output method	-						NPN output	PNP output	NPN output	NPN output
Power supply voltage	-						10 to 28 VDC			
Load voltage	85 to 265 VAC	10 to 30 VDC				24 VDC ±10%	30 VDC or less			
Load current	5 to 100mA	5 to 20 mA (*1)					100 mA or less		50 mA or less	
Current consumption	-	-					With 24 VDC 10 mA or less	With 24 VDC 10 mA or less	10 mA or less with 24 VDC	
Internal voltage drop	10% or less of load voltage	4 V or less					0.5 V or less			
Off-delay time	-			200±50 ms	-		-			
Display lamp	Red LED (Lit when ON)				Red/greenLED (Lit when ON)	Red/greenLED (Lit when ON)	Red LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	
Leakage current	1 mA or less with 100 VAC, 2 mA or less with 200 VAC	1 mA or less					10 μA or less			
Lead wire length	1 m (oil resistant vinyl cabtyre cable 2-conductor 0.3mm²)	1 m (oil resistant vinyl cabtyre cable 2-conductor 0.2mm²)	3 m (elasticity, oil resistance Vinyl cabtyre cable 2-conductor 0.2mm²)	1 m (oil resistant vinyl cab Tire cable 2-conductor 0.3mm²)		1 m (oil resistant vinyl cabtyre cable 2-conductor 0.2mm²)	1 m (oil resistant vinyl cabtyre cable 3-conductor 0.2mm²)		1 m (oil resistant vinyl cabtyre cable 3-conductor 0.3mm²)	1 m (oil resistant vinyl cabtyre cable 3-conductor 0.2mm²)
Shock resistance	980m/s²									
Insulation resistance	100 MΩ and over with 500 VDC megger	20 MΩ and over with 500 VDC megger		100 MΩ and over with 500 VDC megger		20 MΩ and over with 500 VDC megger	20 MΩ and over with 500 VDC megger		100 MΩ and over with 500 VDC megger	20 MΩ and over with 500 VDC megger
Withstand voltage	No failure after 1 minute of 1,500 VAC application.	No failure after 1 minute of 1,000 VAC application.								
Ambient temperature	-10 to +60°C									
Degree of protection	IEC standards IP67, JIS C0920 (water-tight))									
Weight	1 m: 33g 3 m: 87g 5 m: 142g	1 m: 18 g 3 m: 49 g 5 m: 80 g		1 m: 33 g 3 m: 87 g 5 m: 142 g		1 m: 18 g 3 m: 49 g 5 m: 80 g	1 m: 18 g 3 m: 49 g 5 m: 80 g		1 m: 33 g 3 m: 87 g 5 m: 142 g	1 m: 18 g 3 m: 49 g 5 m: 80 g

Descriptions	Reed 2-wire						
	T0H/T0V		T5H/T5V		T8H/T8V		
Applications	For programmable controller, relay		For programmable controller, relay, IC circuit (without indicator lamp), serial connection		For programmable controller, relay		
Power supply voltage	-						
Load voltage	12/24 VDC	110 VAC	5/12/24 VDC	110 VAC	12/24 VDC	110 VAC	220 VAC
Load current	5 to 50mA	7 to 20mA	50 mA or less	20 mA or less	5 to 50mA	7 to 20mA	7 to 10mA
Current consumption	-						
Internal voltage drop	3 V or less (at load current 30mA for DC)		0.1V or less (*5)		4 V or less		
Display lamp	Red LED (Lit when ON)		No indicator lamp		Red LED (Lit when ON)		
Leakage current	0mA						
Lead wire length	1 m (oil resistant vinyl cabtyre cable 2-conductor 0.2mm²)				1 m (oil resistant vinyl cabtyre cable 2-conductor 0.3mm²)		
Shock resistance	294m/s²						
Insulation resistance	20 MΩ and over with 500 VDC megger				100 MΩ and over with 500 VDC megger		
Withstand voltage	No failure after 1 minute of 1,000 VAC application.				No failure after 1 minute of 1,500 VAC application		
Ambient temperature	-10 to +60°C						
Degree of protection	IEC standards IP67, JIS C0920 (water-tight))						
Contact protection circuit	None				Yes		
Weight	1 m: 18 g 3 m: 49 g 5 m: 80 g				1 m: 33g 3 m: 87g 5 m: 142g		

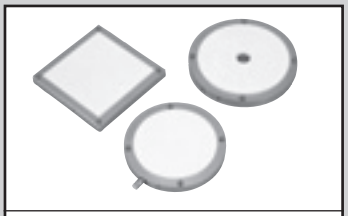
*1: The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C.... (5 to 10 mA at 60°C.)
*2: T2HR3, T2VR3, T3PH and T3PV switches are available as made to order when installed onto compatible cylinders.
*3: The T2JH and T2JV switches are available as made to order when installed onto SRL3 (ø32 to ø100), MRL2, LCR, UCAC2 or Hand-chuck.
*4: Switch types are limited depending on cylinder. Refer to Intro Pages 23 to 26 for details.
*5: Internal resistance 0.5 Ω or less.

Vacuum components



CONTENTS

■ Precise suction plate	PVP	130
■ Suction pad	VSP	132
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■ Vacuum ejector	VSX/VXSM	137
■ Vacuum switching unit	VSXP/VSXPM	140
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■ Vacuum regulator	VRA2000	144
■ Vacuum filter	VSFU	145



Pneumatic, Vacuum and Auxiliary Components
Catalog No.CB-024SA

Precise suction plate

PVP Series

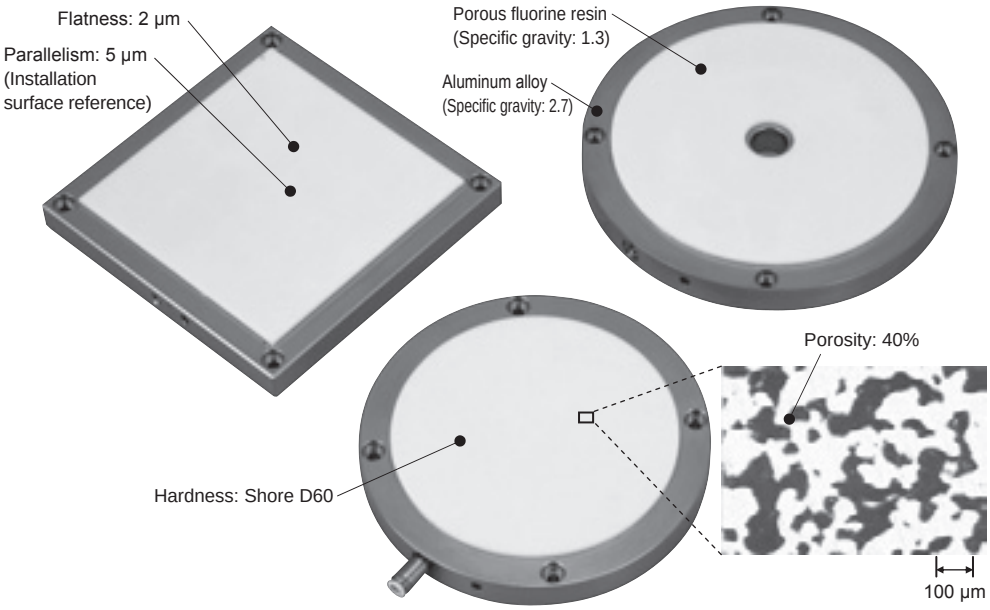
P4 compliant as standard

RoHS

Specifications

Descriptions			PVP-R-36-18 PVP-C-50 PVP-S-50-50	PVP-R-85-27 PVP-R-118-18 PVP-C-75 PVP-C-100 PVP-C-113 PVP-C-138 PVP-S-100-100	PVP-C-187 PVP-S-150-150 PVP-S-200-250
Product	Suction surface μm (*1)	Flatness	2	3	4
		Parallelism	5	10	15
	Flatness of reference surface μm		10	10	10
	Air leakage volume ℓ/min(ANR)		0.4	0.6	1
	Vacuum differential pressure kPa (*2)		40 or more		
	Working pressure MPa		0.2 or less (clean air)		
	Ambient temperature °C		5 to 40		
	Ambient humidity %RH (*3)		65 or less		
Porous material	Material		Polychlorotrifluoroethylene resin		
	Porosity %		40±5		
	Shore D hardness degree °		60±15		
Base material	Material		Corrosion-resistant aluminum alloy		
	Surface-treated (*4)		No		

*1: This accuracy is the measurement value left as is for 24 hours in the constant temperature room at 23°C.
Accuracy may deviate from that specified at a temperature other than 23°C.
The value is measured by placing the product without load on a table, measuring straightness in two or more directions and using the maximum value.
This is not the usual flatness measurement method, but has been used because multi-porous material has indentations.
*2: Indicates vacuum source pressure drop when a workpiece is suctioned with the entire multi-porous surface.
*3: In humidity exceeding 65% RH, suction surface accuracy may deviate from the specified value.
*4: This product's body is made of corrosion-resistant aluminum alloy.
Surface treatment (alumite, electroless nickel plating, etc.) is made to order.



How to order

● How to order the round suction plate

PVP - C - 50 - CP - A

Round shape (A) (B) (C)

(A) Outer diameter of porous material
50
75
100
113
138
187

(B) Vacuum port position	
Blank	Side surface port
CP	Back surface port

(C) Option	
Blank	None
A	Antistatic treatment

● How to order the square suction plate

PVP - S - 50-50 - CP - A

Square shape (A) (B) (C)

(A) Short side dimension of porous material - Long side dimension of porous material
50-50
100-100
150-150
200-250

(B) Vacuum port position	
Blank	Side surface port
CP	Back surface port

(C) Option	
Blank	None
A	Antistatic treatment

● How to order the donut shaped suction plate

PVP - R - 36-18 - CP - A

Donut shaped (A) (B) (C)

(A) Outer diameter of porous material - Inner diameter of porous material
36-18
85-27
118-18

(B) Vacuum port position	
Blank	Side surface port
CP	Back surface port

(C) Option	
Blank	None
A	Antistatic treatment

Suction area/weight table

Model No.	Suction area (cm^2)	Weight (g)
PVP-R-36-18	8	80
PVP-R-85-27	51	290
PVP-R-118-18	107	520
PVP-C-50	20	140
PVP-C-75	44	250
PVP-C-100	79	390
PVP-C-113	100	490
PVP-C-138	149	680
PVP-C-187	275	1,170
PVP-S-50-50	25	160
PVP-S-100-100	100	490
PVP-S-150-150	225	980
PVP-S-200-250	500	2,030

Compatibility table by variation

	PVP
P4	Standard compliance

●: Applicable models ○: Semi-applicable models ▲:Contact CKD for details. ▭: Not applicable



Vacuum system equipment SELVACS
Catalog No.CC-796A

Suction pad

VSP Series

Specifications

Item	VSP
Working fluid	Air
Working pressure kPa	−100 to 100
Operating ambient temperature °C	0 to 60 (no freezing)

How to order

Refer to * system Component SELVACS (CC-796A) for combinations of vacuum selectable model numbers.

●Suction pad

VSP - HC 10 -10 R S -DL - 6 - CF - P4

●Set with pad rubber + pad fixing screw

VSPG — 10 R S -DL A — P4

Ⓐ Holder type
Ⓑ Pad diameter, pad size
Ⓒ Stroke option
Ⓓ Pad shape
Ⓔ Pad material
Ⓕ Surface-treated
Ⓖ Port size/shape
Ⓗ Pad swinging

Code	Description
Ⓐ Holder type	*1
Refer to Appendix 1 for holder shape.	
Ⓑ Pad diameter, pad size	
Refer to Appendix 2 for pad diameter and pad size.	
Ⓒ Stroke option	*2
Blank	Specified stroke or without buffer
-10	10 mm
-15	15 mm
-20	20 mm
-25	25 mm
-30	30 mm
-40	40 mm
-50	50 mm
Ⓓ Pad shape	*3
R	Standard, general
A	Standard, deep
RM	Standard, compact
S	Sponge
B	Bellows
W	Multi-stage bellows
E	Oval
L	Soft
LB	Soft bellows
K	Anti-slip
P	Thin object type
F	Flat
FH	Flat intake flow rate increase type
Q	Suction mark prevention
Ⓔ Pad material	*4
S	Silicone rubber
U	Urethane rubber
YS2	Super soft silicone rubber (hardness 20°)
YS4	Super soft silicone rubber (hardness 40°)
F	Fluoro rubber
SE	Conductive silicone rubber
HN	HNBR
EP	EPDM
Blank	Chloroprene rubber
K	PEEK
M	POM
KE	Conductive PEEK
Ⓕ Surface-treated	
Blank	No surface treatment
-NF	Fiber nap (nylon)
-SF	Fiber raising (silk)
-DL	Anti-stick special coating
-ER	Suction mark reduction surface modification
-FG	Fluorine coating
Ⓖ Port size/shape	*5
Blank	(A: When E, F)
4	ø4 push-in fitting
4T	ø4 barbed fitting
6	ø6 push-in fitting
6T	ø6 barbed fitting
M3	M 3 x 0.5
M5	M 5 x 0.8
6A	G1/8
8A	G1/4
Ⓗ Pad swinging	*6
Blank	None
CF	With flexible holder angle of 8°

Compatibility table by variation

	Suction pad	Pad rubber only	Set with pad rubber + pad fixing screw
	VSP	VSPG	VSPG*A
P4	●	Standard compliance	●

●:Applicable models
○: Quasi Applicable models
▲: Contact CKD for details.
▭:Not applicable

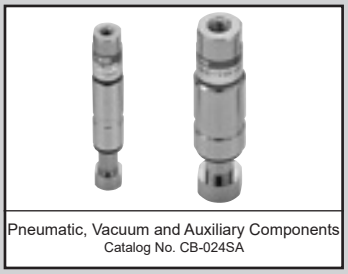
*1: Holder shape: LFC, LFD is not supported.
*2: Holder shape: For models other than HC, only stroke option: Blank is available.
*3: Holder shape: HD, HDW, HE and HEW are pad shape: L and LB only.
*4: Pad material: N, E, NE, G and NH are not supported.
*5: Port sizes/shapes: 2, 8, 10 and 12 are not supported.
*6: Free holders (F1, F2) and position locking valve (V) are not supported.

Appendix 1◆Holder shape list

Ⓐ Holder type		Fixed		Buffer type		Lightweight buffer	Low back fixed	Dedicated fixed
		Standard	Compact	Standard	Compact			
Code	Vacuum outlet top	A	MA	C	MC	HC		AE
	Vacuum outlet side	B	MB	D	MD	HD	HE	BE
	Vacuum outlet both sides					HDW	HEW	
	Direct mounting	E	ME	F				

Appendix 2◆Pad diameter/size - pad shape combinations

	Ⓓ Pad shape		R	A	RM	S	B	W	E	L	LB	K	P	F	FH	Q
Ⓑ Pad diameter	0.7	ø0.7			●											
	1	ø1	●		●											
	1.5	ø1.5			●											
	2	ø2	●		●		●									
	3	ø3	●		●											
	4	ø4	●		●		●			●						
	6	ø6	●				●	●		●	●					
	8	ø8	●				●	●		●	●					
	10	ø10	●			●	●	●		●	●	●	●	●	●	●
	15	ø15	●	●		●	●			●	●		●	●	●	●
	20	ø20	●	●		●	●	●		●	●	●	●	●	●	
	25	ø25	●	●		●	●							●	●	●
	30	ø30	●	●		●	●	●		●		●		●	●	
	35	ø35				●										
	40	ø40	●	●			●	●		●		●				
	50	ø50	●	●		●	●	●				●				
	60	ø60	●	●			●									
	70	ø70				●	●									
	80	ø80	●	●			●									
	100	ø100	●	●		●	●									
	150	ø150	●				●									
	200	ø200	●				●									
Ⓑ Pad size	2 x 4	2 x 4							●							
	3.5 x 7	3.5 x 7							●							
	4 x 10	4 x 10							●							
	4 x 20	4 x 20							●							
	4 x 30	4 x 30							●							
	5 x 10	5 x 10							●							
	5 x 20	5 x 20							●							
	5 x 30	5 x 30							●							
	6 x 10	6 x 10							●							
	6 x 20	6 x 20							●							
	6 x 30	6 x 30							●							
	8 x 20	8 x 20							●							
	8 x 30	8 x 30							●							



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Fine buffer

FBU2 Series

O.D.: M8, M12, ø7, ø12
Load capacity: 30, 80g

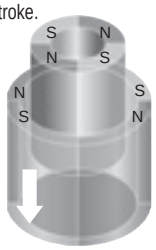
P4 compliant as standard

RoHS

Uniform pressure

If the magnets in the movable shaft and fixed shaft are misaligned, a diagonal line of magnetic force appears and power is generated as the axial force tries to return.
Pressure due to magnetic force is selected from the 3 ranges of 0.2 N, 0.5 N and 1.0 N depending on the model. All are nearly constant regardless of the stroke.

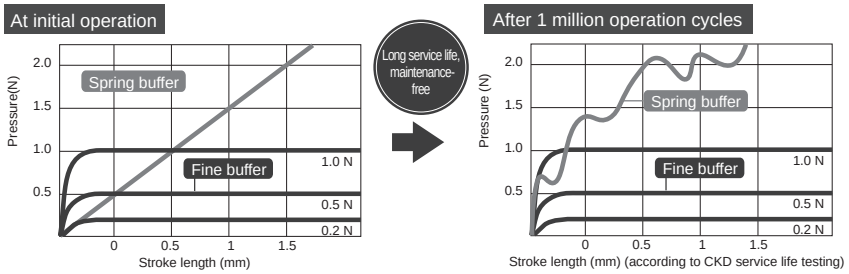
Magnetic return force constant in the axial direction



Clean & long life

No metal contact compared with spring buffers, for an ultra-low dust generation rate.
No spring fatigue for long service life and stable performance.

Pressure characteristics



Specifications

Values at room temperature of 23°C.

Descriptions			FBU2-7D		FBU2-8M	FBU2-12D		FBU2-12M
			S	H/HV	S	S	H/HV	S
O.D.			ø7h7		M8x0.75	ø12h7		M12x1
Appearance			S/H  HV 			S/H  HV 		
Buffer pressure		N	0.1 to 0.2		0.1 to 0.2	0.4 to 0.6, 0.9 to 1.1		0.4 to 0.6, 0.9 to 1.1
Pressure variation *1			±15% or less					
Buffer stroke length			2 / 6	2 / 6	2 / 6	2 / 6 / 16	2 / 6	2 / 6 / 16
Operating ambient temperature		°C	5 to 50	5 to 40	5 to 50	5 to 50	5 to 40	5 to 50
Bearing clearance		mm	0.2 or less	0.05 or less	0.2 or less	0.2 or less	0.05 or less	0.2 or less
Max. holding torque *2		N·cm	0.25 and over (reference value)			*3		*3
Return positioning accuracy *4	X-Y	mm	±0.1 or less	±0.05 or less	±0.1 or less	±0.1 or less	±0.05 or less	±0.1 or less
	Z	mm	±0.1 or less					
	θ	°	3 or less					
Load capacity		g	30 or less			80 or less		

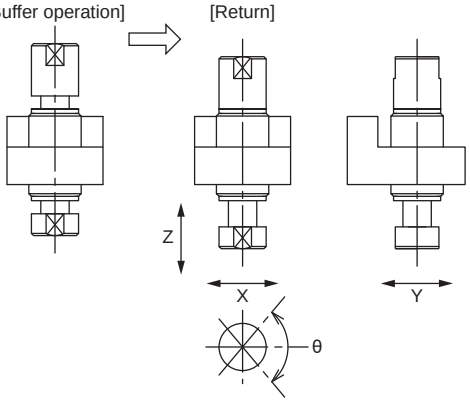
*1: Indicates pressure fluctuations within the stroke. Pressure is not proportional to the stroke.
*2: If a rotary torque exceeding the max. holding torque is applied on the moving axis, the moving axis will step out and rotate 180°.
* Holding torque: Force which can return to the original position even if force is applied in θ direction (Fig. 1) and moving axis position deviates.
*3: Refer to the table at right for FBU2-12M/12D holding torque.
*4: Refer to the figure below (Fig. 1) for return positioning accuracy. The figure shows buffer return accuracy.
*5: Consult with CKD for requirements not complying with specifications.
*6: Load capacity indicates the max. load (jig and suctioned workpiece) mounted on the head piece.

[FBU2-12M/12D max. holding torque (reference value)]

Pressure (N)	Stroke length (mm)	Holding torque (N·cm)
0.5	2	0.5 or more
	6	0.5 or more
	16	1.2 or more
1	2	1.2 or more
	6	1.2 or more
	16	2.5 or more

Indicates the holding torque at the outer end.

[Buffer operation] [Return]



(Fig. 1) Return detailed drawing

How to order

FBU2 - 12D - S - 10 - 6 - T3 - H3

- Model No.
- Ⓐ O.D.
- Ⓑ Bearing precision
- Ⓒ Pressure
- Ⓓ Buffer stroke length
- Ⓔ Tailpiece shape
- Ⓕ Head piece shape

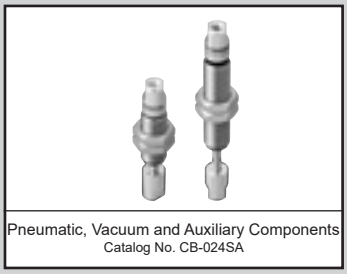
Code	Content	Model No. FBU2-7D	FBU2-8M	FBU2-12D	FBU2-12M
Ⓐ O.D.					
7D	ø7h7 spigot	●			
8M	M8 x 0.75 full thread		●		
12D	ø12h7 spigot			●	
12M	M12 x 1 full thread				●
Ⓑ Bearing precision					
S	Standard (bearing clearance 0.2 mm or less)	●	●	●	●
H	High precision (bearing clearance 0.05 mm or less)	●		●	
HV	Internal flow path high precision (bearing clearance 0.05 mm or less)	●		●	
Ⓒ Pressure (N)					
02	0.2	●	●		
05	0.5			●	●
10	1.0			●	●
Ⓓ Buffer stroke length (mm)					
2	2	●	●	●	●
6	6	●	●	●	●
16	16			●	●
Ⓔ Tailpiece shape					
TB	Without hole	●	●	●	●
T3	M3 female thread depth 3	●	●	●	●
T5	M5 female thread depth 4			●	●
Ⓕ Head piece shape					
HB	Without hole	●	●	●	●
H3	M3 female thread depth 3	●	●	●	●
H5	M5 female thread depth 4			●	●

Combination of bearing precision, buffer stroke, tailpiece shape, and head piece shape

		Ⓑ Bearing precision S	H	HV
Ⓓ Buffer stroke length	**2**	●	●	●
	6	●	●	●
	16	●		
Ⓔ Tailpiece shape	**TB**	●	●	●
	T3	●	●	
	T5	●	●	
Ⓕ Head piece shape	**HB**	●	●	
	H3	●	●	●
	H5	●	●	●

Model No. of single mounting bracket for spigot

Ⓐ O.D.	Model No. of single bracket	
	L installation	Straight installation
7D	FBU2- 7D -B1	FBU2- 7D -B2
12D	FBU2- 12D -B1	FBU2- 12D -B2



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Fine buffer

FBU2-SU Series

Outer diameter: M12, full thread
Load capacity: 200 g

P4 compliant as standard

RoHS

Specifications

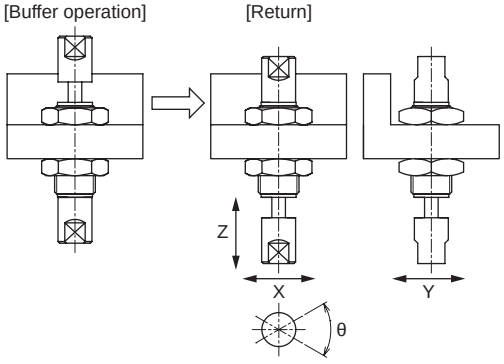
Item			FBU2-SU
O.D.			M 12 x 1
Buffer pressure		N	0.4 to 0.6, 0.9 to 1.1
Pressure variation *1)			±15% or less
Buffer Stroke		mm	2, 6, 16
Operating ambient temperature		°C	5 to 50
Bearing clearance		mm	0.2 or less
Max. holding torque		N·cm	*2)
Return positioning accuracy *3)	X-Y	mm	±0.1 or less
	Z	mm	±0.1 or less
	θ	°	3 or less
Load capacity		g	200 or less

*1: Indicates pressure fluctuations within the stroke. Pressure is not proportional to the stroke.
*2: If a rotary torque exceeding the max. holding torque is applied on the moving axis, the moving axis will step out and rotate 180°.
*Holding torque…Force is applied in the θ direction (Fig. 1) to enable the movable shaft to return to its original position even if the position of the movable shaft has deviated
*3: Refer to the figure below for return positioning accuracy. The figure shows buffer return accuracy.
*4: Consult with CKD for requirements not complying with specifications.

[FBU2-SU max. holding torque (reference value)]

Pressure (N)	Stroke length (mm)	Holding torque (N·cm)
0.5	2	0.5 or more
	6	0.5 or more
	16	1.2 or more
1	2	1.2 or more
	6	1.2 or more
	16	2.5 or more

Indicates the holding torque at the outer end.

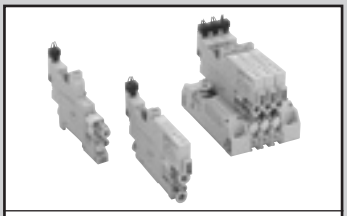


How to order

FBU2 - SU - 05 - 6 - T3 - H3

- Model No.
- Ⓐ Pressure
- Ⓑ Buffer Stroke
- Ⓒ Tail shape
- Ⓓ Head shape

Code	Description
Ⓐ Pressure (N)	
05	0.5
10	1.0
Ⓑ Buffer Stroke (mm)	
2	2
6	6
16	16
Ⓒ Tail shape	
TB	Without hole
T3	M3 female thread depth 3
T4	M4 female thread depth 4
T5	M5 female thread depth 4
T6	M6 female thread depth 5
Ⓓ Head shape	
HB	Without hole
H3	M3 female thread depth 3
H4	M4 female thread depth 4
H5	M5 female thread depth 4
H6	M6 female thread depth 5



Vacuum system equipment SELVACS
Catalog No. CC-796A

Vacuum ejector unit which is lightweight and compact in appearance and has a high-cycle vacuum system

VSX Series

●Nozzle diameter: ø0.5, ø0.7, ø1.0

RoHS

Specifications

Item	VSX
Working fluid	Air
Working pressure range MPa	0.3 to 0.7
Working ambient temperature ℃	5 to 50

Ejector characteristics

ModelNo.		Nozzle diameter (mm)	Rated supply pressure (MPa)	Achieved vacuum pressure (-kPa)	Intake flow rate (ℓ/min(ANR))	Air consumption rate (ℓ/min(ANR))
VSX-H05...	Atmospheric release	0.5	0.5	90.4	7	11.5
	Common exhaust					
VSX-L05...	Atmospheric release			66.5	12	
	Common exhaust					
VSX-E05...	Atmospheric release		0.35	90.4	3	8
	Common exhaust					
VSX-H07...	Atmospheric release	0.7	0.5	93.1	13	23
	Common exhaust					
VSX-L07...S	Atmospheric release			66.5	24	
VSX-L07...J	Common exhaust				22	
VSX-E07...	Atmospheric release		0.35	90.4	10.5	17
	Common exhaust					
VSX-H10...S	Atmospheric release	1.0	0.5	93.1	24	46
VSX-H10...J	Common exhaust				20	
VSX-L10...S	Atmospheric release			66.5	26	
VSX-E10...S	Atmospheric release		0.35	90.4	20	34
VSX-E10...J	Common exhaust				19	

Note: Values in table are representative values. Suction flow rate differs with the vacuum piping conditions (vacuum port size, pipe length).

Solenoid valve specifications

●Pilot valve

Item	Vacuum generating valve		Vacuum break valve	
Actuation	Direct operation			
Valve structure	Elastic sealing, poppet valve			
Rated voltage	24 VDC	100 VAC	24 VDC	100 VAC
Allowable voltage fluctuation range	24 VDC±10%	100 VAC±10%	24 VDC±10%	100 VAC±10%
Surge protective circuit	Varistor	Bridge diode	Varistor	Bridge diode
Power consumption	1.2W (with LED)	1.5 VA (with LED)	1.2W (with LED)	1.5 VA (with LED)
Manual operation	Push non-locking			
Operation display	At coil excitation operation: Red LED lights			
Connection	Connector (cable length: 500 mm)			
	Red: 24 VDC Black: COM	Blue	Red: 24 VDC Black: COM	Blue

●Main valve

Item	Vacuum generating valve
Actuation	Pneumatically actuated by pilot valve
Valve structure	Elastic sealing, poppet valve
Proof pressure	1.05 MPa
Valve	Normally Closed
Lubrication	Not required
Effective cross-sectional area	Air supply port size ø4:3.5 mm^2 Air supply port size ø6:4.5 mm^2

Vacuum pressure switch specifications

Item		With digital display		Without display
		With 2-point switch output (-DW)	With analog output (-DA)	Analog output only (-A0)
Shipment default		-50kPa(SW1), -10kPa(SW2)	-50 kPa	-
Current consumption		40 mA or less		15 mA or less
Pressure detection method		Diffused semiconductor pressure switch		
Working pressure range		-100 to 0 kPa		
Set pressure range		-99 to 0 kPa		-
Proof pressure		0.2 MPa		
Storage temperature range		-20 to 80°C (atmospheric pressure, humidity 60% RH or less)		
Operating temperature range		0 to 50°C (no freezing)		
Operating humidity range		35 to 85% RH(No condensation)		
Power supply voltage		12 to 24 VDC ±10% ripple (P-P) 10% or less		
Degree of protection		IEC standards IP40 or equivalent		
Pressure setting points		2	1	-
Operation precision		±3% F.S. max.(at Ta=25°C)		-
Hysteresis		Fixed (2% F.S. or less)	Variable (Approx. 0 to 15% F.S.)	-
Switch output		NPN open collector output 30V 80mA or less Residual voltage 0.8V or less		-
Analog output	Output voltage	-	1 to 5V	
	Zero point voltage	-	1±0.1V	
	Span voltage	-	4±0.1V	
	Output current	-	1 mA or less (load resistance 5 kΩ and over)	
	LIN/HYS	-	±0.5% F.S.max.	±0.5% F.S.max.
Display		0 to -99 kPa (2-digit red LED display)		-
Display frequency		Approx. 4 cycles/second		-
Display accuracy		±3% F.S. ±2digit		-
Resolution		1digit		-
Operation display		SW1: Red LED lights at set pressure and over	Red LED lights at set pressure and over	-
		SW2: Green LED lights at set pressure and over		
Function		1. MODE change-over switch (ME or S1 or S2)	1. MODE change-over switch (ME or SW)	-
		2. S1 set trimmer (2/3 rotation trimmer)	2. SW set trimmer (2/3 rotation trimmer)	-
		3. S2 set trimmer (2/3 rotation trimmer)	3. HYS set trimmer (Approx. 0 to 15% F.S.)	-

Vacuum break function specifications

Valve	Break air flow rate
Normally Closed	0 to 7.5 ℓ/min (ANR)
Self-hold	0.2 to 2 ℓ/min (ANR)

*1: Value at supply pressure of 0.5 MPa.
*2: Note that for self-hold, the valve response specifications cannot be met outside the above flow rate setting range.
*3: The vacuum break air flow rate will vary with the diameter and length (piping resistance, etc.) of the vacuum side piping.

Vacuum filter specifications

Item	Vacuum filter
Element material	PVF (Polyvinyl formal)
Filtration degree	10μm
Filter surface area	502 mm^2
Replacement filter element model No.	VSX-E

Compatibility table by variation

	VSX	VSXM
Port size	ø4, ø6	ø4, ø6, ø8, ø10
P4	●	▲

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭:Not applicable

*1: Applicable only for common exhaust.

How to order (discrete)

●10.5mm width, integrated vacuum ejector unit Discrete type

VSX - H 07 D - 6 6 J - 3 - DW - D - P4

Ⓐ Vacuum characteristics
Ⓑ Nozzle diameter
Ⓒ Valve
Ⓓ Vacuum port (V)
Ⓔ Air supply port (PS)
Ⓕ Exhaust port (EX)
Ⓖ Solenoid valve voltage
Ⓗ Vacuum pressure Switch specifications
Ⓘ Mounting method

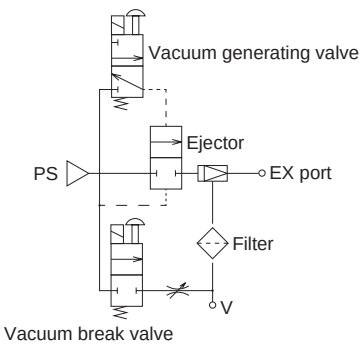
Code	Description
Ⓐ Vacuum characteristics *1	
H	High vacuum/medium flow rate
L	Medium vacuum/large flow rate
E	High vacuum/low flow rate
Ⓑ Nozzle diameter *1	
05	ø0.5
07	ø0.7
10	ø1.0
Ⓒ Valve	
B	Normally Closed
D	Self-hold
Ⓓ Vacuum port (V)	
4	ø4 push-in fitting
6	ø6 push-in fitting
Ⓔ Air supply port (PS)	
4	ø4 push-in fitting
6	ø6 push-in fitting
Ⓕ Exhaust port (EX) *1	
J	ø6 push-in fitting common exhaust
Ⓖ Solenoid valve voltage	
3	24 VDC
Ⓗ Vacuum pressure switch specifications	
Blank	Without vacuum pressure switch
DW	With digital display, NPN output 2 points
DA	With digital display, NPN output 1 point + analog output
AO	Analog output
Ⓘ Mounting method	
D	DIN rail mount
Blank	Direct mounting

⚠ Precautions for model No. selection

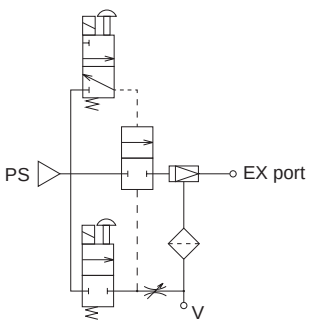
*1: With the combination of Ⓐ and Ⓑ for "L10", Ⓕ "J" cannot be selected.

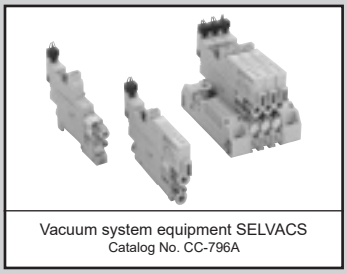
Circuit diagram

●Normally Closed



●Self-hold





Vacuum system equipment SELVACS
Catalog No. CC-796A

Vacuum switching unit which is lightweight and compact in appearance and has a high-cycle vacuum system

VSXP Series

RoHS

Specifications

Item	VSXP
Working fluid	Air
Working pressure MPa	0.3 to 0.7
Ambient/fluid temperatures °C	5 to 50
Vacuum pressure kPa	0 to -101

Solenoid valve specifications

●Pilot valve

Item	Vacuum supply valve		Vacuum break valve	
Valve and operation	Direct acting poppet valve			
Rated voltage V	24 DC	100 AC	24 DC	100 AC
Voltage fluctuation rangeV	24 DC±10%	100 AC±10%	24 DC±10%	100 AC±10%
Surge suppressor	Varistor	Bridge diode	Varistor	Bridge diode
Power consumption	1.2W (with LED)	1.5 VA (with LED)	1.2W (with LED)	1.5 VA (with LED)
Manual operation	Non-locking push type			
Operation display	At coil excitation operation: Red LED lights			
Connection	Connector: 500 mm			
	Red: 24 VDC Black: COM	Blue	Red: 24 VDC Black: COM	Blue

●Switching valve 2-way valve specifications VSXP-D

Item	Vacuum supply valve
Valve and operation	Direct acting poppet valve
Proof pressure MPa	1.05
Valve	Normally Closed
Lubrication	Not required
Effective cross-sectional area mm^2	Air supply port size ø4: 3.5 Air supply port size ø6: 4.5

●Switching valve 3-way valve specifications VSXP-T

Item	Vacuum generating valve
Valve and operation	Direct acting poppet valve
Proof pressure MPa	1.05
Valve	Normally Closed
Lubrication	Not required
Effective cross-sectional area mm^2	Vacuum supply port size ø4: 3.0 Vacuum supply port size ø6: 3.6

Vacuum pressure switch specifications

Item		With digital display		Without display
		With 2-point switch output (-DW)	With analog output (-DA)	Analog output only (-A0)
Default pressure kPa		-50 (SW1), -10 (SW2)	-50	-
Current consumption mA		40 or less		15 or less
Pressure sensitive element		Diffused semiconductor pressure switch		
Working pressure kPa		-100 to 0		
Set pressure kPa		-99 to 0		-
Proof pressureForce MPa		0.2		
Storage temperature °C		-20 to 80 (atmospheric pressure, humidity 60% RH or less)		
Operating temperature °C		0 to 50 (no freezing)		
Operating humidity		35 to 85% RH(No condensation)		
Power supply voltage V		12 to 24 DC ±10% ripple (P-P) 10% or less		
Degree of protection		IEC standards IP40 or equivalent		
Output No. of points		2	1	-
RepeatAccuracy		±3% F.S. max.(at Ta=25°C)		-
Hysteresis		Fixed (2% F.S. or less)	Variable (Approx. 0 to 15% F.S.)	-
Switch output		NPNTransistor/Open collector output 30 V 80mA or less Residual voltage 0.8V or less		-
Analog output	Output voltage V	-	1 to 5	
	Zero point voltage V	-	1±0.1	
	Span voltage V	-	4±0.1	
	Output current mA	-	1 or less (load resistance 5 kΩ or more)	
	Linearity/hysteresis	-	±0.5% F.S.max.	±0.5% F.S.max.
Display kPa		0 to -99 (2-digit red LED display)		-
Display frequency		Approx. 4 cycles/second		-
Display accuracy		±3% F.S. ±2digit		-
Resolution		1digit		-
Operation display		SW1: Red LED lights at set pressure and over	Red LED lights at set pressure and over	-
		SW2: Green LED lights at set pressure and over		
Function		1. MODE change-over switch (ME or S1 or S2)	1. MODE change-over switch (ME or SW)	-
		2. S1 set trimmer (2/3 rotation trimmer)	2. SW set trimmer (2/3 rotation trimmer)	-
		3. S2 set trimmer (2/3 rotation trimmer)	3. HYS set trimmer (Approx. 0 to 15% F.S.)	-

Vacuum break function specifications

●2-way valve specifications VSXP-D

Valve	Burst air flow rate ℓ/min (ANR)
Normally Closed	0 to 11.0

*1: Value at supply pressure of 0.5 MPa.
*2: The vacuum break air flow rate will vary with the diameter and length (piping resistance, etc.) of the vacuum side piping.

●3-way valve specifications VSXP-T

Valve	Burst air flow rate ℓ/min (ANR)
Normally Closed	0 to 7.5

*1: Value at supply pressure of 0.5 MPa.
*2: The vacuum break air flow rate will vary with the diameter and length (piping resistance, etc.) of the vacuum side piping.

Vacuum filter specifications

Item		Vacuum filter
Element material		PVF (Polyvinyl formal)
Filtration rating	μm	10
Filtration area	mm^2	502
Replacement filter element model No.		VSX-E

Compatibility table by variation

	VSXP	VSXPM
Port size	ø4, ø6	ø4, ø6, ø8, ø10
P4	●	▲

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭:Not applicable

*1: Applicable only for 2-way valve.

How to order (discrete)

●10.5mm width, integrated vacuum switching unit Discrete type

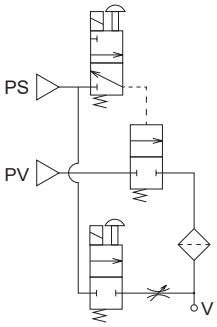
VSXP - D 6 6 6 - 4 - DW - D - P4

Ⓐ Valve
Ⓑ Vacuum port (V)
Ⓒ Air supply port (PS)
Ⓓ Vacuum supply port (PV)
Ⓔ Solenoid valve voltage
Ⓕ Vacuum pressure switch specifications
Ⓖ Mounting method

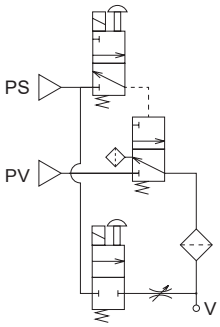
Code	Description
Ⓐ Valve	
D	2-way valve specifications
Ⓑ Vacuum port (V)	
4	ø4 push-in fitting
6	ø6 push-in fitting
Ⓒ Air supply port (PS)	
4	ø4 push-in fitting
6	ø6 push-in fitting
Ⓓ Vacuum supply port (PV)	
4	ø4 push-in fitting
6	ø6 push-in fitting
Ⓔ Solenoid valve voltage	
1	100 VAC
3	24 VDC
Ⓕ Vacuum pressure switch specifications	
Blank	Without vacuum pressure switch
DW	With digital display, NPN output 2 points
DA	With digital display, NPN output 1 point + analog output
AO	Analog output
Ⓖ Mounting method	
D	DIN rail mount
Blank	Direct mounting

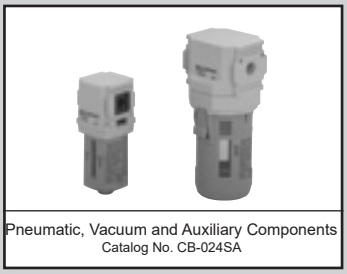
Circuit diagram

●Normally Closed 2-way valve specification



●Normally Closed 3-way valve specification





Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

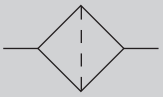
Vacuum filter

VFA1000/3000/4000 Series

Removes dust and moisture from air when absorbing air by vacuum pump or ejector.

● Port size: Rc1/8 to Rc1/2

JIS symbol



RoHS CAD

Specifications

Model No.	VFA1000		VFA3000		VFA4000	
Working pressure kPa	−100 to 0					
Proof pressure MPa	0.5					
Ambient/fluid temperatures °C	5 to 50					
Bowl capacity cm^3	10		45		80	
Port size Rc	1/8	1/4	1/4	3/8	3/8	1/2
Weight kg	0.1		0.3		0.5	
Recommended flow rate*1 ℓ/min (ANR)	60	80	100	200	250	400

*1: Flow rate applies where initial pressure loss is 3 kPa or less (at standard element used).
*2: For standard element, 40 µm of mesh (average) is used in filtration section (material: polyamide), while options include 5 µm Degree of filtration equivalent fiber (material: polypropylene).

Compatibility table by variation

	VFA1000	VFA3000	VFA4000
Port size	Rc1/8,1/4	Rc1/4,3/8	Rc3/8, 1/2
P4	●	●	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details □:Not applicable

Note:Metal bowl is not available.

How to order

VFA3000 − 8 − Y5 P4 − B

Ⓐ Model No.
Ⓑ Port size
Ⓒ Option
Ⓓ Attachment

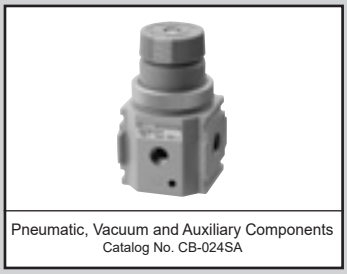
Code		Description	Ⓐ Model No. VFA1000	VFA3000	VFA4000
Ⓑ Port size					
6		Rc1/8	●		
8		Rc1/4	●	●	
10		Rc3/8		●	●
15		Rc1/2			●
Ⓒ Option					
Bowl material	Blank	Polyamide (nylon)	●	●	●
Element	Blank	40 µm Polyamide	●	●	●
	Y5	5 µm Polypropylene	●	●	●
Ⓓ Attachment					
Blank		None	●	●	●
B		C-bracket	●	●	●

Model No. of single bracket

Model No.	Bracket model No.
VFA1000	B120
VFA3000	B320
VFA4000	B420

⚠ Precautions for model No. selection

*1:Indicate options for bowl material and element in order.



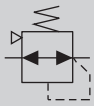
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Vacuum regulator

VRA2000 Series

● Port size:Rc1/4, Rc3/8, G1/4, G3/8, 1/4NPT, 3/8NPT

JIS symbol



RoHS CAD

Specifications

Model No.		VRA2000-8	VRA2000-10
Set pressure kPa		−100 to −1	
Ambient/fluid temperatures °C		5 to 50	
Balance leak flow rate ℓ/min (ANR)		1 *3	
Max. flow rate	ℓ/min (ANR)	200 *1	
Port size	IN/OUT	1/4	3/8
	Gauge	1/8	
Weight kg		0.29	

*1: The max. flow rate is the flow rate when the secondary side is completely closed and the primary pressure is at -101.3kPa, and then, after adjusting the secondary pressure to -100kPa, the secondary side is fully opened.
*2: Available only for port size Rc.
*3: Flow rate when primary pressure is set to -95kPa or less and secondary pressure to -45kPa while closed.

How to order

VRA2000 − 8 − P4 − B

Ⓐ Port size

Ⓑ Option (accessories)

Code	Description
Ⓐ Port size	
8	Rc1/4
10	Rc3/8
Ⓑ Option	
Blank	No
B	C-bracket
B3	L-bracket
B4	B-bracket

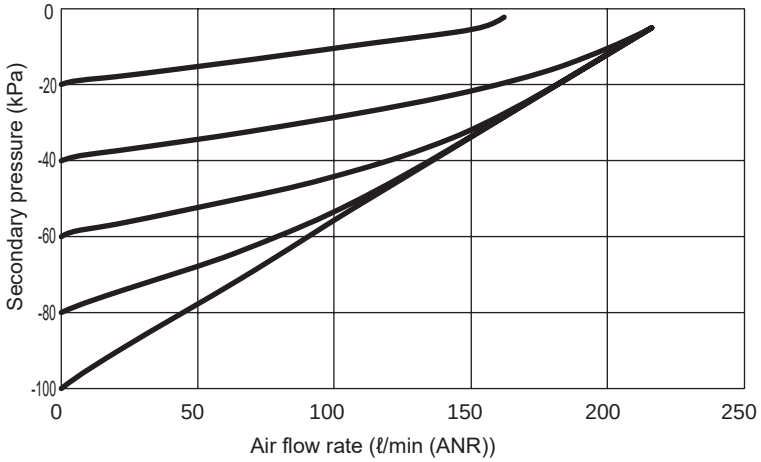
Compatibility table by variation

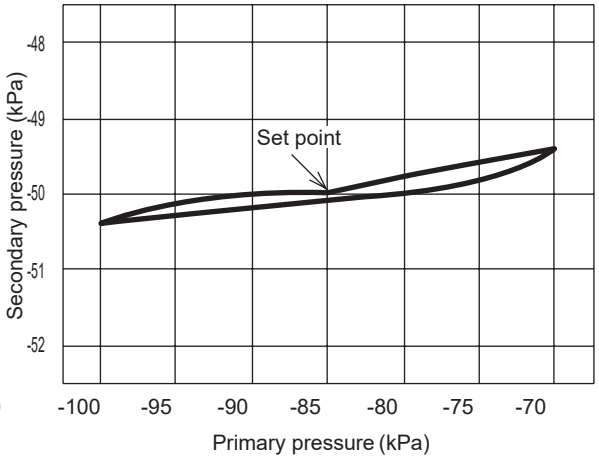
	VRA2000
Port size	Rc1/4, 3/8
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭:Not applicable

*1: Available pressure gauge is PPX only.
*2: Pressure gauge/pressure sensor must be ordered separately. (Attachment options not available.)

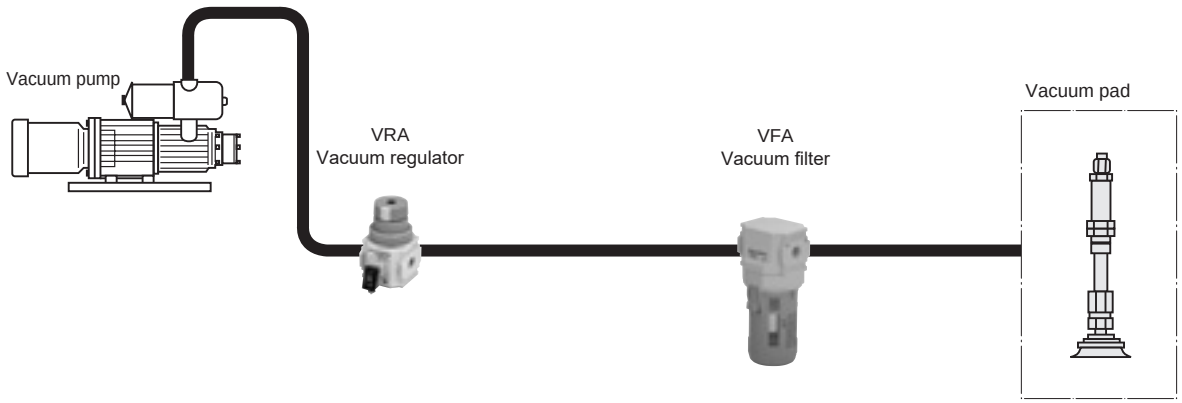
Characteristic curve

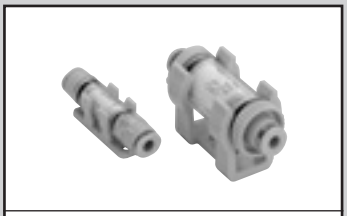




*1: The primary side vacuum pump is measured with using discharge rate 500 ℓ/min.

Applications





Vacuum system equipment SELVACS
Catalog No. CC-796A

Vacuum filter compatible with various vacuum pipes
Vacuum filter

VSFU Series

● Port size: M5, ø4, ø6, ø8, ø10, ø12

RoHS

Specifications

Item	VSFU
Working fluid	Air
Working pressure range kPa	-100 to 0
Filtration accuracy μm	10
Working ambient temperature °C	0 to 60 (no freezing)

Compatibility table by variation

	VSFU
Port size	ø4, ø6, ø8, ø10
P4	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details ▭:Not applicable

How to order

● Compact union

VSFU - 3 - 1010 - P4

Ⓐ Filter size

Ⓑ Vacuum side port size - Pad side port size

Code	Description
Ⓐ Filter size	
1S	Filtration area 2.8cm^2(Element length: 15mm)
1L	Filtration area 4.7cm^2(Element length: 25mm)
2	Filtration area 7.5cm^2
3	Filtration area 12.5cm^2
Ⓑ Vacuum side port size - Pad side port size	
44	Push-in fitting ø4 - Push-in fitting ø4
66	Push-in fitting ø6 - Push-in fitting ø6
88	ø8 push-in fitting-ø8 Push-in fitting
1010	Push-in fitting ø10 - Push-in fitting ø10
M55	M5 x 0.8 - M5 x 0.8

●Filter size - port size combination table

Port size / ModelNo.	44	66	88	1010	M55
VSFU-1S	●	●			●
VSFU-1L	●	●			●
VSFU-2	●	●			
VSFU-3		●	●	●	

● Maintenance part model No.

• Bracket

VSFU - 3 - B

Ⓐ Size

Code	Description
Ⓐ Size	
1	Filter size 1S, 1L common
2	For filter size 2
3	For filter size 3

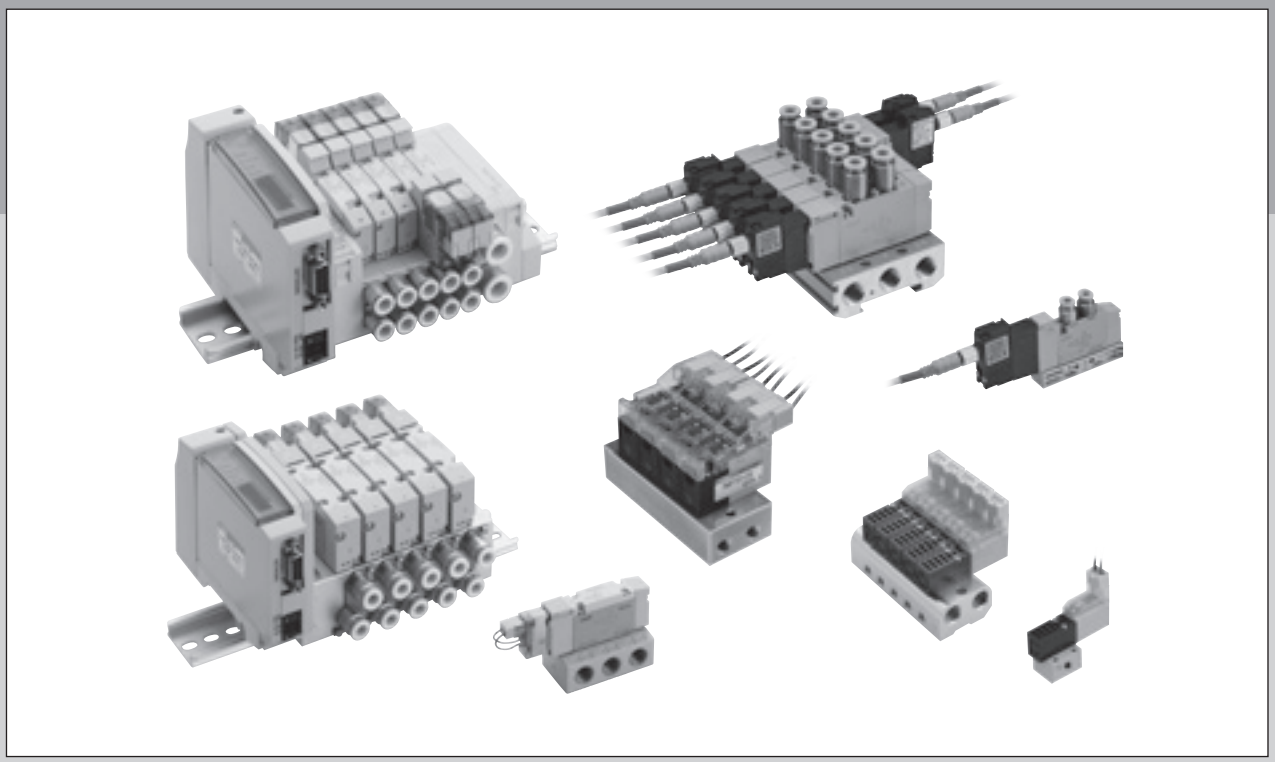
• Filter element

VSFU - 3 - E

Ⓐ Filter size

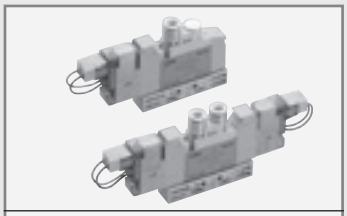
Code	Description
Ⓐ Filter size	
1S	Filtration area 2.8cm^2 (Element length: 15mm)
1L	Filtration area 4.7cm^2 (Element length: 25mm)
2	Filtration area 7.5cm^2
3	Filtration area 12.5cm^2

Pneumatic valves



CONTENTS

■ Pilot operated 3, 5-port valve (Metal base)	4GA1 to 3/4GB1 to 3	148
■ Pilot operated 3, 5-port valve (Block manifold)	MN4GA/MN4GB	206
■ Pilot operated 3, 5-port valve (Metal base)	4GA4/4GB4	246
■ Pilot operated 3, 5-port valve (Metal base)	4GD1 to 3/4GE1 to 3	278
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■ Direct acting 3-port valve	3QRA/3QRB	362
■ Direct acting 3-port valve	3PA/3PB	366
■ Intrinsically safe explosion-proof pilot operated 3, 5-port valve	4GD1 to 4/4GE1 to 4 EJ	372
■ Intrinsically safe explosion-proof pilot operated 3, 5-port valve	4GD1 to 4/4GE1 to 4 EX	388



Pneumatic Valves
Catalog No. CB-023SA

Discrete valve
Body piping

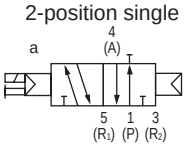
3GA1, 2, 3 /4GA1, 2, 3 Series

● Applicable cylinder bore size: ø20 to ø100

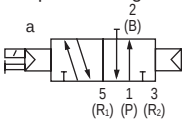
JIS symbol

● 3-port valve

2-position single NC

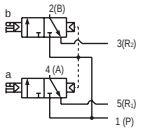


2-position single NO

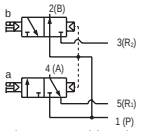


● Two 3-port valves integrated

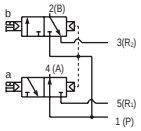
(A side valve: NC, B side valve: NC)



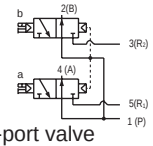
(A side valve:NC, B side valve:NO)



(A side valve: NO, B side valve: NC)

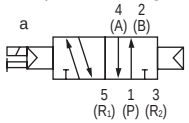


(A side valve: NO, B side valve: NO)

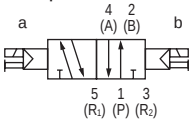


● 5-port valve

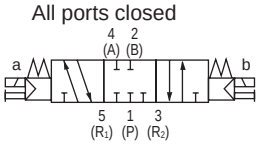
2-position single



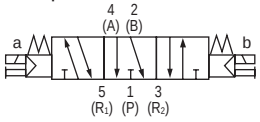
2-position double



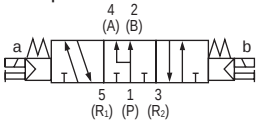
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Common specifications

Item	Description
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2
Proof pressure MPa	1.05
Ambient temperature °C	-5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common (standard)
Pilot exhaust method	Main valve/pilot valve common exhaust
Lubrication *1	Not required
Degree of protection*2	Dust-proof
Vibration resistance m/s²	50 or less
Shock resistance m/s²	300 or less
Atmosphere	Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Avoid dripping water or oil, etc., during use. IP65 (water jet proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

Electrical specifications

Item		Description					
Rated voltage V		24 DC	12 DC	5 DC	3 DC	100 AC	200 AC
Voltage fluctuation range		±10%					
Holding current (A)	Standard	0.015 (0.017)	0.030 (0.034)	0.072 (0.082)	0.120 (0.136)	0.009 (0.009)	0.006 (0.006)
(*3)	With low exoergic/energy circuit	0.005	0.010	-		-	
Power consumption W (*3)	Standard	0.35(0.40)		0.35(0.40)		-	
	With low exoergic/energy circuit	0.1		-		-	
Apparent power VA (*3) (*4)	Standard	-		-		0.93 (0.98)	1.40
Thermal class		B					
Surge suppressor		Option					
Indicator		Lamp (option)					

*3: Values in ( ) apply when lamp is included. In addition, the type with low exoergic/energy circuit is only available with lamp.

*4: 200 VAC is the value of DIN terminal box (with lamp).

Individual specifications

Port size		3GA1, 4GA1	3GA2, 4GA2	3GA3, 4GA3
Rc thread,	Port A/B	Push-in fitting ø4, ø6 M5	Push-in fitting ø4, ø6, ø8 Rc1/8	Push-in fitting ø8 Rc1/4
M5	Port P/R1/R2	M5	Rc1/8	Rc1/4
NPT thread,	Port A/B	-	NPT1/8	NPT1/4 (*5)
M5	Port P/R1/R2	-	NPT1/8	NPT1/4 (*5)
G thread	Port A/B	-	Push-in fitting ø4, ø6, ø8 G1/8	Push-in fitting ø8 G1/4
	Port P/R1/R2	-	G1/8	G1/4

*5: Available as made to order.

Performance/characteristics by model

Item			3GA1		3GA2		3GA3		4GA1		4GA2		4GA3	
			ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		9	12	12	29	-	-	-	-	-	-	-	-
	2-position	Single	12	12	19	19	25	28	12	12	19	19	25	28
		Double	-	-	-	-	-	-	9	-	18	-	24	-
	3-position	A/B/R connection	-	-	-	-	-	-	8	15	17	30	23	45

Values with lamp/surge suppressor are shown. The response times are values with working pressure of 0.5 MPa at 20°C, without lubrication. They depend on the pressure and the lubricant quality.

Weight

Item				3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
Weightg	2-position	Single	Grommet lead wire	48 (41)	104 (74)	142 (100)	48 (41)	109 (79)	151 (109)
			E-connector	50 (43)	106 (76)	144 (102)	50 (43)	111 (81)	153 (111)
			DIN terminal box	-	141 (111)	177 (135)	-	146 (116)	186 (144)
		Double	Grommet lead wire	-	-	-	65 (58)	127 (97)	174 (128)
			E-connector	-	-	-	69 (62)	131 (101)	178 (132)
			DIN terminal box	-	-	-	-	169 (139)	214 (168)
	3-position	All ports closed	Grommet lead wire	-	-	-	67 (60)	139 (109)	183 (141)
			E-connector	-	-	-	71 (64)	143 (113)	187 (145)
			DIN terminal box	-	-	-	-	181 (151)	223 (181)

- Values in ( ) do not include the pipe adaptor. Values for the E-connector include the socket assembly (with 300 mm lead wire). For the EJ-connector, add 16 g/connector to the E-connector weight.
- The weight of the two 3-port valves integrated type is the same as that of 2-position double.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
3GA1 4GA1	Two 3-port valves integrated		0.98	0.45	0.71	0.34
	2-position		1.2	0.47	0.72	0.37
	3-position	All ports closed	1.1	0.39	0.70	0.34
		A/B/R connection	1.1	0.33	0.72	0.34
		P/A/B connection	1.3	0.61	0.72	0.36
3GA2 4GA2	Two 3-port valves integrated		1.8	0.29	2.3	0.32
	2-position		2.4	0.33	2.8	0.30
	3-position	All ports closed	2.2	0.28	2.5	0.28
		A/B/R connection	2.3	0.26	2.8	0.27
		P/A/B connection	2.5	0.38	2.4	0.30
3GA3 4GA3	2-position		3.4	0.29	4.0	0.24
	3-position	All ports closed	3.1	0.27	3.4	0.28
		A/B/R connection	3.1	0.33	4.1	0.20
		P/A/B connection	3.5	0.43	3.4	0.32

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 150.

CE marking specifications

** - Voltage - **ST**

- Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

3GA1, 2, 3/4GA1, 2, 3 Series

Discrete valve; Body piping

How to order

4GA1 1 0 R - C6 - E2 [ ] - 1 - P4

3GA1 1 0 R - C6 - E2 [ ] - 1 - P4

Discrete valve for integrated base

4GA1 1 9 R - C6 - E2 H - 3 - P4

Discrete 3-port valve for base mounting

3GA1 1 9 R - C6 - E2 H - 3 - P4

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Port size

Ⓓ Electrical connections
The circuit diagram with surge suppressor/lamp is "Pneumatic Valves No.CB-023SA details.

Ⓔ Option

Ⓕ Voltage

*3
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Code	Description		Ⓐ Model No. 3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
Ⓑ Solenoid position								
1	2-position single					●	●	●
2	2-position double					●	●	●
3	3-position all ports closed					●	●	●
4	3-position ABR connection					●	●	●
5	3-position PAB connection					●	●	●
1	2-position single Normally Closed (*1)		●	●	●			
11	2-position single Normally Open (*1)		●	●	●			
66	Two 3-port valves integrated (*2)	A side valve: Normally Closed	●	●				
		B side valve: Normally Closed						
67	Two 3-port valves integrated (*2)	A side valve: Normally Closed	●	●				
		B side valve: Normally Open						
76	Two 3-port valves integrated (*2)	A side valve: Normally Open	●	●				
		B side valve: Normally Closed						
77	Two 3-port valves integrated (*2)	A side valve: Normally Open	●	●				
		B side valve: Normally Open						

Ⓒ Port size								
Port	4(A)/2(B)Port	*3	Port P/R1/R2 (1) = M5, (2) = Rc1/8, (3) = Rc1/4					
C4	ø4 push-in fitting	○	(1)	(2)		(1)	(2)	
C6	ø6 push-in fitting	○	(1)	(2)		(1)	(2)	
C8	ø8 push-in fitting	○		(2)	(3)		(2)	(3)
M5	M5	●	(1)			(1)		
06	Rc1/8	○		(2)			(2)	
08	Rc1/4	○			(3)			(3)
Port	4(A)/2(B)Port	*3	Port P/R1/R2 (1) = M5, (5) = 1/8NPT, (6) = 1/4NPT					
06 N	NPT1/8	●		(5)			(5)	
08 N	NPT1/4 (*4)	●			(6)			(6)
Port	4(A)/2(B)Port	*3	Port P/R1/R2 (8) = G1/8 (9)=G1/4					
C4G	ø4 push-in fitting	○		(8)			(8)	
C6G	ø6 push-in fitting	○		(8)			(8)	
C8G	ø8 push-in fitting	○		(8)	(9)		(8)	(9)
06G	G1/8	●		(8)			(8)	
08G	G1/4	●			(9)			(9)

Ⓓ Electrical connections

Refer to the electrical connection list on next page.

Ⓔ Option								
Blank	Non-locking/Locking common manual override		●	●	●	●	●	●
M	Non-locking manual override		●	●	●	●	●	●
H	With exhaust check valve (*5)		●	●	●	●	●	●
P	With mounting plate		●	●	●	●	●	●
A	Ozone/coolant proof		●	●	●	●	●	●
S	Surgeless (*6)		●	●	●	●	●	●
E	Low exoergic/energy saving circuit (*6), (*7)		●	●	●	●	●	●
F	Port A/B filter integrated (*8)		●	●	●	●	●	●

Ⓕ Voltage								
1	100 VAC (rectifier integrated)		●	●	●	●	●	●
2	200 VAC (rectifier integrated) (*9)			●	●		●	●
3	24 VDC		●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●

Precautions for model No. selection

*1: For the 3GA Normally Closed, the piping connection 2 (B) and 3 (R2) ports are plugged.For 3GA Normally Open type, avoid plugging the 5 (R1) port. This may cause malfunction.
*2: Dimensions are the same as the respective 2-position double solenoid.
*4: 4G3 is made to order.
***5 3-position all ports closed and PAB connection are not provided with the exhaust check valve. Refer to the exhaust check valve "Pneumatic Valves No.CB-023SA" details.**
6: E2 and E2*J connectors and 12/24 VDC only are supported. In addition, surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.
*7: Surgeless specifications.
*8: A filter is built into port P as standard.
*9: Only the DIN terminal box is supported.

is not available.
○ indicates made to order.

[Electrical connections list]

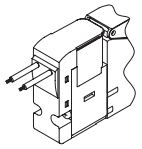
Ⓓ Electrical connections		Ⓐ Model No. 3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
Blank	Grommet Lead wire (300mm) (*10)	●	●	●	●	●	●
B	DIN terminal box (Pg7) With surge suppressor and indicator lamp(*11)(*13)		●	●		●	●
BN	DIN terminal box (Pg7) (without terminal box) With surge suppressor(*11)(*13)		●	●		●	●
E type connector (Upward/lateral common)							
E0	Lead wire (300 mm) (*12)	●	●	●	●	●	●
E00	Lead wire (500 mm) (*12)	●	●	●	●	●	●
E01	Lead wire (1000 mm) (*12)	●	●	●	●	●	●
E02	Lead wire (2000 mm) (*12)	●	●	●	●	●	●
E03	Lead wire (3000 mm) (*12)	●	●	●	●	●	●
E0N	Without lead wire(Without socket)	●	●	●	●	●	●
E1	Without lead wire(socket/terminal attached) (*12)	●	●	●	●	●	●
E2	Lead wire (300 mm) with surge suppressor/lamp	●	●	●	●	●	●
E20	Lead wire (500 mm) with surge suppressor/lamp	●	●	●	●	●	●
E21	Lead wire (1000 mm) with surge suppressor/lamp	●	●	●	●	●	●
E22	Lead wire (2000 mm) with surge suppressor/lamp	●	●	●	●	●	●
E23	Lead wire (3000 mm) with surge suppressor/lamp	●	●	●	●	●	●
E2N	Without lead wire (without socket) with surge suppressor/lamp	●	●	●	●	●	●
E3	Without lead wire (socket/terminal attached) with surge suppressor/lamp	●	●	●	●	●	●
EJ type connector (Socket with cover, upward/lateral common)							
E01J	Lead wire (1000 mm) (*12)	●	●	●	●	●	●
E02J	Lead wire (2000 mm) (*12)	●	●	●	●	●	●
E03J	Lead wire (3000 mm) (*12)	●	●	●	●	●	●
E21J	Lead wire (1000 mm) with surge suppressor/lamp	●	●	●	●	●	●
E22J	Lead wire (2000 mm) with surge suppressor/lamp	●	●	●	●	●	●
E23J	Lead wire (3000 mm) with surge suppressor/lamp	●	●	●	●	●	●

*10: The grommet lead wire specifications are compatible with DC voltage only.
*11: AC voltages and 12/24 VDC are supported. In addition, a lamp comes with the terminal box.
*12: AC voltage is with a rectifier circuit.
*13 The terminal box conforms to EN175301-803Type C (former DIN 43650-C). For details, "Pneumatic Valves No.CB-023SA" details.

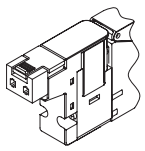
Electrical connections

Blank Grommet lead wire

● **Lead wire length**
300 mm

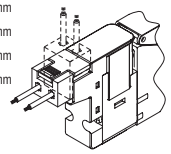


E1 E3 E-connector with socket/terminal

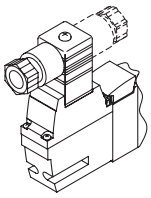


E0 E2 E-connector

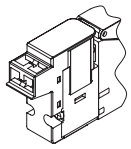
● **Lead wire length**
300 mm
500 mm
1000 mm
2000 mm
3000 mm



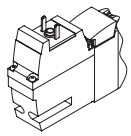
B DIN terminal box



E0N E2N E-connector without socket

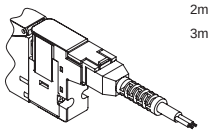


BN DIN terminal box Without terminal box



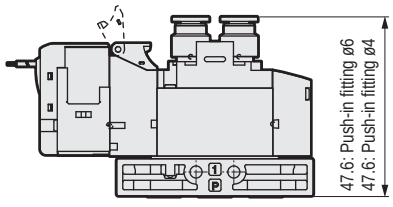
E0*J E2*J EJ type connector

● **Lead wire length**
1m
2m
3m

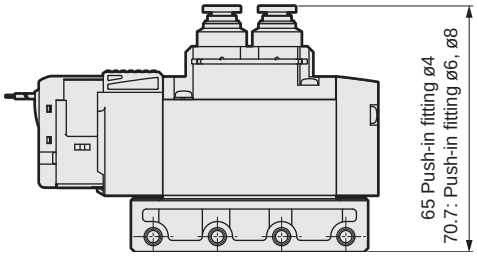


Dimensions

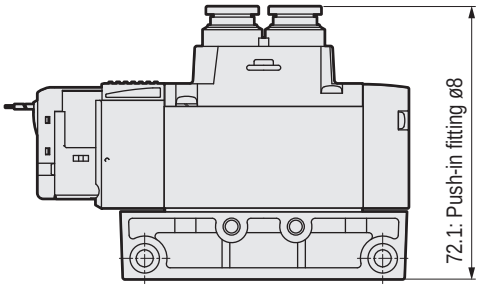
● 4GA1-P4



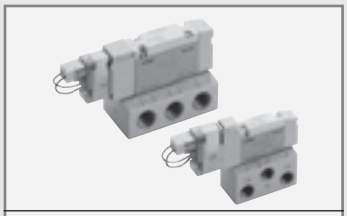
● 4GA2-P4



● 4GA3-P4



*Fitting dimensions of P4 Series are different from the standard when mounted. For other dimensions, refer to the 4GA1 to 3 Series in "Pneumatic Valves (No. CB-023SA)".



Pneumatic Valves
Catalog No. CB-023SA

Discrete valve
Base piping

3GB1, 2/4GB1, 2, 3 Series

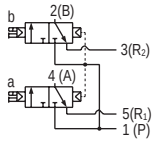
● Applicable cylinder bore size: ø20 to ø100

P4 specifications as standard

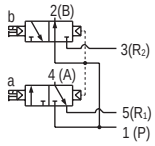
JIS symbol

● Two 3-port valves integrated

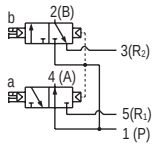
(A side valve: NC, B side valve: NC)



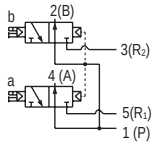
(A side valve: NC, B side valve: NO)



(A side valve: NO, B side valve: NC)

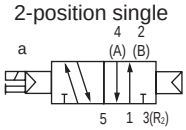


(A side valve: NO, B side valve: NO)

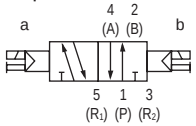


● 5-port valve

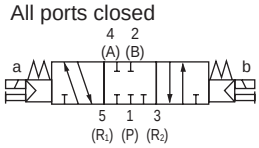
2-position single



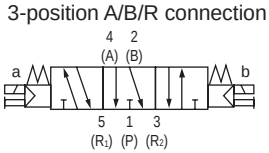
2-position double



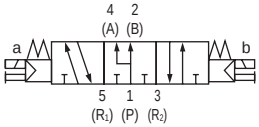
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Common specifications

Item		Description
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2 (*3)
Proof pressure MPa		1.05
Ambient temperature °C		-5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		NNlock/lock common (standard)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust
	External pilot	Main valve/pilot valve individual exhaust
Lubrication (*1)		Not required
Degree of protection (*2)		Dust-proof
Vibration resistance m/s²		50 or less
Shock resistance m/s²		300 or less
Atmosphere		Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Avoid dripping water or oil, etc., during use.
IP65 (water jet proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

*3 The working pressure range is 0 to 0.7 MPa when the external pilot (option code: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.

Electrical specifications

Item		Description					
Rated voltage V		24 DC	12 DC	5 DC	3 DC	100 AC	200 AC
Voltage fluctuation range		±10%					
Holding current (A) (*4)	Standard	0.015 (0.017)	0.030 (0.034)	0.072 (0.082)	0.120 (0.136)	0.009 (0.009)	0.006 (0.006)
	With low exoergic/ energy circuit	0.005	0.010	-		-	
Power consumption W (*4)	Standard	0.35(0.40)		0.35(0.40)		-	
	With low exoergic/ energy circuit	0.1		-		-	
Apparent power VA (*4) (*5)	Standard	-		-		0.93 (0.98)	1.40
Thermal class		B					
Surge suppressor		Option					
Indicator		Lamp (option)					

*4: Values in ( ) apply when lamp is included. In addition, the type with low exoergic/energy circuit is only available with lamp.

*5: 200 VAC is the value of DIN terminal box with lamp.

Individual specifications

Port size		3GB1, 4GB1	3GB2, 4GB2	4GB3
Rc thread	Port A/B	Rc1/8	Rc1/4	Rc1/4, Rc3/8
	Port P/R1/R2	Rc1/8	Rc1/4	Rc1/4, Rc3/8
NPT thread (*5)	Port A/B	NPT1/8	NPT1/4	NPT1/4, NPT3/8
	Port P/R1/R2	NPT1/8	NPT1/4	NPT1/4, NPT3/8
G thread (*5)	Port A/B	G1/8	G1/4	G1/4, G3/8
	Port P/R1/R2	G1/8	G1/4	G1/4, G3/8

*5: Available as made to order.

Performance/characteristics by model

Item			3GB1/4GB1		3GB2/4GB2		4GB3	
			ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		9	12	12	29	-	-
	2-position	Single	12	12	19	19	25	28
		Double	9	-	18	-	24	-
	3-position	A/B/R connection	8	15	17	30	23	45

Values with a lamp/surge suppressor are shown. The response times are values with working pressure of 0.5 MPa at 20°C, without lubrication. They depend on the pressure and the lubricant quality.

Weight

Item				3GB1/4GB1	3GB2/4GB2	4GB3
Weight g	2-position	Single	Grommet lead wire	80 (38)	156 (74)	215 (96)
			E-connector	82 (40)	158 (76)	217 (98)
			DIN terminal box	-	193 (111)	249 (130)
		Double	Grommet lead wire	97 (55)	173 (91)	233 (114)
			E-connector	101 (59)	177 (95)	237 (118)
			DIN terminal box	-	216 (134)	273 (154)
	3-position	All ports closed	Grommet lead wire	98 (56)	184 (102)	242 (123)
			E-connector	102 (60)	188 (106)	246 (127)
			DIN terminal box	-	227 (145)	282 (163)

• Values in ( ) do not include the single sub-plate. Values for the E-connector include the socket assembly (with 300 mm lead wire). For the EJ-connector, add 16 g/connector to the E-connector weight.
• The weight of the two 3-port valves integrated type is the same as that of 2-position double.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B → R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
3GB1 4GB1	Two 3-port valves integrated		0.92	0.08	1.1	0.26
	2-position		1.3	0.27	1.2	0.22
	3-position	All ports closed	1.1	0.31	1.1	0.27
		A/B/R connection	1.1	0.31	1.3	0.29
		P/A/B connection	1.4	0.30	1.1	0.26
3GB2 4GB2	Two 3-port valves integrated		1.7	0.42	2.1	0.26
	2-position		2.6	0.20	2.6	0.19
	3-position	All ports closed	2.3	0.32	2.2	0.22
		A/B/R connection	2.2	0.23	2.6	0.16
		P/A/B connection	2.4	0.10	2.4	0.22
4GB3	2-position		4.3	0.24	4.2	0.24
	3-position	All ports closed	3.3	0.40	3.4	0.27
		A/B/R connection	3.3	0.36	4.2	0.18
		P/A/B connection	4.5	0.28	3.4	0.30

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 154.

CE marking specifications

** - Voltage - **ST**

• Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

3GB1, 2/4GB1, 2, 3 Series

Discrete valve; Base piping

How to order

4GB1 1 0 R - 06 - E2 - 3

3GB1 66 0 R - 06 - E2 - 3

Discrete valve for integrated base

4GB1 1 9 R - 00 - E2 H - 3

3-port discrete valve for integrated base

3GB1 66 9 R - 00 - E2 H - 3

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

Ⓓ Electrical connections
Circuit diagram with surge suppressor/lampis"Pneumatic Valves No.CB-023S"details.

Ⓔ Option

Ⓕ Voltage

P4 as standard Specifications

Code	Description		Ⓐ Model No. 3GB1	3GB2	4GB1	4GB2	4GB3
Ⓑ Solenoid position							
1	2-position single				●	●	●
2	2-position double				●	●	●
3	3-position all ports closed				●	●	●
4	3-position ABR connection				●	●	●
5	3-position PAB connection				●	●	●
66	Two 3-port valves integrated (*1)	A side valve:Normally Closed B side valve:Normally Closed	●	●			
67	Two 3-port valves integrated (*1)	A side valve:Normally Closed B side valve:Normally Open	●	●			
76	Two 3-port valves integrated (*1)	A side valve:Normally Open B side valve:Normally Closed	●	●			
77	Two 3-port valves integrated (*1)	A side valve:Normally Open B side valve:Normally Open	●	●			
Ⓒ Port size							
Port	4(A)/2(B) port	P/R1 /Port R2 (2) = Rc1/8 (3) = Rc1/4 (4) =Rc3/8					
06	Rc1/8		(2)		(2)		
08	Rc1/4			(3)		(3)	(3)
10	Rc3/8						(4)
Port	4(A)/2(B) port	P/R1 /Port R2 (5) = 1/8NPT, (6) = 1/4NPT, (7) = 3/8NPT					
06 N	NPT1/8 (*2)		(5)		(5)		
08 N	NPT1/4 (*2)			(6)		(6)	(6)
10 N	NPT3/8 (*2)						(7)
Port	4(A)/2(B) port	P/R1 /Port R2 (8) = G1/8, (9) = G1/4 (10)=G3/8					
06G	G1/8 (*2)		(8)		(8)		
08G	G1/4 (*2)			(9)		(9)	(9)
10G	G3/8 (*2)						(10)
00	Discrete valve for integrated base		●	●	●	●	●
Ⓓ Electrical connections							
Blank	Grommet lead wire (300 mm) (*8)		●	●	●	●	●
B	DIN terminal box (Pg 7) With surge suppressor/lamp (*9) (*11)			●		●	●
BN	DIN terminal box (Pg7) (without terminal box) With surge suppressor (*9) (*11)			●		●	●
E-connector (upward/lateral common)							
E0	Lead wire (300 mm) (*10)		●	●	●	●	●
E00	Lead wire (500 mm) (*10)		●	●	●	●	●
E01	Lead wire (1000 mm) (*10)		●	●	●	●	●
E02	Lead wire (2000 mm) (*10)		●	●	●	●	●
E03	Lead wire (3000 mm) (*10)		●	●	●	●	●
E0N	Without lead wire (without socket)(*10)		●	●	●	●	●
E1	Without lead wire (socket/terminal attached)(*10)		●	●	●	●	●
E2	Lead wire (300 mm) With surge suppressor and indicator lamp		●	●	●	●	●
E20	Lead wire (500 mm) With surge suppressor and indicator lamp		●	●	●	●	●
E21	Lead wire (1000 mm)With surge suppressor and indicator lamp		●	●	●	●	●
E22	Lead wire (2000 mm)With surge suppressor and indicator lamp		●	●	●	●	●
E23	Lead wire (3000 mm)With surge suppressor and indicator lamp		●	●	●	●	●
E2N	Without lead wire (without socket)With surge suppressor and indicator lamp		●	●	●	●	●
E3	Without lead wire (socket/terminal attached) With surge suppressor and indicator lamp		●	●	●	●	●
EJ-connector (socket with cover, upward/lateral common)							
E01J	Lead wire (1000 mm) (*10)		●	●	●	●	●
E02J	Lead wire (2000 mm) (*10)		●	●	●	●	●
E03J	Lead wire (3000 mm) (*10)		●	●	●	●	●
E21J	Lead wire (1000 mm)With surge suppressor and indicator lamp		●	●	●	●	●
E22J	Lead wire (2000 mm)With surge suppressor and indicator lamp		●	●	●	●	●
E23J	Lead wire (3000 mm)With surge suppressor and indicator lamp		●	●	●	●	●
Ⓔ Option							
Blank	Manual override of non-locking/locking common		●	●	●	●	●
M	Non-locking manual override		●	●	●	●	●
H	With exhaust check valve (*3)		●	●	●	●	●
K	External pilot				●	●	●
A	Ozone/coolant proof		●	●	●	●	●
S	Surgeless (*4)		●	●	●	●	●
E	Low exoergic/energy saving circuit(*4), (*5)		●	●	●	●	●
F	Port A/B filter built in (*6)		●	●	●	●	●
X	Non-locking residual pressure exhaust structure (*12)				●	●	
X1	Locking residual pressure exhaust structure (*12)				●	●	
Ⓕ Voltage							
1	100 VAC (rectifier integrated)		●	●	●	●	●
2	200 VAC (rectifier integrated) (*7)			●		●	●
3	24 VDC		●	●	●	●	●
4	12 VDC		●	●	●	●	●
7	3 VDC		○	○	○	○	○
8	5 VDC		○	○	○	○	○

Precautions for model No. selection

*1: Not compatible when combined with external pilot (K). Dimensions are the same as those of the respective 2-position double solenoid.
*2: Made to order.
***3 3-position all ports closed and PAB connection are not provided with the exhaust check valve. Refer to the exhaust check valve"Pneumatic Valves No.CB-023SA"details.**
4: E2 type and E2:J type connectors are only compatible with 12/24 VDC. In addition, surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.
*5: Surgeless specifications.
*6: A filter is built into port P as standard.
*7: Only the DIN terminal box is supported.
*8: The grommet lead wire specifications are compatible with DC voltage only.
*9: AC voltage and 12/24 VDC are supported. In addition, a lamp comes with the terminal box.
*10: AC voltage is with a rectifier circuit.
*11: The terminal box conforms to EN175301-803Type C (former DIN 43650-C). Refer to "Pneumatic Valves No.CB-023SA" for details.
*12: Only 4GB1 and 4GB2 Ⓡ solenoid position "3" or "4" are supported.

is not available.
○ indicates made to order.

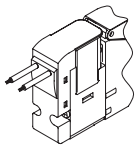
Electrical connections

Discrete valve/individual wiring manifold

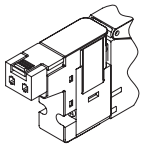
Blank Grommet lead wire

● **Lead wire length**

300 mm



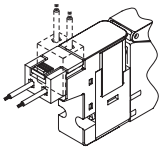
E1 E3 E-connector with socket/terminal



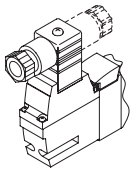
E0 E2 E-connector

● **Lead wire length**

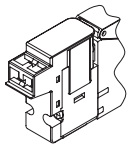
300 mm
500 mm
1000 mm
2000 mm
3000 mm



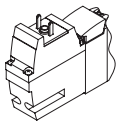
B DIN terminal box



E0N E2N E-connector without socket



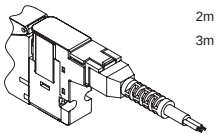
BN DIN terminal box Without terminal box

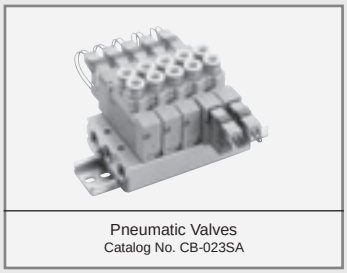


E0*J E2*J EJ type connector

● **Lead wire length**

1m
2m
3m





Pneumatic Valves
Catalog No. CB-023SA

Individual wiring manifold
Body piping
Direct mount/DIN rail mount

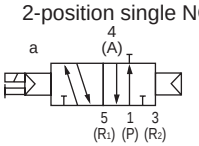
M3GA1, 2, 3 -(D) /M4GA1, 2, 3 -(D) Series

● Applicable cylinder bore size: ø20 to ø100

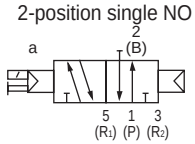
JIS symbol

● 3-port valve

2-position single NC

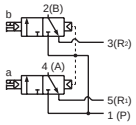


2-position single NO

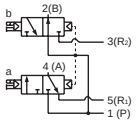


● Two 3-port valves integrated

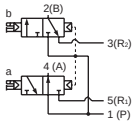
(A side valve: NC, B side valve: NC)



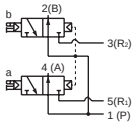
(A side valve: NC, B side valve: NO)



(A side valve: NO, B side valve: NC)

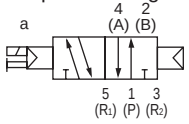


(A side valve: NO, B side valve: NO)

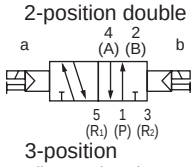


● 5-port valve

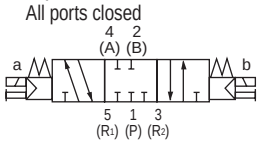
2-position single



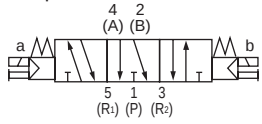
2-position double



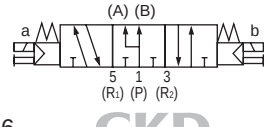
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item		Description
Manifold		Integrated base
Mounting method		Direct mount/DIN rail mount
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
	External pilot	Main valve/pilot valve individual exhaust
Piping direction		Valve top direction
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2(*3)
Proof pressure MPa		1.05
Ambient temperature °C		-5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common (standard)
Lubrication (*1)		Not required
Degree of protection (*2)		Dust-proof
ResistanceVibration m/s^2		50 or less
ResistanceImpact m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2 Avoid dripping water or oil, etc., during use. IP65 (water jet proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.
*3 The working pressure range is 0 to 0.7 MPa when the external pilot (option code: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.

Electrical specifications

Item		Description					
No.status Voltage V		24 DC	12 DC	5 DC	3 DC	100 AC	200 AC
Voltage fluctuation range		±10%					
Holding current A (*4)	Standard	0.015 (0.017)	0.030 (0.034)	0.072 (0.082)	0.120 (0.136)	0.009 (0.009)	0.006 (0.006)
	Low exoergic/energy circuit	0.005	0.010	-		-	
Power consumptionr W (*4)	Standard	0.35 (0.40)		0.35 (0.40)		-	
	Low exoergic/energy circuit	0.1		-		-	
Apparent power VA (*4)(*5)	Standard	-		-		0.93 (0.98)	1.40
Resistancethermal class		B					
Surge suppressor		Option					
Indicator		Lamp (option)					

*4: Values in ( ) apply when lamp is included. In addition, the type with low exoergic/energy circuit is only available with lamp.
*5: 200 VAC is the value of DIN terminal box (with lamp).

Individual specifications

Item			M3GA1/M4GA1		M3GA2/M4GA2		M3GA3/M4GA3	
			Direct mount	DIN rail mount	Direct mount	DIN rail mount	Direct mount	DIN rail mount
Max. station No.		Standard (Internal pilot)	20 stations	16 stations	20 stations	16 stations	20 stations	16 stations
		External pilot	12 stations	12 stations				
Port size	Rc thread, M5	Port A/B	Push-in fitting ø4, ø6 M5		Push-in fitting ø4, ø6, ø8 Rc1/8		Push-in fitting ø8 Rc1/4	
		Port P/R1/R2	Rc1/8		Rc1/4		Rc3/8	
	NPT thread, M5	Port A/B	M5		NPT1/8		NPT1/4 (*6)	
		Port P/R1/R2	NPT1/8		NPT1/4		NPT3/8 (*6)	
	G thread, M5	Port A/B	Push-in fitting ø4, ø6 M5		Push-in fitting ø4, ø6, ø8 G1/8		Push-in fitting ø8 G1/4	
		Port P/R1/R2	G1/8		G1/4		G3/8	
Manifold base Weight calculation formula (n: station No.) g		Standard	23n+52	25n+60	47n+64	49n+92	74n+88	76n+117
		External pilot	36n+105	38n+113	88n+135	90n+163	136n+194	138n+223

*6: Available as made to order.

Cautions for mounting the DIN rail "Pneumatic Valves No.CB-023SA" before selection.
For 10 or more manifold station No. (5 stations for 4G3), use ports on both sides for air supply and exhaust. The manifold base weight is the value for screw specifications.

Performance/characteristics by model

Item			M3GA1		M3GA2		M3GA3		M4GA1		M4GA2		M4GA3	
			ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		9	12	12	29	-	-	-	-	-	-	-	-
	2-position	Single	12	12	19	19	25	28	12	12	19	19	25	28
		Double	-	-	-	-	-	-	9	-	18	-	24	-
	3-position	A/B/R connection	-	-	-	-	-	-	8	15	17	30	23	45

Values with lamp/surge suppressor are shown. The response times are values with working pressure of 0.5 MPa at 20°C, without lubrication. They depend on the pressure and the lubricant quality.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B → R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
M3GA1 M4GA1	Two 3-port valves integrated		0.86	0.31	1.1 (0.66)	0.19 (0.22)
	2-position		0.99	0.20	1.2 (0.70)	0.20 (0.12)
	3-position	All ports closed	0.94	0.23	1.1 -	0.20 -
		A/B/R connection	0.93	0.18	1.3 (0.70)	0.23 (0.02)
		P/A/B connection	1.1	0.28	1.1 -	0.23 -
M3GA2 M4GA2	Two 3-port valves integrated		1.7	0.40	2.3 (1.7)	0.29 (0.32)
	2-position		2.3	0.36	2.9 (1.7)	0.24 (0.33)
	3-position	All ports closed	2.1	0.35	2.5 -	0.32 -
		A/B/R connection	2.2	0.37	2.9 (1.8)	0.32 (0.29)
		P/A/B connection	2.4	0.34	2.5 -	0.33 -
M3GA3 M4GA3	2-position		3.2	0.37	3.8 (2.5)	0.13 (0.28)
	3-position	All ports closed	2.9	0.35	3.3 -	0.35 -
		A/B/R connection	3.0	0.34	3.8 (2.6)	0.12 (0.27)
		P/A/B connection	3.3	0.30	3.3 -	0.32 -

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 154.

CE marking specifications

** - Voltage - **ST**

• Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

M4GA1/2/3 Series

Individual wiring manifold; Body piping

How to order

Manifold model No.

M 4GA1 1 0R - C6 - E2 H D - ○ - 3 - P4

3-port manifold model No.

M 3GA1 1 0R - C6 - E2 H D - ○ - 3 - P4

● Single valve for mounting base

4GA1 1 9R - C6 - E2 H — 3 - P4

● 3-port discrete valve for mounting base

3GA1 1 9R - C6 - E2 H — 3 - P4

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

*3
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓓ Electrical connections

Ⓔ Option

Ⓕ Mount type

Ⓖ Station No.

Ⓗ Voltage

* Be sure to fill in the "Manifold specifications sheet" (pages 190 to 192).

Code	Description		Ⓐ Model No. 3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
Ⓑ Solenoid position								
1	2-position single					●	●	●
2	2-position double					●	●	●
3	3-position all ports closed					●	●	●
4	3-position ABR connection					●	●	●
5	3-position PAB connection					●	●	●
1	2-position single Normally Closed	(*1)	●	●	●			
11	2-position single Normally Open	(*1)	●	●	●			
66	3-port valve Two valves integrated (*1) (*2)	A valve side: Normally Closed B valve side: Normally Closed	●	●				
67		A valve side: Normally Closed B valve side: Normally Open	●	●				
76		A valve side: Normally Open B valve side: Normally Closed	●	●				
77		A valve side: Normally Open B valve side: Normally Open	●	●				
8	Mix manifold (when there are multiple solenoid positions)		●	●	●	●	●	●

Ⓒ Port size								
Port	4(A)/2(B)Port	*3	Port P/R1/R2 (2) = Rc1/8 (3) = Rc1/4 (4) =Rc3/8					
C4	ø4 push-in fitting	○	②	③		②	③	
C6	ø6 push-in fitting	○	②	③		②	③	
C8	ø8 push-in fitting	○		③	④		③	④
CX	Push-in fitting mix (*4)	○	②	③	④	②	③	④
M5	M5	●	②			②		
06	Rc1/8	○		③			③	
08	Rc1/4	○			④			④
Port	4(A)/2(B)Port	*3	Port P/R1/R2 (5) = 1/8NPT, (6) = 1/4NPT, (7) = 3/8NPT					
M5N	M5	●	⑤			⑤		
06 N	NPT1/8	●		⑥			⑥	
08 N	NPT1/4 (*5)	●			⑦			⑦
Port	4(A)/2(B)Port	*3	Port P/R1/R2 (8) = G1/8, (9) = G1/4 (10)=G3/8					
C4G	ø4 push-in fitting	○	⑧	⑨		⑧	⑨	
C6G	ø6 push-in fitting	○	⑧	⑨		⑧	⑨	
C8G	ø8 push-in fitting	○		⑨	⑩		⑨	⑩
CXG	Push-in fitting mix (*4)	○	⑧	⑨	⑩	⑧	⑨	⑩
M5G	M5	●	⑧			⑧		
06G	G1/8	●		⑨			⑨	
08G	G1/4	●			⑩			⑩

Precautions for model No. selection

*1: M4GA*80R when using a mixture of 3, 5-port valves. Furthermore, select M3GA*80R when mixing with masking plate.
*2: Not compatible with combination with external pilot (K). Dimensions are the same as those of the respective 2-position double solenoid.
*4: The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.
*5: Made to order.

		Ⓐ Model No.					
		3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
Ⓓ Electrical connections							
Blank	Grommet Lead wire (300mm) (*13)	●	●	●	●	●	●
B	DIN terminalBox(Pg7) With surge suppressor/lamp (*14)(*16)		●	●		●	●
BN	DIN terminalBox(Pg7)(without terminal box)With surge suppressor (*14)(*16)		●	●		●	●
E type connector (Upward/lateral common)							
E0	Lead wire (300mm) (*15)	●	●	●	●	●	●
E00	Lead wire (500mm) (*15)	●	●	●	●	●	●
E01	Lead wire (1000mm) (*15)	●	●	●	●	●	●
E02	Lead wire (2000mm) (*15)	●	●	●	●	●	●
E03	Lead wire (3000mm) (*15)	●	●	●	●	●	●
E0N	Lead wireand (without socket) (*15)	●	●	●	●	●	●
E1	Lead wireand (socket/terminal attached) (*15)	●	●	●	●	●	●
E2	Lead wire (300 mm) With surge suppressor and indicator lamp	●	●	●	●	●	●
E20	Lead wire (500 mm) With surge suppressor and indicator lamp	●	●	●	●	●	●
E21	Lead wire (1000 mm)With surge suppressor and indicator lamp	●	●	●	●	●	●
E22	Lead wire (2000 mm)With surge suppressor and indicator lamp	●	●	●	●	●	●
E23	Lead wire (3000 mm)With surge suppressor and indicator lamp	●	●	●	●	●	●
E2N	Lead wireand (Without socket)With surge suppressor and indicator lamp	●	●	●	●	●	●
E3	Lead wireand (socket/terminal attached)With surge suppressor and indicator lamp	●	●	●	●	●	●
EJ type connector (Socket with cover, upward/lateral common)							
E01J	Lead wire (1000mm) (*15)	●	●	●	●	●	●
E02J	Lead wire (2000mm) (*15)	●	●	●	●	●	●
E03J	Lead wire (3000mm) (*15)	●	●	●	●	●	●
E21J	Lead wire (1000 mm)With surge suppressor and indicator lamp	●	●	●	●	●	●
E22J	Lead wire (2000 mm)With surge suppressor and indicator lamp	●	●	●	●	●	●
E23J	Lead wire (3000 mm)With surge suppressor and indicator lamp	●	●	●	●	●	●
Ⓔ Option							
Blank	Manual override of non-locking/locking common	●	●	●	●	●	●
M	Non-locking manual override	●	●	●	●	●	●
H	With exhaust check valve (*6)	●	●	●	●	●	●
K	External pilot (*7)	●	●	●	●	●	●
A	Ozone/coolant proof	●	●	●	●	●	●
S	Surgeless (*8)	●	●	●	●	●	●
E	Low exoergic/energy circuit (*8) (*9)	●	●	●	●	●	●
F	Port A/B filter built in (*10)	●	●	●	●	●	●
Z1	Air supply spacer (*11)	●	●	●	●	●	●
Z3	Exhaust spacer (*11)	●	●	●	●	●	●
Ⓕ Mount type							
Blank	Direct mount	●	●	●	●	●	●
D	DIN rail mount	●	●	●	●	●	●
Ⓖ Station No.							
2	2 stations	●	●	●	●	●	●
to	to						
20	Refer to page 156 for the max. station number per model.						
Ⓗ Voltage							
1	100 VAC (rectifier integrated)	●	●	●	●	●	●
2	200 VAC (Rectifier circuit integrated) (*12)		●	●		●	●
3	24 VDC	●	●	●	●	●	●
4	12 VDC	●	●	●	●	●	●
7	3 VDC	○	○	○	○	○	○
8	5 VDC	○	○	○	○	○	○

is not available.

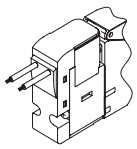
○ indicates made to order.

Electrical connections

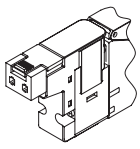
Discrete valve/individual wiring manifold

Blank Grommet lead wire

● **Lead wire length**
300 mm

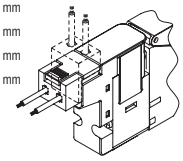


E1 E3 E-connector with socket/terminal

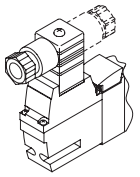


E0 E2 E-connector

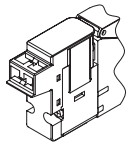
● **Lead wire length**
300 mm
500 mm
1000 mm
2000 mm
3000 mm



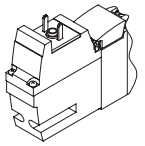
B DIN terminal box



E0N E2N E-connector without socket

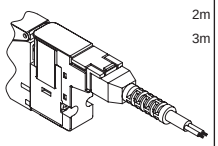


BN DIN terminal box (without terminal box)



E0*J E2*J EJ type connector

● **Lead wire length**
1m
2m
3m



*6 **The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**

*7 Consult with CKD when using a vacuum with the external pilot (K).

8 E2 type and E2*J type connectors support 12/24 VDC only. In addition, surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.

*9 Surgeless specifications.

*10 A filter is built into port P as standard.

*11 **Specify the spacer mounting position/quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 176 to 177 for details.**

*12 DIN terminal box only is supported.

*13 The grommet lead wire specifications are compatible with DC voltage only.

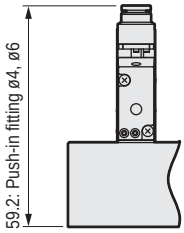
*14 AC voltages and 12/24 VDC are supported. In addition, a lamp comes with the terminal box.

*15 AC voltage is with a rectifier circuit.

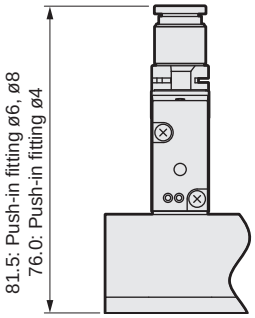
*16 The terminal box conforms to EN175301-803Type C (former DIN 43650-C). Refer to "Pneumatic Valves No.CB-023SA" for details.

Dimensions

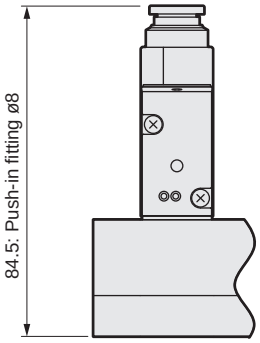
● M4GA1-P4



● M4GA2-P4

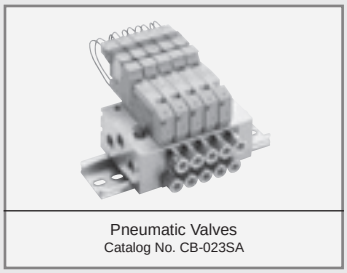


● M4GA3-P4



*Fitting dimensions of P4 Series are different from the standard when mounted. For other dimensions, refer to the M4GA1 to 3 Series in "Pneumatic Valves (No. CB-023SA)".

MEMO



Pneumatic Valves
Catalog No. CB-023SA

Individual wiring manifold
Base piping
Direct mount/DIN rail mount

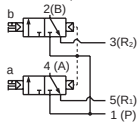
M3GB1, 2/M4GB1, 2, 3-(D) Series

● Applicable cylinder bore size: ø20 to ø100

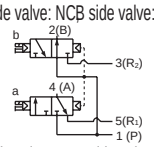
JIS symbol

● Two 3-port valves integrated

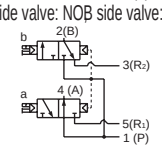
(A side valve: NCB side valve: NC)



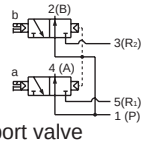
(A side valve: NCB side valve: NO)



(A side valve: NOB side valve: NC)

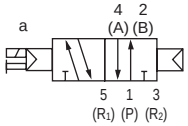


(A side valve: NOB side valve: NO)

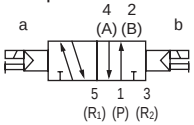


● 5-port valve

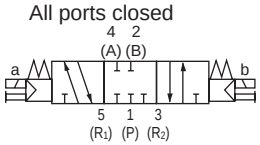
2-position single



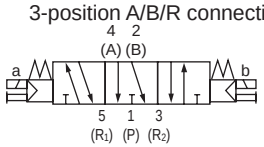
2-position double



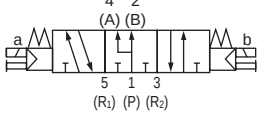
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item		Description
Manifold		Integrated base
Mounting method		Direct mount/DIN rail mount
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
	External pilot	Main valve/pilot valve individual exhaust
Piping direction		Side direction of base
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2 (*3)
Proof pressure MPa		1.05
Ambient temperature °C		−5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common (standard)
Lubrication (*1)		Not required
Degree of protection (*2)		Dust-proof
Vibration resistance m/s^2		50 or less
Shock resistance m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Avoid dripping water or oil, etc., during use. IP65 (water jet proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

*3 The working pressure range is 0 to 0.7 MPa when the external pilot (option code: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.

Electrical specifications

Item		Description					
No.status Voltage V		24 DC	12 DC	5 DC	3 DC	100 AC	200 AC
Voltage fluctuation range		±10%					
Holding current A (*4)	Standard	0.015 (0.017)	0.030 (0.034)	0.072 (0.082)	0.120 (0.136)	0.009 (0.009)	0.006 (0.006)
	With low exoergic/energy circuit	0.005	0.010	-		-	
Power consumption W (*4)	Standard	0.35 (0.40)		0.35 (0.40)		-	
	With low exoergic/energy circuit	0.1		-		-	
Apparent power VA (*4)(*5)	Standard	-		-		0.93 (0.98)	1.40
Resistancethermal class		B					
Surge suppressor		Option					
Indicator		Lamp (option)					

*4: Values in ( ) apply when lamp is included. In addition, the type with low exoergic/energy circuit is only available with lamp.
*5: 200 VAC is the value of DIN terminal box (with lamp).

Individual specifications

Item			M3GB1/M4GB1		M3GB2/M4GB2		M4GB3	
			Direct mount	DIN rail mount	Direct mount	DIN rail mount	Direct mount	DIN railLe Mount
Max. station No.		Standard (Internal pilot)	20 stations	16 stations	20 stations	16 stations	20 stations	16 stations
		External pilot	12 stations	12 stations				
Port size	Rc thread, M5	Port A/B	Push-in fitting ø4,ø6 M5		Push-in fitting ø4,ø6,ø8 Rc1/8		Push-in fitting ø8,ø10 Rc1/4	
		Port P/R1/R2	Rc1/8		Rc1/4		Rc3/8	
	NPT thread, M5	Port A/B	M5		NPT1/8		NPT1/4 (*6)	
		Port P/R1/R2	NPT1/8		NPT1/4		NPT3/8 (*6)	
	G thread, M5	Port A/B	Push-in fitting ø4,ø6 M5		Push-in fitting ø4,ø6,ø8 G1/8		Push-in fitting ø8,ø10 G1/4	
		Port P/R1/R2	G1/8		G1/4		G3/8	
Manifold base Weight calculation formula (n: station No.)		Standard	35n+61	36n+115	71n+106	73n+134	113n+170	115n+119
		External pilot	35n+106	36n+114	76n+135	78n+166	118n+194	120n+223

"Cautions for mounting the DIN rail" Check and select "Pneumatic Valves No.CB-023SA".
For 10 or more manifold station No. (5 stations for 4G3), use ports on both sides for air supply and exhaust. The manifold base weight is the value for screw specifications.
*6: Available as made to order.

Performance/characteristics by model

Item			M3GB1/M4GB1		M3GB2/M4GB2		M4GB3	
			ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		9	12	12	29	-	-
	2-position	Single	12	12	19	19	25	28
		Double	9	-	18	-	24	-
	3-position	A/B/R connection	8	15	17	30	23	45

Values with a lamp/surge suppressor are shown. The response times are values with working pressure of 0.5 MPa at 20°C, without lubrication. They depend on the pressure and the lubricant quality.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B → R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
M3GB1 M4GB1	Two 3-port valves integrated		0.86	0.35	1.1 (0.67)	0.22 (0.23)
	2-position		1.1	0.22	1.2 (0.70)	0.20 (0.10)
	3-position	All ports closed	0.98	0.22	1.1 -	0.24 -
		A/B/R connection	0.97	0.35	1.3 (0.68)	0.22 (0.24)
		P/A/B connection	1.1	0.38	1.1 -	0.21 -
M3GB2 M4GB2	Two 3-port valves integrated		1.7	0.44	2.1 (1.6)	0.32 (0.30)
	2-position		2.4	0.34	2.7 (1.7)	0.24 (0.31)
	3-position	All ports closed	2.2	0.34	2.4 -	0.29 -
		A/B/R connection	2.2	0.34	2.8 (1.8)	0.24 (0.27)
		P/A/B connection	2.4	0.29	2.4 -	0.29 -
M4GB3	2-position		3.5	0.34	3.8 (2.6)	0.11 (0.27)
	3-position	All ports closed	3.1	0.33	3.3 -	0.22 -
		A/B/R connection	3.0	0.30	3.8 (2.7)	0.11 (0.22)
		P/A/B connection	3.6	0.36	3.3 -	0.28 -

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

Ozone-proof specifications ・ Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 165.

CE marking specifications

** - Voltage - **ST**

・Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

M4GB1/2/3 Series

Individual wiring manifold; Base piping

How to order

Manifold model No.

M 4GB1 1 0R - C6 - E2 H D - ○ - 3 - P4

3-port manifold model No.

M 3GB1 66 0R - C6 - E2 H D - ○ - 3 - P4

● Single valve for mounting base

4GB1 1 9R - 00 - E2 H —— 3 - P4

● 3-port discrete valve for mounting base

3GB1 66 9R - 00 - E2 H —— 3 - P4

- 66 → B Solenoid position
- 3GB1 66 → A Model No.
- 00 → C Port size
- E2 → D Electrical connections
- H → E Option
- D → F Mount type
- ○ → G Station No.
- 3 → H Voltage

*3
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

* Be sure to fill in the "Manifold specifications sheet" (pages 190 to 192).

Code	Description		Ⓐ Model No. 3GB1	3GB2	4GB1	4GB2	4GB3
Ⓑ Solenoid position							
1	2-position single				●	●	●
2	2-position double				●	●	●
3	3-position all ports closed				●	●	●
4	3-position ABR connection				●	●	●
5	3-position PAB connection				●	●	●
66	3-port valve Two valves integrated (*1)(*2)	A valve side: Normally Closed B valve side: Normally Closed	●	●			
67		A valve side: Normally Closed B valve side: Normally Open	●	●			
76		A valve side: Normally Open B valve side: Normally Closed	●	●			
77		A valve side: Normally Open B valve side: Normally Open	●	●			
8	Mix manifold (when there are multiple solenoid positions)		●	●	●	●	●

Ⓒ Port size

Port	4(A)/2(B)Port	*3	Port P/R1/R2 (2) = Rc1/8 (3) = Rc1/4 (4) =Rc3/8				
C4	ø4 push-in fitting	○	②	③	②	③	
C6	ø6 push-in fitting	○	②	③	②	③	
C8	ø8 push-in fitting (*4) (*5)	○		③		③	④
C10	ø10 push-in fitting (*4)(*5)	○					④
CX	Push-in fitting mix	○	②	③	②	③	④
M5	M5	●	②		②		
06	Rc1/8	●		③		③	
08	Rc1/4	●					④
Port	4(A)/2(B)Port	*3	Port P/R1/R2 (5) = 1/8NPT, (6) = 1/4NPT, (7) = 3/8NPT				
M5N	M5	●	⑤		⑤		
06 N	NPT1/8	●		⑥		⑥	
08 N	NPT1/4 (*5)	●					⑦
Port	4(A)/2(B)Port	*3	Port P/R1/R2 (8) = G1/8, (9) = G1/4 (10)=G3/8				
C4G	ø4 push-in fitting	○	⑧	⑨	⑧	⑨	
C6G	ø6 push-in fitting	○	⑧	⑨	⑧	⑨	
C8G	ø8 push-in fitting	○		⑨		⑨	⑩
C10G	ø10 push-in fitting	○					⑩
CXG	Push-in fitting mix	○	⑧	⑨	⑧	⑨	⑩
M5G	M5	●	⑧		⑧		
06G	G1/8	●		⑨		⑨	
08G	G1/4	●					⑩
00	Discrete valve for integrated base	●	●	●	●	●	●

Precautions for model No. selection

*1: Select M4GB*80R when mixing with 3, 5-port valves. When using a mixture with the masking plate, M3GB*80R.
*2: Not compatible when combined with external pilot (K). Dimensions are the same as those of the respective 2-position double solenoid.
*4: 4G1 C8 and 4G2 C10 do not support push-in fitting mixing.
*5: Made to order.

		Ⓐ Model No.				
		3GB1	3GB2	4GB1	4GB2	4GB3
Ⓓ Electrical connections						
Blank	Grommet Lead wire (300 mm) (*14)	●	●	●	●	●
B	DIN terminal box(Pg7) With surge suppressor and indicator lamp(*15)(*17)		●		●	●
BN	DIN terminal box(Pg7)(without terminal box) With surge suppressor(*15)(*17)		●		●	●
E type connector (Upward/lateral common)						
E0	Lead wire (300 mm) (*16)	●	●	●	●	●
E00	Lead wire (500 mm) (*16)	●	●	●	●	●
E01	Lead wire (1000 mm) (*16)	●	●	●	●	●
E02	Lead wire (2000 mm) (*16)	●	●	●	●	●
E03	Lead wire (3000 mm) (*16)	●	●	●	●	●
E0N	Without lead wire (without socket) (*16)	●	●	●	●	●
E1	Without lead wire (socket/terminal attached) (*16)	●	●	●	●	●
E2	Lead wire (300 mm) With surge suppressor and indicator lamp	●	●	●	●	●
E20	Lead wire (500 mm) With surge suppressor and indicator lamp	●	●	●	●	●
E21	Lead wire (1000 mm) With surge suppressor and indicator lamp	●	●	●	●	●
E22	Lead wire (2000 mm) With surge suppressor and indicator lamp	●	●	●	●	●
E23	Lead wire (3000 mm) With surge suppressor and indicator lamp	●	●	●	●	●
E2N	Without lead wire (without socket)With surge suppressor and indicator lamp	●	●	●	●	●
E3	Without lead wire (socket/terminal attached) With surge suppressor and indicator lamp	●	●	●	●	●
EJ-connector (socket with cover, upward/lateral common)						
E01J	Lead wire (1000 mm) (*16)	●	●	●	●	●
E02J	Lead wire (2000 mm) (*16)	●	●	●	●	●
E03J	Lead wire (3000 mm) (*16)	●	●	●	●	●
E21J	Lead wire (1000 mm) With surge suppressor and indicator lamp	●	●	●	●	●
E22J	Lead wire (2000 mm) With surge suppressor and indicator lamp	●	●	●	●	●
E23J	Lead wire (3000 mm) With surge suppressor and indicator lamp	●	●	●	●	●
Ⓔ Option						
Blank	Manual override of non-locking/locking common	●	●	●	●	●
M	Non-locking manual override	●	●	●	●	●
H	With exhaust check valve (*6)	●	●	●	●	●
K	External pilot (*7)	●	●	●	●	●
A	Ozone/coolant proof	●	●	●	●	●
S	Surgeless (*8)	●	●	●	●	●
E	Low exoergic/energy circuit (*8)(*9)	●	●	●	●	●
F	Port A/B filter built in (*10)	●	●	●	●	●
X	Non-locking exhaust structure (*18)			●	●	
X1	Locking exhaust structure (*18)			●	●	
Z1	Air supply spacer (*11)	●	●	●	●	●
Z3	Exhaust spacer (*11)	●	●	●	●	●
Z6	Spacer pilot check valve (*11)			●		
Ⓕ Mount type						
Blank	Direct mount (*12)	●	●	●	●	●
D	DIN rail mount	●	●	●	●	●
Ⓖ Station No.						
2	2 stations	●	●	●	●	●
to	to					
20	Refer to page 162 for the max. station number per model.					
Ⓗ Voltage						
1	100 VAC (rectifier integrated)	●	●	●	●	●
2	200 VAC (rectifier integrated) (*13)		●		●	●
3	24 VDC	●	●	●	●	●
4	12 VDC	●	●	●	●	●

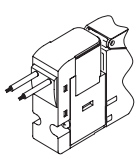
is not available.

Electrical connections

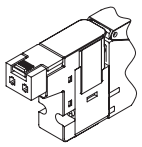
Discrete valve/individual wiring manifold

Blank Grommet lead wire

● **Lead wire length**
300 mm

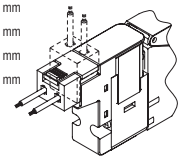


E1 E3 E-connector with socket/terminal

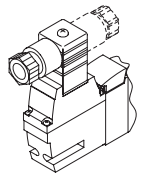


E0 E2 E-connector

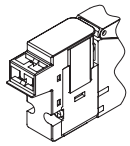
● **Lead wire length**
300 mm
500 mm
1000 mm
2000 mm
3000 mm



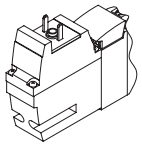
B DIN terminal box



E0N E2N E-connector without socket

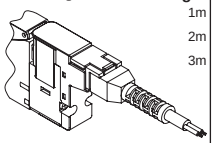


BN DIN terminal box (without terminal box)



E0*J E2*J EJ type connector

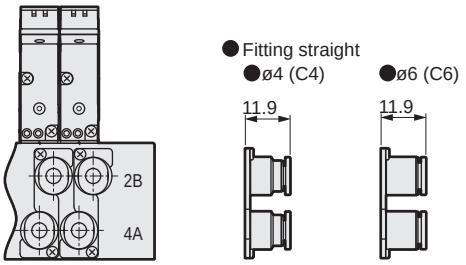
● **Lead wire length**
1m
2m
3m



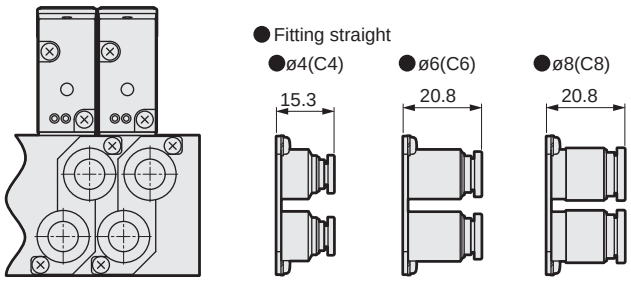
***6 The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H). For the exhaust check valve,"Pneumatic Valves No.CB-023SA"details.**
*7: Consult with CKD when using a vacuum with the external pilot (K).
8: E2 and E2*J connectors and 12/24 VDC only are supported.In addition, surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.
*9: Surgeless specifications.
*10: A filter is built into port P as standard.
***11: Specify the spacer mounting position/quantity in manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 176 to 177 for details.**
*12: The direct mount type of M4GB1 cannot be changed to the DIN rail mount type after purchasing.
*13: DIN terminal box only is supported.
*14: The grommet lead wire specifications are compatible with DC voltage only.
*15: AC voltages and 12/24 VDC are supported. In addition, a lamp comes with the terminal box.
*16: AC voltage is with a rectifier circuit.
*17: The terminal box conforms to EN175301-803Type C (former DIN 43650-C). Refer to "Pneumatic Valves No.CB-023SA" for details.
*18: Only compatible with M4GB1 and M4GB2 solenoid positions 3 and 4.

Dimensions

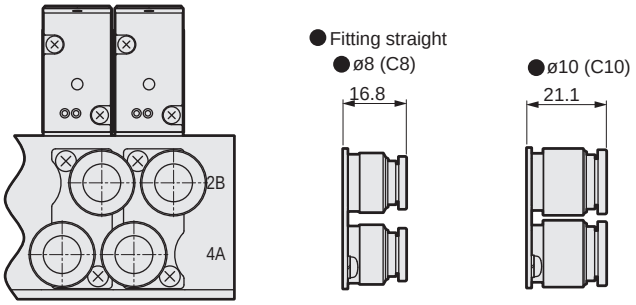
● M4GB1-P4



● M4GB2-P4

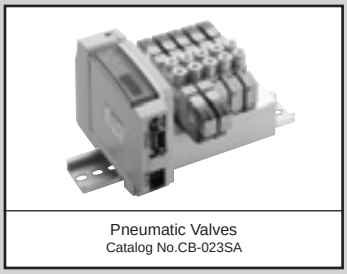


● M4GB3-P4



*Fitting dimensions of P4 Series are different from the standard when mounted. For other dimensions, refer to the M4GB1 to 3 Series in "Pneumatic Valves (No. CB-023SA)".

MEMO



Pneumatic Valves
Catalog No.CB-023SA

Reduced wiring manifolds
Body piping
Direct mount/DIN Rail mount

M3GA1/2/3-T*(D) Series
M4GA1/2/3-T*(D) Series

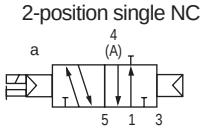
● Cylinder bore size:ø20 to ø100

RoHS CAD

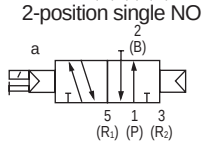
JIS symbol

● 3 Port valve

2-position single NC

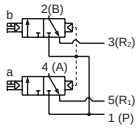


2-position single NO

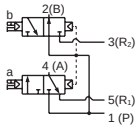


● Two 3-port valves integrated

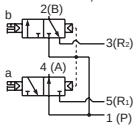
(A side valve: NC, B side valve: NC)



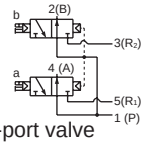
(A side valve: NC, B side valve: NO)



(A side valve: NO, B side valve: NC)

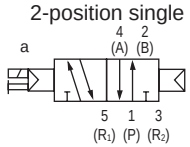


(A side valve: NO, B side valve: NO)

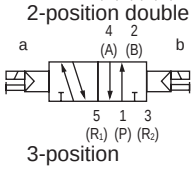


● 5-port valve

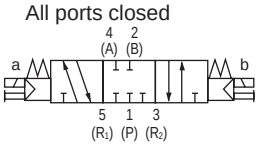
2-position single



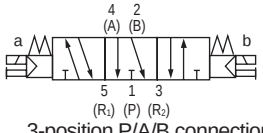
2-position double



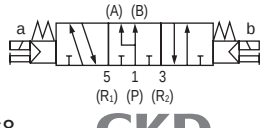
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item		Description
Manifold		Reduced wiring integrated base
Mounting method		Direct mount/DIN Rail mount
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
	External pilot	Main valve/pilot valve individual exhaust
Piping direction		Valve top direction
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressureMPa		0.7
Min. working pressureMPa		0.2(Note3)
Proof pressure MPa		1.05
Ambient temperature °C		-5 to 55(no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common (standard)
Lubrication (Note1)		Not required
Degree of protection (*2)		Dust-proof
Vibration resistance m/s^2		50 or less
Shock resistance m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

*1: Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2: Avoid dripping water or oil, etc., during use.
*3: The working pressure range is 0 to 0.7 MPa when the external pilot (option code: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.

Electrical specifications

Item		Description		
		T1□, T30□, T5□		T6G1, T8□
No.status Voltage V		24 DC	12 DC	24 DC
Voltage fluctuation range (*4)		±10%		+10%, -5%
Holding current A	Standard	0.017	0.034	0.017
	With low exoergic/energy circuit	0.005	0.010	0.005
Power consumption W	Standard	0.4		
	With low exoergic/energy circuit	0.1		
Resistancethermal class		B		
Surge suppressorLA- (*5)		Zener diode		
Indicator		LED		

*4:Be careful of the voltage fluctuation range of T6G1,T8□ and (serial transmission) as there is a voltage drop due to the internal circuit.
*5:If low exoergic/energy circuit or surgeless types are selected then there will be a diode.

Common specifications

Item		M3GA1/M4GA1	M3GA2/M4GA2	M3GA3/M4GA3
Port size	A/B Port	Push-in fitting ø4,ø6 M5	Push-in fitting ø4,ø6,ø8 Rc1/8	Push-in fitting ø8 Rc1/4
	P/R1/R2 Port	Rc1/8	Rc1/4	Rc3/8

T1□, T30□, T5□

Item		M3GA1/M4GA1		M3GA2/M4GA2		M3GA3/M4GA3	
		Direct mount	DIN rail Mount	Direct mount	DIN rail Mount	Direct mount	DIN rail Mount
Max. station No.	Standard (Internal pilot)	20 stations	16 stations	20 stations	16 stations	16 stations	
	External pilot	12 stations					
Manifold base weight Calculation formula (n:Station No.) g	Standard	29n+215	31n+228	54n+264	56n+297	84n+320	86n+354
	External pilot	44n+334	46n+347	96n+433	96n+468	149n+554	151n+583

T6G1

Item		M3GA1/M4GA1	M3GA2/M4GA2	M3GA3/M4GA3
		DIN rail Mount	DIN rail Mount	DIN rail Mount
Max. station No.	Standard (Internal pilot)	16 stations	16 stations	16 stations
	External pilot	12 stations		
Manifold base weight Calculation formula (n:Station No.)g	Standard	31n+375	56n+444	86n+501
	External pilot	46n+494	98n+615	151n+731

T8□

Item		M3GA1/M4GA1		M3GA2/M4GA2		M3GA3/M4GA3	
		Direct mount	DIN rail Mount	Direct mount	DIN rail Mount	Direct mount	DIN rail Mount
Max. station No.	Standard (Internal pilot)	20 stations	16 stations	20 stations	16 stations	16 stations	
	External pilot	12 stations					
Manifold base weight Calculation formula(n:Station No.)g	Standard	50n+305	52n+332	57n+259	60n+290	150n+384	153n+416
	External pilot	51n+313	54n+340	102n+336	105n+368	169n+417	173n+449

The manifold base weight is the value for screw connection specifications with DIN rail, wiring block or slave unit. Note that the maximum number of stations in the manifold is also limited by the maximum number of solenoid points per wiring specification as shown on the right.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B → R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
M3GA1 M4GA1	Two 3-port valves integrated		0.86	0.31	1.1(0.66)	0.19(0.22)
	2-position		0.99	0.20	1.2(0.70)	0.20 (0.12)
	3-position	All ports closed	0.94	0.23	1.1 -	0.20 -
		ABR connection	0.93	0.18	1.3(0.70)	0.23(0.02)
		PAB connection	1.1	0.28	1.1 -	0.23 -
M3GA2 M4GA2	Two 3-port valves integrated		1.7	0.40	2.3(1.7)	0.29(0.32)
	2-position		2.3	0.36	2.9(1.7)	0.24(0.33)
	3-position	All ports closed	2.1	0.35	2.5 -	0.32 -
		ABR connection	2.2	0.37	2.9(1.8)	0.32(0.29)
		PAB connection	2.4	0.34	2.5 -	0.33 -
M3GA3 M4GA3	2-position		3.2	0.37	3.8(2.5)	0.13(0.28)
	3-position	All ports closed	2.9	0.35	3.3 -	0.35 -
		ABR connection	3.0	0.34	3.8(2.6)	0.12(0.27)
		PAB connection	3.3	0.30	3.3 -	0.32 -

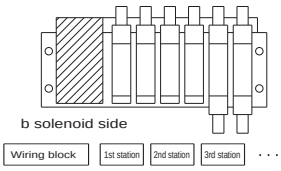
*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

Wiring specifications

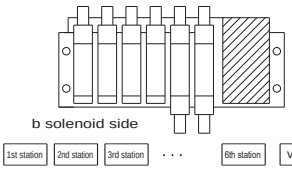
Item	T10□ Common terminal block	T11□ Common terminal block	T30□ DSub-connector	T50□ Flat cable 20-pin	T51□ Flat cable 20-pin	T52□ Flat cable 10-pin	T53□ Flat cable 26-pin
Connector and terminal block specifications	M3 thread tightening Terminal count 18	Clamping type Terminal count 26	D-sub-connector25Pin	MIL-C-83503 standard compliant Pressure welding socket 20-pin	MIL-C-83503 standard compliant Pressure welding socket 20-pin	MIL-C-83503 standard compliant Pressure welding socket 10-pin	MIL-C-83503 standard compliant Pressure welding socket 26-pin
Max. number of solenoids	16 points	24 points	24 points	16 points	18 points	8Point	24 points
Manifold internal wiring	Refer to "Pneumatic Valves No.CB-023SA" for details.						

Wiring block position
Blank: Left side
R :Right

Left side: T□ a solenoid side



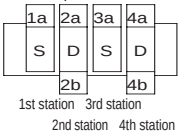
Right side: T□R a solenoid side



Array method
Blank: Standard sequential
W :Double wiring

(Ex.) In the case of T50□

Manifold specifications



Standard wiring (sequential) Blank

Connector pinNo.	1	2	3	4	5	6
Valve solenoidNo.	1a	2a	2b	3a	4a	4b

Double wiring: W

Connector pinNo.	1	2	3	4	5	6	7	8
Valve solenoidNo.	1a	Blank	2a	2b	3a	Blank	4a	4b

Serial transmission slave unit specifications

Refer to the CKD website (https://www.ckd.co.jp/en/).

Item		T6G1
Network name		CC-Link ver. 1.10
Power supply voltage	Unit side	24 VDC ±10%
	Valve side	24 VDC +10% -5%
Current consumption	Unit side	100 mA or less (when all output points are ON)
	Valve side	15 mA or less (when all output points are OFF)
No. of output points		16 points
Occupied number		1 station
Operation display		LED (power supply and communication status)

Item		T8G1 T8G2	T8GP1 T8GP2	T8P1 T8P2	T8PP1 T8PP2	T8EC1 T8EC2	T8ECP1 T8ECP2	T8EN1 T8EN2	T8ENP1 T8ENP2	T8D1 T8D2	T8DP1 T8DP2	T8EB1 T8EB2	T8EBP1 T8EBP2	T8EP1 T8EP2	T8EPP1 T8EPP2
Communication protocol		CC-Link ver. 1.10		PROFIBUS-DP(V0)		EtherCAT		EtherNet/IP		DeviceNet		CC-Link IEF Basic		PROFINET	
Power supply voltage	Unit side	24 VDC ±10%								11 to 25 VDC		24 VDC ±10%			
	Valve side	24 VDC+10%, -5%													
Current consumption	Unit side	60mA or less (when all output points are ON)		60mA or less (when all output points are ON)		110mA or less (when all output points are ON)		120mA or less (when all output points are ON)		70mA or less (when all output points are ON)		130mA or less (when all output points are ON)		130mA or less (when all output points are ON)	
	Valve side	T8□ 1:15mA or less T8□ 2:20mA or less (When all output points are ON) Load current is not included								15mA or less (When all output points are ON) Load current is not included					
No. of output points		T8□1:16 points T8□2:32 points													
Occupied number		1 station													
Operation display		LED (Power supply and communication status)													
Output		NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output

M 3/4 GA1/2/3-T*(D) Series

Reduced wiring manifolds; Body piping

How to order

Manifold model No.

M 4GA1 1 0R - C6 - T30 W H D - ○ - 3 - P4

3 Port manifold model No.

M 3GA1 1 0R - C6 - T30 W H D - ○ - 3 - P4

●Discrete valve for integrated base

4GA1 1 9R - C6 - A2N ○ H —— 3 - P4

●For base mounting3 Single port valve

3GA1 1 9R - C6 - A2N ○ H —— 3 - P4

"A2N"AType (downward) Indicates connector, with lamp/ surge suppressor and no lead wire.

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

*3
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

●Refer to "Pneumatic Valves No.CB-023SA" for the model No. of cables with D-sub-connector.
●Refer to "Pneumatic Valves No.CB-023SA" for the model No. of cables with D-sub-connector.

Ⓓ Reduced wiring connection
Zener diode is used as a surge suppressor.

Ⓔ Terminal/connector pin array method

Ⓕ Option

Ⓖ Mount type

Ⓗ Station No.

Ⓘ Voltage

Precautions for model No. selection

*1: M4GA*80R when using a mixture of 3, 5-port valves. When using a mixture with the masking plate, M3GA*80R.
*2: Not compatible with combination with external pilot (K). Dimensions are the same as those of the respective 2-position double solenoid.
*4: The push-in fitting cannot be mixed with the discrete valve's 4(A) or 2(B) port.
*5: Blank... The wiring will be based on the type of valve mounted.
W* ... All wired as double solenoid regardless of the type of valve used.s of the type of valve used.
***6 Spare wiring (A type socket assembly) is included on the cap side for single types. A holder for retaining the socket assembly is included for single unit valves (A2N). Refer to page 180 for details.**

* Be sure to fill in the "Manifold specifications sheet" (pages 193 to 204).

Code	Description		Ⓐ Model No. 3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
Ⓑ Solenoid position								
1	2-position single					●	●	●
2	2-position double					●	●	●
3	3-position all ports closed					●	●	●
4	3-position ABR connection					●	●	●
5	3-position PAB connection					●	●	●
1	2-position single Normally Closed	(*1)	●	●	●			
11	2-position single Normally Open	(*1)	●	●	●			
66	3-port valve Two valves integrated (*1)(*2)	A valve side: Normally Closed B valve side: Normally Closed	●	●				
67		A valve side: Normally Closed B valve side: Normally Open	●	●				
76		A valve side: Normally Open B valve side: Normally Closed	●	●				
77		A valve side: Normally Open B valve side: Normally Open	●	●				
8	Mix manifold (when there are multiple solenoid positions)		●	●	●	●	●	●

Ⓒ Port size Port	4(A)/2(B)Port	*3	P/R1/R 2Port (2)= Rc1/8	(3)=Rc1/4	(4)=Rc3/8			
C4	ø4 push-in fitting	○	②	③		②	③	
C6	ø6 push-in fitting	○	②	③		②	③	
C8	ø8 push-in fitting	○		③	④		③	④
CX	Push-in fitting mix	(*4) ○	②	③	④	②	③	④
M5	M5	●	②			②		
06	Rc1/8	○		③			③	
08	Rc1/4	○			④			④
Port	4(A)/2(B)Port	*3	P/R1/R 2Port (5)=1/8NPT	(6)=1/4NPT	(7)=3/8NPT			
M5N	M5	●	⑤			⑤		
06 N	NPT1/8	●		⑥			⑥	
08 N	NPT1/4	(*5) ●			⑦			⑦
Port	4(A)/2(B)Port	*3	P/R1/R 2Port (8)=G1/8	(9)=G1/4	(10)=G3/8			
C4G	ø4Push-in fitting	○	⑧	⑨		⑧	⑨	
C6G	ø6Push-in fitting	○	⑧	⑨		⑧	⑨	
C8G	ø8Push-in fitting	○		⑨	⑩		⑨	⑩
CXG	Push-in fitting mix	(*4) ○	⑧	⑨	⑩	⑧	⑨	⑩
M5G	M5	●	⑧			⑧		
06G	G1/8	●		⑨			⑨	
08G	G1/4	●			⑩			⑩

Ⓓ Reduced wiring (lamp and surge suppressor provided as standard)
Refer to the next page for electrical connections.

Ⓔ Terminal/connector pin array								
Blank	Standard wiring	(*5)	●	●	●	●	●	●
W	Double wiring	(*5)	●	●	●	●	●	●
W1	Double wiring (With single spare wiring)	(*5)(*6)	●	●	●	●	●	●

Ⓕ Option
Refer to the following page for options.

Ⓖ Mount type								
Blank	Direct mount		●	●	●	●	●	●
D	DIN Rail mount		●	●	●	●	●	●

Ⓗ Station No.								
2	2 stations							
to	to		●	●	●	●	●	●
20	Refer to page 168 for the max. station number per model.							

Ⓘ Voltage								
3	24 VDC		●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●

is not available.

			Ⓐ Model No.					
			3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
Ⓓ Reduced wiring (lamp and surge suppressor provided as standard) 12/24 VDC								
T10	Common terminal block (M3 thread)	Left-sided specifications	●	●	●	●	●	●
T10R		Right-sided specifications	●	●	●	●	●	●
T11	Common terminal block (clamping)	Left-sided specifications	●	●	●	●	●	●
T11R		Right-sided specifications	●	●	●	●	●	●
T30	DSub-connector	Left-sided specifications	●	●	●	●	●	●
T30R		Right-sided specifications	●	●	●	●	●	●
T50	20-pin flat cable connector (with power supply terminal)	Left-sided specifications	●	●	●	●	●	●
T50R		Right-sided specifications	●	●	●	●	●	●
T51	20-pin flat cable connector (without power supply terminal)	Left-sided specifications	●	●	●	●	●	●
T51R		Right-sided specifications	●	●	●	●	●	●
T52	10-pin flat cable connector (without power supply terminal)	Left-sided specifications	●	●	●	●	●	●
T52R		Right-sided specifications	●	●	●	●	●	●
T53	26-pin flat cable connector (without power supply terminal)	Left-sided specifications	●	●	●	●	●	●
T53R		Right-sided specifications	●	●	●	●	●	●
Ⓓ Serial transmission (lamp/surge suppressor provided as standard) 24 VDC								
T6G1	CC-Link	NPN 16 points	●	●	●	●	●	●
T8G1	CC-Link	NPN 16 points	●	●	●	●	●	●
T8G2		NPN 32 points	●	●	●	●	●	●
T8GP1		PNP 16 points	●	●	●	●	●	●
T8GP2		PNP 32 points	●	●	●	●	●	●
T8P1	PROFIBUS-DP	NPN 16 points	●	●	●	●	●	●
T8P2		NPN 32 points	●	●	●	●	●	●
T8PP1		PNP 16 points	●	●	●	●	●	●
T8PP2		PNP 32 points	●	●	●	●	●	●
T8EC1	EtherCAT	NPN 16 points	●	●	●	●	●	●
T8EC2		NPN 32 points	●	●	●	●	●	●
T8ECP1		PNP 16 points	●	●	●	●	●	●
T8ECP2		PNP 32 points	●	●	●	●	●	●
T8EN1	EtherNet/IP	NPN 16 points	●	●	●	●	●	●
T8EN2		NPN 32 points	●	●	●	●	●	●
T8ENP1		PNP 16 points	●	●	●	●	●	●
T8ENP2		PNP 32 points	●	●	●	●	●	●
T8D1	DeviceNet	NPN 16 points	●	●	●	●	●	●
T8D2		NPN 32 points	●	●	●	●	●	●
T8DP1		PNP 16 points	●	●	●	●	●	●
T8DP2		PNP 32 points	●	●	●	●	●	●
T8EB1	CC-Link IEF Basic	NPN 16 points	●	●	●	●	●	●
T8EB2		NPN 32 points	●	●	●	●	●	●
T8EBP1		PNP 16 points	●	●	●	●	●	●
T8EBP2		PNP 32 points	●	●	●	●	●	●
T8EP1	PROFINET	NPN 16 points	●	●	●	●	●	●
T8EP2		NPN 32 points	●	●	●	●	●	●
T8EPP1		PNP 16 points	●	●	●	●	●	●
T8EPP2		PNP 32 points	●	●	●	●	●	●
A2N	Without lead wire(Without socket)	With surge suppressor and indicator lamp	●	●	●	●	●	●
Ⓕ Option								
Blank	Manual override of non-locking/locking common		●	●	●	●	●	●
M	Non-locking manual override		●	●	●	●	●	●
H	With exhaust check valve	(*7)	●	●	●	●	●	●
K	External pilot	(*8)	●	●	●	●	●	●
A	Ozone/coolant proof		●	●	●	●	●	●
S	Surgeless	(*9)	●	●	●	●	●	●
E	Low exoergic/energy circuit	(*9)(*10)	●	●	●	●	●	●
F	Port A/B filter built in	(*11)	●	●	●	●	●	●
Z1	Air supply spacer	(*12)	●	●	●	●	●	●
Z3	Exhaust spacer	(*12)	●	●	●	●	●	●

Ozone-proof specifications • Coolant proof specifications

How to order Item Ⓕ
Option"A"can be selected.

CE marking specifications

** - Voltage - **ST**

- Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

Precautions for model No. selection

***7 The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**

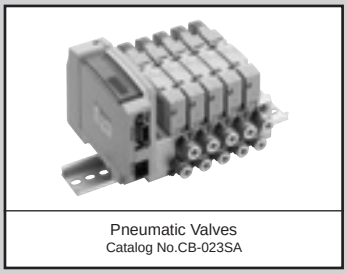
*8 Consult with CKD when using a vacuum with the external pilot (K).

*9 Surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.

*10 Surgeless specifications.

*11 PA filter is built into the port as standard.

***12 Specify the spacer mounting position/quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 176 to 177 for details.**



Pneumatic Valves
Catalog No.CB-023SA

Reduced wiring manifolds
Base piping
Direct mount/DIN rail mount

M3GB1, 2-T*(D) Series
M4GB1, 2, 3-T*(D) Series

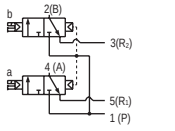
● Cylinder bore size:ø20 to ø100

RoHS CAD

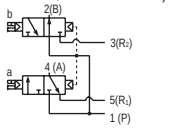
JIS symbol

● Two 3-port valves integrated

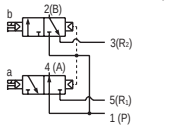
(A side valve:NC, B side valve:NC)



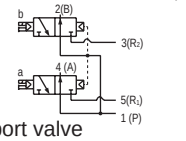
(A side valve:NC, B side valve:NO)



(A side valve:NO, B side valve:NC)

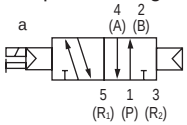


(A side valve:NO, B side valve:NO)

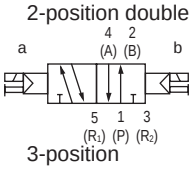


● 5-port valve

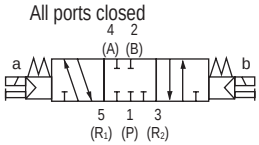
2-position single



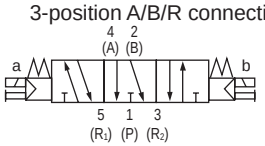
2-position double



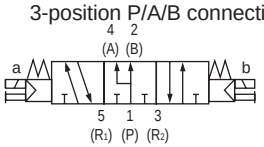
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item		Description
Manifold		Reduced wiring integrated base
Mounting method		Direct mount/DIN Rail mount
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
	External pilot	Main valve/pilot valve individual exhaust
Piping direction		Side direction of base
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2 (*3)
Proof pressure MPa		1.05
Ambient temperature °C		−5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common (standard)
Lubrication (*1)		Not required
Degree of protection (*2)		Dust-proof
Vibration resistance m/s²		50 or less
Shock resistance m/s²		300or less
Atmosphere		Cannot be used in corrosive gas environments

Electrical specifications

Item		Description		
Rated voltage V		T1□, T30□, T5□		T6G1, T8□
		24 DC	12 DC	24 DC
Voltage fluctuation range (*4)		±10%		+10%, -5%
Holding current A	Standard	0.017	0.034	0.017
	With low exoergic/ energy saving circuit	0.005	0.010	0.005
Power consumption W	Standard	0.4		
	With low exoergic/ energy saving circuit	0.1		
Thermal class		B		
Surge suppressor (*5)		Zener diode		
Indicator		LED		

*1: Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2 Avoid water drops or oil, etc., during use.
*3: The working pressure range is 0 to 0.7MPa when the external pilot (option code: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.
*4: Since voltage drops for T6G1, T8 and (serial transmission type) due to the internal circuit, pay attention to the voltage fluctuation range.
*5: If low exoergic/energy circuit or surgeless types are selected then there will be a diode.

Common specifications

Item		M3GB1/M4GB1	M3GB2/M4GB2	M3GB3/M4GB3
Port size	Port A/B	Push-in fitting ø4,ø6 M5	Push-in fitting ø4,ø6,ø8 Rc1/8	Push-in fitting ø8,ø10 Rc1/4
	2-port P/R1/R	Rc1/8	Rc1/4	Rc3/8

*6 Available as made to order.

T1□, T30□, T5□

Item		M3GB1/M4GB1		M3GB2/M4GB2		M3GB3/M4GB3	
		Direct mount	DIN rail mount	Direct mount	DIN rail mount	Direct mount	DIN rail mount
Max. station No.	Standard (Internal pilot)	20 stations	16 stations	20 stations	16 stations	16 stations	
	External pilot	12 stations					
Manifold base weight Calculation formula(n:Station No.)g	Standard	43n+335	45n+348	80n+398	82n+431	124n+548	126n+582
	External pilot	44n+330	46n+344	88n+433	90n+467	129n+577	131n+606

T6G1

Item		M3GB1/M4GB1	M3GB2/M4GB2	M3GB3/M4GB3
		DIN rail mount	DIN rail mount	DIN rail mount
Max. station No.	Standard (Internal pilot)	16 stations	16 stations	16 stations
	External pilot	12 stations		
Manifold base weight Calculation formula(n:Station No.)g	Standard	45n+495	82n+578	126n+729
	External pilot	46n+491	90n+615	131n+753

T8□

Item		M3GB1/M4GB1		M3GB2/M4GB2		M3GB3/M4GB3	
		Direct mount	DIN rail mount	Direct mount	DIN rail mount	Direct mount	DIN rail mount
Max. station No.	Standard (Internal pilot)	20 stations	16 stations	20 stations	16 stations	16 stations	
	External pilot	12 stations					
Manifold base weight	Standard	46n+305	49n+332	83n+318	86n+350	128n+384	132n+416
Calculation formula(n:Station No.)g	External pilot	48n+312	51n+339	91n+336	94n+368	146n+417	150n+449

The manifold base weight is the value for screw connection specifications with DIN rail, wiring block or slave unit. Note that the maximum number of stations in the manifold is also limited by the maximum number of solenoid points per wiring specification as shown on the right.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2	
			C[dm^3/(s·bar)]	b	C[dm^3/(s·bar)]	b
M3GB1 M4GB1	Two 3-port valves integrated		0.86	0.35	1.1 (0.67)	0.22 (0.23)
	2-position		1.1	0.22	1.2 (0.70)	0.20 (0.10)
	3-position	All ports closed	0.98	0.22	1.1 -	0.24 -
		ABR connection	0.97	0.35	1.3 (0.68)	0.22 (0.24)
		PAB connection	1.1	0.38	1.1 -	0.21 -
M3GB2 M4GB2	Two 3-port valves integrated		1.7	0.44	2.1 (1.6)	0.32 (0.30)
	2-position		2.4	0.34	2.7 (1.7)	0.24 (0.31)
	3-position	All ports closed	2.2	0.34	2.4 -	0.29 -
		ABR connection	2.2	0.34	2.8 (1.8)	0.24 (0.27)
		PAB connection	2.4	0.29	2.4 -	0.29 -
M4GB3	2-position		3.5	0.34	3.8 (2.6)	0.11 (0.27)
	3-position	All ports closed	3.1	0.33	3.3 -	0.22 -
		ABR connection	3.0	0.30	3.8 (2.7)	0.11 (0.22)
		PAB connection	3.6	0.36	3.3 -	0.28 -

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C. *2: Values in ( ) are with the exhaust check valve.

Wiring specifications

Item	T10□ Common terminal block	T11□ Common terminal block	T30□ DSub-connector	T50□ Flat cable 20-pin	T51□ Flat cable 20-pin	T52□ Flat cable 10-pin	T53□ Flat cable 26-pin
Connector and terminal block specifications	M3 thread tightening Terminal count 18	Clamping Terminal count 26	Sub-connector 25-pin	MIL-C-83503 standard compliant Pressure welding socket 20-pin	MIL-C-83503 standard compliant Pressure welding socket 20-pin	MIL-C-83503 standard compliant Pressure welding socket 10-pin	MIL-C-83503 standard compliant Pressure welding socket 26-pin
Max. number of solenoids	16 points	24 points	24 points	16 points	18 points	8Point	24 points
Manifold internal wiring	Refer to "Pneumatic Valves No.CB-023SA" for details.						
Wiring block position Blank: Left side R :Right	**Left side: T□** a solenoid side, b solenoid side, Wiring block, 1st station, 2nd station, 3rd station, ···, 6th station			**Right side: T□R** a solenoid side, b solenoid side, 1st station, 2nd station, 3rd station, ···, 6th station, Wiring block			
Array method Blank: Standard sequential W :Double wiring	**(Ex.) In the case of T50□** Manifold specifications: 1a 2a 3a 4a / S D S D / 2b 4b; 1st station 3rd station; 2nd station 4th station						

Standard wiring (sequential) :Blank

Connector pin No.	1	2	3	4	5	6
Valve solenoid No.	1a	2a	2b	3a	4a	4b

Double wiring: W

Connector pinNo.	1	2	3	4	5	6	7	8
Valve solenoidNo.	1a	Blank	2a	2b	3a	Blank	4a	4b

Serial transmission slave unit specifications

Refer to the CKD website (https://www.ckd.co.jp/en/).

Item		T6G1
Network name		CC-Link ver1.10
Power supply voltage	Unit side	24 VDC ±10%
	Valve side	24 VDC +10% -5%
Current consumption	Unit side	100 mA or less (when all output points are ON)
	Valve side	15 mA or less (when all output points are off)
No. of output points		16 points
Occupied number		1Station
Operation display		LED (power supply and communication status)

Item		T8G1 T8G2	T8GP1 T8GP2	T8P1 T8P2	T8PP1 T8PP2	T8EC1 T8EC2	T8ECP1 T8ECP2	T8EN1 T8EN2	T8ENP1 T8ENP2	T8D1 T8D2	T8DP1 T8DP2	T8EB1 T8EB2	T8EBP1 T8EBP2	T8EP1 T8EP2	T8EPP1 T8EPP2
Communication protocol		CC-Link ver. 1.10		PROFIBUS-DP (V0)		EtherCAT		EtherNet/IP		DeviceNet		CC-Link IEF Basic		PROFINET	
Power supply voltage	Unit side	24 VDC ±10%								11 DCto25V		24 VDC ±10%			
	Valve side	24 VDC+10%, -5%													
Current consumption	Unit side	60 mA or less (when all output points are ON)		60 mA or less (when all output points are ON)		110 mA or less (when all output points are ON)		120 mA or less (when all output points are ON)		70 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)	
	Valve side	T8□1:15 mA or less T8□2:20 mA or less (when all output points are ON) Load current is not included								15 mA or less (when all output points are ON) Load current is not included					
No. of output points		T8□1:16 points T8□2:32 points													
Occupied number		1 station													
Operation display		LED (Power supply and communication status)													
Output		NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output

M4GB1/2/3-T*(D) Series

Reduced wiring manifolds; Base piping

How to order

Manifold model No.

M 4GB1 1 0R - C6 - T30 W H D - ○ - 3 - P4

3 Port manifold model No.

M 3GB1 66 0R - C6 - T30 W H D - ○ - 3 - P4

●Discrete valve for integrated base

4GB1 1 9R - 00 - A2N ○ H —— 3 - P4

●For base mounting3 Single port valve

3GB1 66 9R - 00 - A2N ○ H —— 3 - P4

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

*3
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓓ Reduced wiring connection

Ⓔ Terminal/connector pin array

●DSCable with connector model No. is "Pneumatic Valves No.CB-023SA" details.
●Select the model No. of cables for flat cable connector "Pneumatic Valves No.CB-023SA" details.

Ⓕ Option

Ⓖ Mount type

Ⓗ Station No.

Ⓘ Voltage

* Be sure to fill in the "Manifold specifications sheet" (pages 193 to 204).

Ⓑ Solenoid position			Ⓐ Model No. 3GB1	3GB2	4GB1	4GB2	4GB3
1	2-position single				●	●	●
2	2-position double				●	●	●
3	3-position all ports closed				●	●	●
4	3-positionABRConnection				●	●	●
5	3-positionPABConnection				●	●	●
66	3-port valve Two valves integrated (*1) (*2)	A side valve: Normally Closed	●	●			
		B side valve: Normally Closed					
67		A side valve: Normally Closed	●	●			
		B side valve: Normally Open					
76		A side valve: Normally Open	●	●			
		B side valve: Normally Closed					
77		A side valve: Normally Open	●	●			
		B side valve: Normally Open					
8	Mix manifold (when there are multiple solenoid positions)		●	●	●	●	●

Ⓒ Port size			*3	P/R1/R 2Port (2)=Rc1/8 (3)=Rc1/4 (4)=Rc3/8				
Port	4(A)/2(B)Port		*3					
C4	ø4 push-in fitting		○	②	③	②	③	
C6	ø6 push-in fitting		○	②	③	②	③	
C8	ø8 push-in fitting	(*4)	○		③		③	④
C10	ø10 push-in fitting	(*4)	○					④
CX	Push-in fitting mix		○	②	③	②	③	④
M5	M5		●	②		②		
06	Rc1/8		●		③		③	
08	Rc1/4		●					④
Port	4(A)/2(B)Port		*3	P/R1/R 2Port (5)=1/8NPT (6)=1/4NPT (7)=3/8NPT				
M5N	M5		●	⑤		⑤		
06N	NPT1/8		●		⑥		⑥	
08N	NPT1/4	(*4)	●					⑦
Port	4(A)/2(B)Port		*3	P/R1/R 2Port (8)=G1/8 (9)=G1/4 (10)=G3/8				
C4G	ø4 push-in fitting		○	⑧	⑨	⑧	⑨	
C6G	ø6 push-in fitting		○	⑧	⑨	⑧	⑨	
C8G	ø8 push-in fitting		○		⑨		⑨	⑩
C10G	ø10 push-in fitting		○					⑩
CXG	Push-in fitting mix		○	⑧	⑨	⑧	⑨	⑩
M5G	M5		●	⑧		⑧		
06G	G1/8		●		⑨		⑨	
08G	G1/4		●					⑩
00	Discrete valve for integrated base		●	●	●	●	●	●

Ⓓ Reduced wiring connection

Refer to the next page for electrical connections.

is not available.

⚠ Precautions for model No. selection

*1: M4GB*80R when mixed with 3, 5-port valves. M3GB*80R when mixed with masking plate.
*2: Not compatible with combination with external pilot (K). Dimensions are the same as those of the respective 2-position double solenoid.
*4: Made-to-order product

			Ⓐ Model No.				
			3GB1	3GB2	4GB1	4GB2	4GB3
Ⓓ Reduced wiring (lamp and surge suppressor provided as standard) 12/24 VDC							
T10	Common terminal block(M3 thread)	Left-sided specifications	●	●	●	●	●
T10R		Right-sided specifications	●	●	●	●	●
T11	Common terminal block (clamping)	Left-sided specifications	●	●	●	●	●
T11R		Right-sided specifications	●	●	●	●	●
T30	DSub-connector	Left-sided specifications	●	●	●	●	●
T30R		Right-sided specifications	●	●	●	●	●
T50	20-pin flat cable connector (with power supply terminal)	Left-sided specifications	●	●	●	●	●
T50R		Right-sided specifications	●	●	●	●	●
T51	20-pin flat cable connector (without power supply terminal)	Left-sided specifications	●	●	●	●	●
T51R		Right-sided specifications	●	●	●	●	●
T52	10-pin flat cable connector (without power supply terminal)	Left-sided specifications	●	●	●	●	●
T52R		Right-sided specifications	●	●	●	●	●
T53	26-pin flat cable connector (without power supply terminal)	Left-sided specifications	●	●	●	●	●
T53R		Right-sided specifications	●	●	●	●	●
Ⓓ Serial transmission (lamp/surge suppressor provided as standard) 24 VDC							
T6G1	CC-Link	NPN 16 points	●	●	●	●	●
T8G1	CC-Link	NPN 16 points	●	●	●	●	●
T8G2		NPN 32 points	●	●	●	●	●
T8GP1		PNP 16 points	●	●	●	●	●
T8GP2		PNP 32 points	●	●	●	●	●
T8P1	PROFIBUS-DP	NPN 16 points	●	●	●	●	●
T8P2		NPN 32 points	●	●	●	●	●
T8PP1		PNP 16 points	●	●	●	●	●
T8PP2		PNP 32 points	●	●	●	●	●
T8EC1	EtherCAT	NPN 16 points	●	●	●	●	●
T8EC2		NPN 32 points	●	●	●	●	●
T8ECP1		PNP 16 points	●	●	●	●	●
T8ECP2		PNP 32 points	●	●	●	●	●
T8EN1	EtherNet/IP	NPN 16 points	●	●	●	●	●
T8EN2		NPN 32 points	●	●	●	●	●
T8ENP1		PNP 16 points	●	●	●	●	●
T8ENP2		PNP 32 points	●	●	●	●	●
T8D1	DeviceNet	NPN 16 points	●	●	●	●	●
T8D2		NPN 32 points	●	●	●	●	●
T8DP1		PNP 16 points	●	●	●	●	●
T8DP2		PNP 32 points	●	●	●	●	●
T8EB1	CC-Link IEF Basic	NPN 16 points	●	●	●	●	●
T8EB2		NPN 32 points	●	●	●	●	●
T8EBP1		PNP 16 points	●	●	●	●	●
T8EBP2		PNP 32 points	●	●	●	●	●
T8EP1	PROFINET	NPN 16 points	●	●	●	●	●
T8EP2		NPN 32 points	●	●	●	●	●
T8EPP1		PNP 16 points	●	●	●	●	●
T8EPP2		PNP 32 points	●	●	●	●	●
A2N	Without lead wire (without socket)	With surge suppressor and indicator lamp	●	●	●	●	●
Ⓔ Terminal/connector pin array							
Blank	Standard wiring (*5)		●	●	●	●	●
W	Double wiring (*5)		●	●	●	●	●
W 1	Double wiring (with single spare wiring) (*5) (*6)		●	●	●	●	●
Ⓕ Option							
Blank	Manual override of non-locking/locking common		●	●	●	●	●
M	Non-locking manual override		●	●	●	●	●
H	With exhaust check valve (*7)		●	●	●	●	●
K	External pilot (*8)		●	●	●	●	●
A	Ozone/coolant proof		●	●	●	●	●
S	Surgeless (*9)		●	●	●	●	●
E	Low exoergic/energy circuit (*9) (*10)		●	●	●	●	●
F	Port A/B filter built in (*11)		●	●	●	●	●
Z1	Air supply spacer (*12)		●	●	●	●	●
Z3	Exhaust spacer (*12)		●	●	●	●	●
Z6	Spacer pilot check valve (*12)				●		
Ⓖ Mount type							
Blank	Direct mount		●	●	●	●	●
D	DIN rail mount		●	●	●	●	●
Ⓗ Station No.							
2	2 stations		●	●	●	●	●
to	to						
20	Refer to page 172 for the max. station number per model.						
Ⓘ Voltage							
3	24 VDC		●	●	●	●	●
4	12 VDC		●	●	●	●	●

Ozone-proof specifications • Coolant proof specifications

How to order Item Ⓕ
Option"A"can be selected.

CE marking specifications

** - Voltage - **ST**

・Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

⚠ Precautions for model No. selection

*5 Blank...The wiring will be based on the type of valve mounted.
W*...All wired as double solenoid regardless of the type of valve used.

***6 Spare wiring (A type socket assembly) is included on the cap side for single types. A holder for retaining the socket assembly is included for single unit valves (A2N). Refer to page 180 for details.**

***7 The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**

*8 Consult with CKD when using a vacuum with the external pilot (K).

*9 Surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.

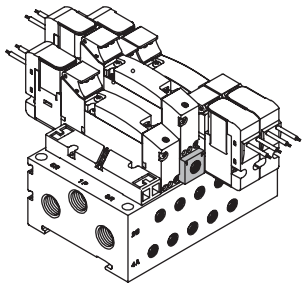
*10 Surgeless specifications.

*11 PA filter is built into the port as standard.

***12 Specify the spacer mounting position/quantity in manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 176 to 177 for details.**

Related products

● Air supply spacer



Specifications

Model No.	P → A/B		A/B→R		Weight g
	C(dm³/(s·bar))	b	C(dm³/(s·bar))	b	
4G1	0.70	0.23	0.93	0.16	8
4G2	1.6	0.17	1.8	0.16	35
4G3	2.6	0.22	3.1	0.14	56

*1: Values are when a valve is mounted.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order discrete units

● Air supply spacer

Air supply spacer model No.

4G (3) R-P- (GWS10) (A) -P4

(A) Air supply spacer model No.

(B) Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

(C) Mounting screw

Code	Description	Valve model No. 4GA1	4GB1	4GA2	4GB2	4GA3	4GB3
(A) Air supply spacer model No.							
1	For 4G1	●					
2	For 4G2			●			
3	For 4G3					●	
(B) Port size							
Blank	M5(4G1), Rc1/8(4G2), Rc1/4(4G3)	●		●		●	
GWS4	ø4 push-in fitting	○					
GWS6	ø6 push-in fitting			○			
GWS8	ø8 push-in fitting					○	
06 N	NPT1/8			●			
08 N	NPT1/4					●	
06G	G1/8			●			
08G	G1/4					●	
(C) Mounting screw							
Blank		●		●		●	
A	4GA3 A/B port: Rc1/4 thread					● (*2)	

■ is not available.

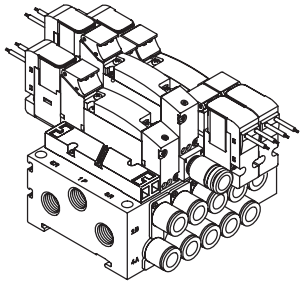
Attachment: Mounting screw 2 (*2), PRCheck valve 2, Body gasket 1

⚠ Precautions for model No. selection

*2 Specify "A" only when using with 4GA3 * 9R-08 for base mounting. (The valve mounting screw length differs.)
*3 Specify the air supply spacer mounting position and quantity in manifold specifications sheets of each catalog.
*4 Combination with the masking plate is not supported.

Related products

● Exhaust spacer



Specifications

Model No.	P → A/B		A/B → R		Weight g
	C(dm³/(s·bar))	b	C(dm³/(s·bar))	b	
4G1	0.94	0.28	0.68	0.33	7
4G2	1.5	0.24	1.9	0.24	34
4G3	3.4	0.21	2.9	0.27	58

Note1: Values are when a valve is mounted.
Note2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order discrete units

● Exhaust spacer

Exhaust spacer model No.

4G 3 R - R - GWS10 A - P4

- 3 → Ⓐ Air supply spacer model No.
- R → Ⓑ Port size
- GWS10 → Ⓒ Mounting screw
- A → Ⓒ Mounting screw

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Code	Description	Valve model No. 4GA1	4GB1	4GA2	4GB2	4GA3	4GB3
Ⓐ Exhaust spacer model No.							
1	For 4G1	●					
2	For 4G2			●			
3	For 4G3					●	
Ⓑ Port size							
Blank	M5(4G1), Rc1/8(4G2), Rc1/4(4G3)	●		●		●	
GWS4	ø4 push-in fitting	○					
GWS6	ø6 push-in fitting			○			
GWS8	ø8 push-in fitting					○	
06 N	NPT1/8			●			
06G	G1/8			●			
08G	G1/4					●	
Ⓒ Mounting screw							
Blank		●		●		●	
A	4GA3 A/B port: Rc1/4 thread					● (*2)	

is not available.

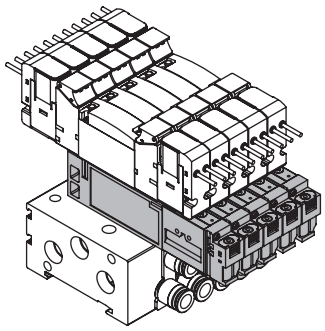
Attachment: 2 mounting screws (*2), 2 PR check valves, 1 body gasket

⚠ Precautions for model No. selection

*2 Specify "A" only when using with 4GA3*9R-08 for base mounting. (The valve mounting screw length differs.)
*3 Specify the exhaust spacer mounting position and quantity in manifold specifications sheets of each catalog.
*4 Combination with the masking plate is not supported.

Related products

● Spacer pilot check valve

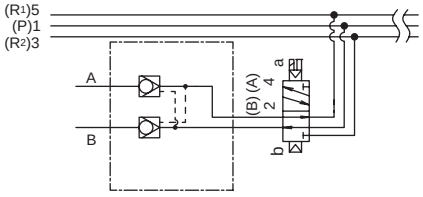


Specifications

Item		4G1R-PC
Working fluid		Compressed air
Max. working pressure	MPa	0.7
Min. working pressure	MPa	0.2
Proof pressure	MPa	1.05
Effective cross-sectional area	mm^2	1.6(With solenoid valve)
Ambient temperature	°C	−5 to 55(no freezing)
Working fluid temperature	°C	5 to 55
Lubrication	(Note1)	Not required
Atmosphere		Cannot be used in corrosive gas environment.
Weight	g	22

*1: Use turbine oil Class 1 ISO VG32 for lubrication. Note that excessive lubricant may cause unstable operation.

JIS symbol



Note: Using a cylinder with a large bore size (more than ø50 as a guide) with little exhaust restriction (eg, no speed controller, no silencer) may lead to a decrease in intermediate stop accuracy and stopping error. Please be careful.

Discrete model No.

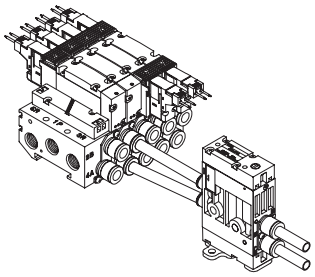
4G1R-PC

⚠ Precautions for model No. selection

*1: Specify the spacer positions in the manifold specifications sheet.
*2: Stacking of spacers is not possible.
*3: A spacer cannot be combined with a masking plate.
*4: The spacer pilot check valve can be mounted only when the piping method is base piping.

Related products

● Pilot check valve

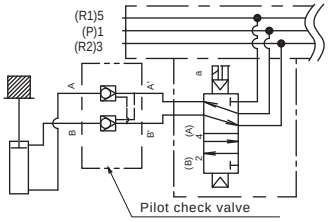


Specifications

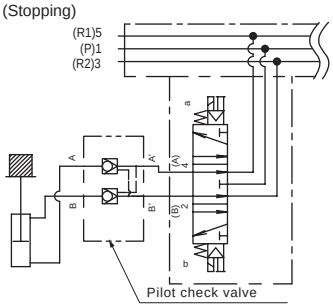
Item		4G2R-PCS-*-*
Effective cross-sectional area	mm^2	11
Weight	g	200

JIS symbol

(Position locking)



(Stopping)



Example of leak comparison
All ports closed (solenoid) valve
10 cm^3/min or less
Pilot check valve (4G2R-PCS)
0 to 0.3cm^3/min

How to order

● Discrete model No.

4G2R − PCS − C4 − ○ ——— P4

● Manifold model No.

M4G2R − PCS − C4 − ○ − 5 − P4

Model No.

Pilot check valve

Ⓐ Port size (*1)

Ⓑ Option (*2)

Ⓒ Station No.

Code	Description	
Ⓐ Port size		
	Valve side port	Cylinder side port
C4	ø4 push-in fitting	ø4 push-in fitting
C6	ø6 push-in fitting	ø6 push-in fitting
C8	ø8 push-in fitting	ø8 push-in fitting
Ⓑ Option		
Blank	No	
F	Port A/B filter built in	
D	DIN rail mount	
Ⓒ Station No.		
2	2 stations	
to	to	
10	10 stations	

⚠ Depending on use conditions, the pilot check valve body may emit resonance noise due to the air flow when the cylinder operates, but this is not an abnormality. Adjust the pipe length and bore size in that case.

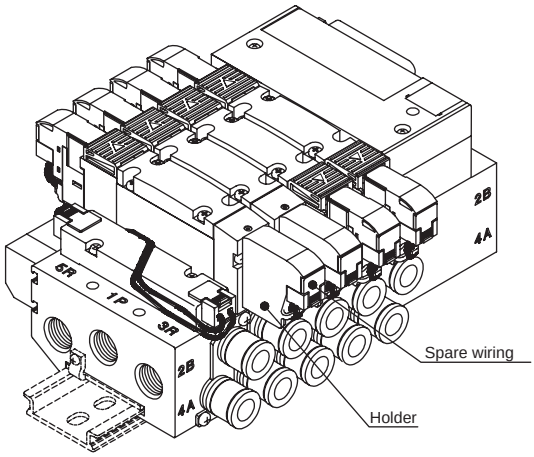
⚠ Precautions for model No. selection

*1: Contact CKD for information on mixing port sizes.
*2: The following applies when blank is selected as an option. Manual override: Non-locking/locking common Mounting method: Direct mounting

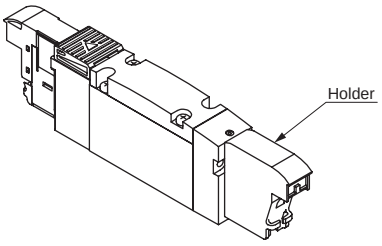
Related products

● Double wiring (single spare wiring)

For manifolds



Discrete valve (2-position single)



A holder for retaining the socket assembly is included.
(Not included for A type sockets.)
This can be used to hold the socket assembly no longer required when changing the valve from a double solenoid to a single solenoid.

Spare wiring (holder and A type socket assembly) is included on the cap side for single solenoid valves. When changing the valve from a single solenoid to a double solenoid, A type socket assembly is not required separately, so changing the valve is easy.

Example of model No.

● Manifold model No.(Example)

M 4GA1 1 0 R - C6 - T30 W1 H - 10 - 3 - P4

- A Model No.
- B Solenoid position
- C Port size
- D Reduced wiring Connection
- E Terminal/connector pin array
- F Option
- G Station No.
- H Voltage

Code	Description
E Terminal/connector pin array	
W1	Double wiring (With single spare wiring)

* Refer to How to order for each series for details about model numbers.

Related parts

Fitting adapter kit

4G1 R-JNT-ADAPTOR-KIT-C4 NC-F-P4

Ⓐ Model No.

Ⓑ Port size

Ⓒ NC/NO

Ⓓ Option

Ⓐ Model No.	3G1	3G2	3G3	4G1	4G2	4G3
Ⓑ Port size						
C4 ø4 straight	●	●			●	
C6 ø6 straight	●	●			●	
C8 ø8 straight		●	●		●	●
Ⓒ NC/NO						
NC For 3GA□10	●	●	●			
N0 For 3GA□110	●	●	●			
Blank 3GA□10, 3GA□110 or less	●	●		●	●	●
Ⓓ Option						
Blank	●	●	●	●	●	●
F Port A/B filter built in	●	●	●	●	●	●

Note: Fitting adaptor (with fitting), gasket, mounting screw (2I) is in a set.

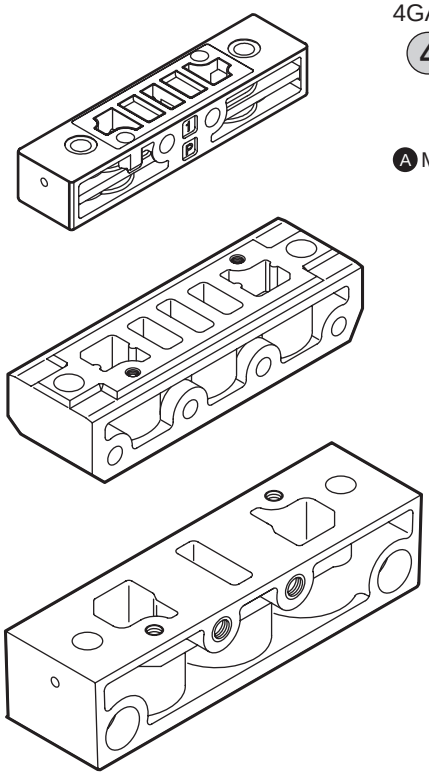
Female thread adapter kit

Model	Kit model No.	Set parts
3GA1/4GA1	4G1R-FML-ADAPTOR-KIT-[Bore size]-[Option]-P4	Female thread adaptor, gasket, mounting screw 2
3GA2/4GA2	4G2R-FML-ADAPTOR-KIT-[Bore size]-[Option]-P4	Female thread adaptor, gasket, mounting screw 2
3GA3/4GA3	4G3R-FML-ADAPTOR-KIT-[Bore size]-[Option]-P4	Female thread adaptor, gasket, mounting screw 2, Body mounting screw 2

Specify the [option] "F" when using the port A/B filter integrated type.

Related parts

(5) Sub-plate



4GA Pipe adaptor

4G1 R - ADAPTOR - M5 - ☐

Ⓐ Model No.

Ⓑ Port size

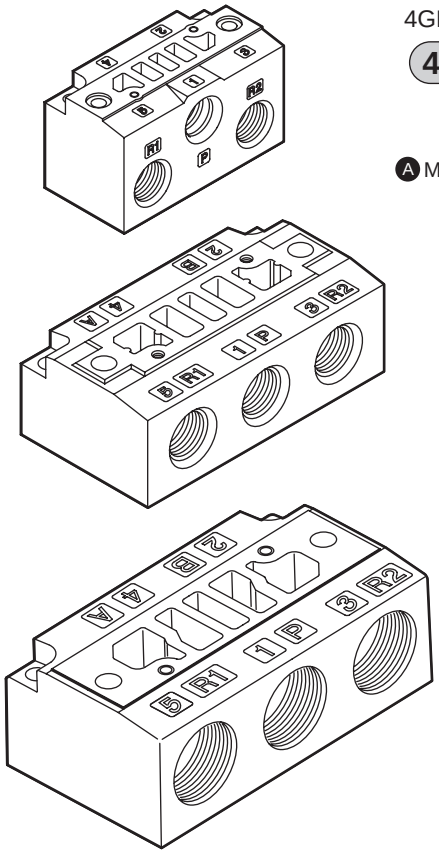
Ⓒ Option

P4 as standard Specifications

Ⓐ Model No.		4G1	4G2	4G3
Ⓑ Port size (P/R1/R2 port)				
M5	M5	●		
06	Rc1/8		●	
08	Rc1/4			●
06 N	NPT1/8		●	
08 N	NPT1/4			○
06G	G1/8		●	
Ⓒ Option				
P	Mounting plate with (Included)	●	●	●

is not available.

○ indicates made to order.



4GB Discrete sub-plate

4G1 R - SUB - BASE - 06 - ☐

Ⓐ Model No.

Ⓑ Port size

Ⓒ Option

P4 as standard Specifications

Ⓐ Model No.		4G1	4G2	4G3
Ⓑ Port size(A/B/P/R1/R2 port)				
06	Rc1/8	●		
08	Rc1/4		●	●
10	Rc3/8			●
06 N	NPT1/8	○		
08 N	NPT1/4		○	○
10 N	NPT3/8			○
06G	G1/8	○		
08G	G1/4		○	
Ⓒ Option				
K	External pilot	●	●	●
F	Port A/B filter built in *1	●	●	●

*1: PA filter is built into the port as standard.

is not available.

○ indicates made to order.

Related parts

(6) Manifold sub-plate kit individual wiring

● M4GA Sub-plate

M4GA1R-00-□-2

Ⓐ Model No.
Ⓑ Port size (Note1)
Ⓒ Option
Ⓓ Station No.

P4 as standard Specifications

Code	Description
Ⓐ Model No.	
M4GA1	Metal base 4G1 size Body piping
M4GA2	Metal base 4G2 size Body piping
M4GA3	Metal base 4G3 size Body piping
Ⓑ Port size	
00	Rc Thread
00N	NPT Thread
00G	G Thread
Ⓒ Option	
Blank	
K	External pilot
Ⓓ Station No.	
2	2 stations
to	to
20	Refer to the specifications page for the max. station number.

*1: Port size of P/R1/R2 port.

● M4GB1 Sub-plate

M4GB1R-C4-□-D-2-P4

Ⓐ Port size
Ⓑ Option
Ⓒ Mount type
Ⓓ Station No.

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Code	Description		
Ⓐ Port size			
Port	**4(A), 2(B) port**	***1**	**Port P/R1/R2**
C4	ø4 push-in fitting	○	
C6	ø6 push-in fitting	○	Rc1/8
M5	M5	●	
Port	**4(A), 2(B) port**	***1**	**Port P/R1/R2**
M5N	M5	●	NPT1/8
Port	**4(A), 2(B) port**	***1**	**Port P/R1/R2**
C4G	ø4 push-in fitting	○	
C6G	ø6 push-in fitting	○	G1/8
M5G	M5	●	
Ⓑ Option			
Blank			
K	External pilot		
F	Port A/B filter built in		(*2)
Ⓒ Mount type			
Blank	Direct mount		
D	DIN rail mount		(*3)
Ⓓ Station No.			
2	2 stations		
to	to		
20	Refer to the specifications page for the max. station number.		

*2: PA filter is built into the port as standard.
*3: The DIN rail kit needs to be prepared separately.

Related parts

(6) Manifold sub-plate kit individual wiring

● M4GB2/M4GB3 Sub-plate

M4GB2 R - CL4 - ( ) - 2 - P4

Ⓑ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓒ Option

Ⓓ Station No.

Code	Description		Ⓐ Model No. M4GB2	Ⓐ Model No. M4GB3
Ⓑ Port size				
Port	**4(A), 2(B) port**	***1**	**Port P/R1/R2 (1) = Rc1/4 (2) = Rc3/8**	
C4	ø4 push-in fitting	○	①	
C6	ø6 push-in fitting	○	①	
C8	ø8 push-in fitting	○	①	②
C10	ø10 push-in fitting (*2)	○		②
06	Rc1/8	●	①	
08	Rc1/4	●		②
Port	**4(A), 2(B) port**	***1**	**Port P/R1/R2 (3)=NPT1/4 (4)=NPT3/8**	
06 N	NPT1/8	●	③	
08 N	NPT1/4 (*2)	●		④
Port	**4(A), 2(B) port**	***1**	**Port P/R1/R2 (5) = G1/4**	
C4G	ø4 push-in fitting	○	⑤	
C6G	ø6 push-in fitting	○	⑤	
C8G	ø8 push-in fitting	○	⑤	
06G	G1/8	●	⑤	

Ⓒ Option	
Blank	
K	External pilot
F	Port A/B filter built in (*3)

Ⓓ Station No.	
2	2 stations
to	to
20	Refer to the specifications page for the max. station number.

*2: Available as made to order.
*3: PA filter is built into the port as standard.
*4: Direct mount and DIN rail mount are common.
*5: The DIN rail kit needs to be prepared separately.

Related parts

(7) Manifold sub-plate kit reduced wiring

● M4GA Sub-plate

M4GA1 R - 00 - ( ) - ( ) ( ) - 2

Ⓐ Model No.
Ⓑ Port size
Ⓒ Reduced wiring connection
Ⓓ Option
Ⓔ Mount type
Ⓕ Station No.

Code	Description	
Ⓐ Model No.		
M4GA1	Metal base 4G1 size Body piping	
M4GA2	Metal base 4G2 size Body piping	
M4GA3	Metal base 4G3 size Body piping	
Ⓑ Port size		
00	M5/Rc	
00 N	NPT	
00G	GThread	
Ⓒ Reduced wiring connection		
T10	Common terminal block (M3 thread)	Left-sided specs.
T10R		Right-sided specs.
T11	Common terminal block (clamping)	Left-sided specs.
T11R		Right-sided specs.
T30	DSub-connector	Left-sided specs.
T30R		Right-sided specs.
T50	20-pin Flat cable connector (with power supply terminal)	Left-sided specs.
T50R		Right-sided specs.
T51	20-pin Flat cable connector (without power supply terminal)	Left-sided specs.
T51R		Right-sided specs.
T52	10-pin Flat cable connector (without power supply terminal)	Left-sided specs.
T52R		Right-sided specs.
T53	26-pin Flat cable connector (without power supply terminal)	Left-sided specs.
T53R		Right-sided specs.
T56	20-pin Flat cable connector (without power supply terminal) Serial transmission slave unit OPP3 connection	Left-sided specifications
T81	For serial transmission slave (adapter) station OPP7 connection 16 points	Left-sided specs.
T82	For serial transmission slave (adapter) station OPP7 connection 32 points	Left-sided specs.
Ⓓ Option		
Blank		
K	External pilot	
Ⓔ Mount type		***1**
Blank	Direct mount	
D	DIN rail mount	*2
Ⓕ Station No.		
2	2 stations	
to	to	
20	Refer to the specifications page for the max. station number.	

1: In the case of T8 select either mount type. Blank only for items other than T8*.
*2: The DIN rail kit needs to be prepared separately.

Related parts

(7) Manifold sub-plate kit reduced wiring

● M4GB-sub-plate

M4GB1 R - C4 - T10 - ○○ - 2 -P4

Ⓐ Model No. Ⓑ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓒ Reduced wiring connection

Ⓓ Option

Ⓔ Mount type

Ⓕ Station No.

*2: A filter is built into port P as standard.
3: For T8, select either mount type. Blank only for items other than T8*.
*4: The DIN rail kit needs to be prepared separately.

Code	Description	Ⓐ Model No. M4GB1	M4GB2	M4GB3
Ⓐ Model No.				
M4GB1	Metal base 4G1 Size Base piping			
M4GB2	Metal base 4G2 Size Base piping			
M4GB3	Metal base 4G3 Size Base piping			

Ⓑ Port size		*1	Port P/R1/R2 ①=Rc1/8 ②=Rc1/4 ③=Rc3/8		
Port	**4(A), 2(B) port**				
C4	ø4 push-in fitting	○	①	②	
C6	ø6 push-in fitting	○	①	②	
C8	ø8 push-in fitting	○		②	③
C10	ø10 push-in fitting	○			③
M5	M5	●	①		
06	Rc1/8	●		②	
08	Rc1/4	●			③
Port	**4(A), 2(B) port**	*1	Port P/R1/R2 ④NPT=1/8 ⑤NPT=1/4 ⑥NPT=3/8		
M5N	M5	●	④		
06 N	NPT1/8	●		⑤	
08 N	NPT1/4	●			⑥
Port	**4(A), 2(B) port**	*1	Port P/R1/R2 ⑦=G1/8 ⑧=G1/4		
C4G	ø4 push-in fitting	○	⑦	⑧	
C6G	ø6 push-in fitting	○	⑦	⑧	
C8G	ø8 push-in fitting	○		⑧	
CXG	Push-in fitting mix	○	⑦	⑧	
M5G	M5	●	⑦		
06G	G1/8	●		⑧	
00	Discrete valve for integrated base	●	●	●	●

Ⓒ Reduced wiring connection		
T10	Common terminal block (M3 thread)	Left-sided specs.
T10R		Right-sided specs.
T11	Common terminal block (clamping)	Left-sided specs.
T11R		Right-sided specs.
T30	DSub-connector	Left-sided specs.
T30R		Right-sided specs.
T50	20-pin flat cable connector (with power supply terminal)	Left-sided specs.
T50R		Right-sided specs.
T51	20-pin flat cable connector (without power supply terminal)	Left-sided specs.
T51R		Right-sided specs.
T52	10-pin flat cable connector (without power supply terminal)	Left-sided specs.
T52R		Right-sided specs.
T53	26-pin flat cable connector (without power supply terminal)	Left-sided specs.
T53R		Right-sided specs.
T56	20-pin flat cable connector (without power supply terminal) Serial transmission slave unit OPP3 connection	Left-sided specs.
T81	For serial transmission slave (adapter) station OPP7 connection(16 points output)	Left-sided specs.
T82	For serial transmission slave (adapter) station OPP7 connection (32 points output)	Left-sided specs.

Ⓓ Option	
Blank	No option
K	External pilot
F	Port A/B filter built in *2

Ⓔ Mount type *3	
Blank	Direct mount
D	DIN rail mount *4

Ⓕ Station No.	
2	2 stations
to	to
20	Refer to the specifications page for the max. station number.

MEMO

How to fill out metal base M4G Series manifold specifications sheet

● Manifold model No. (example)

M 4 G(A/B) 1 8 0R- CX - T30 [ ] - 9 - 3 - P4

Solenoid valves | Solenoid position | Port size | Electrical connections | Terminal connector pin array method | Station No. | Voltage

Precautions for fitting mix CX

The port A/B fitting can be selected freely by indicating "CX" in the port size area.

Selectable cartridge fittings	
4G1	C4, C6, x (plug)
4G2	C4, C6, C8, × (plug)
4G3	C8, C10, × (plug)

*Port A/B fitting mix is not available for body piping.

Base piping M4GB*10 How to use as a 3-port valve

This can be used as NO/NC by attaching a plug cartridge on one side of port A/B. Indicate “X” in the fitting CX column.

Switching method	Plug mounting port
NC (Normally Closed)	B
NO (Normally Open)	A

For female thread specifications, indicate the required number of plugs in the “Thread plug” area at the end. Female threads and cartridge fitting cannot be used together in one manifold set.

Solenoid valve model No.	Fitting CX A	Fitting CX B	Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4GB11 9R-CX	C6	X	○	○																							2
4GB11 9R-C6					○	○																					2
4GB12 9R-C6							○	○																			2
4GB15 9R-CX	C6	C4							○	○																	2
4G 1 9R-																											
3GA1 9R-																											
3GA1 9R-																											
Masking plate 4G1R-MP(S)																											
Masking plate 4G1R-MP(D)											○																1

Indicate X for a plug

Fill in "CX" when changing the fitting combination

Mounting rail	Included partss	Blanking plug		Threaded plug	
L2= [ ] *Write an integer multiple of 12.5.		GWP 4-B	GWP 6-B	4G1R-M5P	
		Cable with D-sub-connector	4GR-CABLE-D0□-□		Push-in fitting tube remover (attached as standard) ☑ Not required (check)

Place a check here if the tube remover (standard accessory) is not required.

M4GB1*OR-C8 does not have a removal tool attached.

* A reference circuit diagram for the above manifold (example) is shown on the next page.

From the manifold specifications for each model, select and fill out the appropriate form.

● Individual wiring…M4G(A/B)1 (Page 190), M4G(A/B)2 (Page 191), M4G(A/B)3 (Page 192)

● Reduced wiring

- Common terminal block (T1*), D-sub-connector (T30) : M4G(A/B)1 (Page 193), M4G(A/B)2(Page 194), M4G(A/B)3(Page 195)
- Flat cable connector (T5*) : M4G(A/B)1 (Page 196), M4G(A/B)2(Page 197), M4G(A/B)3(Page 198)
- Serial transmission (T6G1) : M4G(A/B)1 (Page 199), M4G(A/B)2(Page 200), M4G(A/B)3(Page 201)
- Serial transmission (T8*) : M4G(A/B)1 (Page 202), M4G(A/B)2(Page 203), M4G(A/B)3(Page 204)

How to fill out wiring specifications sheet

Not required for standard wiring and double wiring.

● Wiring specifications sheet (example)

Complete these specifications when specifying the wiring order and additional cables.

Connector pinNO.		Installation position															
T30/T30R	T50/T50R/T6*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1	a																
14	2		a															
2	3			a														
15	4																	
3	5				a													
16	6																	
4	7					a												
17	8					b												
5	9 -Power supply						a											
18	10 +(COM)Power supply						b											
6	11							a										
19	12							b										
7	13								a									
20	14								b									
8	15									(a)								
21	16									(b)								
9	17																	
22	18																	
10	19 -Power supply																	
23	20 +(COM)Power supply																	
11																		
24																		
12																		
25																		
13 (COM)																		

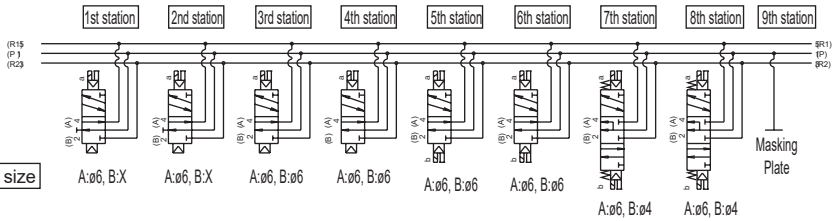
Spare cable wiring Precautions①

* Note that when T50 wiring is used, the COM polarity is + (plus).
* When T50 wiring is used, connector pin numbers 9, 10, 19, and 20 cannot be specified, because they are used for the external input power supply.
* Wiring is sequential from connector pin No. 1 in standard wiring. Contact CKD for special wiring order.

Precautions regarding spare wiring

① Spare wires are provided on the masking plate for the reduced wiring manifold...(Refer to page 180)
The number of wires for spare wiring can be specified by selecting the masking plate within the specifications.
4G *R -MP(S)...1 pc.
4G *R -MP(D)...2 pcs.
Spare wiring for the masking plate is provided in the manifold specifications sheet (a), (b).

Reference circuit diagram The simplified circuit diagram of the manifold model No. (example) on the previous page is shown below.



Port size A:ø6, B:X | A:ø6, B:X | A:ø6, B:ø6 | A:ø6, B:ø6 | A:ø6, B:ø6 | A:ø6, B:ø6 | A:ø6, B:ø4 | A:ø6, B:ø4

* The manifold station numbers are set in order from the left with the piping port facing forward.

M4G$^{A}_{B}$1 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M □ G $^{A}_{B}$1 □ 0R- □ - □ □ □ - □ - □ -P4

Solenoid valves / Solenoid position / Port size / Electrical connections / Other options / Mount type / Station No. / Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G □ 1 □ 9R- □ - □																											
4G □ 1 □ 9R- □ - □																											
4G □ 1 □ 9R- □ - □																											
4G □ 1 □ 9R- □ - □																											
4G □ 1 □ 9R- □ - □																											
3G □ 1 □ 9R- □ - □																											
3G □ 1 □ 9R- □ - □																											
Masking plate 4G1R-MP- □																											
Air supply spacer 4 G1R-P- □																											
Exhaust spacer 4G1R-R- □																											
Pilot check valve spacer 4G1R-PC																											

Mounting rail	Included parts	Blanking plug				Threaded plug	
L_2= □ *Write an integer multiple of 12.5.		GWP 4-B		GWP 6-B		4G1R-M5P	
		Push-in fitting tube remover (attached as standard) Not required (check the box) □					

M4G$^{A}_{B}$2Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M □ G$^{A}_{B}$ 2 □ 0R- □ - □ □ □ - □ - □ -P4

Solenoid valves / Solenoid position / Port size / Electrical connections / Other options / Mount type / Station No. / Voltage

Solenoid valve model No.	Fitting CX		Valve installation position																							Adjustable Qty.
	A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
4G □ 2 □ 9R- □ - □																											
4G □ 2 □ 9R- □ - □																											
4G □ 2 □ 9R- □ - □																											
4G □ 2 □ 9R- □ - □																											
4G □ 2 □ 9R- □ - □																											
3G □ 2 □ 9R- □ - □																											
3G □ 2 □ 9R- □ - □																											
Masking plate **4G2R-MP-** □																											
Air supply spacer **4G2R-P-** □																											
Exhaust spacer **4G2R-R**																											

Mounting rail	L_2= □ *Write an integer multiple of 12.5.	Included parts	Blanking plug						Threaded plug	
			GWP 4-B		GWP 6-B		GWP 8-B		4G2R-06P	

* Can only be selected for B types.

M4G$^{A}_{B}$3Manifold specifications sheet

Date issued / /
Company
Contact
Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M □ G$^{A}_{B}$3 □ 0R- □ - □ □ □ - □ - □ -P4

Solenoid valves / Solenoid position / Port size / Electrical connections / Other options / Mount type / Station No. / Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
3GA3 □ 9R- □																											
3GA3 □ 9R- □																											
Masking plate 4G3R-MP- □																											
Air supply spacer 4G3R-P- □																											
Exhaust spacer 4G3R-R- □																											

Mounting rail	L_2= □ *Write an integer multiple of 12.5.	Included parts	Blanking plug				Threaded plug	
			GWP 8-B		GWP 10-B		4G3R-08P	

M4G $^{A}_{B}$1-T1, 3 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M G $^{A}_{B}$1 0R- - - - - - - - - P4

Solenoid valves | Solenoid position | Port size | Reduced wiring connection | Terminal/connector pin Array method | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX		Valve installation position																							Apparatus
	A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
4G 1 9R- -																											
4G 1 9R- -																											
4G 1 9R- -																											
4G 1 9R- -																											
4G 1 9R- -																											
3G 1 9R- -																											
3G 1 9R- -																											
Masking plate 4G1R-MP(S)-																											
Masking plate 4G1R-MP(D)-																											
Air supply spacer 4 G1R-P-																											
Exhaust spacer 4G1R-R-																											
Pilot check valve spacer 4G1R-PC																											

Mounting rail	Included partss	Blanking plug				Threaded plug	
L2= *Write an integer multiple of 12.5.		GWP 4-B		GWP 6-B		4G1R-M5P	
		Cable with D-sub-connector		4GR-CABLE-D0□-□		Push-in fitting tube remover (attached as standard) Not required (check the box) □	

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No.			Installation position																							
T10/T10R	T11/T11R	T30/T30R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1																								
2	2	14																								
3	3	2																								
4	4	15																								
5	5	3																								
6	6	16																								
7	7	4																								
8	8	17																								
9	9	5																								
10	10	18																								
11	11	6																								
12	12	19																								
13	13	7																								
14	14	20																								
15	15	8																								
16	16	21																								
COM	17	9																								
COM	18	22																								
	19	10																								
	20	23																								
	21	11																								
	22	24																								
	23	12																								
	24	25																								
	COM	13 (COM)																								
	COM																									

M4G$^{A}_{B}$2-T1, 3 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M□G$^{A}_{B}$2□0R-□-□□□□-□-□-P4

Solenoid valves | Solenoid position | Port size | Reduced wiring connection | Terminal/connector pin Array method | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G□2□9R-□-□																											
4G□2□9R-□-□																											
4G□2□9R-□-□																											
4G□2□9R-□-□																											
4G□2□9R-□-□																											
3G□2□9R-□-□																											
3G□2□9R-□-□																											
Masking plate 4G2R-MP(S)-□																											
Masking plate 4G2R-MP(D)-□																											
Air supply spacer 4G2R-P-□																											
Exhaust spacer 4G2R-R-□																											

Mounting rail: L_2= □ *Write an integer multiple of 12.5.

Included partss:

Blanking plug						Threaded plug	
GWP 4-B		GWP 6-B		GWP 8-B		4G2R-06P	
Cable with D-sub-connector		4GR-CABLE-D0□-□					

* Can only be selected for B types.

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T10/T10R	T11/T11R	T30/T30R	Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1																								
2	2	14																								
3	3	2																								
4	4	15																								
5	5	3																								
6	6	16																								
7	7	4																								
8	8	17																								
9	9	5																								
10	10	18																								
11	11	6																								
12	12	19																								
13	13	7																								
14	14	20																								
15	15	8																								
16	16	21																								
COM	17	9																								
COM	18	22																								
	19	10																								
	20	23																								
	21	11																								
	22	24																								
	23	12																								
	24	25																								
	COM	13 (COM)																								
	COM																									

M4G $^{A}_{B}$3-T1, 3 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M □ G$^{A}_{B}$3 □ 0R- □ - □ □ □ □ - □ - □ -P4

Solenoid valves | Solenoid position | Port size | Reduced wiring connection | Terminal/connector pin Array method | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
3GA3 □ 9R- □																											
3GA3 □ 9R- □																											
Masking plate **4G3R-MP(S)-**																											
Masking plate **4G3R-MP(D)-**																											
Air supply spacer **4G3R-P-**																											
Exhaust spacer **4G3R-R-**																											

Mounting rail: L_2= □ *Write an integer multiple of 12.5.

Included partss:

Blanking plug				Threaded plug	
GWP 8-B		**GWP 10-B**		**4G3R-08P**	
Cable with D-sub-connector		4GR-CABLE-D0□-□			

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T10/T10R	T11/T11R	T30/T30R	Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1																								
2	2	14																								
3	3	2																								
4	4	15																								
5	5	3																								
6	6	16																								
7	7	4																								
8	8	17																								
9	9	5																								
10	10	18																								
11	11	6																								
12	12	19																								
13	13	7																								
14	14	20																								
15	15	8																								
16	16	21																								
COM	17	9																								
COM	18	22																								
	19	10																								
	20	23																								
	21	11																								
	22	24																								
	23	12																								
	24	25																								
	COM	13 (COM)																								
	COM																									

M4G1 reduced wiring

M4G$^{A}_{B}$1-T5 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M G$^{A}_{B}$1 0R- - -P4

Solenoid valves | Solenoid position | Port size | Reduced wiring connection | Terminal/connector pin Array method | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G 1 9R- -																											
4G 1 9R- -																											
4G 1 9R- -																											
4G 1 9R- -																											
4G 1 9R- -																											
3G 1 9R- -																											
3G 1 9R- -																											
Masking plate **4G1R-MP(S)-**																											
Masking plate **4G1R-MP(D)-**																											
Air supply spacer **4 G1R-P-**																											
Exhaust spacer **4G1R-R-**																											
Pilot check valve spacer **4G1R-PC**																											

Mounting rail: L_2 = *Write an integer multiple of 12.5.

Included parts:

Blanking plug				Threaded plug	
GWP 4-B		**GWP 6-B**		**4G1R-M5P**	

Push-in fitting tube remover (attached as standard) Not required (check the box) □

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T50/T50R	T51/T51R	T52/T52R	T53/T53R	Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1																								
2	2	2	2																								
3	3	3	3																								
4	4	4	4																								
5	5	5	5																								
6	6	6	6																								
7	7	7	7																								
8	8	8	8																								
9 - Power supply	9	9 COM	9																								
10 +(COM)Power supply	10	10 COM	10																								
11	11		11																								
12	12		12																								
13	13		13																								
14	14		14																								
15	15		15																								
16	16		16																								
17	17		17																								
18	18		18																								
19 - Power supply	19 COM		19																								
20 +(COM)Power supply	20 COM		20																								
			21																								
			22																								
			23																								
			24																								
			25 COM																								
			26 COM																								

* Note that when T50 wiring is used, the COM polarity is + (plus).
* When T50 wiring is used, connector pin numbers 9, 10, 19, and 20 cannot be specified, because they are used for the external input power supply.

M4G$^{A}_{B}$2-T5 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M G $^{A}_{B}$2 0R- - - - - - - - P4

Solenoid valves / Solenoid position / Port size / Reduced wiring connection / Terminal/connector pin Array method / Option / Mount type / Station No. / Voltage

Solenoid valve model No.	Fitting CX		Valve installation position																								Quantity
	A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
4G 2 9R- -																											
4G 2 9R- -																											
4G 2 9R- -																											
4G 2 9R- -																											
4G 2 9R- -																											
3G 2 9R- -																											
3G 2 9R- -																											
Masking plate **4G2R-MP(S)-**																											
Masking plate **4G2R-MP(D)-**																											
Air supply spacer **4G2R-P-**																											
Exhaust spacer **4G2R-R-**																											

Mounting rail	Included parts	Blanking plug						Threaded plug	
L2= *Write an integer multiple of 12.5.		GWP 4-B		GWP 6-B		GWP 8-B		4G2R-06P	

* Can only be selected for B types.

● Wiring specifications sheet (Not required for standard wiring/double wiring...Wiring order, Complete these specifications when specifying the expansion cables)

Connector pin No.				Installation position																							
T50/T50R	T51/T51R	T52/T52R	T53/T53R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1																								
2	2	2	2																								
3	3	3	3																								
4	4	4	4																								
5	5	5	5																								
6	6	6	6																								
7	7	7	7																								
8	8	8	8																								
9 - Power supply	9	9 COM	9																								
10 +(COM)Power supply	10	10 COM	10																								
11	11		11																								
12	12		12																								
13	13		13																								
14	14		14																								
15	15		15																								
16	16		16																								
17	17		17																								
18	18		18																								
19 - Power supply	19 COM		19																								
20 +(COM)Power supply	20 COM		20																								
			21																								
			22																								
			23																								
			24																								
			25 COM																								
			26 COM																								

* Note that when T50 wiring is used, the COM polarity is + (plus).

* When T50 wiring is used, connector pin numbers 9, 10, 19, and 20 cannot be specified, because they are used for the external input power supply.

M4G3 reduced wiring

M4G$^{A}_{B}$3-T5 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M ☐ G$^{A}_{B}$3 ☐ 0R- ☐ - ☐ ☐ ☐ ☐ - ☐ - ☐ -P4

Solenoid valves | Solenoid position | Port size | Reduced wiring connection | Terminal/connector pin Array method | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G ☐ 3 ☐ 9R- ☐																											
4G ☐ 3 ☐ 9R- ☐																											
4G ☐ 3 ☐ 9R- ☐																											
4G ☐ 3 ☐ 9R- ☐																											
4G ☐ 3 ☐ 9R- ☐																											
3GA3 ☐ 9R- ☐																											
3GA3 ☐ 9R- ☐																											
Masking plate 4G3R-MP(S)- ☐																											
Masking plate 4G3R-MP(D)- ☐																											
Air supply spacer 4G3R-P- ☐																											
Exhaust spacer 4G3R-R- ☐																											

Mounting rail	L_2= ☐ *Write an integer multiple of 12.5.	Included parts	Blanking plug		Threaded plug	
			GWP 8-B	GWP 10-B	4G3R-08P	

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T50/T50R	T51/T51R	T52/T52R	T53/T53R	Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1																								
2	2	2	2																								
3	3	3	3																								
4	4	4	4																								
5	5	5	5																								
6	6	6	6																								
7	7	7	7																								
8	8	8	8																								
9 - Power supply	9	9 COM	9																								
10 +(COM)Power supply	10	10 COM	10																								
11	11		11																								
12	12		12																								
13	13		13																								
14	14		14																								
15	15		15																								
16	16		16																								
17	17		17																								
18	18		18																								
19 - Power supply	19 COM		19																								
20 +(COM)Power supply	20 COM		20																								
			21																								
			22																								
			23																								
			24																								
			25 COM																								
			26 COM																								

* When T50 wiring is used, the COM polarity is + (positive).
* When T50 wiring is used, connector pin numbers 9, 10, 19, and 20 cannot be specified, because they are used for the external input power supply.

M4G$^{A}_{B}$1-T6G1 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M G $^{A}_{B}$1 0R- - T6G1 D - - 3 - P4

Solenoid valves | Solenoid position | Port size | Serial transmission | Terminal/connector pin array | Option | Station No. | Voltage

Solenoid valve model No.	Fitting CX		Valve installation position																Quantity
	A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
4G 1 9R- -																			
4G 1 9R- -																			
4G 1 9R- -																			
4G 1 9R- -																			
4G 1 9R- -																			
3G 1 9R- -																			
3G 1 9R- -																			
Masking plate **4G1R-MP(S)-**																			
Masking plate **4G1R-MP(D)-**																			
Air supply spacer **4 G1R-P-**																			
Exhaust spacer **4G1R-R-**																			
Pilot check valve spacer **4G1R-PC**																			

Mounting rail	L_2= *Write an integer multiple of 12.5.	Included parts	Blanking plug				Threaded plug	
			GWP 4-B		GWP 6-B		4G1R-M5P	
			Push-in fitting tube remover (attached as standard) Not required (check the box) ☐					

*Tube remover is not included with C8 of M4GB.

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No.		Installation position															
T6G1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
T6G1:CC-Link 16 points	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																
	10 COM																
	11																
	12																
	13																
	14																
	15																
	16																
	17																
	18																
	19																
	20 COM																

M4G$^{A}_{B}$2-T6G1 Manifold specifications sheet

Date issued / /
Company
Contact
Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M G $^{A}_{B}$2 0R- - T6G1 D - - 3 -P4

Solenoid valves / Solenoid position / Port size / Serial transmission / Terminal/connector pin array / Option / Station No. / Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Quantity
4G 2 9R- -																			
4G 2 9R- -																			
4G 2 9R- -																			
4G 2 9R- -																			
4G 2 9R- -																			
3G 2 9R- -																			
3G 2 9R- -																			
Masking plate 4G2R-MP(S)-																			
Masking plate 4G2R-MP(D)-																			
Air supply spacer 4G2R-P-																			
Exhaust spacer 4G2R-R-																			

Mounting rail	L_2= *Write an integer multiple of 12.5.	Included parts	Blanking plug						Threaded plug	
			GWP 4-B		GWP 6-B		GWP 8-B		4G2R-06P	

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No.		Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
T6G1																	
T6G1:CC-Link 16 points	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																
	10 COM																
	11																
	12																
	13																
	14																
	15																
	16																
	17																
	18																
	19																
	20 COM																

M4G$^{A}_{B}$3-T6G1 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M □ G$^{A}_{B}$ 3 □ 0R- □ - T6G1 □ □ D - □ - 3 - P4

Solenoid valves | Solenoid position | Port size | Serial transmission | Terminal/connector pin array | Option | Station No. | Voltage

Solenoid valve model No.	Fitting CX		Valve installation position																Q'ty
	A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
4G □ 3 □ 9R- □																			
4G □ 3 □ 9R- □																			
4G □ 3 □ 9R- □																			
4G □ 3 □ 9R- □																			
4G □ 3 □ 9R- □																			
3GA3 □ 9R- □																			
3GA3 □ 9R- □																			
Masking plate 4G3R-MP(S)- □																			
Masking plate 4G3R-MP(D)- □																			
Air supply spacer 4G3R-P- □																			
Exhaust spacer 4G3R-R- □																			

Mounting rail	Included parts	Blanking plug				Threaded plug	
L_2= □ *Write an integer multiple of 12.5.		GWP 8-B		GWP 10-B		4G3R-08P	

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No.		Installation position															
T6G1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
T6G1:CC-Link 16 points	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																
	10 COM																
	11																
	12																
	13																
	14																
	15																
	16																
	17																
	18																
	19																
	20 COM																

M4G$^{A}_{B}$1-T8 Manifold specifications sheet

Date issued / /
Company
Contact
Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M G $^{A}_{B}$1 [ ] 0R- [ ] - [ ] [ ] [ ] [ ] - [ ] - 3 - P4

Solenoid valves | Solenoid position | Port size | Serial transmission | Terminal/connector pin array | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Quantity
4G [ ] 1 [ ] 9R- [ ] [ ]																							
4G [ ] 1 [ ] 9R- [ ] [ ]																							
4G [ ] 1 [ ] 9R- [ ] [ ]																							
4G [ ] 1 [ ] 9R- [ ] [ ]																							
4G [ ] 1 [ ] 9R- [ ] [ ]																							
3G [ ] 1 [ ] 9R- [ ] [ ]																							
3G [ ] 1 [ ] 9R- [ ] [ ]																							
Masking plate 4G1R-MP(S)- [ ]																							
Masking plate 4G1R-MP(D)- [ ]																							
Air supply spacer 4 G1R-P- [ ]																							
Exhaust spacer 4G1R-R- [ ]																							
Pilot check valve spacer 4G1R-PC																							

Mounting rail: L_2= [ ] *Write an integer multiple of 12.5.

Included parts:

Blanking plug				Threaded plug	
GWP 4-B		GWP 6-B		4G1R-M5P	

Push-in fitting tube remover (attached as standard) Not required (check the box) ☐

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T8*				Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
T8G1	CC-Link	NPN	16 points	1																			
T8G2			32 points	2																			
T8GP1		PNP	16 points	3																			
T8GP2			32 points	4																			
T8P1	PROFIBUS-DP	NPN	16 points	5																			
T8P2			32 points	6																			
T8PP1		PNP	16 points	7																			
T8PP2			32 points	8																			
T8EC1	EtherCAT	NPN	16 points	9																			
T8EC2			32 points	10																			
T8ECP1		PNP	16 points	11																			
T8ECP2			32 points	12																			
T8EN1	EtherNet/IP	NPN	16 points	13																			
T8EN2			32 points	14																			
T8ENP1		PNP	16 points	15																			
T8ENP2			32 points	16																			
T8D1	DeviceNet	NPN	16 points	17																			
T8D2			32 points	18																			
T8DP1		PNP	16 points	19																			
T8DP2			32 points	20																			
T8EB1	CC-Link IEF Basic	NPN	16 points	21																			
T8EB2			32 points	22																			
T8EBP1		PNP	16 points	23																			
T8EBP2			32 points	24																			
T8EP1	PROFINET	NPN	16 points	25																			
T8EP2			32 points	26																			
T8EPP1		PNP	16 points	27																			
T8EPP2			32 points	28																			
				29																			
				30																			
				31																			
				32																			

M4G$^{A}_{B}$2-T8 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M G $^{A}_{B}$2 0R- - - 3 - P4

Solenoid valves | Solenoid position | Port size | Serial transmission | Terminal/Connector pin Array method | Option | Mount Type | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Quantity
4G 2 9R- -																							
4G 2 9R- -																							
4G 2 9R- -																							
4G 2 9R- -																							
4G 2 9R- -																							
3G 2 9R- -																							
3G 2 9R- -																							
Masking plate **4G2R-MP(S)-**																							
Masking plate **4G2R-MP(D)-**																							
Air supply spacer **4G2R-P-**																							
Exhaust spacer **4G2R-R-**																							

Mounting rail	L_2 = *Write an integer multiple of 12.5.	Included parts	Blanking plug						Threaded plug	
			GWP 4-B		GWP 6-B		GWP 8-B		4G2R-06P	

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T8*				Installation position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
T8G1	CC-Link	NPN	16 points	1																				
T8G2			32 points	2																				
T8GP1		PNP	16 points	3																				
T8GP2			32 points	4																				
T8P1	PROFIBUS-DP	NPN	16 points	5																				
T8P2			32 points	6																				
T8PP1		PNP	16 points	7																				
T8PP2			32 points	8																				
T8EC1	EtherCAT	NPN	16 points	9																				
T8EC2			32 points	10																				
T8ECP1		PNP	16 points	11																				
T8ECP2			32 points	12																				
T8EN1	EtherNet/IP	NPN	16 points	13																				
T8EN2			32 points	14																				
T8ENP1		PNP	16 points	15																				
T8ENP2			32 points	16																				
T8D1	DeviceNet	NPN	16 points	17																				
T8D2			32 points	18																				
T8DP1		PNP	16 points	19																				
T8DP2			32 points	20																				
T8EB1	CC-Link IEF Basic	NPN	16 points	21																				
T8EB2			32 points	22																				
T8EBP1		PNP	16 points	23																				
T8EBP2			32 points	24																				
T8EP1	PROFINET	NPN	16 points	25																				
T8EP2			32 points	26																				
T8EPP1		PNP	16 points	27																				
T8EPP2			32 points	28																				
				29																				
				30																				
				31																				
				32																				

M4G$^{A}_{B}$3-T8 sManifold specifications sheet

Date issued / /
Company
Contact
Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M □ G $^{A}_{B}$ 3 □ 0R- □ - □ □ □ □ - □ - 3 - P4

Solenoid valves / Solenoid position / Port size / Serial transmission / Terminal/Connector pin Array method / Option / Mount Type / Station No. / Voltage

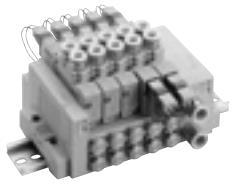
Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Quantity
4G □ 3 □ 9R- □																			
4G □ 3 □ 9R- □																			
4G □ 3 □ 9R- □																			
4G □ 3 □ 9R- □																			
4G □ 3 □ 9R- □																			
3GA3 □ 9R- □																			
3GA3 □ 9R- □																			
Masking plate 4G3R-MP(S)-																			
Masking plate 4G3R-MP(D)-																			
Air supply spacer 4G3R-P-																			
Exhaust spacer 4G3R-R-																			

Mounting rail	Included parts	Blanking plug				Threaded plug	
L2= □ *Write an integer multiple of 12.5.		GWP 8-B		GWP 10-B		4G3R-08P	

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T8*				Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
T8G1	CC-Link	NPN	16 points	1															
T8G2			32 points	2															
T8GP1		PNP	16 points	3															
T8GP2			32 points	4															
T8P1	PROFIBUS-DP	NPN	16 points	5															
T8P2			32 points	6															
T8PP1		PNP	16 points	7															
T8PP2			32 points	8															
T8EC1	EtherCAT	NPN	16 points	9															
T8EC2			32 points	10															
T8ECP1		PNP	16 points	11															
T8ECP2			32 points	12															
T8EN1	EtherNet/IP	NPN	16 points	13															
T8EN2			32 points	14															
T8ENP1		PNP	16 points	15															
T8ENP2			32 points	16															
T8D1	DeviceNet	NPN	16 points	17															
T8D2			32 points	18															
T8DP1		PNP	16 points	19															
T8DP2			32 points	20															
T8EB1	CC-Link IEF Basic	NPN	16 points	21															
T8EB2			32 points	22															
T8EBP1		PNP	16 points	23															
T8EBP2			32 points	24															
T8EP1	PROFINET	NPN	16 points	25															
T8EP2			32 points	26															
T8EPP1		PNP	16 points	27															
T8EPP2			32 points	28															
				29															
				30															
				31															
				32															

MEMO



Pneumatic Valves
Catalog No. CB-023SA

Individual wiring block manifold
Body piping

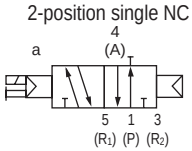
MN4GA1, 2 Series

● Cylinder bore size: ø20 to ø80

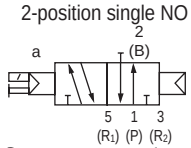
JIS symbol

● 3-port valve

2-position single NC

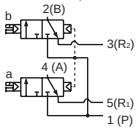


2-position single NO

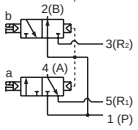


● Two 3-port valves integrated

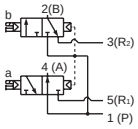
(A side valve: NC, B side valve: NC)



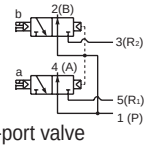
(A side valve: NC, B side valve: NO)



(A side valve: NO, B side valve: NC)

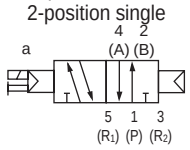


(A side valve: NO, B side valve: NO)

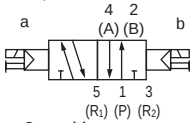


● 5-port valve

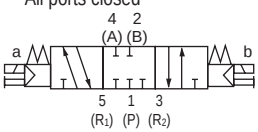
2-position single



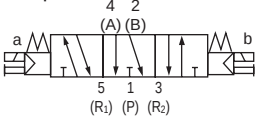
2-position double



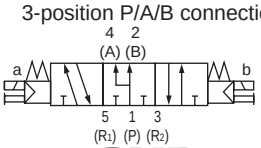
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item	Description
Manifold	Block manifolds
Mounting method	DIN rail mount
Air supply and exhaust method	Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
Piping direction	Valve top direction
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2 (*3)
Proof pressure MPa	1.05
Ambient temperature °C	-5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common (standard)
Lubrication (*1)	Not required
Degree of protection (*2)	Dust-proof
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Avoid dripping water or oil, etc., during use.IP65 (water jet proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

*3 The working pressure range is 0 to 0.7 MPa when the external pilot (option code: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.

Electrical specifications

Item		Description					
Rated voltage V		24 DC	12 DC	5 DC	3 DC	100 AC	200 AC
Voltage fluctuation range		±10%					
Holding current A (*4)	Standard	0.015 (0.017)	0.030 (0.034)	0.072 (0.082)	0.120 (0.136)	0.009 (0.009)	0.006 (0.006)
	With low exoergic/energy circuit	0.005	0.010	-		-	
Power consumption W (*4)	Standard	0.35(0.40)		0.35(0.40)		-	
	With low exoergic/energy circuit	0.1		-		-	
Apparent power VA (*4)	Standard	-		-		0.93 (0.98)	1.40
Thermal class		B					
Surge suppressor		Option					
Indicator		Lamp (option)					

*4: Values in ( ) apply when lamp is included. In addition, the type with low exoergic/energy circuit is only available with lamp.

Individual specifications

Item			MN3GA1/MN4GA1	MN3GA2/MN4GA2
Max. station No.			24 stations	20 stations
Port size	Metric fitting/ M5, Rc thread	Port A/B	Push-in fitting ø4, ø6 M5	Push-in fitting ø4, ø6, ø8 Rc1/8
		P/R Port	Push-in fitting ø6, ø8	Push-in fitting ø8, ø10
	Metric fitting, G thread	Port A/B	-	G1/8
		P/R Port	-	Push-in fitting ø8, ø10

• For DIN rail mounting "Pneumatic Valves No.CB-023SA"of "Mounting orientation" for details.

• Weight "Pneumatic Valves No.CB-023SA".

Performance/characteristics by model

Item			MN3GA1/MN4GA1		MN3GA2/MN4GA2	
			ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		9	12	12	29
	2-position	Single	12	12	19	19
		Double	9	-	18	-
	3-position	A/B/R connection	8	15	17	30

Values with lamp/surge suppressor are shown. The response times are values with supply pressure of 0.5 MPa at 20°C and without lubrication. They depend on the pressure and the lubricant quality.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B → R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
MN3GA1 MN4GA1	Two 3-port valves integrated		0.87	0.37	1.0 (0.68)	0.14 (0.22)
	2-position		0.98	0.33	1.2 (0.71)	0.11 (0.27)
	3-position	All ports closed	0.92	0.34	1.0 -	0.16 -
		A/B/R connection	0.92	0.29	1.1 (0.69)	0.13 (0.22)
		P/A/B connection	1.1	0.35	1.1 -	0.17 -
MN3GA2 MN4GA2	Two 3-port valves integrated		1.7	0.37	2.2 (1.6)	0.13 (0.21)
	2-position		2.2	0.21	2.5 (1.7)	0.19 (0.10)
	3-position	All ports closed	2.0	0.25	2.3 -	0.10 -
		ABRConnection	2.0	0.27	2.5 (1.7)	0.18 (0.12)
		P/A/B connection	2.3	0.31	2.3 -	0.16 -

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
*2: Values in ( ) are with built-in exhaust check valve.

Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 208.

CE marking specifications

** - Voltage - **ST**

• Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

MN4GA1, 2 Series

Individual wiring block manifold; Body piping

How to order

Manifold model No.

MN4GA1 1 0 R - C6 - E2 H - 10 - 3 - P4

3-port manifold model No.

MN3GA1 1 0 R - C6 - E2 H - 10 - 3 - P4

Discrete valve block with solenoid valve

N4GA1 1 0 R - C6 - E2 H — 3 - P4

Discrete 3-port valve block with solenoid valve

N3GA1 1 0 R - C6 - E2 H — 3 - P4

Discrete solenoid valve

4GA1 1 9 R - C6 - E2 H — 3 - P4

Discrete 3-port solenoid valve

3GA1 1 9 R - C6 - E2 H — 3 - P4

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Port size (*1)

*4
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓓ Electrical connections

Ⓔ Option

Ⓕ Station No.

Ⓖ Voltage

Precautions for model selection

*1 Specify the port P/R bore size with the supply and exhaust block model No. on the manifold specifications sheet.

*2 In the case of a mix with a 4, 5-port valve, it will be MN4GA*80. Further, select MN3GA*80 when mixing with masking plate.

*3 Not compatible with combination with external pilot (K). Dimensions are the same as those of the respective 2-position double solenoid.

*5 The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.
***The 63-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**

*7 Consult with CKD when using a vacuum with the external pilot (K).

8 E2 and E2*J connectors and 12/24 VDC only are supported.In addition, surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.

*9 Surgeless specifications.

*10 A filter is built into port P as standard.

*11 **Specify the spacer mounting position/quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with masking plates is not possible. For details, refer to pages 227 to 228.**

*12 DIN terminal box only is supported.

Ⓐ Model No.								
Manifold				Discrete valve block with solenoid valve/Discrete solenoid valve			
3-port valve		5-port valve					
MN3GA1	MN3GA2	MN4GA1	MN4GA2	(N)3GA1	(N)3GA2	(N)4GA1	(N)4GA2

Code	Description									
Ⓑ Solenoid position										
1	2-position single			●	●			●	●	
2	2-position double			●	●			●	●	
3	3-position all ports closed			●	●			●	●	
4	3-position ABR connection			●	●			●	●	
5	3-position PAB connection			●	●			●	●	
1	2-position single Normally Closed (*2)	●	●			●	●			
11	2-position single Normally Open (*2)	●	●			●	●			
66	3-port valve Two valves integrated (*2)(*3) — A side valve: Normally Closed	●	●			●	●			
	B side valve: Normally Closed									
67	A side valve: Normally Closed	●	●			●	●			
	B side valve: Normally Open									
76	A side valve: Normally Open	●	●			●	●			
	B side valve: Normally Closed									
77	A side valve: Normally Open	●	●			●	●			
	B side valve: Normally Open									
8	Mix manifold (when there are multiple solenoid positions)	●	●	●	●	●	●	●	●	
Ⓒ Port size (port A/B)										
Type	Metric fitting/Rc thread	*4								
C4	ø4 push-in fitting	○	○	○	○	○	○	○	○	
C6	ø6 push-in fitting	○	○	○	○	○	○	○	○	
C8	ø8 push-in fitting		○		○		○		○	
CX	Push-in fitting mix (*5)	○	○	○	○					
M5	M5	●		●		●		●		
06	Rc1/8		●		●		●		●	
Type	G thread									
06G	G1/8		●		●		●		●	
Ⓓ Electrical connections										
Refer to the following page for electrical connections										
Ⓔ Option										
Blank	Manual override of non-locking/locking common	●	●	●	●	●	●	●	●	
M	Non-locking manual override	●	●	●	●	●	●	●	●	
H	With exhaust check valve (*6)	●	●	●	●	●	●	●	●	
K	External pilot (*7)	●	●	●	●	●	●	●	●	
A	Ozone/coolant proof product	●	●	●	●	●	●	●	●	
S	Surgeless (*8)	●	●	●	●	●	●	●	●	
E	Low exoergic/energy circuit (*8)(*9)	●	●	●	●	●	●	●	●	
F	Port A/B filter built in (*10)	●	●	●	●	●	●	●	●	
Z1	Air supply spacer (*11)	●	●	●	●					
Z3	Exhaust spacer (*11)	●	●	●	●					
Ⓕ Station No.										
1	1 station	●	●	●	●					
to	to									
24	24 stations (Max. station number for MN3GA2/MN4GA2 is 20.)									
Ⓖ Voltage										
1	100 VAC (rectifier integrated)	●	●	●	●	●	●	●	●	
2	200 VAC (rectifier integrated) (*12)		●		●		●		●	
3	24 VDC	●	●	●	●	●	●	●	●	
4	12 VDC	●	●	●	●	●	●	●	●	

is not available.

[Electrical connection list]

Ⓓ Electrical connections			Ⓐ Model No. MN3GA1	MN3GA2	MN4GA1	MN4GA2	(N)3GA1	(N)3GA2	(N)4GA1	(N)4GA2
			Manifold 3-port valve		Manifold 5-port valve		Discrete valve block with solenoid valve/Discrete solenoid valve			
Blank	Grommet lead wire (300 mm)	(*13)	●	●	●	●	●	●	●	●
B	DIN terminal box (Pg 7)	With surge suppressor/lamp (*14))(*16)		●		●		●		●
BN	DIN terminal box (Pg7) (without terminal box)	With surge suppressor (*14)(*16)		●		●		●		●
E-connector (upward/lateral common)										
E0	Lead wire (300 mm)	(*15)	●	●	●	●	●	●	●	●
E00	Lead wire (500 mm)	(*15)	●	●	●	●	●	●	●	●
E01	Lead wire (1000 mm)	(*15)	●	●	●	●	●	●	●	●
E02	Lead wire (2000 mm)	(*15)	●	●	●	●	●	●	●	●
E03	Lead wire (3000 mm)	(*15)	●	●	●	●	●	●	●	●
E0N	Without lead wire (Without socket)	(*15)	●	●	●	●	●	●	●	●
E1	Without lead wire (socket/terminal attached)	(*15)	●	●	●	●	●	●	●	●
E2	Lead wire (300 mm) With surge suppressor and indicator lamp		●	●	●	●	●	●	●	●
E20	Lead wire (500 mm) With surge suppressor and indicator lamp		●	●	●	●	●	●	●	●
E21	Lead wire (1000 mm) With surge suppressor and indicator lamp		●	●	●	●	●	●	●	●
E22	Lead wire (2000 mm) With surge suppressor and indicator lamp		●	●	●	●	●	●	●	●
E23	Lead wire (3000 mm) With surge suppressor and indicator lamp		●	●	●	●	●	●	●	●
E2N	Without lead wire (without socket) With surge suppressor and indicator lamp		●	●	●	●	●	●	●	●
E3	Without lead wire (with socket/terminal) With surge suppressor and indicator lamp		●	●	●	●	●	●	●	●
EJ-connector (socket with cover, upward/lateral common)										
E01J	Lead wire(1000 mm)	(*15)	●	●	●	●	●	●	●	●
E02J	Lead wire(2000 mm)	(*15)	●	●	●	●	●	●	●	●
E03J	Lead wire(3000 mm)	(*15)	●	●	●	●	●	●	●	●
E21J	Lead wire(1000 mm) with surge suppressor/lamp		●	●	●	●	●	●	●	●
E22J	Lead wire(2000 mm) with surge suppressor/lamp		●	●	●	●	●	●	●	●
E23J	Lead wire(3000 mm) with surge suppressor/lamp		●	●	●	●	●	●	●	●

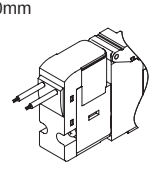
*13 The grommet lead wire specifications are compatible with DC voltage only.
*14 AC voltages and 12/24 VDC are supported. In addition, a lamp comes with the terminal box.
*15 AC voltage is with a rectifier circuit.
*16 The terminal box conforms to EN175301-803 Type C (former DIN 43650-C). Refer to "Pneumatic Valves No.CB-023SA" for details.

Electrical connections

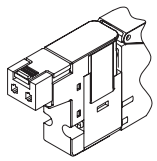
Discrete valve/individual wiring manifold

Blank Grommet lead wire

● **Lead wire length**
300mm

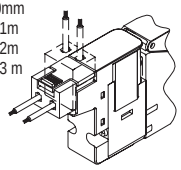


E1 E3 E-connector with socket/terminal

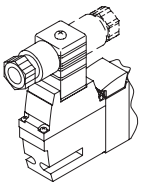


E0 E2 E-connector

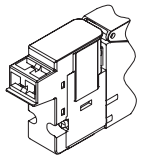
● **Lead wire length**
300mm
500mm
1m
2m
3 m



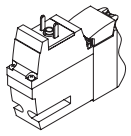
B DIN terminal box



E0N E2N E-connector without socket

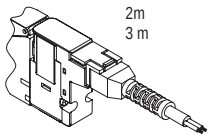


BN DIN terminal box Without terminal box



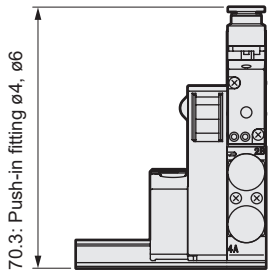
E0*J E2*J EJ type connector

● **Lead wire length**
1m
2m
3 m

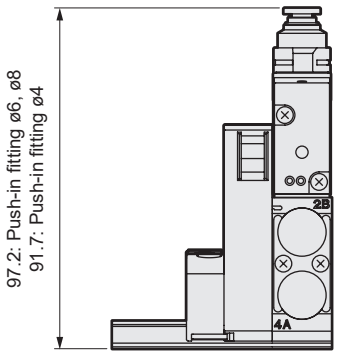


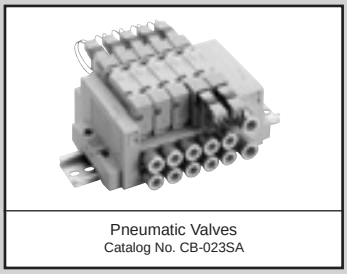
Dimensions

● MN4GA1-P4



● MN4GA2-P4





Pneumatic Valves
Catalog No. CB-023SA

Individual wiring block manifold
Base piping

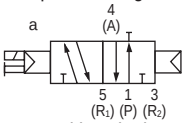
MN4GB1, 2 Series

● Cylinder bore size: ø20 to ø80

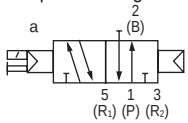
JIS symbol

● 3-port valve

2-position single NC

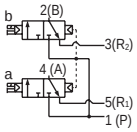


2-position single NO

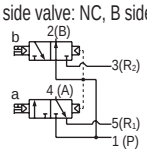


● Two 3-port valves integrated

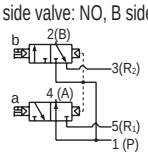
(A side valve: NC, B side valve: NC)



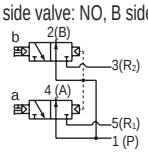
(A side valve: NC, B side valve: NO)



(A side valve: NO, B side valve: NC)

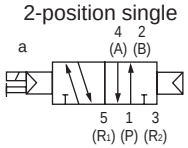


(A side valve: NO, B side valve: NO)

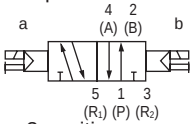


● 5-port valve

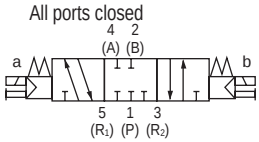
2-position single



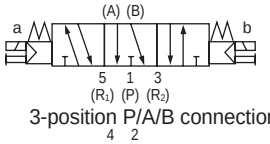
2-position double



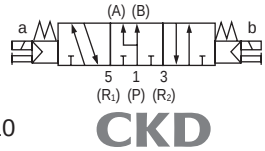
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item	Description
Manifold	Block manifolds
Mounting method	DIN rail mount
Air supply and exhaust method	Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
Piping direction	Side direction of base
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2 (*3)
Proof pressure MPa	1.05
Ambient temperature °C	-5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common (standard)
Lubrication (*1)	Not required
Degree of protection (*2)	Dust-proof
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Avoid dripping water or oil, etc., during use. IP65 (water jet proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

*3 The working pressure range is 0 to 0.7 MPa when the external pilot (option code: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.

Electrical specifications

Item		Description					
Rated voltage V		24 DC	12 DC	5 DC	3 DC	100 AC	200 AC
Voltage fluctuation range		±10%					
Holding current A (*4)	Standard	0.015 (0.017)	0.030 (0.034)	0.072 (0.082)	0.120 (0.136)	0.009 (0.009)	0.006 (0.006)
	With low exoergic/energy circuit	0.005	0.010	-		-	
Power consumption W (*4)	Standard	0.35(0.40)		0.35(0.40)		-	
	With low exoergic/energy circuit	0.1		-		-	
Apparent power VA (*4)	Standard	-		-		0.93 (0.98)	1.40
Thermal class		B					
Surge suppressor		Option					
Indicator		Lamp (option)					

*4: Values in ( ) apply when lamp is included. In addition, the type with low exoergic/energy circuit is only available with lamp.

Individual specifications

Item			MN3GB1/MN4GB1	MN3GB2/MN4GB2
Max. station No.			24 stations	20 stations
Port size	Metric fitting	Port A/B	Push-in fitting ø4,ø6	Push-in fitting ø4,ø6,ø8
		P/R Port	Push-in fitting ø6,ø8	Push-in fitting ø8,ø10

• For DIN rail mounting, refer to "Mounting orientation" in "Pneumatic Valves No.CB-023SA".
• For weight, refer to "Pneumatic Valves No.CB-023SA".

Performance/characteristics by model

Item			MN3GB1/MN4GB1		MN3GB2/MN4GB2	
			ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		9	12	12	29
	2-position	Single	12	12	19	19
		Double	9	-	18	-
	3-position	A/B/R connection	8	15	17	30

Values with lamp/surge suppressor are shown. The response times are values with supply pressure of 0.5 MPa at 20°C and without lubrication. They depend on the pressure and the lubricant quality.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
MN3GB1 MN4GB1	Two 3-port valves integrated		0.86	0.35	1.0 (0.66)	0.15 (0.25)
	2-position		1.0	0.30	1.1 (0.72)	0.11 (0.26)
	3-position	All ports closed	0.96	0.32	1.0 -	0.14 -
		A/B/R connection	0.96	0.29	1.2 (0.71)	0.11 (0.30)
		P/A/B connection	1.1	0.31	1.0 -	0.15 -
MN3GB2 MN4GB2	Two 3-port valves integrated		1.7	0.42	2.2 (1.6)	0.15 (0.19)
	2-position		2.4	0.35	2.5 (1.7)	0.19 (0.19)
	3-position	All ports closed	2.2	0.38	2.3 -	0.17 -
		ABRConnection	2.2	0.38	2.5 (1.7)	0.18 (0.20)
		P/A/B connection	2.3	0.29	2.3 -	0.15 -

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
*2: Values in ( ) are with the exhaust check valve.

Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 213.

CE marking specifications

** - Voltage - **ST**

• Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

MN4GB1, 2 Series

Individual wiring block manifold; Base piping

How to order

Manifold model No.

MN4GB1 **1** 0 R - C6 - E2 H - 10 - 3 - P4

3-port manifold model No.

MN3GB1 **66** 0 R - C6 - E2 H - 10 - 3 - P4

Discrete valve block with solenoid valve

N4GB1 **1** 0 R - C6 - E2 H — 3 - P4

Discrete 3-port valve block with solenoid valve

N3GB1 **66** 0 R - C6 - E2 H — 3 - P4

Discrete solenoid valve

4GB1 **1** 9 R - 00 - E2 H — 3 - P4

Discrete 3-port solenoid valve

3GB1 **66** 9 R - 00 - E2 H — 3 - P4

- A Model No.
- B Solenoid position
- C Port size (*1)(*2) (*3)
- D Electrical connections
- E Option
- F Station No.
- G Voltage

Code	Description		A Model No. Manifold: 3-port valve Two valves integrated: MN3GB1	MN3GB2	5-port valve: MN4GB1	MN4GB2	Discrete valve block with solenoid valve/ Discrete solenoid valve: (N)3GB1	(N)3GB2	(N)4GB1	(N)4GB2
B Solenoid position										
1	2-position single				●	●			●	●
2	2-position double				●	●			●	●
3	3-position all ports closed				●	●			●	●
4	3-position ABR connection				●	●			●	●
5	3-position PAB connection				●	●			●	●
66	3-port valve Two valves integrated (*4)(*5)	A side valve: Normally Closed	●	●			●	●		
		B side valve: Normally Closed								
67		A side valve: Normally Closed	●	●			●	●		
		B side valve: Normally Open								
76		A side valve: Normally Open	●	●			●	●		
		B side valve: Normally Closed								
77		A side valve: Normally Open	●	●			●	●		
		B side valve: Normally Open								
8	Mix manifold (when there are multiple solenoid positions)		●	●	●	●	●	●	●	●

C Port size (port A/B) Type	Metric fitting/Rc thread								
C4	ø4 push-in fitting		●	●	●	●	●	●	●	●
C6	ø6 push-in fitting		●	●	●	●	●	●	●	●
C8	ø8 push-in fitting			●		●		●		●
CX	Push-in fitting mix (*6)		●	●	●	●				
Single side plug specifications	Port A	Port B								
C4NC	ø4 push-in fitting	Plug			●	●			●	●
C6NC	ø6 push-in fitting				●	●			●	●
C8NC	ø8 push-in fitting					●				●
C4NO	Plug	ø4 push-in fitting			●	●			●	●
C6NO		ø6 push-in fitting			●	●			●	●
C8NO		ø8 push-in fitting				●				●

is not available.

Precautions for model selection

*1 Ports A and B plug specifications are available for 2-position single only.Specify the port P/R bore size with the supply andexhaust block model No. in the manifold specifications.
*2 For radial push-in fitting mix (CX), A/BNo port size differences.
*3 For a discrete solenoid valve, select "00" for Port size.
*4 This will be MN4GA*80R for a mix with 4, 5-port valves. Further, select MN3GB*80R when mixing with masking plate.
*5 Not compatible with combination with external pilot (K). Dimensions are the same as those of the respective 2-position double solenoid.
*6 The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.

[Options, stations, voltage, electrical connection list]

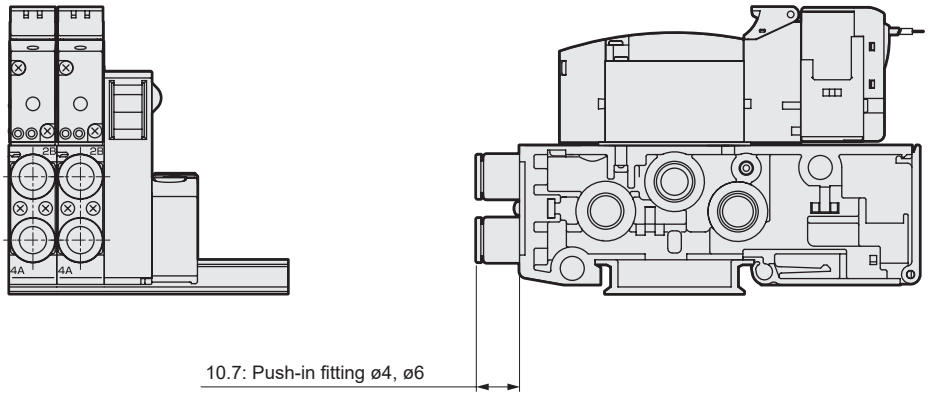
Code	Description	Model No. A: Manifold 3-port valve Two valves integrated MN3GB1	MN3GB2	5-port valve MN4GB1	MN4GB2	Discrete valve block with solenoid valve/ discrete solenoid valve (N)3GB1	(N)3GB2	(N)4GB1	(N)4GB2
D Electrical connections									
Blank	Grommet lead wire (300 mm) (*14)	●	●	●	●	●	●	●	●
B	DIN terminal box (Pg 7) With surge suppressor/lamp (*15)(*16)		●		●		●		●
BN	DIN terminal box (Pg7) (without terminal box) With surge suppressor/lamp (*15) (*16)		●		●		●		●
E-connector (upward/lateral direction common)									
E0	Lead wire (300 mm)	●	●	●	●	●	●	●	●
E00	Lead wire (500 mm)	●	●	●	●	●	●	●	●
E01	Lead wire (1000 mm)	●	●	●	●	●	●	●	●
E02	Lead wire (2000 mm)	●	●	●	●	●	●	●	●
E03	Lead wire (3000 mm)	●	●	●	●	●	●	●	●
E0N	Without lead wire (without socket)	●	●	●	●	●	●	●	●
E1	Without lead wire (with socket/terminal)	●	●	●	●	●	●	●	●
E2	Lead wire (300 mm) With surge suppressor and indicator lamp	●	●	●	●	●	●	●	●
E20	Lead wire (500 mm) With surge suppressor and indicator lamp	●	●	●	●	●	●	●	●
E21	Lead wire (1000 mm) With surge suppressor and indicator lamp	●	●	●	●	●	●	●	●
E22	Lead wire (2000 mm) With surge suppressor and indicator lamp	●	●	●	●	●	●	●	●
E23	Lead wire (3000 mm) With surge suppressor and indicator lamp	●	●	●	●	●	●	●	●
E2N	Without lead wire (without socket) With surge suppressor and indicator lamp	●	●	●	●	●	●	●	●
E3	Without lead wire (with socket/terminal) With surge suppressor and indicator lamp	●	●	●	●	●	●	●	●
EJ-connector (socket with cover, upward/lateral direction common)									
E01J	Lead wire (1000 mm)	●	●	●	●	●	●	●	●
E02J	Lead wire (2000 mm)	●	●	●	●	●	●	●	●
E03J	Lead wire (3000 mm)	●	●	●	●	●	●	●	●
E21J	Lead wire (1000 mm) With surge suppressor and indicator lamp	●	●	●	●	●	●	●	●
E22J	Lead wire (2000 mm) With surge suppressor and indicator lamp	●	●	●	●	●	●	●	●
E23J	Lead wire (3000 mm) With surge suppressor and indicator lamp	●	●	●	●	●	●	●	●
E Option									
Blank	Manual override of non-locking/locking common	●	●	●	●	●	●	●	●
M	Non-locking manual override	●	●	●	●	●	●	●	●
H	With exhaust check valve (*7)	●	●	●	●	●	●	●	●
K	External pilot (*8)			●	●			●	●
A	Ozone/coolant proof	●	●	●	●	●	●	●	●
S	Surgeless (*9)	●	●	●	●	●	●	●	●
E	Low exoergic/energy circuit (*9)(*10)	●	●	●	●	●	●	●	●
L	With pipe adaptor	●	●	●	●	●	●	●	●
F	Port A/B filter built in (*11)	●	●	●	●	●	●	●	●
Z1	Air supply spacer (*12)	●	●	●	●				
Z3	Exhaust spacer (*12)	●	●	●	●				
Z6	Spacer pilot check valve (*12)			●					
F Station No.									
1	1 station	●	●	●	●				
to	to								
24	24 stations (The max. station number for MN4GB2 is 20.)								
G Voltage									
1	100 VAC (rectifier integrated)	●	●	●	●	●	●	●	●
2	200 VAC (rectifier integrated) (*13)		●		●		●		●
3	24 VDC	●	●	●	●	●	●	●	●
4	12 VDC	●	●	●	●	●	●	●	●

is not available.
○ indicates made to order.

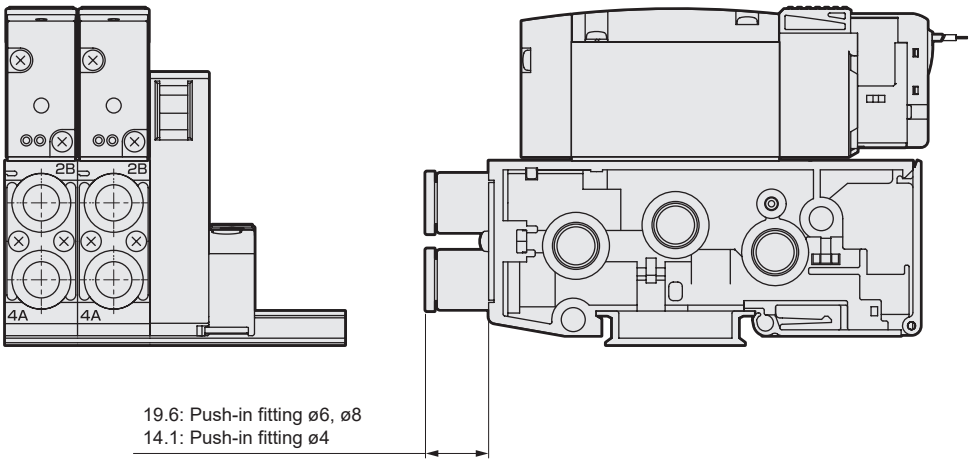
***7 3-position all ports closed and P A B connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**
*8 Consult with CKD when using a vacuum with the external pilot (K).
9 E2 and E2*J connectors and 12/24 VDC only are supported. In addition, surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.
*10 Surgeless specifications.
*11 A filter is built into port P as standard.
***12 Specify the spacer mounting position and quantity in the manifold specifications sheet. Stacking of spacers is not supported. Combination with masking plates is not supported. For details, refer to pages 227 to 228.**
*13 DIN terminal box only is supported.
*14 The grommet lead wire specifications are compatible with DC voltage only.
*15 AC voltages and 12/24 VDC are supported. In addition, a lamp comes with the terminal box.
*16 The terminal box conforms to EN175301-803 Type C (former DIN 43650- C). Refer to "Pneumatic Valves N o.C B-023SA" for details.

Dimensions

● MN4GB1-P4

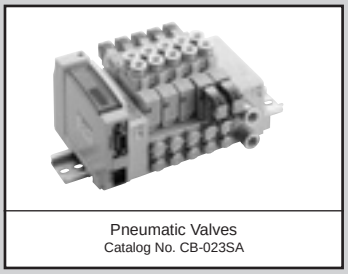


● MN4GB2-P4



*Fitting dimensions of P4 Series are different from the standard when mounted.
For other dimensions, refer to MN4GB1, 2 Series in "Pneumatic Valves (No. CB-023SA)".

MEMO



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring block manifold
Body piping

MN4GA1, 2-T* Series

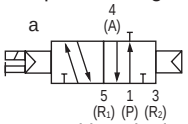
● Cylinder bore size:ø20 to ø80

RoHS CAD

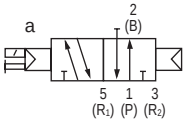
JIS symbol

● 3-port valve

2-position single NC

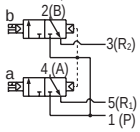


2-position single NO

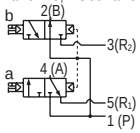


● Two 3-port valves integrated

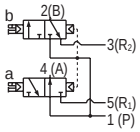
(A side valve: NC, B side valve: NC)



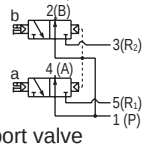
(A side valve: NC, B side valve: NO)



(A side valve: NO, B side valve: NC)

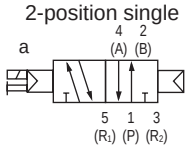


(A side valve: NO, B side valve: NO)

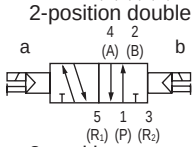


● 5-port valve

2-position single

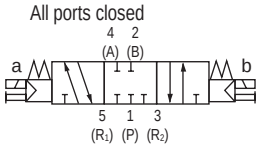


2-position double

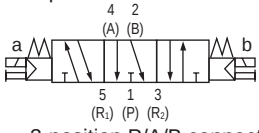


3-position

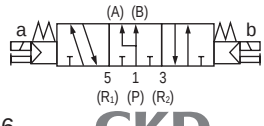
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item	Description
Manifold	Block manifolds
Mounting method	DIN rail mount
Air supply and exhaust method	Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
Piping direction	Valve top direction
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2 (*3)
Proof pressure MPa	1.05
Ambient temperature °C	-5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common (standard)
Lubrication (*1)	Not required
Degree of protection (*2)	Dust-proof
Vibration resistance m/s²	50 or less
Shock resistance m/s²	300 or less
Atmosphere	Cannot be used in corrosive gas environments

Electrical specifications

Item		Description		
Rated voltage V		T1□, T30□, T5□		T6G1, T7□, T8□
		24 DC	12 DC	24 DC
Voltage fluctuation range (*4)		±10%		+10%, -5%
Holding current A	Standard	0.017	0.034	0.017
	With low exoergic/ energy saving circuit	0.005	0.010	0.005
Power consumption W	Standard	0.4		
	With low exoergic/energy saving circuit	0.1		
Thermal class		B		
Surge suppressor (*5)		Zener diode		
Indicator		LED		

*4 Since voltage drops due to the internal circuit of T6G1, T7, T8 and (serial transmission), pay attention to the voltage fluctuation range.

*5 If low exoergic/energy circuit or surgeless types are selected then there will be a diode.

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Dust-proof degree of protection. Not drip-proof. Avoid dripping water or oil, etc., during use.

*3 The working pressure range is 0 to 0.7 MPa when the external pilot (option code: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.

Individual specifications

Item			MN3GA1/MN4GA1								
			T10	T11	T30	T50	T51	T52	T53	T6G1	T7*1	T8*1/2
Max. station No.	Standard wiring		16 stations	24 stations	24 stations	16 stations	18 stations	8 stations	24 stations	16 stations	8/16 stations	16/24 stations
	Double wiring		8 stations	12 stations	12 stations	8 stations	9 stations	4 stations	12 stations	8 stations	4/8 stations	8/16 stations
Max. number of solenoids			16 points	24 points	24 points	16 points	18 points	8 points	24 points	16 points	8/16 points	16/32 points
Port size	Metric fitting/M5, Rc thread	Port A/B	Push-in fitting ø4, ø6 M5									
		P/R Port	Push-in fitting ø6,ø8									

Item			MN3GA2/MN4GA2								
			T10	T11	T30	T50	T51	T52	T53	T6G1	T7*1	T8*1/2
Max. station No.	Standard wiring		16 stations	20 stations	20 stations	16 stations	18 stations	8 stations	20 stations	16 stations	8/16 stations	16/20 stations
	Double wiring		8 stations	12 stations	12 stations	8 stations	9 stations	4 stations	12 stations	8 stations	4/8 stations	8/16 stations
Max. number of solenoids			16 points	24 points	24 points	16 points	18 points	8 points	24 points	16 points	8/16 points	16/32 points
Port size	Metric fitting/M5, Rc thread	Port A/B	Push-in fitting ø4,ø6,ø8 Rc1/8									
		P/R Port	Push-in fitting ø8, ø10									
	Metric fitting, G thread	Port A/B	G1/8									
		P/R Port	Push-in fitting ø8, ø10									

• **Weight is "Pneumatic Valves No.CB-023SA".**

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2	
			C[dm³/(s·bar)]	b	C[dm³ (s·bar)]	b
MN3GA1 MN4GA1	Two 3-port valves integrated		0.87	0.37	1.0 (0.68)	0.14 (0.22)
	2-position		0.98	0.33	1.2 (0.71)	0.11 (0.27)
	3-position	All ports closed	0.92	0.34	1.0 -	0.16 -
		A/B/R connection	0.92	0.29	1.1 (0.69)	0.13 (0.22)
		P/A/B connection	1.1	0.35	1.1 -	0.17 -
MN3GA2 MN4GA2	Two 3-port valves integrated		1.7	0.37	2.2 (1.6)	0.13 (0.21)
	2-position		2.2	0.21	2.5 (1.7)	0.19 (0.10)
	3-position	All ports closed	2.0	0.25	2.3 -	0.10 -
		ABRConnection	2.0	0.27	2.5 (1.7)	0.18 (0.12)
		P/A/B connection	2.3	0.31	2.3 -	0.16 -

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

*2: Values in ( ) are with the exhaust check valve.

Reduced wiring specifications

Item	T10	T11	T30	T50	T51	T52	T53
Type	Common terminal block M3 thread	Common terminal block Clamping method	D-sub-connector	20P flat cable connector With power supply terminal	20P flat cable connector Without power supply terminal	10P flat cable connector Without power supply terminal	26P flat cable connector Without power supply terminal
Connector	—	—	D-sub-connector 25-pin	MIL-C-83503 standard compliant Pressure welding socket 20-pin	MIL-C-83503 standard compliant Pressure welding socket 20-pin	MIL-C-83503 standard compliant Pressure welding socket 10-pin	MIL-C-83503 standard compliant Pressure welding socket 26-pin

Serial transmission slave unit specifications

Download the communication setting file from the CKD website (https://www.ckd.co.jp/en/).

Item		T6G1
Network name		CC-Link ver. 1.10
Power supply voltage	Unit side	24 VDC ±10%
	Valve side	24 VDC +10%, -5%
Current consumption	Unit side	100 mA or less (when all output points are ON)
	Valve side	15 mA or less (when all output points are OFF)
No. of output points		16 points
Occupied number		1 station
Operation display		LED (power supply and communication status)
Output		NPN

Item		T7G1	T7L1*1	T7D1	T7S1	T7SP1
Network name		CC-Link ver. 1.10	SAVE NET	DeviceNet*2	CompoNet	
Power supply voltage	Unit side	24 VDC +10%, -5% Common power supply terminal				
	Valve side					
	Communication side	—	—	11 to 25 VDC *3	14.0 to 26.4 VDC	
Current consumption	Unit side	110 mA or less (when all output points are ON) Load current is not included			40 mA or less (when all output points are ON) Load current is not included	
	Valve side					
	Communication side	—	—	50 mA or less	65mA or less (all points ON: 24 VDC) 95 mA or less (all points ON: 14 VDC)	
No. of output points		16 points	16 points	16 points	16 points	
Occupied number		1 station	1 station	2 bytes	Word slave 1 node (16 points)	
Operation display		LED (power supply and communication status)				
Output		NPN			NPN	PNP

Item		T8G1 / T8G2	T8GP1 / T8GP2	T8P1 / T8P2	T8PP1 / T8PP2	T8EC1 / T8EC2	T8ECP1 / T8ECP2	T8EN1 / T8EN2	T8ENP1 / T8ENP2	T8D1 / T8D2	T8DP1 / T8DP2	T8EB1 / T8EB2	T8EBP1 / T8EBP2	T8EP1 / T8EP2	T8EPP1 / T8EPP2
Communication protocol		CC-Link ver. 1.10		PROFIBUS-DP (V0)		EtherCAT		EtherNet/IP		DeviceNet		CC-Link IEF Basic		PROFINET	
Power supply voltage	Unit side	24 VDC ±10%								11 to 25 VDC		24 VDC ±10%			
	Valve side	24 VDC+10%, -5%													
Current consumption	Unit side	60 mA or less (when all output points are ON)		60 mA or less (when all output points are ON)		110 mA or less (when all output points are ON)		120 mA or less (when all output points are ON)		70 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)	
	Valve side	T8□1: 15 mA or less T8□2: 20 mA or less (When all output points are ON) Load current is not included								15 mA or less (When all output points are ON) Load current is not included					
No. of output points		T8□1: 16 points T8□2: 32 points													
Occupied number		1 station													
Operation display		LED (power supply and communication status)													
Output		NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output

*1 Transmission bit rate of 128 bits and half-duplex transmission method are supported. Contact CKD for other specifications.
*2 Also compatible with DeviceNet compliant networks (DLNK, etc.)
*3 Communication power supply (V+, V- of DeviceNet cable) Power supply terminal (Unit power supply/valve power supply) is insulated from .

MN4GA1, 2-T* Series

Reduced wiring block manifold; Body piping

How to order

Manifold model No.

MN4GA1 1 0 R - C6 - T30 W H - 10 - 3 - P4

3-port manifold model No.

MN3GA1 1 0 R - C6 - T30 W H - 10 - 3 - P4

Discrete valve block with solenoid valve

N4GA1 1 0 R - C6 - A2N *1 H — 3 - P4

Discrete 3-port valve block with solenoid valve

N3GA1 1 0 R - C6 - A2N *1 H — 3 - P4

* If a cable is required, refer to page 226 and specify the cable length of *1. When not required, leave the space blank.

Discrete solenoid valve

4GA1 1 9 R - C6 - A2N H — 3 - P4

Discrete 3-port solenoid valve

3GA1 1 9 R - C6 - A2N H — 3 - P4

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Port size(*1)
Ⓓ Reduced wiring connection, serial transmission
Ⓔ Terminal/connector pin array
Ⓕ Option
Ⓖ Station No.
Ⓗ Voltage

*4
Port size of "●" is equivalent to P4 specifications on standard products. It is not necessary to add "-P4" to the model No.

Precautions for model selection

*1 Specify the port P/R bore size with the supply and exhaust block model No. in the manifold specifications sheet.
*2 MN4GA*80R when using a mixture of 4, 5-port valves. MN3GA*80R when used with a masking plate.
*3 Not compatible with combination with external pilot (K). Dimensions are the same as those of the respective 2-position double solenoid.
*5 The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.
6 Blank...The wiring will be based on the type of valve used. W...All wired for double solenoid valves regardless of the type of valve used.
***7 Spare wiring (A type socket assembly) is included on the cap side for single types. A holder for retaining the socket assembly is included for single unit valves (A2N). Refer to page 230 for details.**
***8 The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**
*9 Consult with CKD when using a vacuum with the external pilot (K).
*10 Surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.
*11 Surgeless specifications.
*12 A filter is built into port P as standard.
***13 Specify the spacer mounting position/quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with masking plates is not possible. For details, refer to pages 227 to 228.**

Code	Description		Ⓐ Model No. Manifold 3-port valve MN3GA1	MN3GA2	Manifold 5-port valve MN4GA1	MN4GA2	Valve block with solenoid valve discrete/single solenoid valve (N)3GA1	(N)3GA2	(N)4GA1	(N)4GA2
Ⓑ Solenoid position										
1	2-position single				●	●			●	●
2	2-position double				●	●			●	●
3	3-position all ports closed				●	●			●	●
4	3-position ABR connection				●	●			●	●
5	3-position PAB connection				●	●			●	●
1	2-position single Normally Closed	(*2)	●	●			●	●		
11	2-position single Normally Open	(*2)	●	●			●	●		
66	3-port valve Two valves integrated (*2)(*3)	A side valve: Normally Closed	●	●			●	●		
		B side valve: Normally Closed								
67		A side valve: Normally Closed	●	●			●	●		
		B side valve: Normally Open								
76		A side valve: Normally Open	●	●			●	●		
		B side valve: Normally Closed								
77		A side valve: Normally Open	●	●			●	●		
		B side valve: Normally Open								
8	Mix manifold (when there are multiple solenoid positions)		●	●	●	●	●	●	●	●
Ⓒ Port size (port A/B)										
Type	Metric fitting/Rc thread		*4							
C4	ø4 push-in fitting		○	○	○	○	○	○	○	○
C6	ø6 push-in fitting		○	○	○	○	○	○	○	○
C8	ø8 push-in fitting			○		○		○		○
CX	Push-in fitting mix	(*5)	○	○	○	○				
M5	M5		●		●		●		●	
06	Rc1/8			●		●		●		●
Type	G thread									
06G	G1/8			●		●		●		●
Ⓓ Reduced wiring connection, serial transmission										
Refer to the next page for reduced wiring and serial transmission.										
Ⓔ Terminal/connector pin array										
Blank	Standard wiring	(*6)	●	●	●	●	●	●	●	●
W	Double wiring	(*6)	●	●	●	●	●	●	●	●
W 1	Double wiring (with single spare wiring)	(*6)(*7)	●	●	●	●	●	●	●	●
Ⓕ Option										
Blank	Manual override of non-locking/locking common		●	●	●	●	●	●	●	●
M	Non-locking manual override		●	●	●	●	●	●	●	●
H	With exhaust check valve	(*8)	●	●	●	●	●	●	●	●
K	External pilot	(*9)	●	●	●	●	●	●	●	●
A	Ozone/coolant proof		●	●	●	●	●	●	●	●
S	Surgeless	(*10)	●	●	●	●	●	●	●	●
E	Low exoergic/energy circuit	(*10)(*11)	●	●	●	●	●	●	●	●
Q	Reduced wiring duct		●	●	●	●	●	●	●	●
F	Port A/B filter built in	(*12)	●	●	●	●	●	●	●	●
Z1	Air supply spacer	(*13)	●	●	●	●				
Z3	Exhaust spacer	(*13)	●	●	●	●				
Ⓖ Station No.										
1	1 station		●	●	●	●				
to	to									
24	24 stations (Refer to page 216 for the max. station number per model)									
Ⓗ Voltage										
3	24 VDC		●	●	●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●	●	●

is not available.

			Ⓐ Model No.							
			Manifold				Valve block with solenoid valve discrete/ single solenoid valve			
			3-port valve		5-port valve					
			MN3GA1	MN3GA2	MN4GA1	MN4GA2	(N)3GA1	(N)3GA2	(N)4GA1	(N)4GA2
Ⓓ Reduced wiring (lamp and surge suppressor provided as standard) 12/24 VDC										
T10	Common terminal block (M3 thread)	Left-sided specifications	●	●	●	●				
T10R		Right-sided specifications	●	●	●	●				
T11	Common terminal block (clamping)	Left-sided specifications	●	●	●	●				
T11R		Right-sided specifications	●	●	●	●				
T30	D-sub-connector	Left-sided specifications	●	●	●	●				
T30R		Right-sided specifications	●	●	●	●				
T50	20-pin flat cable connector (with power supply terminal)	Left-sided specifications	●	●	●	●				
T50R		Right-sided specifications	●	●	●	●				
T51	20-pin flat cable connector (without power supply terminal)	Left-sided specifications	●	●	●	●				
T51R		Right-sided specifications	●	●	●	●				
T52	10-pin flat cable connector (without power supply terminal)	Left-sided specifications	●	●	●	●				
T52R		Right-sided specifications	●	●	●	●				
T53	26-pin flat cable connector (without power supply terminal)	Left-sided specifications	●	●	●	●				
T53R		Right-sided specifications	●	●	●	●				
Ⓓ Serial transmission (lamp/surge suppressor provided as standard) 24 VDC										
T6G1	CC-Link	NPN 16 points	●	●	●	●				
T7D1	DeviceNet	NPN 16 points	●	●	●	●				
T7G1	CC-Link	NPN 16 points	●	●	●	●				
T7L1	SAVE NET	NPN 16 points	●	●	●	●				
T7S1	CompoNet	NPN 16 points	●	●	●	●				
T7SP1		PNP 16 points	●	●	●	●				
T8G1	CC-Link	NPN 16 points	●	●	●	●				
T8G2		NPN 32 points	●	●	●	●				
T8GP1		PNP 16 points	●	●	●	●				
T8GP2		PNP 32 points	●	●	●	●				
T8P1	PROFIBUS-DP	NPN 16 points	●	●	●	●				
T8P2		NPN 32 points	●	●	●	●				
T8PP1		PNP 16 points	●	●	●	●				
T8PP2		PNP 32 points	●	●	●	●				
T8EC1	EtherCAT	NPN 16 points	●	●	●	●				
T8EC2		NPN 32 points	●	●	●	●				
T8ECP1		PNP 16 points	●	●	●	●				
T8ECP2		PNP 32 points	●	●	●	●				
T8EN1	EtherNet/IP	NPN 16 points	●	●	●	●				
T8EN2		NPN 32 points	●	●	●	●				
T8ENP1		PNP 16 points	●	●	●	●				
T8ENP2		PNP 32 points	●	●	●	●				
T8D1	DeviceNet	NPN 16 points	●	●	●	●				
T8D2		NPN 32 points	●	●	●	●				
T8DP1		PNP 16 points	●	●	●	●				
T8DP2		PNP 32 points	●	●	●	●				
T8EB1	CC-Link IEF Basic	NPN 16 points	●	●	●	●				
T8EB2		NPN 32 points	●	●	●	●				
T8EBP1		PNP 16 points	●	●	●	●				
T8EBP2		PNP 32 points	●	●	●	●				
T8EP1	PROFINET	NPN 16 points	●	●	●	●				
T8EP2		NPN 32 points	●	●	●	●				
T8EPP1		PNP 16 points	●	●	●	●				
T8EPP2		PNP 32 points	●	●	●	●				
A2N	Without lead wire (without socket)	With surge suppressor and indicator lamp					●	●	●	●

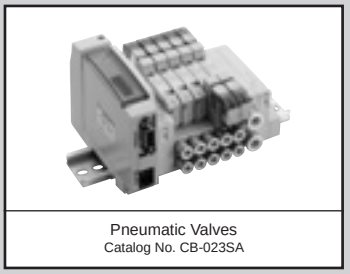
Ozone-proof specifications ・
Coolant proof specifications

Can be selected with "How to order" Item Ⓕ option "A" on page 218.

CE marking specifications

** - Voltage - **ST**

・Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring block manifold
Base piping

MN4GB1, 2-T* Series

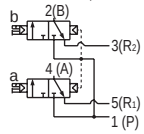
● Cylinder bore size:ø20 to ø80

RoHS CAD

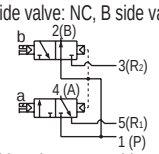
JIS symbol

● Two 3-port valves integrated

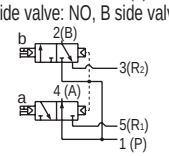
(A side valve: NC, B side valve: NC)



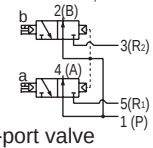
(A side valve: NC, B side valve: NO)



(A side valve: NO, B side valve: NC)

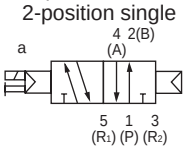


(A side valve: NO, B side valve: NO)

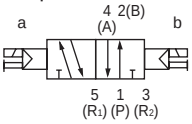


● 5-port valve

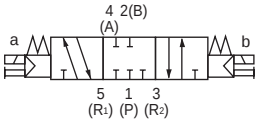
2-position single



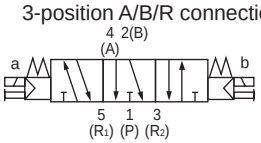
2-position double



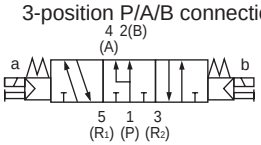
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item	Description
Manifold	Block manifolds
Mounting method	DIN rail mount
Air supply and exhaust method	Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
Piping direction	Side direction of base
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2 (*3)
Proof pressure MPa	1.05
Ambient temperature °C	-5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common (standard)
Lubrication (*1)	Not required
Degree of protection (*2)	Dust-proof
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environments

Electrical specifications

Item		Description		
Rated voltage V		T1□, T30□, T5□ 24 DC	T1□, T30□, T5□ 12 DC	T6G1, T7□, T8□ 24 DC
Voltage fluctuation range (*4)		±10%		+10%, -5%
Holding current A	Standard	0.017	0.034	0.017
	With low exoergic/ energy saving circuit	0.005	0.010	0.005
Power consumption W	Standard	0.4		
	With low exoergic/ energy saving circuit	0.1		
Thermal class		B		
Surge suppressor (*5)		Zener diode		
Indicator		LED		

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2 Dust-proof degree of protection. Not drip-proof. Avoid dripping water or oil, etc., during use.
*3 The working pressure range is 0 to 0.7 MPa when the external pilot (option code: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.
*4 Since voltage drops due to the internal circuit of T6G1, T7, T8 and (serial transmission), pay attention to the voltage fluctuation range.
*5 If low exoergic/energy circuit or surgeless types are selected then there will be a diode.

Individual specifications

Item			MN3GB1/MN4GB1									
			T10	T11	T30	T50	T51	T52	T53	T6G1	T7*1	T8*1/2
Max. station No.		Standard wiring	16 stations	24 stations	24 stations	16 stations	18 stations	8 stations	24 stations	16 stations	8/16 stations	16/24 stations
		Double wiring	8 stations	12 stations	12 stations	8 stations	9 stations	4 stations	12 stations	8 stations	4/8 stations	8/16 stations
Max. number of solenoids			16 points	24 points	24 points	16 points	18 points	8 points	24 points	16 points	8/16 points	16/32 points
Port size	Metric fitting	Port A/B	Push-in fitting ø4,ø6									
		P/R Port	Push-in fitting ø6,ø8									

• For weight, refer to "Pneumatic Valves No.CB-023SA".

Item			MN3GB2/MN4GB2									
			T10	T11	T30	T50	T51	T52	T53	T6G1	T7*1	T8*1/2
Max. station No.		Standard wiring	16 stations	20 stations	20 stations	16 stations	18 stations	8 stations	20 stations	16 stations	8/16 stations	16/20 stations
		Double wiring	8 stations	12 stations	12 stations	8 stations	9 stations	4 stations	12 stations	8 stations	4/8 stations	8/16 stations
Max. number of solenoids			16 points	24 points	24 points	16 points	18 points	8 points	24 points	16 points	8/16 points	16/32 points
Port size	Metric fitting	Port A/B	Push-in fitting ø4,ø6,ø8									
		P/R Port	Push-in fitting ø8,ø10									

• For weight, refer to "Pneumatic Valves No.CB-023SA".

Flow characteristics

Model No.	Solenoid position		P → A/B C[dm^3/(s·bar)]	P → A/B b	A/B → R1/R2 C[dm^3/(s·bar)]	A/B → R1/R2 b
MN3GB1 MN4GB1	Two 3-port valves integrated		0.86	0.35	1.0 (0.66)	0.15 (0.25)
	2-position		1.0	0.30	1.1 (0.72)	0.11 (0.26)
	3-position	All ports closed	0.96	0.32	1.0 —	0.14 —
		A/B/R connection	0.96	0.29	1.2 (0.71)	0.11 (0.30)
		P/A/B connection	1.1	0.31	1.0 —	0.15 —
MN3GB2 MN4GB2	Two 3-port valves integrated		1.7	0.42	2.2 (1.6)	0.15 (0.19)
	2-position		2.4	0.35	2.5 (1.7)	0.19 (0.19)
	3-position	All ports closed	2.2	0.38	2.3 —	0.17 —
		ABRConnection	2.2	0.38	2.5 (1.7)	0.18 (0.20)
		P/A/B connection	2.3	0.29	2.3 —	0.15 —

*1: Formula to calculate sonic conductance C from effective cross-sectional area S is S≈5.0×C.
*2: Values in ( ) are with the exhaust check valve.

Reduced wiring specifications

Item	T10	T11	T30	T50	T51	T52	T53
Type	Common terminal block M3 thread	Common terminal block Clamping method	D-sub-connector	20P flat cable connector, With power supply terminal	20P flat cable connector, With power supply terminal	10P flat cable connector, With power supply terminal	26P flat cable connector, With power supply terminal
Connector	—	—	D-sub-connector 25-pin	MIL-C-83503 standard compliant, Pressure welding socket 20-pin	MIL-C-83503 standard compliant, Pressure welding socket 20-pin	MIL-C-83503 standard compliant, Pressure welding socket 10-pin	MIL-C-83503 standard compliant, Pressure welding socket 26-pin

Serial transmission slave unit specifications

Download the communication setting file from the CKD website (https://www.ckd.co.jp/en).

Item		T6G1
Network name		CC-Link ver. 1.10
Power supply voltage	Unit side	24 VDC ±10%
	Valve side	24 VDC +10%, -5%
Current consumption	Unit side	100 mA or less (when all output points are ON)
	Valve side	15 mA or less (when all output points are OFF)
No. of output points		16 points
Occupied number		1 station
Operation display		LED (power supply and communication status)
Output		NPN

Item		T7G1	T7L1*1	T7D1	T7S1	T7SP1
Network name		CC-Link ver. 1.10	SAVE NET	DeviceNet*2	CompoNet	
Power supply voltage	Unit side	24 VDC +10%, -5% Common power supply terminal				
	Valve side					
	Communication side	—	—	11 to 25 VDC *3	14.0 to 26.4 VDC	
Current consumption	Unit side	110 mA or less (when all output points are ON) Load current is not included			40 mA or less (when all output points are ON) Load current is not included	
	Valve side					
	Communication side	—	—	50 mA or less	65mA or less (all points ON: 24 VDC) 95 mA or less (all points ON: 14 VDC)	
No. of output points		16 points	16 points	16 points	16 points	
Occupied number		1 station	1 station	2 bytes	Word slave 1 node (16 points)	
Operation display		LED (power supply and communication status)				
Output		NPN				PNP

Item		T8G1 / T8G2	T8GP1 / T8GP2	T8P1 / T8P2	T8PP1 / T8PP2	T8EC1 / T8EC2	T8ECP1 / T8ECP2	T8EN1 / T8EN2	T8ENP1 / T8ENP2	T8D1 / T8D2	T8DP1 / T8DP2	T8EB1 / T8EB2	T8EBP1 / T8EBP2	T8EP1 / T8EP2	T8EPP1 / T8EPP2
Communication protocol		CC-Link ver. 1.10		PROFIBUS-DP (V0)		EtherCAT		EtherNet/IP		DeviceNet		CC-Link IEF Basic		PROFINET	
Power supply voltage	Unit side	24 VDC ±10%								11 to 25 VDC		24 VDC ±10%			
	Valve side	24 VDC+10%, -5%													
Current consumption	Unit side	60 mA or less (when all output points are ON)		60 mA or less (when all output points are ON)		110 mA or less (when all output points are ON)		120 mA or less (when all output points are ON)		70 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)	
	Valve side	T8□1: 15mA or less T8□2:20mA or less (when all output points are ON) Load current is not included								15 mA or less (When all output points are ON) Load current is not included					
No. of output points		T8□1: 16 points T8□2: 32 points													
Occupied number		1 station													
Operation display		LED (Power supply and communication status)													
Output		NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output

*1 Transmission bit rate of 128 bits and half-duplex transmission method are supported. Contact CKD for other specifications.
*2 Also compatible with DeviceNet compliant networks (DLNK, etc.)
*3 The communication power supply (V+, V- on the DeviceNet cable) is insulated from the power supply terminal (unit power supply/valve power supply).

MN4GB1, 2-T* Series

Reduced wiring block manifold; Base piping

How to order

●Manifold model No.

MN4GB1 **1** 0 R - C6 - T30 W H - 10 - 3 - P4

●3-port manifold model No.

MN3GB1 **66** 0 R - C6 - T30 W H - 10 - 3 - P4

●Discrete valve block with solenoid valve

N4GB1 **1** 0 R - C6 - A2N *1 H — 3 - P4

●Discrete 3-port valve block with solenoid valve

N3GB1 **66** 0 R - C6 - A2N *1 H — 3 - P4

* If a cable is required, refer to page 226 and specify the cable length of *1. When not required, leave the space blank.

●Discrete solenoid valve

4GB1 **1** 9 R - **00** - A2N H — 3 - P4

●Discrete 3-port solenoid valve

3GB1 **66** 9 R - **00** - A2N H — 3 - P4

A Model No.
B Solenoid position
C Port size (*1) (*2)
D Reduced wiring connection
E Terminal/connector pin array
F Option
G Station No.
H Voltage

Code	Description		A Model No. Manifold: Two 3-port valves integrated: MN3GB1	MN3GB2	Manifold: 5-port valve: MN4GB1	MN4GB2	Valve block with solenoid valve discrete/single solenoid valve: (N)3GB1	(N)3GB2	(N)4GB1	(N)4GB2
B Solenoid position										
1	2-position single				●	●			●	●
2	2-position double				●	●			●	●
3	3-position all ports closed				●	●			●	●
4	3-position ABR connection				●	●			●	●
5	3-position PAB connection				●	●			●	●
66	3-port valve Two valves integrated (*3)(*4)	A side valve: Normally Closed	●	●			●	●		
		B side valve: Normally Closed								
67		A side valve: Normally Closed	●	●			●	●		
		B side valve: Normally Open								
76		A side valve: Normally Open	●	●			●	●		
		B side valve: Normally Closed								
77		A side valve: Normally Open	●	●			●	●		
		B side valve: Normally Open								
8	Mix manifold (when there are multiple solenoid positions)		●	●	●	●	●	●	●	●

C Port size (port A/B) Type	Metric fitting/Rc thread								
C4	ø4 push-in fitting		●	●	●	●	●	●	●	●
C6	ø6 push-in fitting		●	●	●	●	●	●	●	●
C8	ø8 push-in fitting			●		●		●		●
CX	Push-in fitting mix (*5)		●	●	●	●				
Single side plug specs.	Port A	Port B								
C4NC	ø4 push-in fitting	Plug			●	●			●	●
C6NC	ø6 push-in fitting				●	●			●	●
C8NC	ø8 push-in fitting					●				●
C4NO	Plug	ø4 push-in fitting			●	●			●	●
C6NO		ø6 push-in fitting			●	●			●	●
C8NO		ø8 push-in fitting				●				●

is not available.

Precautions for model selection

*1 Ports A and B plug specifications are available for 2-position single only. Specify the port P/R bore size with the supply and exhaust block model No. in the manifold specifications sheet.
*2: For a discrete solenoid valve, select 00 for Port size.
*3 This will be MN4GA*80R for a mix with 4, 5-port valves. Further, select MN3GB*80R when mixing with masking plate.
*4: Not compatible with combination with external pilot (K). Dimensions are the same as those of the respective 2-position double solenoid.
*5 The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.

[Port size/wiring method list]

Code	Description		Ⓐ Model No. Manifold: Two 3-port valves integrated MN3GB1	MN3GB2	5-port valve MN4GB1	MN4GB2	Valve block with solenoid valve discrete/single solenoid valve (N)3GB1	(N)3GB2	(N)4GB1	(N)4GB2
Ⓓ Reduced wiring (lamp and surge suppressor provided as standard) 12/24 VDC										
T10	Common terminal block (M3 thread)	Left-sided specifications	●	●	●	●				
T10R		Right-sided specifications	●	●	●	●				
T11	Common terminal block (clamping)	Left-sided specifications	●	●	●	●				
T11R		Right-sided specifications	●	●	●	●				
T30	D-sub-connector	Left-sided specifications	●	●	●	●				
T30R		Right-sided specifications	●	●	●	●				
T50	20-pin flat cable connector (with power supply terminal)	Left-sided specifications	●	●	●	●				
T50R		Right-sided specifications	●	●	●	●				
T51	20-pin flat cable connector (without power supply terminal)	Left-sided specifications	●	●	●	●				
T51R		Right-sided specifications	●	●	●	●				
T52	10-pin flat cable connector (without power supply terminal)	Left-sided specifications	●	●	●	●				
T52R		Right-sided specifications	●	●	●	●				
T53	26-pin flat cable connector (without power supply terminal)	Left-sided specifications	●	●	●	●				
T53R		Right-sided specifications	●	●	●	●				
Ⓓ Serial transmission (lamp/surge suppressor provided as standard) 24 VDC										
T6G1	CC-Link	NPN 16 points	●	●	●	●				
T7D1	DeviceNet	NPN 16 points	●	●	●	●				
T7G1	CC-Link	NPN 16 points	●	●	●	●				
T7L1	SAVE NET	NPN 16 points	●	●	●	●				
T7S1	CompoNet	NPN 16 points	●	●	●	●				
T7SP1		PNP 16 points	●	●	●	●				
T8G1	CC-Link	NPN 16 points	●	●	●	●				
T8G2		NPN 32 points	●	●	●	●				
T8GP1		PNP 16 points	●	●	●	●				
T8GP2		PNP 32 points	●	●	●	●				
T8P1	PROFIBUS-DP	NPN 16 points	●	●	●	●				
T8P2		NPN 32 points	●	●	●	●				
T8PP1		PNP 16 points	●	●	●	●				
T8PP2		PNP 32 points	●	●	●	●				
T8EC1	EtherCAT	NPN 16 points	●	●	●	●				
T8EC2		NPN 32 points	●	●	●	●				
T8ECP1		PNP 16 points	●	●	●	●				
T8ECP2		PNP 32 points	●	●	●	●				
T8EN1	EtherNet/IP	NPN 16 points	●	●	●	●				
T8EN2		NPN 32 points	●	●	●	●				
T8ENP1		PNP 16 points	●	●	●	●				
T8ENP2		PNP 32 points	●	●	●	●				
T8D1	DeviceNet	NPN 16 points	●	●	●	●				
T8D2		NPN 32 points	●	●	●	●				
T8DP1		PNP 16 points	●	●	●	●				
T8DP2		PNP 32 points	●	●	●	●				
T8EB1	CC-Link IEF Basic	NPN 16 points	●	●	●	●				
T8EB2		NPN 32 points	●	●	●	●				
T8EBP1		PNP 16 points	●	●	●	●				
T8EBP2		PNP 32 points	●	●	●	●				
T8EP1	PROFINET	NPN 16 points	●	●	●	●				
T8EP2		NPN 32 points	●	●	●	●				
T8EPP1		PNP 16 points	●	●	●	●				
T8EPP2		PNP 32 points	●	●	●	●				
A2N	Without lead wire (without socket)	With surge suppressor and indicator lamp					●	●	●	●
Ⓔ Terminal/connector pin array										
Blank	Standard wiring	(*6)	●	●	●	●	●	●	●	●
W	Double wiring	(*6)	●	●	●	●	●	●	●	●
W 1	Double wiring (with single spare wiring)	(*6)(*7)	●	●	●	●	●	●	●	●
Ⓕ Option										
Blank	Manual override of non-locking/locking common		●	●	●	●	●	●	●	●
M	Non-locking manual override		●	●	●	●	●	●	●	●
H	With exhaust check valve	(*8)	●	●	●	●	●	●	●	●
K	External pilot	(*9)			●	●			●	●
A	Ozone/coolant proof		●	●	●	●	●	●	●	●
S	Surgeless	(*10)	●	●	●	●	●	●	●	●
E	Low exoergic/energy circuit	(*10)(*11)	●	●	●	●	●	●	●	●
L	With pipe adaptor		●	●	●	●	●	●	●	●
Q	Reduced wiring duct		●	●	●	●	●	●	●	●
F	Port A/B filter built in	(*12)	●	●	●	●	●	●	●	●
Z1	Air supply spacer	(*13)	●	●	●	●				
Z3	Exhaust spacer	(*13)	●	●	●	●				
Z6	Spacer pilot check valve	(*13)			●					
Ⓖ Station No.										
1	1 station		●	●	●	●				
to	to									
24	24 stations (Max. station number for MN4GB2 is 20.)									
Ⓗ Voltage										
3	24 VDC		●	●	●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●	●	●

Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓕ option "A" on the left.

CE marking specifications

** - Voltage - **ST**

- Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

Precautions for model selection

*6: Blank...The wiring will be based on the type of valve mounted.
W*...All wired as double solenoid regardless of the type of valve used.

***7 Spare wiring (A type socket assembly) is included on the cap side for single types. A holder for retaining the socket assembly is included for single unit valves (A2N). Refer to page 230 for details. Combination with port sizes C*NC and C*NO is not supported.**

***8 The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**

*9 Consult with CKD when using a vacuum with the external pilot (K).

*10 Surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.

*11 Surgeless specifications.

*12 A filter is built into port P as standard.

***13 Specify the spacer mounting position/quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with masking plates is not possible. For details, refer to pages 227 to 228.**

*14 Only compatible with MN4GB1 and MN4GB2 solenoid positions "3" and "4".

A. Discrete valve block with solenoid valve

Block assembled from solenoid valve body and valve block (split resin base). For model selection, refer to the following pages.
Body piping individual wiring: Page 208, base piping individual wiring: Page 212, Body piping reduced wiring: Page 218, base piping reduced wiring: Page 222

B. Discrete valve block with masking plate

Block assembled from masking plate and valve block (split resin base).

N4GA1 R - MP ——— 3 ——— P4

N4GB1 R - MPD - C4 - 3 F - P4

Ⓐ Model No.

Ⓑ Type

Ⓒ Port size

Ⓓ Cable length *2

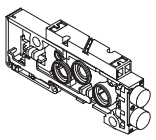
Ⓔ Option

Code	Description	Ⓐ Model No. N4GA1	N4GA2	N4GB1	N4GB2
Ⓑ Type					
MP	For individual wiring				
MPS	For reduced wiring single				
MPD	For reduced wiring double/3-position				
Ⓒ Port size (for base piping, this must be configured.)					
Type	Metric fitting/Rc thread				
C4	ø4 push-in fitting			●	●
C6	ø6 push-in fitting			●	●
C8	ø8 push-in fitting				●
Single side plug specs.	Port A	Port B			
C4NC	ø4 push-in fitting	Plug			●	●
C6NC	ø6 push-in fitting				●	●
C8NC	ø8 push-in fitting					●
C4NO	Plug	ø4 push-in fitting			●	●
C6NO		ø6 push-in fitting			●	●
C8NO		ø8 push-in fitting				●
Ⓓ Cable length *3					
Blank	For individual wiring				
2 to 10	Select the length from page 226.				
Ⓔ Option					
Blank	No option				
L	With pipe adaptor				
F	Port A/B filter built in				

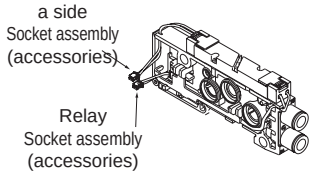
is not available.

***2 A socket assembly is attached with purchases for reduced wiring station expansion, so select "2 to 10". Select a cable length from page 226 and fill it into the D cable length field. If ordering with the manifold specifications sheet, the cable length can be omitted.**

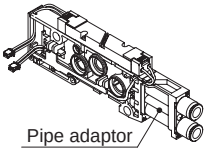
N4GA1R-MP



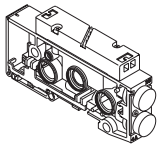
N4GB1R-MPD-C4-3



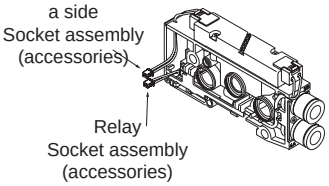
N4GB1R-MPD-C4-3L



N4GA2R-MP



N4GB2R-MPD-C6-5

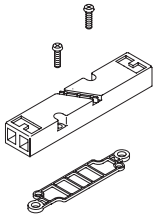


B-1. Masking plate

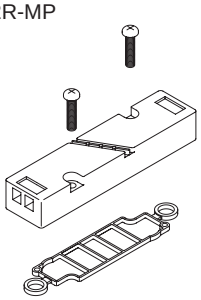
4G1R - MP

Ⓐ Model No.

4G1R-MP



4G2R-MP



Piping

C. Discrete valve block (separate item only)

Discrete valve block (split resin base).

N4GA1 R - V1 — 3 — P4
N4GB1 R - V2 - C4 - 3 F — P4

Ⓐ Model No.
Ⓑ Type
Ⓒ Port size
Ⓓ Cable length *2
Ⓔ Option

Ⓐ Model No.	N4GA1	N4GA2	N4GB1	N4GB2

Code	Description
Ⓑ Type	
V1	For individual wiring For reduced wiring single
V2	For reduced wiring double/3-position

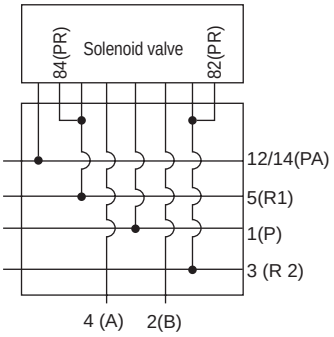
Ⓒ Port size (Settings are necessary for base piping.)					
Type	Metric fitting/Rc thread				
C4	ø4 push-in fitting			●	●
C6	ø6 push-in fitting			●	●
C8	ø8 push-in fitting				●
Single side plug Specifications	Port A	Port B			
C4NC	ø4 push-in fitting	Plug			●	●
C6NC	ø6 push-in fitting				●	●
C8NC	ø8 push-in fitting					●
C4NO	Plug	ø4 push-in fitting			●	●
C6NO		ø6 push-in fitting			●	●
C8NO		ø8 push-in fitting				●

Ⓓ Cable length *3	
Blank	For individual wiring
2 to 10	Select the length from page 226 .

Ⓔ Option					
Blank	No option	●	●	●	●
L	With pipe adaptor			●	●
F	Port A/B filter built in			●	●
Z6	For spacer pilot check valve mounting			●	

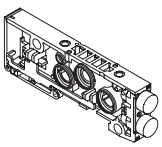
is not available.

***2 A socket assembly is attached with purchases for reduced wiring station expansion, so select "2 to 10". Select a cable length from page 226 and fill it into the Ⓓ cable length field. If ordering with the manifold specifications sheet, the cable length can be omitted.**

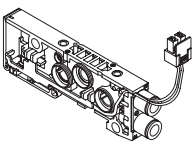


Discrete valve block circuit diagram

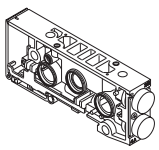
N4GA1R-V1



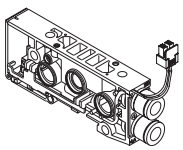
N4GB1R-V2-C4



N4GA2R-V1

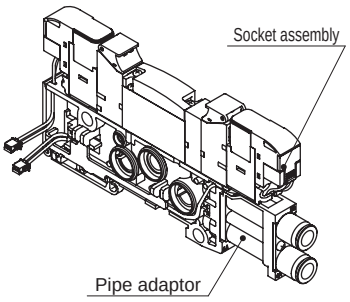


N4GB2R-V2-C6



Option L pipe adaptor

Combining axial push-in fittings with pipe adaptors may cause the fitting to protrude past the socket assembly, making tube attachment and removal easier.



As problems may occur depending on the configuration, make selections with a sufficient understanding of the features of each block.

C. Discrete valve block (separate item only)

Valve block for expansion Cable length

Calculate the distance W between the expansion position and the wiring block (Fig. 1),<<Select a cable with appropriate length from Table 1>>. Note that the required socket assembly differs between the a side solenoid and b side solenoid. While Fig. 1 shows the wiring block with left side specifications, similarly calculate the distance W between the expansion position and the wiring block for the right side specifications.

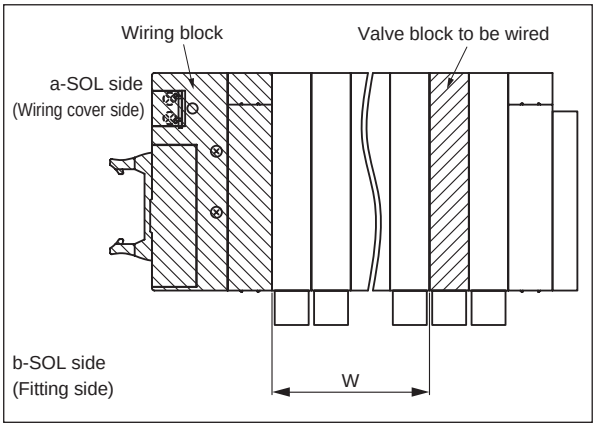
Calculation of W

- For MN4G1
  W=(10.5xn)+(16xm)+(10.5xl)
- For MN4G2
  W=(16xn)+(18xm)+(10.5xl)
  n/m/l: No. of valve blocks/supply and exhaust blocks/partition blocks
- For MN4GX
  Calculate W using the mix block width of 16.

<<Table 1>>W length - selection No. compatibility table

Selection No.	Type of wiring		
	T10/11(R)	T30/5*/6(R)	T7*/T8*
2		0	25 or less
3	20 or less	Over 0 to 30	Over 25 to 55
4	Over 20 to 70	Over 30 to 80	Over 55 to 105
5	Over 70 to 120	Over 80 to 130	Over 105 to 155
6	Over 120 to 170	Over 130 to 180	Over 155 to 205
7	Over 170 to 260	Over 180 to 270	Over 205 to 295
8	Over 260 to 350	Over 270 to 360	Over 295 to 385
9	Over 350 to 450	Over 360 to 460	Over 385 to 485
10	Over 450 to 570	Over 460 to 580	Over 485 to 605

Fig. 1



D. Supply and exhaust block

The supply and exhaust block can be installed at any position adjacent to the valve block. As there is no set number of units, install two or more units when necessary for combinations with partition blocks or in order to increase the flow rate for supply and exhaust. In order to prevent foreign matter from entering, port P is equipped with a filter.

N4G1R - Q - 8 - P4

Model No.

A Port size

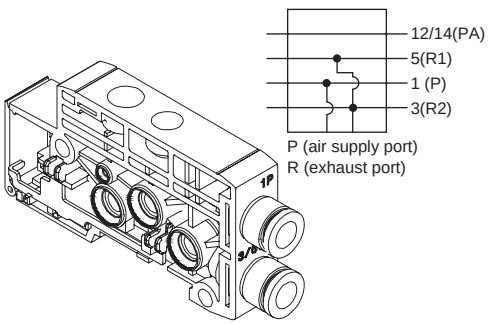
A	Port size
6	ø6 push-in fitting
8	ø8 push-in fitting

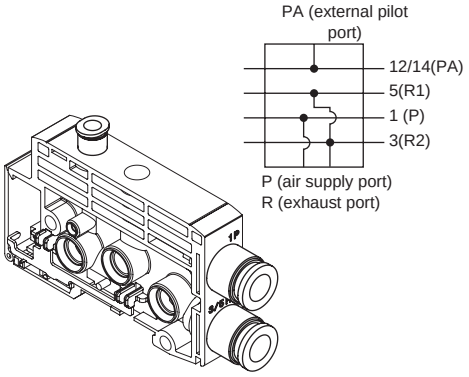
N4G2R - QK - 10 - P4

Model No.

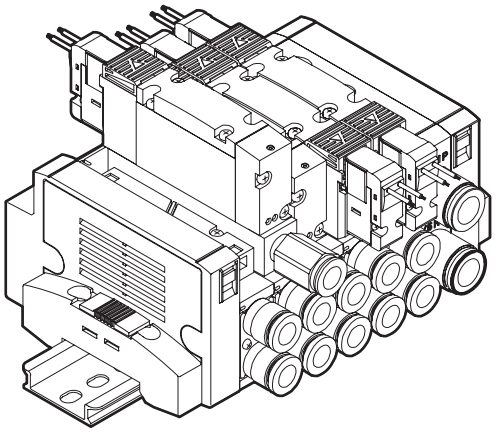
A Port size

A	Port size
8	ø8 push-in fitting
10	ø10 push-in fitting





● Air supply spacer



Specifications

Model No.	P → A/B		A/B → R		Weight g
	C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b	
4G1	0.70	0.23	0.93	0.16	8
4G2	1.6	0.17	1.8	0.16	35

*1: Values are when a valve is mounted.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order discrete units

4G (2) R − P − (GWS6) − P4

Ⓐ Air supply spacer model No.

Ⓑ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P 4" to the model No.

Code	Description	Model No. 4GA1	4GB1	4GA2	4GB2
Ⓐ Air supply spacer model No.					
1	For 4G1	●			
2	For 4G2			●	
Ⓑ Port size					
Blank	M5(4G1), Rc1/8(4G2)	●		●	
GWS4	ø4 fitting	○			
GWS6	ø6 fitting			○	
06N	1/8NPT thread			●	
06G	G1/8 thread			●	

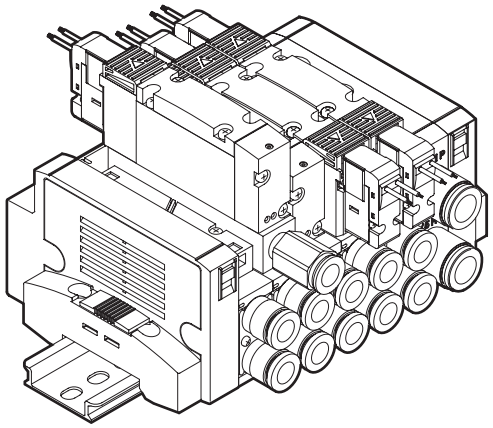
is not available.

Accessories: 4G1 2 mounting screws, 1 specially designed gasket
4G2 2 mounting screws, 2 PR check valves, 1 body gasket

⚠ Precautions for model selection

*2 Specify the positions and quantity of air supply spacers for manifold in the manifold specifications sheet.
*3 If the port A/B fitting is elbow, turn the air supply port of the air supply spacer toward the reverse side ("a" solenoid side).
*4 If the elbow (upward) port A/B fitting is used for the reduced wiring manifold, the air supply spacer cannot be selected.
*5 Combination with the masking plate is not supported.

● Exhaust spacer



Specifications

Model No.	P → A/B		A/B → R		Weight g
	C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b	
4G1	0.94	0.28	0.68	0.33	7
4G2	1.5	0.24	1.9	0.24	34

*1: Values are when a valve is mounted.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order discrete units

4G (2) R − R − (GWS6) − P4

Ⓐ Exhaust spacer model No.
Ⓑ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P 4" to the model No.

Code	Description	Model No. 4GA1	4GB1	4GA2	4GB2
Ⓐ **Exhaust spacer model No.**					
1	For 4G1	●			
2	For 4G2			●	
Ⓑ **Port size**					
Blank	M5 (4G1), Rc1/8 (4G2)	●		●	
GWS4	ø4 fitting	○			
GWS6	ø6 fitting			○	
06N	1/8NPT thread			●	
06G	G1/8 thread			●	

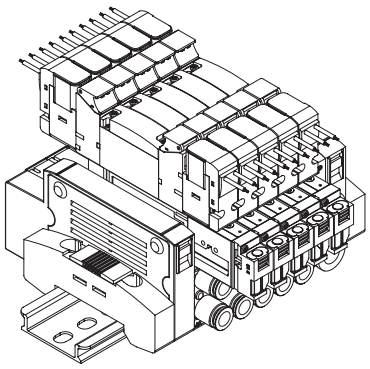
is not available.

Accessories: 4G1 2 mounting screws, 1 specially designed gasket
4G2 2 mounting screws, 2 PR check valves, 1 body gasket

⚠ Precautions for model selection

*2 Specify the positions and quantity of exhaust spacers for manifold in the manifold specifications sheet.
*3 If the port A/B fitting is elbow, turn the exhaust port of the exhaust spacer toward the reverse side ("a" solenoid side).
*4 If elbow upward port A/B fitting is used for the reduced wiring manifold, the exhaust spacer cannot be selected.
*5 Combination with the masking plate is not supported.

● Spacer pilot check valve

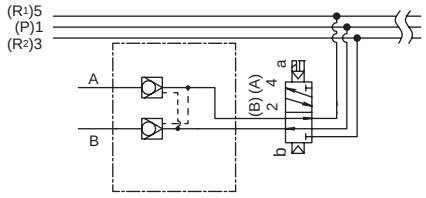


Specifications

Pilot check valve		4G1R-PC
Working fluid		Compressed air
Max. working pressure	MPa	0.7
Min. working pressure	MPa	0.2
Proof pressure	MPa	1.05
Effective cross-sectional area	mm^2	1.6 (Solenoid valve)
Ambient temperature	°C	−5 to 55 (no freezing)
Working fluid temperature	°C	5 to 55
Lubrication	*1	Not required
Atmosphere		Cannot be used in corrosive gas environment.
Weight	g	22

*1: Use turbine oil Class 1 ISO VG32 for lubrication.
Note that excessive lubricant may cause unstable operation.

JIS symbol

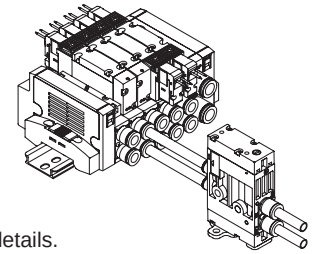


Note: Using a cylinder with a large diameter (more than ø50 as a guide) with little exhaust restriction (eg, no speed controller, no silencer) may lead to a decrease in intermediate stop accuracy and stopping error. Please be careful.

Discrete model No.

4G1R-PC

● Pilot check valve



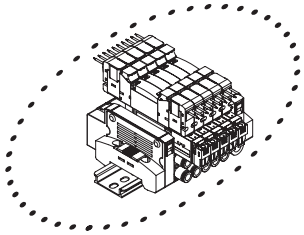
Refer to page 179 for details.

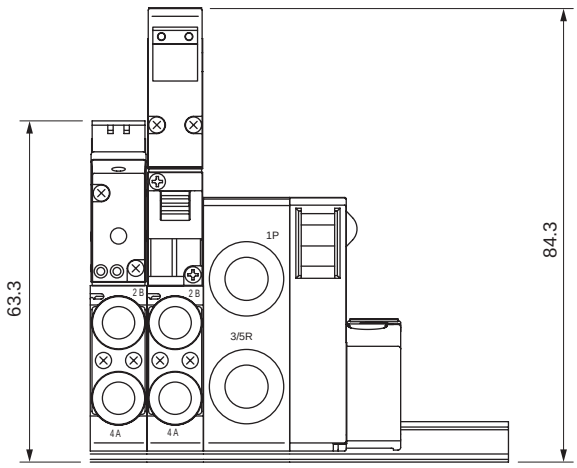
⚠ Precautions for model No. selection

*1: Specify the spacer positions in the manifold specifications sheet.
*2: Stacking of spacers is not possible.
*3: A spacer cannot be combined with a masking plate.
*4: The spacer pilot check valve can be mounted only when the piping method is base piping.
*5: Reduced wiringWhen adding a spacer to the manifold, select the socket assembly lead wireis insufficient (does not reach it). Replace the valve block. (Refer to page 225 for details.)

Dimensions

● MN4GB1

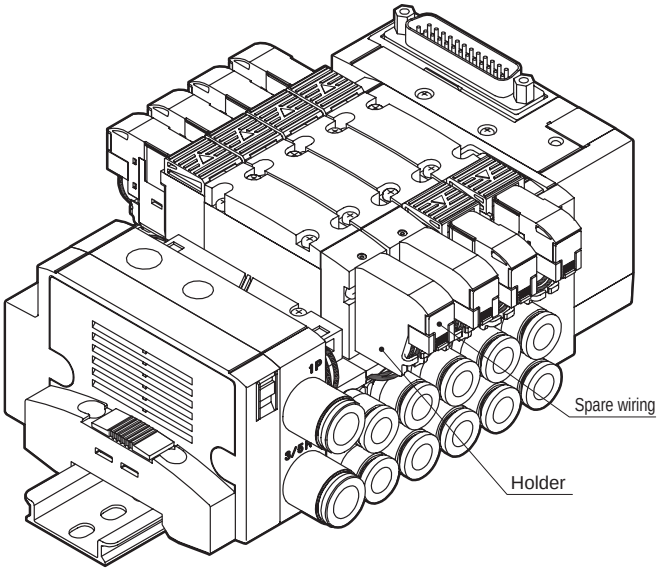




Note: For A dimension, check the dimensions of the respective specifications.

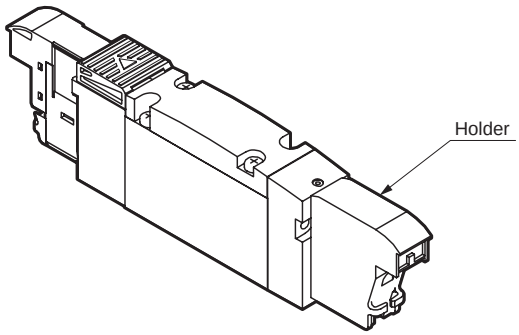
● Double wiring (with single spare wiring) (W1)

For manifolds



Spare wiring (holder and A type socket assembly) is included on the cap side for single solenoid valves.
This simplifies the workflow when changing valves from a single solenoid to a double solenoid, as you do not need to prepare the A type socket assembly separately.

Discrete valve (2-position single)



A holder for retaining the socket assembly is included.
(Not included for A type sockets.)
This can be used to hold the socket assembly no longer required when changing the valve from a double solenoid to a single solenoid.

Example of model No.

● Manifold model No. (example)

MN4GB1 (A) 1 (B) 0 R - C6 (C) - T30 (D) W1 (E) H (F) - 10 (G) - 3 (H) - P4

- (A) Model No.
- (B) Solenoid position
- (C) Port size
- (D) Wiring method
- (E) Terminal/connector pin array
- (F) Option
- (G) Station No.
- (H) Voltage

Code	Description
(E) Terminal/connector pin array	
W1	Double wiring (with single spare wiring)

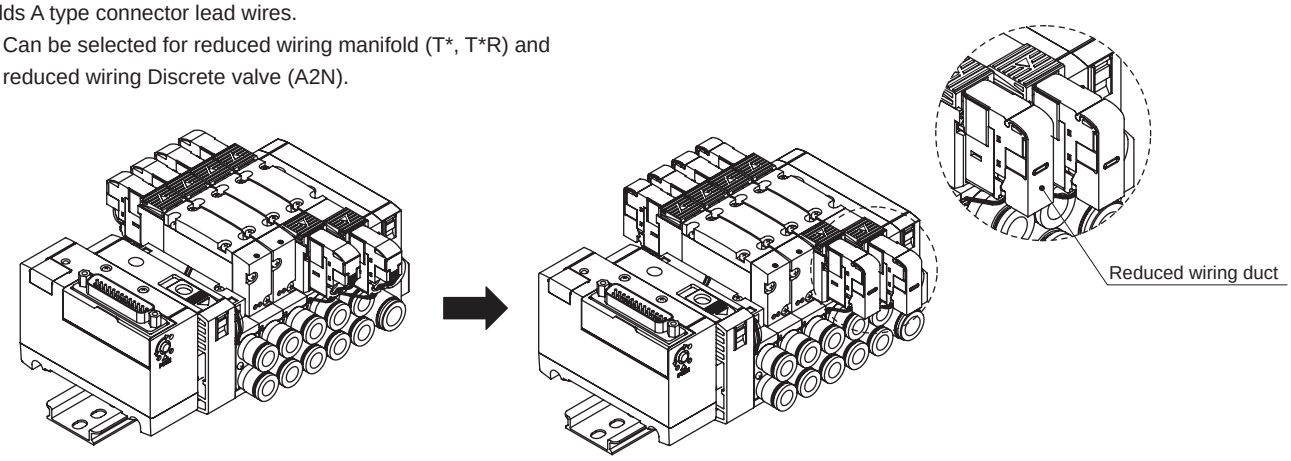
* Refer to How to order for each series for details about model numbers.
Combination with port sizes C*NC and C*NO is not supported.

Related products Reduced wiring duct

● Reduced wiring duct(Q)

Holds A type connector lead wires.

- Can be selected for reduced wiring manifold (T*, T*R) and reduced wiring Discrete valve (A2N).



Standard

When Q (reduced wiring duct) selected

Example of model No.

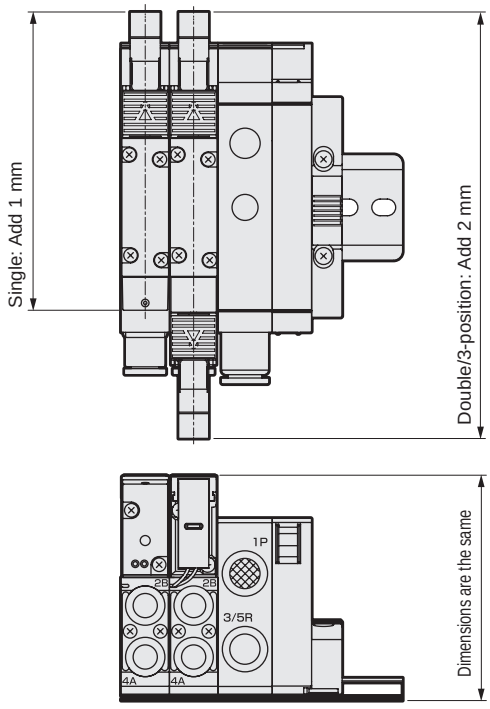
● Manifold model No. (example)

MN4GB1 1 0 R - C6 - T30 W Q - 10 - 3 - P4

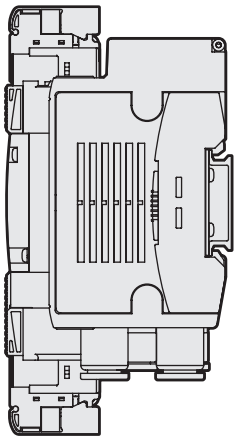
- A Model No.
- B Solenoid position
- C Port size
- D Wiring method
- E Terminal/ Connector pin array
- G Station No.
- H Voltage

Code	Description
F Option	
Q	Reduced wiring duct

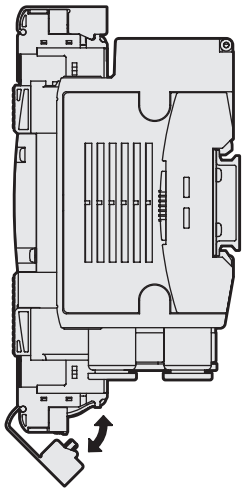
● Dimension lines



Reduced wiring duct closed state



Open state



How to fill out block manifold MN4G Series manifold specifications sheet

● Manifold model No. (example)

MN 4 GA1 8 0R- CX - T50 W H - 8 - 3 P4

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/Connector pin array Expression (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

For information, Block configurations (Pneumatic Valves No.CB-023SA) to select a model No.

Part name	Model No.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
Wiring block	N4G1R-T 50	○																														1
With solenoid valve Valve block (Page 224)	N4GA1 1 0R- C4 -		○	○																												2
	N4GA1 2 0R- C6 -					○																										1
	N4GA1 3 0R- C4 -				○																											1
	N4GA1 0R- -																															
	N4GA1 0R- -																															
	N4GA1 0R- -																															
	N3GA1 1 0R- C4 -									○	○	○																				3
	N3GA1 0R- -																															
Valve block with masking plate (Page 224)	N4GA1R-MP																															
	N4GA1R-MPS																															
	N4GA1R-MPD						○																									1
Supply and exhaust block (Page 226)	N4G1R-Q - 8L							○					○																			2
	N4G1R-Q -																															
	N4G1R-Q -																															
Partition block	N4G1R-S A								○																							1
	N4G1R-S																															
	N4G1R-S																															
End block	N4G1R-E R													○																		1
	N4G1R-E																															
Mounting rail	L_2= (How to calculate length on next page)	Blanking plug: GWP 4-B / GWP 6-B / GWP 8-B; D Cable with sub-connector; 4GR-CABLE-D0□-□																														Included parts
		Tag plate (included): A ○; Push-in fitting tube remover (standard attachment) ☑Not required (Check)																														

* A circuit diagram of the above manifold model No. (example) is provided on the following page. Use for reference.

If the tube remover (standard accessory) is not required, place a check.

Preparing manifold specifications sheet

● Complete from the left end, with the piping port facing forward.
(Block components (Pneumatic Valves No.CB-023SA) and layout.)
● Write the total number of blocks specified in the table far right.
● For required included parts, ○ mark.
● Indicate the mounting rail length. (Fill in only when a length other than the standard length is required.)
● As there are manifold specifications sheets for each of the various series, fill in the form for the corresponding specifications.

- MN4GA1: Page 236
- MN4GB1: Page 237
- MN4GA2: Page 238
- MN4GB2: Page 239
- MN4GA×1, 2 (mix manifold): Page 240
- MN4GB×1, 2 (mix manifold): Page 241

● Mounting rail model No.: N4GR-BAA Length

Mounting rail length (L2)

①Determine the rail length using the calculation method shown below.
The obtained length is standard.
②With standard length,For specifications sheet, N (L2) is not required.
If you need a length other than the standard length, please enter it.

● How to determine the length of the mounting rail

Manifold length (L1) = (A× Valve Block Quantity)+(B× Supply and exhaust Block Quantity)+(C× Partition Block Quantity)+ Wiring block D + Mixed block E

Mounting rail length (L2) = L2' x 12.5 A, B, C, D, and E indicate the length (width) of each block.

$$L2': \frac{L1+40}{12.5} \longrightarrow \text{round up to integer}$$

Rail mounting pitch (L3) = L2 - 12.5

Block length (width) dimensions table (mm)

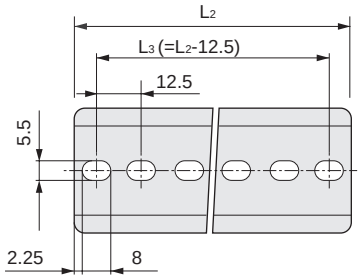
			MN4GA/B1	MN4GA/B2	MN4G1/2MIX	
					MN4GA/B1	MN4GA/B2
A	Valve block		10.5	16	10.5	16
B	Supply and exhaust block		16	18	16	18
C	Partition block		10.5	10.5	10.5	10.5
D	Individual wiring		41.2	46.2	43.7	
	For reduced wiring Wiring block	T10/T11	83.9	86.4	86.4	
		T10R/T11R	83.9	86.4	83.9	
		T30/T5*	69.4	71.9	71.9	
		T30R/T5*R	69.4	71.9	69.4	
		T6G1	143.6	146.1	146.1	
		T7*	64.4	66.9	66.9	
		T8*	64.4	66.9	66.9	
E	Mixed block				16	

* The end block is, Included in wiring block.

● Mounting rail length quick reference table

L1:Manifold Length	47.5 or less	47.5 Over to 60 or less	60 to 72.5	72.5 to 85	85 to 97.5	97.5 to 110	110 to 122.5	122.5 to 135	135 to 147.5	147.5 to 160	160 to 172.5	172.5 to 185	185 to 197.5	197.5 to 210	210 to 222.5	222.5 to 235	235 to 247.5	247.5 to 260	260 to 272.5	272.5 to 285	285 to 297.5	297.5 to 310	310 to 322.5	322.5 to 335	335 to 347.5	347.5 to 360
L2:Rail Length	87.5	100	112.5	125	137.5	150	162.5	175	187.5	200	212.5	225	237.5	250	262.5	275	287.5	300	312.5	325	337.5	350	362.5	375	387.5	400
PitchL3	75	87.5	100	112.5	125	137.5	150	162.5	175	187.5	200	212.5	225	237.5	250	262.5	275	287.5	300	312.5	325	337.5	350	362.5	375	387.5

*1:L1 exceeds this table,"How to calculate the length of the mounting rail" for calculation.



How to fill out wiring specifications sheet

Not required for standard wiring and double wiring.

● Wiring specificationsbook (Example)

* The following example has been filled out in accordance with the manifold specifications sheet on the previous page.

Connector pin No.				Valve No.																							
T50/T50R	T51/T51R	T52/T52R	T53/T53R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1	**a**																							
2	2	2	2		**a**																						
3	3	3	3				**a**																				
4	4	4	4				**b**																				
5	5	5	5					**a**																			
6	6	6	6					**b**																			
7	7	7	7			**a**																					
8	8	8	8			**b**																					
9 - Power supply	9	9 COM	9																								
10 + (COM) Power supply	10	10 COM	10																								
11	11		11						**a**																		
12	12		12							**a**																	
13	13		13								**a**																
14	14		14																								
15	15		15																								
16	16		16																								
17	17		17																								
18	18		18																								
19 - Power supply	19 COM		19																								
20 + (COM) Power supply	20 COM		20																								
			21																								
			22																								
			23																								
			24																								
			25 COM																								
			26 COM																								

* When T50/T50R, the COM polarity is + (Positive) be careful.

● Notes on wiring specifications

①Fill in and attach to the manifold specifications sheet for anything other than the standard wiring or double wiring. Consult with CKD, as products will be custom made in this case.

②The valve No. is determined by counting the valve blocks only in order from the left with the ports facing forward. Note that this differs from the installation position numbers.

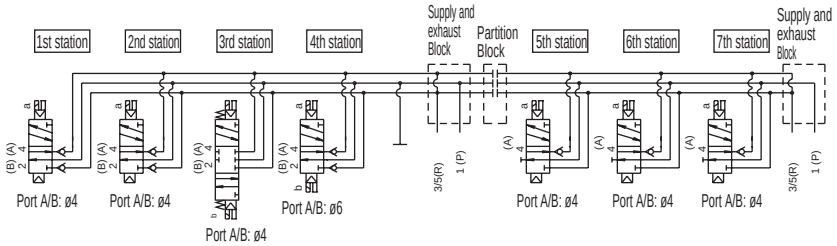
③As the connector pin No. and valve No. differ for each reduced wiring method (T1*/T30/T5*/T6G1/T7*/T8*), fill out the form upon reviewing the notes for each reduced wiring method (Pneumatic Valves No.CB-023SA).

④Wiring (socket assembly) is included with valve blocks with masking plates. "-MPS" is on the A side only. "-MPD" is on the A/B sides.

⑤Double solenoids or 3-position solenoid valves cannot be assembled to "-MPS". Order valve block with solenoid valve and carry out expansion.

⑥It is not possible to install spare wires for station expansion in advance. Wire the socket assembly of the solenoid valve for expansion of stations. To expand stations, (Pneumatic Valves No.CB-023SA).

Reference circuit diagram Simplified circuit diagram of manifold model No. (example) from previous page



* The manifold station numbers are set in order from the left with the piping port facing forward.
(Wiring blocks, supply and exhaust blocks, partition block, and end block are not included in the manifold station No.)

* Select a model No. from the page for block configurations (pneumatic valves No.CB-023SA) and specification model No.

* With piping port facing front, arrangement positions are set in order from the left.

MEMO

MN4GA1 Block manifold specifications sheet

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

Date issued / /

Company

Contact

Order No.

MN ☐ GA1 ☐ ☐ 0R- ☐ - ☐ ☐ ☐ - ☐ - ☐ - P4

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/connector pin array (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

Refer to "Block configurations" (Pneumatic Valves No.CB-023SA) to select the model No.

Part name (Page)	Model No.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
Wiring block	N4G1R-T ☐																															
With solenoid valve Valve block (Page 224)	N4GA1 ☐ 0R- ☐																															
	N4GA1 ☐ 0R- ☐																															
	N4GA1 ☐ 0R- ☐																															
	N4GA1 ☐ 0R- ☐																															
	N4GA1 ☐ 0R- ☐																															
	N4GA1 ☐ 0R- ☐																															
	N3GA1 ☐ 0R- ☐																															
	N3GA1 ☐ 0R- ☐																															
With masking plate Valve block (Page 224)	N4GA1R-MP																															
	N4GA1R-MPS																															
	N4GA1R-MPD																															
Air supply spacer (Page 227)	4 G1R-P- ☐																															
	4 G1R-P- ☐																															
Exhaust spacer (Page 228)	4G1R-R- ☐																															
Supply and exhaust block (Page 226)	N4G1R-Q ☐ - ☐																															
	N4G1R-Q ☐ - ☐																															
	N4G1R-Q ☐ - ☐																															
Partition block	N4G1R-S ☐																															
	N4G1R-S ☐																															
	N4G1R-S ☐																															
End block	N4G1R-E ☐																															
	N4G1R-E ☐																															

Mounting rail	Blanking plug						Tag plate (attachment)		Included Part
L_2= ☐ * Write an integer multiple of 12.5. (How to determine the length: page 233)	GWP 4-B	☐	GWP 6-B	☐	GWP 8-B	☐	A	☐	
	Cable with D-sub-connector		4GR-CABLE-D0☐-☐				☐	Push-in fitting tube remover (Included as Standard) ☐ Not required (Check)	

MN4GB1 Block manifold specifications sheet

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

Date issued / /

Company

Contact

Order No.

MN4GB1 □ 0R- □ - □ □ □ - □ - □ - P4

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/Connector pin array (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

Refer to "Block configurations" (Pneumatic Valves No.CB-023SA) to select the model No.

Part name (Page)	Model No.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
Wiring block	N4G1R-T □																															
With solenoid valve Valve block (Page 224)	N4GB1 □ 0R- □ - □																															
	N4GB1 □ 0R- □ - □																															
	N4GB1 □ 0R- □ - □																															
	N4GB1 □ 0R- □ - □																															
	N4GB1 □ 0R- □ - □																															
	N4GB1 □ 0R- □ - □																															
	N3GB1 □ 0R- □ - □																															
	N3GB1 □ 0R- □ - □																															
With masking plate Valve block (Page 224)	N4GB1R-MP- □																															
	N4GB1R-MPS- □																															
	N4GB1R-MPD- □																															
Air supply spacer (Page 227)	4 G1R-P- □																															
	4 G1R-P- □																															
Exhaust spacer (Page 228)	4G1R-R- □																															
Spacer pilot Check valve	4G1R-PC-																															
Supply and exhaust block (Page 226)	N4G1R-Q □ - □																															
	N4G1R-Q □ - □																															
	N4G1R-Q □ - □																															
Partition block	N4G1R-S □																															
	N4G1R-S □																															
	N4G1R-S □																															
End block	N4G1R-E □																															
	N4G1R-E □																															

Mounting rail	L_2= □	Blanking plug						Tag plate (attachment)				Included Part
	* Write an integer multiple of 12.5. (How to determine the length: page 233)	GWP 4-B	□	GWP 6-B	□	GWP 8-B	□	B1	□	B2	□	
		Cable with D-sub-connector		4GR-CABLE-D0□-□				□	Push-in fitting tube remover (standard attachment) □ Not required (check)			

MN4GA2 Block manifold specifications sheet

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

Date issued / /

Company

Contact

Order No.

MN □ GA2 □ 0R- □ - □ □ □ - □ - □ - P4

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/connector pin array (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

Refer to "Block configurations" (Pneumatic Valves No.CB-023SA) to select the model No.

Part name (Page)	Model No.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
Wiring block	N4G2R-T □																															
With solenoid valve Valve block (Page 224)	N4GA2 □ 0R- □																															
	N4GA2 □ 0R- □																															
	N4GA2 □ 0R- □																															
	N4GA2 □ 0R- □																															
	N4GA2 □ 0R- □																															
	N4GA2 □ 0R- □																															
	N3GA2 □ 0R- □																															
	N3GA2 □ 0R- □																															
With masking plate Valve block (Page 224)	N4GA2R-MP																															
	N4GA2R-MPS																															
	N4GA2R-MPD																															
Air supply spacer (Page 227)	4G2R-P- □																															
	4G2R-P- □																															
Exhaust spacer (Page 228)	4G2R-R- □																															
Supply and exhaust block (Page 226)	N4G2R-Q □ - □																															
	N4G2R-Q □ - □																															
	N4G2R-Q □ - □																															
Partition block	N4G2R-S □																															
	N4G2R-S □																															
	N4G2R-S □																															
End block	N4G2R-E □																															
	N4G2R-E □																															

Mounting rail	L_2= □ * Write an integer multiple of 12.5. (How to determine the length: page 233)	Blanking plug						Tag plate (attachment)		Included Part
		GWP 4-B	□	GWP 6-B	□	GWP 8-B	□	A	□	
		Cable with D-sub-connector		4GR-CABLE-D0□-□				□		

MN4GB2 Block manifold specifications sheet

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

Date issued / /

Company

Contact

Order No.

MN4GB2 ☐ 0R- ☐ - ☐ ☐ ☐ - ☐ - ☐ - P4

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/Connector pin array (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

Refer to "Block configurations" (Pneumatic Valves No.CB-023SA) to select the model No.

Part name (Page)	Model No.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
Wiring block	N4G2R-T☐																															
With solenoid valve Valve block (Page 224)	N4GB2☐0R-☐-																															
	N4GB2☐0R-☐-																															
	N4GB2☐0R-☐-																															
	N4GB2☐0R-☐-																															
	N4GB2☐0R-☐-																															
	N4GB2☐0R-☐-																															
	N3GB2☐0R-☐-																															
	N3GB2☐0R-☐-																															
With masking plate Valve block (Page 224)	N4GB2R-MP-☐																															
	N4GB2R-MPS-☐																															
	N4GB2R-MPD-☐																															
Air supply spacer (Page 227)	4G2R-P-☐																															
	4G2R-P-☐																															
Exhaust spacer (Page 228)	4G2R-R-☐																															
Supply and exhaust block (Page 226)	N4G2R-Q☐-☐																															
	N4G2R-Q☐-☐																															
	N4G2R-Q☐-☐																															
Partition block	N4G2R-S☐																															
	N4G2R-S☐																															
	N4G2R-S☐																															
End block	N4G2R-E☐																															
	N4G2R-E☐																															
Mounting rail	L2=☐ * Write an integer multiple of 12.5. (How to determine the length: page 233)	Blanking plug: GWP 4-B ☐ GWP 6-B ☐ GWP 8-B ☐ / Cable with D-sub-connector: 4GR-CABLE-D0☐-☐																														Tag plate (attachment): B ☐ / Included Part

MN4GA1/2 Mix manifold specifications sheet

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

Date issued / /
Company
Contact
Order No.

MN ☐ GAX12R- ☐ - ☐ ☐ ☐ - ☐ - ☐ - P4

Ⓐ Model No. Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/connector pin array (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

Refer to "Block configurations" (Pneumatic Valves No.CB-023SA) to select the model No.

Part name (Page)	Model No.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
Wiring block	N4G ☐ R-T ☐																															
With solenoid valve Valve block (224 page)	N4GA ☐ 0R- ☐																															
	N4GA ☐ 0R- ☐																															
	N4GA ☐ 0R- ☐																															
	N4GA ☐ 0R- ☐																															
	N4GA ☐ 0R- ☐																															
	N4GA ☐ 0R- ☐																															
	N3GA ☐ 0R- ☐																															
	N3GA ☐ 0R- ☐																															
With masking plate Valve block (224 page)	N4GA ☐ R-MP																															
	N4GA ☐ R-MPS																															
	N4GA ☐ R-MPD																															
Air supply spacer (Page 227)	4 G1R-P-																															
	4G2R-P- ☐																															
Exhaust spacer (Page 228)	4G1R-R- ☐																															
	4G2R-R- ☐																															
Mixed block	N4G12R-MIX																															
Supply and exhaust block (Page 226)	N4G ☐ R-Q ☐ - ☐																															
	N4G ☐ R-Q ☐ - ☐																															
	N4G ☐ R-Q ☐ - ☐																															
Partition block	N4G ☐ R-S ☐																															
	N4G ☐ R-S ☐																															
	N4G ☐ R-S ☐																															
End block	N4G ☐ R-E ☐																															
	N4G ☐ R-E ☐																															
Mounting rail	L_2= ☐ * Write an integer multiple of 12.5. (How to determine the length: page 233)	Blanking plug: GWP ☐ -B ☐ / GWP ☐ -B ☐ / GWP ☐ -B ☐ / GWP ☐ -B ☐ Cable with D-sub-connector / 4GR-CABLE-D0☐-☐ Push-in fitting tube remover (standard attachment) ☐ Not required (check)																														Included Part

MN4GB1/2 Mix manifold specifications sheet

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

Date issued / /

Company

Contact

Order No.

MN4GBX12R- □ - □ □ □ - □ - □ - P4

Ⓐ Model No. Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/Connector pin array (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

Refer to "Block configurations" (Pneumatic Valves No.CB-023SA) to select the model No.

Part name	Model No.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
Wiring block	N4G □ R-T □																															
With solenoid valve Valve block (Page 224)	N4GB □ 0R- □ - □																															
	N4GB □ 0R- □ - □																															
	N4GB □ 0R- □ - □																															
	N4GB □ 0R- □ - □																															
	N4GB □ 0R- □ - □																															
	N4GB □ 0R- □ - □																															
	N3GB □ 0R- □ - □																															
	N3GB □ 0R- □ - □																															
With masking plateValve block(Page 224)	N4GB □ R-MP- □																															
	N4GB □ R-MPS- □																															
	N4GB □ R-MPD- □																															
Air supply spacer(Page 227)	4 G1R-P- □																															
	4G2R-P- □																															
Exhaust spacer (Page 228)	4G1R-R- □																															
	4G2R-R- □																															
Mixed block	N4G12R-MIX																															
Supply and exhaust block (Page 226)	N4G □ R-Q □ - □																															
	N4G □ R-Q □ - □																															
	N4G □ R-Q □ - □																															
Partition block	N4G □ R-S □																															
	N4G □ R-S □																															
	N4G □ R-S □																															
End block	N4G □ R-E □																															
	N4G □ R-E □																															
Mounting rail	L_2= □ * Write an integer multiple of 12.5. (How to determine the length: page 233)	Blanking plug: GWP □ -B / GWP □ -B / GWP □ -B / GWP □ -B; Cable with D-sub-connector / 4GR-CABLE-D0□-□; Push-in fitting tube remover (standard attachment) □ Not required (check)																												Included Part

Common terminal block (T10/T11) wiring specifications sheet

* Fill in and attach to the manifold specifications sheet for anything other than the standard wiring or double wiring. (Available as made to order)
* Not required with standard wiring/double wiring.

Connector pin No.		Valve No.																							
T10 ☐	**T11** ☐	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1																								
2	2																								
3	3																								
4	4																								
5	5																								
6	6																								
7	7																								
8	8																								
9	9																								
10	10																								
11	11																								
12	12																								
13	13																								
14	14																								
15	15																								
16	16																								
COM	17																								
COM	18																								
	19																								
	20																								
	21																								
	22																								
	23																								
	24																								
	COM																								
	COM																								

D-sub-connector (T30) wiring specifications sheet

* Fill in and attach to the manifold specifications sheet for anything other than the standard wiring or double wiring. (Available as made to order)
* Not required with standard wiring/double wiring.

Connector pin No.	Valve No.																							
T30 ☐	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
14																								
2																								
15																								
3																								
16																								
4																								
17																								
5																								
18																								
6																								
19																								
7																								
20																								
8																								
21																								
9																								
22																								
10																								
23																								
11																								
24																								
12																								
25																								
13 (COM)																								

Flat cable connector (T50/T51/T52/T53) wiring specifications sheet

* Fill in and attach to the manifold specifications sheet for anything other than the standard wiring or double wiring. (Available as made to order)
* Not required with standard wiring/double wiring.

Connector pin No.				Valve No.																							
T50/T50R	**T51/T51R**	**T52/T52R**	**T53/T53R**	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1																								
2	2	2	2																								
3	3	3	3																								
4	4	4	4																								
5	5	5	5																								
6	6	6	6																								
7	7	7	7																								
8	8	8	8																								
9 - Power supply	9	9 COM	9																								
10 + (COM) Power supply	10	10 COM	10																								
11	11		11																								
12	12		12																								
13	13		13																								
14	14		14																								
15	15		15																								
16	16		16																								
17	17		17																								
18	18		18																								
19 - Power supply	19 COM		19																								
20 + (COM) Power supply	20 COM		20																								
			21																								
			22																								
			23																								
			24																								
			25 COM																								
			26 COM																								

* Note that when the wiring method is T50/T50R, the COM polarity will be + (positive).

Serial transmission (T6G1/T7*) wiring specifications sheet

* Fill in and attach to the manifold specifications sheet for anything other than the standard wiring or double wiring. (Available as made to order)
* Not required with standard wiring/double wiring.

Serial transmission	Connector pin No.		Valve No.															
	T6G1	**T7***	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Connector type T6G1:CC-Link 16 points	1	1																
	2	2																
	3	3																
	4	4																
	5	5																
	6	6																
	7	7																
	8	8																
	9	9																
	10 COM	10																
	11	11																
	12	12																
Thin slot-insertion type T7D1:DeviceNet 16 points T7G1:CC-Link 16 points T7 L1:SAVE NET 16 points T7S1:CompoNet 16 points (NPN) T7SP1:CompoNet 16 points (PNP)	13	13																
	14	14																
	15	15																
	16	16																
	17	17																
	18	18																
	19	19																
	20 COM	20																

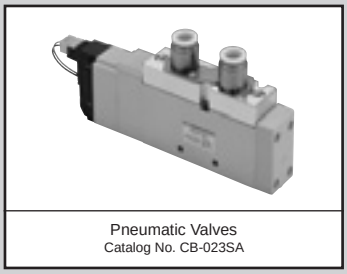
Serial transmission (T8*) wiring specifications sheet

* Fill in and attach to the manifold specifications sheet for anything other than the standard wiring or double wiring. (Available as made to order)
* Not required with standard wiring/double wiring.

Serial transmission			
T8G1	CC-Link	NPN	16 points
T8G2			32 points
T8GP1		PNP	16 points
T8GP2			32 points
T8P1	PROFIBUS-DP	NPN	16 points
T8P2			32 points
T8PP1		PNP	16 points
T8PP2			32 points
T8EC1	EtherCAT	NPN	16 points
T8EC2			32 points
T8ECP1		PNP	16 points
T8ECP2			32 points
T8EN1	EtherNet/IP	NPN	16 points
T8EN2			32 points
T8ENP1		PNP	16 points
T8ENP2			32 points
T8D1	DeviceNet	NPN	16 points
T8D2			32 points
T8DP1		PNP	16 points
T8DP2			32 points
T8EB1	CC-Link IEF Basic	NPN	16 points
T8EB2			32 points
T8EBP1		PNP	16 points
T8EBP2			32 points
T8EP1	PROFINET	NPN	16 points
T8EP2			32 points
T8EPP1		PNP	16 points
T8EPP2			32 points

Connector pin No.	Valve No.																							
T8*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
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27																								
28																								
29																								
30																								
31																								
32																								

MEMO



Pneumatic Valves
Catalog No. CB-023SA

Discrete valve
Body piping

4GA4 Series

● Cylinder bore size: ø100 to ø140

Common specifications

Item	Description
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2
Proof pressure MPa	1.05
Ambient temperature °C	-5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common
Lubrication (*1)	Not required
Degree of protection (*2)	Dust-proof [IP40 equivalent (DIN terminal box: IP65)]
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environments

*1: Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2: Avoid water drops or oil, etc., during use. IP65 (water jet proof) or equivalent applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

Electrical specifications

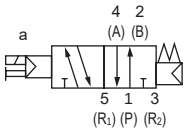
Item			Description
Rated voltage V	AC		100 (50/60Hz) 110 (50/60Hz)
	DC		12, 24
Voltage fluctuation range			±10%
Starting current A	AC	100V	0.056/0.044
		110V	0.051/0.040
	DC	12V	-
		24V	-
Holding current A	AC	100V	0.028/0.022
		110V	0.025/0.020
	DC	12V	0.079 (0.083)
		24V	0.040 (0.042)
Power consumption (*3) W	AC	100V	1.8/1.4
		110V	(1.8/1.5)
	DC	12V	0.95 (1.0)
		24V	
Thermal class			B
Surge suppressor			Option
Indicator			Lamp (option)

*3: Values in ( ) apply when lamp is included.

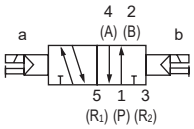
JIS symbol

● 5-port valve

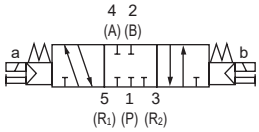
2-position single



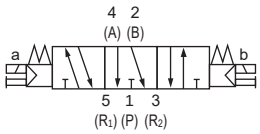
2-position double



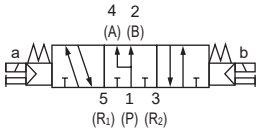
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

Item		4GA4
Port size	Port A/B	Push-in fitting ø8, ø10, ø12 Rc3/8, G3/8, NPT3/8
	Port P/R1/R2	Rc1/4, G1/4, NPT1/4

Performance/characteristics by model

Item			4GA4	
			ON	OFF
Response time ms	2-position	Single	40 (40)	40 (52)
		Double	40 (52)	40 (52)
	3-position	A/B/R connection	60 (72)	60 (72)

Values with lamp/surge suppressor are shown. The response times are values with working pressure of 0.5 MPa at 20°C, without lubrication. They depend on the pressure and the lubricant quality. ( ) shows AC value.

Weight

Item				4GA4
Weight g	2-position	Single	Grommet lead wire	310 (319)
			E-connector	313 (322)
			DIN terminal box	322 (331)
		Double	Grommet lead wire	371 (380)
			E-connector	377 (386)
			DIN terminal box	395 (404)
	3-position	All ports closed	Grommet lead wire	402 (411)
			E-connector	408 (417)
			DIN terminal box	426 (435)

() includes the mounting screw and gasket. Values for the E-connector include the socket assembly (with 300 mm lead wire). For the EJ-connector, add 16 g/connector to the E-connector weight.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B → R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
4GA4	2-position		8.1	0.40	8.0	0.31
	3-position	All ports closed	6.9	0.37	7.5	0.42
		A/B/R connection	6.8	0.40	8.7	0.37
		P/A/B connection	8.9	0.37	7.6	0.27

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 248.

CE marking specifications

Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

4GA4 Series

Discrete valve; Body piping

How to order

4GA4 **1** **0** - **10** - **E2** ( ) - **3** - **P4**

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓓ Electrical connections
Refer to "Pneumatic Valves No.CB-023SA" for the circuit diagram with surge suppressor/lamp.

Ⓔ Option

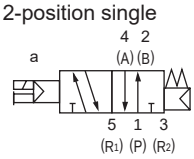
Ⓕ Voltage

Code	Description	Ⓐ Model No. 4GA4
Ⓑ Solenoid position		
1	2-position single	●
2	2-position double	●
3	3-position all ports closed	●
4	3-position ABR connection	●
5	3-position PAB connection	●
Ⓒ Port size		*1
Port	Port A/B	P/R Port Rc1/4
C8	ø8 push-in fitting	○
C10	ø10 push-in fitting	○
C12	ø12 push-in fitting	○
10	Rc3/8	●
10G	G3/8	●(*2)
10 N	NPT3/8	●(*3)
Ⓓ Electrical connections		
Blank	Grommet lead wire	●
B	DIN terminal box (Pg7) with surge suppressor/lamp	●
E-connector (upward/lateral common)		
E0	Lead wire (300 mm)	●
E00	Lead wire (500 mm)	●
E01	Lead wire (1000 mm)	●
E02	Lead wire(2000 mm)	●
E03	Lead wire (3000 mm)	●
E2	Lead wire (300 mm) with surge suppressor/lamp	●
E20	Lead wire (500 mm) with surge suppressor/lamp	●
E21	Lead wire (1000 mm) with surge suppressor/lamp	●
E22	Lead wire (2000 mm) with surge suppressor/lamp	●
E23	Lead wire(3000 mm) with surge suppressor/lamp	●
E0N	Without lead wire (without socket)	●
E2N	Without lead wire (without socket) with surge suppressor/lamp	●
E3	Without lead wire (socket/terminal attached) with surge suppressor/lamp	●
E1	Without lead wire (socket/terminal attached)	●
EJ-connector (socket with cover, upward/lateral common)		
E01J	Lead wire (1000 mm)	●
E02J	Lead wire (2000 mm)	●
E03J	Lead wire(3000 mm)	●
E21J	Lead wire (1000 mm) with surge suppressor/lamp	●
E22J	Lead wire (2000 mm) with surge suppressor/lamp	●
E23J	Lead wire (3000 mm) with surge suppressor/lamp	●
Ⓔ Option		
Blank	No	●
A	Coolant proof	●
F	Port A/B filter built in	●
Ⓕ Voltage		
1	100 VAC	●
3	24 VDC	●
4	12 VDC	●
5	110 VAC	●

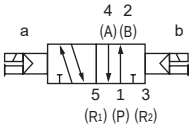
JIS symbol

● 5-port valve

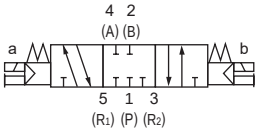
2-position single



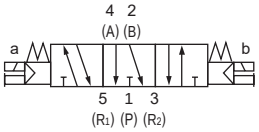
2-position double



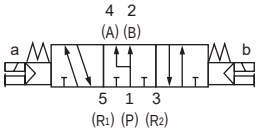
3-position
All ports closed



3-position A/B/R connection

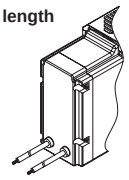
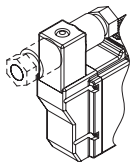
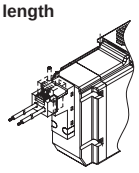
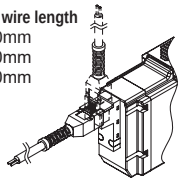
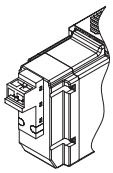
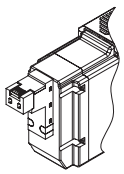


3-position P/A/B connection



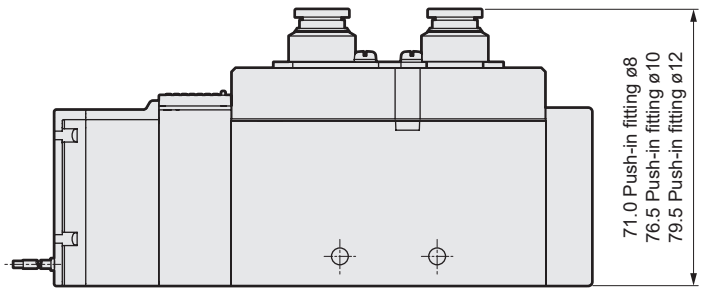
⚠ Precautions for model No. selection

*2: Port P/R is G1/4.
*3: Port P/R is NPT1/4.

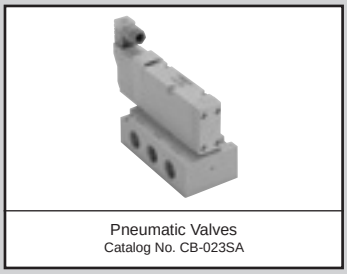
Electrical connections	
Discrete valve/individual wiring manifold	
Blank Grommet lead wire	**B** DIN terminal box
● **Lead wire length** 300mm 	
E0* **E2*** E-connector	**E0*J** **E2*J** EJ type connector
● **Lead wire length** 300mm 500mm 1000mm 2000mm 3000mm 	● **Lead wire length** 1000mm 2000mm 3000mm 
E0N **E2N** E-connector Without socket	
	
E1 **E3** E-connector With socket/terminal	
	

Dimensions

● 4GA4-P4



* Fitting dimensions of P4 Series are different from the standard when mounted.
For other dimensions, refer to the 4GA4 Series in "Pneumatic Valves (No. CB-023SA)".



Pneumatic Valves
Catalog No. CB-023SA

Discrete valve
Base piping

4GB4 Series

● Cylinder bore size:ø125 to ø160

P4 compliant as standard

CE RoHS CAD

Common specifications

Item		Description
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2 (*3)
Proof pressure MPa		1.05
Ambient temperature °C		-5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust
	External pilot	Main valve/pilot valve individual exhaust
Lubrication (*1)		Not required
Degree of protection (*2)		Dust-proof [IP40 equivalent (DIN terminal box: IP65)]
Vibration resistance m/s^2		50 or less
Shock resistance m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

*1: Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2: Avoid water drops or oil, etc., during use. IP65 (water jet proof) or equivalent applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.
*3: The working pressure range is 0 to 0.7MPa when the external pilot (option code: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.

Electrical specifications

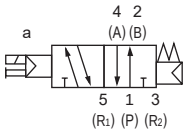
Item			Description
Rated voltage V	AC		100 (50/60Hz) 110 (50/60Hz)
	DC		12, 24
Voltage fluctuation range			±10%
Starting current A	AC	100V	0.056/0.044
		110V	0.051/0.040
	DC	12V	-
		24V	-
Holding current A	AC	100V	0.028/0.022
		110V	0.025/0.020
	DC	12V	0.079 (0.083)
		24V	0.040 (0.042)
Power consumption (*4) W	AC	100V	1.8/1.4 (1.8/1.5)
		110V	
	DC	12V	0.95 (1.0)
		24V	
Thermal class			B
Surge suppressor			Option
Indicator			Lamp (option)

*4: Values in ( ) apply when lamp is included.

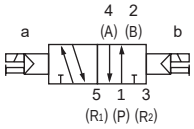
JIS symbol

● 5-port valve

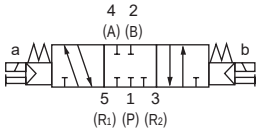
2-position single



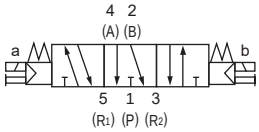
2-position double



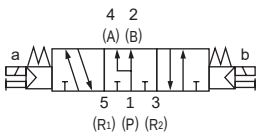
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

Item		4GB4
Port size	Port A/B	Rc3/8, Rc1/2, G3/8, G1/2, NPT3/8, NPT1/2
	Port P/R1/R2	Rc3/8, Rc1/2, G3/8, G1/2, NPT3/8, NPT1/2

Performance/characteristics by model

Item			4GB4	
			ON	OFF
Response time ms	2-position	Single	40 (40)	40 (52)
		Double	40 (52)	40 (52)
	3-position	A/B/R connection	60 (72)	60 (72)

Values with lamp/surge suppressor are shown. The response times are values with working pressure of 0.5 MPa at 20°C, without lubrication. They depend on the pressure and the lubricant quality. ( ) shows AC value.

Weight

Item				4GB4
Weight g	2-position	Single	Grommet lead wire	563 (256)
			E-connector	566 (259)
			DIN terminal box	575 (268)
		Double	Grommet lead wire	620 (313)
			E-connector	626 (319)
			DIN terminal box	644 (337)
	3-position	All ports Block	Grommet lead wire	655 (348)
			E-connector	661 (354)
			DIN terminal box	679 (372)

Values in ( ) do not include the single sub-plate. Values for the E-connector include the socket assembly (with 300 mm lead wire). For the EJ-connector, add 16 g/connector to the E-connector weight.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B → R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
4GB4	2-position		11	0.19	13	0.19
	3-position	All ports closed	9.1	0.11	12	0.27
		A/B/R connection	9.2	0.11	15	0.22
		P/A/B connection	10	0.06	12	0.24

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 252.

CE marking specifications

Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

How to order

4GB4 1 0 - 10 - E2 ( ) - 3

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Port size
Ⓓ Electrical connections
Refer to "Pneumatic Valves No.CB-023SA" for the circuit diagram with surge suppressor/lamp.
Ⓔ Option
Ⓕ Voltage

P4 compliant as standard

Code	Description	Ⓐ Model No. 4GB4
Ⓑ Solenoid position		
1	2-position single	●
2	2-position double	●
3	3-position all ports closed	●
4	3-position ABR connection	●
5	3-position PAB connection	●

Ⓒ Port size			
Port	Port A/B	P/R Port	
		Rc3/8	Rc1/2
10	Rc3/8	●	
15	Rc1/2		●
10G	G3/8	● (*1)	
15G	G1/2		● (*1)
10 N	NPT3/8	● (*2)	
15N	NPT1/2		● (*2)

Ⓓ Electrical connections		
Blank	Grommet lead wire	●
B	DIN terminal box (Pg7) with surge suppressor/lamp	●
E-connector (upward/lateral common)		
E0	Lead wire (300 mm)	●
E00	Lead wire (500 mm)	●
E01	Lead wire (1000 mm)	●
E02	Lead wire (2000 mm)	●
E03	Lead wire (3000 mm)	●
E2	Lead wire (300 mm) with surge suppressor/lamp	●
E20	Lead wire (500 mm) with surge suppressor/lamp	●
E21	Lead wire (1000 mm) with surge suppressor/lamp	●
E22	Lead wire (2000 mm) with surge suppressor/lamp	●
E23	Lead wire (3000 mm) with surge suppressor/lamp	●
E0N	Without lead wire (without socket)	●
E2N	Without lead wire (without socket) with surge suppressor/lamp	●
E3	Without lead wire (socket/terminal attached) with surge suppressor/lamp	●
E1	Without lead wire (socket/terminal attached)	●
EJ-connector (socket with cover, upward/lateral common)		
E01J	Lead wire (1000 mm)	●
E02J	Lead wire (2000 mm)	●
E03J	Lead wire (3000 mm)	●
E21J	Lead wire (1000 mm) with surge suppressor/lamp	●
E22J	Lead wire (2000 mm) with surge suppressor/lamp	●
E23J	Lead wire (3000 mm) with surge suppressor/lamp	●

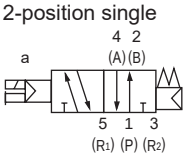
Ⓔ Option		
Blank	No	●
K	External pilot	●
A	Coolant proof	●
F	Port A/B filter built in	●

Ⓕ Voltage		
1	100 VAC	●
3	24 VDC	●
4	12 VDC	●
5	110 VAC	●

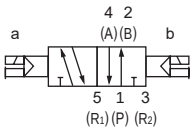
JIS symbol

● 5-port valve

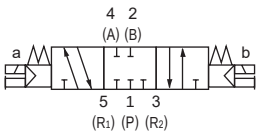
2-position single



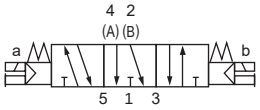
2-position double



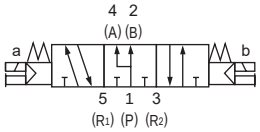
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



⚠ Precautions for model No. selection

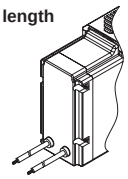
*1: Port P/R is G thread.
*2: Port P/R is NPT thread.

Electrical connections

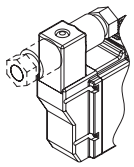
Discrete valve/individual wiring manifold

Blank Grommet lead wire

● **Lead wire length**
300mm

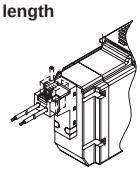


B DIN terminal box



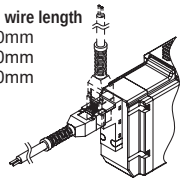
E0*
E2* E-connector

● **Lead wire length**
300mm
500mm
1000mm
2000mm
3000mm

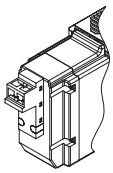


E0*J
E2*J EJ type connector

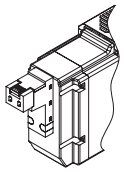
● **Lead wire length**
1000mm
2000mm
3000mm

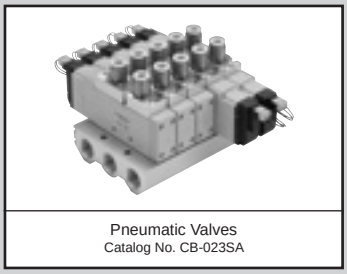


E0N
E2N E-connector
Without socket



E1
E3 E-connector
With socket/terminal





Pneumatic Valves
Catalog No. CB-023SA

Individual wiring manifold
Body piping
Direct mount

M4GA4 Series

● Cylinder bore size:ø100 to ø140

Manifold common specifications

Item		Description
Manifold		Integrated base
Mounting method		Direct mount
Air supply and exhaust method		Common supply/common exhaust
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
	External pilot	Main valve/pilot valve individual exhaust
Piping direction		Valve top direction
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2 (*3)
Proof pressure MPa		1.05
Ambient temperature °C		-5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common
Lubrication (*1)		Not required
Degree of protection (*2)		Dust-proof [IP40 equivalent (DIN terminal box: IP65)]
Vibration resistance m/s^2		50 or less
Shock resistance m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

*1: Use turbine oil Class 1 ISOVG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2: Avoid water drops or oil, etc., during use. IP65 (jet-proof) or equivalent applies for D I N terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.
*3: The working pressure range is 0 to 0.7MPa when the external pilot (option code: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.

Electrical specifications

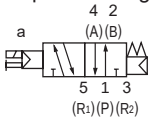
Item			Description
Rated voltage V	AC		100 (50/60Hz) 110 (50/60Hz)
	DC		12, 24
Voltage fluctuation range			±10%
Starting current A	AC	100V	0.056/0.044
		110V	0.051/0.040
	DC	12V	-
		24V	-
Holding current A	AC	100V	0.028/0.022
		110V	0.025/0.020
	DC	12V	0.079 (0.083)
		24V	0.040 (0.042)
Power consumption (*4) W	AC	100V	1.8/1.4
		110V	(1.8/1.5)
	DC	12V	0.95 (1.0)
		24V	
Thermal class			B
Surge suppressor			Option
Indicator			Lamp (option)

*4: Values in ( ) apply when lamp is included.

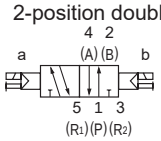
JIS symbol

● 5-port valve

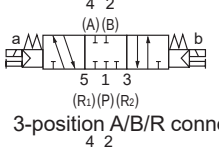
2-position single



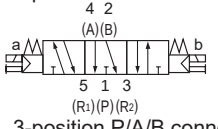
2-position double



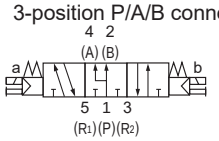
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

Item			M4GA4 Direct mount
Max. station No.	Standard (Internal pilot)		15 stations
	Supply and exhaust block specs. and external pilot		12 stations
Port size	Port A/B		Push-in fitting ø8, ø10, ø12 Rc3/8, G3/8, NPT3/8
	Port P/R1/R2		Rc1/2, G1/2, NPT1/2
Manifold base		Standard	150n+199
Weight calculation formula (n: station No.) g		External pilot	379n+617

For 5 or more manifold station No., use ports on both sides for air supply and exhaust.
The manifold base weight is the value for screw specifications.

Performance/characteristics by model

Item			M4GA4 ON	M4GA4 OFF
Response time ms	2-position	Single	40 (40)	40 (52)
		Double	40 (52)	40 (52)
	3-position	A/B/R connection	60 (72)	60 (72)

Values with lamp/surge suppressor are shown. The response times are values with working pressure of 0.5 MPa at 20°C, without lubrication. They depend on the pressure and the lubricant quality. ( ) shows AC value.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
M4GA4	2-position		7.3	0.12	9.0	0.17
	3-position	All ports closed	6.4	0.15	8.2	0.22
		A/B/R connection	6.4	0.16	9.3	0.19
		P/A/B connection	8.0	0.08	8.3	0.22

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 256.

CE marking specifications

Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

M4GA4 Series

Individual wiring manifold; Body piping

How to order

Manifold model No.

M 4GA4 1 0 - 10 - E2 A - 3 - 3 - P4

Discrete valve for integrated base

4GA4 1 9 - 10 - E2 A — 3 - P4

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓓ Electrical connections

Ⓔ Option

Ⓕ Station No.

Ⓖ Voltage

*"Manifold specifications sheet" (Page 274).

Code	Description	Ⓐ Model No. 4GA4
Ⓑ Solenoid position		
1	2-position single	●
2	2-position double	●
3	3-position all ports closed	●
4	3-position ABR connection	●
5	3-position PAB connection	●
8	Mix manifold (when there are multiple solenoid positions)	●
Ⓒ Port size		*1
Port	Port A/B	Port P/R1/R2 Rc1/2
C8	ø8 push-in fitting	○
C10	ø10 push-in fitting	○
C12	ø12 push-in fitting	○
CX	Push-in fitting mix (*2)	○
10	Rc3/8	●
10G	G3/8	●(*3)
10 N	NPT3/8	●(*4)
Ⓓ Electrical connections		
Refer to the next page for electrical connections.		
Ⓔ Option		
Blank	No	●
K	External pilot (*5)	●
A	Coolant proof	●
F	Port A/B filter integrated (port P: Standard)	●
Z1	Air supply spacer (*6)(*7)	●
Z3	Exhaust spacer (*6)(*7)	●
Ⓕ Station No.		
2	2 stations	●
to	to	
15	15 stations (The max. station number per bore size is Page 254.)	
Ⓖ Voltage		
1	100 VAC	●
3	24 VDC	●
4	12 VDC	●
5	110 VAC	●

⚠ Precautions for model No. selection

*2: Single valve4(A), 2(B)The push-in fitting cannot be mixed with the port.
*3: Port P/R is G1/2.
*4: Port P/R is NPT1/2.
*5: Consult with CKD when using a vacuum with the external pilot (K).
***6: Specify the spacer mounting position/ quantity in the manifold specifications sheet. Refer to page 270 for details.**
*7: Cannot be selected with discrete valve for integrated base.

[Electrical connections list]

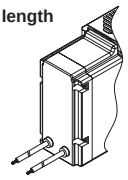
Ⓓ Electrical connections		Ⓐ Model No. 4GA4
Blank	Grommet lead wire (300 mm)	●
B	DIN terminal box (Pg7) With surge suppressor and indicator lamp	●
E-connector (upward/lateral common)		
E0	Lead wire (300 mm)	●
E00	Lead wire (500 mm)	●
E01	Lead wire (1000 mm)	●
E02	Lead wire (2000 mm)	●
E03	Lead wire (3000 mm)	●
E2	Lead wire (300 mm)With surge suppressor and indicator lamp	●
E20	Lead wire (500 mm)With surge suppressor and indicator lamp	●
E21	Lead wire (1000 mm) with surge suppressor/lamp	●
E22	Lead wire (2000 mm) with surge suppressor/lamp	●
E23	Lead wire (3000 mm) with surge suppressor/lamp	●
E0N	Without lead wire (without socket)	●
E2N	Without lead wire (without socket)With surge suppressor and indicator lamp	●
E3	Without lead wire (with socket/terminal) with surge suppressor/lamp	●
E1	Without lead wire (socket/terminal attached)	●
EJ-connector (socket with cover, upward/lateral common)		
E01J	Lead wire (1000 mm)	●
E02J	Lead wire (2000 mm)	●
E03J	Lead wire (3000 mm)	●
E21J	Lead wire (1000 mm) With surge suppressor and indicator lamp	●
E22J	Lead wire (2000 mm) With surge suppressor and indicator lamp	●
E23J	Lead wire (3000 mm) With surge suppressor and indicator lamp	●

Electrical connections

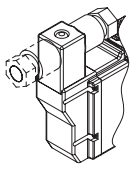
Discrete valve/individual wiring manifold

Blank Grommet lead wire

● **Lead wire length**
300mm

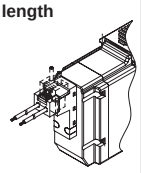


B DIN terminal box



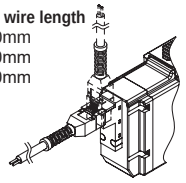
E0* **E2*** E-connector

● **Lead wire length**
300mm
500mm
1000mm
2000mm
3000mm

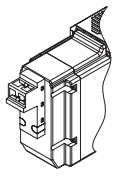


E0*J **E2*J** EJ type connector

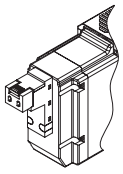
● **Lead wire length**
1000mm
2000mm
3000mm



E0N **E2N** E-connector Without socket

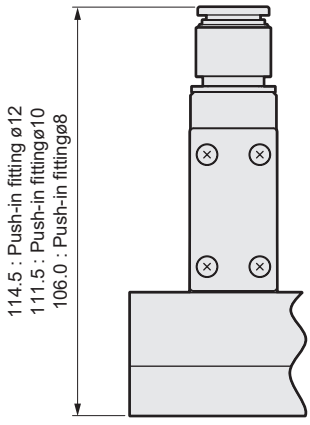


E1 **E3** E-connector With socket/terminal

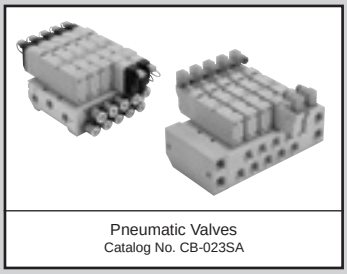


Dimensions

● M4GA4-P4



* Fitting dimensions of P4 Series are different from the standard when mounted.
For other dimensions, refer to the 4GA4 Series in "Pneumatic Valves (No. CB-023SA)".



Pneumatic Valves
Catalog No. CB-023SA

Individual wiring manifold
Base piping
Direct mount

M4GB4 Series

● Cylinder bore size:ø100 to ø140

Manifold common specifications

Item		Description
Manifold		Integrated base
Mounting method		Direct mount
Air supply and exhaust method		Common supply/common exhaust
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
	External pilot	Main valve/pilot valve individual exhaust
Piping direction		Side direction of base
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2 (*3)
Proof pressure MPa		1.05
Ambient temperature °C		-5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common
Lubrication (*1)		Not required
Degree of protection (*2)		Dust-proof [IP40 equivalent (DIN terminal box: IP65)]
Vibration resistance m/s^2		50 or less
Shock resistance m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

*1: Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2: Avoid dripping water or oil, etc., during use. IP65 (jet-proof) or equivalent applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.
*3: The working pressure range is 0 to 0.7 MPa when the external pilot (option code: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.

Electrical specifications

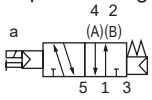
Item			Description
Rated voltage V	AC		100 (50/60Hz) 110 (50/60Hz)
	DC		12, 24
Voltage fluctuation range			±10%
Starting current A	AC	100V	0.056/0.044
		110V	0.051/0.040
	DC	12V	-
		24V	-
Holding current A	AC	100V	0.028/0.022
		110V	0.025/0.020
	DC	12V	0.079 (0.083)
		24V	0.040 (0.042)
Power consumption (*4) W	AC	100V	1.8/1.4
		110V	(1.8/1.5)
	DC	12V	0.95 (1.0)
		24V	
Thermal class			B
Surge suppressor			Option
Indicator			Lamp (option)

*4: Values in ( ) apply when lamp is included.

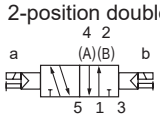
JIS symbol

● 5-port valve

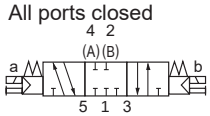
2-position single



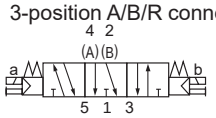
2-position double



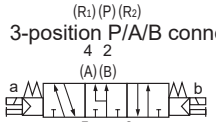
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

Item		M4GB4 Direct mount		
Pilot operated		Standard (Internal pilot)		External pilot (*3)
Max. station No.		15 stations	12 stations	
Port size	Port A/B	Push-in fitting ø8, ø10, ø12 Rc1/4, Rc3/8 G1/4, G3/8 NPT1/4, NPT3/8	Rc1/2, G1/2, NPT1/2	Push-in fitting ø8, ø10, ø12 Rc1/4, Rc3/8, Rc1/2 G1/4, G3/8, G1/2 NPT1/4, NPT3/8, NPT1/2
	Port P/R1/R2	Rc3/8, G3/8, NPT3/8 (*1)	Rc1/2, G1/2, NPT1/2(*2)	
Manifold base Weight calculation formula (n: station No.) g		273n+329	391n+560	392n+555

Dimensions of port sizes (port P/R1/R2) Rc3/8 and Rc1/2 are different.

***1: Refer to "Pneumatic Valves No.CB-023SA" for dimensions of port size Rc3/8.**
***2: Refer to "Pneumatic Valves No.CB-023SA" for dimensions of port size Rc1/2.**
***3: Refer to "Pneumatic Valves No.CB-023SA" for dimensions of the external pilot (option code: K).**

Performance/characteristics by model

Item			M4GB4	
			ON	OFF
Response time ms	2-position	Single	40 (40)	40 (52)
		Double	40 (52)	40 (52)
	3-position	A/B/R connection	60 (72)	60 (72)

Values with lamp/surge suppressor are shown. The response times are values with working pressure of 0.5 MPa at 20°C, without lubrication. They depend on the pressure and the lubricant quality.( ) shows AC value.

Flow characteristics

Model No.	Port size P, R1, R2	Solenoid position		P → A/B		A/B→R1/R2	
				C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
M4GB4	(*1)Rc3/8 G3/8 NPT3/8	2-position		6.4	0.42	6.9	0.12
		3-position	All ports closed	6.0	0.37	6.8	0.12
			A/B/R connection	6.1	0.38	7.1	0.15
			P/A/B connection	6.0	0.37	6.8	0.13
	(*2)Rc1/2 G1/2 NPT1/2	2-position		8.3	0.23	9.0	0.21
		3-position	All ports closed	7.4	0.15	8.8	0.19
			A/B/R connection	7.5	0.15	9.5	0.21
			P/A/B connection	7.7	0.21	8.7	0.18

Dimensions of port sizes (port P/R1/R2) Rc3/8 and Rc1/2 are different.
***1: Refer to "Pneumatic Valves No.CB-023SA" for dimensions of port size Rc3/8.**
***2: Refer to "Pneumatic Valves No.CB-023SA" for dimensions of port size Rc1/2.**
*3: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 260.

CE marking specifications

Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

How to order

Manifold model No.

M 4GB4 1 0 - 10 - E2 Q - 3 - 3 -P4

Discrete valve for integrated base

4GB4 1 9 - 00 - E2 A —— 3 -P4

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Port size
Ⓓ Electrical connections
Ⓔ Option
Ⓕ Station No.
Ⓖ Voltage

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

*"Manifold specifications sheet" (Page 274).

Code	Description	Ⓐ Model No. 4GB4
Ⓑ Solenoid position		
1	2-position single	●
2	2-position double	●
3	3-position all ports closed	●
4	3-position ABR connection	●
5	3-position PAB connection	●
8	Mix manifold (when there are multiple solenoid positions)	●

Ⓒ Port size		*1		
		Port P/R1/R2 (*2)		
		Option: Other than K		Option: K
Port	Port A/B	Rc3/8 (Note3)	Rc1/2 (*4)	Rc1/2 (*5)
C8	ø8 push-in fitting	○		○
C10	ø10 push-in fitting	○		○
C12	ø12 push-in fitting	○		○
CX	Push-in fitting mix	○		○
08	Rc1/4	●		●
10	Rc3/8	●		●
15	Rc1/2		●	●
08G	G1/4	●(*6)		●(*6)
10G	G3/8	●(*6)		●(*6)
15G	G1/2		●(*6)	●(*6)
08 N	NPT1/4	●(*7)		●(*7)
10 N	NPT3/8	●(*7)		●(*7)
15N	NPT1/2		●(*7)	●(*7)

Ⓓ Electrical connections

Refer to the next page for electrical connections.

Ⓔ Option		
Blank	No	●
K	External pilot (*5)(*8)	●
A	Coolant proof	●
F	Port A/B filter integrated (port P: Standard)	●
Z1	Air supply spacer (*9)(*10)	●
Z3	Exhaust spacer (*9)(*10)	●

Ⓕ Station No.		
2	2 stations	●
to	to	
15	Refer to page 258 for the max. station number per bore size.	

Ⓖ Voltage		
1	100 VAC	●
3	24 VDC	●
4	12 VDC	●
5	110 VAC	●

indicates not available.

⚠ Precautions for model No. selection

*2: Two types of bases are available. Dimensions differ by bore size of port P/R1/R2.
***3: Refer to "Pneumatic Valves No.CB-023S" for a Dimensions of port size R c3/8.**
***4: Refer to "Pneumatic Valves No.CB-023SA" for a Dimensions of port size R c1/2.**
***5: Refer to "Pneumatic Valves No.CB-023SA" for the Dimensions of the external pilot (option code: K).**
*6: Port P/R is G thread.
*7: Port P/R is NPT thread.
*8: Consult with CKD when using a vacuum with the external pilot (K).
***9: Specify the spacer mounting position/ quantity in the manifold specifications sheet. Refer to page 270 for details.**
*10: Cannot be selected with discrete valve for integrated base.

[Electrical connections list]

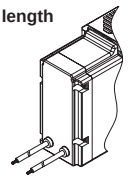
Ⓓ Electrical connections		Ⓐ Model No. 4GB4
Blank	Grommet lead wire (300 mm)	●
B	DIN terminal box (Pg7) With surge suppressor and indicator lamp	●
E-connector (upward/lateral common)		
E0	Lead wire (300 mm)	●
E00	Lead wire (500 mm)	●
E01	Lead wire (1000 mm)	●
E02	Lead wire (2000 mm)	●
E03	Lead wire (3000 mm)	●
E2	Lead wire (300 mm)With surge suppressor and indicator lamp	●
E20	Lead wire (500 mm)With surge suppressor and indicator lamp	●
E21	Lead wire (1000 mm) With surge suppressor and indicator lamp	●
E22	Lead wire (2000 mm) With surge suppressor and indicator lamp	●
E23	Lead wire (3000 mm) With surge suppressor and indicator lamp	●
E0N	Without lead wire (without socket)	●
E2N	Without lead wire (without socket)With surge suppressor and indicator lamp	●
E3	Without lead wire (socket/terminal attached) With surge suppressor and indicator lamp	●
E1	Without lead wire (socket/terminal attached)	●
EJ-connector (socket with cover, upward/lateral common)		
E01J	Lead wire (1000 mm)	●
E02J	Lead wire (2000 mm)	●
E03J	Lead wire (3000 mm)	●
E21J	Lead wire (1000 mm) With surge suppressor and indicator lamp	●
E22J	Lead wire (2000 mm) With surge suppressor and indicator lamp	●
E23J	Lead wire (3000 mm) With surge suppressor and indicator lamp	●

Electrical connections

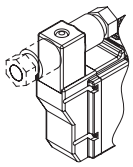
Discrete valve/individual wiring manifold

Blank Grommet lead wire

● **Lead wire length**
300mm

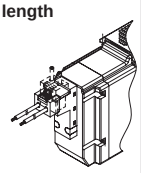


B DIN terminal box



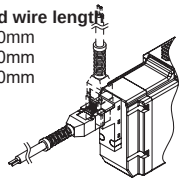
E0* **E2*** E-connector

● **Lead wire length**
300mm
500mm
1000mm
2000mm
3000mm

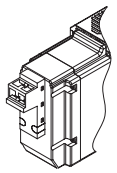


E0*J **E2*J** EJ type connector

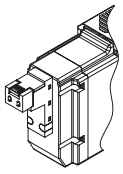
● **Lead wire length**
1000mm
2000mm
3000mm



E0N **E2N** E-connector Without socket

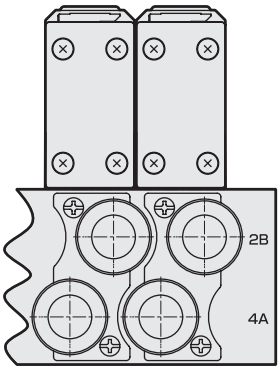


E1 **E3** E-connector With socket/terminal



Dimensions

● M4GB4-P4

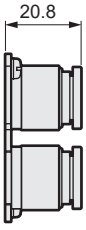


● Fitting straight

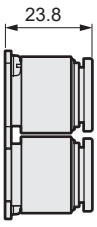
• ø8 (C8)



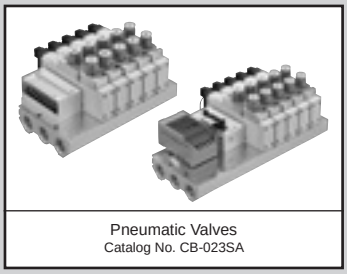
• ø10 (C10)



• ø12 (C12)



* Fitting dimensions of P4 Series are different from the standard when mounted. For other dimensions, refer to the M4GB4 Series in "Pneumatic Valves (No. CB-023SA)".



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring manifold (common terminal block/D-sub-connector/flat cable connector/serial transmission)
Body piping
Direct mount

M4GA4-T* Series

● Cylinder bore size:ø100 to ø140

CE RoHS

Manifold common specifications

Item		Description
Manifold		Reduced wiring integrated base
Mounting method		Direct mount
Air supply and exhaust method		Common supply/common exhaust
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
	External pilot	Main valve/pilot valve individual exhaust
Piping direction		Valve top direction
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2 (*3)
Proof pressure MPa		1.05
Ambient temperature °C		-5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common
Lubrication (*1)		Not required
Degree of protection (*2)		Dust-proof (IP40 equivalent)
Vibration resistance m/s²		50 or less
Shock resistance m/s²		300 or less
Atmosphere		Cannot be used in corrosive gas environments

Electrical specifications

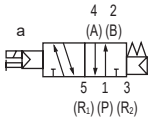
Item		Description
Rated voltage V	DC	12, 24
Voltage fluctuation range		±10%
Holding current A	12 VDC	0.083
	24 VDC	0.042
Power consumption W	12 VDC	1.0
	24 VDC	1.0
Thermal class		B
Surge suppressor		Varistor
Indicator		LED

*1: Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2: Avoid water drops or oil, etc., during use.
*3: The working pressure range is 0 to 0.7 MPa when the external pilot (option code: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.

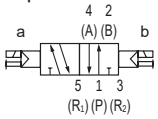
JIS symbol

● 5-port valve

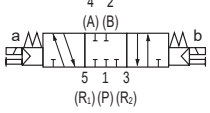
2-position single



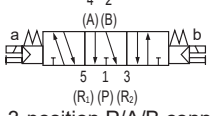
2-position double



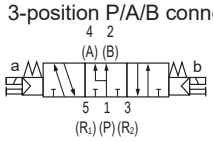
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

T1□, T30□, T5□

Item			M4GA4 Direct mount
Max. station No.			11 stations
Port size	Port A/B		Push-in fitting ø8, ø10, ø12 Rc3/8, G3/8, NPT3/8
	Port P/R1/R2		Rc1/2, G1/2, NPT1/2
Manifold base		Standard	150n+530
Weight calculation formula (n: station No.) g		External pilot	379n+1122

T6G1

Item			M4GA4 Direct mount
Max. station No.			8 stations
Port size	Port A/B		Push-in fitting ø8, ø10, ø12 Rc3/8, G3/8, NPT3/8
	Port P/R1/R2		Rc1/2, G1/2, NPT1/2
Manifold base		Standard	150n+1016
Weight calculation formula (n: station No.) g		External pilot	379n+2391

For 5 or more manifold station No., use ports on both sides for air supply and exhaust. The manifold base weight is the value for screw specifications. Note that the maximum number of stations in the manifold is also limited by the maximum number of solenoid points per wiring specification as shown on the right.

Performance/characteristics by model

Item			M4GA4 ON	M4GA4 OFF
Response time ms	2-position	Single	40 (40)	40 (52)
		Double	40 (52)	40 (52)
	3-position	A/B/R connection	60 (72)	60 (72)

Values with lamp/surge suppressor are shown. The response times are values with working pressure of 0.5 MPa at 20°C, without lubrication. They depend on the pressure and the lubricant quality. ( ) shows AC value.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
M4GA4	2-position		7.3	0.12	9.0	0.17
	3-position	All ports closed	6.4	0.15	8.2	0.22
		A/B/R connection	6.4	0.16	9.3	0.19
		P/A/B connection	8.0	0.08	8.3	0.22

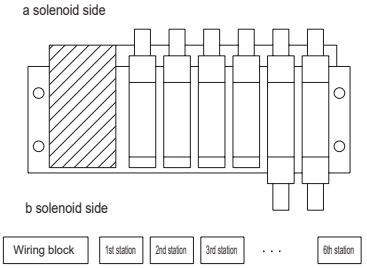
*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Wiring specifications

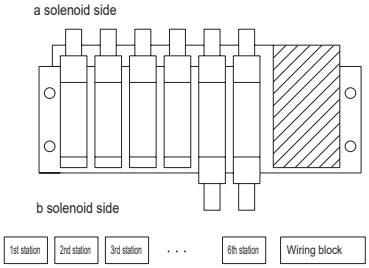
Descriptions	T10□ Common terminal block	T11□ Common terminal block	T30□ D-sub-connector	T50□ Flat cable 20-pin	T51□ Flat cable 20-pin	T52□ Flat cable 10-pin	T53□ Flat cable 26-pin
Connector and terminal block specifications	M3 thread tightening Terminal count 18	Clamping Terminal count 26	D-sub-connectors 25 terminals	MIL-C-83503 standard compliant Pressure welding socket 20-pin	MIL-C-83503 standard compliant Pressure welding socket 20-pin	MIL-C-83503 standard compliant Pressure welding socket 10-pin	MIL-C-83503 standard compliant Pressure welding socket 26-pin
Max. number of solenoids	16 points	24 points	24 points	16 points	18 points	8 points	24 points
Manifold internal wiring	Refer to "Pneumatic Valves No.CB-023SA" for details.						

Wiring block position
Blank: Left side
R: Right side

Left side: T □



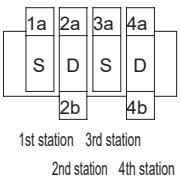
Right side: T□R



Array method
Blank: Standard sequential
W: Double wiring

(Example) For T50□

Manifold specifications



Standard wiring (sequential):Blank

Connector pin No.	1	2	3	4	5	6
Valve solenoid No.	1a	2a	2b	3a	4a	4b

Double wiring: W

Connector pin No.	1	2	3	4	5	6	7	8
Valve solenoid No.	1a	Blank	2a	2b	3a	Blank	4a	4b

Serial transmission slave unit specifications

Descriptions		T6G1
Network name		CC-Link ver. 1.10
Power supply voltage	Unit side	24 VDC ±10%
	Valve side	24 VDC +10%, -5%
	Communication side	-
Current consumption	Unit side	100 mA or less (when all output points are ON)
	Valve side	15 mA or less (when all output points are OFF)
	Communication side	-
No. of output points		16 points
Occupied number		1 station
Operation display		LED (power supply and communication status)

Coolant proof specifications

Can be selected with "How to order" Item Ⓕ option "A" on page 264.

CE marking specifications

Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

M4GA4-T* Series

Reduced wiring manifolds; Body piping

How to order

Manifold model No.

M 4GA4 1 0 - 10 - T10 W A - 3 - 3 - P4

*"Manifold specifications sheet" (Pages 275 to 277).

Discrete valve for integrated base

4GA4 1 9 - 10 - A2N A — 3 - P4

- 4GA4 1 → Ⓐ Model No.
- 9 → Ⓑ Solenoid position
- 10 → Ⓒ Port size
- A2N indicates the A-connector (downward), with lamp/surge suppressor and no lead wire.
- T10 → Ⓓ Reduced wiring connection
- W → Ⓔ Terminal connector pin array method
- A → Ⓕ Option
- 3 → Ⓖ Station No.
- P4 → Ⓗ Voltage

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

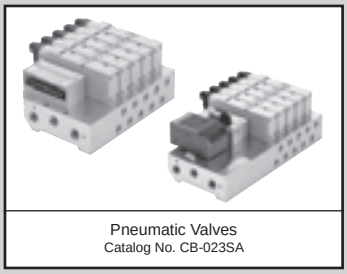
●Refer to "Pneumatic Valves No.CB-023SA" for the model No. of cables with D-sub-connector.
●Refer to "Pneumatic Valves No.CB-023SA" for the model No. of cables for flat cable connector.

Code	Description		Ⓐ Model No. 4GA4
Ⓑ Solenoid position			
1	2-position single		●
2	2-position double		●
3	3-position all ports closed		●
4	3-position ABR connection		●
5	3-position PAB connection		●
8	Mix manifold (when there are multiple solenoid positions)		●
Ⓒ Port size			*1
Port	Port A/B		Port P/R1/R2 Rc1/2
C8	ø8 push-in fitting		○
C10	ø10 push-in fitting		○
C12	ø12 push-in fitting		○
CX	Push-in fitting mix	(*2)	○
10	Rc3/8		●
10G	G3/8		● (*3)
10 N	NPT3/8		● (*4)
Ⓓ Reduced wiring (lamp and surge suppressor provided as standard) 12/24 VDC			
T10	Common terminal block (M3 thread)	Left-sided specs.	●
T10R		Right-sided specs.	●
T11	Common terminal block (clamping)	Left-sided specs.	●
T11R		Right-sided specs.	●
T30	D-sub-connector	Left-sided specs.	●
T30R		Right-sided specs.	●
T50	20-pin flat cable connector (with power supply terminal)	Left-sided specs.	●
T50R		Right-sided specs.	●
T51	20-pin flat cable connector (without power supply terminal)	Left-sided specs.	●
T51R		Right-sided specs.	●
T52	10-pin flat cable connector (without power supply terminal)	Left-sided specs.	●
T52R		Right-sided specs.	●
T53	26-pin flat cable connector (without power supply terminal)	Left-sided specs.	●
T53R		Right-sided specs.	●
Ⓓ Serial transmission (lamp/surge suppressor provided as standard) 24 VDC			
T6G1	CC-Link 16 points		●
Ⓔ Terminal/connector pin array			
Blank	Standard wiring	(*5)	●
W	Double wiring	(*5)(*6)	●
Ⓕ Option			
Blank	No		●
K	External pilot	(*7)(*8)	●
A	Coolant proof		●
F	Port A/B filter integrated (port P: Standard)		●
Z1	Air supply spacer	(*9)(*10)	●
Z3	Exhaust spacer	(*9)(*10)	●
Ⓖ Station No.			
2	2 stations		●
to	to		
11	11 stations (Refer to page 262 for the max. station number per model)		
Ⓗ Voltage			
3	24 VDC		●
4	12 VDC		●

⚠ Precautions for model No. selection

*2: The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.
*3: Port P/R is G1/2.
*4: Port P/R is NPT1/2.
*5: Blank…The wiring will be based on the type of valve mounted.
W…All wired as double solenoid regardless of the type of valve used.
*6: When changing from a single valve for W wiring specifications to a double or 3-position valve, the A type connector socket assembly needs to be purchased separately.
*7: Consult with CKD when using a vacuum with the external pilot (K).
***8: Refer to "Pneumatic Valves No.CB-023SA" for the Dimensions of the external pilot (K).**
***9: Specify the spacer mounting position/ quantity in the manifold specifications sheet. Refer to page 270 for details.**
*10: Cannot be selected with discrete valve for integrated base.

MEMO



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring manifold (common terminal block/D-sub-connector/ flat cable connector/Serial transmission)
Base piping
Direct mount

M4GB4-T* Series

● Cylinder bore size:ø100 to ø140

Manifold common specifications

Item		Description
Manifold		Reduced wiring integrated base
Mounting method		Direct mount
Air supply and exhaust method		Common supply/common exhaust
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
	External pilot	Main valve/pilot valve individual exhaust
Piping direction		Side direction of base
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2 (*3)
Proof pressure MPa		1.05
Ambient temperature °C		-5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common
Lubrication (*1)		Not required
Degree of protection (*2)		Dust-proof (IP40 equivalent)
Vibration resistance m/s^2		50 or less
Shock resistance m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

Electrical specifications

Item		Description
Rated voltage V	DC	12, 24
Voltage fluctuation range		±10%
Holding current A	12 VDC	0.083
	24 VDC	0.042
Power consumption W	12 VDC	1.0
	24 VDC	1.0
Thermal class		B
Surge suppressor		Varistor
Indicator		LED

*1: Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2: Avoid water drops or oil, etc., during use.
*3: The working pressure range is 0 to 0.7 MPa when the external pilot (option code: K) is selected. Set the external pilot pressure between 0.2 and 0.7 MPa.

Individual specifications

T1□, T30□, T5□

Item		M4GB4 Direct mount		
Pilot operated		Standard (Internal pilot)		External pilot (*3)
Max. station No.		11 stations		
Port size	Port A/B	Push-in fitting ø8, ø10, ø12 Rc1/4, Rc3/8 G1/4, G3/8 NPT1/4, NPT3/8	Rc1/2, G1/2, NPT1/2	Push-in fitting ø8, ø10, ø12 Rc1/4, Rc3/8, Rc1/2 G1/4, G3/8, G1/2 NPT1/4, NPT3/8, NPT1/2
	Port P/R1/R2	Rc3/8, G3/8, NPT3/8 (*1)	Rc1/2, G1/2, NPT1/2 (*2)	
Manifold base Weight calculation formula (n: station No.) g		292n+907	391n+1119	392n+1060

T6G1

Item		M4GB4 Direct mount		
Pilot operated		Standard (Internal pilot)		External pilot (*3)
Max. station No.		8 stations		
Port size	Port A/B	Push-in fitting ø8, ø10, ø12 Rc1/4, Rc3/8 G1/4, G3/8 NPT1/4, NPT3/8	Rc1/2, G1/2, NPT1/2	Push-in fitting ø8, ø10, ø12 Rc1/4, Rc3/8, Rc1/2 G1/4, G3/8, G1/2 NPT1/4, NPT3/8, NPT1/2
	Port P/R1/R2	Rc3/8, G3/8, NPT3/8 (*1)	Rc1/2, G1/2, NPT1/2 (*2)	
Manifold base Weight calculation formula (n: station No.) g		292n+1864	391n+2432	392n+2329

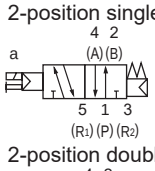
For 5 or more manifold station No., use ports on both sides for air supply and exhaust. The manifold base weight is the value for screw specifications. Note that the maximum number of stations in the manifold is also limited by the maximum number of solenoid points per wiring specification as shown on the right. Dimensions of port sizes (port P/R1/R2) Rc3/8 and Rc1/2 are different.

***1: Refer to "Pneumatic Valves No.CB-023SA" for dimensions of port size Rc3/8.**
***2: Refer to "Pneumatic Valves No.CB-023SA" for dimensions of port size Rc1/2.**
***3: Refer to "Pneumatic Valves No.CB-023SA" for dimensions of the external pilot (option code: K).**

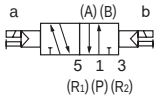
JIS symbol

● 5-port valve

2-position single

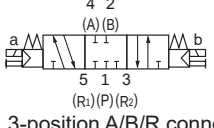


2-position double

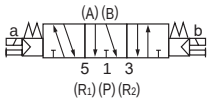


3-position

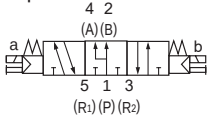
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Performance/characteristics by model

Item			M4GB4 ON	M4GB4 OFF
Response time ms	2-position	Single	40 (40)	40 (52)
		Double	40 (52)	40 (52)
	3-position	A/B/R connection	60 (72)	60 (72)

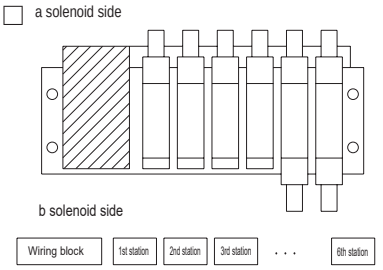
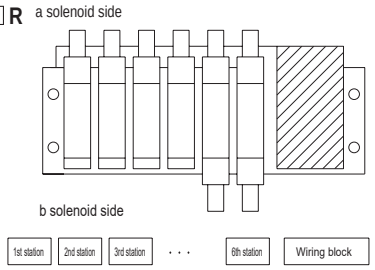
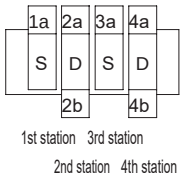
Values with lamp/surge suppressor are shown. The response times are values with working pressure of 0.5 MPa at 20°C, without lubrication. They depend on the pressure and the lubricant quality.( ) shows AC value.

Flow characteristics

Model No.	Port size P, R1, R2	Solenoid position		P → A/B		A/B→R1/R2	
				C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
M4GB4	(*1) Rc3/8 G3/8 NPT3/8	2-position		6.4	0.42	6.9	0.12
		3-position	All ports closed	6.0	0.37	6.8	0.12
			A/B/R connection	6.1	0.38	7.1	0.15
			P/A/B connection	6.0	0.37	6.8	0.13
	(*2) Rc1/2 G1/2 NPT1/2	2-position		8.3	0.23	9.0	0.21
		3-position	All ports closed	7.4	0.15	8.8	0.19
			A/B/R connection	7.5	0.15	9.5	0.21
			P/A/B connection	7.7	0.21	8.7	0.18

Dimensions of port sizes (port P/R1/R2) Rc3/8 and Rc1/2 are different.
***1: Refer to "Pneumatic Valves No.CB-023SA" for dimensions of port size Rc3/8.**
***2: Refer to "Pneumatic Valves No.CB-023SA" for dimensions of port size Rc1/2.**
*3: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Wiring specifications

Descriptions	T10□ Common terminal block	T11□ Common terminal block	T30□ D-sub-connector	T50□ Flat cable 20-pin	T51□ Flat cable 20-pin	T52□ Flat cable 10-pin	T53□ Flat cable 26-pin
Connector and terminal block specifications	M3 thread tightening Terminal count 18	Clamping Terminal count 26	D-sub-connectors 25 terminals	MIL-C-83503 standard compliant Pressure welding socket 20-pin	MIL-C-83503 standard compliant Pressure welding socket 20-pin	MIL-C-83503 standard compliant Pressure welding socket 10-pin	MIL-C-83503 standard compliant Pressure welding socket 26-pin
Max. number of solenoids	16 points	24 points	24 points	16 points	18 points	8 points	24 points
Manifold internal wiring	Refer to "Pneumatic Valves No.CB-023SA" for details.						
Wiring block position Blank: Left side R: Right side	**Left side: T□** 			**Right side: T□R** 			
Array method Blank: Standard sequential W: Double wiring	**(Example) For T50□** Manifold specifications  Standard wiring (sequential): Blank <table><tr><td>Connector pin No.</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>Valve solenoid No.</td><td>1a</td><td>2a</td><td>2b</td><td>3a</td><td>4a</td><td>4b</td></tr></table> Double wiring: W <table><tr><td>Connector pin No.</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr><tr><td>Valve solenoid No.</td><td>1a</td><td>Blank</td><td>2a</td><td>2b</td><td>3a</td><td>Blank</td><td>4a</td><td>4b</td></tr></table>						

Serial transmission slave unit specifications

Item		T6G1
Network name		CC-Link ver. 1.10
Power supply voltage	Unit side	24 VDC ±10%
	Valve side	24 VDC +10%, -5%
	Communication side	-
Current consumption	Unit side	100 mA or less (when all output points are ON)
	Valve side	15 mA or less (when all output points are OFF)
	Communication side	-
No. of output points		16 points
Occupied number		1 station
Operation display		LED (power supply and communication status)

Coolant proof specifications

Can be selected with "How to order" Item Ⓕ option "A" on page 268.

CE marking specifications

Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

M4GB4-T* Series

Reduced wiring manifolds; Base piping

How to order

Manifold model No.

M 4GB4 1 0 - 10 - T30 W A - 3 - 3 - P4

Discrete valve for integrated base

4GB4 1 9 - 00 - A2N A — 3 - P4

- 4GB4 1: Ⓐ Model No.
- 9: Ⓑ Solenoid position
- 00: Ⓒ Port size
- A2N: A2N indicates the A-connector (downward), with lamp/surge suppressor and no lead wire.
- A: Ⓓ Reduced wiring connection
- W: Ⓔ Terminal/Connector pin array method
- A: Ⓕ Option
- 3: Ⓖ Station No.
- P4: Ⓗ Voltage

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

● Refer to "Pneumatic Valves No.CB-023SA" for the model No. of cables with D-sub-connector.
● Refer to "Pneumatic Valves No.CB-023SA" for the model No. of cables with D-sub-connector.

Precautions for model No. selection

*2: Two types of bases are available. Dimensions differ by bore size of port P/R1/R2.
***3: Refer to "Pneumatic Valves No.CB-023SA" for a Dimensions of port size R c3/8.**
***4: Refer to "Pneumatic Valves No.CB-023SA" for a Dimensions of port size R c1/2.**
***5: Refer to "Pneumatic Valves No.CB-023SA" for the Dimensions of the external pilot (K).**
*6: Port P/R is G thread.
*7: Port P/R is NPT thread.
*8: Blank…The wiring will be based on the type of valve mounted.
W…All wired as double solenoid regardless of the type of valve used.
*9: When changing from a single valve for W wiring specifications to a double or 3-position valve, the A type connector socket assembly needs to be purchased separately.
*10: Consult with CKD when using a vacuum with the external pilot (K).
***11: Specify the spacer mounting position/quantity in the manifold specifications sheet. Refer to page 270 for details.**
*12: Cannot be selected with discrete valve for integrated base.

***"Manifold specifications sheet" (Pages 275 to 277).**

Code	Description	Ⓐ Model No. 4GB4
Ⓑ Solenoid position		
1	2-position single	●
2	2-position double	●
3	3-position all ports closed	●
4	3-position ABR connection	●
5	3-position PAB connection	●
8	Mix manifold (when there are multiple solenoid positions)	●

Ⓒ Port size		*1		
		Port P/R1/R2 (*2)		
		Option: Other than K		Option: K
Port	Port A/B	Rc3/8 (*3)	Rc1/2 (*4)	Rc1/2 (*5)
C8	ø8 push-in fitting	○		○
C10	ø10 push-in fitting	○		○
C12	ø12 push-in fitting	○		○
CX	Push-in fitting mix	○		○
08	Rc1/4	●		●
10	Rc3/8	●		●
15	Rc1/2		●	●
08G	G1/4	●(*6)		●(*6)
10G	G3/8	●(*6)		●(*6)
15G	G1/2		●(*6)	●(*6)
08 N	NPT1/4	●(*7)		●(*7)
10 N	NPT3/8	●(*7)		●(*7)
15N	NPT1/2		●(*7)	●(*7)

Ⓓ Reduced wiring (lamp and surge suppressor provided as standard) 12/24 VDC			
T10	Common terminal block (M3 thread)	Left-sided specs.	●
T10R		Right-sided specs.	●
T11	Common terminal block (clamping)	Left-sided specs.	●
T11R		Right-sided specs.	●
T30	D-sub-connector	Left-sided specs.	●
T30R		Right-sided specs.	●
T50	20-pin flat cable connector (with power supply terminal)	Left-sided specs.	●
T50R		Right-sided specs.	●
T51	20-pin flat cable connector (without power supply terminal)	Left-sided specs.	●
T51R		Right-sided specs.	●
T52	10-pin flat cable connector (without power supply terminal)	Left-sided specs.	●
T52R		Right-sided specs.	●
T53	26-pin flat cable connector (without power supply terminal)	Left-sided specs.	●
T53R		Right-sided specs.	●

Ⓓ Serial transmission (lamp/surge suppressor provided as standard) 24 VDC		
T6G1	CC-Link 16 points	●

Ⓔ Terminal/connector pin array		
Blank	Standard wiring (*8)	●
W	Double wiring (*8)(*9)	●

Ⓕ Option		
Blank	No	●
K	External pilot (*5)(*10)	●
A	Coolant proof	●
F	Port A/B filter integrated (port P: Standard)	●
Z1	Air supply spacer (*11)(*12)	●
Z3	Exhaust spacer (*11)(*12)	●

Ⓖ Station No.		
2	2 stations	●
to	to	
11	11 stations (Refer to page 266 for the max. station number per model)	

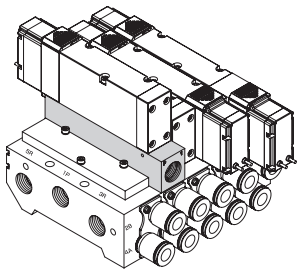
Ⓗ Voltage		
3	24 VDC	●
4	12 VDC	●

indicates not available.

MEMO

Related products

● Air supply spacer



Specifications

Item		4GA4	4GB4	
Flow characteristics C[dm³/(s·bar)] (*1)	P → A/B	6.4	5.6	(*2)
	A/B→R	8.0	6.6	(*2)
Weight g		208	198	

*1: This is the value when a single solenoid is installed.
*2: This is the value when installing to a manifold base port size Rc3/8.
*3: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

How to order discrete units

4GA4 - P - 10

Ⓐ Model No. Ⓑ Port size

P4 compliant as standard

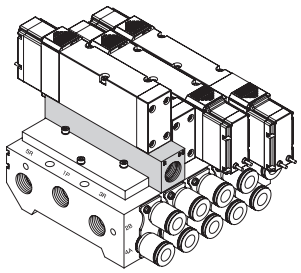
Code	Description	Ⓐ Valve model No. 4GA4	Ⓐ Valve model No. 4GB4
Ⓑ **Port size**			
10	Rc3/8	●	●
10G	G3/8	●	●
10 N	NPT3/8	●	●

Attachments: 3 mounting screws, 2 O-rings, 1 body gasket

⚠ Precautions for model No. selection

*1: Specify the air supply spacer mounting position and quantity in manifold specifications sheets of each catalog.
*2: Combination with the masking plate is not supported.

● Exhaust spacer



Specifications

Item		4GA4	4GB4	
Flow characteristics C[dm³/(s·bar)] (*1)	P → A/B	6.3	5.4	(*2)
	A/B→R	6.9	5.7	(*2)
Weight g		206	197	

*1: This is the value when a single solenoid is installed.
*2: This is the value when installing to a manifold base port size Rc3/8.
*3: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

How to order discrete units

4GA4 - R - 10

Ⓐ Model No. Ⓑ Port size

P4 compliant as standard

Code	Description	Ⓐ Valve model No. 4GA4	Ⓐ Valve model No. 4GB4
Ⓑ **Port size**			
10	Rc3/8	●	●
10G	G3/8	●	●
10 N	NPT3/8	●	●

Attachments: 3 mounting screws, 2 O-rings, 1 body gasket

⚠ Precautions for model No. selection

*1: Specify the air supply spacer mounting position and quantity in manifold specifications sheets of each catalog.
*2: Combination with the masking plate is not supported.
*3: When mounting an exhaust spacer on the type A or type B manifold (port P Rc3/8 specifications), connect a push-in fitting.

Parts list

(1) Manifold sub-plate kit individual wiring

P4 compliant as standard

● 4GB4 sub-plate

4G4 - SUB - BASE - Port size (*1) - Option

Ⓐ Option

Code	Description
Ⓐ Option	
Blank	
K	External pilot
F	Port P/A/B filter integrated

***1: Select from Ⓒport size on page 252.**

(2) Manifold sub-plate kit individual wiring

P4 compliant as standard

● M4GA4 sub-plate

M4GA4 - 00 - ( ) - 2

Ⓐ Port size

Ⓑ Option

Ⓒ Station No.

Code	Description
Ⓐ Port size	
00	Rc thread
00N	NPT thread
00G	G thread
Ⓑ Option	
Blank	
K	External pilot
Ⓒ Station No.	
2	2 stations
to	to
15	Refer to the specifications on page 254 for the max. station number.

● M4GB4 sub-plate: Direct mount

M4GB4 - Port size (*1) **- ( ) - 2 - P4**

Ⓐ Option

Ⓑ Station No.

Code	Description
Ⓐ Option	
Blank	
K	External pilot
F	Port A/B filter built in
Ⓑ Station No.	
2	2 stations
to	to
15	Refer to the specifications on page 258 for the max. station number.

***1: Select from Ⓒport size on page 260. Note that "CX" cannot be selected.**

Metal base# M4G4 Series# How to fill out manifold specifications sheet

● Manifold model No. (example)

M4G(A/B)4 [8] 0- [CX] - [T30] [ ] [ ] - [9] - [3] - P4

- [8]: Solenoid position
- [CX]: Port size
- [T30]: Reduced wiring connection
- [ ]: Terminal/Connector pin array method
- [ ]: Option
- [9]: Station No.
- [3]: Voltage

Precautions for fitting mix CX

The port A/B fitting can be selected freely by indicating "CX" in the port size area.
(Note) The M4GA4 type is not supported.

Selectable cartridge fittings

4G4 : C8, C10, C12

For female thread specifications, indicate the required number of plugs in the "Thread plug" area at the end. Female threads and cartridge fitting cannot be used together in one manifold set.

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G B 4 1 9- C8			○	○																							2
4G B 4 2 9- C8					○	○																					2
4G B 4 3 9- C8							○	○																			2
4G B 4 5 9- CX	C8	C10							○	○																	2
4G 4 9-																											
Masking plate 4G B 4-MP(S)											○																1
Masking plate 4G 4-MP(D)																											
Air supply spacer 4G 4-P-																											
Exhaust spacer 4G 4-R-																											

Fill in "CX" when changing the fitting combination

Included part	Blanking plug			Threaded plug		
	GWP 8-B	GWP 10-B	GWP 12-B	4G4-8 P	4G4-10 P	4G4-15 P
	Cable with D-sub-connector				N4T-CABLE-D -	

From the manifold specifications for each model, select and fill out the appropriate form.

● Individual wiring…Page 274

● Reduced wiring
- Common terminal block (T1*), D-sub-connector (T30):Page 275
- Flat cable connector (T5*):Page 276
- Serial transmission (T6G1):Page 277

How to fill out wiring specifications sheet

Not required for standard wiring and double wiring.

● Wiring specifications sheet (example)

Complete these specifications when specifying the wiring order and additional cables.

Connector pin No.		Installation position																
T30/T30R	T50/T50R/T6*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1	a																
14	2		a															
2	3			a														
15	4			(b)														
3	5				a													
16	6				(b)													
4	7					a												
17	8					b												
5	9 - Power supply						a											
18	10 +(COM)Power supply						b											
6	11							a										
19	12							b										
7	13								a									
20	14								b									
8	15									a								
21	16									b								
9	17																	
22	18																	
10	19 - Power supply																	
23	20 +(COM)Power supply																	
11																		
24																		
12																		
25																		
13 (COM)																		

Spare cable wiring Precautions (1)

Spare cable wiring Precautions (2)

*: Note that when the wiring method is T50 type, the COM polarity will be + (positive).

*: When T50 wiring is used, connector pins NO.9, 10, 19, and 20 cannot be specified, because they are used for the external input power supply.

Precautions regarding spare wiring

①With the T30/T50/T51 types, as it is possible for the unit to be equipped with spare wiring in advance to permit modification from a single Sol to a double Sol, consult CKD. Specify the position for expansion (modification area from single to double Sol). Mark a circle in the wiring specification column as an indication of spare wiring, while also filling in the a sol side/b sol side categories.

②Spare wiring will be installed on the masking plate. (Refer to Pneumatic Valves No.CB-023SA)

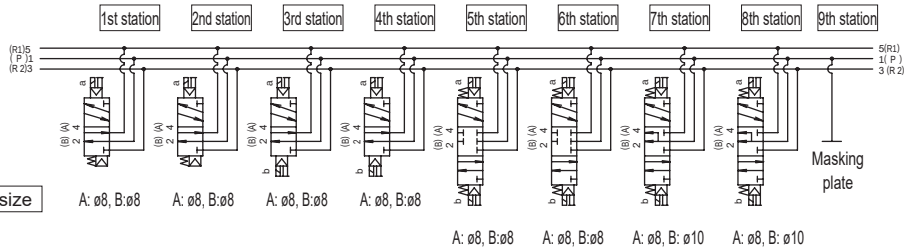
The number of wires for spare wiring can be specified by selecting the masking plate within the specifications.

(* If there is no specification, the spare wiring will be two (MPD)

4G*4-MP(S)...1 pc.

4G*4-MP(D)...2 units

Reference circuit diagram The simplified circuit diagram of the manifold model No. (example) on the previous page is shown below.



Port size

A: ø8, B:ø8 | A: ø8, B:ø8 | A: ø8, B:ø8 | A: ø8, B:ø8 | A: ø8, B:ø8 | A: ø8, B:ø8 | A: ø8, B: ø10 | A: ø8, B: ø10

* The manifold station numbers are set in order from the left with the piping port facing forward.

Individual wiring

M4G$^{A}_{B}$4 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M4G$^{A}_{B}$4 0- - - - P4

Solenoid position | Port size | Electrical connections | Option | Station No. | Voltage

Solenoid valve model No.	Fitting CX		Valve installation position																							Quantity
	A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
4G 4 9-																											
4G 4 9-																											
4G 4 9-																											
4G 4 9-																											
4G 4 9-																											
Masking plate 4G 4-MP																											
Air supply spacer 4G 4-P-																											
Exhaust spacer 4G 4-R-																											

Mounting rail	L_2=	Included part	Blanking plug						Threaded plug								
			GWP 8-B		GWP 10-B		GWP 12-B		4G4-8 P		4G4-10 P		4G4-15 P				

Reduced wiring

M4G $^{A}_{B}$4-T1, 3 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M4G $^{A}_{B}$ 4 ☐ 0- ☐ - ☐ ☐ ☐ - ☐ - ☐ - P4

Solenoid position / Port size / Reduced wiring connection / Terminal/Connector pin array method / Option / Station No. / Voltage

Solenoid valve model No.	Fitting CX		Valve installation position																							Quantity
	A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
4G ☐ 4 ☐ 9- ☐																											
4G ☐ 4 ☐ 9- ☐																											
4G ☐ 4 ☐ 9- ☐																											
4G ☐ 4 ☐ 9- ☐																											
4G ☐ 4 ☐ 9- ☐																											
Masking plate 4G ☐ 4-MP(S)																											
Masking plate 4G ☐ 4-MP(D)																											
Air supply spacer 4G ☐ 4-P- ☐																											
Exhaust spacer 4G ☐ 4-R- ☐																											
	Included part		Blanking plug: GWP 8-B ☐ GWP 10-B ☐ GWP 12-B ☐													Threaded plug: 4G4-8 ☐ P ☐ 4G4-10 ☐ P ☐ 4G4-15 ☐ P ☐											
			Cable with D-sub-connector: N4T-CABLE-D ☐ - ☐																								

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No.			Installation position																							
T10/T10R	T11/T11R	T30/T30R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1																								
2	2	14																								
3	3	2																								
4	4	15																								
5	5	3																								
6	6	16																								
7	7	4																								
8	8	17																								
9	9	5																								
10	10	18																								
11	11	6																								
12	12	19																								
13	13	7																								
14	14	20																								
COM	15	8																								
COM	16	21																								
	17	9																								
	18	22																								
	19	10																								
	20	23																								
	21	11																								
	22	24																								
	23	12																								
	24	25																								
	COM	13 (COM)																								
	COM																									

Reduced wiring

M4G $^{A}_{B}$4-T5 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M4G $^{A}_{B}$ 4 [ ] 0- [ ] - [ ] [ ] [ ] - [ ] - [ ] - P4

Solenoid position / Port size / Reduced wiring connection / Terminal/Connector pin array method / Option / Station No. / Voltage

Solenoid valve model No.	Fitting CX		Valve installation position																								Quantity
	A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
4G [ ] 4 [ ] 9- [ ]																											
4G [ ] 4 [ ] 9- [ ]																											
4G [ ] 4 [ ] 9- [ ]																											
4G [ ] 4 [ ] 9- [ ]																											
4G [ ] 4 [ ] 9- [ ]																											
Masking plate 4G [ ] 4-MP(S)																											
Masking plate 4G [ ] 4-MP(D)																											
Air supply spacer 4G [ ] 4-P- [ ]																											
Exhaust spacer 4G [ ] 4-R- [ ]																											

Included part	Blanking plug						Threaded plug					
	GWP 8-B		GWP 10-B		GWP 12-B		4G4-8 [ ] P		4G4-10 [ ] P		4G4-15 [ ] P	

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No.				Installation position																							
T50/T50R	T51/T51R	T52/T52R	T53/T53R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1																								
2	2	2	2																								
3	3	3	3																								
4	4	4	4																								
5	5	5	5																								
6	6	6	6																								
7	7	7	7																								
8	8	8	8																								
9 - Power supply	9	9 COM	9																								
10+ (COM) Power supply	10	10 COM	10																								
11	11		11																								
12	12		12																								
13	13		13																								
14	14		14																								
15	15		15																								
16	16		16																								
17	17		17																								
18	18		18																								
19 - Power supply	19 COM		19																								
20+ (COM) Power supply	20 COM		20																								
			21																								
			22																								
			23																								
			24																								
			25 COM																								
			26 COM																								

* Note that when T50 wiring is used, the COM polarity is + (plus).

* When T50 wiring is used, connector pin numbers 9, 10, 19, and 20 cannot be specified, because they are used for the external input power supply.

Serial transmission

M4G$^{A}_{B}$4-T6G1 Manifold specifications sheet

Date issued / /

● Contact ● Quantity set(s) ● Delivery date /

Company

Contact

Order No.

Slip No.	Order No.

● Manifold model No.

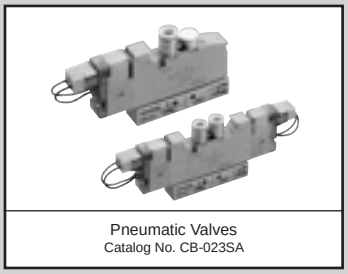
M4G$^{A}_{B}$4 □ 0- □ - T6G1 □ □ - □ - □ - P4

Solenoid position / Port size / Serial transmission / Terminal/Connector pin array method / Option / Station No. / Voltage

Solenoid valve model No.	Fitting CX		Valve installation position																							Quantity
	A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
4G □ 4 □ 9- □																											
4G □ 4 □ 9- □																											
4G □ 4 □ 9- □																											
4G □ 4 □ 9- □																											
4G □ 4 □ 9- □																											
Masking plate 4G □ 4-MP(S)																											
Masking plate 4G □ 4-MP(D)																											
Air supply spacer 4G □ 4-P- □																											
Exhaust spacer 4G □ 4-R- □																											
	Included part		Blanking plug													Threaded plug											
			GWP 8-B			GWP 10-B			GWP 12-B							4G4-8 □ P			4G4-10 □ P			4G4-15 □ P					

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No.		Installation position															
T6G1		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
T6G1: CC-Link 16 points	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																
	10 COM																
	11																
	12																
	13																
	14																
	15																
	16																
	17																
	18																
	19																
	20 COM																



Pneumatic Valves
Catalog No. CB-023SA

Discrete valve
Body piping

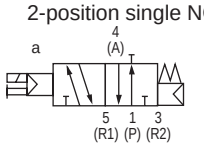
3GD1, 2, 3 /4GD1, 2, 3 Series

● Applicable cylinder bore size: ø20 to ø100

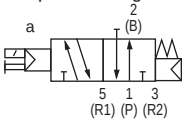
JIS symbol

● 3-port valve

2-position single NC

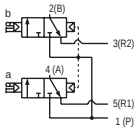


2-position single NO



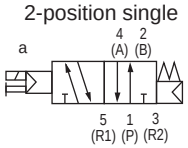
● Two 3-port valves integrated

(A side valve: NC, B side valve: NC)

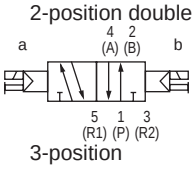


● 5-port valve

2-position single

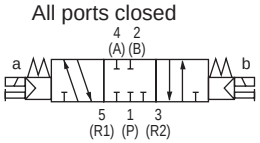


2-position double

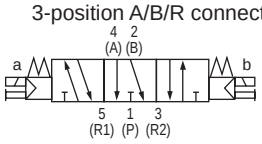


3-position

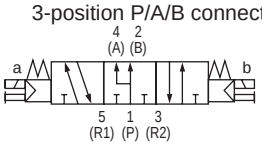
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Common specifications

Item	Description
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2
Proof pressure MPa	1.05
Ambient temperature °C	-5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common
Pilot exhaust method	Main valve/pilot valve common exhaust
Lubrication (*1)	Not required
Degree of protection (*2)	Dust-proof
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Avoid dripping water or oil, etc., during use. IP65 (jet-proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

Electrical specifications

Item	Description			
Rated voltage V	24 DC	12 DC	100 AC	200 AC
Voltage fluctuation range	±10%			
Holding current A (*3)	0.015 (0.017)	0.030 (0.034)	0.009 (0.009)	0.006 (0.006)
Power consumption W (*3)	0.35 (0.40)		–	
Apparent power VA (*3)(*4)	–		0.93 (0.98)	1.40
Thermal class	B			
Surge suppressor	Option			
Indicator	Lamp (option)			

*3: Values in ( ) apply when lamp is included.

*4: 200 VAC is the value of DIN terminal box (with lamp).

Individual specifications

Item		3GD1	3GD2	3GD3	4GD1	4GD2	4GD3
Port size	Port A/B	Push-in fitting ø4, ø6 M5	Push-in fitting ø4, ø6, ø8 Rc1/8	Push-in fitting ø8, ø10 Rc1/4	Push-in fitting ø4, ø6 M5	Push-in fitting ø4, ø6, ø8 Rc1/8	Push-in fitting ø8, ø10 Rc1/4
	Port P/R1/R2	M5	Rc1/8	Rc1/4	M5	Rc1/8	Rc1/4

Performance/characteristics by model

Item			3GD1		3GD2		3GD3		4GD1		4GD2		4GD3	
			ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		12	15	15	30	-	-	-	-	-	-	-	-
	2-position	Single	15	25	20	30	25	40	15	25	20	30	25	40
		Double	-	-	-	-	-	-	15	-	20	-	25	-
	3-position	A/B/R connection	-	-	-	-	-	-	20	30	25	35	35	50

Values with lamp/surge suppressor are shown. The response times are values with working pressure of 0.5 MPa at 20°C, without lubrication. They depend on the pressure and the lubricant quality.

Item				3GD1	3GD2	3GD3	4GD1	4GD2	4GD3
Weight g	2-position	Single	Grommet lead wire	48 (41)	110 (80)	144 (102)	48 (41)	115 (85)	153 (111)
			E-connector	50 (43)	112 (82)	146 (104)	50 (43)	117 (87)	155 (113)
			DIN terminal box	-	147 (117)	178 (136)	-	152 (122)	187 (145)
		Double	Grommet lead wire	-	-	-	65 (58)	133 (103)	175 (129)
			E-connector	-	-	-	69 (62)	137 (107)	179 (133)
			DIN terminal box	-	-	-	-	176 (146)	215 (169)
	3-position	All ports closed	Grommet lead wire	-	-	-	67 (60)	145 (115)	184 (142)
			E-connector	-	-	-	71 (64)	149 (119)	188 (146)
			DIN terminal box	-	-	-	-	188 (158)	224 (182)

• Values in ( ) do not include the pipe adaptor. Values for the E-connector include the socket assembly (with 300 mm lead wire). For the EJ-connector, add 16 g/connector to the E-connector weight.
• The weight of the two 3-port valves integrated type is the same as that of 2-position double.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
3GD1 4GD1	Two 3-port valves integrated		0.98	0.45	0.71	0.34
	2-position		1.2	0.47	0.72	0.37
	3-position	All ports closed	1.1	0.39	0.70	0.34
		A/B/R connection	1.1	0.33	0.72	0.34
		P/A/B connection	1.3	0.61	0.72	0.36
3GD2 4GD2	Two 3-port valves integrated		1.8	0.29	2.3	0.32
	2-position		2.4	0.33	2.8	0.30
	3-position	All ports closed	2.2	0.28	2.5	0.28
		A/B/R connection	2.3	0.26	2.8	0.27
		P/A/B connection	2.5	0.38	2.4	0.30
3GD3 4GD3	2-position		3.4	0.29	4.0	0.24
	3-position	All ports closed	3.1	0.27	3.4	0.28
		A/B/R connection	3.1	0.33	4.1	0.20
		P/A/B connection	3.5	0.43	3.4	0.32

*1 : Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 280.

CE marking specifications

** - Voltage - **ST**

• Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

3GD1, 2, 3/4GD1, 2, 3 Series

How to order

4GD1 1 0 R - C6 - E2 [ ] - 1 - P4

3GD1 1 0 R - C6 - E2 [ ] - 1 - P4

● Single valve for mounting base

4GD1 1 9 R - C6 - E2 H - 3 - P4

● Discrete 3-port valve for base mounting

3GD1 1 9 R - C6 - E2 H - 3 - P4

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Port size
Ⓓ Electrical connections
Ⓔ Option
Ⓕ Voltage

*3
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Refer to "Pneumatic Valves No.CB-023SA" for the circuit diagram with surge suppressor/lamp.

Code	Description	Ⓐ Model No. 3GD1	3GD2	3GD3	4GD1	4GD2	4GD3
Ⓑ Solenoid position							
1	2-position single				●	●	●
2	2-position double				●	●	●
3	3-position all ports closed				●	●	●
4	3-position ABR connection				●	●	●
5	3-position PAB connection				●	●	●
1	2-position single: Normally Closed (*1)	●	●	●			
11	2-position single: Normally Open (*1)	●	●	●			
66	3-port valve Two valves integrated (*2) — A side valve: Normally closed	●	●				
	3-port valve Two valves integrated (*2) — B side valve: Normally closed						

Port	4(A)/2(B) port	*3	Port P/R1/R2 ①=M5 ②=Rc1/8 ③=Rc1/4					
Ⓒ Port size								
C4	ø4 push-in fitting	○	①	②		①	②	
C6	ø6 push-in fitting	○	①	②		①	②	
C8	ø8 push-in fitting	○		②	③		②	③
C10	ø10 push-in fitting	○			③			③
M5	M5	●	①			①		
06	Rc1/8	●		②			②	
08	Rc1/4	●			(3)			(3)

Ⓓ Electrical connections	
Refer to the electrical connection list on next page.	

Code	Description	3GD1	3GD2	3GD3	4GD1	4GD2	4GD3
Ⓔ Option							
Blank	Manual override of non-locking/locking common	●	●	●	●	●	●
H	With exhaust check valve (*4)	●	●	●	●	●	●
P	With mounting plate	●	●	●	●	●	●
A	Ozone/Coolant proof	●	●	●	●	●	●
F	Port A/B filter integrated (*5)	●	●	●	●	●	●
Ⓕ Voltage							
1	100 VAC (rectifier integrated)	●	●	●	●	●	●
2	200 VAC (rectifier integrated) (*6)		●	●		●	●
3	24 VDC	●	●	●	●	●	●
4	12 VDC	●	●	●	●	●	●

is not available.

⚠ Precautions for model No. selection

*1 3GDNFor the Normally Closed, the piping connection 2 (B) and 3 (R2) ports are plugged. and, 3GDN- Normally Open type, 5 (R1) Avoid plugging the port. This may cause malfunction.
*2 Dimensions are the same as the respective 2-position double solenoid.
*4 3-position all ports closed and PAB connection are not provided with the exhaust check valve. Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.
*5 A filter is built into port P as standard.
*6 DIN terminal box only is supported.

[Electrical connections list]

		Ⓐ Model No.					
		3GD1	3GD2	3GD3	4GD1	4GD2	4GD3
Ⓓ Electrical connections							
Blank	Grommet Lead wire(300 mm) (*7)	●	●	●	●	●	●
B	DIN terminal box (Pg7) with surge suppressor/lamp (*8)(*10)		●	●		●	●
BN	DIN terminal box (Pg7) (without terminal box) With surge suppressor (*8)(*10)		●	●		●	●
E-connector (upward/lateral common)							
E0	Lead wire (300 mm) (*9)	●	●	●	●	●	●
E00	Lead wire (500 mm) (*9)	●	●	●	●	●	●
E01	Lead wire (1000 mm) (*9)	●	●	●	●	●	●
E02	Lead wire (2000 mm) (*9)	●	●	●	●	●	●
E03	Lead wire (3000 mm) (*9)	●	●	●	●	●	●
E0N	Without lead wire (Without socket) (*9)	●	●	●	●	●	●
E1	Without lead wire (socket/terminal attached) (*9)	●	●	●	●	●	●
E2	Lead wire (300 mm) with surge suppressor/lamp	●	●	●	●	●	●
E20	Lead wire (500 mm) with surge suppressor/lamp	●	●	●	●	●	●
E21	Lead wire (1000 mm) with surge suppressor/lamp	●	●	●	●	●	●
E22	Lead wire (2000 mm) with surge suppressor/lamp	●	●	●	●	●	●
E23	Lead wire (3000 mm) with surge suppressor/lamp	●	●	●	●	●	●
E2N	Without lead wire (without socket) with surge suppressor/lamp	●	●	●	●	●	●
E3	Without lead wire (socket/terminal attached) with surge suppressor/lamp	●	●	●	●	●	●
EJ-connector (socket with cover, upward/lateral common)							
E01J	Lead wire (1000 mm) (*9)	●	●	●	●	●	●
E02J	Lead wire (2000 mm) (*9)	●	●	●	●	●	●
E03J	Lead wire (3000 mm) (*9)	●	●	●	●	●	●
E21J	Lead wire (1000 mm) with surge suppressor/lamp	●	●	●	●	●	●
E22J	Lead wire (2000 mm) with surge suppressor/lamp	●	●	●	●	●	●
E23J	Lead wire (3000 mm) with surge suppressor/lamp	●	●	●	●	●	●

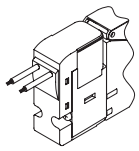
*7: The grommet lead wire specifications are compatible with DC voltage only.
*8: A lamp comes with the terminal box.
*9: AC voltage is with a rectifier circuit.
*10: The terminal box conforms to EN175301-803 Type C (former DIN 43650-C).
Refer to "Pneumatic Valves No.CB-023SA" for details.

Electrical connections

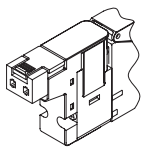
Discrete valve/individual wiring manifold

Blank Grommet lead wire

● **Lead wire length**
300 mm

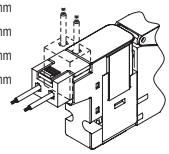


E1 E3 E-connector with socket/terminal

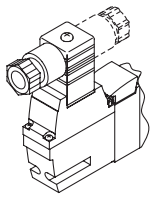


E0 E2 E-connector

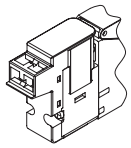
● **Lead wire length**
300 mm
500 mm
1000 mm
2000 mm
3000 mm



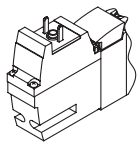
B DIN terminal box



E0N E2N E-connector without socket

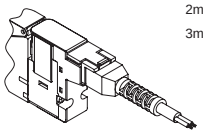


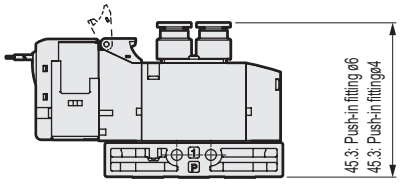
BN DIN terminal box Without terminal box

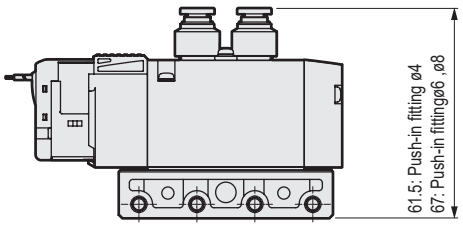


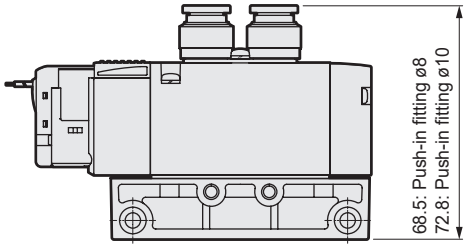
E0*J E2*J EJ type connector

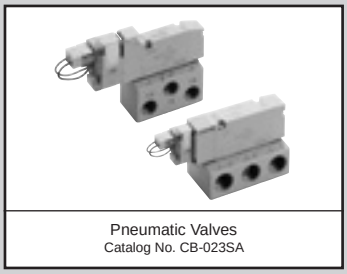
● **Lead wire length**
1m
2m
3m











Pneumatic Valves
Catalog No. CB-023SA

Discrete valve
Base piping

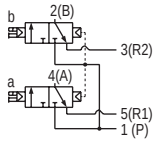
3GE1, 2/4GE1, 2, 3 Series

● Applicable cylinder bore size: ø20 to ø100

P4 compliant as standard

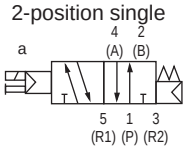
JIS symbol

● Two 3-port valves integrated
(A side valve: NC, B side valve: NC)

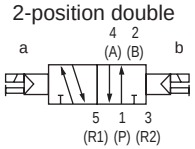


● 5-port valve

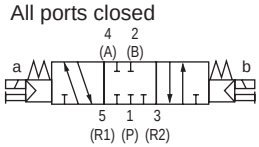
2-position single



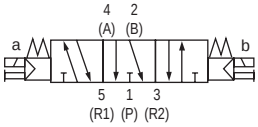
2-position double



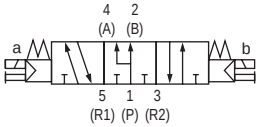
3 position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Common specifications

Item		Description
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure	MPa	0.7
Min. working pressure	MPa	0.2
Proof pressure	MPa	1.05
Ambient temperature	°C	-5 to 55 (no freezing)
Fluid temperature	°C	5 to 55
Manual override		NNlock/lock common (standard)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust
Lubrication	(*1)	Not required
Degree of protection	(*2)	Dust-proof
Vibration resistance	m/s²	50 or less
Shock resistance	m/s²	300 or less
Atmosphere		Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2 Avoid dripping water or oil, etc., during use.IP65 (water jet proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

Electrical specifications

Item	Description			
Rated voltage V	24 DC	12 DC	100 AC	200 AC
Voltage fluctuation range	±10%			
Holding current A (*3)	0.015 (0.017)	0.030 (0.034)	0.009 (0.009)	0.006 (0.006)
Power consumption W (*3)	0.35(0.40)		-	
Apparent power VA (*3)(*4)	-		0.93 (0.98)	1.40
Thermal class	B			
Surge suppressor	Option			
Indicator	Lamp (Option)			

*3: Values in ( ) apply when lamp is included.
*4: 200 VAC is the value of DIN terminal box (with lamp).

Individual specifications

Item		3GE1/4GE1	3GE2/4GE2	4GE3
Port size	Port A/B	Rc1/8	Rc1/4	Rc1/4, Rc3/8
	Port P/R1/R2	Rc1/8	Rc1/4	Rc1/4, Rc3/8

Performance/characteristics by model

Item			3GE1/4GE1		3GE2/4GE2		4GE3	
			ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		12	15	15	30	—	—
	2-position	Single	15	25	20	30	25	40
		Double	15	—	20	—	25	—
	3-position	ABR connection	20	30	25	35	35	50

Values with a lamp/surge suppressor are shown. The response times are values with working pressure of 0.5 MPa at 20°C, without lubrication. They depend on the pressure and the lubricant quality.

Weight

Item				3GE1/4GE1	3GE2/4GE2	4GE3
Weight g	2-position	Single	Grommet lead wire	80 (38)	158 (76)	221 (102)
			E-connector	82 (40)	160 (78)	223 (104)
			DIN terminal box	-	195 (113)	255 (136)
		Double	Grommet lead wire	97 (55)	175 (93)	240 (121)
			E-connector	101 (59)	179 (97)	244 (125)
			DIN terminal box	-	218 (136)	280 (161)
	3-position	All ports closed	Grommet lead wire	98 (56)	186 (104)	249 (130)
			E-connector	102 (60)	190 (108)	253 (134)
			DIN terminal box	-	229 (147)	289 (170)

- Values in ( ) do not include the pipe adaptor. Values for the E-connector include the socket assembly (with 300 mm lead wire). For the EJ-connector, add 16 g/connector to the E-connector weight.
- The weight of the two 3-port valves integrated type is the same as that of 2-position double.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2	
			C[dm³/(s·bar)"]	b	C[dm³/(s·bar)"]	b
3GE1 4GE1	Two 3-port valves integrated		0.92	0.08	1.1	0.26
	2-position		1.3	0.27	1.2	0.22
	3-position	All ports closed	1.1	0.31	1.1	0.27
		A/B/R connection	1.1	0.31	1.3	0.29
		P/A/B connection	1.4	0.30	1.1	0.26
3GE2 4GE2	Two 3-port valves integrated		1.7	0.42	2.1	0.26
	2-position		2.6	0.20	2.6	0.19
	3-position	All ports closed	2.3	0.32	2.2	0.22
		A/B/R connection	2.2	0.23	2.6	0.16
		P/A/B connection	2.4	0.10	2.4	0.22
4GE3	2-position		4.3	0.24	4.2	0.24
	3-position	All ports closed	3.3	0.40	3.4	0.27
		A/B/R connection	3.3	0.36	4.2	0.18
		P/A/B connection	4.5	0.28	3.4	0.30

*1: Formula to calculate sonic conductance C from effective cross-sectional area S is S≈5.0xC.

Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 284.

CE marking specifications

** - Voltage - **ST**

- Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

How to order

● Discrete valve

4GE1 1 0 R - 06 - E2 ○ - 3

3GE1 66 0 R - 06 - E2 ○ - 3

● Single valve for mounting base

4GE1 1 9 R - 00 - E2 H - 3

3GE1 66 9 R - 00 - E2 H - 3

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

Ⓓ Electrical connections
Refer to "Pneumatic Valves No.CB-023SA" for the circuit diagram with surge suppressor/ lamp.

Ⓔ Option

Ⓕ Voltage

P4 compliant as standard

Code	Description	Ⓐ Model No. 3GE1	3GE2	4GE1	4GE2	4GE3
Ⓑ Solenoid position						
1	2-position single			●	●	●
2	2-position double			●	●	●
3	3-position all ports closed			●	●	●
4	3-position ABR connection			●	●	●
5	3-position PAB connection			●	●	●
66	Two 3-port valves integrated (*1) — A side valve:Normally Closed, B side valve:Normally Closed	●	●			
Ⓒ Port size						
Port	4(A)/2(B) port	Port P/R1/R2 ②=Rc1/8 ③=Rc1/4 ④=Rc3/8				
06	Rc1/8	②		②		
08	Rc1/4		③		③	③
10	Rc3/8					④
00	Discrete valve for integrated base	●	●	●	●	●
Ⓓ Electrical connections						
Blank	Grommet lead wire (300 mm) (*5)	●	●	●	●	●
B	DIN terminal box (Pg7) With surge suppressor and indicator lamp (*6)(*8)		●		●	●
BN	DIN terminal box(Pg7)(Without terminal box)With surge suppressor(*6)(*8)		●		●	●
E-connector (upward/lateral common)						
E0	Lead wire (300 mm) (*7)	●	●	●	●	●
E00	Lead wire (500 mm) (*7)	●	●	●	●	●
E01	Lead wire (1000 mm) (*7)	●	●	●	●	●
E02	Lead wire (2000 mm) (*7)	●	●	●	●	●
E03	Lead wire (3000 mm) (*7)	●	●	●	●	●
E0N	Without lead wire(Without socket) (*7)	●	●	●	●	●
E1	Without lead wire(socket/terminal attached) (*7)	●	●	●	●	●
E2	Lead wire (300 mm) With surge suppressor and indicator lamp	●	●	●	●	●
E20	Lead wire (500 mm) With surge suppressor and indicator lamp	●	●	●	●	●
E21	Lead wire (1000 mm)With surge suppressor and indicator lamp	●	●	●	●	●
E22	Lead wire (2000 mm)With surge suppressor and indicator lamp	●	●	●	●	●
E23	Lead wire (3000 mm)With surge suppressor and indicator lamp	●	●	●	●	●
E2N	Without lead wire (without socket)With surge suppressor and indicator lamp	●	●	●	●	●
E3	Without lead wire (socket/terminal attached) With surge suppressor and indicator lamp	●	●	●	●	●
EJ-connector (socket with cover, upward/lateral common)						
E01J	Lead wire (1000 mm) (*7)	●	●	●	●	●
E02J	Lead wire (2000 mm) (*7)	●	●	●	●	●
E03J	Lead wire (3000 mm) (*7)	●	●	●	●	●
E21J	Lead wire (1000 mm)With surge suppressor and indicator lamp	●	●	●	●	●
E22J	Lead wire (2000 mm)With surge suppressor and indicator lamp	●	●	●	●	●
E23J	Lead wire (3000 mm)With surge suppressor and indicator lamp	●	●	●	●	●
Ⓔ Option						
Blank	Manual override of non-locking/locking common	●	●	●	●	●
H	With exhaust check valve (*2)	●	●	●	●	●
A	Ozone/coolant proof	●	●	●	●	●
F	Port A/B filter built in (*3)	●	●	●	●	●
Ⓕ Voltage						
1	100 VAC (rectifier integrated)	●	●	●	●	●
2	200 VAC (rectifier integrated) (*4)		●		●	●
3	24 VDC	●	●	●	●	●
4	12 VDC	●	●	●	●	●

is not available.

⚠ Precautions for model No. selection

*1: Dimensions is the same dimensions as the respective 2-position double solenoid.

***2: 3-position all ports closed and PAB connection are not provided with the exhaust check valve. Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**

*3: A filter is built into port P as standard.

*4: Only the DIN terminal box is supported.

*5: The grommet lead wire specifications are compatible with DC voltage only.

*6: A lamp comes with the terminal box.

*7: AC voltage is with a rectifier circuit.

*8: The terminal box conforms to EN175301-803 Type C (former DIN 43650-C). Refer to "Pneumatic Valves No.CB-023SA" for details.

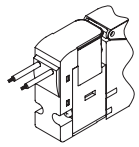
Electrical connections

Discrete valve/individual wiring manifold

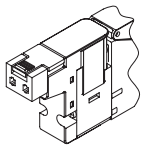
Blank Grommet lead wire

● **Lead wire length**

300 mm



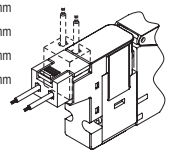
E1 E3 E-connector with socket/terminal



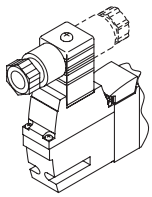
E0 E2 E-connector

● **Lead wire length**

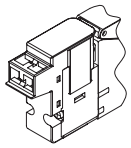
300 mm
500 mm
1000 mm
2000 mm
3000 mm



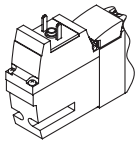
B DIN terminal box



E0N E2N E-connector without socket



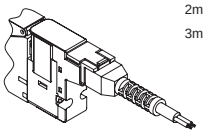
BN DIN terminal box Without terminal box

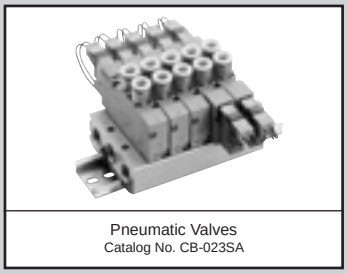


E0*J E2*J EJ type connector

● **Lead wire length**

1m
2m
3m





Pneumatic Valves
Catalog No. CB-023SA

Individual wiring manifold
Body piping
Direct mount/DIN rail mount

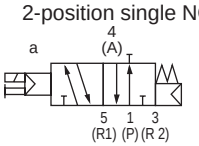
M3GD1, 2, 3 -(D) /M4GD1, 2, 3 -(D) Series

● Applicable cylinder bore size: ø20 to ø100

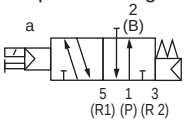
JIS symbol

● 3-port valve

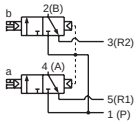
2-position single NC



2-position single NO

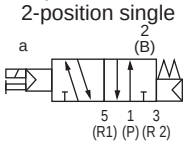


● Two 3-port valves integrated
(A side valve: NC, B side valve: NC)

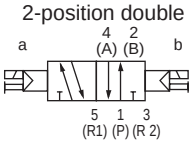


● 5-port valve

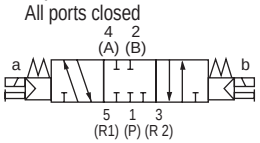
2-position single



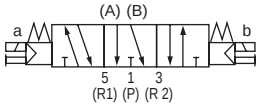
2-position double



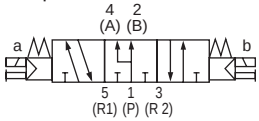
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item		Description
Manifold		Integrated base
Mounting method		Direct mount/DIN rail mount
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Standard) (Pilot exhaust check valve built-in)
Piping direction		Valve top direction
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2
Proof pressure MPa		1.05
Ambient temperature °C		-5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common
Lubrication (*1)		Not required
Degree of protection (*2)		Dust-proof
Vibration resistance m/s^2		50 or less
Shock resistance m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Avoid dripping water or oil, etc., during use. IP65 (water jet proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

Electrical specifications

Item	Description			
Rated voltage V	24 DC	12 DC	100 VAC	200 VAC
Voltage fluctuation range	±10%			
Holding current A (*3)	0.015 (0.017)	0.030 (0.034)	0.009 (0.009)	0.006 (0.006)
Power consumption W (*3)	0.35 (0.40)		-	
Apparent power VA (*3) (*4)	-		0.93 (0.98)	1.40
Thermal class	B			
Surge suppressor	Option			
Indicator	Lamp (option)			

*3: Values in ( ) apply when lamp is included.
*4: 200 VAC is the value of DIN terminal box (with lamp).

Individual specifications

Item		M3GD1/M4GD1		M3GD2/M4GD2		M3GD3/M4GD3	
		Direct mount	DIN rail mount	Direct mount	DIN rail mount	Direct mount	DIN rail mount
Max. station No.	Standard (Internal pilot)	20 stations	16 stations	20 stations	16 stations	20 stations	16 stations
Port size	Port A/B	Push-in fitting ø4, ø6 M5		Push-in fitting ø4, ø6, ø8 Rc1/8		Push-in fitting ø8, ø10 Rc1/4	
	Port P/R1/R2	Rc1/8		Rc1/4		Rc3/8	
Manifold base Weight calculation formula (n: station No.) g		23n+52	25n+60	47n+64	49n+92	74n+88	76n+117

Refer to "Cautions for mounting the DIN rail" and "Pneumatic Valves No.CB-023SA", and select the manifold. For 10 or more manifold station No. (5 stations for 4G3), use ports on both sides for air supply and exhaust. The manifold base weight is the value for screw specifications.

Performance/characteristics by model

Item			M3GD1		M3GD2		M3GD3		M4GD1		M4GD2		M4GD3	
			ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		12	15	15	30	-	-	-	-	-	-	-	-
	2-position	Single	15	25	20	30	25	40	15	25	20	30	25	40
		Double	-	-	-	-	-	-	15	-	20	-	25	-
	3-position	A/B/R connection	-	-	-	-	-	-	20	30	25	35	35	50

Values with lamp/surge suppressor are shown. The response times are values with working pressure of 0.5 MPa at 20°C, without lubrication. They depend on the pressure and the lubricant quality.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2			
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]		b	
M3GD1 M4GD1	Two 3-port valves integrated		0.86	0.31	1.1	(0.66)	0.19	(0.22)
	2-position		0.99	0.20	1.2	(0.70)	0.20	(0.12)
	3-position	All ports closed	0.94	0.23	1.1	—	0.20	—
		A/B/R connection	0.93	0.18	1.3	(0.70)	0.23	(0.02)
		P/A/B connection	1.1	0.28	1.1	—	0.23	—
M3GD2 M4GD2	Two 3-port valves integrated		1.7	0.40	2.3	(1.7)	0.29	(0.32)
	2-position		2.3	0.36	2.9	(1.7)	0.24	(0.33)
	3-position	All ports closed	2.1	0.35	2.5	—	0.32	—
		A/B/R connection	2.2	0.37	2.9	(1.8)	0.32	(0.29)
		P/A/B connection	2.4	0.34	2.5	—	0.33	—
M3GD3 M4GD3	2-position		3.2	0.37	3.8	(2.5)	0.13	(0.28)
	3-position	All ports closed	2.9	0.35	3.3	—	0.35	—
		A/B/R connection	3.0	0.34	3.8	(2.6)	0.12	(0.27)
		P/A/B connection	3.3	0.30	3.3	—	0.32	—

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 288.

CE marking specifications

** - Voltage - **ST**

• Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

M4GD1/2/3 Series

Individual wiring manifold; Body piping

How to order

Manifold model No.

M 4GD1 1 0 R - C6 - E2 H D - ○ - 3 - P4

3-port manifold model No.

M 3GD1 1 0 R - C6 - E2 H D - ○ - 3 - P4

Discrete valve for integrated base

4GD1 1 9 R - C6 - E2 H —— 3 - P4

Discrete 3-port valve for base mounting

3GD1 1 9 R - C6 - E2 H —— 3 - P4

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

*3
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓓ Electrical connections

Ⓔ Option

Ⓕ Mount type

Ⓖ Station No.

Ⓗ Voltage

* Be sure to fill in the "Manifold specifications sheet" (pages 312 to 314).

Code	Description	Ⓐ Model No. 3GD1	3GD2	3GD3	4GD1	4GD2	4GD3
Ⓑ Solenoid position							
1	2-position single				●	●	●
2	2-position double				●	●	●
3	3-position all ports closed				●	●	●
4	3-position ABR connection				●	●	●
5	3-position PAB connection				●	●	●
1	2-position single: Normally Closed (*1)	●	●	●			
11	2-position single: Normally Open (*1)	●	●	●			
66	3-port valve Two valves integrated (*1) (*2) — A valve side: Normally Closed; B valve side: Normally Closed	●	●				
8	Mix manifold (when there are multiple solenoid positions)	●	●	●	●	●	●
Ⓒ Port size							
Port	4(A), 2(B) port *3		Port P/R1/R2 (2) = Rc1/8 (3) = Rc1/4 (4) = Rc3/8				
C4	ø4 push-in fitting	○	②	③		②	③
C6	ø6 push-in fitting	○	②	③		②	③
C8	ø8 push-in fitting	○		③	④		③ ④
C10	ø10 push-in fitting	○			④		④
CX	Push-in fitting mix (*4)	○	②	③	④	②	③ ④
M5	M5	●	②			②	
06	Rc1/8	●		③			③
08	Rc1/4	●			④		④
Ⓓ Electrical connections							
Refer to the next page for electrical connections.							
Ⓔ Option							
Blank	Manual override of non-locking/locking common	●	●	●	●	●	●
H	With exhaust check valve (*5)	●	●	●	●	●	●
A	Ozone/coolant proof	●	●	●	●	●	●
F	Port A/B filter built in (*6)	●	●	●	●	●	●
Z1	Air supply spacer (*7)	●	●	●	●	●	●
Z3	Exhaust spacer (*7)	●	●	●	●	●	●
Ⓕ Mount type							
Blank	Direct mount	●	●	●	●	●	●
D	DIN rail mount	●	●	●	●	●	●
Ⓖ Station No.							
2 to 20	2 stations to Refer to page 286 for the max. station number per model.	●	●	●	●	●	●
Ⓗ Voltage							
1	100 VAC (rectifier integrated)	●	●	●	●	●	●
2	200 VAC (rectifier integrated) (*8)		●	●		●	●
3	24 VDC	●	●	●	●	●	●
4	12 VDC	●	●	●	●	●	●

is not available.

Precautions for model No. selection

*1 M4GD*80R when using a mixture of 3, 5-port valves. When using a mixture with the masking plate, M3GD*80R.

*2 Dimensions are the same as the respective 2-position double solenoid.

*4 Push-in fitting cannot be mixed with the single valve 4(A) or 2(B) port.

***5 The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023S" for details on the exhaust check valve.**

*6 A filter is built into port P as standard.

***7 Specify the spacer mounting position and quantity on the manifold specifications sheet. Stacking of spacers is not possible. Combination with a masking plate is not possible. Refer to pages 302 to 303 for details.**

*8 DIN terminal box only is supported. Two 3-port valves integrated type is not available.

[Electrical connections list]

Ⓓ Electrical connections			Ⓐ Model No. 3GD1	3GD2	3GD3	4GD1	4GD2	4GD3
Blank	Grommet Lead wire(300 mm)	(*9)	●	●	●	●	●	●
B	DIN terminal box (Pg 7) With surge suppressor and indicator lamp	(*10)(*12)		●	●		●	●
BN	DIN terminal box (Pg7) (without terminal box) With surge suppressor	(*10)(*12)		●	●		●	●
E-connector (upward/lateral direction common)								
E0	Lead wire (300 mm)	(*11)	●	●	●	●	●	●
E00	Lead wire (500 mm)	(*11)	●	●	●	●	●	●
E01	Lead wire (1000 mm)	(*11)	●	●	●	●	●	●
E02	Lead wire (2000 mm)	(*11)	●	●	●	●	●	●
E03	Lead wire (3000 mm)	(*11)	●	●	●	●	●	●
E0N	Without lead wire (without socket)	(*11)	●	●	●	●	●	●
E1	Without lead wire (with socket/terminal)	(*11)	●	●	●	●	●	●
E2	Lead wire (300 mm)	With surge suppressor and indicator lamp	●	●	●	●	●	●
E20	Lead wire (500 mm)	With surge suppressor and indicator lamp	●	●	●	●	●	●
E21	Lead wire (1000 mm)	With surge suppressor and indicator lamp	●	●	●	●	●	●
E22	Lead wire (2000 mm)	With surge suppressor and indicator lamp	●	●	●	●	●	●
E23	Lead wire (3000 mm)	With surge suppressor and indicator lamp	●	●	●	●	●	●
E2N	Without lead wire (without socket)	With surge suppressor and indicator lamp	●	●	●	●	●	●
E3	Without lead wire (with socket/terminal)	With surge suppressor and indicator lamp	●	●	●	●	●	●
EJ-connector (socket with cover, upward/lateral direction common)								
E01J	Lead wire (1000 mm)	(*11)	●	●	●	●	●	●
E02J	Lead wire (2000 mm)	(*11)	●	●	●	●	●	●
E03J	Lead wire (3000 mm)	(*11)	●	●	●	●	●	●
E21J	Lead wire (1000 mm)	With surge suppressor and indicator lamp	●	●	●	●	●	●
E22J	Lead wire (2000 mm)	With surge suppressor and indicator lamp	●	●	●	●	●	●
E23J	Lead wire (3000 mm)	With surge suppressor and indicator lamp	●	●	●	●	●	●

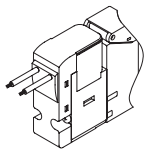
*9: The grommet lead wire specifications are compatible with DC voltage only.
*10: A lamp comes with the terminal box.
*11: AC voltage is with a rectifier circuit.
*12 The terminal box conforms to EN175301-803Type C (former DIN 43650-C). Refer to "Pneumatic Valves No.CB-023SA" for details.

Electrical connections

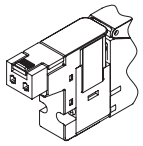
Discrete valve/individual wiring manifold

Blank Grommet lead wire

● Lead wire length
300 mm

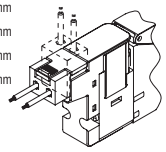


E1 E3 E-connector with socket/terminal

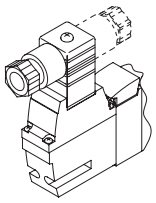


E0 E2 E-connector

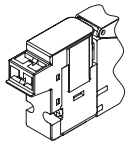
● Lead wire length
300 mm
500 mm
1000 mm
2000 mm
3000 mm



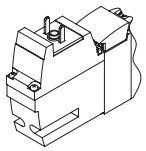
B DIN terminal box



E0N E2N E-connector without socket

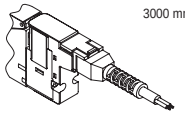


BN DIN terminal box (without terminal box)



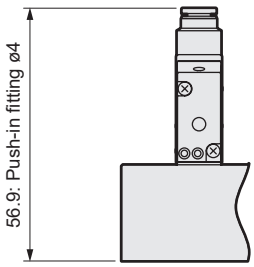
E0*J E2*J EJ type connector

● Lead wire length
1000 mm
2000 mm
3000 mm

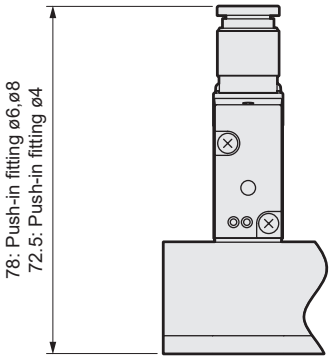


Dimensions

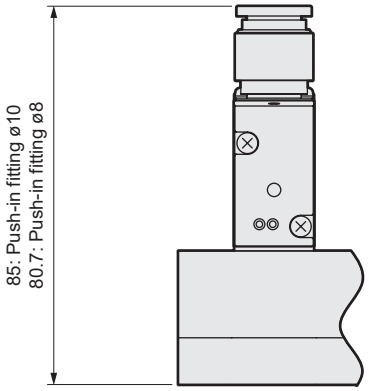
● M4GD1-P4



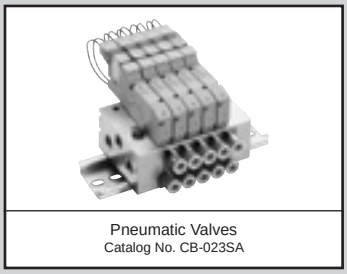
● M4GD2-P4



● M4GD3-P4



*Fitting dimensions of P4 Series are different from the standard when mounted. For other dimensions, refer to the M4GD1 to 3 Series in "Pneumatic Valves (No. CB-023SA)".



Pneumatic Valves
Catalog No. CB-023SA

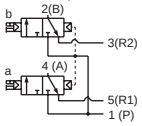
Individual wiring manifold
Base piping
Direct mount/DIN rail mount

M3GE1, 2/M4GE1, 2, 3-(D) Series

● Applicable cylinder bore size: ø20 to ø100

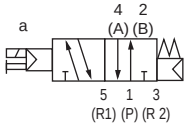
JIS symbol

● Two 3-port valves integrated
(A side valve: NCB side valve: NC)

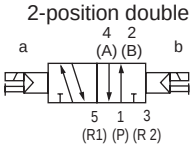


● 5-port valve

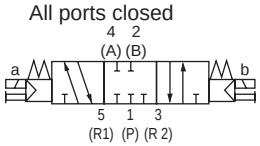
2-position single



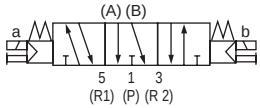
2-position double



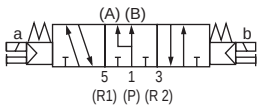
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item		Description
Manifold		Integrated base
Mounting method		Direct mount/DIN rail mount
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Standard) (Pilot exhaust check valve built-in)
Piping direction		Side direction of base
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2
Proof pressure MPa		1.05
Ambient temperature °C		−5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common
Lubrication (*1)		Not required
Degree of protection (*2)		Dust-proof
Vibration resistance m/s^2		50 or less
Shock resistance m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Avoid dripping water or oil, etc., during use. IP65 (water jet proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

Electrical specifications

Item	Description			
Rated voltage V	24 DC	12 DC	100 AC	200 AC
Voltage fluctuation range	±10%			
Holding current A(*3)	0.015 (0.017)	0.030 (0.034)	0.009 (0.009)	0.006 (0.006)
Power consumption W(*3)	0.35 (0.40)		-	
Apparent power VA (*3) (*4)	-		0.93 (0.98)	1.40
Thermal class	B			
Surge suppressor	Option			
Indicator	Lamp (option)			

*3: Values in ( ) apply when lamp is included.
*4: 200 VAC is the value of DIN terminal box (with lamp).

Individual specifications

Item		M3GE1/M4GE1		M3GE2/M4GE2		M4GE3	
		Direct mount	DIN rail mount	Direct mount	DIN rail mount	Direct mount	DIN rail mount
Max. station No.	Standard (Internal pilot)	20 stations	16 stations	20 stations	16 stations	20 stations	16 stations
Port size	Port A/B	Push-in fitting ø4, ø6 M5		Push-in fitting ø4, ø6, ø8 Rc1/8		Push-in fitting ø8, ø10 Rc1/4	
	Port P/R1/R2	Rc1/8		Rc1/4		Rc3/8	
Manifold base Weight calculation formula (n: station No.)		35n+61	36n+115	71n+106	73n+134	113n+170	115n+119

Refer to "Cautions for mounting the DIN rail" and "Pneumatic Valves No.CB-023SA", and select the manifold. For 10 or more manifold station No. (5 stations for 4G3), use ports on both sides for air supply and exhaust. The manifold base weight is the value for screw specifications.

Performance/characteristics by model

Item			M3GE1/M4GE1		M3GE2/M4GE2		M4GE3	
			ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		12	15	15	30	-	-
	2-position	Single	15	25	20	30	25	40
		Double	15	-	20	-	25	-
	3-position	A/B/R connection	20	30	25	35	35	50

Values with a lamp/surge suppressor are shown. The response times are values with working pressure of 0.5 MPa at 20°C, without lubrication. They depend on the pressure and the lubricant quality.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2			
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]		b	
M3GE1 M4GE1	Two 3-port valves integrated		0.86	0.35	1.1	(0.67)	0.22	(0.23)
	2-position		1.1	0.22	1.2	(0.70)	0.20	(0.10)
	3-position	All ports closed	0.98	0.22	1.1	—	0.24	—
		A/B/R connection	0.97	0.35	1.3	(0.68)	0.22	(0.24)
		P/A/B connection	1.1	0.38	1.1	—	0.21	—
M3GE2 M4GE2	Two 3-port valves integrated		1.7	0.44	2.1	(1.6)	0.32	(0.30)
	2-position		2.4	0.34	2.7	(1.7)	0.24	(0.31)
	3-position	All ports closed	2.2	0.34	2.4	—	0.29	—
		A/B/R connection	2.2	0.34	2.8	(1.8)	0.24	(0.27)
		P/A/B connection	2.4	0.29	2.4	—	0.29	—
M4GE3	2-position		3.5	0.34	3.8	(2.6)	0.11	(0.27)
	3-position	All ports closed	3.1	0.33	3.3	—	0.22	—
		A/B/R connection	3.0	0.30	3.8	(2.7)	0.11	(0.22)
		P/A/B connection	3.6	0.36	3.3	—	0.28	—

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 292.

CE marking specifications

** - Voltage - **ST**

• Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

M4GE1/2/3 Series

Individual wiring manifold; Base piping

How to order

Manifold model No.

M 4GE1 1 0R - C6 - E2 H D - ○ - 3 - P4

3-port manifold model No.

M 3GE1 66 0R - C6 - E2 H D - ○ - 3 - P4

Discrete valve for integrated base

4GE1 1 9R - 00 - E2 H —— 3 - P4

3-port discrete valve for integrated base

3GE1 66 9R - 00 - E2 H —— 3 - P4

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Port size (*3)
Ⓓ Electrical connections
Ⓔ Option
Ⓕ Mount type
Ⓖ Station No.
Ⓗ Voltage

*3
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

*Be sure to fill in the "Manifold specifications sheet" (pages 312 to 314).

Code	Description		Ⓐ Model No. 3GE1	3GE2	4GE1	4GE2	4GE3
Ⓑ Solenoid position							
1	2-position single				●	●	●
2	2-position double				●	●	●
3	3-position all ports closed				●	●	●
4	3-position ABR connection				●	●	●
5	3-position PAB connection				●	●	●
66	3-port valve Two valves integrated (*1) (*2)	A side valve: Normally Closed	●	●			
		B side valve: Normally Closed					
8	Mix manifold (when there are multiple solenoid positions)		●	●	●	●	●

Port	4(A), 2(B) port	*3	P/R1/Port R2 ②= Rc1/8 ③=Rc1/4 ④=Rc3/8				
Ⓒ Port size							
C4	ø4 push-in fitting	○	②	③	②	③	
C6	ø6 push-in fitting	○	②	③	②	③	
C8	ø8 push-in fitting	○		③		③	④
C10	ø10 push-in fitting	○					④
CX	Push-in fitting mix	○	②	③	②	③	④
M5	M5	●	②		②		
06	Rc1/8	●		③		③	
08	Rc1/4	●					④
00	Discrete valve for integrated base	●	●	●	●	●	●

Ⓓ Electrical connections							
Refer to the next page for electrical connections.							
Ⓔ Option							
Blank	Manual override of non-locking/locking common		●	●	●	●	●
H	With exhaust check valve	(*4)	●	●	●	●	●
A	Ozone/coolant proof		●	●	●	●	●
F	Port A/B filter built in	(*5)	●	●	●	●	●
Z1	Air supply spacer	(*6)	●	●	●	●	●
Z3	Exhaust spacer	(*6)	●	●	●	●	●
Ⓕ Mount type							
Blank	Direct mount (*7))		●	●	●	●	●
D	DIN rail mount		●	●	●	●	●
Ⓖ Station No.							
2	2 stations		●	●	●	●	●
to	to						
20	Refer to page 290 for the max. station number per model.						
Ⓗ Voltage							
1	100 VAC (rectifier integrated)		●	●	●	●	●
2	200 VAC (rectifier integrated) (*8)			●		●	●
3	24 VDC		●	●	●	●	●
4	12 VDC		●	●	●	●	●

is not available.

⚠ Precautions for model No. selection

*1: M4GE*80R when using a mixture of 3, 5-port valves. When using a mixture with the masking plate, M3GE*80R.
*2 Dimensions is the same dimensions as the respective 2-position double solenoid.
***4: The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**
*5: A filter is built into port P as standard.
***6: Specify the spacer mounting position/ quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with masking plates is not possible. Refer to pages 302 to 303 for details.**
*7: Direct mount M4GE1 cannot be changed to DIN rail mount after purchase.
*8: Only the DIN terminal box is supported. Two 3-port valves integrated type is not available.

[Electrical connection list]

Ⓓ Electrical connections		Ⓐ Model No. 3GE1	3GE2	4GE1	4GE2	4GE3
Blank	Grommet lead wire (300 mm) (*9)	●	●	●	●	●
B	DIN terminal box (Pg7) With surge suppressor and indicator lamp (*10)(*12)		●		●	●
BN	DIN terminal box (Pg7)(without terminal box) With surge suppressor (*10)(*12)		●		●	●
E-connector (upward/lateral common)						
E0	Lead wire (300 mm) (*11)	●	●	●	●	●
E00	Lead wire (500 mm) (*11)	●	●	●	●	●
E01	Lead wire (1000 mm) (*11)	●	●	●	●	●
E02	Lead wire (2000 mm) (*11)	●	●	●	●	●
E03	Lead wire (3000 mm) (*11)	●	●	●	●	●
E0N	Without lead wire (without socket) (*11)	●	●	●	●	●
E1	Without lead wire (with socket/terminal) (*11)	●	●	●	●	●
E2	Lead wire (300 mm) Surge suppressor·With indicator lamp	●	●	●	●	●
E20	Lead wire (500 mm) Surge suppressor·With indicator lamp	●	●	●	●	●
E21	Lead wire (1000 mm) Surge suppressor·With indicator lamp	●	●	●	●	●
E22	Lead wire (2000 mm) Surge suppressor·With indicator lamp	●	●	●	●	●
E23	Lead wire (3000 mm) Surge suppressor·With indicator lamp	●	●	●	●	●
E2N	Without lead wire (without socket) Surge suppressor·With indicator lamp	●	●	●	●	●
E3	Without lead wire (socket/terminal included) surge suppressor·With indicator lamp	●	●	●	●	●
EJ-connector (socket with cover, upward/lateral common)						
E01J	Lead wire (1000 mm) (*11)	●	●	●	●	●
E02J	Lead wire (2000 mm) (*11)	●	●	●	●	●
E03J	Lead wire (3000 mm) (*11)	●	●	●	●	●
E21J	Lead wire (1000 mm) Surge suppressor·With indicator lamp	●	●	●	●	●
E22J	Lead wire (2000 mm) Surge suppressor·With indicator lamp	●	●	●	●	●
E23J	Lead wire (3000 mm) Surge suppressor·With indicator lamp	●	●	●	●	●

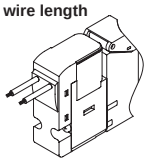
*9: The grommet lead wire specifications are compatible with DC voltage only.
*10: A lamp comes with the terminal box.
*11: AC voltage includes a rectifier circuit.
*12: The terminal box conforms to EN175301-803Type C (former DIN 43650-C). Refer to "Pneumatic Valves No.CB-023SA" for details.

Electrical connections

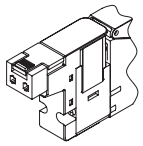
Discrete valve/individual wiring manifold

Blank Grommet lead wire

● Lead wire length
300 mm

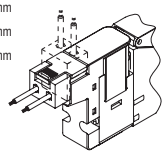


E1 E3 E-connector with socket/terminal

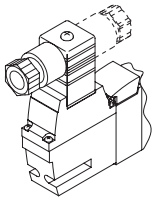


E0 E2 E-connector

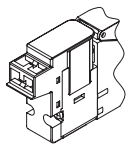
● Lead wire length
300 mm
500 mm
1000 mm
2000 mm
3000 mm



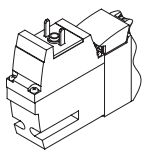
B DIN terminal box



E0N E2N E-connector without socket

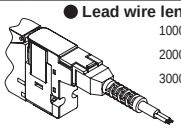


BN DIN terminal box (without terminal box)



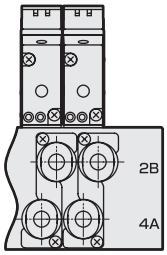
E0*J E2*J EJ type connector

● Lead wire length
1000 mm
2000 mm
3000 mm



Dimensions

● M4GE1-P4



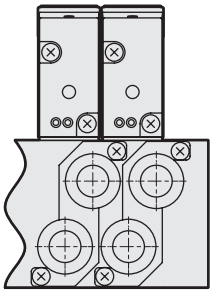
●Fitting straight
●ø4 (C4)



●ø6 (C6)



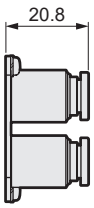
● M4GE2-P4



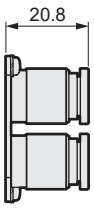
●Fitting straight
●ø4 (C4)



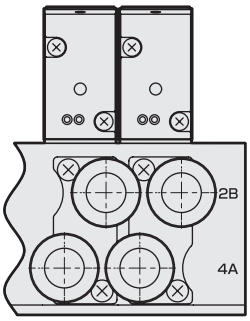
●ø6 (C6)



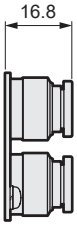
●ø8 (C8)



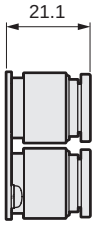
● M4GE3-P4



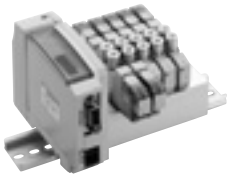
●Fitting straight
●ø8 (C8)



●ø10 (C10)



*Fitting dimensions of P4 Series are different from the standard when mounted. For other dimensions, "Pneumatic Valves (No.CB-023SA) M4GE1 to 3 series.



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring manifold body piping
Direct mount/DIN rail mount

M3GD1/2/3-T*(D) Series
M4GD1/2/3-T*(D) Series

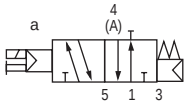
● Cylinder bore size: ø20 to ø100

RoHS CAD

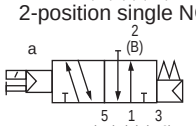
JIS symbol

● 3-port valve

2-position single NC

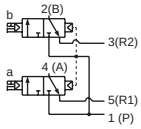


2-position single NO



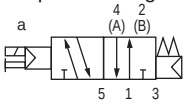
● Two 3-port valves integrated

(A side valve: NC, B side valve: NC)

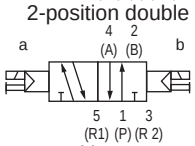


● 5-port valve

2-position single

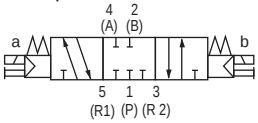


2-position double

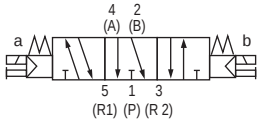


3-position

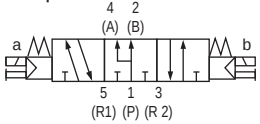
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item		Description
Manifold		Reduced wiring integrated base
Mounting method		Direct mount/DIN rail mount
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Standard) (Pilot exhaust check valve built-in)
Piping direction		Valve top direction
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2
Proof pressure MPa		1.05
Ambient temperature °C		-5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common
Lubrication (*1)		Not required
Degree of protection (*2)		Dust-proof
Vibration resistance m/s^2		50 or less
Shock resistance m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Avoid dripping water or oil, etc., during use.

Electrical specifications

Item	Description		
	T1□, T30□, T5□		T6G1, T8□
Rated voltage V	24 DC	12 DC	24 DC
Voltage fluctuation range(*3)	±10%		+10%, -5%
Holding current A	0.017	0.034	0.017
Power consumption W	0.4		
Thermal class	B		
Surge suppressor	Zener diode		
Indicator	LED		

*3 T6G1, T8□As the voltage drop occurs due to the internal circuit of the (serial transmission), pay attention to the voltage fluctuation range.

Individual specifications

Common specifications

Item		M3GD1/M4GD1	M3GD2/M4GD2	M3GD3/M4GD3
Port size	Port A/B	Push-in fitting ø4, ø6 M5	Push-in fitting ø4, ø6, ø8 Rc1/8	Push-in fitting ø8,ø10 Rc1/4
	Port P/R1/R2	Rc1/8	Rc1/4	Rc3/8

T1□, T30□, T5□

Item	M3GD1/M4GD1		M3GD2/M4GD2		M3GD3/M4GD3	
	Direct mount	DIN rail mount	Direct mount	DIN rail mount	Direct mount	DIN rail mount
Max. station No.	20 stations	16 stations	20 stations	16 stations	16 stations	
Manifold base weight calculation formula (n: station No.) g	29n+215	31n+228	54n+264	56n+297	84n+320	86n+354

T6G1

Item	M3GD1/M4GD1	M3GD2/M4GD2	M3GD3/M4GD3
	DIN rail mount	DIN rail mount	DIN rail mount
Max. station No.	16 stations	16 stations	16 stations
Manifold base weight calculation formula (n: station No.) g	31n+375	56n+444	86n+501

T8□

Item	M3GD1/M4GD1		M3GD2/M4GD2		M3GD3/M4GD3	
	Direct mount	DIN rail mount	Direct mount	DIN rail mount	Direct mount	DIN rail mount
Max. station No.	20 stations	16 stations	20 stations	16 stations	16 stations	
Manifold base weight calculation formula (n: station No.) g	50n+305	52n+332	57n+259	60n+290	150n+384	153n+416

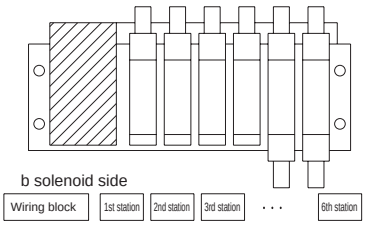
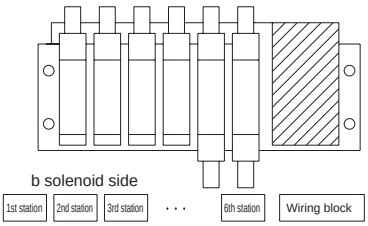
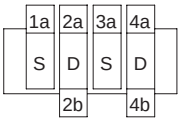
The manifold base weight is the value for screw connection specifications with DIN rail, wiring block or slave unit. Note that the maximum number of stations in the manifold is also limited by the maximum number of solenoid points per wiring specification as shown on the right.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2			
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]		b	
M3GD1 M4GD1	Two 3-port valves integrated		0.86	0.31	1.1	(0.66)	0.19	(0.22)
	2-position		0.99	0.20	1.2	(0.70)	0.20	(0.12)
	3-position	All ports closed	0.94	0.23	1.1	—	0.20	—
		A/B/R connection	0.93	0.18	1.3	(0.70)	0.23	(0.02)
		P/A/B connection	1.1	0.28	1.1	—	0.23	—
M3GD2 M4GD2	Two 3-port valves integrated		1.7	0.40	2.3	(1.7)	0.29	(0.32)
	2-position		2.3	0.36	2.9	(1.7)	0.24	(0.33)
	3-position	All ports closed	2.1	0.35	2.5	—	0.32	—
		A/B/R connection	2.2	0.37	2.9	(1.8)	0.32	(0.29)
		P/A/B connection	2.4	0.34	2.5	—	0.33	—
M3GD3 M4GD3	2-position		3.2	0.37	3.8	(2.5)	0.13	(0.28)
	3-position	All ports closed	2.9	0.35	3.3	—	0.35	—
		A/B/R connection	3.0	0.34	3.8	(2.6)	0.12	(0.27)
		P/A/B connection	3.3	0.30	3.3	—	0.32	—

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

Wiring specifications

Item	T10□ Common terminal block	T11□ Common terminal block	T30□ D-sub-connector	T50□ Flat cable 20-pin	T51□ Flat cable 20-pin	T52□ Flat cable 10-pin	T53□ Flat cable 26-pin
Connector and terminal block specifications	M3 thread fastening 18 terminals	Clamping 26 terminals	D-sub-connector 25-pin	MIL-C-83503 standard compliant pressure welding socket 20-pin	MIL-C-83503 standard compliant pressure welding socket 20-pin	MIL-C-83503 standard compliant pressure welding socket 10-pin	MIL-C-83503 standard compliant pressure welding socket 26-pin
Max. number of solenoids	16 points	24 points	24 points	16 points	18 points	8 points	24 points
Manifold internal wiring	Refer to "Pneumatic Valves No.CB-023SA" for details.						
Wiring block position Blank: Left side R: Right side	**Left side: T □** a solenoid side  				**Right side: T □ R** a solenoid side  		
Array method Blank: Standard sequential W: Double wiring	**(Example) For T50□** Manifold specifications  						

Standard wiring (sequential) :Blank

Connector pin No.	1	2	3	4	5	6
Valve solenoid No.	1a	2a	2b	3a	4a	4b

Double wiring: W

Connector pin No.	1	2	3	4	5	6	7	8
Valve solenoid No.	1a	Blank	2a	2b	3a	Blank	4a	4b

Serial transmission slave unit specifications

Download the communication setting file from the CKD website (https://www.ckd.co.jp/en/).

Item		T6G1 *1
Network name		CC-Link ver1.10
Power supply voltage	Unit side	24 VDC ±10%
	Valve side	24 VDC +10% -5%
Current consumption	Unit side	100mA or less (when all output points are ON)
	Valve side	15 mA or less (when all output points are OFF)
No. of output points		16 points
Occupied number		1 station
Operation display		LED (power supply and communication status)

*1: CC-Link is ver. 1.10.

Item		T8G1 T8G2	T8GP1 T8GP2	T8P1 T8P2	T8PP1 T8PP2	T8EC1 T8EC2	T8ECP1 T8ECP2	T8EN1 T8EN2	T8ENP1 T8ENP2	T8D1 T8D2	T8DP1 T8DP2	T8EB1 T8EB2	T8EBP1 T8EBP2	T8EP1 T8EP2	T8EPP1 T8EPP2
Communication protocol		CC-Link ver. 1.10		PROFIBUS-DP (V0)		EtherCAT		EtherNet/IP		DeviceNet		CC-Link IEF Basic		PROFINET	
Power supply voltage	Unit side	24 VDC ±10%								11 to 25 VDC		24 VDC ±10%			
	Valve side	24 VDC+10%, -5%													
Current consumption	Unit side	60 mA or less (when all output points are ON)		60 mA or less (when all output points are ON)		110 mA or less (when all output points are ON)		120 mA or less (when all output points are ON)		70 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)	
	Valve side	T8□1:15mA or less T8□2:20mA or less (when all output points are ON) Load current is not included								15 mA or less (When all output points are ON) Load current is not included					
No. of output points		T8□1: 16-point T8□2: 32 points													
Occupied number		1 station													
Operation display		LED (power supply and communication status)													
Output		NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output

M3/4GD1/2/3-T*(D) Series

Reduced wiring manifolds; Body piping

How to order

Manifold model No.

M 4GD1 1 0 R - C6 - T30 W H D - ○ - 3 - P4

3-port manifold model No.

M 3GD1 1 0 R - C6 - T30 W H D - ○ - 3 - P4

Discrete valve for integrated base

4GD1 1 9 R - C6 - A2N H — 3 - P4

3-port discrete valve for integrated base

3GD1 1 9 R - C6 - A2N H — 3 - P4

Ⓑ Solenoid position

Ⓐ Model No.

A2N indicates the A-connector (downward), with lamp/surge suppressor and no lead wire.

Ⓒ Port size

Ⓓ Reduced wiring connection
Zener diode is used as a surge suppressor.

*3
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓔ Terminal/Connector pin array method

Ⓕ Option

Ⓖ Mount type

Ⓗ Station No.

Ⓘ Voltage

* Be sure to fill in the "Manifold specifications sheet" (pages 315 to 326).

Code	Description		Ⓐ Model No. 3GD1	3GD2	3GD3	4GD1	4GD2	4GD3
Ⓑ Solenoid position								
1	2-position single					●	●	●
2	2-position double					●	●	●
3	3-position all ports closed					●	●	●
4	3-position ABR connection					●	●	●
5	3-position PAB connection					●	●	●
1	2-position single Normally Closed	(*1)	●	●	●			
11	2-position single Normally Open	(*1)	●	●	●			
66	Two 3-port valves integrated (*1)(*2)	A side valve: Normally Closed	●	●				
		B side valve: Normally Closed						
8	Mix manifold (when there are multiple solenoid positions)		●	●	●	●	●	●

Ⓒ Port size Port	4(A), 2(B) port	*3	Port P/R1/R2 ②=Rc1/8 ③=Rc1/4 ④=Rc3/8					
C4	ø4 push-in fitting	○	②	③		②	③	
C6	ø6 push-in fitting	○	②	③		②	③	
C8	ø8 push-in fitting	○		③	④		③	④
C10	ø10 push-in fitting	○			④			④
CX	Push-in fitting mix (*4)	○	②	③	④	②	③	④
M5	M5	●	②			②		
06	Rc1/8	●		③			③	
08	Rc1/4	●			④			④

Ⓓ Reduced wiring (lamp and surge suppressor provided as standard)
Refer to the next page for electrical connections.

Ⓔ Terminal/Connector pin array								
Blank	Standard wiring (*5)	●	●	●	●	●	●	
W	Double wiring (*5)	●	●	●	●	●	●	

Ⓕ Option								
Blank	Non-locking/Locking common manual override	●	●	●	●	●	●	
H	With exhaust check valve (*6)	●	●	●	●	●	●	
A	Ozone/Coolant proof	●	●	●	●	●	●	
F	Port A/B filter built in (*7)	●	●	●	●	●	●	
Z1	Air supply spacer (*8)	●	●	●	●	●	●	
Z3	Exhaust spacer (*8)	●	●	●	●	●	●	

Ⓖ Mount type								
Blank	Direct mount	●	●	●	●	●	●	
D	DIN rail mount	●	●	●	●	●	●	

Ⓗ Station No.								
2	2 stations	●	●	●	●	●	●	
to	to							
20	Refer to page 294 for the max. station number per model.							

Ⓘ Voltage								
3	24 VDC	●	●	●	●	●	●	
4	12 VDC	●	●	●	●	●	●	

● Refer to "Pneumatic Valves No.CB-023SA" for the model No. of cables with D-sub-connector.
● Refer to "Pneumatic Valves No.CB-023SA" for the model No. of cables for flat cable connector.

⚠ Precautions for model No. selection

*1 M4GD*80R when using a mixture of 3, 5-port valves. When using a mixture with the masking plate, M3GD*80R.
*2 Dimensions are the same as the respective 2-position double solenoid.
*4 Push-in fitting cannot be mixed with the single valve 4(A) or 2(B) port.
*5 Blank…The wiring will be based on the type of valve mounted.
W*...All wired as double solenoid regardless of the type of valve used.
***6 The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**
*7 A filter is built into port P as standard.
***8 Specify the spacer mounting position/ quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with masking plates is not possible. Refer to pages 302 to 303 for details.**

Code	Description		Ⓐ Model No. 3GD1	3GD2	3GD3	4GD1	4GD2	4GD3
Ⓓ Reduced wiring (lamp and surge suppressor provided as standard) 12/24 VDC								
T10	Common terminal block (M3 thread)	Left-sided specs.	●	●	●	●	●	●
T10R		Right-sided specs.	●	●	●	●	●	●
T11	Common terminal block (clamping)	Left-sided specs.	●	●	●	●	●	●
T11R		Right-sided specs.	●	●	●	●	●	●
T30	D-sub-connector	Left-sided specs.	●	●	●	●	●	●
T30R		Right-sided specs.	●	●	●	●	●	●
T50	20-pin flat cable connector (with power supply terminal)	Left-sided specs.	●	●	●	●	●	●
T50R		Right-sided specs.	●	●	●	●	●	●
T51	20-pin flat cable connector (without power supply terminal)	Left-sided specs.	●	●	●	●	●	●
T51R		Right-sided specs.	●	●	●	●	●	●
T52	10-pin flat cable connector (without power supply terminal)	Left-sided specs.	●	●	●	●	●	●
T52R		Right-sided specs.	●	●	●	●	●	●
T53	26-pin flat cable connector (without power supply terminal)	Left-sided specs.	●	●	●	●	●	●
T53R		Right-sided specs.	●	●	●	●	●	●
Ⓓ Serial transmission (lamp/surge suppressor provided as standard) 24 VDC								
T6G1	CC-Link (connector)	NPN 16 points	●	●	●	●	●	●
T8G1	CC-Link (thin type)	NPN 16 points	●	●	●	●	●	●
T8G2		NPN 32 points	●	●	●	●	●	●
T8GP1		PNP 16 points	●	●	●	●	●	●
T8GP2		PNP 32 points	●	●	●	●	●	●
T8P1	PROFIBUS-DP (thin type)	NPN 16 points	●	●	●	●	●	●
T8P2		NPN 32 points	●	●	●	●	●	●
T8PP1		PNP 16 points	●	●	●	●	●	●
T8PP2		PNP 32 points	●	●	●	●	●	●
T8EC1	EtherCAT (thin type)	NPN 16 points	●	●	●	●	●	●
T8EC2		NPN 32 points	●	●	●	●	●	●
T8ECP1		PNP 16 points	●	●	●	●	●	●
T8ECP2		PNP 32 points	●	●	●	●	●	●
T8EN1	EtherNet/IP (thin type)	NPN 16 points	●	●	●	●	●	●
T8EN2		NPN 32 points	●	●	●	●	●	●
T8ENP1		PNP 16 points	●	●	●	●	●	●
T8ENP2		PNP 32 points	●	●	●	●	●	●
T8D1	DeviceNet (thinType)	NPN 16 points	●	●	●	●	●	●
T8D2		NPN 32 points	●	●	●	●	●	●
T8DP1		PNP 16 points	●	●	●	●	●	●
T8DP2		PNP 32 points	●	●	●	●	●	●
T8EB1	CC-Link IEF Basic (thinType)	NPN 16 points	●	●	●	●	●	●
T8EB2		NPN 32 points	●	●	●	●	●	●
T8EBP1		PNP 16 points	●	●	●	●	●	●
T8EBP2		PNP 32 points	●	●	●	●	●	●
T8EP1	PROFINET (thinType)	NPN 16 points	●	●	●	●	●	●
T8EP2		NPN 32 points	●	●	●	●	●	●
T8EPP1		PNP 16 points	●	●	●	●	●	●
T8EPP2		NPN 32 points	●	●	●	●	●	●
A2N	Without lead wire (without socket) With surge suppressor and indicator lamp		●	●	●	●	●	●

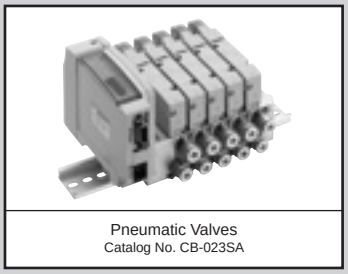
Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓕ option "A" on page 296.

CE marking specifications

** - Voltage - **ST**

- Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring manifolds
Base piping
Direct mount/DIN rail mount

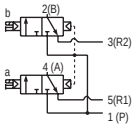
M3GE1/2-T*(D) Series
M4GE1/2/3-T*(D) Series

● Cylinder bore size: ø20 to ø100

RoHS CAD

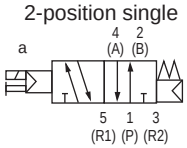
JIS symbol

● Two 3-port valves integrated
(A side valve: NC, B side valve: NC)

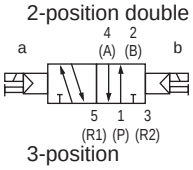


● 5-port valve

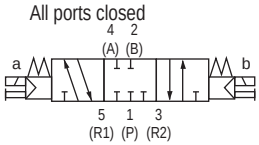
2-position single



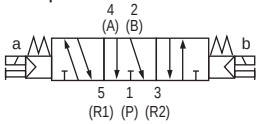
2-position double



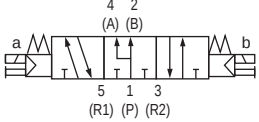
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item		Item
Manifold		Reduced wiring integrated base
Mounting method		Direct mount/DIN rail mount
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Standard) (Pilot exhaust check valve built-in)
Piping direction		Side direction of base
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2
Proof pressure MPa		1.05
Ambient temperature °C		−5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common
Lubrication (*1)		Not required
Degree of protection (*2)		Dust-proof
Vibration resistance m/s²		50 or less
Shock resistance m/s²		300 or less
Atmosphere		Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2 Avoid dripping water or oil, etc., during use.

Electrical specifications

Item	Item		
	T1□, T30□, T5□		T6G1, T8□
Rated voltage V	24 DC	12 DC	24 DC
Voltage fluctuation range (*3)	±10%		+10%, -5%
Holding current A	0.017	0.034	0.017
Power consumption W	0.4		
Thermal class	B		
Surge suppressor	Zener diode		
Indicator	LED		

*3 T6G1, T8□As the voltage drop occurs due to the internal circuit of the (serial transmission), pay attention to the voltage fluctuation range.

Manifold individual specifications

Common specifications

Item		M3GE1/M4GE1	M3GE2/M4GE2	M3GE3/M4GE3
Port size	Port A/B	Push-in fitting ø4, ø6 M5	Push-in fitting ø4 , ø6 , ø8 Rc1/8	Push-in fitting ø8,ø10 Rc1/4
	Port P/R1/R2	Rc1/8	Rc1/4	Rc3/8

T1□, T30□, T5□

Item	M3GE1/M4GE1		M3GE2/M4GE2		M3GE3/M4GE3	
	Direct mount	DIN rail mount	Direct mount	DIN rail mount	Direct mount	DIN rail mount
Max. station No.	20 stations	16 stations	20 stations	16 stations	16 stations	
Manifold base weight calculation formula (n: station No.) g	43n+335	45n+348	80n+398	82n+431	124n+548	126n+562

T6G1

Item	M3GE1/M4GE1	M3GE2/M4GE2	M3GE3/M4GE3
	DIN rail mount	DIN rail mount	DIN rail mount
Max. station No.	16 stations	16 stations	16 stations
Manifold base weight calculation formula (n: station No.) g	45n+495	82n+578	126n+729

T8□

Item	M3GE1/M4GE1		M3GE2/M4GE2		M3GE3/M4GE3	
	Direct mount	DIN rail mount	Direct mount	DIN rail mount	Direct mount	DIN rail mount
Max. station No.	20 stations	16 stations	20 stations	16 stations	16 stations	
Manifold base weight calculation formula (n: station No.) g	46n+305	49n+332	83n+318	86n+350	128n+384	132n+416

The manifold base weight is the value for screw connection specifications with DIN rail, wiring block or slave unit. Note that the maximum number of stations in the manifold is also limited by the maximum number of solenoid points per wiring specification as shown on the right.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2			
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]		b	
M3GE1 M4GE1	Two 3-port valves integrated		0.86	0.35	1.1	(0.67)	0.22	(0.23)
	2-position		1.1	0.22	1.2	(0.70)	0.20	(0.10)
	3-position	All ports closed	0.98	0.22	1.1	—	0.24	—
		A/B/R connection	0.97	0.35	1.3	(0.68)	0.22	(0.24)
		P/A/B connection	1.1	0.38	1.1	—	0.21	—
M3GE2 M4GE2	Two 3-port valves integrated		1.7	0.44	2.1	(1.6)	0.32	(0.30)
	2-position		2.4	0.34	2.7	(1.7)	0.24	(0.31)
	3-position	All ports closed	2.2	0.34	2.4	—	0.29	—
		A/B/R connection	2.2	0.34	2.8	(1.8)	0.24	(0.27)
		P/A/B connection	2.4	0.29	2.4	—	0.29	—
M4GE3	2-position		3.5	0.34	3.8	(2.6)	0.11	(0.27)
	3-position	All ports closed	3.1	0.33	3.3	—	0.22	—
		A/B/R connection	3.0	0.30	3.8	(2.7)	0.11	(0.22)
		P/A/B connection	3.6	0.36	3.3	—	0.28	—

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

Wiring specifications

Item	T10□ Common terminal block	T11□ Common terminal block	T30□ D-sub-connector	T50□ Flat cable 20-pin	T51□ Flat cable 20-pin	T52□ Flat cable 10-pin	T53□ Flat cable 26-pin
Connector and terminal block specifications	M3 thread fastening 18 terminals	Clamping 26 terminals	D-sub-connector 25-pin	MIL-C-83503 standard compliant pressure welding socket 20-pin	MIL-C-83503 standard compliant pressure welding socket 20-pin	MIL-C-83503 standard compliant pressure welding socket 10-pin	MIL-C-83503 standard compliant pressure welding socket 26-pin
Max. number of solenoids	16 points	24 points	24 points	16 points	18 points	8 points	24 points
Manifold internal wiring	Refer to "Pneumatic Valves No.CB-023SA" for details.						
Wiring block position Blank: Left side R: Right side	**Left side: T□** a solenoid side / b solenoid side; Wiring block, 1st station, 2nd station, 3rd station, …, 6th station				**Right side: T□R** a solenoid side / b solenoid side; 1st station, 2nd station, 3rd station, …, 6th station, Wiring block		
Array method Blank: Standard sequential W: Double wiring	**(Example) For T50□** Manifold specifications: 1a 2a 3a 4a / S D S D / 2b 4b; 1st station 3rd station 2nd station 4th station						

Standard wiring (sequential): Blank

Connector pin No.	1	2	3	4	5	6
Valve solenoid No.	1a	2a	2b	3a	4a	4b

Double wiring: W

Connector pin No.	1	2	3	4	5	6	7	8
Valve solenoid No.	1a	Blank	2a	2b	3a	Blank	4a	4b

Serial transmission slave unit specifications

Download the communication setting file from the CKD website (https://www.ckd.co.jp/en/).

Item		T6G1 *1
Network name		CC-Link ver1.10
Power supply voltage	Unit side	24 VDC ±10%
	Valve side	24 VDC +10% -5%
Current consumption	Unit side	100mA or less (when all output points are ON)
	Valve side	15 mA or less (when all output points are OFF)
No. of output points		16 points
Occupied number		1 station
Operation display		LED (power supply and communication status)

*1: CC-Link is ver. 1.10.

Item		T8G1 T8G2	T8GP1 T8GP2	T8P1 T8P2	T8PP1 T8PP2	T8EC1 T8EC2	T8ECP1 T8ECP2	T8EN1 T8EN2	T8ENP1 T8ENP2	T8D1 T8D2	T8DP1 T8DP2	T8EB1 T8EB2	T8EBP1 T8EBP2	T8EP1 T8EP2	T8EPP1 T8EPP2
Communication protocol		CC-Link ver. 1.10		PROFIBUS-DP (V0)		EtherCAT		EtherNet/IP		DeviceNet		CC-Link IEF Basic		PROFINET	
Power supply voltage	Unit side	24 VDC ±10%								11 to 25 VDC		24 VDC ±10%			
	Valve side	24 VDC+10%, -5%													
Current consumption	Unit side	60 mA or less (when all output points are ON)		60 mA or less (when all output points are ON)		110 mA or less (when all output points are ON)		120 mA or less (when all output points are ON)		70 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)	
	Valve side	T8□1:15mA or less T8□2:20mA or less (when all output points are ON) Load current is not included								15 mA or less (When all output points are ON) Load current is not included					
No. of output points		T8□1: 16-point T8□2: 32 points													
Occupied number		1 station													
Operation display		LED (power supply and communication status)													
Output		NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output

M4GE1/2/3-T*(D) Series

Reduced wiring manifolds; Base piping

How to order

Manifold model No.

M 4GE1 1 0R - C6 - T30 W H D - ○ - 3 - P4

3-port manifold model No.

M 3GE1 66 0R - C6 - T30 H D - ○ - 3 - P4

Discrete valve for integrated base

4GE1 1 9R - 00 - A2N H — 3 - P4

3-port discrete valve for integrated base

3GE1 66 9R - 00 - A2N H — 3 - P4

A2N indicates the A-connector (downward), with lamp/surge suppressor and no lead wire.

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

*3
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓔ Terminal/connector pin array

Ⓓ Reduced wiring connection
Zener diode is used as a surge suppressor.

Ⓕ Option

Ⓖ Mount type

Ⓗ Station No.

Ⓘ Voltage

● **Refer to "Pneumatic Valves No.CB-023SA" for the model No. of cables with D-sub-connector.**
● **Refer to "Pneumatic Valves No.CB-023SA" for the model No. of cables for flat cable connector.**

Precautions for model No. selection

*1 M4GE*80R when using a mixture of 3, 5-port valves. When using a mixture with the masking plate, M3GE*80R.
*2 Dimensions are the same as the respective 2-position double solenoid.
*4 Blank...The wiring will be based on the type of valve mounted.
W*...All wired as double solenoid regardless of the type of valve used.
***5 3-position all ports closed and P A B connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**
*6 A filter is built into port P as standard.
***7 Specify the spacer mounting position/ quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with masking plates is not possible. Refer to pages 302 to 303 for details.**
*8 Direct mount M4GE1 is available after purchaseThis cannot be changed to the DIN rail mount type.

* Be sure to fill in the "Manifold specifications sheet" (pages 315 to 326).

Code	Description	Ⓐ Model No. 3GE1	3GE2	4GE1	4GE2	4GE3
Ⓑ Solenoid position						
1	2-position single			●	●	●
2	2-position double			●	●	●
3	3-position all ports closed			●	●	●
4	3-position ABR connection			●	●	●
5	3-position PAB connection			●	●	●
66	Two 3-port valves integrated (*1) (*2) — A side valve: Normally Closed	●	●			
	Two 3-port valves integrated (*1) (*2) — B side valve: Normally Closed	●	●			
8	Mix manifold (when there are multiple solenoid positions)	●	●	●	●	●

Ⓒ Port size							
Port	4(A), 2(B) port	*3	Port P/R1/R2 ②=Rc1/8 ③=Rc1/4 ④=Rc3/8				
C4	ø4 push-in fitting	○	②	③	②	③	
C6	ø6 push-in fitting	○	②	③	②	③	④
C8	ø8 push-in fitting	○		③		③	④
C10	ø10 push-in fitting	○					④
CX	Push-in fitting mix	○	②	③	②	③	④
M5	M5	●	②		②		
06	Rc1/8	●		③		③	
08	Rc1/4	●					④
00	Discrete valve for integrated base	●	●	●	●	●	●

Ⓓ Reduced wiring (lamp and surge suppressor provided as standard)
Refer to the next page for electrical connections.

Ⓔ Terminal/connector pin array							
Blank	Standard wiring	(*4)	●	●	●	●	●
W	Double wiring	(*4)	●	●	●	●	●

Ⓕ Option							
Blank	Manual override of non-locking/locking common		●	●	●	●	●
H	With exhaust check valve	(*5)	●	●	●	●	●
A	Ozone/coolant proof		●	●	●	●	●
F	Port A/B filter built in	(*6)	●	●	●	●	●
Z1	Air supply spacer	(*7)	●	●	●	●	●
Z3	Exhaust spacer	(*7)	●	●	●	●	●

Ⓖ Mount type							
Blank	Direct mount	(*8)	●	●	●	●	●
D	DIN rail mount		●	●	●	●	●

Ⓗ Station No.							
2	2 stations		●	●	●	●	●
to	to						
20	Refer to page 298 for the max. station number per model.						

Ⓘ Voltage							
3	24 VDC		●	●	●	●	●
4	12 VDC		●	●	●	●	●

is not available.

Code	Description		Ⓐ Model No. 3GE1	3GE2	4GE1	4GE2	4GE3
Ⓓ Reduced wiring (lamp and surge suppressor provided as standard) 12/24 VDC							
T10	Common terminal block (M3 thread)	Left-sided specs.	●	●	●	●	●
T10R		Right-sided specs.	●	●	●	●	●
T11	Common terminal block (clamping)	Left-sided specs.	●	●	●	●	●
T11R		Right-sided specs.	●	●	●	●	●
T30	D-sub-connector	Left-sided specs.	●	●	●	●	●
T30R		Right-sided specs.	●	●	●	●	●
T50	20-pin flat cable connector (with power supply terminal)	Left-sided specs.	●	●	●	●	●
T50R		Right-sided specs.	●	●	●	●	●
T51	20-pin flat cable connector (without power supply terminal)	Left-sided specs.	●	●	●	●	●
T51R		Right-sided specs.	●	●	●	●	●
T52	10-pin flat cable connector (without power supply terminal)	Left-sided specs.	●	●	●	●	●
T52R		Right-sided specs.	●	●	●	●	●
T53	26-pin flat cable connector (without power supply terminal)	Left-sided specs.	●	●	●	●	●
T53R		Right-sided specs.	●	●	●	●	●
Ⓓ Serial transmission (lamp/surge suppressor provided as standard) 24 VDC							
T6G1	CC-Link(Connector)	NPN 16 points	●	●	●	●	●
T8G1	CC-Link (thin type)	NPN 16 points	●	●	●	●	●
T8G2		NPN 32 points	●	●	●	●	●
T8GP1		PNP 16 points	●	●	●	●	●
T8GP2		PNP 32 points	●	●	●	●	●
T8P1	PROFIBUS-DP (thin type)	NPN 16 points	●	●	●	●	●
T8P2		NPN 32 points	●	●	●	●	●
T8PP1		PNP 16 points	●	●	●	●	●
T8PP2		PNP 32 points	●	●	●	●	●
T8EC1	EtherCAT (thin type)	NPN 16 points	●	●	●	●	●
T8EC2		NPN 32 points	●	●	●	●	●
T8ECP1		PNP 16 points	●	●	●	●	●
T8ECP2		PNP 32 points	●	●	●	●	●
T8EN1	EtherNet/IP (thin type)	NPN 16 points	●	●	●	●	●
T8EN2		NPN 32 points	●	●	●	●	●
T8ENP1		PNP 16 points	●	●	●	●	●
T8ENP2		PNP 32 points	●	●	●	●	●
T8D1	DeviceNet (Thin)	NPN 16 points	●	●	●	●	●
T8D2		NPN 32 points	●	●	●	●	●
T8DP1		PNP 16 points	●	●	●	●	●
T8DP2		PNP 32 points	●	●	●	●	●
T8EB1	CC-Link IEF Basic (Thin)	NPN 16 points	●	●	●	●	●
T8EB2		NPN 32 points	●	●	●	●	●
T8EBP1		PNP 16 points	●	●	●	●	●
T8EBP2		PNP 32 points	●	●	●	●	●
T8EP1	PROFINET (Thin)	NPN 16 points	●	●	●	●	●
T8EP2		NPN 32 points	●	●	●	●	●
T8EPP1		PNP 16 points	●	●	●	●	●
T8EPP2		PNP 32 points	●	●	●	●	●
A2N	Without lead wire (without socket) With surge suppressor and indicator lamp		●	●	●	●	●

Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓕ option "A" on page 300.

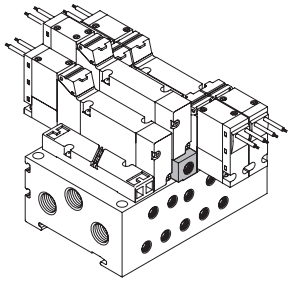
CE marking specifications

** - Voltage - **ST**

- Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

Related products

● Air supply spacer



Specifications

Model No.	P → A/B		A/B→R		Weight g
	C(dm³/(s·bar))	b	C(dm³/(s·bar))	b	
4G1	0.70	0.23	0.93	0.16	8
4G2	1.6	0.17	1.8	0.16	35
4G3	2.6	0.22	3.1	0.14	56

*1: Values are when a valve is mounted.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order discrete units

● Air supply spacer

Air supply spacer model No.

4G 3 R - P - GWS10 - P4

Ⓐ Air supply spacer model No.

Ⓑ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Code	Description	Valve model No. 4GD1	4GE1	4GD2	4GE2	4GD3	4GE3
Ⓐ **Air supply spacer model No.**							
1	For 4G1	●					
2	For 4G2			●			
3	For 4G3					●	
Ⓑ **Port size**							
Blank	M5(4G1), Rc1/8(4G2), Rc1/4(4G3)	●		●		●	
GWS4	ø4 push-in fitting	○					
GWS6	ø6 push-in fitting	○		○			
GWS8	ø8 push-in fitting			○		○	
GWS10	ø10 push-in fitting					○	

is not available.

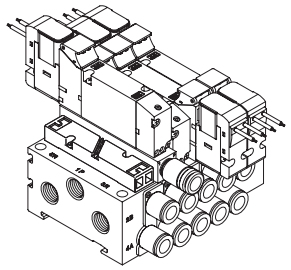
Accessories: 2 Mounting screws, 2 PR check valves, 1 body gasket

⚠ Precautions for model No. selection

*2: Specify the air supply spacer mounting position and quantity on the manifold specifications sheet of each catalog.
*3: Combination with the masking plate is not supported.

Related products

● Exhaust spacer



Specifications

Model No.	P → A/B		A/B→R		Weight g
	C(dm³/(s·bar))	b	C(dm³/(s·bar))	b	
4G1	0.94	0.28	0.68	0.33	7
4G2	1.5	0.24	1.9	0.24	34
4G3	3.4	0.21	2.9	0.27	58

*1: Values are when a valve is mounted.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order discrete units

● Exhaust spacer

Exhaust spacer model No.

4G (3) R - R - (GWS10) - P4

Ⓐ Exhaust spacer model No.

Ⓑ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Code	Description	Valve model No. 4GD1	4GE1	4GD2	4GE2	4GD3	4GE3
Ⓐ Exhaust spacer model No.							
1	For 4G1	●					
2	For 4G2			●			
3	For 4G3					●	
Ⓑ Port size							
Blank	M5(4G1), Rc1/8(4G2), Rc1/4(4G3)	●		●		●	
GWS4	ø4 push-in fitting	○					
GWS6	ø6 push-in fitting	○		○			
GWS8	ø8 push-in fitting			○		○	
GWS10	ø10 push-in fitting					○	

is not available.

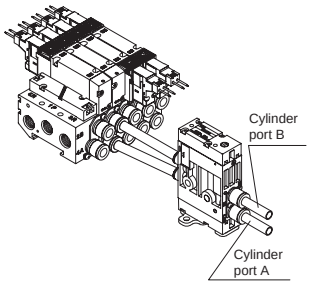
Accessories: 2 Mounting screws, 2 PR check valves, 1 body gasket

⚠ Precautions for model No. selection

*2: Specify the exhaust spacer mounting position and quantity on the manifold specifications sheet of each catalog.
*3: Combination with the masking plate is not supported.

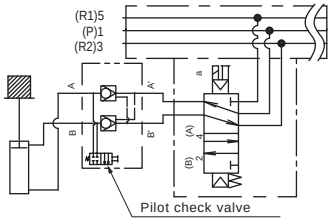
Related products

● Pilot check valve

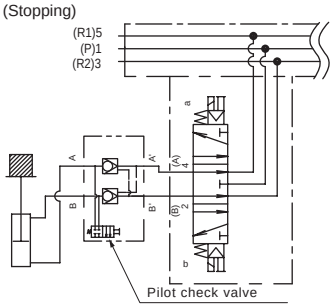


JIS symbol

(Position locking)



(Stopping)



Example of leak comparison
All ports closed (solenoid) valve
10 cm³/min or less
Pilot check valve (4G2R-PCS)
0 to 0.3 cm³/min

Specifications

Item	4G2R-PCS-*-*
Effective cross-sectional area mm²	11
Weight g	200

How to order

● Discrete model No.

4G2R – PCS – C4 – ○ ——— P4

● Manifold model No.

M4G2R – PCS – C4 – ○ – 5 – P4

Model No.

Pilot check valve

Ⓐ Port size (*1)

Ⓑ Option (*2)

Ⓒ Station No.

Code	Description	
Ⓐ Port size		
	Valve side port	Cylinder side port
C4	ø4 push-in fitting	ø4 push-in fitting
C6	ø6 push-in fitting	ø6 push-in fitting
C8	ø8 push-in fitting	ø8 push-in fitting

Ⓑ Option	
Blank	No
F	Port A/B filter built in
M	Manual non-locking
D	DIN rail mount

Ⓒ Station No.	
2	2 stations
to	to
10	10 stations

⚠ Depending on use conditions, the pilot check valve body may emit resonance noise due to the air flow when the cylinder operates, but this is not an abnormality. Adjust the pipe length and bore size in that case.

⚠ Precautions for model No. selection

*1: Contact CKD for information on mixing port sizes.

*2: The following applies when blank is selected as an option. Manual override: Non-locking/locking common Mounting method: Direct mounting

Related parts

⑤ Sub-plate

How to order

● 4GD piping adapter

4G1 R-ADAPTOR-M5-○

Ⓐ Model No.
Ⓑ Port size
Ⓒ Option

P4 compliant as standard

Code	Description	Ⓐ Model No. 4G1	4G2	4G3
Ⓑ Port size (Port P/R1/R2)				
M5	M5	●		
06	Rc1/8		●	
08	Rc1/4			●
Ⓒ Option				
P	With mounting plate (included)	●	●	●

is not available.

● 4GE discrete sub-plate

4G1 R-SUB-BASE-06-○

Ⓐ Model No.
Ⓑ Port size
Ⓒ Option

P4 compliant as standard

Code	Description	Ⓐ Model No. 4G1	4G2	4G3
Ⓑ Port size (Port A/B/P/RI/R2)				
06	Rc1/8	●		
08	Rc1/4		●	●
10	Rc3/8			●
Ⓒ Option				
F	A/B port filter integrated *1	●	●	●

*1: A filter is built into port P as standard.

is not available.

Related parts

⑥ Manifold sub-plate kit individual wiring

● M4GD sub-plate

M4GD1 R - 00 - 2

P4 compliant as standard

Ⓐ Model No.

Code	Description
Ⓐ Model No.	
M4GD1	Metal base, 4G1 size, body piping
M4GD2	Metal base, 4G2 size, body piping
M4GD3	Metal base, 4G3 size, body piping

Ⓑ Station No.

Ⓑ Station No.	
2	2 stations
to	to
20	Refer to the specifications page for the max. station number.

● M4GE1 sub-plate

M4GE1R - C4 - D - 2 - P4

Ⓐ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓑ Option

Ⓒ Mount type

Ⓓ Station No.

Code	Description		
Ⓐ Port size			
Port	**4(A), 2(B) port**	***1**	**Port P/R1/R2**
C4	ø4 push-in fitting	○	Rc1/8
C6	ø6 push-in fitting	○	
M5	M5	●	
Ⓑ Option			
Blank			
F	Port A/B filter built in(*2)		
Ⓒ Mount type			
Blank	Direct mount		
D	DIN rail mount (*3)		
Ⓓ Station No.			
2	2 stations		
to	to		
20	Refer to the specifications page for the max. station number.		

*2: A filter is built into port P as standard.
*3: The DIN rail kit needs to be prepared separately.

Related parts

⑥ Manifold sub-plate kit individual wiring

● M4GE2/3 sub-plate

M4GE2 R - C4 - [ ] - 2 - P4

Ⓐ Model No.

Ⓑ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓒ Option

Ⓓ Station No.

Code	Description
Ⓐ Model No.	
M4GE2	Metal base 4G2 size base piping
M4GE3	Metal base 4G3 size base piping

Ⓑ Port size				
Port	**4(A), 2(B) port**	***1**	**Port P/R1/R2 ①=Rc1/4 ②=Rc3/8**	
			Ⓐ Model No. M4GE2	**M4GE3**
C4	ø4 push-in fitting	○	①	
C6	ø6 push-in fitting	○	①	
C8	ø8 push-in fitting	○	①	②
C10	ø10 push-in fitting	○		②
06	Rc1/8	●	①	
08	Rc1/4	●		③

Ⓒ Option	
Blank	
F	Port A/B filter built in (*2)

Ⓓ Station No.	
2	2 stations
to	to
20	Refer to the specifications page for the max. station number.

*2: A filter is built into port P as standard.
*3: Direct mount and DIN rail mount are common.
*4: The DIN rail kit needs to be prepared separately.

Related parts

⑦ Manifold sub-plate kit reduced wiring

● M4GD sub-plate

M4GD1 R -00- T* - ○ - 2

P4 compliant as standard

Code	Description	
Ⓐ Model No.		
M4GD1	Metal base, 4G1 size, body piping	
M4GD2	Metal base, 4G2 size, body piping	
M4GD3	Metal base, 4G3 size, body piping	
Ⓑ Reduced wiring connection		
T10	Common terminal block (M3 thread)	Left-sided specs.
T10R		Right-sided specs.
T11	Common terminal block (clamping)	Left-sided specs.
T11R		Right-sided specs.
T30	D-sub-connector	Left-sided specs.
T30R		Right-sided specs.
T50	20-pin flat cable connector (with power supply terminal)	Left-sided specs.
T50R		Right-sided specs.
T51	20-pin flat cable connector (without power supply terminal)	Left-sided specs.
T51R		Right-sided specs.
T52	10-pin flat cable connector (without power supply terminal)	Left-sided specs.
T52R		Right-sided specs.
T53	26-pin flat cable connector (without power supply terminal)	Left-sided specs.
T53R		Right-sided specs.
T56	20-pin flat cable connector (without power supply terminal) For serial transmission slave unit OPP3 connection	Left-sided specs.
T81	For serial transmission slave (adapter) station OPP7 connection (16-point output)	Left-sided specs.
T82	For serial transmission slave (adapter) station OPP7 connection (32-point output)	Left-sided specs.
Ⓒ Mount *1		
Blank	Direct mount	
D	DIN rail mount	(*2)
Ⓓ Station No.		
2	2 stations	
to	to	
20	Refer to the specifications page for the max. station number.	

1: For T8, select either mount type. Blank only for items other than T8*.
*2: The DIN rail kit needs to be prepared separately.

Related parts

⑦ Manifold sub-plate kit reduced wiring

● M4GE sub-plate

M4GE1R - C4 - T10 - ○○ - 2 - P4

Ⓐ Model No.

Code	Description
Ⓐ Model No.	
M4GE1	Metal base 4G1 size base piping
M4GE2	Metal base 4G2 size base piping
M4GE3	Metal base 4G3 size base piping

Ⓑ Port size

Port	4(A), 2(B) port	*1	Ⓐ Model No. M4GE1	M4GE2	M4GE3
Ⓑ Port size			**Port P/R1/R2 (1) = Rc1/8 (2) = Rc1/4 (3) = Rc3/8**		
C4	ø4 push-in fitting	○	(1)	(2)	
C6	ø6 push-in fitting	○	(1)	(2)	
C8	ø8 push-in fitting	○		(2)	(3)
C10	ø10 push-in fitting	○			(3)
M5	M5	●	(1)		
06	Rc1/8	●		(2)	
08	Rc1/4	●			(3)

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓒ Reduced wiring connection

Ⓒ Reduced wiring connection		
T10	Common terminal block (M3 thread)	Left-sided specs.
T10R		Right-sided specs.
T11	Common terminal block (clamping)	Left-sided specs.
T11R		Right-sided specs.
T30	D-sub-connector	Left-sided specs.
T30R		Right-sided specs.
T50	20-pin flat cable connector (with power supply terminal)	Left-sided specs.
T50R		Right-sided specs.
T51	20-pin flat cable connector (without power supply terminal)	Left-sided specs.
T51R		Right-sided specs.
T52	10-pin flat cable connector (without power supply terminal)	Left-sided specs.
T52R		Right-sided specs.
T53	26-pin flat cable connector (without power supply terminal)	Left-sided specs.
T53R		Right-sided specs.
T56	20-pin flat cable connector (without power supply terminal) For serial transmission slave unit OPP3 connection	Left-sided specs.
T81	For serial transmission slave (adapter) station OPP7 connection (16-point output)	Left-sided specs.
T82	For serial transmission slave (adapter) station OPP7 connection (32-point output)	Left-sided specs.

Ⓓ Option

Ⓓ Option	
Blank	
F	Port A/B filter built in *2

Ⓔ Mount type

Ⓔ Mount *3	
Blank	Direct mount
D	DIN rail mount (*4)

Ⓕ Station No.

Ⓕ Station No.	
2	2 stations
to	to
20	Refer to the specifications page for the max. station number.

*2: A filter is built into port P as standard.
3: For T8, select either mount type. Blank only for items other than T8*.
*4: The DIN rail kit needs to be prepared separately.

How to fill out metal base M4G Series manifold specifications sheet

● Manifold model No. (example)

M 4 G(D/E) 1 8 0R- CX - T30 [ ] - 9 - 3 - P4

Solenoid valves	Solenoid position	Port size	Electrical connections	Terminal connector pin array method	Station No.	Voltage

Precautions for fitting mix CX

The port A/B fitting can be selected freely by indicating "CX" in the port size area.

Selectable cartridge fittings

4G1	C4, C6, x (plug)
4G2	C4, C6, C8, × (plug)
4G3	C8, C10, × (plug)

*Port A/B fitting mix is not available for body piping

Solenoid valve model No.	Fitting CX A	Fitting CX B	Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G E 1 1 9R- CX	C6	X	○	○																							2
4G E 1 1 9R- C6					○	○																					2
4G E 1 2 9R- C6							○	○																			2
4G E 1 5 9R- CX	C6	C4							○	○																	2
4G 1 9R-																											
3G D 1 9R-																											
3G D 1 9R-																											
Masking plate 4G1R-MP(S)																											
Masking plate 4G1R-MP(D)											○																1

Indicate X for a plug

Fill in "CX" when changing the fitting combination

Mounting rail	L=	Included part	Blanking plug		Threaded plug	
			GWP 4-B	GWP 6-B	4G1R-M5P	
			Cable with D-sub-connector	4GR-CABLE-D0□-□	Push-in fitting tube remover (attached as standard) ☑ Not required (check the box)	

If the tube remover (standard accessory) is not required, place a check.

How to use base piping M4GE*10 as a 3-port valve

This can be used as NO/NC by attaching a plug cartridge on one side of port A/B. Indicate "X" in the fitting CX column.

Switching method	Plug mounting port
NC (Normally Closed)	B
NO (Normally Open)	A

For female thread specifications, indicate the required number of plugs in the "Thread plug" area at the end. Female threads and cartridge fitting cannot be used together in one manifold set.

* A reference circuit diagram for the above manifold (example) is shown on the next page.

From the manifold specifications for each model, select and fill out the appropriate form.

● Individual wiring…M4G(D/E)1 (Page 312), M4G(D/E)2 (Page 313), M4G(D/E)3 (Page 314)

● Reduced wiring

- Common terminal block (T1*), D-sub-connector (T30) : M4G(D/E)1 (Page 315), M4G(D/E)2 (Page 316), M4G(D/E)3 (Page 317)
- Flat cable connector (T5*) : M4G(D/E)1 (Page 318), M4G(D/E)2 (Page 319), M4G(D/E)3 (Page 320)
- Serial transmission (T6G1) : M4G(D/E)1 (Page 321), M4G(D/E)2 (Page 322), M4G(D/E)3 (Page 323)
- Serial transmission (T8*) : M4G(D/E)1 (Page 324), M4G(D/E)2 (Page 325), M4G(D/E)3 (Page 326)

How to fill out wiring specifications sheet

Not required for standard wiring and double wiring.

● Wiring specifications sheet (example)

Complete these specifications when specifying the wiring order and additional cables.

Connector pinNO.		Installation position															
T30/T30R	T50/T50R/T6*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1	a																
14	2		a															
2	3			a														
15	4																	
3	5				a													
16	6																	
4	7					a												
17	8					b												
5	9 -Power supply						a											
18	10 +(COM) Power supply						b											
6	11							a										
19	12							b										
7	13								a									
20	14								b									
8	15									(a)								
21	16									(b)								
9	17																	
22	18																	
10	19 -Power supply																	
23	20 +(COM) Power supply																	
11																		
24																		
12																		
25																		
13 (COM)																		

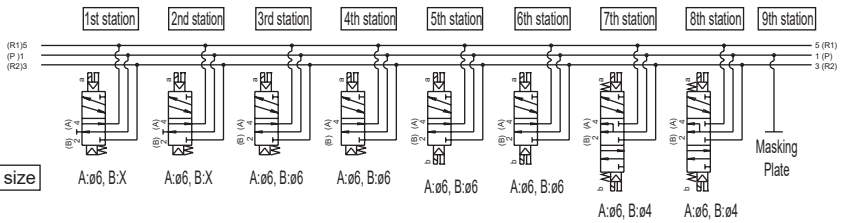
Spare cable wiring Precautions①

* Note that when T50 wiring is used, the COM polarity is + (plus).
* When T50 wiring is used, connector pin numbers 9, 10, 19, and 20 cannot be specified, because they are used for the external input power supply.
* Wiring is sequential from connector pin No. 1 in standard wiring. Contact CKD for special wiring order.

Precautions regarding spare wiring

①Spare wires are provided on the masking plate for the reduced wiring manifold. (Refer to "Pneumatic Valves No.CB-023SA")
The number of wires for spare wiring can be specified by selecting the masking plate within the specifications.
4G *R -MP(S)...1 pc.
4G *R -MP(D)...2 pcs.
Indicate (a) or (b) in manifold specifications sheet for masking plate reserved wires.

Reference circuit diagram Manifold on the previous page No. (Example of description) simplified circuit diagram.



Port size

1st station	2nd station	3rd station	4th station	5th station	6th station	7th station	8th station	9th station
A:ø6, B:X	A:ø6, B:X	A:ø6, B:ø6	A:ø6, B:ø6	A:ø6, B:ø6	A:ø6, B:ø6	A:ø6, B:ø4	A:ø6, B:ø4	

* The manifold station numbers are set in order from the left with the piping port facing forward.

M4G$^{D}_{E}$1 Manifold specifications sheet

Date issued / /
Company
Contact
Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M ☐ G$^{D}_{E}$1 ☐ 0R- ☐ - ☐ ☐ ☐ - ☐ - ☐ - P4

Solenoid valves | Solenoid position | Port size | Electrical connections | Other options | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G ☐ 1 ☐ 9R- ☐																											
4G ☐ 1 ☐ 9R- ☐																											
4G ☐ 1 ☐ 9R- ☐																											
4G ☐ 1 ☐ 9R- ☐																											
4G ☐ 1 ☐ 9R- ☐																											
3G ☐ 1 ☐ 9R- ☐																											
3G ☐ 1 ☐ 9R- ☐																											
Masking plate 4G1R-MP- ☐																											
Air supply spacer 4 G1R-P- ☐																											
Exhaust spacer 4G1R-R- ☐																											

Mounting rail	L_2= ☐ * Write an integer multiple of 12.5.	Included part	Blanking plug				Threaded plug	
			GWP 4-B		GWP 6-B		4G1R-M5P	
			Push-in fitting tube remover (attached as standard) Not required (check the box) ☐					

M4G$^{D}_{E}$2Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M G$^{D}_{E}$2 [ ] 0R- [ ] - [ ] [ ] [ ] - [ ] - [ ] - P4

Solenoid valves / Solenoid position / Port size / Electrical connections / Other options / Mount type / Station No. / Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Qty.
4G [ ] 2 [ ] 9R- [ ]																											
4G [ ] 2 [ ] 9R- [ ]																											
4G [ ] 2 [ ] 9R- [ ]																											
4G [ ] 2 [ ] 9R- [ ]																											
4G [ ] 2 [ ] 9R- [ ]																											
3G [ ] 2 [ ] 9R- [ ]																											
3G [ ] 2 [ ] 9R- [ ]																											
Masking plate 4G2R-MP- [ ]																											
Air supply spacer 4G2R-P- [ ]																											
Exhaust spacer 4G2R-R- [ ]																											

Mounting rail	L_2= [ ] * Write an integer multiple of 12.5.	Included part	Blanking plug						Threaded plug	
			GWP 4-B		GWP 6-B		GWP 8-B		4G2R-06P	

M4G3 individual wiring

M4G$^{D}_{E}$3Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M ☐ G$^{D}_{E}$3 ☐ 0R- ☐ - ☐ ☐ ☐ - ☐ - ☐ - P4

Solenoid valves | Solenoid position | Port size | Electrical connections | Other options | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G ☐ 3 ☐ 9R- ☐																											
4G ☐ 3 ☐ 9R- ☐																											
4G ☐ 3 ☐ 9R- ☐																											
4G ☐ 3 ☐ 9R- ☐																											
4G ☐ 3 ☐ 9R- ☐																											
3GD3 ☐ 9R- ☐																											
3GD3 ☐ 9R- ☐																											
Masking plate 4G3R-MP- ☐																											
Air supply spacer 4G3R-P- ☐																											
Exhaust spacer 4G3R-R- ☐																											

Mounting rail	L_2= ☐ * Write an integer multiple of 12.5.	Included part	Blanking plug				Threaded plug	
			GWP 8-B		GWP 10-B		4G3R-08P	

M4G $^{D}_{E}$1-T1·3 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M □ G $^{D}_{E}$1 □ 0R- □ - □ □ □ □ - □ - □ - P4

Solenoid valves · Solenoid position · Port size · Reduced wiring connection · Terminal/connector pin Array method · Option · Mount type · Station No. · Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G □ 1 □ 9R- □																											
4G □ 1 □ 9R- □																											
4G □ 1 □ 9R- □																											
4G □ 1 □ 9R- □																											
4G □ 1 □ 9R- □																											
3G □ 1 □ 9R- □																											
3G □ 1 □ 9R- □																											
Masking plate 4G1R-MP(S)- □																											
Masking plate 4G1R-MP(D)- □																											
Air supply spacer 4 G1R-P- □																											
Exhaust spacer 4G1R-R- □																											

Mounting rail: L_2= □ * Write an integer multiple of 12.5.

Included parts:

Blanking plug				Threaded plug	
GWP 4-B		GWP 6-B		4G1R-M5P	
Cable with D-sub-connector		4GR-CABLE-D0□-□		Push-in fitting tube remover bracket (Included as standard)	□ Non required (Check)

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T10/T10R	T11/T11R	T30/T30R	Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1																								
2	2	14																								
3	3	2																								
4	4	15																								
5	5	3																								
6	6	16																								
7	7	4																								
8	8	17																								
9	9	5																								
10	10	18																								
11	11	6																								
12	12	19																								
13	13	7																								
14	14	20																								
15	15	8																								
16	16	21																								
COM	17	9																								
COM	18	22																								
	19	10																								
	20	23																								
	21	11																								
	22	24																								
	23	12																								
	24	25																								
	COM	13 (COM)																								
	COM																									

M4G$^{D}_{E}$2-T1·3 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M ☐ G$^{D}_{E}$2 ☐ 0R- ☐ - ☐ ☐ ☐ ☐ - ☐ - ☐ - P4

Solenoid valves · Solenoid position · Port size · Reduced wiring connection · Terminal/connector pin array method · Option · Mount type · Station No. · Voltage

Solenoid valve model No.	Fitting CX		Valve installation position																						Quantity
	A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
4G☐2☐9R-☐																											
4G☐2☐9R-☐																											
4G☐2☐9R-☐																											
4G☐2☐9R-☐																											
4G☐2☐9R-☐																											
3G☐2☐9R-☐																											
3G☐2☐9R-☐																											
Masking plate 4G2R-MP(S)-☐																											
Masking plate 4G2R-MP(D)-☐																											
Air supply spacer 4G2R-P-☐																											
Exhaust spacer 4G2R-R-☐																											

Mounting rail	Included parts	Blanking plug						Threaded plug	
L_2= ☐ * Write an integer multiple of 12.5.		GWP 4-B		GWP 6-B		GWP 8-B		4G2R-06P	
		Cable with D-sub-connector		4GR-CABLE-D0☐-☐					

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No.			Installation position																							
T10/T10R	T11/T11R	T30/T30R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1																								
2	2	14																								
3	3	2																								
4	4	15																								
5	5	3																								
6	6	16																								
7	7	4																								
8	8	17																								
9	9	5																								
10	10	18																								
11	11	6																								
12	12	19																								
13	13	7																								
14	14	20																								
15	15	8																								
16	16	21																								
COM	17	9																								
COM	18	22																								
	19	10																								
	20	23																								
	21	11																								
	22	24																								
	23	12																								
	24	25																								
	COM	13 (COM)																								
	COM																									

M4G$^{D}_{E}$3-T1·3 Manifold specifications sheet

Date issued / /

Company

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Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M □ G$^{D}_{E}$3 □ 0R- □ - □ □ □ □ - □ - □ - P4

Solenoid valves · Solenoid position · Port size · Reduced wiring connection · Terminal/connector pin Array method · Option · Mount type · Station No. · Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Q'ty
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
3GD3 □ 9R- □																											
3GD3 □ 9R- □																											
Masking plate 4G3R-MP(S)- □																											
Masking plate 4G3R-MP(D)- □																											
Air supply spacer 4G3R-P- □																											
Exhaust spacer 4G3R-R- □																											

Mounting rail: L_2 = □ (* Write an integer multiple of 12.5.)

Included parts:

Blanking plug				Threaded plug	
GWP 8-B		GWP 10-B		4G3R-08P	
Cable with D-sub-connector		4GR-CABLE-D0□-□			

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T10/T10R	T11/T11R	T30/T30R	Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1																								
2	2	14																								
3	3	2																								
4	4	15																								
5	5	3																								
6	6	16																								
7	7	4																								
8	8	17																								
9	9	5																								
10	10	18																								
11	11	6																								
12	12	19																								
13	13	7																								
14	14	20																								
15	15	8																								
16	16	21																								
COM	17	9																								
COM	18	22																								
	19	10																								
	20	23																								
	21	11																								
	22	24																								
	23	12																								
	24	25																								
	COM	13 (COM)																								
	COM																									

M4G$^{D}_{E}$1-T5Manifold specifications sheet

Date issued / /
Company
Contact
Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M G$^{D}_{E}$1 0R- - - - - - P4

Solenoid valves | Solenoid position | Port size | Reduced wiring connection | Terminal/connector pin array method | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G 1 9R-																											
4G 1 9R-																											
4G 1 9R-																											
4G 1 9R-																											
4G 1 9R-																											
3G 1 9R-																											
3G 1 9R-																											
Masking plate 4G1R-MP(S)-																											
Masking plate 4G1R-MP(D)-																											
Air supply spacer 4 G1R-P-																											
Exhaust spacer 4G1R-R-																											

Mounting rail: L_2= * Write an integer multiple of 12.5.

Included part:

Blanking plug				Threaded plug	
GWP 4-B		GWP 6-B		4G1R-M5P	

Push-in fitting tube remover (attached as standard) Not required (check the box) ☐

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T50/T50R	T51/T51R	T52/T52R	T53/T53R	Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1																								
2	2	2	2																								
3	3	3	3																								
4	4	4	4																								
5	5	5	5																								
6	6	6	6																								
7	7	7	7																								
8	8	8	8																								
9 - Power supply	9	9 COM	9																								
10 +(COM) Power supply	10	10 COM	10																								
11	11		11																								
12	12		12																								
13	13		13																								
14	14		14																								
15	15		15																								
16	16		16																								
17	17		17																								
18	18		18																								
19 - Power supply	19 COM		19																								
20 +(COM) Power supply	20 COM		20																								
			21																								
			22																								
			23																								
			24																								
			25 COM																								
			26 COM																								

* Note that when T50 wiring is used, the COM polarity is + (plus).
* When T50 wiring is used, connector pin numbers 9, 10, 19, and 20 cannot be specified, because they are used for the external input power supply.

M4G$^{D}_{E}$2-T5Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M □ G$^{D}_{E}$2 □ 0R- □ - □ □ □ □ - □ - □ - P4

Solenoid valves | Solenoid position | Port size | Reduced wiring connection | Terminal/connector pin array method | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G □ 2 □ 9R- □																											
4G □ 2 □ 9R- □																											
4G □ 2 □ 9R- □																											
4G □ 2 □ 9R- □																											
4G □ 2 □ 9R- □																											
3G □ 2 □ 9R- □																											
3G □ 2 □ 9R- □																											
Masking plate 4G2R-MP(S)- □																											
Masking plate 4G2R-MP(D)- □																											
Air supply spacer 4G2R-P- □																											
Exhaust spacer 4G2R-R- □																											

Mounting rail	L_2 = □ * Write an integer multiple of 12.5.	Included part	Blanking plug						Threaded plug	
			GWP 4-B		GWP 6-B		GWP 8-B		4G2R-06P	

● Wiring specifications sheet (Not required for standard wiring/double wiring. Wiring order, Complete these specifications when specifying the expansion cables)

Connector pin No. T50/T50R	T51/T51R	T52/T52R	T53/T53R	Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1																								
2	2	2	2																								
3	3	3	3																								
4	4	4	4																								
5	5	5	5																								
6	6	6	6																								
7	7	7	7																								
8	8	8	8																								
9 - Power supply	9	9 COM	9																								
10 +(COM) Power supply	10	10 COM	10																								
11	11		11																								
12	12		12																								
13	13		13																								
14	14		14																								
15	15		15																								
16	16		16																								
17	17		17																								
18	18		18																								
19 - Power supply	19 COM		19																								
20 +(COM) Power supply	20 COM		20																								
			21																								
			22																								
			23																								
			24																								
			25 COM																								
			26 COM																								

* Note that when T50 wiring is used, the COM polarity is + (plus).
* When T50 wiring is used, connector pin numbers 9, 10, 19, and 20 cannot be specified, because they are used for the external input power supply.

M4G3-T5Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M □ G 3 □ 0R- □ - □ □ □ □ - □ - □ - P4

Solenoid valves | Solenoid position | Port size | Reduced wiring connection | Terminal/connector pin array method | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX		Valve installation position																								Quantity
	A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
4G □ 3 □ 9R- □																											
3GD3 □ 9R- □																											
3GD3 □ 9R- □																											
Masking plate **4G3R-MP(S)-** □																											
Masking plate **4G3R-MP(D)-** □																											
Air supply spacer **4G3R-P-** □																											
Exhaust spacer **4G3R-R-** □																											

Mounting rail	L_2= □ * Write an integer multiple of 12.5.	Included part	Blanking plug				Threaded plug	
			GWP 8-B		GWP 10-B		4G3R-08P	

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No.				Installation position																							
T50/T50R	T51/T51R	T52/T52R	T53/T53R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1																								
2	2	2	2																								
3	3	3	3																								
4	4	4	4																								
5	5	5	5																								
6	6	6	6																								
7	7	7	7																								
8	8	8	8																								
9 - Power supply	9	9 COM	9																								
10 +(COM) Power supply	10	10 COM	10																								
11	11		11																								
12	12		12																								
13	13		13																								
14	14		14																								
15	15		15																								
16	16		16																								
17	17		17																								
18	18		18																								
19 - Power supply	19 COM		19																								
20 +(COM) Power supply	20 COM		20																								
			21																								
			22																								
			23																								
			24																								
			25 COM																								
			26 COM																								

* When T50 wiring is used, the COM polarity is + (positive).
* When T50 wiring is used, connector pin numbers 9, 10, 19, and 20 cannot be specified, because they are used for the external input power supply.

M4G$^{D}_{E}$1-T6G1 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M ☐ G $^{D}_{E}$1 ☐ 0R- ☐ - T6G1 ☐ ☐ D - ☐ - 3 - P4

Solenoid valves | Solenoid position | Port size | Serial transmission | Terminal/connector pin array | Option | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Qty.
4G ☐ 1 ☐ 9R- ☐																			
4G ☐ 1 ☐ 9R- ☐																			
4G ☐ 1 ☐ 9R- ☐																			
4G ☐ 1 ☐ 9R- ☐																			
4G ☐ 1 ☐ 9R- ☐																			
3G ☐ 1 ☐ 9R- ☐																			
3G ☐ 1 ☐ 9R- ☐																			
Masking plate **4G1R-MP(S)-** ☐																			
Masking plate **4G1R-MP(D)-** ☐																			
Air supply spacer **4 G1R-P-** ☐																			
Exhaust spacer **4G1R-R-** ☐																			

Mounting rail: L_2= ☐ * Write an integer multiple of 12.5.

Included part: Blanking plug — GWP 4-B ☐ GWP 6-B ☐ — Threaded plug — 4G1R-M5P ☐

Push-in fitting tube remover (attached as standard) Not required (check the box) ☐

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No.		Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
T6G1																	
T6G1: CC-Link 16 points	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																
	10 COM																
	11																
	12																
	13																
	14																
	15																
	16																
	17																
	18																
	19																
	20 COM																

M4G$^{D}_{E}$2-T6G1 Manifold specifications sheet

Date issued / /
Company
Contact
Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M [ ] G$^{D}_{E}$2 [ ] 0R- [ ] - T6G1 [ ] [ ] D - [ ] - 3 - P4

Solenoid valves / Solenoid position / Port size / Serial transmission / Terminal/connector pin array / Option / Station No. / Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Quantity
4G [ ] 2 [ ] 9R- [ ]																			
4G [ ] 2 [ ] 9R- [ ]																			
4G [ ] 2 [ ] 9R- [ ]																			
4G [ ] 2 [ ] 9R- [ ]																			
4G [ ] 2 [ ] 9R- [ ]																			
3G [ ] 2 [ ] 9R- [ ]																			
3G [ ] 2 [ ] 9R- [ ]																			
Masking plate **4G2R-MP(S)-** [ ]																			
Masking plate **4G2R-MP(D)-** [ ]																			
Air supply spacer **4G2R-P-** [ ]																			
Exhaust spacer **4G2R-R-** [ ]																			

Mounting rail	L_2= [ ] * Write an integer multiple of 12.5.	Included part	Blanking plug						Threaded plug	
			GWP 4-B		GWP 6-B		GWP 8-B		4G2-06P	

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No.		Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
T6G1																	
T6G1: CC-Link 16 points	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																
	10 COM																
	11																
	12																
	13																
	14																
	15																
	16																
	17																
	18																
	19																
	20 COM																

M4G$^{D}_{E}$3-T6G1 Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M G$^{D}_{E}$3 - 0R- - T6G1 D - - 3 - P4

Solenoid valves / Solenoid position / Port size / Serial transmission / Terminal/connector pin array / Option / Station No. / Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Quantity
4G 3 9R-																			
4G 3 9R-																			
4G 3 9R-																			
4G 3 9R-																			
4G 3 9R-																			
3GD3 9R-																			
3GD3 9R-																			
Masking plate 4G3R-MP(S)-																			
Masking plate 4G3R-MP(D)-																			
Air supply spacer 4G3R-P-																			
Exhaust spacer 4G3R-R-																			

Mounting rail	Included part	Blanking plug				Threaded plug	
L_2= (* Write an integer multiple of 12.5.)		GWP 8-B		GWP 10-B		4G3R-08P	

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No.		Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
T6G1																	
T6G1: CC-Link 16 points	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																
	10 COM																
	11																
	12																
	13																
	14																
	15																
	16																
	17																
	18																
	19																
	20 COM																

M4G$^{D}_{E}$1-T8Manifold specifications sheet

Date issued / /
Company
Contact
Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M ☐ G $^{D}_{E}$1 ☐ 0R- ☐ - ☐ ☐ ☐ ☐ - ☐ - 3 - P4

Solenoid valves / Solenoid position / Port size / Serial transmission / Terminal/connector pin array / Option / Mount type / Station No. / Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Quantity
4G ☐ 1 ☐ 9R- ☐																							
4G ☐ 1 ☐ 9R- ☐																							
4G ☐ 1 ☐ 9R- ☐																							
4G ☐ 1 ☐ 9R- ☐																							
4G ☐ 1 ☐ 9R- ☐																							
3G ☐ 1 ☐ 9R- ☐																							
3G ☐ 1 ☐ 9R- ☐																							
Masking plate **4G1R-MP(S)-** ☐																							
Masking plate **4G1R-MP(D)-** ☐																							
Air supply spacer **4 G1R-P-** ☐																							
Exhaust spacer **4G1R-R-** ☐																							

Mounting rail: L_2= ☐ * Write an integer multiple of 12.5.

Included part:

Blanking plug				Threaded plug	
GWP 4-B		GWP 6-B		4G1R-M5P	

Push-in fitting tube remover (attached as standard) Not required (check the box) ☐

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T 8*				Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
T8G1	CC-Link	NPN	16 points	1																			
T8G2			32 points	2																			
T8GP1		PNP	16 points	3																			
T8GP2			32 points	4																			
T8P1	PROFIBUS-DP	NPN	16 points	5																			
T8P2			32 points	6																			
T8PP1		PNP	16 points	7																			
T8PP2			32 points	8																			
T8EC1	EtherCAT	NPN	16 points	9																			
T8EC2			32 points	10																			
T8ECP1		PNP	16 points	11																			
T8ECP2			32 points	12																			
T8EN1	EtherNet/IP	NPN	16 points	13																			
T8EN2			32 points	14																			
T8ENP1		PNP	16 points	15																			
T8ENP2			32 points	16																			
T8D1	DeviceNet	NPN	16 points	17																			
T8D2			32 points	18																			
T8DP1		PNP	16 points	19																			
T8DP2			32 points	20																			
T8EB1	CC-Link IEF Basic	NPN	16 points	21																			
T8EB2			32 points	22																			
T8EBP1		PNP	16 points	23																			
T8EBP2			32 points	24																			
T8EP1	PROFINET	NPN	16 points	25																			
T8EP2			32 points	26																			
T8EPP1		PNP	16 points	27																			
T8EPP2			32 points	28																			
				29																			
				30																			
				31																			
				32																			

M4G[D/E]2-T8Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M □ G[D/E]2 □ 0R- □ - □ □ □ □ - □ - 3 - P4

Solenoid valves | Solenoid position | Port size | Serial transmission | Terminal/connector pin array | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Quantity
4G □ 2 □ 9R- □																							
4G □ 2 □ 9R- □																							
4G □ 2 □ 9R- □																							
4G □ 2 □ 9R- □																							
4G □ 2 □ 9R- □																							
3G □ 2 □ 9R- □																							
3G □ 2 □ 9R- □																							
Masking plate **4G2R-MP(S)-**																							
Masking plate **4G2R-MP(D)-**																							
Air supply spacer **4G2R-P-**																							
Exhaust spacer **4G2R-R-**																							

Mounting rail	L_2= * Write an integer multiple of 12.5.	Included part	Blanking plug						Threaded plug	
			GWP 4-B		GWP 6-B		GWP 8-B		4G2R-06P	

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T 8*				Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
T8G1	CC-Link	NPN	16 points	1																			
T8G2			32 points	2																			
T8GP1		PNP	16 points	3																			
T8GP2			32 points	4																			
T8P1	PROFIBUS-DP	NPN	16 points	5																			
T8P2			32 points	6																			
T8PP1		PNP	16 points	7																			
T8PP2			32 points	8																			
T8EC1	EtherCAT	NPN	16 points	9																			
T8EC2			32 points	10																			
T8ECP1		PNP	16 points	11																			
T8ECP2			32 points	12																			
T8EN1	EtherNet/IP	NPN	16 points	13																			
T8EN2			32 points	14																			
T8ENP1		PNP	16 points	15																			
T8ENP2			32 points	16																			
T8D1	DeviceNet	NPN	16 points	17																			
T8D2			32 points	18																			
T8DP1		PNP	16 points	19																			
T8DP2			32 points	20																			
T8EB1	CC-Link IEF Basic	NPN	16 points	21																			
T8EB2			32 points	22																			
T8EBP1		PNP	16 points	23																			
T8EBP2			32 points	24																			
T8EP1	PROFINET	NPN	16 points	25																			
T8EP2			32 points	26																			
T8EPP1		PNP	16 points	27																			
T8EPP2			32 points	28																			
				29																			
				30																			
				31																			
				32																			

M4G$^{D}_{E}$3-T8Manifold specifications sheet

Date issued / /
Company
Contact
Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M G$^{D}_{E}$3 0R- - - - - - - - 3 - P4

Solenoid valves | Solenoid position | Port size | Serial transmission | Terminal/connector pin array | Option | Mount type | Station No. | Voltage

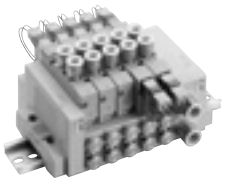
Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Quantity
4G 3 9R-																			
4G 3 9R-																			
4G 3 9R-																			
4G 3 9R-																			
4G 3 9R-																			
3GA3 9R-																			
3GA3 9R-																			
Masking plate 4G3R-MP(S)-																			
Masking plate 4G3R-MP(D)-																			
Air supply spacer 4G3R-P-																			
Exhaust spacer 4G3R-R-																			

Mounting rail	L_2= * Write an integer multiple of 12.5.	Included part	Blanking plug				Threaded plug	
			GWP 8-B		GWP 10-B		4G3R-08P	

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T 8*				Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
T8G1	CC-Link	NPN	16 points	1															
T8G2			32 points	2															
T8GP1		PNP	16 points	3															
T8GP2			32 points	4															
T8P1	PROFIBUS-DP	NPN	16 points	5															
T8P2			32 points	6															
T8PP1		PNP	16 points	7															
T8PP2			32 points	8															
T8EC1	EtherCAT	NPN	16 points	9															
T8EC2			32 points	10															
T8ECP1		PNP	16 points	11															
T8ECP2			32 points	12															
T8EN1	EtherNet/IP	NPN	16 points	13															
T8EN2			32 points	14															
T8ENP1		PNP	16 points	15															
T8ENP2			32 points	16															
T8D1	DeviceNet	NPN	16 points	17															
T8D2			32 points	18															
T8DP1		PNP	16 points	19															
T8DP2			32 points	20															
T8EB1	CC-Link IEF Basic	NPN	16 points	21															
T8EB2			32 points	22															
T8EBP1		PNP	16 points	23															
T8EBP2			32 points	24															
T8EP1	PROFINET	NPN	16 points	25															
T8EP2			32 points	26															
T8EPP1		PNP	16 points	27															
T8EPP2			32 points	28															
				29															
				30															
				31															
				32															

MEMO



Pneumatic Valves
Catalog No. CB-023SA

Individual wiring block manifold
Body piping

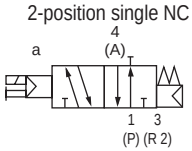
MN4GD1, 2 Series

● Cylinder bore size: ø20 to ø80

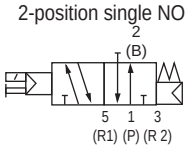
JIS symbol

● 3-port valve

2-position single NC

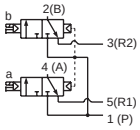


2-position single NO



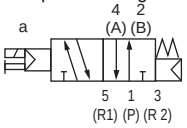
● Two 3-port valves integrated

(A side valve: NC,B side valve: NC)

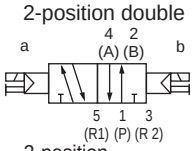


● 5-port valve

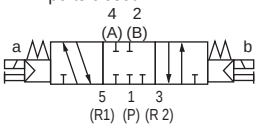
2-position single



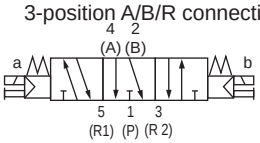
2-position double



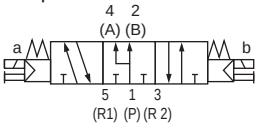
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item	Description
Manifold	Block manifolds
Mounting method	DIN rail mount
Air supply and exhaust method	Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
Piping direction	Valve top direction
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2
Proof pressure MPa	1.05
Ambient temperature °C	-5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common
Lubrication (*1)	Not required
Degree of protection (*2)	Dust-proof
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISOVG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Avoid dripping water or oil, etc., during use. IP65 (water jet proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

Electrical specifications

Item	Description			
Rated voltage V	24 DC	12 DC	100 VAC	200 VAC
Voltage fluctuation range	±10%			
Holding current A (*3)	0.015 (0.017)	0.030 (0.034)	0.009 (0.009)	0.006 (0.006)
Power consumption W (*3)	0.35 (0.40)		-	
Apparent power VA (*3) (*4)	-		0.93 (0.98)	1.40
Thermal class	B			
Surge suppressor	Option			
Indicator	Lamp (option)			

*3: Values in ( ) apply when lamp is included. *4: 200 VAC is the value of DIN terminal box (with lamp).

Individual specifications

Item		MN3GD1/MN4GD1	MN3GD2/MN4GD2
Max. station No.		24 stations	20 stations
Port size	Port A/B	Push-in fitting ø4 M5	Push-in fitting ø4, ø6, ø8 Rc1/8
	P/R Port	Push-in fitting ø6, ø8	Push-in fitting ø8, ø10

• For DIN rail mounting, refer to "Mounting orientation" in "Pneumatic Valves No.CB-023SA".

• For weight, refer to "Pneumatic Valves No.CB-023SA".

Performance/characteristics by model

Item			MN3GD1/MN4GD1		MN3GD2/MN4GD2	
			ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		12	15	15	30
	2-position	Single	15	25	20	30
		Double	15	-	20	-
	3-position	A/B/R connection	20	30	25	35

Values with lamp/surge suppressor are shown. The response times are values with supply pressure of 0.5 MPa at 20°C and without lubrication. They depend on the pressure and the lubricant quality.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R			
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]		b	
MN3GD1 MN4GD1	Two 3-port valves integrated		0.87	0.37	1.0	(0.68)	0.14	(0.22)
	2-position		0.98	0.33	1.2	(0.71)	0.11	(0.27)
	3-position	All ports closed	0.92	0.34	1.0	-	0.16	-
		A/B/R connection	0.92	0.29	1.1	(0.69)	0.13	(0.22)
		P/A/B connection	1.1	0.35	1.1	-	0.17	-
MN3GD2 MN4GD2	Two 3-port valves integrated		1.7	0.37	2.2	(1.6)	0.13	(0.21)
	2-position		2.2	0.21	2.5	(1.7)	0.19	(0.10)
	3-position	All ports closed	2.0	0.25	2.3	-	0.10	-
		A/B/R connection	2.0	0.27	2.5	(1.7)	0.18	(0.12)
		P/A/B connection	2.3	0.31	2.3	-	0.16	-

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
*2: Values in ( ) are with the exhaust check valve.

Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 330.

CE marking specifications

** - Voltage - **ST**

- Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

MN4GD1, 2 Series

Individual wiring block manifold; Body piping

How to order

Manifold model No.

MN4GD1 1 0 R- C6 - E2 H - 10 - 3 - P4

3-port manifold model No.

MN3GD1 1 0 R- C6 - E2 H - 10 - 3 - P4

Discrete valve block with solenoid valve

N4GD1 1 0 R- C6 - E2 H — 3 - P4

Discrete 3-port valve block with solenoid valve

N3GD1 1 0 R- C6 - E2 H — 3 - P4

Discrete solenoid valve

4GD1 1 9 R- C6 - E2 H — 3 - P4

Discrete 3-port solenoid valve

3GD1 1 9 R- C6 - E2 H — 3 - P4

B Solenoid position

A Model No.

C Port size(*1)

*4
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

D Electrical connections

E Option

F Station No.

G Voltage

A Model No.	Manifold				Discrete valve block with solenoid valve/discrete solenoid valve			
	3-port valve		5-port valve					
	MN3GD1	MN3GD2	MN4GD1	MN4GD2	(N)3GD1	(N)3GD2	(N)4GD1	(N)4GD2

B Solenoid position									
1	2-position single			●	●			●	●
2	2-position double			●	●			●	●
3	3-position all ports closed			●	●			●	●
4	3-position ABR connection			●	●			●	●
5	3-position PAB connection			●	●			●	●
1	2-position single: Normally Closed (*2)	●	●			●	●		
11	2-position single: Normally Open (*2)	●	●			●	●		
66	Two 3-port valves integrated (*2)(*3) — A side valve: Normally Closed / B side valve: Normally Closed	●	●			●	●		
8	Mix manifold (when there are multiple solenoid positions)	●	●	●	●	●	●	●	●

C Port siza (port A/B)		*4							
Type									
C4	ø4 push-in fitting	○	○	○	○	○	○	○	○
C6	ø6 push-in fitting		○		○		○		○
C8	ø8 push-in fitting		○		○		○		○
CX	Push-in fitting mix (*5)	○	○	○	○				
M5	M5	●		●		●		●	
06	Rc1/8		●		●		●		●

D Electrical connections
Refer to the following page for electrical connections

E Option									
Blank	Manual override of non-locking/locking common	●	●	●	●	●	●	●	●
H	With exhaust check valve (*6)	●	●	●	●	●	●	●	●
A	Ozone/coolant proof	●	●	●	●	●	●	●	●
F	Port A/B filter built in (*7)	●	●	●	●	●	●	●	●
Z1	Air supply spacer (*8)	●	●	●	●				
Z3	Exhaust spacer (*8)	●	●	●	●				

F Station No.									
1	1 station								
to	to	●	●	●	●				
24	24 stations (Max. station number for MN3GD2/MN4GD2 is 20.)								

G Voltage									
1	100 VAC (rectifier integrated)	●	●	●	●	●	●	●	●
2	200 VAC (rectifier integrated) (*9)		●		●		●		●
3	24 VDC	●	●	●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●	●

is not available.

⚠ Precautions for model selection

*1: Specify the port P/R bore size with the supply and exhaust block model No. in the manifold specifications sheet.
*2: MN4GD*80R when using a mixture of 4, 5-port valves. MN3GD*80R when used with a masking plate.
*3: Dimensions is the same dimensions as the respective 2-position double solenoid.
*5: The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.
***6 The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**
*7: A filter is built into port P as standard.
***8: Specify the spacer mounting position/quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with masking plates is not possible. Refer to pages 347 to 348 for details.**
*9: Only the DIN terminal box is supported. Two 3-port valves integrated type is not available.

[Electrical connection list]

Ⓓ Electrical connections		Ⓐ Model No.							
		Manifold				Discrete valve block with solenoid valve/discrete solenoid valve			
		3-port valve		5-port valve					
		MN3GD1	MN3GD2	MN4GD1	MN4GD2	(N)3GD1	(N)3GD2	(N)4GD1	(N)4GD2
Blank	Grommet lead wire (300 mm) (*10)	●	●	●	●	●	●	●	●
B	DIN terminal box (Pg 7) With surge suppressor/lamp (*11)(*13)		●		●		●		●
BN	DIN terminal box (Pg7) (without terminal box) With surge suppressor (*11)(*13)		●		●		●		●
E-connector (upward/lateral direction common)									
E0	Lead wire (300 mm) (*12)	●	●	●	●	●	●	●	●
E00	Lead wire (500 mm) (*12)	●	●	●	●	●	●	●	●
E01	Lead wire (1000 mm) (*12)	●	●	●	●	●	●	●	●
E02	Lead wire (2000 mm) (*12)	●	●	●	●	●	●	●	●
E03	Lead wire (3000 mm) (*12)	●	●	●	●	●	●	●	●
E0N	Without lead wire (without socket) (*12)	●	●	●	●	●	●	●	●
E1	Without lead wire (with socket/terminal) (*12)	●	●	●	●	●	●	●	●
E2	Lead wire (300 mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E20	Lead wire (500 mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E21	Lead wire (1000mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E22	Lead wire (2000 mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E23	Lead wire (3000 mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E2N	Without lead wire (without socket) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E3	Without lead wire (socket/terminal attached) with surge suppressor/lamp	●	●	●	●	●	●	●	●
EJ-connector (socket with cover, upward/lateral direction common)									
E01J	Lead wire (1000 mm) (*12)	●	●	●	●	●	●	●	●
E02J	Lead wire (2000 mm) (*12)	●	●	●	●	●	●	●	●
E03J	Lead wire (3000 mm) (*12)	●	●	●	●	●	●	●	●
E21J	Lead wire (1000mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E22J	Lead wire (2000 mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E23J	Lead wire (3000 mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●

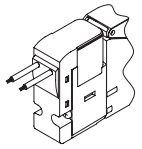
*10: The grommet lead wire specifications are compatible with DC voltage only.
*11: A lamp comes with the terminal box.
*12: AC voltage includes a rectifier circuit.
*13: The terminal box conforms to EN175301-803 Type C (former DIN 43650-C). Refer to "Pneumatic Valves No.CB-023SA" for details.

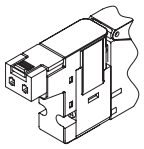
Electrical connections

Discrete valve/individual wiring manifold

Blank Grommet lead wire

● **Lead wire length**
300 mm

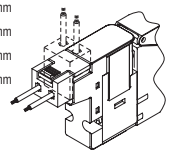


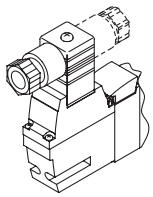


E1 E3 E-connector with socket/terminal

E0 E2 E-connector

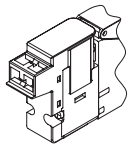
● **Lead wire length**
300 mm
500 mm
1000 mm
2000 mm
3000 mm



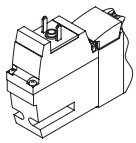


B DIN terminal box

E0N E2N E-connector without socket

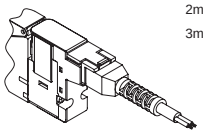


BN DIN terminal box Without terminal box



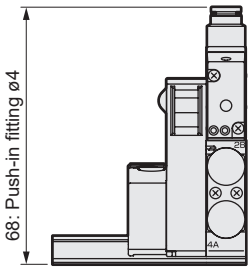
E0*J E2*J EJ type connector

● **Lead wire length**
1m
2m
3m

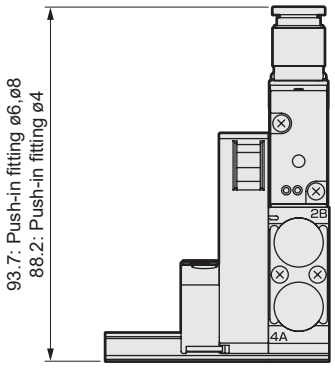


Dimensions

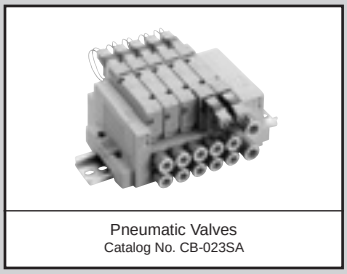
● MN4GD1-P4



● MN4GD2-P4



*Fitting dimensions of P4 Series are different from the standard when mounted. For other dimensions, "Pneumatic Valves (No.CB-023SA) MN4GD1, 2 Series.



Pneumatic Valves
Catalog No. CB-023SA

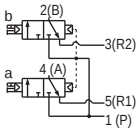
Individual wiring block manifold
Base piping

MN4GE1, 2 Series

● Cylinder bore size: ø20 to ø80

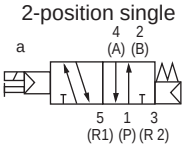
JIS symbol

● Two 3-port valves integrated
(A side valve: NC, B side valve: NC)

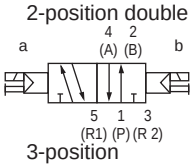


● 5-port valve

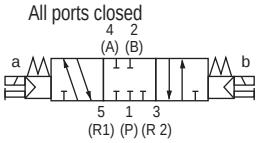
2-position single



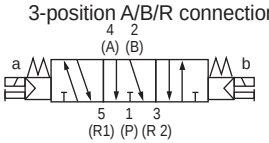
2-position double



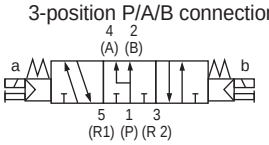
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item	Description
Manifold	Block manifolds
Mounting method	DIN rail mount
Air supply and exhaust method	Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
Piping direction	Side direction of base
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2
Proof pressure MPa	1.05
Ambient temperature °C	-5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common
Lubrication (*1)	Not required
Degree of protection (*2)	Dust-proof
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environments

*1 Turbine oil Class 1 ISOVG32 for lubricationfor vacuum piping.Excessive or intermittent lubrication results in unstable operation.
*2 Avoid dripping water or oil, etc., during use. IP65 (water jet proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

Electrical specifications

Item	Description			
Rated voltage V	24 DC	12 DC	100 VAC	200 VAC
Voltage fluctuation range	±10%			
Holding currentA (*3)	0.015 (0.017)	0.030 (0.034)	0.009 (0.009)	0.006 (0.006)
Power consumptionW (*3)	0.35 (0.40)		-	
Apparent powerVA (*3) (*4)	-		0.93 (0.98)	1.40
Thermal class	B			
Surge suppressor	Option			
Indicator	Lamp (option)			

*3: Values in ( ) apply when lamp is included.
*4: 200 VAC is the value of DIN terminal box (with lamp).

Individual specifications

Item		MN3GE1/MN4GE1	MN3GE2/MN4GE2
Max. station No.		24 stations	20 stations
Port size	Port A/B	Push-in fitting ø4, ø6	Push-in fitting ø4, ø6, ø8
	P/R Port	Push-in fitting ø6, ø8	Push-in fitting ø8, ø10

• For DIN rail mounting, refer to "Mounting orientation" in "Pneumatic Valves No.CB-023SA".
• For weight, refer to "Pneumatic Valves No.CB-023SA".

Performance/characteristics by model

Item			MN3GE1/MN4GE1		MN3GE2/MN4GE2	
			ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		12	15	15	30
	2-position	Single	15	25	20	30
		Double	15	-	20	-
	3-position	A/B/R connection	20	30	25	35

Values with lamp/surge suppressor are shown. The response times are values with supply pressure of 0.5 MPa at 20°C and without lubrication.They depend on the pressure and the lubricant quality.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R			
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]		b	
MN3GE1 MN4GE1	Two 3-port valves integrated		0.86	0.35	1.0	(0.66)	0.15	(0.25)
	2-position		1.0	0.30	1.1	(0.72)	0.11	(0.26)
	3-position	All ports closed	0.96	0.32	1.0	-	0.14	-
		A/B/R connection	0.96	0.29	1.2	(0.71)	0.11	(0.30)
		P/A/B connection	1.1	0.31	1.0	-	0.15	-
MN3GE2 MN4GE2	Two 3-port valves integrated		1.7	0.42	2.2	(1.6)	0.15	(0.19)
	2-position		2.4	0.35	2.5	(1.7)	0.19	(0.19)
	3-position	All ports closed	2.2	0.38	2.3	-	0.17	-
		A/B/R connection	2.2	0.38	2.5	(1.7)	0.18	(0.20)
		P/A/B connection	2.3	0.29	2.3	-	0.15	-

*1: Formula to calculate sonic conductance C from effective cross-sectional area S is S≈5.0xC.
*2: Values in ( ) are with the exhaust check valve.

Ozone-proof specifications ・ Coolant proof specifications

Can be selected with "How to order" Item Ⓔ option "A" on page 334.

CE marking specifications

** - Voltage - **ST**

・ Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

MN4GE1, 2 Series

Individual wiring block manifold; Base piping

How to order

Manifold model No.

MN4GE1 1 0 R - C6 - E2 H - 10 - 3 - P4

3-port manifold model No.

MN3GE1 66 0 R - C6 - E2 H - 10 - 3 - P4

Discrete valve block with solenoid valve

N4GE1 1 0 R - C6 - E2 H — 3 - P4

Discrete 3-port valve block with solenoid valve

N3GE1 66 0 R - C6 - E2 H — 3 - P4

Discrete solenoid valve

4GE1 1 9 R - 00 - E2 H — 3 - P4

Discrete 3-port solenoid valve

3GE1 66 9 R - 00 - E2 H — 3 - P4

Ⓑ Solenoid position
Ⓔ Option
Ⓐ Model No.
Ⓒ Port size (*1) (*2)
Ⓓ Electrical connections
Ⓕ Station No.
Ⓖ Voltage

Ⓐ Model No.	Manifold: Two 3-port valves integrated		Manifold: 5-port valve		Discrete valve block with solenoid valve/ Discrete solenoid valve			
	MN3GE1	MN3GE2	MN4GE1	MN4GE2	(N)3GE1	(N)3GE2	(N)4GE1	(N)4GE2
Ⓑ Solenoid position								
1 2-position single			●	●			●	●
2 2-position double			●	●			●	●
3 3-position all ports closed			●	●			●	●
4 3-position ABR connection			●	●			●	●
5 3-position PAB connection			●	●			●	●
66 Two 3-port valves integrated (*5)(*6) — A side valve: Normally Closed, B side valve: Normally Closed	●	●			●	●		
8 Mix manifold (when there are multiple solenoid positions)	●	●	●	●	●	●	●	●
Ⓒ Port size (port A/B)								
Type								
C4 ø4 push-in fitting	●	●	●	●	●	●	●	●
C6 ø6 push-in fitting	●	●	●	●	●	●	●	●
C8 ø8 push-in fitting		●		●		●		●
CX Push-in fitting mix (*7)	●	●	●	●				
Single side plug specs. — Port A / Port B								
C4NC ø4 push-in fitting / Plug			●	●			●	●
C6NC ø6 push-in fitting / Plug			●	●			●	●
C8NC ø8 push-in fitting / Plug				●				●
C4NO Plug / ø4 push-in fitting			●	●			●	●
C6NO Plug / ø6 push-in fitting			●	●			●	●
C8NO Plug / ø8 push-in fitting				●				●
00 Discrete valve for integrated base					●	●	●	●
Ⓓ Electrical connections								
Refer to the following page for electrical connections								
Ⓔ Option								
Blank Manual override of non-locking/locking common	●	●	●	●	●	●	●	●
H With exhaust check valve (*6)	●	●	●	●	●	●	●	●
A Ozone/coolant proof	●	●	●	●	●	●	●	●
F Port A/B filter built in (*7)	●	●	●	●	●	●	●	●
Z1 Air supply spacer (*8)	●	●	●	●				
Z3 Exhaust spacer (*8)	●	●	●	●				
Ⓕ Station No.								
1 1 station	●	●	●	●				
to to								
24 24 stations (Max. station number for MN4GE2 is 20.)								
Ⓖ Voltage								
1 100 VAC (rectifier integrated)	●	●	●	●	●	●	●	●
2 200 VAC (rectifier integrated) (*9)		●		●		●		●
3 24 VDC	●	●	●	●	●	●	●	●
4 12 VDC	●	●	●	●	●	●	●	●

⚠ Precautions for model selection

*1 Ports A and B plug specifications are available for 2-position single only. Specify the port P/R bore size with the supply and exhaust block model No. in the manifold specifications sheet.

*2 For a discrete solenoid valve, select "00" for Port size.

*3 MN4 GE*80R when using a mixture of 4, 5-port valves. MN3GE*80R when used with a masking plate.

*4 Dimensions are the same as the respective 2-position double solenoid.

*5 The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.

***6 The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**

*7 A filter is built into port P as standard.

***8 Specify the spacer mounting position/ quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 347 to 348 for details.**

*9 DIN terminal box only is supported. Two 3-port valves integrated type is not available.

[Electrical connection list]

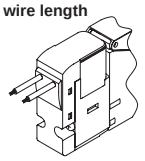
Ⓓ Electrical connections		Ⓐ Model No.							
		Manifold				Discrete valve block with solenoid valve/ Discrete solenoid valve			
		Two 3-port valves integrated		5-port valve					
		MN3GE1	MN3GE2	MN4GE1	MN4GE2	(N)3GE1	(N)3GE2	(N)4GE1	(N)4GE2
Blank	Grommet lead wire (300 mm) (*10)	●	●	●	●	●	●	●	●
B	DIN terminal box (Pg 7) With surge suppressor/lamp (*11)(*13)		●		●		●		●
BN	DIN terminal box (Pg7) (without terminal box) With surge suppressor (*11)(*13)		●		●		●		●
E-connector (upward/lateral direction common)									
E0	Lead wire (300 mm) (*12)	●	●	●	●	●	●	●	●
E00	Lead wire (500 mm) (*12)	●	●	●	●	●	●	●	●
E01	Lead wire (1000 mm) (*12)	●	●	●	●	●	●	●	●
E02	Lead wire (2000 mm) (*12)	●	●	●	●	●	●	●	●
E03	Lead wire (3000 mm) (*12)	●	●	●	●	●	●	●	●
E0N	Without lead wire (without socket) (*12)	●	●	●	●	●	●	●	●
E1	Without lead wire (socket/terminal attached) (*12)	●	●	●	●	●	●	●	●
E2	Lead wire (300 mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E20	Lead wire (500 mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E21	Lead wire (1000mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E22	Lead wire (2000 mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E23	Lead wire (3000 mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E2N	Without lead wire (without socket) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E3	Without lead wire (socket/terminal attached) with surge suppressor/lamp	●	●	●	●	●	●	●	●
EJ-connector (socket with cover, upward/lateral direction common)									
E01J	Lead wire (1000 mm) (*12)	●	●	●	●	●	●	●	●
E02J	Lead wire (2000 mm) (*12)	●	●	●	●	●	●	●	●
E03J	Lead wire (3000 mm) (*12)	●	●	●	●	●	●	●	●
E21J	Lead wire (1000mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E22J	Lead wire (2000 mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●
E23J	Lead wire (3000 mm) with surge suppressor/lamp	●	●	●	●	●	●	●	●

*10: The grommet lead wire specifications are compatible with DC voltage only.
*11: A lamp comes with the terminal box.
*12: AC voltage is with a rectifier circuit.
*13: The terminal box conforms to EN175301-803 Type C (former DIN 43650-C). Refer to "Pneumatic Valves No.CB-023SA" for details.

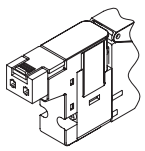
Electrical connections
Discrete valve/individual wiring manifold

Blank Grommet lead wire

● Lead wire length
300 mm

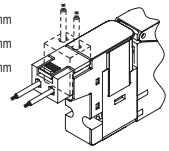


E1 E3 E-connector with socket/terminal

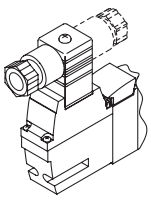


E0 E2 E-connector

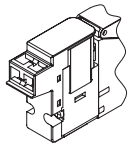
● Lead wire length
300 mm
500 mm
1000 mm
2000 mm
3000 mm



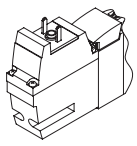
B DIN terminal box



E0N E2N E-connector without socket

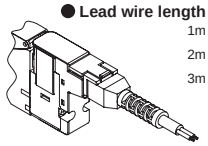


BN DIN terminal box Without terminal box



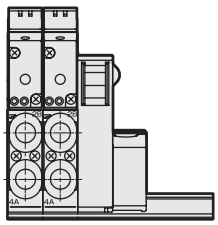
E0*J E2*J EJ type connector

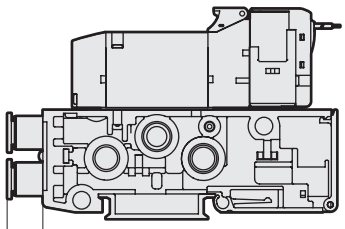
● Lead wire length
1m
2m
3m



Dimensions

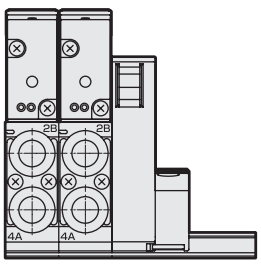
● MN4GE1-P4

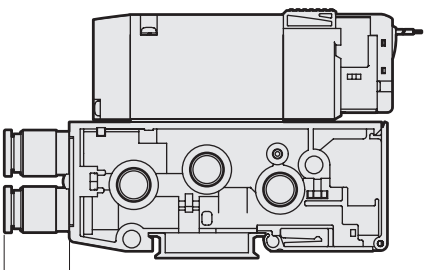




10.7: Push-in fitting ø4,ø6

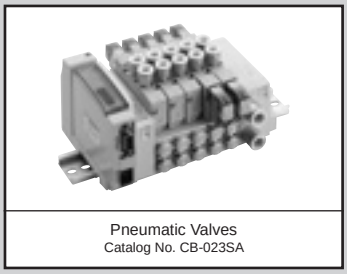
● MN4GE2-P4





19.6: Push-in fitting ø6,ø8
14.1: Push-in fitting ø4

* Fitting dimensions of P4 Series are different from the standard when mounted. For other dimensions, "Pneumatic Valves (No.CB-023SA) MN4GE1, 2 Series.



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring block manifold
Body piping

MN4GD1, 2-T* Series

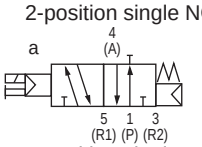
● Cylinder bore size: ø20 to ø80

RoHS CAD

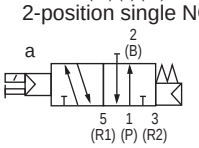
JIS symbol

● 3-port valve

2-position single NC

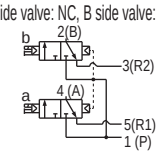


2-position single NO



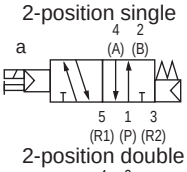
● Two 3-port valves integrated

(A side valve: NC, B side valve: NC)

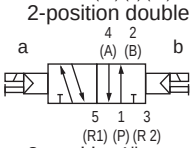


● 5-port valve

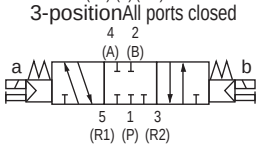
2-position single



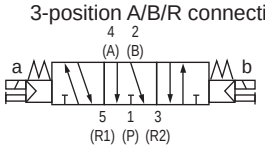
2-position double



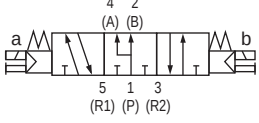
3-positionAll ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item	Description
Manifold	Block manifolds
Mounting method	DIN rail mount
Air supply and exhaust method	Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
Piping direction	Valve top direction
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2
Proof pressure MPa	1.05
Ambient temperature °C	-5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common
Lubrication (*1)	Not required
Degree of protection (*2)	Dust-proof
Vibration resistance m/s²	50 or less
Shock resistance m/s²	300 or less
Atmosphere	Cannot be used in corrosive gas environments

Electrical specifications

Item	Description		
	T1□, T30□, T5□		T6G1, T7□, T8□
Rated voltage V	24 DC	12 DC	24 DC
Voltage fluctuation range (*3)	±10%		+10%, -5%
Holding current A	0.017	0.034	0.017
Power consumption W	0.4		
Thermal class	B		
Surge suppressor	Zener diode		
Indicator	LED		

*3 : T6G1, T7□, T8□As the voltage drop occurs due to the internal circuit of the (serial transmission), pay attention to the voltage fluctuation range.

*1: Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2: Dust-proof degree of protection. Not drip-proof. Avoid dripping water or oil, etc., during use.

Individual specifications

Item		MN3GD1/MN4GD1									
		T10	T11	T30	T50	T51	T52	T53	T6G1	T7*1	T8*1/2
Max. station No.	Standard wiring	16 stations	24 stations	24 stations	16 stations	18 stations	8 stations	24 stations	16 stations	8/16 stations	16/24 stations
	Double wiring	8 stations	12 stations	12 stations	8 stations	9 stations	4 stations	12 stations	8 stations	4/8 stations	8/16 stations
Max. number of solenoids		16 points	24 points	24 points	16 points	18 points	8 points	24 points	16 points	8/16 points	16/32 points
Port size	Port A/B	Push-in fitting ø4 M5									
	P/R Port	Push-in fitting ø6, ø8									

Item		MN3GD2/MN4GD2									
		T10	T11	T30	T50	T51	T52	T53	T6G1	T7*1	T8*1/2
Max. station No.	Standard wiring	16 stations	20 stations	20 stations	16 stations	18 stations	8 stations	20 stations	16 stations	8/16 stations	16/20 stations
	Double wiring	8 stations	12 stations	12 stations	8 stations	9 stations	4 stations	12 stations	8 stations	4/8 stations	8/16 stations
Max. number of solenoids		16 points	24 points	24 points	16 points	18 points	8 points	24 points	16 points	8/16 points	16/32 points
Port size	Port A/B	Push-in fitting ø4, ø6, ø8 Rc1/8									
	P/R Port	Push-in fitting ø8, ø10									

• For weight, refer to "Pneumatic Valves No.CB-023SA".

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R			
			C[dm³/(s·bar)]	b	C[dm³(s·bar)]		b	
MN3GD1 MN4GD1	Two 3-port valves integrated		0.87	0.37	1.0	(0.68)	0.14	(0.22)
	2-position		0.98	0.33	1.2	(0.71)	0.11	(0.27)
	3-position	All ports closed	0.92	0.34	1.0	-	0.16	-
		A/B/R connection	0.92	0.29	1.1	(0.69)	0.13	(0.22)
		P/A/B connection	1.1	0.35	1.1	-	0.17	-
MN3GD2 MN4GD2	Two 3-port valves integrated		1.7	0.37	2.2	(1.6)	0.13	(0.21)
	2-position		2.2	0.21	2.5	(1.7)	0.19	(0.10)
	3-position	All ports closed	2.0	0.25	2.3	-	0.10	-
		A/B/R connection	2.0	0.27	2.5	(1.7)	0.18	(0.12)
		P/A/B connection	2.3	0.31	2.3	-	0.16	-

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
*2: Values in ( ) are with the exhaust check valve.

Reduced wiring specifications

Item	T10	T11	T30	T50	T51	T52	T53
Type	Common terminal block M3 thread	Common terminal block Clamping method	D-sub-connector	20-pin flat cable connector without power supply terminal	20-pin flat cable connector without power supply terminal	10-pin flat cable connector without power supply terminal	26-pin flat cable connector without power supply terminal
Connector	—	—	D-sub-connector 25-pin	MIL-C-83503 standard compliant pressure welding socket 20-pin	MIL-C-83503 standard compliant pressure welding socket 20-pin	MIL-C-83503 standard compliant pressure welding socket 10-pin	MIL-C-83503 standard compliant pressure welding socket 26-pin

Serial transmission slave unit specifications

Download the communication setting file from the CKD website (https://www.ckd.co.jp/en/).

Item		T6G1
Network name		CC-Link ver. 1.10
Power supply voltage	Unit side	24 VDC ±10%
	Valve side	24 VDC +10%, -5%
Current consumption	Unit side	100 mA or less (when all output points are ON)
	Valve side	15 mA or less (when all output points are OFF)
	Communication side	—
No. of output points		16 points
Occupied number		1 station
Operation display		LED (power supply and communication status)
Output		NPN

Item		T7G1	T7L1*1	T7D1	T7S1	T7SP1
Network name		CC-Link ver. 1.10	SAVE NET	DeviceNet*2	CompoNet	
Power supply voltage	Unit side	24 VDC +10%, -5% Common power supply terminal				
	Valve side					
	Communication side	—	—	11 to 25 VDC *3	14.0 to 26.4 VDC	
Current consumption	Unit side	110 mA or less (when all output points are ON) Load current is not included			40 mA or less (when all output points are ON) Load current is not included	
	Valve side					
	Communication side	—	—	50 mA or less	65 mA or less (all points ON: 24 VDC) 95 mA or less (all points ON: 14 VDC)	
No. of output points		16 points	16 points	16 points	16 points	
Occupied number		1 station	1 station	2 bytes	Word slave 1 node (16 points)	
Operation display		LED (power supply and communication status)				
Output		NPN			NPN	PNP

Item		T8G1 T8G2	T8GP1 T8GP2	T8P1 T8P2	T8PP1 T8PP2	T8EC1 T8EC2	T8ECP1 T8ECP2	T8EN1 T8EN2	T8ENP1 T8ENP2	T8D1 T8D2	T8DP1 T8DP2	T8EB1 T8EB2	T8EBP1 T8EBP2	T8EP1 T8EP2	T8EPP1 T8EPP2
Communication protocol		CC-Link ver. 1.10		PROFIBUS-DP (V0)		EtherCAT		EtherNet/IP		DeviceNet		CC-Link IEF Basic		PROFINET	
Power supply voltage	Unit side	24 VDC ±10%								11 to 25 VDC		24 VDC ±10%			
	Valve side	24 VDC+10%, -5%													
Current consumption	Unit side	60 mA or less (when all output points are ON)		60 mA or less (when all output points are ON)		110 mA or less (when all output points are ON)		120 mA or less (when all output points are ON)		70 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)	
	Valve side	T8□1:15mA or less T8□2:20mA or less (When all output points are ON) Load current is not included								15 mA or less (When all output points are ON) Load current is not included					
No. of output points		T8□1: 16 points T8□2: 32 points													
Occupied number		1 station													
Operation display		LED (power supply and communication status)													
Output		NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output

*1 Transmission bit rate of 128 bits and half-duplex transmission method are supported. Contact CKD for other specifications.
*2 Also compatible with DeviceNet compliant networks (DLNK, etc.)
*3 The communication power supply (V+, V- on the DeviceNet cable) is insulated from the power supply terminal (unit power supply/valve power supply).

MN4GD1, 2-T* Series

Reduced wiring block manifold; Body piping

How to order

Manifold model No.

MN4GD1 - 1 - 0R - C6 - T30 W H - 10 - 3 - P4

3-port manifold model No.

MN3GD1 - 1 - 0R - C6 - T30 W H - 10 - 3 - P4

Discrete valve block with solenoid valve

N4GD1 - 1 - 0R - C6 - A2N *1 - H - 3 - P4

Discrete 3-port valve block with solenoid valve

N3GD1 - 1 - 0R - C6 - A2N *1 - H - 3 - P4

Discrete solenoid valve

4GD1 - 1 - 9R - C6 - A2N - H - 3 - P4

Discrete 3-port solenoid valve

3GD1 - 1 - 9R - C6 - A2N - H - 3 - P4

B Solenoid position

A Model No.

C Port size (*1)

D Reduced wiring connection

E Terminal/connector pin array method

F Option

G Station No.

H Voltage

*4
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

A Model No.	Manifold				Discrete valve block with solenoid valve/Discrete solenoid valve			
	3-port valve		5-port valve					
	MN3GD1	MN3GD2	MN4GD1	MN4GD2	(N)3GD1	(N)3GD2	(N)4GD1	(N)4GD2

B Solenoid position									
1	2-position single			●	●			●	●
2	2-position double			●	●			●	●
3	3-position all ports closed			●	●			●	●
4	3-position ABR connection			●	●			●	●
5	3-position PAB connection			●	●			●	●
1	2-position single Normally Closed (*2)	●	●			●	●		
11	2-position single Normally Open(*2)	●	●			●	●		
66	Two 3-port valves integrated (*2)(*3)	A side valve:Normally Closed	●	●			●	●	
		B side valve:Normally Closed							
8	Mix manifold (when there are multiple solenoid positions)		●	●	●	●	●	●	●

C Port size(port A/B)		*4							
Type									
C4	ø4 push-in fitting	○	○	○	○	○	○	○	○
C6	ø6 push-in fitting		○		○		○		○
C8	ø8 push-in fitting		○		○		○		○
CX	Push-in fitting mix (*5))	○	○	○	○				
M5	M5	●		●		●		●	
06	Rc1/8		●		●		●		●

D Reduced wiring connection, serial transmission

Refer to the next page for reduced wiring and serial transmission.

E Terminal/connector pin array									
Blank	Standard wiring	(*6)	●	●	●	●	●	●	●	●
W	Double wiring	(*6)	●	●	●	●	●	●	●	●

F Option									
Blank	Manual override of non-locking/locking common		●	●	●	●	●	●	●	●
H	With exhaust check valve	(*7)	●	●	●	●	●	●	●	●
A	Ozone/coolant proof		●	●	●	●	●	●	●	●
F	Port A/B filter built in	(*8)	●	●	●	●	●	●	●	●
Z1	Air supply spacer	(*9)	●	●	●	●				
Z3	Exhaust spacer	(*9)	●	●	●	●				

G Station No.									
1	1 station								
to	to		●	●	●	●				
24	24 stations (Refer to page 336 for the max. station number per model)								

H Voltage									
3	24 VDC		●	●	●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●	●	●

is not available.

Precautions for model selection

*1: Specify the port P/R bore size with the supply and exhaust block model No. in the manifold specifications sheet.
*2: Select MN4GD*80R when mixing with 4, 5R port valves. MN3GD*80R when used mixed with a masking plate.
*3: Dimensions are the same as the respective 2-position double solenoid.
*5: The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.
*6: Blank…The wiring will be based on the type of valve mounted.
W*...All wired as double solenoid regardless of the type of valve used.
***7: The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**
*8: A filter is built into port P as standard. Specify the spacer mounting position/quantity in the manifold specifications sheet.
***9: Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 347 to 348 for details.**

			Ⓐ Model No.							
			Manifold				Discrete valve block with solenoid valve/ Discrete solenoid valve			
			3-port valve		5-port valve					
			MN3GD1	MN3GD2	MN4GD1	MN4GD2	(N)3GD1	(N)3GD2	(N)4GD1	(N)4GD2
Ⓓ Reduced wiring (lamp and surge suppressor provided as standard) 12/24 VDC										
T10	Common terminal block (M3 thread)	Left-sided specs.	●	●	●	●				
T10R		Right-sided specs.	●	●	●	●				
T11	Common terminal block (clamping)	Left-sided specs.	●	●	●	●				
T11R		Right-sided specs.	●	●	●	●				
T30	D-sub-connector	Left-sided specs.	●	●	●	●				
T30R		Right-sided specs.	●	●	●	●				
T50	20-pin flat cable connector (with power supply terminal)	Left-sided specs.	●	●	●	●				
T50R		Right-sided specs.	●	●	●	●				
T51	20-pin flat cable connector (without power supply terminal)	Left-sided specs.	●	●	●	●				
T51R		Right-sided specs.	●	●	●	●				
T52	10-pin flat cable connector (without power supply terminal)	Left-sided specs.	●	●	●	●				
T52R		Right-sided specs.	●	●	●	●				
T53	26-pin flat cable connector (without power supply terminal)	Left-sided specs.	●	●	●	●				
T53R		Right-sided specs.	●	●	●	●				
Ⓓ Serial transmission (lamp/surge suppressor provided as standard) 24 VDC										
T6G1	CC-Link	NPN 16 points	●	●	●	●				
T7D1	DeviceNet	NPN 16 points	●	●	●	●				
T7G1	CC-Link	NPN 16 points	●	●	●	●				
T7L1	SAVE NET	NPN 16 points	●	●	●	●				
T7S1	CompoNet	NPN 16 points	●	●	●	●				
T7SP1		PNP 16 points	●	●	●	●				
T8G1	CC-Link	NPN 16 points	●	●	●	●				
T8G2		NPN 32 points	●	●	●	●				
T8GP1		PNP 16 points	●	●	●	●				
T8GP2		PNP 32 points	●	●	●	●				
T8P1	PROFIBUS-DP	NPN 16 points	●	●	●	●				
T8P2		NPN 32 points	●	●	●	●				
T8PP1		PNP 16 points	●	●	●	●				
T8PP2		PNP 32 points	●	●	●	●				
T8EC1	EtherCAT	NPN 16 points	●	●	●	●				
T8EC2		NPN 32 points	●	●	●	●				
T8ECP1		PNP 16 points	●	●	●	●				
T8ECP2		PNP 32 points	●	●	●	●				
T8EN1	EtherNet/IP	NPN 16 points	●	●	●	●				
T8EN2		NPN 32 points	●	●	●	●				
T8ENP1		PNP 16 points	●	●	●	●				
T8ENP2		PNP 32 points	●	●	●	●				
T8D1	DeviceNet	NPN 16 points	●	●	●	●				
T8D2		NPN 32 points	●	●	●	●				
T8DP1		PNP 16 points	●	●	●	●				
T8DP2		PNP 32 points	●	●	●	●				
T8EB1	CC-Link IEF Basic	NPN 16 points	●	●	●	●				
T8EB2		NPN 32 points	●	●	●	●				
T8EBP1		PNP 16 points	●	●	●	●				
T8EBP2		PNP 32 points	●	●	●	●				
T8EP1	PROFINET	NPN 16 points	●	●	●	●				
T8EP2		NPN 32 points	●	●	●	●				
T8EPP1		PNP 16 points	●	●	●	●				
T8EPP2		PNP 32 points	●	●	●	●				
A2N	Without lead wire (without socket)	With surge suppressor and indicator lamp					●	●	●	●

is not available.

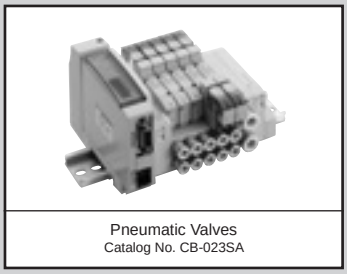
Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓕ option "A" on page 338.

CE marking specifications

** - Voltage - ST

- Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring block manifold
Base piping

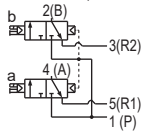
MN4GE1, 2-T* Series

● Cylinder bore size:ø20 to ø80

RoHS CAD

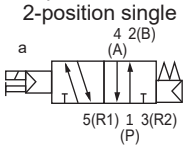
JIS symbol

● Two 3-port valves integrated
(A side valve: NC, B side valve: NC)

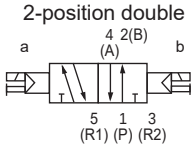


● 5-port valve

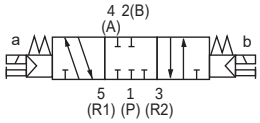
2-position single



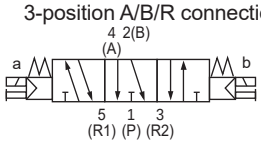
2-position double



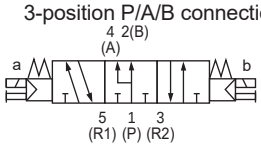
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item	Description
Manifold	Block manifolds
Mounting method	DIN rail mount
Air supply and exhaust method	Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
Piping direction	Side direction of base
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2
Proof pressure MPa	1.05
Ambient temperature °C	-5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common
Lubrication (*1)	Not required
Degree of protection (*2)	Dust-proof
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environments

Electrical specifications

Item	Description		
	T1□,T30□, T5□		T6G1, T7□, T8□
Rated voltage V	24 DC	12 DC	24 DC
Voltage fluctuation range (*3)	±10%		+10%, -5%
Holding current A	0.017	0.034	0.017
Power consumption W	0.4		
Thermal class	B		
Surge suppressor	Zener diode		
Indicator	LED		

*3 : T6G1, T7□, T8□As the voltage drop occurs due to the internal circuit of the (serial transmission), pay attention to the voltage fluctuation range.

*1: Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2: Dust-proof degree of protection. Not drip-proof. Avoid dripping water or oil, etc., during use.

Individual specifications

Item		MN3GE1/MN4GE1									
		T10	T11	T30	T50	T51	T52	T53	T6G1	T7*1	T8*1/2
Max. station No.	Standard wiring	16 stations	24 stations	24 stations	16 stations	18 stations	8 stations	24 stations	16 stations	8/16 stations	16/24 stations
	Double wiring	8 stations	12 stations	12 stations	8 stations	9 stations	4 stations	12 stations	8 stations	4/8 stations	8/16 stations
Max. number of solenoids		16 points	24 points	24 points	16 points	18 points	8 points	24 points	16 points	8/16 points	16/32 points
Port size	Port A/B	Push-in fitting ø4,ø6									
	P/R Port	Push-in fittingø6, ø8									

• For weight, refer to "Pneumatic Valves No.CB-023SA".

Item		MN3GE2/MN4GE2									
		T10	T11	T30	T50	T51	T52	T53	T6G1	T7*1	T8*1/2
Max. station No.	Standard wiring	16 stations	20 stations	20 stations	16 stations	18 stations	8 stations	20 stations	16 stations	8/16 stations	16/20 stations
	Double wiring	8 stations	12 stations	12 stations	8 stations	9 stations	4 stations	12 stations	8 stations	4/8 stations	8/16 stations
Max. number of solenoids		16 points	24 points	24 points	16 points	18 points	8 points	24 points	16 points	8/16 points	16/32 points
Port size	Port A/B	Push-in fittingø4, ø6, ø8									
	P/R Port	Push-in fittingø8, ø10									

• For weight, refer to "Pneumatic Valves No.CB-023SA".

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R			
			C[dm^3/(s·bar)]	b	C[dm^3/(s·bar)]		b	
MN3GE1 MN4GE1	Two 3-port valves integrated		0.86	0.35	1.0	(0.66)	0.15	(0.25)
	2-position		1.0	0.30	1.1	(0.72)	0.11	(0.26)
	3-position	All ports closed	0.96	0.32	1.0	-	0.14	-
		A/B/R connection	0.96	0.29	1.2	(0.71)	0.11	(0.30)
		P/A/B connection	1.1	0.31	1.0	-	0.15	-
MN3GE2 MN4GE2	Two 3-port valves integrated		1.7	0.42	2.2	(1.6)	0.15	(0.19)
	2-position		2.4	0.35	2.5	(1.7)	0.19	(0.19)
	3-position	All ports closed	2.2	0.38	2.3	-	0.17	-
		A/B/R connection	2.2	0.38	2.5	(1.7)	0.18	(0.20)
		P/A/B connection	2.3	0.29	2.3	-	0.15	-

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
*2: Values in ( ) are with the exhaust check valve.

Reduced wiring specifications

Item	T10	T11	T30	T50	T51	T52	T53
Type	Common terminal block M3 thread	Common terminal block Clamping method	D-sub-connector	20P flat cable connectorWith power supply terminal	20P flat cable connectorWithout power supply terminal	10P flat cable connectorWithout power supply terminal	26P flat cable connectorWithout power supply terminal
Connector	—	—	D-sub-connector 25-pin	MIL-C-83503 standard compliant Pressure welding socket 20-pin	MIL-C-83503 standard compliant Pressure welding socket 20-pin	MIL-C-83503 standard compliant Pressure welding socket 10-pin	MIL-C-83503 standard compliant Pressure welding socket 26-pin

Serial transmission slave unit specifications

Download the communication setting file from the CKD website (https://www.ckd.co.jp/en/).

Item		T6G1
Network name		CC-Link ver. 1.10
Power supply voltage	Unit side	24 VDC ±10%
	Valve side	24 VDC +10%, -5%
Current consumption	Unit side	100 mA or less (when all output points are ON)
	Valve side	15 mA or less (when all output points are OFF)
	Communication side	—
No. of output points		16 points
Occupied number		1 station
Operation display		LED (power supply and communication status)
Output		NPN

Item		T7G1	T7L1*1	T7D1	T7S1	T7SP1
Network name		CC-Link ver. 1.10	SAVE NET	DeviceNet*2	CompoNet	
Power supply voltage	Unit side	24 VDC +10%, -5% Common power supply terminal				
	Valve side					
	Communication side	—	—	11 to 25 VDC *3	14.0 to 26.4 VDC	
Current consumption	Unit side	110 mA or less (when all output points are ON) Load current is not included			40 mA or less (when all output points are ON) Load current is not included	
	Valve side					
	Communication side	—	—	50 mA or less	65 mA or less (all points ON:DC24V) 95 mA or less (all points ON:DC14V)	
No. of output points		16 points	16 points	16 points	16 points	
Occupied number		1 station	1 station	2 bytes	Word slave 1 node (16 points)	
Operation display		LED (power supply and communication status)				
Output		NPN			NPN	PNP

Item	T8G1 T8G2	T8GP1 T8GP2	T8P1 T8P2	T8PP1 T8PP2	T8EC1 T8EC2	T8ECP1 T8ECP2	T8EN1 T8EN2	T8ENP1 T8ENP2	T8D1 T8D2	T8DP1 T8DP2	T8EB1 T8EB2	T8EBP1 T8EBP2	T8EP1 T8EP2	T8EPP1 T8EPP2
Communication protocol	CC-Link ver. 1.10		PROFIBUS-DP (V0)		EtherCAT		EtherNet/IP		DeviceNet		CC-Link IEF Basic		PROFINET	
Power supply voltage: Unit side	24 VDC ±10%								11 to 25 VDC		24 VDC ±10%			
Power supply voltage: Valve side	24 VDC+10%, -5%													
Current consumption: Unit side	60 mA or less (when all output points are ON)		60 mA or less (when all output points are ON)		110 mA or less (when all output points are ON)		120 mA or less (when all output points are ON)		70 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)	
Current consumption: Valve side	T8□1:15mA or less T8□2:20mA or less (When all output points are ON) Load current is not included								15 mA or less (When all output points are ON) Load current is not included					
No. of output points	T8□1: 16 points T8□2: 32 points													
Occupied number	1 station													
Operation display	LED (power supply and communication status)													
Output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output	NPN output	PNP output

*1 Transmission bit rate of 128 bits and half-duplex transmission method are supported. Contact CKD for other specifications.
*2 Also compatible with DeviceNet compliant networks (DLNK, etc.)
*3 The communication power supply (V+, V- on the DeviceNet cable) is insulated from the power supply terminal (unit power supply/valve power supply).

MN4GE1, 2-T* Series

Reduced wiring block manifold; Base piping

How to order

Manifold model No.

MN4GE1 **1** 0R - C6 - T30 **W** **H** - **10** - **3** - P4

3-port manifold model No.

MN3GE1 **66** 0R - C6 - T30 **W** **H** - **10** - **3** - P4

Discrete valve block with solenoid valve

N4GE1 **1** 0R - C6 - A2N *1 **H** — **3** - P4

Discrete 3-port valve block with solenoid valve

N3GE1 **66** 0R - C6 - A2N *1 **H** — **3** - P4

Discrete solenoid valve

4GE1 **1** 9R - **00** - A2N **H** — **3** - P4

Discrete 3-port solenoid valve

3GE1 **66** 9R - **00** - A2N **H** — **3** - P4

B Solenoid position

A Model No.

E Terminal/connector pin array

C Port size (*1) (*2)

D Reduced wiring connection, serial transmission

F Option

G Station No.

H Voltage

A Model No.	Manifold: Two 3-port valves integrated		Manifold: 5-port valve		Discrete valve block with solenoid valve/ discrete solenoid valve			
	MN3GE1	MN3GE2	MN4GE1	MN4GE2	(N)3GE1	(N)3GE2	(N)4GE1	(N)4GE2

B Solenoid position									
1	2-position single			●	●			●	●
2	2-position double			●	●			●	●
3	3-position all ports closed			●	●			●	●
4	3-position ABR connection			●	●			●	●
5	3-position PAB connection			●	●			●	●
66	Two 3-port valves integrated (*3)(*4)	A side valve: Normally Closed	●	●			●	●	
		B side valve: Normally Closed							
8	Mix manifold (when there are multiple solenoid positions)		●	●	●	●	●	●	●

C Port size(Port A/B)									
Model									
C4	ø4 push-in fitting		●	●	●	●	●	●	●
C6	ø6 push-in fitting		●	●	●	●	●	●	●
C8	ø8 push-in fitting			●		●		●	●
CX	Push-in fitting mix (*5)		●	●	●	●			
General purpose plug specs.	Port A	Port B							
C4NC	ø4 push-in fitting	Plug			●	●			●	●
C6NC	ø6 push-in fitting				●	●			●	●
C8NC	ø8 push-in fitting					●				●
C4NO	Plug	ø4 push-in fitting			●	●			●	●
C6NO		ø6 push-in fitting			●	●			●	●
C8NO		ø8 push-in fitting				●				●
00	Discrete valve for integrated base						●	●	●	●

D Reduced wiring connection, serial transmission

Refer to the next page for reduced wiring and serial transmission.

E Terminal/connector pin array									
Blank	Standard wiring (*6)		●	●	●	●	●	●	●
W	Double wiring (*6)		●	●	●	●	●	●	●

F Option									
Blank	Manual override of non-locking/locking common		●	●	●	●	●	●	●
H	With exhaust check valve (*7)		●	●	●	●	●	●	●
A	Ozone/coolant proof		●	●	●	●	●	●	●
F	Port A/B filter built in (*8)		●	●	●	●	●	●	●
Z1	Air supply spacer (*9)		●	●	●	●			
Z3	Exhaust spacer (*9)		●	●	●	●			

G Station No.									
1	1 station								
to	to		●	●	●	●			
24	24 stations (Max. station number for MN4GE2 is 20.)								

H Voltage									
3	24 VDC		●	●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●	●

is not available.

Precautions for model selection

*1: Ports A and B plug specifications are available for 2-position single only. Specify the port P/R bore size with the supply and exhaust block model No. in the manifold specifications sheet.

*2: For a discrete solenoid valve, select 00 for port size.

*3: MN4GE*80R when using a mixture of 4, 5-port valves. MN3GE*80R when used with a masking plate.

*4: Dimensions is the same dimensions as the respective 2-position double solenoid.

*5: The push-in fitting cannot be mixed with the discrete valve's 4(A) or 2(B) port.

*6: Blank...The wiring will be based on the type of valve mounted.
W*...All wired as double solenoid regardless of the type of valve used.

***7: The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H). Refer to "Pneumatic Valves No.CB-023SA" for details on the exhaust check valve.**

*8: A filter is built into port P as standard.

***9: Specify the spacer mounting position/ quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. For details, see Pages 347 to 348.**

[Port size/wiring method list]

Ⓐ Model No.			Manifold				Discrete valve block with solenoid valve/ discrete solenoid valve			
			3-port valve Two valves integrated		5-port valve					
			MN3GE1	MN3GE2	MN4GE1	MN4GE2	(N)3GE1	(N)3GE2	(N)4GE1	(N)4GE2
Ⓒ Reduced wiring (lamp and surge suppressor provided as standard) 12/24 VDC										
T10	Common terminal block (M3 thread)	Left-sided specs.	●	●	●	●				
T10R		Right-sided specs.	●	●	●	●				
T11	Common terminal block (clamping)	Left-sided specs.	●	●	●	●				
T11R		Right-sided specs.	●	●	●	●				
T30	D-sub-connector	Left-sided specs.	●	●	●	●				
T30R		Right-sided specs.	●	●	●	●				
T50	20-pin flat cable Connector (with power supply terminal)	Left-sided specs.	●	●	●	●				
T50R		Right-sided specs.	●	●	●	●				
T51	20-pin flat cable Connector (without power supply terminal)	Left-sided specs.	●	●	●	●				
T51R		Right-sided specs.	●	●	●	●				
T52	10-pin flat cable Connector (without power supply terminal)	Left-sided specs.	●	●	●	●				
T52R		Right-sided specs.	●	●	●	●				
T53	26-pin flat cable Connector(without power supply terminal)	Left-sided specs.	●	●	●	●				
T53R		Right-sided specs.	●	●	●	●				
Ⓓ Serial transmission (lamp/surge suppressor provided as standard) 24 VDC										
T6G1	CC-Link	NPN 16 points	●	●	●	●				
T7D1	DeviceNet	NPN 16 points	●	●	●	●				
T7G1	CC-Link	NPN 16 points	●	●	●	●				
T7L1	SAVE NET	NPN 16 points	●	●	●	●				
T7S1	CompoNet	NPN 16 points	●	●	●	●				
T7SP1		PNP 16 points	●	●	●	●				
T8G1	CC-Link	NPN 16 points	●	●	●	●				
T8G2		NPN 32 points	●	●	●	●				
T8GP1		PNP 16 points	●	●	●	●				
T8GP2		PNP 32 points	●	●	●	●				
T8P1	PROFIBUS-DP	NPN 16 points	●	●	●	●				
T8P2		NPN 32 points	●	●	●	●				
T8PP1		PNP 16 points	●	●	●	●				
T8PP2		PNP 32 points	●	●	●	●				
T8EC1	EtherCAT	NPN 16 points	●	●	●	●				
T8EC2		NPN 32 points	●	●	●	●				
T8ECP1		PNP 16 points	●	●	●	●				
T8ECP2		PNP 32 points	●	●	●	●				
T8EN1	EtherNet/IP	NPN 16 points	●	●	●	●				
T8EN2		NPN 32 points	●	●	●	●				
T8ENP1		PNP 16 points	●	●	●	●				
T8ENP2		PNP 32 points	●	●	●	●				
T8D1	DeviceNet	NPN 16 points	●	●	●	●				
T8D2		NPN 32 points	●	●	●	●				
T8DP1		PNP 16 points	●	●	●	●				
T8DP2		PNP 32 points	●	●	●	●				
T8EB1	CC-Link IEF Basic	NPN 16 points	●	●	●	●				
T8EB2		NPN 32 points	●	●	●	●				
T8EBP1		PNP 16 points	●	●	●	●				
T8EBP2		PNP 32 points	●	●	●	●				
T8EP1	PROFINET	NPN 16 points	●	●	●	●				
T8EP2		NPN 32 points	●	●	●	●				
T8EPP1		PNP 16 points	●	●	●	●				
T8EPP2		PNP 32 points	●	●	●	●				
A2N	Without lead wire (without socket)	With surge suppressor and indicator lamp					●	●	●	●

Ozone-proof specifications • Coolant proof specifications

Can be selected with "How to order" Item Ⓕ option "A" on page 342.

CE marking specifications

** - Voltage - ST

• Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

A. Discrete valve block with solenoid valve

Block assembled from solenoid valve body and valve block (split resin base). For model selection, refer to the following pages.
Body piping individual wiring:Page 330, base piping individual wiring:Page 334, Body piping reduced wiring:Page 338, base piping reduced wiring:Page 342

B. Discrete valve block with masking plate

Block assembled from masking plate and valve block (split resin base).

N4GA1 R - MP ——— 3 —— P4

N4GB1 R - MPD - C4 - 3 F - P4

Ⓐ Model No. Ⓑ Type Ⓒ Bore size Ⓔ Option
Ⓓ Cable length *4

Ⓐ Model No.	Ⓑ Type	
N4GA1	MP	For individual wiring
N4GA2	MPS	For reduced wiring single
N4GB1	MPD	For reduced wiring double/3-position
N4GB2		

Ⓒ Bore size (for base piping, this must be configured)	
C4	ø4 push-in fitting
C6	ø6 push-in fitting
C8	ø8 Push-in fitting *1

Single side plug specs	Port A	Port B
C4NC	ø4 push-in fitting	Plug
C6NC	ø6 push-in fitting	
C8NC	ø8 Push-in fitting *1	
C4NO	Plug	ø4 push-in fitting
C6NO		ø6 push-in fitting
C8NO		ø8 Push-in fitting *1

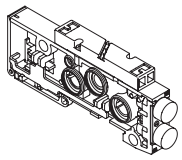
*1 Only 4GE2 is supported.

Ⓓ Cable length *2	
Blank	For individual wiring
2 to 10	Select the length from page 345 .

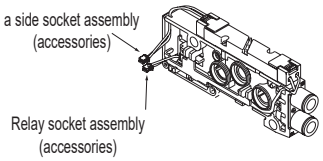
Ⓔ Option	
Blank	No option
F	Port A/B filter built in

*2 A socket assembly is included with purchases for reduced wiring station expansion.Select the cable length from the following page Ⓓ Fill in the cable length field. If ordering with the manifold specifications sheet, the cable length can be omitted.

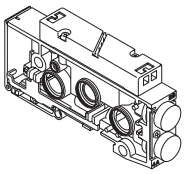
N4GA1R-MP



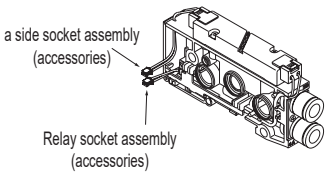
N4GB1R-MPD-C4-3



N4GA2R-MP



N4GB2R-MPD-C6-5

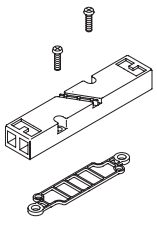


B-1. Masking plate

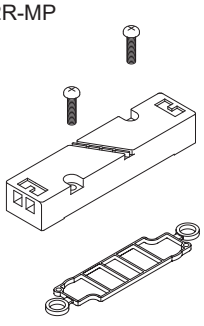
4G1 R - MP

Ⓐ Model No.

4G1R-MP



4G2R-MP



Piping

C. Discrete valve block (separate item only)

Discrete valve block (split resin base).

N4GA1 R - V1 ——— 3 ——— P4

N4GB1 R - V2 - C4 - 3 - F - P4

Ⓐ Model No. Ⓑ Type Ⓒ Bore size Ⓓ Cable length Ⓔ Option

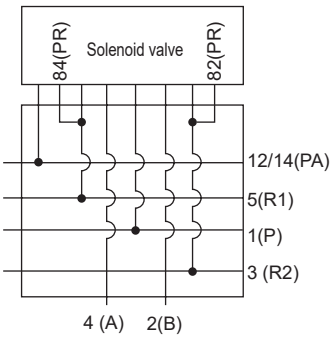
Ⓐ Model No.	Ⓑ Type	
N4GA1	V1	For individual wiring For reduced wiring single
N4GA2		
N4GB1	V2	For reduced wiring double/3-position
N4GB2		

Ⓒ Bore size (for base piping, this must be configured)	
C4	ø4 push-in fitting
C6	ø6 push-in fitting
C8	ø8 Push-in fitting *1

Single side plug specs.	Port A	Port B
C4NC	ø4 push-in fitting	Plug
C6NC	ø6 push-in fitting	
C8NC	ø8 Push-in fitting *1	
C4NO	Plug	ø4 push-in fitting
C6NO		ø6 push-in fitting
C8NO		ø8 Push-in fitting *1

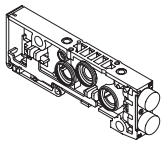
*1 Only 4GE2 is supported.

Ⓓ Cable length		Ⓔ Option	
Blank	For individual wiring	Blank	No option
2 to 10	Select a length from the following	F	Port A/B filter built in

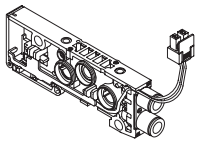


Discrete valve block circuit diagram

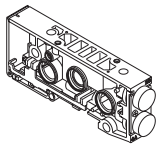
N4GA1R-V1



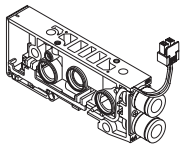
N4GB1R-V2-C4



N4GA2R-V1



N4GB2R-V2-C6



Valve block for expansion Cable length

Calculate the distance W between the expansion position and the wiring block (Fig. 1),<<Select a cable with appropriate length from Table 1>>. Note that the required socket assembly differs between the a side solenoid and b side solenoid. While Fig. 1 shows the wiring block with left side specifications, similarly calculate the distance W between the expansion position and the wiring block for the right side specifications.

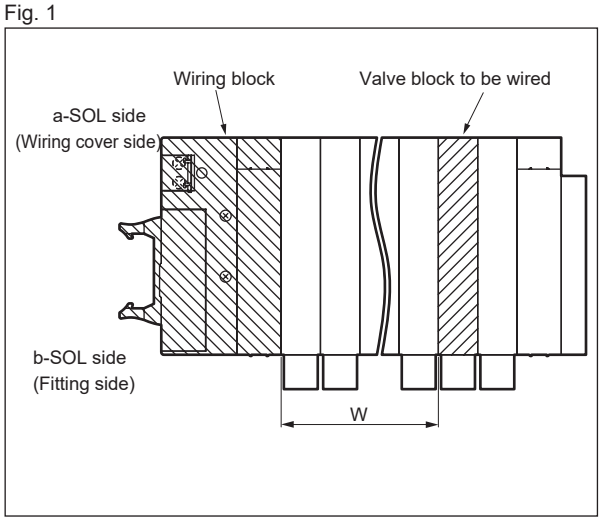
Calculation of W

- For MN4G1
  W=(10.5xn)+(16xm)+(10.5xl)
- For MN4G2
  W=(16xn)+(18xm)+(10.5xl)
  n/m/l: No. of valve blocks/supply and exhaust blocks/partition blocks
- For MN4GX
  Calculate W using the mix block width of 16.

[Table 1] W length - selection No. compatibility table

Selection No.	Type of wiring		
	T10/11(R)	T30/5*/6(R)	T7*/T8*
2		0	25 or less
3	20 or less	Over 0 to 30	Over 25 to 55
4	Over 20 to 70	Over 30 to 80	Over 55 to 105
5	Over 70 to 120	Over 80 to 130	Over 105 to 155
6	Over 120 to 170	Over 130 to 180	Over 155 to 205
7	Over 170 to 260	Over 180 to 270	Over 205 to 295
8	Over 260 to 350	Over 270 to 360	Over 295 to 385
9	Over 350 to 450	Over 360 to 460	Over 385 to 485
10	Over 450 to 570	Over 460 to 580	Over 485 to 605

Fig. 1



Piping

As problems may occur depending on the configuration, make selections with a sufficient understanding of the features of each block.

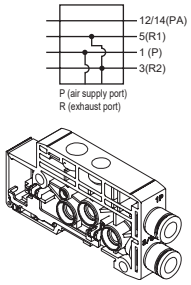
D. Supply and exhaust block

The supply and exhaust block can be installed at any position adjacent to the valve block. As there is no set number of units, install two or more units when necessary for combinations with partition blocks or in order to increase the flow rate for supply and exhaust.
In order to prevent foreign matter from entering, port P is equipped with a filter.

N4G1R - Q - 8 - P4
Model No. Ⓐ Type Ⓑ Bore size

Ⓐ Type		Ⓑ Bore size	
Q	Internal pilot	6	ø6 push-in fitting
		8	ø8 push-in fitting

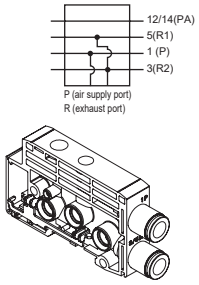
N4G1R-Q-8



N4G2R - Q - 10
Model No. Ⓐ Type Ⓑ Bore size

Ⓐ Type		Ⓑ Bore size	
Q	Internal pilot	8	ø8 push-in fitting
		10	ø10 push-in fitting

N4G2R-Q-10

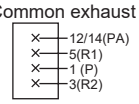


E. End block

Install on both ends of the manifold for individual wiring. Install on opposite sides of the wiring block for reduced wiring.
An exhaust muffler is built into the atmosphere release type.

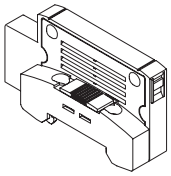
N4G1R - E R
Model No. Ⓐ Installation position

Common exhaust

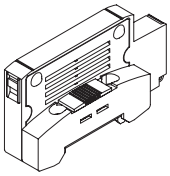


Ⓐ Installation position	
L	For left side
R	For right side

N4G1R-EL

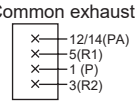


N4G1R-ER



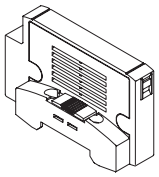
N4G2R - E L
Model No. Ⓐ Installation position

Common exhaust

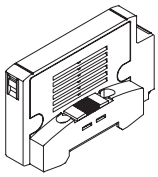


Ⓐ Installation position	
L	For left side
R	For right side

N4G2R-EL



N4G2R-ER



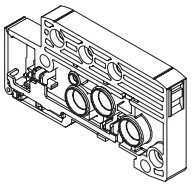
F. Partition block

Multi-pressure mixing and measures for back pressure increase prevention can be achieved by combining partition blocks and supply and exhaust blocks.

N4G1R - S
Model No. Ⓐ Type

Ⓐ Type	
SA	P/R/PA blocked
S	P/R blocked PA through
SP	P blocked R/PA through
SE	R blocked P/PA through

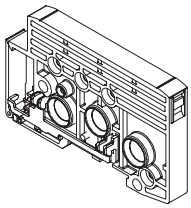
N4G1-S



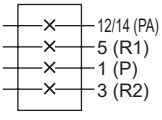
N4G2R - SA
Model No. Ⓐ Type

Ⓐ Type	
SA	P/R/PA blocked
S	P/R blocked PA through
SP	P blocked R/PA through
SE	R blocked P/PA through

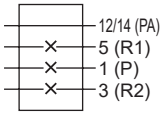
N4G2-S



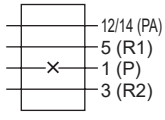
-SA



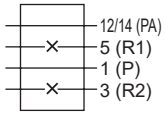
-S



-SP



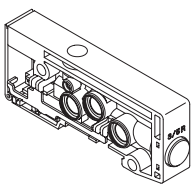
-SE

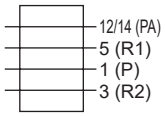


G. Mixed block

Install when 4G1 and 4G2 will be mixed within the same manifold.
Installation positions are 4G1 on the left side of the mixed block and 4G2 on the right side.

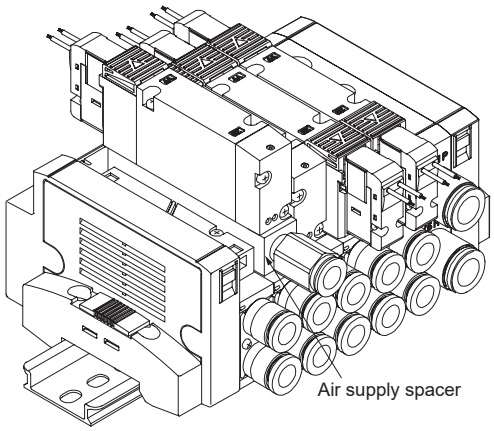
N4G12R - MIX





Related products Air supply spacer

● Air supply spacer



Specifications

Model No.	P→A/B		A/B→R		Weight g
	C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b	
4G1	0.70	0.23	0.93	0.16	8
4G2	1.6	0.17	1.8	0.16	35

*1: Values are when a valve is mounted.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order discrete units

4G (2) R − P − (GWS6) − P4

Ⓐ Air supply spacer model No.
Ⓑ Port size

Code	Description	Model No. 4GD1	4GE1	4GD2	4GE2
Ⓐ Air supply spacer model No.					
1	For 4G1	●			
2	For 4G2			●	
Ⓑ Port size					
Blank	M5(4G1), Rc1/8(4G2) *1	●		●	
GWS4	ø4 fitting	○			
GWS6	ø6 fitting	○		○	
GWS8	ø8 fitting			○	

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

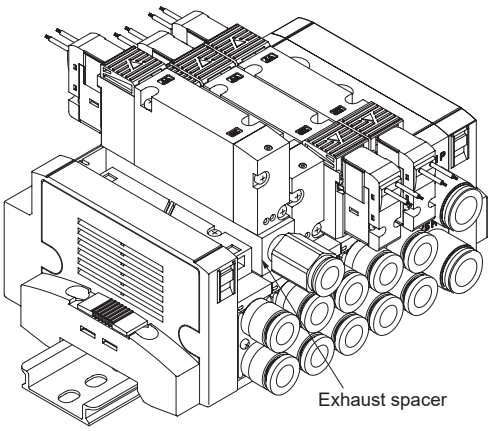
is not available.

Accessories: 4G1 2 mounting screws, 1 specially designed gasket
4G2 2 mounting screws, 2 PR check valves, 1 body gasket

⚠ Precautions for model selection

*2 Specify the positions and quantity of air supply spacers for manifold in the manifold specifications sheet.
*3 If the port A/B fitting is elbow, turn the air supply port of the air supply spacer toward the reverse side ("a" solenoid side).
*4 If the elbow (upward) port A/B fitting is used for the reduced wiring manifold, the air supply spacer cannot be selected.
*5 Combination with the masking plate is not supported.

● Exhaust spacer



Specifications

Model No.	P→A/B		A/B→R		Weight g
	C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b	
4G1	0.94	0.28	0.68	0.33	7
4G2	1.5	0.24	1.9	0.24	34

*1: Values are when a valve is mounted.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order discrete units

4G (2) R − R − (GWS6) − P4

Ⓐ Exhaust spacer model No.

Ⓑ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Code	Description	Model No. 4GD1	4GE1	4GD2	4GE2
Ⓐ Exhaust spacer model No.					
1	For 4G1	●			
2	For 4G2			●	
Ⓑ Port size					
Blank	M5 thread (4G1), Rc thread (4G2) *1	●		●	
GWS4	ø4 fitting	○			
GWS6	ø6 fitting	○		○	
GWS8	ø8 fitting			○	

is not available.

Accessories: 4G1 2 mounting screws, 1 specially designed gasket
4G2 2 mounting screws, 2 PR check valves, 1 body gasket

⚠ Precautions for model selection

*2 Specify the positions and quantity of air supply spacers for manifold in the manifold specifications sheet.
*3 If the port A/B fitting is elbow, turn the air supply port of the air supply spacer toward the reverse side ("a" solenoid side).
*4 If elbow upward port A/B fitting is used for the reduced wiring manifold, the exhaust spacer cannot be selected.
*5 Combination with the masking plate is not supported.

How to fill out block manifold MN4G Series manifold specifications sheet

● Manifold model No. (example)

MN 4 GD1 8 0R- CX - T50 W H - 8 - 3 - P4

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/connector pin array (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

Refer to "Block configurations" (Pneumatic Valves No.CB-023SA) to select the model No.

Part name	Model No.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
Wiring block	N4G1R-T 50	○																														1
With solenoid valve Valve block (344 page)	N4GD1 1 0R- C4		○	○																												2
	N4GD1 2 0R- C6					○																										1
	N4GD1 3 0R- C4				○																											1
	N4GD1 0R-																															
	N4GD1 0R-																															
	N4GD1 0R-																															
	N3GD1 1 0R- C4									○	○	○																				3
	N3GD1 0R-																															
Valve block with masking plate (344 page)	N4GA1R-MP																															
	N4GA1R-MPS																															
	N4GA1R-MPD						○																									1
Supply and exhaust block (346 page)	N4G1R-Q - 8L							○					○																			2
	N4G1R-Q -																															
	N4G1R-Q -																															
Partition block (346 page)	N4G1R-S A								○																							1
	N4G1R-S																															
	N4G1R-S																															
End block (346 page)	N4G1R-E R													○																		1
	N4G1R-E																															

Mounting rail	L_2= (How to calculate length on next page)	Blanking plug		Tag plate (included)		Included parts
		GWP 4-B		A	○	
		Cable with D-sub-connector	4GR-CABLE-D0□-□	Push-in fitting tube remover (standard attachment)	☑Not required (check)	

If the tube remover (standard accessory) is not required, place a check.

* A circuit diagram of the above manifold model No. (example) is provided on the following page. Use for reference.

Preparing manifold specifications sheet

● Complete from the left end, with the piping port facing forward.
(Block components (Pneumatic Valves No.CB-023SA) and layout.)
● Write the total number of blocks specified in the quantity field in the table far right.
● Mark a circle for attachments that are required.
● Indicate the mounting rail length. (Fill in only when a length other than the standard length is required.)
● As there are manifold specifications sheets for each of the various series, fill in the form for the corresponding specifications.

- MN4GD1: Page 352
- MN4GE1: Page 353
- MN4GD2: Page 354
- MN4GE2: Page 355
- MN4GDX1/2 (mix manifold): Page 356
- MN4GEX1/2 (mix manifold): Page 357

MN4GD/4GE Series

Manifold specifications sheet

● Mounting rail model No.: N4GR-BAA Length

Mounting rail length (L2)

①Determine the rail length using the calculation method shown below.
The obtained length is standard.
②For standard length, length (L2) is not required on the specifications sheet.
If you need a length other than the standard length, please enter it.

● How to determine the length of the mounting rail

Manifold length (L1) = (A× Valve Block Quantity)+(B× Supply and exhaust Block Quantity)+(C× Partition Block Quantity)+ D + E

Mounting rail length (L2) = L2'x 12.5 A, B, C, D, and E indicate the length (width) of each block.

$$L2' : \frac{L1+40}{12.5} \rightarrow \text{round up to integer}$$

Rail mounting pitch (L3) = L2 - 12.5

Block length (width) dimensions table (mm)

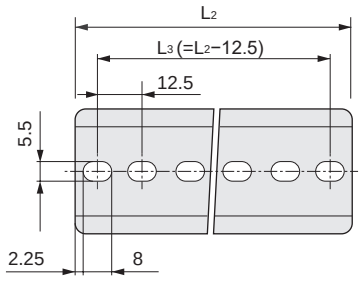
			MN4GD/E1	MN4GD/E2	MN4G1/2MIX	
					MN4GD/E1	MN4GD/E2
A	Valve block		10.5	16	10.5	16
B	Supply and exhaust block		16	18	16	18
C	Partition block		10.5	10.5	10.5	10.5
D	Individual wiring		41.2	46.2	43.7	
	For reduced wiring Wiring block	T10/T11	83.9	86.4	86.4	
		T10R/T11R	83.9	86.4	83.9	
		T30/T5*	69.4	71.9	71.9	
		T30R/T5*R	69.4	71.9	69.4	
		T6G1	143.6	146.1	146.1	
		T7*	64.4	66.9	66.9	
		T8*	64.4	66.9	66.9	
E	Mixed block				16	

* The end block is included in wiring block.

● Mounting rail length quick reference table

L1:Manifold Length	47.5 or less	47.5 Over to 60 or less	60 to 72.5	72.5 to 85	85 to 97.5	97.5 to 110	110 to 122.5	122.5 to 135	135 to 147.5	147.5 to 160	160 to 172.5	172.5 to 185	185 to 197.5	197.5 to 210	210 to 222.5	222.5 to 235	235 to 247.5	247.5 to 260	260 to 272.5	272.5 to 285	285 to 297.5	297.5 to 310	310 to 322.5	322.5 to 335	335 to 347.5	347.5 to 360
L2:Rail Length	87.5	100	112.5	125	137.5	150	162.5	175	187.5	200	212.5	225	237.5	250	262.5	275	287.5	300	312.5	325	337.5	350	362.5	375	387.5	400
PitchL3	75	87.5	100	112.5	125	137.5	150	162.5	175	187.5	200	212.5	225	237.5	250	262.5	275	287.5	300	312.5	325	337.5	350	362.5	375	387.5

*1: When L1 exceeds this table range, calculate according to "How to calculate mounting rail length".



How to fill out wiring specifications sheet

Not required for standard wiring and double wiring.

● Wiring specifications sheet (Example)

* The following example has been filled out in accordance with the manifold specifications sheet on the previous page.

Connector pin No.				Valve No.																						
T50/T50R	**T51/T51R**	**T52/T52R**	**T53/T53R**	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1	**a**																						
2	2	2	2		**a**																					
3	3	3	3				**a**																			
4	4	4	4				**b**																			
5	5	5	5					**a**																		
6	6	6	6					**b**																		
7	7	7	7			**a**																				
8	8	8	8			**b**																				
9 - Power supply	9	9 COM	9																							
10 + (COM) Power supply	10	10 COM	10																							
11	11		11						**a**																	
12	12		12							**a**																
13	13		13								**a**															
14	14		14																							
15	15		15																							
16	16		16																							
17	17		17																							
18	18		18																							
19 - Power supply	19 COM		19																							
20 + (COM) Power supply	20 COM		20																							
			21																							
			22																							
			23																							
			24																							
			25 COM																							
			26 COM																							

* When T50/T50R, the COM polarity is+(Positive) be careful.

● Notes on wiring specifications

①Fill in and attach to the manifold specifications sheet for anything other than the standard wiring or double wiring. Consult with CKD, as products will be custom made in this case.

②The valve No. is determined by counting the valve blocks only in order from the left with the ports facing forward. Note that this differs from the installation position numbers.

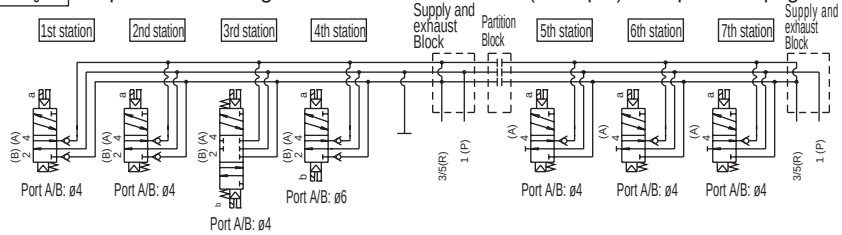
③As the connector pin No. and valve No. differ for each reduced wiring method (T1*/T30/T5*/T6G1/T7*/T8*), fill out the form upon reviewing the precautions for each reduced wiring method ("Pneumatic Valves No.CB-023SA").

④Wiring (socket assembly) is included with valve blocks with masking plates. Both A and B sides for "-MPS" and "-MPD".

⑤Double solenoids or 3-position solenoid valves cannot be assembled to "-MPS". Order valve block with solenoid valve and carry out expansion.

⑥It is not possible to install spare wires for station expansion in advance. Wire the socket assembly of the solenoid valve for station expansion. For the procedure for station expansion, refer to "Pneumatic Valves No.CB-023SA" .

Reference circuit diagram Simplified circuit diagram of manifold model No. (example) from previous page



* The manifold station numbers are set in order from the left with the piping port facing forward.
(Wiring blocks, supply and exhaust blocks, partition block, and end block are not included in the manifold station No.)

* Select a model No. from the page for block configurations (pneumatic valves No.CB-023SA) and specification model No.

* With piping port facing front, arrangement positions are set in order from the left.

MN4GD1 Block manifold specifications sheet

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

Date issued / /

Company

Contact

Order No.

● Manifold model No.

MN□GD1□□0R-□ - □ □□-□-□-P4

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/connector pin array (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

Refer to "Block configurations" (Pneumatic Valves No.CB-023SA) to select the model No.

Part name (Page)	Model No.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
Wiring block	N4G1R-T□																															
Valve block with solenoid valve (344 page)	N4GD1□0R-□																															
	N4GD1□0R-□																															
	N4GD1□0R-□																															
	N4GD1□0R-□																															
	N4GD1□0R-□																															
	N4GD1□0R-□																															
	N3GD1□0R-□																															
	N3GD1□0R-□																															
Valve block with masking plate (344 page)	N4GA1R-MP																															
	N4GA1R-MPS																															
	N4GA1R-MPD																															
Air supply spacer (Page 347)	4 G1R-P-□																															
	4 G1R-P-□																															
Exhaust spacer (Page 348)	4G1R-R-□																															
	4G2R-R-□																															
Supply and exhaust block (Page 346)	N4G1R-Q□-□																															
	N4G1R-Q□-□																															
	N4G1R-Q□-□																															
Partition block (Page 346)	N4G1R-S□																															
	N4G1R-S□																															
	N4G1R-S□																															
End block (Page 346)	N4G1R-E□																															
	N4G1R-E□																															

Mounting rail	Blanking plug		Tag plate (attachment)		Included parts
L_2= □	GWP 4-B		A		
* Write an integer multiple of 12.5. (How to determine the length page 350)	Cable with D-sub-connector	4GR-CABLE-D0□-□		Push-in fitting tube remover (attached as standard) □Not required (check)	

MN4GE1 Block manifold specifications sheet

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

Date issued / /

Company

Contact

Order No.

● Manifold model No.

MN□GE1□□0R-□ - □ □ □-□-□-P4

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/connector pin array (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

Refer to "Block configurations" (Pneumatic Valves No.CB-023SA) to select the model No.

Part name (Page)	Model No.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
Wiring block	N4G1R-T□																															
Valve block with solenoid valve (344 page)	N4GE1□0R-□																															
	N4GE1□0R-□																															
	N4GE1□0R-□																															
	N4GE1□0R-□																															
	N4GE1□0R-□																															
	N4GE1□0R-□																															
	N3GE1□0R-□																															
	N3GE1□0R-□																															
Valve block with masking plate (344 page)	N4GB1R-MP-□																															
	N4GB1R-MPS-□																															
	N4GB1R-MPD-□																															
Air supply spacer (347 page)	4 G1R-P-□																															
	4 G1R-P-□																															
Exhaust spacer (Page 348)	4G1R-R-□																															
	4G2R-R-□																															
Supply and exhaust block (346 page)	N4G1R-Q□-□																															
	N4G1R-Q□-□																															
	N4G1R-Q□-□																															
Partition block (346 page)	N4G1R-S□																															
	N4G1R-S□																															
	N4G1R-S□																															
End block (346 page)	N4G1R-E□																															
	N4G1R-E□																															

Mounting rail	Blanking plug				Tag plate (attachment)				Included parts
L_2= □	GWP 4-B		GWP 6-B		B1		B2		
* Write an integer multiple of 12.5. (How to determine the length page 350)	Cable with D-sub-connector		4GR-CABLE-D0□-□			Push-in fitting tube remover (attached as standard) ☐Not required (check)			

MN4GD2 Block manifold specifications sheet

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

Date issued / /

Company

Contact

Order No.

● Manifold model No.

MN□GD2□□0R-□ - □ □□□-□-□-P4

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/connector pin array (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

Refer to "Block configurations" (Pneumatic Valves No.CB-023SA) to select the model No.

Part name (Page)	Model No.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
Wiring block	N4G2R-T□																															
Valve block with solenoid valve (344 page)	N4GD2□0R-□																															
	N4GD2□0R-□																															
	N4GD2□0R-□																															
	N4GD2□0R-□																															
	N4GD2□0R-□																															
	N4GD2□0R-□																															
	N3GD2□0R-□																															
	N3GD2□0R-□																															
Valve block with masking plate (344 page)	N4GA2R-MP-□																															
	N4GA2R-MPS-□																															
	N4GA2R-MPD-□																															
Air supply spacer (Page 347)	4G2R-P-□																															
	4G2R-P-□																															
Exhaust spacer (Page 348)	4G1R-R-□																															
	4G2R-R-□																															
Supply and exhaust block (Page 346)	N4G2R-Q□-□																															
	N4G2R-Q□-□																															
	N4G2R-Q□-□																															
Partition block (Page 346)	N4G2R-S□																															
	N4G2R-S□																															
	N4G2R-S□																															
End block (Page 346)	N4G2R-E□																															
	N4G2R-E□																															

Mounting rail	Blanking plug						Tag plate (attachment)		Included parts
L_2=□	GWP 4-B	□	GWP 6-B	□	GWP 8-B	□	A	□	
* Write an integer multiple of 12.5. (How to determine the length page 350)	Cable with D-sub-connector		4GR-CABLE-D0□-□						

MN4GE2 Block manifold specifications sheet

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

Date issued / /

Company

Contact

Order No.

● Manifold model No.

MN ☐ GE2 ☐ ☐ 0R- ☐ - ☐ ☐ ☐ ☐ - ☐ - ☐ -P4

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/connector pin array (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

Refer to "Block configurations" (Pneumatic Valves No.CB-023SA) to select the model No.

Part name (Page)	Model No.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
Wiring block	N4G2R-T ☐																															
Valve block with solenoid valve (344 page)	N4GE2 ☐ 0R- ☐																															
	N4GE2 ☐ 0R- ☐																															
	N4GE2 ☐ 0R- ☐																															
	N4GE2 ☐ 0R- ☐																															
	N4GE2 ☐ 0R- ☐																															
	N4GE2 ☐ 0R- ☐																															
	N3GE2 ☐ 0R- ☐																															
	N3GE2 ☐ 0R- ☐																															
Valve block with masking plate (344 page)	N4GB2R-MP- ☐																															
	N4GB2R-MPS- ☐																															
	N4GB2R-MPD- ☐																															
Air supply spacer (Page 347)	4G2R-P- ☐																															
	4G2R-P- ☐																															
Exhaust spacer (Page 348)	4G1R-R- ☐																															
	4G2R-R- ☐																															
Supply and exhaust block (Page 346)	N4G2R-Q ☐ - ☐																															
	N4G2R-Q ☐ - ☐																															
	N4G2R-Q ☐ - ☐																															
Partition block (Page 346)	N4G2R-S ☐																															
	N4G2R-S ☐																															
	N4G2R-S ☐																															
End block (Page 346)	N4G2R-E ☐																															
	N4G2R-E ☐																															

Mounting rail	L_2= ☐ * Write an integer multiple of 12.5. (How to determine the length page 350)	Blanking plug						Tag plate (attachment)		Included parts
		GWP 4-B	☐	GWP 6-B	☐	GWP 8-B	☐	B	☐	
		Cable with D-sub-connector		4GR-CABLE-D0□-□				☐		

MN4GD1/2 Mix manifold specifications sheet

● Contact ● Quantity set(s) ● Delivery date /

Slip No. | Order No.

Date issued / /

Company

Contact

Order No.

● Manifold model No.

MN□GDX12R-□ - □ □□-□-□-P4

Ⓐ Model No. Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/connector pin array (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

Refer to "Block configurations" (Pneumatic Valves No.CB-023SA) to select the model No.

Part name (Page)	Model No.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
Wiring block	N4G□R-T□																															
Valve block with solenoid valve (344 page)	N4GD□0R-□																															
	N4GD□0R-□																															
	N4GD□0R-□																															
	N4GD□0R-□																															
	N4GD□0R-□																															
	N4GD□0R-□																															
	N3GD□0R-□																															
	N3GD□0R-□																															
Valve block with masking plate (344 page)	N4GA□R-MP																															
	N4GA□R-MPS																															
	N4GA□R-MPD																															
Air supply spacer (Page 347)	4 G1R-P-□																															
	4G2R-P-□																															
Exhaust spacer (Page 348)	4G1R-R-□																															
	4G2R-R-□																															
Mixed block	N4G12R-MIX																															
Supply and exhaust block (Page 346)	N4G□R-Q□-□																															
	N4G□R-Q□-□																															
	N4G□R-Q□-□																															
Partition block (Page 346)	N4G□R-S□																															
	N4G□R-S□																															
	N4G□R-S□																															
End block (Page 346)	N4G□R-E□																															
	N4G□R-E□																															
Mounting rail	L2=□ * Write an integer multiple of 12.5.(How to determine the length Page 350)																															

Blanking plug

GWP□-B		GWP□-B		GWP□-B		GWP□-B	

D Cable with sub-connector	4GR-CABLE-D0□-□		Push-in fitting tube remover (standard attachment) □Not required (check)

Included parts

MN4GE1/2 Mix manifold specifications sheet

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

Date issued / /

Company

Contact

Order No.

● Manifold model No.

MN ☐ GEX12R- ☐ - ☐ ☐ ☐ - ☐ - ☐ -P4

Ⓐ Model No. Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/connector pin array (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

Refer to "Block configurations" (Pneumatic Valves No.CB-023SA) to select the model No.

Part name	Model No.	Layout position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Quantity
Wiring block	N4G ☐ R-T ☐																															
Valve block with solenoid valve (344 page)	N4GE ☐ 0R- ☐																															
	N4GE ☐ 0R- ☐																															
	N4GE ☐ 0R- ☐																															
	N4GE ☐ 0R- ☐																															
	N4GE ☐ 0R- ☐																															
	N4GE ☐ 0R- ☐																															
	N3GE ☐ 0R- ☐																															
	N3GE ☐ 0R- ☐																															
Valve block with masking plate (Page 344)	N4GB ☐ R-MP- ☐																															
	N4GB ☐ R-MPS- ☐																															
	N4GB ☐ R-MPD- ☐																															
Air supply spacer (Page 347)	4 G1R-P- ☐																															
	4G2R-P- ☐																															
Exhaust spacer (Page 348)	4G1R-R- ☐																															
	4G2R-R- ☐																															
Mixed block	N4G12R-MIX																															
Supply and exhaust block (Page 346)	N4G ☐ R-Q ☐ - ☐																															
	N4G ☐ R-Q ☐ - ☐																															
	N4G ☐ R-Q ☐ - ☐																															
Partition block (Page 346)	N4G ☐ R-S ☐																															
	N4G ☐ R-S ☐																															
	N4G ☐ R-S ☐																															
End block (Page 346)	N4G ☐ R-E ☐																															
	N4G ☐ R-E ☐																															

Mounting rail	Blanking plug				Included parts
L_2= ☐	GWP ☐ -B ☐	GWP ☐ -B ☐	GWP ☐ -B ☐	GWP ☐ -B ☐	
* Write an integer multiple of 12.5. (How to determine the length 350 page)	Cable with D-sub-connector	4GR-CABLE-D0☐-☐		Push-in fitting tube remover (attached as standard) ☐Not required (check)	

Common terminal block (T10/T11) wiring specifications sheet

* Fill in and attach to the manifold specifications sheet for anything other than the standard wiring or double wiring. (Available as made to order)
* Not required with standard wiring/double wiring.

Connector pin No.		Valve No.																							
T10 ☐	**T11** ☐	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1																								
2	2																								
3	3																								
4	4																								
5	5																								
6	6																								
7	7																								
8	8																								
9	9																								
10	10																								
11	11																								
12	12																								
13	13																								
14	14																								
15	15																								
16	16																								
COM	17																								
COM	18																								
	19																								
	20																								
	21																								
	22																								
	23																								
	24																								
	COM																								
	COM																								

D-sub-connector (T30) wiring specifications sheet

* Fill in and attach to the manifold specifications sheet for anything other than the standard wiring or double wiring. (Available as made to order)
* Not required with standard wiring/double wiring.

Connector pin No.	Valve No.																							
T30 ☐	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
14																								
2																								
15																								
3																								
16																								
4																								
17																								
5																								
18																								
6																								
19																								
7																								
20																								
8																								
21																								
9																								
22																								
10																								
23																								
11																								
24																								
12																								
25																								
13 (COM)																								

Flat cable connector (T50/T51/T52/T53) wiring specifications sheet

* Fill in and attach to the manifold specifications sheet for anything other than the standard wiring or double wiring. (Available as made to order)
* Not required with standard wiring/double wiring.

Connector pin No.				Valve No.																							
T50/T50R	**T51/T51R**	**T52/T52R**	**T53/T53R**	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1																								
2	2	2	2																								
3	3	3	3																								
4	4	4	4																								
5	5	5	5																								
6	6	6	6																								
7	7	7	7																								
8	8	8	8																								
9 - Power supply	9	9 COM	9																								
10 + (COM) Power supply	10	10 COM	10																								
11	11		11																								
12	12		12																								
13	13		13																								
14	14		14																								
15	15		15																								
16	16		16																								
17	17		17																								
18	18		18																								
19 - Power supply	19 COM		19																								
20 + (COM) Power supply	20 COM		20																								
			21																								
			22																								
			23																								
			24																								
			25 COM																								
			26 COM																								

* Note that when the wiring method is T50/T50R, the COM polarity will be + (positive).

Serial transmission (T6G1/T7*) wiring specifications sheet

* Fill in and attach to the manifold specifications sheet for anything other than the standard wiring or double wiring. (Available as made to order)
* Not required with standard wiring/double wiring.

Serial transmission	Connector pin No.		Valve No.															
	T6G1	**T7***	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Connector type T6G1: CC-Link 16 points	1	1																
	2	2																
	3	3																
	4	4																
	5	5																
	6	6																
	7	7																
	8	8																
	9	9																
	10 COM	10																
	11	11																
	12	12																
Thin slot-insertion type T7D1: DeviceNet 16 points T7G1:CC-Link 16 points T7L1: SAVE NET 16 points T7S1: CompoNet 16 points (NPN) T7SP1: CompoNet 16 points (PNP)	13	13																
	14	14																
	15	15																
	16	16																
	17	17																
	18	18																
	19	19																
	20 COM	20																

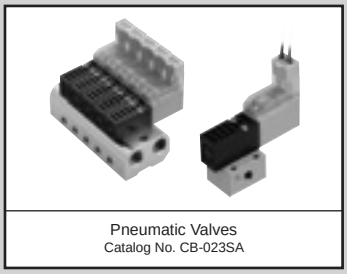
Serial transmission (T8*) wiring specifications sheet

* Fill in and attach to the manifold specifications sheet for anything other than the standard wiring or double wiring. (Available as made to order)
* Not required with standard wiring/double wiring.

Serial transmission			
T8G1	CC-Link	NPN	16 points
T8G2			32 points
T8GP1		PNP	16 points
T8GP2			32 points
T8P1	PROFIBUS-DP	NPN	16 points
T8P2			32 points
T8PP1		PNP	16 points
T8PP2			32 points
T8EC1	EtherCAT	NPN	16 points
T8EC2			32 points
T8ECP1		PNP	16 points
T8ECP2			32 points
T8EN1	EtherNet/IP	NPN	16 points
T8EN2			32 points
T8ENP1		PNP	16 points
T8ENP2			32 points
T8D1	DeviceNet	NPN	16 points
T8D2			32 points
T8DP1		PNP	16 points
T8DP2			32 points
T8EB1	CC-Link IEF Basic	NPN	16 points
T8EB2			32 points
T8EBP1		PNP	16 points
T8EBP2			32 points
T8EP1	PROFINET	NPN	16 points
T8EP2			32 points
T8EPP1		PNP	16 points
T8EPP2			32 points

Connector Pin No.	Valve No.																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
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31																								
32																								

MEMO



Pneumatic Valves
Catalog No. CB-023SA

Direct acting 3-port valve

Single valve; body piping/sub-plate piping

3QRA/3QRB Series

Individual wiring manifold body piping / sub-plate piping

M3QRA/M3QRB Series

● Cylinder bore size:ø6 to ø25

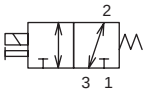
P4 compliant as standard

CE RoHS CAD

JIS symbol

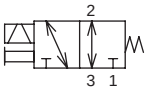
●2-position universal

(Self-reset)



Port No.item1.2.3is
PortG1:P,NC
PortG2:A,COM
PortG3:R,NO
.

(self-hold)



Port No.item1.2.3is
PortG1:P,NC
PortG2:A,COM
PortG3:R,NO
.

Common specifications

Descriptions	Item
Valve and operation	Direct acting poppet valve
Working fluid	Compressed air, low vacuum
Max. working pressure MPa	0.70
Min. working pressure MPa	Low vacuum: -100 kPa
Proof pressure MPa	1.05 (low vacuum: -101 kPa)
Max. working pressure differentialMPa	0.70
Ambient temperature °C	-5 to 50 (no freezing)
Fluid temperature °C	5 to 50
Lubrication	Unavailable - *1
Degree of protection	Dust-proof
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

*1: Lubrication will degrade the performance.

Electrical specifications

Descriptions		Standard specifications	Large flow rate specifications H
Rated voltage V	DC	24, 12	
Energizing rate		Intermittent *2	Continuous *3
Voltage fluctuation range		±10%	
Starting current A	24 VDC	-	0.13
	12 VDC	-	0.27
Holding current A	24 VDC	0.08	0.10
	12 VDC	0.17	0.20
Power consumption W		2.0	2.4 *4
Thermal class		B	

*2: Limit continuous energizing to within 5 minutes and energization ratio to 50% or less. Min. time of excitation for self-holding is 50 ms.

*3: Refer to the precautions for continuous energization in "Pneumatic Valves No.CB-023SA".

*4: 3.2W for 20ms after start.

Individual specifications

Descriptions		3QRA11	3QRB11	3QRA12	3QRB12	M3QRA11	M3QRB11	M3QRA12	M3QRB12
Port size	Port 1	M5				Rc1/8			
	Port 2					M5			
	Port 3					Rc1/8			

Performance/characteristics

Descriptions	3QRA11	3QRB11	3QRA12	3QRB12	M3QRA11	M3QRB11	M3QRA12	M3QRB12
Response time *5 ON/OFFms	4±1/1.5±1		5 or less		4±1/1.5±1		5 or less	
Weight g	24	27	28	31	19 (single solenoid valve)		23 (single solenoid valve)	

*5: JIS B 8419:2010 Dynamic performance test depends.
(Initial values at supply pressure 0.5MPa, 20°C, no lubrication, rated voltage, continuous operation)

Flow characteristics

Model No.	Option	Port 1→2		Port 2→1		Port 2→3		Port 3→2	
		C[dm^3/(s·bar)]	S (reference value) [mm^2]	C[dm^3/(s·bar)]	S (reference value) [mm^2]	C[dm^3/(s·bar)]	S (reference value) [mm^2]	C[dm^3/(s·bar)]	S (reference value) [mm^2]
3QRA1	Blank	0.30	1.5	0.32	1.6	0.32	1.6	0.30	1.5
	H	0.36	1.8	0.38	1.9	0.38	1.9	0.36	1.8
3QRB1	Blank	0.30	1.5	0.34	1.7	0.36	1.8	0.34	1.7
	H	0.36	1.8	0.40	2.0	0.40	2.0	0.40	2.0
M3QRA1	Blank	0.30	1.5	0.32	1.6	0.32	1.6	0.30	1.5
	H	0.36	1.8	0.38	1.9	0.38	1.9	0.36	1.8
M3QRB1	Blank	0.30	1.5	0.34	1.7	0.36	1.8	0.34	1.7
	H	0.36	1.8	0.40	2.0	0.40	2.0	0.40	2.0

Ozone-proof specifications

Conforms to low-concentration ozone specifications as standard.

CE marking specifications

Available as standard.

・Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

How to order

P4 compliant as standard

• Single solenoid valve

3QRB1 1 0 - M5 - D2 ▢ —— 3

• Single solenoid valve

3QRA1 1 9 - M5 - D2 ▢ —— 3

3QRB1 1 9 - 00 - D2 ▢ —— 3

• Manifold

M3QRA1 1 0 - M5 - C2 ▢ - 8 - 3

Ⓐ Model No. | Ⓑ Solenoid position | Solenoid valve operation classification | Ⓒ Port size | Ⓓ Electrical connections | Ⓔ Flow rate | Ⓕ Station No. | Ⓖ Voltage

Code	Description	Ⓐ Model No. Single unit Body piping 3QRA1	Single unit Sub-plate piping 3QRB1	Manifold Body piping M3QRA1	Manifold Sub-plate piping M3QRB1
Ⓑ Solenoid position					
1	2-position single (self-reset)	●	●	●	●
2	2-position single (self-hold) *2	●	●	●	●
8	Mix manifold *3			●	●
Ⓒ Port size					
M5	M5	●	●	●	●
Ⓓ Electrical connections					
Grommet lead wire					
Blank	Grommet lead wire (300 mm) *1	●	●	●	●
C type connector (lead wire lateral direction)					
C2	Lead wire (300 mm) with surge suppressor/lamp	●	●	●	●
C20	Lead wire (500 mm) with surge suppressor/lamp	●	●	●	●
C21	Lead wire (1000 mm) with surge suppressor/lamp	●	●	●	●
C22	Lead wire (2000 mm) with surge suppressor/lamp	●	●	●	●
C3	Without lead wire, with surge suppressor/lamp	●	●	●	●
D type connector (lead wire upward direction)					
D2	Lead wire (300 mm) with surge suppressor/lamp	●	●	●	●
D20	Lead wire (500 mm) with surge suppressor/lamp	●	●	●	●
D21	Lead wire (1000 mm) with surge suppressor/lamp	●	●	●	●
D22	Lead wire (2000 mm) with surge suppressor/lamp	●	●	●	●
D3	Without lead wire, with surge suppressor/lamp	●	●	●	●
Ⓔ Flow rate					
Blank	Standard 2W	●	●	●	●
H	Large flow rate 3.2W→2.4W	●	●	●	●
Ⓕ Station No.					
2 to 20	2 stations to 20 stations			●	●
Ⓖ Voltage					
3	24 VDC	●	●	●	●
4	12 VDC	●	●	●	●

Precautions for model No. selection

*1: For connection using grommet lead wire (300 mm), Ⓑ Solenoid position "2" 2-position single solenoid (self-hold) and Ⓔ Flow rate "H" large flow rate cannot be selected.

*2: For Ⓑ Solenoid position "2" 2-position single (self-hold), Ⓔ Flow rate "H" and Ⓖ Voltage "4" cannot be selected.

*3: Combination with a masking plate. Combination of A and B types is not available.Solenoid positions "1" and "2" cannot be mixed.

[Example of model No.]

M3QRA110-M5-C2-7-3

Ⓐ Model : M3QRA1 (body piping)
Ⓑ Solenoid position : 2-position single
Ⓒ Port size : M5
Ⓓ Electrical connections : Lead wire 300mm
With surge suppressor and indicator lamp
Ⓔ Flow rate : Standard 2 W
Ⓕ Station No. : 7 stations
Ⓖ Voltage : 24 VDC

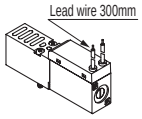
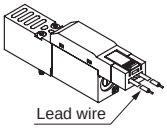
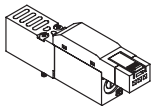
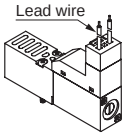
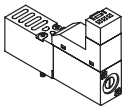
How to order masking plate kit

3QR1 - MP - KIT

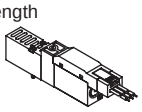
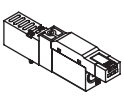
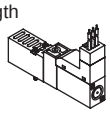
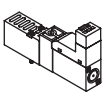
* Gasket/mounting screw attached

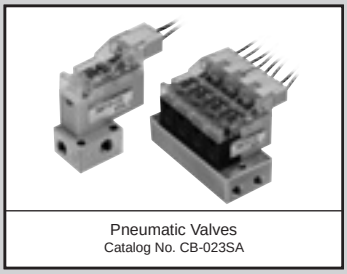
Electrical connections

●3QRA11/3QRB11

Blank Grommet lead wire	C2 C-connector/with lead wire, with surge suppressor/lamp	C3 C-connector/without lead wire, with surge suppressor/lamp	D2 D-connector/with lead wire, with surge suppressor/lamp	D3 D-connector/without lead wire, with surge suppressor/lamp
	• Lead wire length C2 : 300 mm C20: 500 mm C21: 1000 mm C22:2000mm 		• Lead wire length D2 : 300 mm D20: 500 mm D21:1000mm D22:2000mm 	

●3QRA12/3QRB12

C2 C-connector/with lead wire, with surge suppressor/lamp	C3 C-connector/without lead wire, with surge suppressor/lamp	D2 D-connector/with lead wire, with surge suppressor/lamp	D3 D-connector/without lead wire, with surge suppressor/lamp
• Lead wire length C2 : 300 mm C20: 500 mm C21: 1000 mm C22:2000mm 		• Lead wire length D2 : 300 mm D20: 500 mm D21:1000mm D22:2000mm 	



Pneumatic Valves
Catalog No. CB-023SA

Direct acting 3-port valve

Single valve/sub-plate piping

3QB Series

Individual wiring manifold/sub-plate piping

M3QB Series

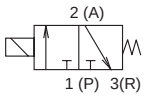
● Cylinder bore size: ø6 to ø20

P4 compliant as standard

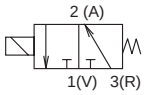
JIS symbol

●2-position
Single (NC)

3QB1-H(P)



3QB1-HV



Common specifications

Descriptions	Item
Valve and operation	Direct acting poppet valve
Working fluid	Compressed air, low vacuum
Max. working pressure MPa	Refer to Individual specifications listed below
Min. working pressure MPa	Refer to Individual specifications listed below
Proof pressure MPa	1.05
Ambient temperature °C	0 to 50
Fluid temperature °C	5 to 50
Lubrication	Not available
Degree of protection	Dust-proof
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environments

Electrical specifications

Descriptions		Standard specifications
Rated voltage V	DC	12, 24
Voltage fluctuation range		±10%
Starting current A	24 VDC	0.092
	12 VDC	0.183
Holding current A	24 VDC	0.025
	12 VDC	0.050
Power consumption W		0.6 *1
Thermal class		B

*1: 2.2W for 20ms after start.

Individual specifications

Descriptions	3QB110-H	3QB110-HP	3QB110-HV
Max. working pressure MPa	0.3 *2	0.65	0
Min. working pressure MPa	-0.1 *2	0.1	-0.1

*2: If the product is used only with positive pressure, it can be used within the pressure range of 0 to 0.4MPa.

Performance/characteristics

Descriptions	3QB110-H	3QB110-HP	3QB110-HV
Response time *3 ms	5 or less		
Flow characteristics C [$dm^3/(s \cdot bar)$]	1 → 2: 0.11, 2 → 3: 0.11		2 → 1: 0.18, 3 → 2: 0.11
Weight *4 g	12.5		

*3: JIS B 8419:2010 Dynamic performance test depends.(Initial values at supply pressure 0.5MPa, 20°C, no lubrication, rated voltage, continuous operation)
*4: The weight listed is the weight without the base.

Ozone-proof specifications

Conforms to low-concentration ozone specifications as standard.

UL standards specifications

** - Voltage - **UL** (Made to order)

CE marking specifications

** - Voltage - **ST**

- Standard voltage of 24 VDC or less is CE marking-compatible even if the model No. is not indicated with "ST".

How to order

• Sub-plate piping

3QB1 1 0 - M5 - C2 H ◯ —— 3

• Single solenoid valve

3QB1 1 9 - 00 - D2 H P —— 3

• Manifold

M3QB1 1 0 - M5 - C2 H V - 10 - 3

Ⓐ Model No. | Operation Solenoid valve | Ⓑ Solenoid position | Ⓒ Port size | Ⓓ Connection | Ⓔ Pressure specification | Ⓕ Station No. | Ⓖ Voltage

P4 compliant as standard

Code	Description	Ⓐ Model No. 3QB1	Ⓐ Model No. M3QB1
Ⓑ Solenoid position			
1	2-position single Normally Closed	●	●
8	Mix manifold *1		●
Ⓒ Port size			
M5	M5	●	●
Ⓓ Electrical connections			
C type connector (lead wire lateral direction)			
C2	Lead wire (300 mm) with surge suppressor/lamp	●	●
C20	Lead wire (500 mm) with surge suppressor/lamp	●	●
C21	Lead wire (1000 mm) with surge suppressor/lamp	●	●
C22	Lead wire (2000 mm) with surge suppressor/lamp	●	●
C2N	Without lead wire (without socket)	●	●
C3	Without lead wire (with socket/terminal)	●	●
D type connector (lead wire upward direction)			
D2	Lead wire (300 mm) with surge suppressor/lamp	●	●
D20	Lead wire (500 mm) with surge suppressor/lamp	●	●
D21	Lead wire (1000 mm) with surge suppressor/lamp	●	●
D22	Lead wire (2000 mm) with surge suppressor/lamp	●	●
D2N	Without lead wire (without socket)	●	●
D3	Without lead wire (with socket/terminal)	●	●
Ⓔ Pressure specification			
Blank	Positive/negative pressure specification (−0.1 to 0.3 MPa) *2	●	●
P	Positive pressure specification (0.1 to 0.65 MPa)	●	●
V	Negative pressure specification (−0.1 to 0 MPa)	●	●
Ⓕ Station No.			
2 to 20	2 stations to 20 stations		●
Ⓖ Voltage			
3	24 VDC	●	●
4	12 VDC	●	●

Precautions for model No. selection

*1: Combination with a masking plate. For pressure specification option blank, P and V mixtures, Y01 - Y04

*2: Vacuum the negative pressure from port 3 (R). This will be the NO specification.

[Example of model No.]

M3QB110-M5-C2H-7-3

Ⓐ Model : M3QB1
Ⓑ Solenoid position : 2-position single
Ⓒ Port size : M5
Ⓓ Electrical connections : Lead wire (300 mm)
Ⓔ Pressure specification : Blank
Ⓕ Station No. : 7 stations
Ⓖ Voltage : 24 VDC

How to order masking plate kit

3QB1- MP- KIT

3QB1- MP- KIT - V *3

*3:Negative pressure specification (V).

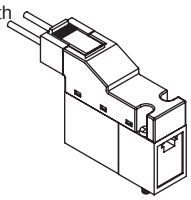
* Gasket/mounting screw attached

Electrical connections

●3QB

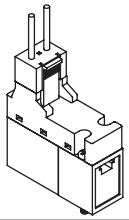
C2 C type connector lead wire With surge suppressor and indicator lamp

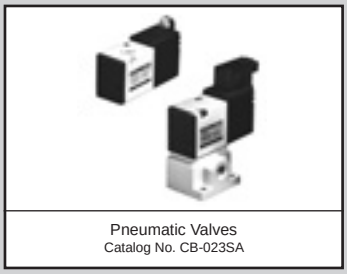
• Lead wire length
C2 :300 mm
C20 :500 mm
C21 :1000 mm
C22 :2000 mm



D2 D type connector lead wire With surge suppressor and indicator lamp

• Lead wire length
D2 :300 mm
D20 :500 mm
D21 :1000 mm
D22 :2000 mm





Pneumatic Valves
Catalog No. CB-023SA

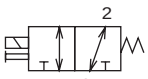
Discrete valve Body piping/sub-plate piping
Direct acting 3-port pneumatic valve

3PA/3PB Series

● Cylinder bore size: ø16 to ø40

JIS symbol

● 2-position universal



Port number1.2.3is
Port1:P,NC
Port2:A,COM
Port3 :R,NO
.

Common specifications

Item	Description
Valve and operation	Direct acting poppet valve
Working fluid	Compressed air, low vacuum
Max. working pressure MPa	0.70
Min. working pressure kPa	-100
Proof pressure MPa	1.05 (low vacuum: -101 kPa)
Max. working pressure differential MPa	0.70
Ambient temperature°C	-5 to 50 (no freezing)
Fluid temperature °C	5 to 50
Lubrication	Not required
Degree of protection	Dust-proof
Vibration resistancem/s^2	50 or less
Shock resistancem/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

Electrical specifications

Item			3PA1 3PB1	3PA2 3PB2
Rated voltageV	DC		24	
Voltage fluctuation range			±10%	
Holding currentA	DC	24V	0.075	0.075
Power consumption W (With indicator lamp)	DC	24V	1.8 (2.0)	1.8 (2.0)
Thermal class			B (molded coil)	
Temperature rise °C			30	

Individual specifications

Item	3PA1	3PA2	3PB1	3PB2
Port size	M5	Rc1/8	Rc 1/8	Rc 1/8, 1/4

Performance/characteristics by model

Item	3PA1	3PA2	3PB1	3PB2
Response time *1 ms	20 or less	20 or less	20 or less	20 or less

*1: The response times are values with supply pressure of 0.5 MPa, without lubrication, and with the power ON. They depend on the pressure and the lubricant quality.

Weight

Item	3PA1	3PA2	3PB1	3PB2
Weight g	54	127	84	175

Flow characteristics

Model No.	Port 1→2		Port 2→1		Port2→3		Port 3→2	
	C[dm^3/(s·bar)]	b	C[dm^3/(s·bar)]	b	C[dm^3/(s·bar)]	b	C[dm^3/(s·bar)]	b
3PA1	0.34	0.29	0.35	0.42	0.38	0.43	0.35	0.32
3PA2	0.98	0.17	1.0	0.34	1.1	0.28	1.0	0.20
3PB1	0.37	0.05	0.33	0.21	0.41	0.28	0.42	0.08
3PB2	0.90	0.19	0.97	0.39	1.0	0.26	0.94	0.27

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order single valve

It is equivalent to the P4 specifications, so "-P4" is not required at the end of the model No.

● Body piping

3PA1 1 0 - M5 - M1 LS ( ) - 3

● Sub-plate piping

3PB2 1 0 - 08 - M1 LS ( ) - 3

● Solenoid valve for manifold (sub-plate piping)

3PB1 1 9 - 00 - M1 B ( ) - 3 * Gasket, mounting screw attached

- Ⓐ Model No.
  - Solenoid position: 2-position single
- Ⓑ Port size
- Ⓒ Manual override
- Ⓓ Electrical connections
  - * Refer to "Pneumatic Valves No.CB-023SA" for the circuit diagram with surge suppressor/lamp. *1
- Ⓔ Other options
- Ⓕ Voltage

[Table1]Compact terminal box L/LS compatibility table

Code	Description			3PA1	3PA2	3PB1	3PB2	Surge suppressor
L	Without lead wire	With indicator lamp	DC		●		●	
		With surge suppressor and indicator lamp	DC	●		●		Built in
LS	Without lead wire	With surge suppressor and indicator lamp	DC		●		●	Built in

Precautions for model No. selection

*1: The lead wire used is AWG20 to 24 size.

***2: The surge suppressor for attachment is a suppression connector when the grommet lead wire is 24 VDC or less.**

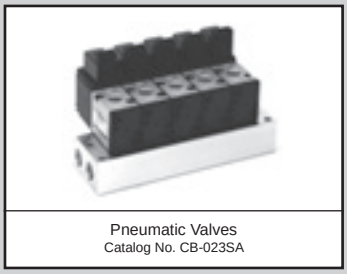
*3: The surge suppressor is a grommet lead wire or compact terminal box for electrical connectionsSelectable only when "B" is selected.

[Example of model No.]

3PA210-06-M1BP-3

- Ⓐ Model : 3PA2 (body piping)
  - Solenoid position : 2-position single
- Ⓑ Port size : Rc1/8
- Ⓒ Manual override : Locking manual override
- Ⓓ Electrical connections : Terminal box
- Ⓔ Other options : With mounting plate
- Ⓕ Voltage : 24 VDC

	Code	Description	Ⓐ Model No. Body piping 3PA1	Body piping 3PA2	Sub-plate piping 3PB1	Sub-plate piping 3PB2
Ⓑ Port size	M5	M5	●			
	06	Rc 1/8		●	●	●
	08	Rc 1/4				●
Ⓒ	Blank	Non-locking manual override	●	●	●	●
	M1	Locking manual override	●	●	●	●
Ⓓ Electrical connections	Grommet lead wire					
	Blank	Grommet lead wire (300 mm)	●	●	●	●
	Compact terminal box					
	B	Without lead wire	●	●	●	●
	L	Without lead wire	Refer to [Table 1] at left for details....			
	LS	Without lead wire, with surge suppressor/lamp				
	C type connector (lead wire lateral direction)					
	C	Lead wire (300 mm)	●	●	●	●
	C00	Lead wire (500 mm)	●	●	●	●
	C01	Lead wire (1000 mm)	●	●	●	●
	C02	Lead wire (2000 mm)	●	●	●	●
	C03	Lead wire (3000 mm)	●	●	●	●
	C1	Without lead wire	●	●	●	●
	C2	Lead wire (300 mm) Surge suppressor/With indicator lamp	●	●	●	●
	C20	Lead wire (500 mm) Surge suppressor/With indicator lamp	●	●	●	●
	C21	Lead wire (1000 mm) Surge suppressor/With indicator lamp	●	●	●	●
	C22	Lead wire (2000 mm) Surge suppressor/With indicator lamp	●	●	●	●
	C23	Lead wire (3000 mm) Surge suppressor/With indicator lamp	●	●	●	●
	C3	Lead wire Without lead wire Surge suppressor/With indicator lamp	●	●	●	●
	D type connector (lead wire upward direction)					
	D	Lead wire (300 mm)	●	●	●	●
	D00	Lead wire (500 mm)	●	●	●	●
	D01	Lead wire (1000 mm)	●	●	●	●
	D02	Lead wire (2000 mm)	●	●	●	●
	D03	Lead wire (3000 mm)	●	●	●	●
	D1	Without lead wire	●	●	●	●
	D2	Lead wire (300 mm) Surge suppressor/With indicator lamp	●	●	●	●
	D20	Lead wire (500 mm) Surge suppressor/With indicator lamp	●	●	●	●
	D21	Lead wire (1000 mm) Surge suppressor/With indicator lamp	●	●	●	●
	D22	Lead wire (2000 mm) Surge suppressor/With indicator lamp	●	●	●	●
	D23	Lead wire (3000 mm) Surge suppressor/With indicator lamp	●	●	●	●
	D3	Without lead wire Surge suppressor/With indicator lamp	●	●	●	●
Ⓔ	Blank	Without mounting plate	●	●		
	P	With mounting plate	●	●		
	S	Surge suppressor included *2,3	●	●	●	●
Ⓕ Voltage	3	24 VDC	●	●	●	●
	4	12 VDC	●	●	●	●



Pneumatic Valves
Catalog No. CB-023SA

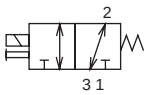
Individual wiring manifold body piping / sub-plate piping
Direct acting 3-port pneumatic valve

M3PA/M3PB Series

● Cylinder bore size: ø16 to ø40

JIS symbol

● 2-position universal



Port numbers 1, 2, and 3 are
Port 1: P, NC
Port 2: A, COM
Port 3: R, NO.

Common specifications

Item	Item
Manifold method	Sub-plate integrated
Station No.	2 to 20 stations
Valve and operation	Direct acting poppet valve
Working fluid	Compressed air, low vacuum
Max. working pressure MPa	0.70
Min. working pressure kPa	-100
Proof pressure MPa	1.05 (low vacuum: -101 kPa)
Max. working pressure differential MPa	0.70
Ambient temperature °C	-5 to 50 (no freezing)
Fluid temperature °C	5 to 50
Lubrication	Not required
Degree of protection	Dust-proof
Shock resistance m/s²	50 or less
Shock resistance m/s²	300 or less
Atmosphere	Cannot be used in corrosive gas environment.

Electrical specifications

Item			3PA1 3PB1	3PA2 3PB2
Rated voltageV	DC		24	
Voltage fluctuation range			±10%	
Holding currentA	DC	24V	0.075	0.075
Power consumption W (With indicator lamp)	DC	24V	1.8 (2.0)	1.8 (2.0)
Thermal class			B (molded coil)	
Temperature rise °C			30	

Individual specifications

Item		M3PA1	M3PA2	M3PB1	M3PB2
Manifold		Port 2: Individual Port 1/3: Common	Port 2: Individual Port 1/3: Common	Port 2:Individual Port 1, 3 :Common Port 2, 3 :Individual Port 1:Common Port1, 2:Individual Port 3:Common	Port 2:Individual Port 1, 3 :Common Port 2, 3 :Individual Port 1:Common Port1, 2:Individual Port 3:Common
Port size	Port 1	Rc 1/4	Rc 1/4	Common: Rc1/4 Individual: Rc1/8	Common: Rc1/4 Individual: Rc1/8
	Port 2	M5	Rc 1/8	Rc 1/8	Rc 1/8
	Port 3	Rc 1/4	Rc 1/4	Common: Rc1/4 Individual: Rc1/8	Common: Rc1/4 Individual: Rc1/8

Performance/characteristics by model

Item	M3PA1	M3PA2	M3PB1	M3PB2
Response time *1 ms	20 or less	20 or less	20 or less	20 or less

*1: The response times are values with supply pressure of 0.5 MPa, without lubrication, and with the power ON. They depend on the pressure and the lubricant quality.

Weight

Item	M3PA1	M3PA2	M3PB1	M3PB2
Weight (n: station No.) g	104×n+48	184×n+46	102×n+48	182×n+45

Flow characteristics

Model No.	Port 1→2		Port 2→1		Port2→3		Port 3→2	
	C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
M3PA1	0.38	0.17	0.37	0.46	0.47	0.45	0.40	0.18
M3PA2	0.93	0.25	1.0	0.35	1.1	0.32	0.97	0.31
M3PB1	0.36	0.22	0.32	0.43	0.33	0.48	0.31	0.24
M3PB2	0.86	0.25	0.93	0.38	0.94	0.22	0.88	0.27

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order individual wiring manifold

It is equivalent to the P4 specifications, so "-P4" is not required at the end of the model No.

● Solenoid valve for manifold (body piping)

3PA1 1 9 - M5 - M1 B ——— 3 * Gasket/mounting screw attached

● Solenoid valve for manifold (sub-plate piping)

3PB1 1 9 - 00 - M1 B ——— 3 * Gasket/mounting screw attached

● Manifold

M 3PB1 1 0 - 06 - M1 B - 7 - 3 - 5 2 (S1 MP)

Indicate the number of solenoid valves to be used for when using a mix manifold. Refer to the following page.

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Port size
* : The values of port size port 1/3 are,
(1) 1/3 = Rc1/4 common
1 =Rc1/4 common, 3=Rc1/8 individual
1 =Rc1/8 individual, 3=Rc1/4 common
Ⓓ Manual override
Ⓔ Electrical connections
*** Refer to "Pneumatic Valves No.CB-023SA" for the circuit diagram with surge suppressor/lamp.**
*1
Ⓕ Other options
Ⓖ Station No.
Ⓗ Voltage

● For how to order masking plates, refer to the next page.

Ⓐ Model No.	Body piping		Sub-plate piping	
	3PA1	3PA2	3PB1	3PB2

	Code	Description	3PA1	3PA2	3PB1	3PB2
Ⓑ	1	2-position single	●	●	●	●
	8	Mix manifold (when there are multiple solenoid positions)	●	●	●	●
Ⓒ Port size		Port 2 individual	Port 1/3			
	M5	M5	①			
	06	Rc 1/8		①	①	①
	06Y	Rc 1/8 (rear piping)			①	①
	06A	Rc 1/8			②	②
	06B	Rc 1/8			③	③
Ⓓ	Blank	Non-locking manual override	●	●	●	●
	M1	Locking manual override	●	●	●	●
Ⓔ Electrical connections		Grommet lead wire				
	Blank	Grommet lead wire (300 mm)	●	●	●	●
		Compact terminal box				
	B	Without lead wire	●	●	●	●
	L	Without lead wire	Refer to [Table 1] at left for details.			
	LS	Without lead wire, with surge suppressor/lamp				
		C type connector (lead wire lateral direction)				
	C	Lead wire (300 mm)	●	●	●	●
	C00	Lead wire (500 mm)	●	●	●	●
	C01	Lead wire (1000 mm)	●	●	●	●
	C02	Lead wire (2000 mm)	●	●	●	●
	C03	Lead wire (3000 mm)	●	●	●	●
	C1	Without lead wire	●	●	●	●
	C2	Lead wire (300 mm) With surge suppressor and indicator lamp	●	●	●	●
	C20	Lead wire (500 mm) With surge suppressor and indicator lamp	●	●	●	●
	C21	Lead wire (1000 mm) With surge suppressor and indicator lamp	●	●	●	●
	C22	Lead wire (2000 mm) With surge suppressor and indicator lamp	●	●	●	●
	C23	Lead wire (3000 mm) With surge suppressor and indicator lamp	●	●	●	●
	C3	Without lead wire With surge suppressor and indicator lamp	●	●	●	●
		D type connector (lead wire upward direction)				
	D	Lead wire (300 mm)	●	●	●	●
	D00	Lead wire (500 mm)	●	●	●	●
	D01	Lead wire (1000 mm)	●	●	●	●
	D02	Lead wire (2000 mm)	●	●	●	●
	D03	Lead wire (3000 mm)	●	●	●	●
	D1	Without lead wire	●	●	●	●
	D2	Lead wire (300 mm) With surge suppressor and indicator lamp	●	●	●	●
	D20	Lead wire (500 mm) With surge suppressor and indicator lamp	●	●	●	●
	D21	Lead wire (1000 mm) With surge suppressor and indicator lamp	●	●	●	●
	D22	Lead wire (2000 mm) With surge suppressor and indicator lamp	●	●	●	●
	D23	Lead wire (3000 mm) With surge suppressor and indicator lamp	●	●	●	●
	D3	Without lead wire With surge suppressor and indicator lamp	●	●	●	●
Ⓕ	Blank	No option	●	●	●	●
	S	Surge suppressor included *2,3	●	●	●	●
Ⓖ Station No.	2	2 stations	●	●	●	●
	to	to				
	20	20 stations				
Ⓗ Voltage	3	24 VDC	●	●	●	●
	4	12 VDC	●	●	●	●

[Table 1] Compact terminal box L/LS compatibility table

Code	Description			3PA1	3PA2	3PB1	3PB2	Surge suppressor
L	Without lead wire	With indicator lamp	DC		●		●	
		Surge suppressor/ With indicator lamp	DC	●		●		Built in
LS	Without lead wire	Surge suppressor/ With indicator lamp	DC		●		●	Built in

Precautions for model No. selection

*1: The lead wire size used is AWG20 to 24.
***2: The surge suppressor for attachment is a suppression connector for 24 VDC or less.**
*3: The surge suppressor can only be selected when the grommet lead wire or compact terminal box "B" has been selected for the electrical connections.

[Model No. example]
M3PA210-06-S-7-3

Ⓐ Model : M3PA2 (body piping)
Ⓑ Solenoid position : 2-position single
Ⓒ Port size : Port 2, Rc1/8
Ⓓ Manual override : Manual override of non-locking
Ⓔ Electrical connections : Grommet lead wire
Ⓕ Other options : surge suppressor included
Ⓖ Station No. : 7 stations
Ⓗ Voltage : 24 VDC

How to order masking plate kit

3PA1 -MP-KIT * Gasket/mounting screw attached

Ⓐ Model No.

Ⓐ Model No.
3PA1
3PB1
3PA2
3PB2

How to order mix manifold

M **3PB1** **8** **0** - **06** - **M1** **B** ** ** - **7** - **3** - S1 MP **5 2**

Mix manifold "8"

S1 = 1 to 5, MP = 6 to 7

How to fill in form for ordering a mix manifold

①List the quantity for each function (solenoid position) at the end of How to order. The functions and codes are as shown below.

- S1 MP **5 2**

List the quantity

Example: 2-position single → S1

Code	Function (solenoid position)
S1	2-position single
MP	Masking plate

②List the function (solenoid position) and layout position in the field for remarks.

Solenoid position code =◯, ◯ Station (where the left side is the 1st station when the piping port is facing forward.)

Example: S1 = 1 to 5 (1 to 5th stations are 2-position single)

[Example of model No.]

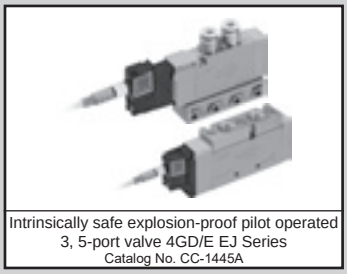
For 7 station

1	2	3	4	5	6	7	····· Layout position
2-position single	2-position single	2-position single	2-position single	2-position single	Masking plate	Masking plate	
S1	S1	S1	S1	S1	MP	MP	····· Code

2-position single (S1): 5 units (1st to 5th station)
Masking plate (MP): 2 units (6th, 7th station)

M3PB180-06-M1-B-7-3- S1 MP **5 2**

S1=1 to 5 MP=6 to 7


Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EJ Series
Catalog No. CC-1445A

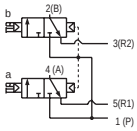
Discrete valve
Body piping

3GD1, 2/4GD1, 2, 3, 4*0EJ Series

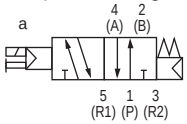
● Applicable cylinder bore size: ø20 to ø140

JIS symbol

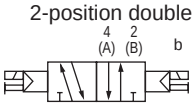
● Two 3-port valves integrated
(A side valve: NC, B side valve: NC)



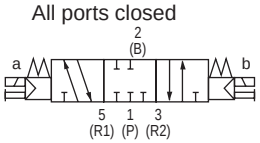
● 5-port valve
2-position single



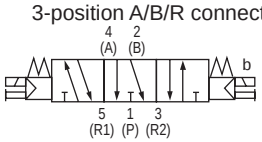
2-position double

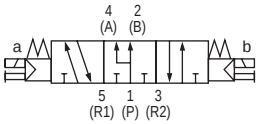


3-position
All ports closed



3-position A/B/R connection





Common specifications

Item	Description
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2
Proof pressure MPa	1.05
Ambient temperature °C	−5 to 55(No freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common
Pilot exhaust method	Main valve/pilot valve common exhaust
Lubrication *1	Not required
Degree of protection *2	IP67
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environments

Solenoid specifications

Item	Description
Rated voltage V	12 DC
Voltage fluctuation range	+10% −20%
Rated current A	0.05
Power consumption W	0.6
Thermal class	B

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2 Tested according to the test method for IP67 (IEC60529) standards. * that while the unit is protected from dust and water, it cannot be used immersed in water. Countermeasures such as covering the unit should also be taken if using in environments where it will be constantly exposed to dust or water.

Intrinsic safety explosion-proof specifications

Item	Description
Types of explosion-proof structures	Intrinsic safety explosion-proof structure (ib)
Target gas or above listed ignitability and flame-proof grade	Ex ib IIC T4 Gb
Barrier input voltage	24 VDC
Intrinsic safety circuit allowable voltage Ui	30 VDC
Intrinsic safety circuit allowable current Ii	200mA
Intrinsic safety circuit allowable power Pi	0.68 W
Internal inductance Li	Value that can be ignored
Internal capacitance Ci	Value that can be ignored

Individual specifications

Port size	3GD1/4GD1	3GD2/4GD2	4GD3	4GD4
2, 4-port (port A/B)	Push-in fitting ø4, ø6 M5	Push-in fitting ø4, ø6, ø8 Rc1/8	Push-in fitting ø8,ø10 Rc1/4	Push-in fitting ø8, ø10, ø12 Rc3/8
1, 3, 5-port (Port P/R1/R2)	M5	Rc1/8	Rc1/4	Rc1/4

Performance/characteristics by model

Item			3GD1		3GD2		4GD1		4GD2		4GD3		4GD4	
			ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		15	35	20	50	-	-	-	-	-	-	-	-
	2-position	Single	-	-	-	-	15	35	20	40	25	60	100	110
		Double	-	-	-	-	25	25	30	30	35	35	110	110
	3-position	A/B/R connection	-	-	-	-	20	40	25	45	35	60	100	160

The response times are values under continuous operation at supply pressure of 0.5 MPa, at rated voltage and at 20°C without lubrication. They depend on the pressure and the lubricant quality.

Weight

Item			4GD1	4GD2	4GD3	4GD4
Weight g	2-position	Single	61 (54)	120 (90)	155 (112)	296 (303)
		Double	81 (74)	140 (110)	176 (133)	329 (336)
	3-position	A/B/R connection	84 (77)	148 (118)	187 (143)	361 (367)

• Values in the ( ) do not include the pipe adaptor. These values include the M8 connector (straight).
• The weight of the two 3-port valves integrated type is the same as that of 2-position double.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
3GD1 4GD1	Two 3-port valves integrated		0.98	0.45	0.71	0.34
	2-position		1.2	0.47	0.72	0.37
	3-position	All ports closed	1.1	0.39	0.70	0.34
		A/B/R connection	1.1	0.33	0.72	0.34
		P/A/B connection	1.3	0.61	0.72	0.36
3GD2 4GD2	Two 3-port valves integrated		1.8	0.29	2.3	0.32
	2-position		2.4	0.33	2.8	0.30
	3-position	All ports closed	2.2	0.28	2.5	0.28
		A/B/R connection	2.3	0.26	2.8	0.27
		P/A/B connection	2.5	0.38	2.4	0.30
4GD3	2-position		3.4	0.29	4.0	0.24
	3-position	All ports closed	3.1	0.27	3.4	0.28
		A/B/R connection	3.1	0.33	4.1	0.20
		P/A/B connection	3.5	0.43	3.4	0.32
4GD4	2-position		8.1	0.4	8.0	0.31
	3-position	All ports closed	6.9	0.37	7.5	0.42
		A/B/R connection	6.9	0.38	8.4	0.34
		P/A/B connection	8.9	0.37	7.6	0.27

*1 : Formula for converting effective cross-sectional area S and sonic conductance C is S≈5.0×C.

3GD1, 2/4GD1, 2, 3, 4*0EJ Series

Discrete valve; Body piping

How to order (solenoid valve single unit)

●Single unit

4GD1 1 0 EJ - C4 - RN ○ - 4 - P4

3GD1 66 0 EJ - C4 - RN ○ - 4 - P4

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Explosion-proof Series

Ⓓ Port size

Ⓔ Electrical connections

Ⓕ Option

Ⓖ Voltage

*2
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Code	Description	Ⓐ Model No. 3GD1	3GD2	4GD1	4GD2	4GD3	4GD4
Ⓑ Solenoid position							
1	2-position single			●	●	●	●
2	2-position double			●	●	●	●
3	3-position all ports closed			●	●	●	●
4	3-position ABR connection			●	●	●	●
5	3-position PAB connection			●	●	●	●
66	3-port valve Two valves integrated *1 — A valve side: Normally Closed / B valve side: Normally Closed	●	●				
Ⓒ Explosion-proof Series							
EJ	Japan Explosion-Proof Certified Product	●	●	●	●	●	●

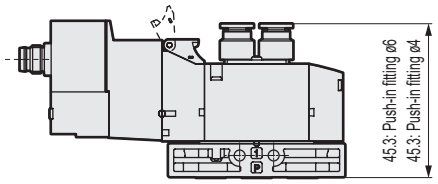
Port	4(A)/2(B) port	*2	Port P/R1/R2 (1) = M5, (2) = Rc1/8, (3) = Rc1/4 (4) = Rc3/8 (5)=Rc1/2					
Ⓓ Port size [ports 4(A), 2(B)]								
C4	ø4 push-in fitting	○	(1)	(2)	(1)	(2)		
C6	ø6 push-in fitting	○	(1)	(2)	(1)	(2)		
C8	ø8 push-in fitting	○		(2)		(2)	(3)	(3)
C10	ø10 push-in fitting	○					(3)	(3)
C12	ø12 push-in fitting	○						(3)
M5	M5	●	(1)		(1)			
06	Rc1/8	●		(2)		(2)		
08	Rc1/4	●					(3)	
10	Rc3/8	●						(3)
Ⓔ Electrical connections								*3
RN	M8 connector without cable		●	●	●	●	●	●
R1	M8 connector straight cable		●	●	●	●	●	●
R 2	M8 connector L-type cable		●	●	●	●	●	●
Ⓕ Option								
Blank	Manual override of non-locking/locking common (standard)		●	●	●	●	●	●
H	With exhaust check valve *4		●	●	●	●	●	
P	Mounting plate attached (for 2-position single only)				●	●	●	
A	Ozone/coolant proof		●	●	●	●	●	●
F	Port A/B filter *5		●	●	●	●	●	●
Ⓖ Voltage								
4	12 VDC		●	●	●	●	●	●

⚠ Precautions for model No. selection

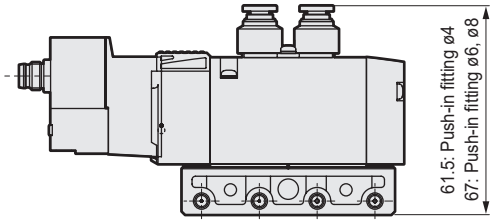
*1: Dimensions are the same as the respective 2-position double solenoid.
*3: M8 connector length is 300mm. Select other lengths from page 406 as needed.
*4: 3-position all ports closed and PAB connection are not provided with exhaust check valve specifications (H).
*5: A filter is built into port P as standard.
*6: Explosion-proof barrier sold separately. Select from page 409.

Dimensions

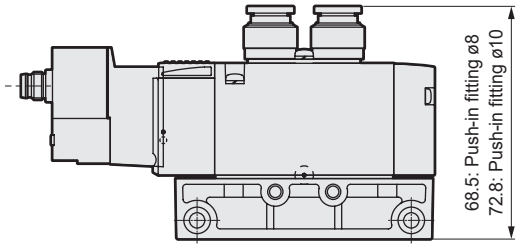
●4GD1*0EJ-P4



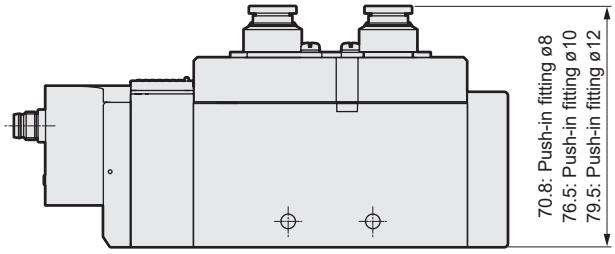
●4GD2*0EJ-P4



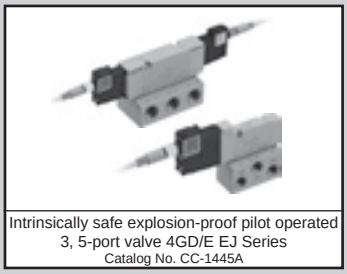
●4GD3*0EJ-P4



●4GD4*0EJ-P4



* Fitting dimensions of P4 Series are different from the standard when mounted. Refer to the 4GD1 to 4 Series of "Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EJ Series (No.CC-1445A)" for other dimensions.



Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EJ Series
Catalog No. CC-1445A

Discrete valve
Base piping

3GE1, 2/4GE1, 2, 3, 4*0EJ Series

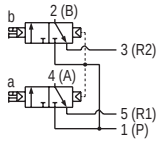
● Applicable cylinder bore size: ø20 to ø160

P4 compliant as standard

CE RoHS

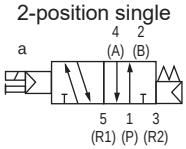
JIS symbol

● Two 3-port valves integrated
(A side valve: NC, B side valve: NC)

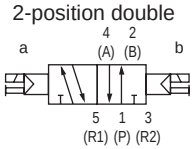


● 5-port valve

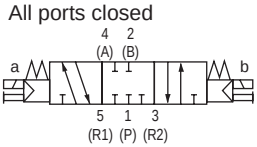
2-position single



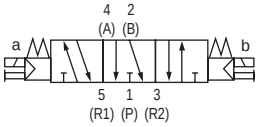
2-position double



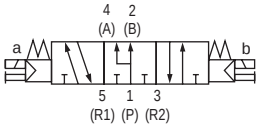
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Common specifications

Item		Description
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure	MPa	0.7
Min. working pressure	MPa	0.2
Proof pressure	MPa	1.05
Ambient temperature	°C	−5 to 55 (no freezing)
Fluid temperature	°C	5 to 55
Manual override		NNlock/lock common (standard)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust
Lubrication	*1	Not required
Degree of protection	*2	IP67
Vibration resistance	m/s²	50 or less
Shock resistance	m/s²	300 or less
Atmosphere		Cannot be used in corrosive gas environments

Solenoid specifications

Item	Description
Rated voltage V	12 DC
Voltage fluctuation range	+10% −20%
Rated current A	0.05
Power consumption W (*3)	0.6
Thermal class	B

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Tested according to the test method for IP67 (IEC60529) standards. Note that while the unit is protected from dust and water, it cannot be used immersed in water. Countermeasures such as covering the unit should also be taken if using in environments where it will be constantly exposed to dust or water.

Intrinsic safety explosion-proof specifications

Item	Description
Types of explosion-proof structures	Intrinsic safety explosion-proof structure (ib)
Target gas or above listed ignitability and flame-proof grade	Ex ib IIC T4 Gb
Barrier input voltage	24 VDC
Intrinsic safety circuit allowable voltage Ui	30V DC
Intrinsic safety circuit allowable current Ii	200mA
Intrinsic safety circuit allowable power Pi	0.68 W
Internal inductance Li	Value that can be ignored
Internal capacitance Ci	Value that can be ignored

Individual specifications

Port size	3GE1/4GE1	3GE2/4GE2	4GE3	4GE4
2, 4-port (port A/B)	Rc1/8	Rc1/4	Rc1/4, Rc3/8	Rc3/8, Rc1/2
1, 3, 5-port (Port P/R1/R2)	Rc1/8	Rc1/4	Rc1/4, Rc3/8	Rc3/8, Rc1/2

Performance/characteristics by model

Item			3GE1		3GE2		4GE1		4GE2		4GE3		4GE4	
			ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		15	35	20	50	-	-	-	-	-	-	-	-
	2-position	Single	-	-	-	-	15	35	20	40	25	60	100	110
		Double	-	-	-	-	25	25	30	30	35	35	110	110
	3-position	A/B/R connection	-	-	-	-	20	40	25	45	35	60	100	160

The response times are values under continuous operation at supply pressure of 0.5 MPa, at rated voltage and at 20°C without lubrication. They depend on the pressure and the lubricant quality.

Weight

Item			4GE1	4GE2	4GE3	4GE4
Weightg	2-position	Single	97 (54)	173 (91)	246 (117)	551 (241)
		Double	118 (74)	194 (112)	267 (138)	584 (275)
	3-position	ABR connection	120 (77)	202 (120)	277 (148)	616 (306)

- Values in the ( ) do not include the pipe adaptor. These values include the M8 connector (straight).
- The weight of the two 3-port valves integrated type is the same as that of 2-position double.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2	
			C[dm³/(s·bar)"]	b	C[dm³/(s·bar)"]	b
3GE1 4GE1	Two 3-port valves integrated		0.92	0.08	1.1	0.26
	2-position		1.3	0.27	1.2	0.22
	3-position	All ports closed	1.1	0.31	1.1	0.27
		A/B/R connection	1.1	0.31	1.3	0.29
		P/A/B connection	1.4	0.30	1.1	0.26
3GE2 4GE2	Two 3-port valves integrated		1.7	0.42	2.1	0.26
	2-position		2.6	0.20	2.6	0.19
	3-position	All ports closed	2.3	0.32	2.2	0.22
		A/B/R connection	2.2	0.23	2.6	0.16
		P/A/B connection	2.4	0.10	2.4	0.22
4GE3	2-position		4.3	0.24	4.2	0.24
	3-position	All ports closed	3.3	0.40	3.4	0.27
		A/B/R connection	3.3	0.36	4.2	0.18
		P/A/B connection	4.5	0.28	3.4	0.30
4GE4	2-position		11.0	0.19	13.0	0.19
	3-position	All ports closed	9.1	0.11	12.0	0.27
		A/B/R connection	8.8	0.28	13.9	0.25
		P/A/B connection	10.0	0.06	12.0	0.24

*1: Formula to convert effective cross-sectional area S and sonic conductance C is S≈5.0×C.

3GE1, 2/4GE1, 2, 3, 4*0EJ Series

Discrete valve; Base piping

How to order (solenoid valve single unit)

●Single unit

4GE1	1	0	EJ	-	06	-	RN		- 4
3GE2	66	0	EJ	-	08	-	RN		- 4

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Explosion-proof Series
Ⓓ Port size
Ⓔ Electrical connections
Ⓕ Option
Ⓖ Voltage

P4 compliant as standard

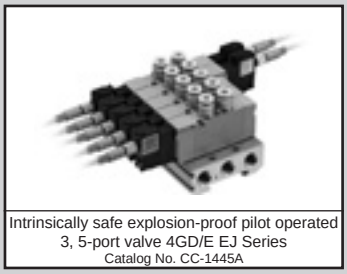
Code	Description	Ⓐ Model No. 3GE1	3GE2	4GE1	4GE2	4GE3	4GE4
Ⓑ Solenoid position							
1	2-position single			●	●	●	●
2	2-position double			●	●	●	●
3	3-position all ports closed			●	●	●	●
4	3-position ABR connection			●	●	●	●
5	3-position PAB connection			●	●	●	●
66	3-port valve Two valves integrated *1 — A valve side: Normally Closed / B valve side: Normally Closed	●	●				
Ⓒ Explosion-proof Series							
EJ	Japan Explosion-Proof Certified Product	●	●	●	●	●	●
Ⓓ Port size [ports 4(A), 2(B)]							
Port	4(A)/2(B) port	Port P/R1/R2 (1) = M5 (2) = Rc1/8 (3) = Rc1/4 (4) = Rc3/8 (5)=Rc1/2					
06	Rc1/8	(2)		(2)			
08	Rc1/4		(3)		(3)	(3)	
10	Rc3/8					(4)	(4)
15	Rc1/2						(5)
00	Valve for base mounting	●	●	●	●	●	●
Ⓔ Electrical connections							*2
RN	M8 connector without cable	●	●	●	●	●	●
R1	M8 connector straight cable	●	●	●	●	●	●
R 2	M8 connector L-type cable	●	●	●	●	●	●
Ⓕ Option							
Blank	Manual override of non-locking/locking common (standard)	●	●	●	●	●	●
H	With exhaust check valve *3	●	●	●	●	●	
A	Ozone/coolant proof	●	●	●	●	●	●
F	Port A/B filter *4	●	●	●	●	●	●
J	With indicator	●	●	●	●	●	
Ⓖ Voltage							
4	12 VDC	●	●	●	●	●	●

⚠ Precautions for model No. selection

*1: Dimensions are the same as the respective 2-position double solenoid.
*2: M8 connector length is 300mm. Select other lengths from page 406 as needed.
*3: 3-position all ports closed and PAB connection are not provided with exhaust check valve specifications (H).
*4: A filter is built into port P as standard.
*5: Explosion-proof barrier sold separately. Select from page 409.

Refer to the 4GE1 to 4 Series of "Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EJ Series (No.CC-1445A)" for dimensions.

MEMO


Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EJ Series
Catalog No. CC-1445A

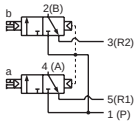
Individual wiring manifold
Body piping
Direct mount/DIN rail mount

M3GD1, 2EJ-(D)/M4GD1, 2, 3, 4EJ-(D) Series

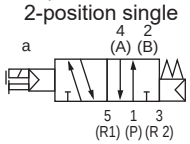
● Applicable cylinder bore size: ø20 to ø140

JIS symbol

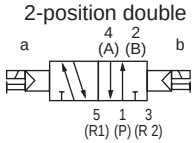
● Two 3-port valves integrated
(A side Valve NC, B side Valve NC)



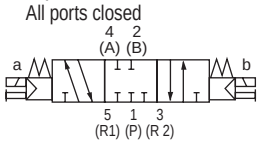
● 5-port valve
2-position single



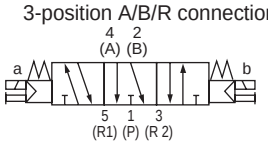
2-position double



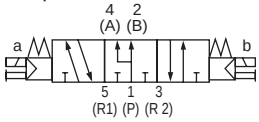
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item		Description
Manifold		Integrated base
Mounting method		Direct mount/DIN rail mount
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Standard) (Pilot exhaust check valve built-in)
Piping direction		Valve top direction
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2
Proof pressure MPa		1.05
Ambient temperature °C		-5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common
Lubrication *1		Not required
Degree of protection *2		IP67
Resistance Vibration m/s^2		50 or less
Resistance Impact m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

Solenoid specifications

Item	Description
Rated voltage V	12 DC
Voltage fluctuation range	+10% −20%
Rated current A	0.05
Power consumption W	0.6
Thermal class	B

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2 Tested according to the test method for IP67 (IEC60529) standards. Note that while the unit is protected from dust and water, it cannot be used immersed in water. Countermeasures such as covering the unit should also be taken if using in environments where it will be constantly exposed to dust or water.

Intrinsic safety explosion-proof specifications

Item	Description
Types of explosion-proof structures	Intrinsic safety explosion-proof structure (ib)
Target gas or above listed ignitability and flame-proof grade	Ex ib IIC T4 Gb
Barrier input voltage	24 VDC
Intrinsic safety circuit allowable voltage Ui	30V DC
Intrinsic safety circuit allowable current Ii	200 mA
Intrinsic safety circuit allowable power Pi	0.68 W
Internal inductance Li	Value that can be ignored
Internal capacitance Ci	Value that can be ignored

Individual specifications

Port size	M3GD1/M4GD1		M3GD2/M4GD2		M4GD3		M4GD4
	Direct mount	DIN rail Mount	Direct mount	DIN rail Mount	Direct mount	DIN rail Mount	Direct mount
Max. station No.	20 stations	16 stations	20 stations	16 stations	20 stations	16 stations	15 stations
2, 4-port (port A/B)	Push-in fitting ø4 M5		Push-in fitting ø4,ø6,ø8 Rc1/8		Push-in fitting ø8,ø10 Rc1/4		Push-in fitting ø8,ø10,ø12 Rc3/8
1, 3, 5-port (Port P/R1/R2)	Rc1/8		Rc1/4		Rc3/8		Rc1/2
Manifold base Weight calculation formula (n: station No.) g	23n+52	25n+60	47n+64	49n+92	74n+88	76n+117	150n+199

Refer to "Cautions for mounting the DIN rail" and "Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EJ Series (No.CC-1445A)", and select the manifold. For 10 or more manifold station No. (5 stations for 4G3 and 4G4), use ports on both sides for air supply and exhaust. The manifold base weight is the value for screw specifications. M4GD4 is only compatible with direct mounting.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2			
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]		b	
M3GD1 M4GD1	Two 3-port valves integrated		0.86	0.31	1.1	(0.66)	0.19	(0.22)
	2-position		0.99	0.20	1.2	(0.70)	0.20	(0.12)
	3-position	All ports closed	0.94	0.23	1.1	—	0.20	—
		A/B/R connection	0.93	0.18	1.3	(0.70)	0.23	(0.02)
		P/A/B connection	1.1	0.28	1.1	—	0.23	—
M3GD2 M4GD2	Two 3-port valves integrated		1.7	0.40	2.3	(1.7)	0.29	(0.32)
	2-position		2.3	0.36	2.9	(1.7)	0.24	(0.33)
	3-position	All ports closed	2.1	0.35	2.5	—	0.32	—
		A/B/R connection	2.2	0.37	2.9	(1.8)	0.32	(0.29)
		P/A/B connection	2.4	0.34	2.5	—	0.33	—
M4GD3	2-position		3.2	0.37	3.8	(2.5)	0.13	(0.28)
	3-position	All ports closed	2.9	0.35	3.3	—	0.35	—
		A/B/R connection	3.0	0.34	3.8	(2.6)	0.12	(0.27)
		P/A/B connection	3.3	0.30	3.3	—	0.32	—
M4GD4	2-position		7.3	0.12	9.0	—	0.17	—
	3-position	All ports closed	6.4	0.15	8.2	—	0.22	—
		A/B/R connection	6.3	0.33	8.9	—	0.26	—
		P/A/B connection	8.0	0.08	8.3	—	0.22	—

*1: Effective cross-sectional area S and sonic conductance C use the conversion formula S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

M3GD1, 2*EJ/M4GD1, 2, 3, 4*EJ Series

Individual wiring manifold; Body piping

How to order

Manifold model No.

M 4GD1 1 0 EJ - C4 - RN H ○ - 6 - 4 - P4

3-port manifold model No.

M 3GD1 66 0 EJ - C4 - RN H ○ - 2 - 4 - P4

Discrete valve for integrated base

4GD1 1 9 EJ - C6 - RN H —— 4 - P4

3-port discrete valve for integrated base

3GD1 66 9 EJ - C6 - RN H —— 4 - P4

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Explosion-proof Series

Ⓓ Port size

Ⓔ Electrical connections

Ⓕ Option

Ⓖ Mount type

Ⓗ Station No.

Ⓘ Voltage

*3
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

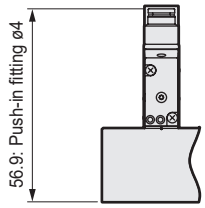
Code	Description	Ⓐ Model No. 3GD1	3GD2	4GD1	4GD2	4GD3	4GD4
Ⓑ Solenoid position							
1	2-position single			●	●	●	●
2	2-position double			●	●	●	●
3	3-position all ports closed			●	●	●	●
4	3-position ABR connection			●	●	●	●
5	3-position PAB connection			●	●	●	●
66	3-port valve Two valves integrated *1/2 — A valve side: Normally Closed / B valve side: Normally Closed	●	●				
8	Mix manifold (when there are multiple solenoid positions)	●	●	●	●	●	●
Ⓒ Explosion-proof Series							
EJ	Japan Explosion-Proof Inspected Product	●	●	●	●	●	●
Ⓓ Port size [2(B), 4(A) port]							
Port	4(A)/2(B) port *3	Port P/R1/R2 (2) = Rc1/8 (3) = Rc1/4 (4) = Rc3/8 (5)=Rc1/2					
C4	ø4 push-in fitting ○	(2)	(3)	(2)	(3)		
C6	ø6 push-in fitting ○		(3)	(2)	(3)		
C8	ø8 push-in fitting ○		(3)		(3)	(4)	(5)
C10	ø10 push-in fitting ○					(4)	(5)
C12	ø12 push-in fitting ○						(5)
CX	Push-in fitting mix *4 ○	(2)	(3)	(2)	(3)	(4)	(5)
M5	M5 ●	(2)		(2)			
06	Rc1/8 ●		(3)		(3)		
08	Rc1/4 ●					(4)	
10	Rc3/8 ●						(5)
00	Valve for base mounting ●	●	●	●	●	●	●
Ⓔ Electrical connections							
RN	M8 connector without cable	●	●	●	●	●	●
R1	M8 connector Straight cable *5	●	●	●	●	●	●
R 2	M8 connector L-type cable *5	●	●	●	●	●	●
Ⓕ Option							
Blank	Manual override of non-locking/locking common (standard)	●	●	●	●	●	●
H	With exhaust check valve *6, 8	●	●	●	●	●	
A	Ozone/coolant proof	●	●	●	●	●	●
F	Port A/B filter *7	●	●	●	●	●	●
Z1	Air supply spacer *8, *9	●	●	●	●	●	
Z3	Exhaust spacer *8, *9	●	●	●	●	●	
Ⓖ Mount type							
Blank	Direct mount	●	●	●	●	●	●
D	DIN rail mount *10	●	●	●	●	●	
Ⓗ Station No.							
2 to 20	2 stations / to / 20 stations (Refer to page 380 for the max. station number)	●	●	●	●	●	2 to 15
Ⓘ Voltage							
4	12 VDC	●	●	●	●	●	●

Precautions for model No. selection

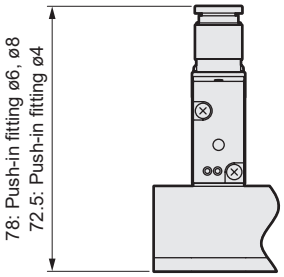
*1 M4GD*80EJ when using a mixture of 3, 5-port valves. Select M3GD*80EJ when mixing with masking plate.
*2 Dimensions are the same as the respective 2-position double solenoid.
*4 The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.
*5 M8 connector length is 300mm. Select other lengths from page 406 as needed.
*6 3-position all ports closed and PAB connection are not provided with exhaust check specifications (H). Refer to "Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EJ Series (No.CC-1445A)" for details on the exhaust check valve.
*7 A filter is built into port P as standard.
*8 4G4 cannot be selected for exhaust check valves (H), air supply spacers (Z1), or exhaust spacers (Z3).
*9 Specify the spacer mounting position/quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 404 to 405 for details.
*10 4G4 cannot be selected for DIN rail mount (D).
*11 Explosion-proof barrier sold separately. Select from page 409.

Dimensions

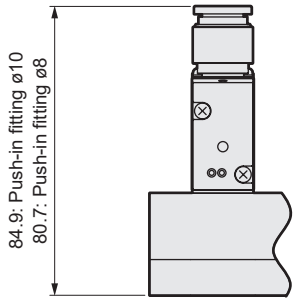
●M4GD1*0EJ-P4



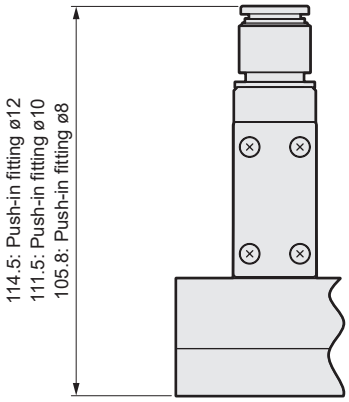
●M4GD2*0EJ-P4



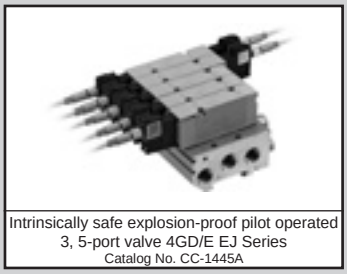
●M4GD3*0EJ-P4



●M4GD4*0EJ-P4



*Fitting dimensions of P4 Series are different from the standard when mounted. Refer to "Cautions for mounting the DIN rail" and "Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EJ Series (No.CC-1445A)", and select the manifold.



Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EJ Series
Catalog No. CC-1445A

Individual wiring manifold
Base piping
Direct mount/DIN rail mount

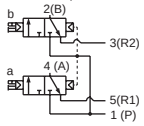
M3GE1, 2EJ/M4GE1, 2, 3, 4EJ-(D) Series

● Applicable cylinder bore size: ø20 to ø140

CE RoHS CAD

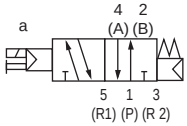
JIS symbol

● Two 3-port valves integrated
(A side valve: NCB side valve: NC)

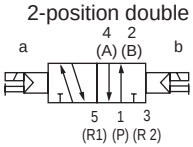


● 5-port valve

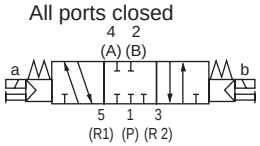
2-position single



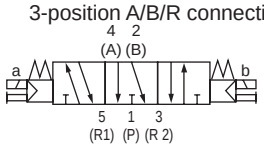
2-position double



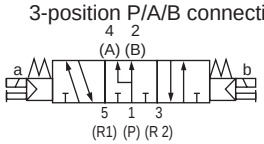
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item		Description	
Manifold		Integrated base	
Mounting method		Direct mount/DIN rail mount	
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)	
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Standard) (Pilot exhaust check valve built-in)	
Piping direction		Side direction of base	
Valve and operation		Pilot operated soft spool valve	
Working fluid		Compressed air	
Max. working pressure MPa		0.7	*1
Min. working pressure MPa		0.2	
Proof pressure MPa		1.05	
Ambient temperature °C		−5 to 55 (no freezing)	*2
Fluid temperature °C		5 to 55	
Manual override		Non-locking/locking common	
Lubrication *1		Not required	
Degree of protection *2		IP67	
Vibration resistance m/s^2		50 or less	
Shock resistance m/s^2		300 or less	
Atmosphere		Cannot be used in corrosive gas environments	

Solenoid specifications

Item	Description
Rated voltage V	12 DC
Voltage fluctuation range	+10% −20%
Rated current A	0.05
Power consumption W (*3)	0.6
Thermal class	B

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Tested according to the test method for IP67 (IEC60529) standards. Note that while the unit is protected from dust and water, it cannot be used immersed in water. Countermeasures such as covering the unit should also be taken if using in environments where it will be constantly exposed to dust or water.

Intrinsic safety explosion-proof specifications

Item	Description
Types of explosion-proof structures	Intrinsic safety explosion-proof structure (ib)
Target gas or above listed ignitability and flame-proof grade	Ex ib IIC T4 Gb
Barrier input voltage	24 VDC
Intrinsic safety circuit allowable voltage Ui	30V DC
Intrinsic safety circuit allowable current Ii	200mA
Intrinsic safety circuit allowable power Pi	0.68 W
Internal inductance Li	Value that can be ignored
Internal capacitance Ci	Value that can be ignored

Individual specifications

Port size	M3GE1/M4GE1		M3GE2/M4GE2		M4GE3		M4GE4	
	Direct mount	DIN rail Mount	Direct mount	DIN rail Mount	Direct mount	DIN rail Mount	Direct mount	
							Rc1/4 Rc3/8	Rc1/2
Max. station No.	20 stations	16 stations	20 stations	16 stations	20 stations	16 stations	15 stations	12 stations
2, 4-port (port A/B)	Push-in fitting ø4,ø6 M5		Push-in fitting ø4,ø6,ø8 Rc1/4		Push-in fitting ø8,ø10 Rc1/4		Push-in fitting ø8,ø10,ø12 Rc1/4, Rc3/8	Rc1/2
1, 3, 5-port (Port P/R1/R2)	Rc1/8		Rc1/8		Rc3/8		Rc3/8	Rc1/2
Manifold base Weight calculation formula (n: station No.) g	35n+61	36n+115	71n+106	73n+134	113n+170	115n+119	273n+329	391n+560

Cautions for mounting the DIN rail"Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EJ Series (No.CC-1445A)" before selection. For 10 or more manifold station No. (5 stations for 4G3 and 4G4), use ports on both sides for air supply and exhaust. The manifold base weight is the value for screw specifications. M4GE4 is only compatible with direct mounting.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2			
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]		b	
M3GE1 M4GE1	Two 3-port valves integrated		0.86	0.35	1.1	(0.67)	0.22	(0.23)
	2-position		1.1	0.22	1.2	(0.70)	0.20	(0.10)
	3-position	All ports closed	0.98	0.22	1.1	—	0.24	—
		A/B/R connection	0.97	0.35	1.3	(0.68)	0.22	(0.24)
		P/A/B connection	1.1	0.38	1.1	—	0.21	—
M3GE2 M4GE2	Two 3-port valves integrated		1.7	0.44	2.1	(1.6)	0.32	(0.30)
	2-position		2.4	0.34	2.7	(1.7)	0.24	(0.31)
	3-position	All ports closed	2.2	0.34	2.4	—	0.29	—
		A/B/R connection	2.2	0.34	2.8	(1.8)	0.24	(0.27)
		P/A/B connection	2.4	0.29	2.4	—	0.29	—
M4GE3	2-position		3.5	0.34	3.8	(2.6)	0.11	(0.27)
	3-position	All ports closed	3.1	0.33	3.3	—	0.22	—
		A/B/R connection	3.0	0.30	3.8	(2.7)	0.11	(0.22)
		P/A/B connection	3.6	0.36	3.3	—	0.28	—
M4GE4 1-port size Rc3/8	2-position		6.4	0.42	6.9	—	0.12	—
	3-position	All ports closed	6.0	0.37	6.8	—	0.12	—
		A/B/R connection	6.0	0.31	7.1	—	0.11	—
		P/A/B connection	6.0	0.37	6.8	—	0.13	—
M4GE4 1-port size Rc1/2	2-position		8.3	0.23	9.0	—	0.21	—
	3-position	All ports closed	7.4	0.15	8.8	—	0.19	—
		A/B/R connection	7.5	0.28	9.4	—	0.17	—
		P/A/B connection	7.7	0.21	8.7	—	0.18	—

*1: Effective cross-sectional area S and sonic conductance C use the conversion formula S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

M3GE1, 2/M4GE1, 2, 3 , 4*0EJ Series

Individual wiring manifold; Base piping

How to order

Manifold model No.

M 4GE1 1 0 EJ - C4 - RN H ○ - 6 - 4 - P4

3-port manifold model No.

M 3GE1 66 0 EJ - C4 - RN H ○ - 2 - 4 - P4

Discrete valve for integrated base

4GE1 1 9 EJ - 00 - RN H —— 4 - P4

3-port discrete valve for integrated base

3GE1 66 9 EJ - 00 - RN H —— 4 - P4

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Explosion-proof Series

Ⓓ Port size

Ⓔ Electrical connections

Ⓕ Option

Ⓖ Mount type

Ⓗ Station No.

Ⓘ Voltage

*3
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

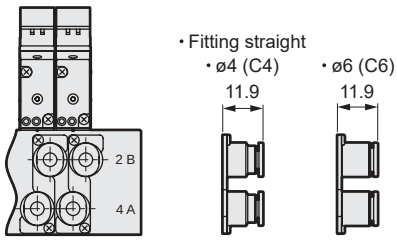
Code	Description	Ⓐ Model No. 3GE1	3GE2	4GE1	4GE2	4GE3	4GE4
Ⓑ Solenoid position							
1	2-position single			●	●	●	●
2	2-position double			●	●	●	●
3	3-position all ports closed			●	●	●	●
4	3-position ABR connection			●	●	●	●
5	3-position PAB connection			●	●	●	●
66	3-port valve Two valves integrated *1/2 — A valve side: Normally Closed	●	●				
	3-port valve Two valves integrated *1/2 — B valve side: Normally Closed	●	●				
8	Mix manifold (when there are multiple solenoid positions)	●	●	●	●	●	●
Ⓒ Explosion-proof Series							
EJ	Japan Explosion-Proof Inspected Product	●	●	●	●	●	●
Ⓓ Port size [2(B), 4(A) port]							
Port	4(A)/2(B) port *3	Port P/R1/R2 (2) = Rc1/8 (3) = Rc1/4 (4) = Rc3/8 (5)=Rc1/2					
C4	ø4 push-in fitting ○	(2)	(3)	(2)	(3)		
C6	ø6 push-in fitting ○	(2)	(3)	(2)	(3)		
C8	ø8 push-in fitting ○		(3)		(3)	(4)	(4)
C10	ø10 push-in fitting ○					(4)	(4)
C12	ø12 push-in fitting ○						(4)
CX	Push-in fitting mix ○	(2)	(3)	(2)	(3)	(4)	(4)
M5	M5 ●	(2)		(2)			
06	Rc1/8 ●		(3)		(3)		
08	Rc1/4 ●					(4)	(4)
10	Rc3/8 ●						(4)
12	Rc1/2 ●						(5)
00	Valve for base mounting ●	●	●	●	●	●	●
Ⓔ Electrical connections							
RN	M8 connector without cable	●	●	●	●	●	●
R1	M8 connector Straight cable *4	●	●	●	●	●	●
R 2	M8 connector L-type cable *4	●	●	●	●	●	●
Ⓕ Option							
Blank	Manual override of non-locking/locking common (standard)	●	●	●	●	●	●
H	With exhaust check valve *5, *7	●	●	●	●	●	
A	Ozone/coolant proof	●	●	●	●	●	●
F	Port A/B filter *6	●	●	●	●	●	●
J	With indicator	●	●	●	●	●	
Z1	Air supply spacer *7, *8	●	●	●	●	●	
Z3	Exhaust spacer *7, *8	●	●	●	●	●	
Ⓖ Mount type							
Blank	Direct mount *9	●	●	●	●	●	●
D	DIN rail mount *10	●	●	●	●	●	
Ⓗ Station No.							*11
2 to 20	2 stations / to / 20 stations (Refer to page 384 for the max. station number)	●	●	●	●	●	2 to 15
Ⓘ Voltage							
4	12 VDC	●	●	●	●	●	●

Precautions for model No. selection

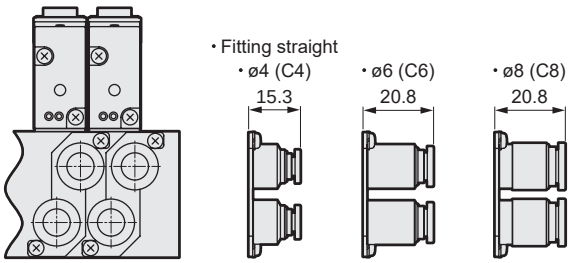
*1 M4GE*80EJ when using a mixture of 3, 5-port valves. When using a mixture with the masking plate, M3GE*80EJ.
*2 Dimensions are the same as the respective 2-position double solenoid.
*4 M8 connector length is 300mm. Select other lengths from page 406 as needed.
*5 3-position all ports closed and PAB connection are not provided with exhaust check valve specifications (H). Refer to "Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EJ Series (No.CC-1445A)" for details on the exhaust check valve.
*6 A filter is built into port P as standard.
*7 4G4 cannot be selected for exhaust check valves (H), air supply spacers (Z1), or exhaust spacers (Z3).
*8 Specify the spacer mounting position/quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 404 to 405 for details.
*9 The direct mount type of M4GE1EJ cannot be changed after purchase to the DIN rail mount type.
*10 4G4 cannot be selected for DIN rail mount (D).
*11 The manifold max. station No. for port size 12 M4GE4 is 12.
*12 Explosion-proof barrier sold separately. Select from page 409.

Dimensions

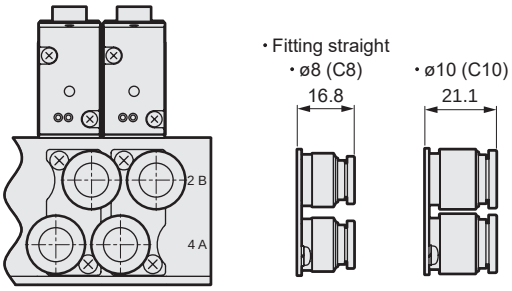
●M4GE1*0EJ-P4



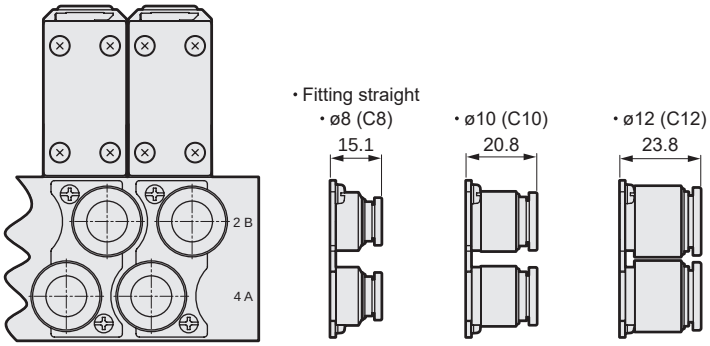
●M4GE2*0EJ-P4



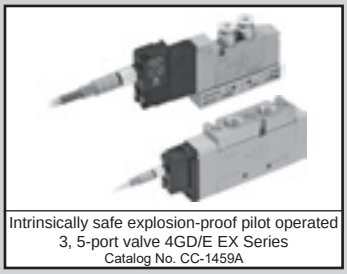
●M4GE3*0EJ-P4



●M4GE4*0EJ-P4



* Fitting dimensions of P4 Series are different from the standard when mounted. Refer to "Cautions for mounting the DIN rail" and "Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EJ Series (No.CC-1445A)", and select the manifold.



Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EX Series
Catalog No. CC-1459A

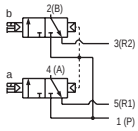
Discrete valve
Body piping

3GD1, 2/4GD1, 2, 3 , 4*0EX Series

● Applicable cylinder bore size: ø20 to ø140

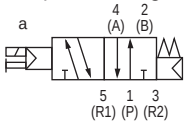
JIS symbol

● Two 3-port valves integrated
(A side valve: NC, B side valve: NC)

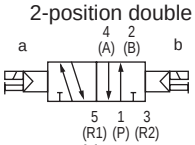


● 5-port valve

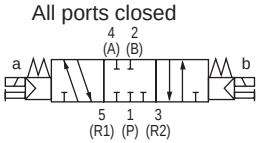
2-position single



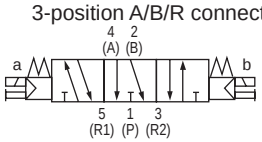
2-position double



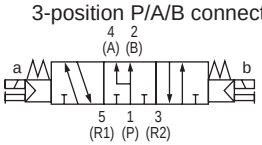
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Common specifications

Item	Description
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2
Proof pressure MPa	1.05
Ambient temperature °C	−5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common
Pilot exhaust method	Main valve/pilot valve common exhaust
Lubrication *1	Not required
Degree of protection *2	IP67
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environments

Solenoid specifications

Item	Description
Rated voltage V	12 DC
Voltage fluctuation range	+10% −20%
Rated current A	0.05
Power consumption W	0.6
Thermal class	B

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2 Tested according to the test method for IP67 (IEC60529) standards. Note that while the unit is protected from dust and water, it cannot be used immersed in water. Countermeasures such as covering the unit should also be taken if using in environments where it will be constantly exposed to dust or water.

Intrinsic safety explosion-proof specifications

Item	Description
Types of explosion-proof structures	Intrinsic safety explosion-proof structure (ib)
Target gas or above listed ignitability and flame-proof grade	Ex ib IIC T4 Gb
Barrier input voltage	24 VDC
Intrinsic safety circuit allowable voltage Ui	30V DC
Intrinsic safety circuit allowable current Ii	200mA
Intrinsic safety circuit allowable power Pi	0.68 W
Internal inductance Li	Value that can be ignored
Internal capacitance Ci	Value that can be ignored

Individual specifications

Port size	3GD1/4GD1	3GD2/4GD2	4GD3	4GD4
2, 4-port (port A/B)	Push-in fitting ø4, ø6 M5	Push-in fitting ø4, ø6, ø8 Rc1/8	Push-in fitting ø8,ø10 Rc1/4	Push-in fitting ø8, ø10, ø12 Rc3/8
1, 3, 5-port (Port P/R1/R2)	M5	Rc1/8	Rc1/4	Rc1/4

Performance/characteristics by model

Item			3GD1		3GD2		4GD1		4GD2		4GD3		4GD4	
			ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		15	35	20	50	-	-	-	-	-	-	-	-
	2-position	Single	-	-	-	-	15	35	20	40	25	60	100	110
		Double	-	-	-	-	25	25	30	30	35	35	110	110
	3-position	A/B/R connection	-	-	-	-	20	40	25	45	35	60	100	160

The response times are values under continuous operation at supply pressure of 0.5 MPa, at rated voltage and at 20°C without lubrication. They depend on the pressure and the lubricant quality.

Weight

Item			4GD1	4GD2	4GD3	4GD4
Weightg	2-position	Single	61 (54)	120 (90)	155 (112)	296 (303)
		Double	81 (74)	140 (110)	176 (133)	329 (336)
	3-position	A/B/R connection	84 (77)	148 (118)	187 (143)	361 (367)

• Values in ( ) do not include the pipe adaptor. These values include the M8 connector (straight).
• The weight of the two 3-port valves integrated type is the same as that of 2-position double.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
3GD1 4GD1	Two 3-port valves integrated		0.98	0.45	0.71	0.34
	2-position		1.2	0.47	0.72	0.37
	3-position	All ports closed	1.1	0.39	0.70	0.34
		A/B/R connection	1.1	0.33	0.72	0.34
		P/A/B connection	1.3	0.61	0.72	0.36
3GD2 4GD2	Two 3-port valves integrated		1.8	0.29	2.3	0.32
	2-position		2.4	0.33	2.8	0.30
	3-position	All ports closed	2.2	0.28	2.5	0.28
		A/B/R connection	2.3	0.26	2.8	0.27
		P/A/B connection	2.5	0.38	2.4	0.30
4GD3	2-position		3.4	0.29	4.0	0.24
	3-position	All ports closed	3.1	0.27	3.4	0.28
		A/B/R connection	3.1	0.33	4.1	0.20
		P/A/B connection	3.5	0.43	3.4	0.32
4GD4	2-position		8.1	0.4	8.0	0.31
	3-position	All ports closed	6.9	0.37	7.5	0.42
		A/B/R connection	6.9	0.38	8.4	0.34
		P/A/B connection	8.9	0.37	7.6	0.27

*1 : Formula for converting effective cross-sectional area S and sonic conductance C is S≈5.0×C.

3GD1, 2/4GD1, 2, 3 , 4*0EX Series

Discrete valve; Body piping

How to order (solenoid valve single unit)

●Single unit

4GD1 1 0 EX - C4 - RN ( ) - 4 - P4

3GD1 66 0 EX - C4 - RN ( ) - 4 - P4

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Explosion-proof Series

Ⓓ Port size

Ⓔ Electrical connections

Ⓕ Option

Ⓖ Voltage

*2
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Code	Description	Ⓐ Model No. 3GD1	3GD2	4GD1	4GD2	4GD3	4GD4
Ⓑ Solenoid position							
1	2-position single			●	●	●	●
2	2-position double			●	●	●	●
3	3-position all ports closed			●	●	●	●
4	3-position ABR connection			●	●	●	●
5	3-position PAB connection			●	●	●	●
66	3-port valve Two valves integrated *1 — A valve side: Normally Closed	●	●				
	3-port valve Two valves integrated *1 — B valve side: Normally Closed	●	●				
Ⓒ Explosion-proof Series							
EX	CCC and NEPSI certification (China) IECEx certified (international) KCs (South Korea), TS (Taiwan) compliant product	●	●	●	●	●	●
Ⓓ Port size [ports 4(A), 2(B)]							
Port	4(A)/2(B) port	*2	Port P/R1/R2 (1) = M5, (2) = Rc1/8, (3) = Rc1/4					
C4	ø4 push-in fitting	○	(1)	(2)	(1)	(2)		
C6	ø6 push-in fitting	○	(1)	(2)	(1)	(2)		
C8	ø8 push-in fitting	○		(2)		(2)	(3)	(3)
C10	ø10 push-in fitting	○					(3)	(3)
C12	ø12 push-in fitting	○						(3)
M5	M5	●	(1)		(1)			
06	Rc1/8	●		(2)		(2)		
08	Rc1/4	●					(3)	
10	Rc3/8	●						(3)
Ⓔ Electrical connections								*3
RN	M8 connector without cable		●	●	●	●	●	●
R1	M8 connector straight cable		●	●	●	●	●	●
R 2	M8 connector L-type cable		●	●	●	●	●	●
Ⓕ Option								
Blank	Manual override of non-locking/locking common (standard)		●	●	●	●	●	●
H	With exhaust check valve *4		●	●	●	●	●	
P	Mounting plate attached (for 2-position single only)				●	●	●	
F	Port A/B filter *5		●	●	●	●	●	●
Ⓖ Voltage								
4	12 VDC		●	●	●	●	●	●

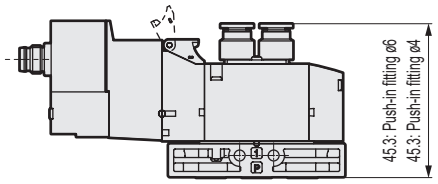
⚠ Precautions for model No. selection

*1: Dimensions are the same as the respective 2-position double solenoid.
*3: M8 connector length is 300mm. Select other lengths from page 406 as needed.
*4: 3-position all ports closed and PAB connection are not provided with exhaust check valve specifications (H).
*5: A filter is built into port P as standard.
*6: Explosion-proof barrier sold separately. Select from page 409.

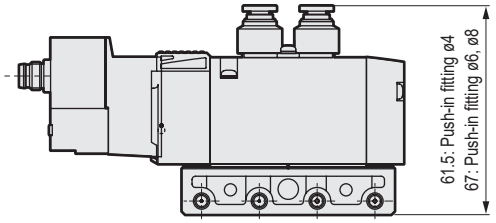
Dimensions (solenoid valve Discrete: body piping)

* Fitting dimensions of P4 Series differ from the standard when mounted.

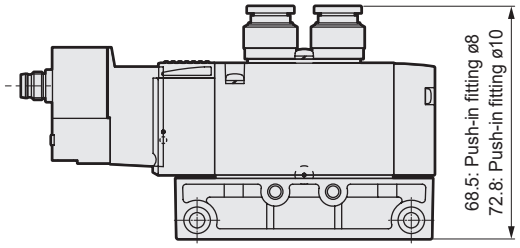
●4GD1*0EX-P4



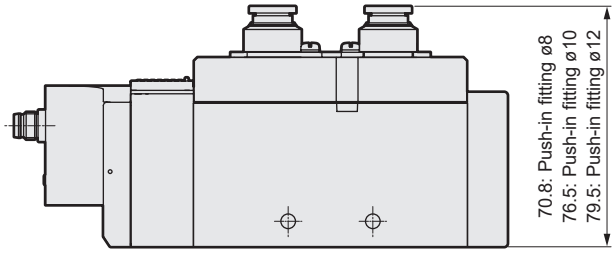
●4GD2*0EX-P4



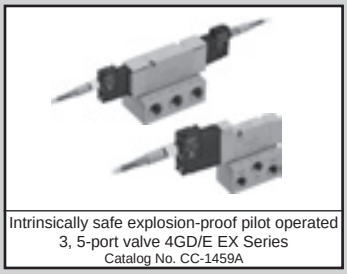
●4GD3*0EX-P4



●4GD4*0EX-P4



*Fitting dimensions of P4 Series are different from the standard when mounted. Refer to the 4GD1 to 4 Series of "Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EX Series (No.CC-1459A)" for other dimensions.



Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EX Series
Catalog No. CC-1459A

Discrete valve
Base piping

3GE1, 2/4GE1, 2, 3, 4*0EX Series

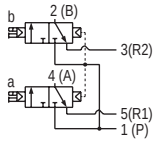
● Applicable cylinder bore size: ø20 to ø160

P4 compliant as standard

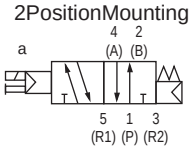
CE RoHS

JIS symbol

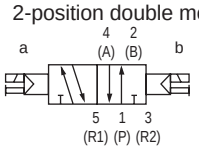
● Two 3-port valves integrated
(A side valve: NC, B side valve: NC)



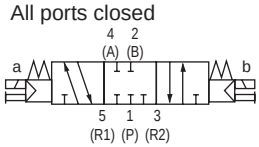
● 5-port valve
2PositionMounting single



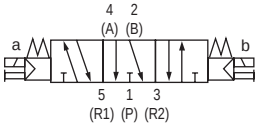
2-position double mounting



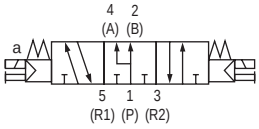
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Common specifications

Item		Description
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure	MPa	0.7
Min. working pressure	MPa	0.2
Proof pressure	MPa	1.05
Ambient temperature	°C	−5 to 55 (no freezing)
Fluid temperature	°C	5 to 55
Manual override		NNlock/lock common (standard)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust
Lubrication	*1	Not required
Degree of protection	*2	IP67
Vibration resistance	m/s²	50 or less
Shock resistance	m/s²	300 or less
Atmosphere		Cannot be used in corrosive gas environments

Solenoid specifications

Item		Description
Rated voltage	V	12 DC
Voltage fluctuation range		+10% −20%
Rated current	A	0.05
Power consumption	W (*3)	0.6
Thermal class		B

*1 Use turbine oil Class 1 ISOVG32 for lubricationfor vacuum piping. Excessive or intermittent lubrication results in unstable operation.
*2 Tested according to the test method for IP67 (IEC60529) standards. Note that while the unit is protected from dust and water, it cannot be used immersed in water. Countermeasures such as covering the unit should also be taken if using in environments where it will be constantly exposed to dust or water.

Intrinsic safety explosion-proof specifications

Item	Description
Types of explosion-proof structures	Intrinsic safety explosion-proof structure (ib)
Target gas or above listed ignitability and flame-proof grade	Ex ib IIC T4 Gb
Barrier input voltage	24 VDC
Intrinsic safety circuit allowable voltage Ui	30 VDC
Intrinsic safety circuit allowable current Ii	200mA
Intrinsic safety circuit allowable power Pi	0.68 W
Internal inductance Li	Value that can be ignored
Internal capacitance Ci	Value that can be ignored

Individual specifications

Port size	3GE1/4GE1	3GE2/4GE2	4GE3	4GE4
2, 4-port (port A/B)	Rc1/8	Rc1/4	Rc1/4, Rc3/8	Rc3/8, Rc1/2
1, 3, 5-port (Port P/R1/R2)	Rc1/8	Rc1/4	Rc1/4, Rc3/8	Rc3/8, Rc1/2

Performance/characteristics by model

Item			3GE1		3GE2		4GE1		4GE2		4GE3		4GE4	
			ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		15	35	20	50	-	-	-	-	-	-	-	-
	2-position	Single	-	-	-	-	15	35	20	40	25	60	100	110
		Double	-	-	-	-	25	25	30	30	35	35	110	110
	3-position	A/B/R connection	-	-	-	-	20	40	25	45	35	60	100	160

The response times are values under continuous operation at supply pressure of 0.5 MPa, at rated voltage and at 20°C without lubrication. They depend on the pressure and the lubricant quality.

Weight

Item			4GE1	4GE2	4GE3	4GE4
Weightg	2-position	Single	97 (54)	173 (91)	246 (117)	551 (241)
		Double	118 (74)	194 (112)	267 (138)	584 (275)
	3-position	ABR connection	120 (77)	202 (120)	277 (148)	616 (306)

• Values in ( ) do not include the pipe adaptor. These values include the M8 connector (straight).
• The weight of the two 3-port valves integrated type is the same as that of 2-position double.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2	
			C[dm³/(s·bar)"	b	C[dm³/(s·bar)"	b
3GE1 4GE1	Two 3-port valves integrated		0.92	0.08	1.1	0.26
	2-position		1.3	0.27	1.2	0.22
	3-position	All ports closed	1.1	0.31	1.1	0.27
		A/B/R connection	1.1	0.31	1.3	0.29
		P/A/B connection	1.4	0.30	1.1	0.26
3GE2 4GE2	Two 3-port valves integrated		1.7	0.42	2.1	0.26
	2-position		2.6	0.20	2.6	0.19
	3-position	All ports closed	2.3	0.32	2.2	0.22
		A/B/R connection	2.2	0.23	2.6	0.16
		P/A/B connection	2.4	0.10	2.4	0.22
4GE3	2-position		4.3	0.24	4.2	0.24
	3-position	All ports closed	3.3	0.40	3.4	0.27
		A/B/R connection	3.3	0.36	4.2	0.18
		P/A/B connection	4.5	0.28	3.4	0.30
4GE4	2-position		11.0	0.19	13.0	0.19
	3-position	All ports closed	9.1	0.11	12.0	0.27
		A/B/R connection	8.8	0.28	13.9	0.25
		P/A/B connection	10.0	0.06	12.0	0.24

Note1: Formula for converting effective cross-sectional area S and sonic conductance C is S≈5.0×C.

3GE1, 2/4GE1, 2, 3, 4*0EX Series

Discrete valve; Base piping

How to order (solenoid valve single unit)

●Single unit

4GE1	1	0	EX	-	06	-	RN		-	4
3GE2	66	0	EX	-	08	-	RN		-	4

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Explosion-proof Series
Ⓓ Port size
Ⓔ Electrical connections
Ⓕ Option
Ⓖ Voltage

P4 compliant as standard

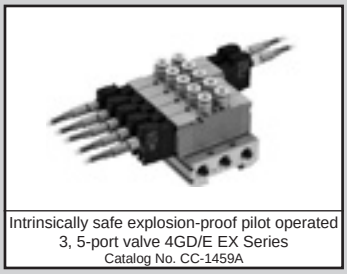
Code	Description	Ⓐ Model No. 3GE1	3GE2	4GE1	4GE2	4GE3	4GE4
Ⓑ Solenoid position							
1	2-position single			●	●	●	●
2	2-position double			●	●	●	●
3	3-position all ports closed			●	●	●	●
4	3-position ABR connection			●	●	●	●
5	3-position PAB connection			●	●	●	●
66	3-port valve Two valves integrated *1 — A valve side: Normally Closed / B valve side: Normally Closed	●	●				
Ⓒ Explosion-proof Series							
EX	CCC and NEPSI certification (China) IECEx certified (international) KCs (South Korea), TS (Taiwan) compliant product	●	●	●	●	●	●
Ⓓ Port size [ports 4(A), 2(B)]							
Port	4(A)/2(B) port	Port P/R1/R2 (2) = Rc1/8 (3) = Rc1/4 (4) = Rc3/8 (5)=Rc1/2					
06	Rc1/8	(2)		(2)			
08	Rc1/4		(3)		(3)	(3)	
10	Rc3/8					(4)	(4)
15	Rc1/2						(5)
00	Valve for base mounting	●	●	●	●	●	●
Ⓔ Electrical connections							***2**
RN	M8 connector without cable	●	●	●	●	●	●
R1	M8 connector straight cable	●	●	●	●	●	●
R2	M8 connector L-type cable	●	●	●	●	●	●
Ⓕ Option							
Blank	Manual override of non-locking/locking common (standard)	●	●	●	●	●	●
H	With exhaust check valve *3	●	●	●	●	●	
F	Port A/B filter *4	●	●	●	●	●	●
Ⓖ Voltage							
4	12 VDC	●	●	●	●	●	●

⚠ Precautions for model No. selection

*1: Dimensions are the same as the respective 2-position double solenoid.
*2: M8 connector length is 300mm. Select other lengths from page 406 as needed.
*3: 3-position all ports closed and PAB connection are not provided with exhaust check valve specifications (H).
*4: A filter is built into port P as standard.
*5: Explosion-proof barrier sold separately. Select from page 409.

Refer to the 4GE1 to 4 Series of "Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EX Series (No.CC-1459A)" for dimensions.

MEMO



Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EX Series
Catalog No. CC-1459A

Individual wiring manifold
Body piping
Direct mount

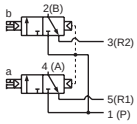
M3GD1, 2EX/M4GD1, 2, 3, 4EX Series

● Applicable cylinder bore size: ø20 to ø140

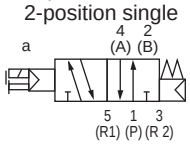
CE RoHS

JIS symbol

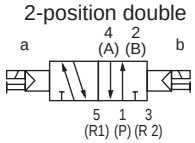
● Two 3-port valves integrated
(A side Valve NC, B side Valve NC)



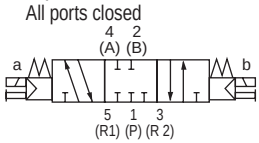
● 5-port valve
2-position single



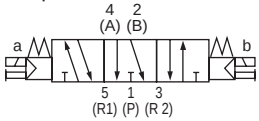
2-position double



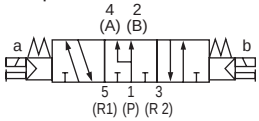
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item		Description
Manifold		Integrated base
Mounting method		Direct mount/DIN rail mount
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Standard) (Pilot exhaust check valve built-in)
Piping direction		Valve top direction
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2
Proof pressure MPa		1.05
Ambient temperature °C		-5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common
Lubrication *1		Not required
Degree of protection *2		IP67
Resistance Vibration m/s^2		50 or less
Resistance Impact m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Tested according to the test method for IP67 (IEC60529) standards. Note that while the unit is protected from dust and water, it cannot be used immersed in water. Countermeasures such as covering the unit should also be taken if using in environments where it will be constantly exposed to dust or water.

SolenoidSpecifications

Item		Description
Rated voltage	V	12 DC
Voltage fluctuation range		+10% −20%
Rated current	A	0.05
Power consumption	W	0.6
Thermal class		B

Individual specifications

Port size	M3GD1/M4GD1	M3GD2/M4GD2	M4GD3	M4GD4
Max. station No.	20 stations	20 stations	20 stations	15 stations
2, 4-port (port A/B)	Push-in fitting ø4 M5	Push-in fitting ø4,ø6,ø8 Rc1/8	Push-in fitting ø8,ø10 Rc1/4	Push-in fitting ø8,ø10,ø12 Rc3/8
1, 3, 5-port (Port P/R1/R2)	Rc1/8	Rc1/4	Rc3/8	Rc1/2
Manifold base Weight calculation formula (n: station No.) g	23n+52	47n+64	74n+88	150n+199

For 10 or more manifold station No. (5 stations for 4G3 and 4G4), use ports on both sides for air supply and exhaust. The manifold base weight is the value for screw specifications.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2			
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]		b	
M3GD1 M4GD1	Two 3-port valves integrated		0.86	0.31	1.1	(0.66)	0.19	(0.22)
	2-position		0.99	0.20	1.2	(0.70)	0.20	(0.12)
	3-position	All ports closed	0.94	0.23	1.1	—	0.20	—
		A/B/R connection	0.93	0.18	1.3	(0.70)	0.23	(0.02)
		P/A/B connection	1.1	0.28	1.1	—	0.23	—
M3GD2 M4GD2	Two 3-port valves integrated		1.7	0.40	2.3	(1.7)	0.29	(0.32)
	2-position		2.3	0.36	2.9	(1.7)	0.24	(0.33)
	3-position	All ports closed	2.1	0.35	2.5	—	0.32	—
		A/B/R connection	2.2	0.37	2.9	(1.8)	0.32	(0.29)
		P/A/B connection	2.4	0.34	2.5	—	0.33	—
M4GD3	2-position		3.2	0.37	3.8	(2.5)	0.13	(0.28)
	3-position	All ports closed	2.9	0.35	3.3	—	0.35	—
		A/B/R connection	3.0	0.34	3.8	(2.6)	0.12	(0.27)
		P/A/B connection	3.3	0.30	3.3	—	0.32	—
M4GD4	2-position		7.3	0.12	9.0	—	0.17	—
	3-position	All ports closed	6.4	0.15	8.2	—	0.22	—
		A/B/R connection	6.3	0.33	8.9	—	0.26	—
		P/A/B connection	8.0	0.08	8.3	—	0.22	—

*1: Effective cross-sectional area S and sonic conductance C use the conversion formula S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

M3GD1, 2*EX/M4GD1, 2, 3, 4*EX Series

Individual wiring manifold; Body piping

How to order

Manifold model No.

M 4GD1 1 0 EX - C4 - RN H ( ) - 6 - 4 - P4

3-port manifold model No.

M 3GD1 66 0 EX - C4 - RN H ( ) - 2 - 4 - P4

Discrete valve for integrated base

4GD1 1 9 EX - C6 - RN H — 4 - P4

3-port discrete valve for integrated base

3GD1 66 9 EX - C4 - RN H — 4 - P4

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Explosion-proof Series

Ⓓ Port size

*3
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓔ Electrical connections

Ⓕ Option

Ⓖ Mount type

Ⓗ Station No.

Ⓘ Voltage

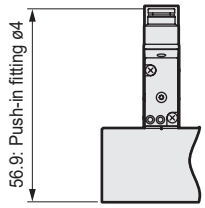
Code	Description	Ⓐ Model No. 3GD1	3GD2	4GD1	4GD2	4GD3	4GD4
Ⓑ Solenoid position							
1	2-position single			●	●	●	●
2	2-position double			●	●	●	●
3	3-position all ports closed			●	●	●	●
4	3-position ABR connection			●	●	●	●
5	3-position PAB connection			●	●	●	●
66	3-port valve Two valves integrated *1/2 — A valve side: Normally Closed	●	●				
	3-port valve Two valves integrated *1/2 — B valve side: Normally Closed	●	●				
8	Mix manifold (when there are multiple solenoid positions)	●	●	●	●	●	●
Ⓒ Explosion-proof Series							
EX	CCC and NEPSI certification (China) IECEx certified (international) KCs (South Korea), TS (Taiwan) compliant product	●	●	●	●	●	●
Ⓓ Port size [2(B), 4(A) port]							
Port	4(A)/2(B) port *3	○ / ●	Port P/R1/R2 (2) = Rc1/8 (3) = Rc1/4 (4) = Rc3/8 (5)=Rc1/2				
C4	ø4 push-in fitting	○	(2)	(3)	(2)	(3)		
C6	ø6 push-in fitting	○		(3)	(2)	(3)		
C8	ø8 push-in fitting	○		(3)		(3)	(4)	(5)
C10	ø10 push-in fitting	○					(4)	(5)
C12	ø12 push-in fitting	○						(5)
CX	Push-in fitting mix *4	○	(2)	(3)	(2)	(3)	(4)	(5)
M5	M5	●	(2)		(2)			
06	Rc1/8	●		(3)		(3)		
08	Rc1/4	●					(4)	
10	Rc3/8	●						(5)
Ⓔ Electrical connections							
RN	M8 connector without cable	●	●	●	●	●	●	●
R1	M8 connector straight cable *4	●	●	●	●	●	●	●
R2	M8 connector L-type cable *4	●	●	●	●	●	●	●
Ⓕ Option							
Blank	Manual override of non-locking/locking common (standard)	●	●	●	●	●	●	●
H	With exhaust check valve *6, *8	●	●	●	●	●	●	
F	Port A/B filter *7	●	●	●	●	●	●	●
Z1	Air supply spacer *8, *9	●	●	●	●	●	●	
Z3	Exhaust spacer *8, *9	●	●	●	●	●	●	
Ⓖ Mount type							
Blank	Direct mount	●	●	●	●	●	●	●
Ⓗ Station No.							
2 to 20	2 stations / to / 20 stations (Refer to page 396 for the max. station No.)	●	●	●	●	●	●	2 to 15
Ⓘ Voltage							
4	12 VDC	●	●	●	●	●	●	●

Precautions for model No. selection

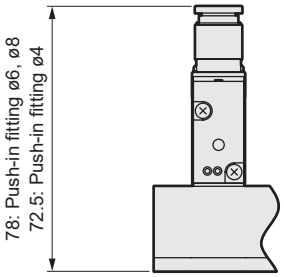
*1 M4GD*80EX when using a mixture of 3, 5-port valves. M3GD*80EX when used mixed with a masking plate.
*2 Dimensions are the same as the respective 2-position double solenoid.
*4 The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.
*5 M8 connector length is 300mm. Select other lengths from page 406 as needed.
*6 3-position all ports closed and PAB connection are not provided with exhaust check specifications (H). Refer to "Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EX Series (No.CC-1459A)" for details on the exhaust check valve.
*7 A filter is built into port P as standard.
*8 4G4 cannot be selected for exhaust check valves (H), air supply spacers (Z1), or exhaust spacers (Z3).
*9 Specify the spacer mounting position/quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 404 to 405 for details.
*10 Explosion-proof barrier sold separately. Select from page 409.

Dimensions (individual wiring manifold: body piping)

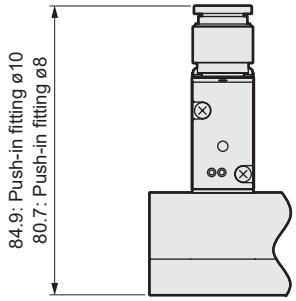
●M4GD1*0EX-P4



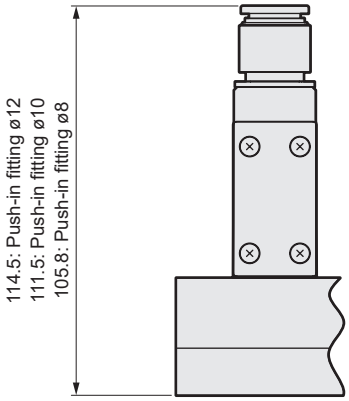
●M4GD2*0EX-P4



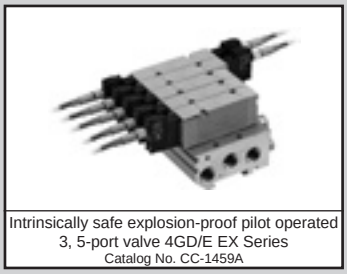
●M4GD3*0EX-P4



●M4GD4*0EX-P4



*Fitting dimensions of P4 Series are different from the standard when mounted. Refer to the M4GD1 to 4 Series of "Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EX Series (No.CC-1459A)" for other dimensions.



Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EX Series
Catalog No. CC-1459A

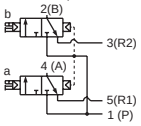
Individual wiring manifold
Base piping
Direct mount

M3GE1, 2EX/M4GE1, 2, 3, 4EX Series

● Applicable cylinder bore size: ø20 to ø140

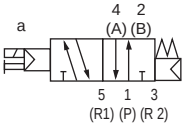
JIS symbol

● Two 3-port valves integrated
(A side valve: NCB side valve: NC)

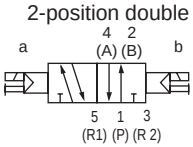


● 5-port valve

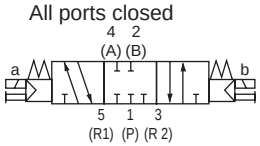
2-position single



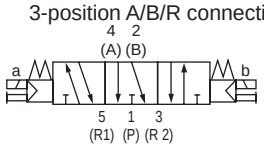
2-position double



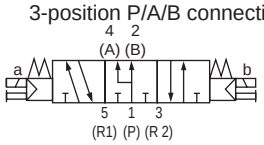
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Item		Description
Manifold		Integrated base
Mounting method		Direct mount/DIN rail mount
Air supply and exhaust method		Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Internal pilot	Main valve/pilot valve common exhaust (Standard) (Pilot exhaust check valve built-in)
Piping direction		Side direction of base
Valve and operation		Pilot operated soft spool valve
Working fluid		Compressed air
Max. working pressure MPa		0.7
Min. working pressure MPa		0.2
Proof pressure MPa		1.05
Ambient temperature °C		−5 to 55 (no freezing)
Fluid temperature °C		5 to 55
Manual override		Non-locking/locking common
Lubrication *1		Not required
Degree of protection *2		IP67
Vibration resistance m/s^2		50 or less
Shock resistance m/s^2		300 or less
Atmosphere		Cannot be used in corrosive gas environments

*1 Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.

*2 Tested according to the test method for IP67 (IEC60529) standards. Note that while the unit is protected from dust and water, it cannot be used immersed in water. Countermeasures such as covering the unit should also be taken if using in environments where it will be constantly exposed to dust or water.

Solenoid specifications

Item		Description
Rated voltage	V	12 DC
Voltage fluctuation range		+10% −20%
Holding current	A	0.05
Power consumption	W	0.6
Thermal class		B

Individual specifications

Port size	M3GE1/M4GE1	M3GE2/M4GE2	M4GE3	M4GE4	
				Rc1/4 Rc3/8	Rc1/2
Max. station No.	20 stations	20 stations	20 stations	15 stations	12 stations
2, 4-port (port A/B)	Push-in fitting ø4,ø6 M5	Push-in fitting ø4,ø6,ø8 Rc1/8	Push-in fitting ø8,ø10 Rc1/4	Push-in fitting ø8,ø10,ø12 Rc1/4, Rc3/8	Rc1/2
1, 3, 5-port (Port P/R1/R2)	Rc1/8	Rc1/4	Rc3/8	Rc3/8	Rc1/2
Manifold base Weight calculation formula (n: station No.) g	35n+61	71n+106	113n+170	273n+329	391n+560

For 10 or more manifold station No. (5 stations for 4G3 and 4G4), use ports on both sides for air supply and exhaust. The manifold base weight is the value for screw specifications.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B→R1/R2			
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]		b	
M3GE1 M4GE1	Two 3-port valves integrated		0.86	0.35	1.1	(0.67)	0.22	(0.23)
	2-position		1.1	0.22	1.2	(0.70)	0.20	(0.10)
	3-position	All ports closed	0.98	0.22	1.1	—	0.24	—
		A/B/R connection	0.97	0.35	1.3	(0.68)	0.22	(0.24)
		P/A/B connection	1.1	0.38	1.1	—	0.21	—
M3GE2 M4GE2	Two 3-port valves integrated		1.7	0.44	2.1	(1.6)	0.32	(0.30)
	2-position		2.4	0.34	2.7	(1.7)	0.24	(0.31)
	3-position	All ports closed	2.2	0.34	2.4	—	0.29	—
		A/B/R connection	2.2	0.34	2.8	(1.8)	0.24	(0.27)
		P/A/B connection	2.4	0.29	2.4	—	0.29	—
M4GE3	2-position		3.5	0.34	3.8	(2.6)	0.11	(0.27)
	3-position	All ports closed	3.1	0.33	3.3	—	0.22	—
		A/B/R connection	3.0	0.30	3.8	(2.7)	0.11	(0.22)
		P/A/B connection	3.6	0.36	3.3	—	0.28	—
M4GE4 1-port size Rc3/8	2-position		6.4	0.42	6.9	—	0.12	—
	3-position	All ports closed	6.0	0.37	6.8	—	0.12	—
		A/B/R connection	6.0	0.31	7.1	—	0.11	—
		P/A/B connection	6.0	0.37	6.8	—	0.13	—
M4GE4 1-port size Rc1/2	2-position		8.3	0.23	9.0	—	0.21	—
	3-position	All ports closed	7.4	0.15	8.8	—	0.19	—
		A/B/R connection	7.5	0.28	9.4	—	0.17	—
		P/A/B connection	7.7	0.21	8.7	—	0.18	—

*1: Effective cross-sectional area S and sonic conductance C use the conversion formula S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

M3GE1, 2/M4GE1, 2, 3, 4*0EX Series

Individual wiring manifold; Base piping

How to order

Manifold model No.

M 4GE1 1 0 EX - C4 - RN H ( ) - 6 - 4 - P4

3-port manifold model No.

M 3GE1 66 0 EX - C4 - RN H ( ) - 2 - 4 - P4

Discrete valve for integrated base

4GE1 1 9 EX - 00 - RN H — 4 - P4

3-port discrete valve for integrated base

3GE1 66 9 EX - 00 - RN H — 4 - P4

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Explosion-proof Series
Ⓓ Port size
Ⓔ Electrical connections
Ⓕ Option
Ⓖ Mount type
Ⓗ Station No.
Ⓘ Voltage

*3
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Precautions for model No. selection

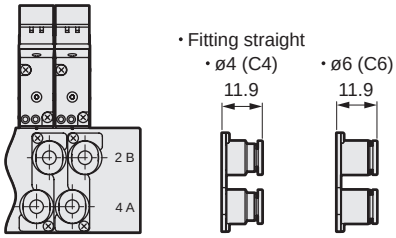
*1 M4GE*80EX when using a mixture of 3, 5-port valves. When using a mixture with the masking plate, M3GE*80EX.
*2 Dimensions are the same as the respective 2-position double solenoid.
*4 M8 connector length is 300mm. Select other lengths from page 406 as needed.
*5 3-position all ports closed and PAB connection are not provided with exhaust check valve specifications (H). Refer to "Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EX Series (No.CC-1459A)" for details on the exhaust check valve.
*6 A filter is built into port P as standard.
*7 4G4 cannot be selected for exhaust check valves (H), air supply spacers (Z1), or exhaust spacers (Z3).
*8 Specify the spacer mounting position/quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 404 to 405 for details.
*9 The manifold max. station No. for port size 12 M4GE4 is 12.
*10 Explosion-proof barrier sold separately. Select from page 409.

Code	Description	Ⓐ Model No. 3GE1	3GE2	4GE1	4GE2	4GE3	4GE4
Ⓑ Solenoid position							
1	2-position single			●	●	●	●
2	2-position double			●	●	●	●
3	3-position all ports closed			●	●	●	●
4	3-position ABR connection			●	●	●	●
5	3-position PAB connection			●	●	●	●
66	3-port valve Two valves integrated *1/2 — A valve side: Normally Closed	●	●				
	3-port valve Two valves integrated *1/2 — B valve side: Normally Closed	●	●				
8	Mix manifold (when there are multiple solenoid positions)	●	●	●	●	●	●
Ⓒ Explosion-proof Series							
EX	CCC and NEPSI certification (China) IECEx certified (international) KCs (South Korea), TS (Taiwan) compliant product	●	●	●	●	●	●
Ⓓ Port size [2(B), 4(A) port]							
Port	4(A)/2(B) port *3		Port P/R1/R2 (2) = Rc1/8 (3) = Rc1/4 (4) = Rc3/8 (5)=Rc1/2				
C4	ø4 push-in fitting	○	(2)	(3)	(2)	(3)	
C6	ø6 push-in fitting	○	(2)	(3)	(2)	(3)	
C8	ø8 push-in fitting	○		(3)		(3)	(4) (4)
C10	ø10 push-in fitting	○					(4) (4)
C12	ø12 push-in fitting	○					(4)
CX	Push-in fitting mix	○	(2)	(3)	(2)	(3)	(4) (4)
M5	M5	●	(2)		(2)		
06	Rc1/8	●		(3)		(3)	
08	Rc1/4	●					(4) (4)
10	Rc3/8	●					(4)
12	Rc1/2	●					(5)
00	Valve for base mounting	●	●	●	●	●	● ●
Ⓔ Electrical connections							
RN	M8 connector without cable		●	●	●	●	● ●
R1	M8 connector straight cable *4		●	●	●	●	● ●
R 2	M8 connector L-type cable *4		●	●	●	●	● ●
Ⓕ Option							
Blank	Manual override of non-locking/locking common (standard)		●	●	●	●	● ●
H	With exhaust check valve *5, *7		●	●	●	●	●
F	Port A/B filter *6		●	●	●	●	● ●
Z1	Air supply spacer *7, *8		●	●	●	●	●
Z3	Exhaust spacer *7, *8		●	●	●	●	●
Ⓖ Mount type							
Blank	Direct mount *9		●	●	●	●	● ●
Ⓗ Station No.							*9
2 to 20	2 stations / to / 20 stations (Refer to page 400 for the max. station number)		●	●	●	●	● 2 to 15
Ⓘ Voltage							
4	12 VDC		●	●	●	●	● ●

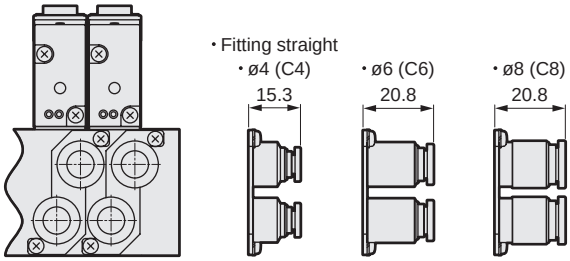
Dimensions

* Fitting dimensions of P4 Series differ from the standard when mounted.

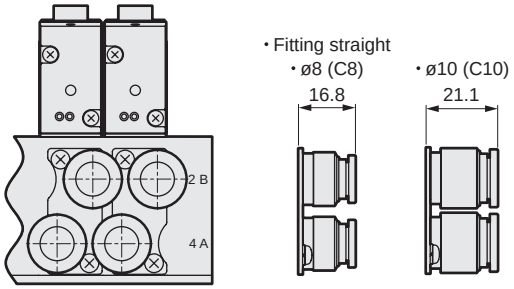
●M4GE1*0EX-P4



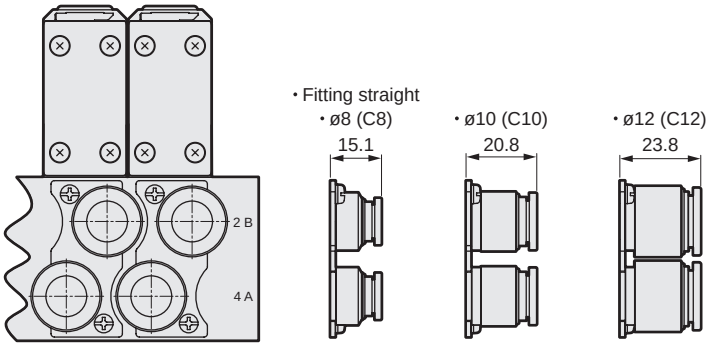
●M4GE2*0EX-P4



●M4GE3*0EX-P4



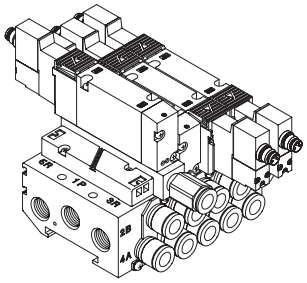
●M4GE4*0EX-P4



*Fitting dimensions of P4 Series are different from the standard when mounted. Refer to the M4GD1 to 4 Series of "Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EX Series (No.CC-1459A)" for other dimensions.

Related products

● Air supply spacer



Specifications

Model No.	P → A/B		A/B→R		Weight g
	C(dm³/(s·bar))	b	C(dm³/(s·bar))	b	
4G1	0.70	0.23	0.93	0.16	8
4G2	1.6	0.17	1.8	0.16	35
4G3	2.6	0.22	3.1	0.14	56

*1: Values are when a valve is mounted.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order discrete units

● Air supply spacer

Air supply spacer model No.

4G 3 R - P - GWS10 - P4

Ⓐ Air supply spacer model No.

Ⓑ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Code	Description	Valve model No. 4GD1	4GE1	4GD2	4GE2	4GD3	4GE3
Ⓐ Air supply spacer model No.							
1	For 4G1	●					
2	For 4G2			●			
3	For 4G3					●	
Ⓑ Port size							
Blank	M5(4G1), Rc1/8(4G2), Rc1/4(4G3)	●		●		●	
GWS4	ø4 push-in fitting	○					
GWS6	ø6 push-in fitting	○		○			
GWS8	ø8 push-in fitting			○		○	
GWS10	ø10 push-in fitting					○	

is not available.

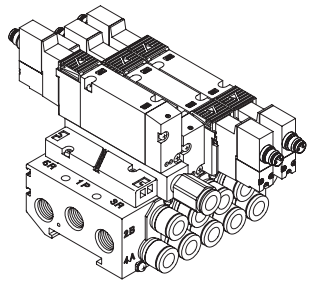
Accessories: 2 Mounting screws, 2 PR check valves, 1 body gasket

⚠ Precautions for model No. selection

*2: Blank, ① M5 ② Rc1/8 ③ Rc1/4. In addition, they are equivalent to P4 specifications as standard. It is not necessary to add "-P4" to the model No.
*3: Specify the air supply spacer mounting position and quantity on the manifold specifications sheet of each catalog.
*4: Combination with the masking plate is not supported.
*5: 4G4 air supply spacers are made to order products. Contact CKD Sales for details.

Related products

● Exhaust spacer



Specifications

Model No.	P → A/B		A/B→R		Weight g
	C(dm³/(s·bar))	b	C(dm³/(s·bar))	b	
4G1	0.94	0.28	0.68	0.33	7
4G2	1.5	0.24	1.9	0.24	34
4G3	3.4	0.21	2.9	0.27	58

*1: Values are when a valve is mounted.
*2:Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order discrete units

● Exhaust spacer

Exhaust spacer model No.

4G 3 R - R - GWS10

Ⓐ Exhaust spacer model No.

Ⓑ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Code	Description	Valve model No. 4GD1	4GE1	4GD2	4GE2	4GD3	4GE3
Ⓐ **Exhaust spacer model No.**							
1	For 4G1	●					
2	For 4G2			●			
3	For 4G3					●	
Ⓑ **Port size**							
Blank	M5(4G1), Rc1/8(4G2), Rc1/4(4G3)	●		●		●	
GWS4	ø4 push-in fitting	○					
GWS6	ø6 push-in fitting	○		○			
GWS8	ø8 push-in fitting			○		○	
GWS10	ø10 push-in fitting					○	

is not available.

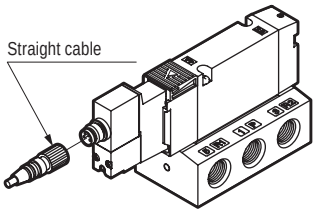
Accessories: 2 Mounting screws, 2 PR check valves, 1 body gasket

⚠ Precautions for model No. selection

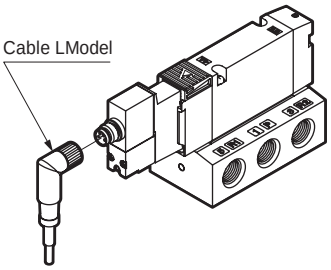
*2: Blank, ① M5 ② Rc1/8 ③ Rc1/4. In addition, they are equivalent to P4 specifications as standard. It is not necessary to add "-P4" to the model No.
*3: Specify the exhaust spacer mounting position and quantity on the manifold specifications sheet of each catalog.
*4: Combination with the masking plate is not supported.
*5: 4G4 exhaust spacers are made to order products. Contact CKD Sales for details.

Related parts

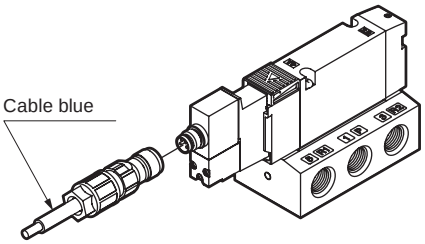
● M8 connector cable



Straight cable (R1)



L-type cable (R2)



Straight cable (R3)

◆Cable Capacitance and Inductance

Type	Capacitance [nF/m] at 1kHz	Inductance [mH/m] at 1kHz
Straight (R1)	0.058	0.003
L type (R2)	0.125	0.003
Straight (R3)	0.065	0.002

◆Minimum bending radius of cable

Type	No load [mm]	With load [mm]
Straight (R1)	20.0	36.0
L type (R2)	23.5	42.3
Straight (R3)	20.0	-

4GEX - M8CC - R1 - 300

Ⓐ Direction Ⓑ Length

Ⓐ Direction		4G1	4G2	4G3	4G4
R1 *1	Straight cable (color: gray)	●	●	●	●
R2 *1	L type cable (color: black)	●	●	●	●
R3 *2	Straight cable (color: blue)		●	●	●

Ⓑ Length	
300	Cable length 300mm
500	Cable length 500mm
1000	Cable length 1000mm
3000	Cable length 3000mm

*1:R1 and R2 types come with a blue marker for identification.
*2: Available as made to order.

Related parts

● Sub-plate

How to order

● 4GD piping adapter

4G1 R-ADAPTOR-M5-○

Ⓐ Model No.

P4 compliant as standard

Code	Description	Ⓐ Model No. 3G1	3G2	4G1	4G2	4G3
Ⓑ Port size (Port P/R1/R2)						
M5	M5	●		●		
06	Rc1/8		●		●	
08	Rc1/4					●
Ⓒ Option						
P	With mounting plate (included)	●	●	●	●	●

is not available.

Note: For 4G4, there is no piping adapter.

● 4GE discrete sub-plate

4G1 R-SUB-BASE-06-○

Ⓐ Model No.

P4 compliant as standard

Code	Description	Ⓐ Model No. 3G1	3G2	4G1	4G2	4G3	4G4
Ⓑ Port size (Port A/B/P/RI/R2)							
06	Rc1/8	●		●			
08	Rc1/4		●		●	●	
10	Rc3/8					●	●
15	Rc1/2						●
Ⓒ Option							
F	A/B port filter integrated *1	●	●	●	●	●	●

*1: A filter is built into port P as standard.

is not available.

Related parts

● Manifold sub-plate kit individual wiring

● M4GD sub-plate

M4GD1 R - 00 - 2

P4 compliant as standard

Ⓐ Model No.

Code	Description
Ⓐ Model No.	
M4GD1	Metal base, 4G1 size, body piping
M4GD2	Metal base, 4G2 size, body piping
M4GD3	Metal base, 4G3 size, body piping
M4GD4	Metal base, 4G4 size, body piping

Ⓓ Station No.	
2	2 stations
to	to
20	Refer to the specifications page for the max. station number.

● M4GE1 sub-plate

M4GE1R - C4 - ● D - 2 - P4

Ⓐ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓑ Option

Ⓒ Mount type

Ⓓ Station No.

Code	Description
Ⓐ Port size	

Port	4(A), 2(B) port	*1	Port P/R1/R2
C18	ø1.8 push-in fitting	○	Rc1/8
C4	ø4 push-in fitting	○	
C6	ø6 push-in fitting	○	
M5	M5	●	

Ⓑ Option	
Blank	
F	Port A/B filter built in *2

Ⓒ Mount type	
Blank	Direct mount
D	DIN rail mount *3

Ⓓ Station No.	
2	2 stations
to	to
20	Refer to the specifications page for the max. station number.

*2: A filter is built into port P as standard.
*3: The DIN rail kit needs to be prepared separately.

● Manifold sub-plate kit individual wiring

● M4GE2/3 sub-plate

M4GE2 R - C4 - ● 2 - P4

Ⓐ Model No.

Ⓑ Port size

*1
The port size of "●" is a standard product and equivalent to P4 specifications. It is not necessary to add "-P4" to the model No.

Ⓒ Option

Ⓓ Station No.

Code	Description
Ⓑ Port size	

Port	4(A), 2(B) port	*1	Ⓐ Model No. M4GE2 Port P/R1/R2 (1) = Rc1/4 (2) = Rc3/8	Ⓐ Model No. M4GE3 Port P/R1/R2 (1) = Rc1/4 (2) = Rc3/8
C4	ø4 push-in fitting	○	(1)	
C6	ø6 push-in fitting	○	(1)	(2)
C8	ø8 push-in fitting	○	(1)	(2)
C10	ø10 push-in fitting	○		(2)
06	Rc1/8	●	(1)	
08	Rc1/4	●		(3)

Ⓒ Option	
Blank	
F	Port A/B filter built in *2

Ⓓ Station No.	
2	2 stations
to	to
20	Refer to the specifications page for the max. station number.

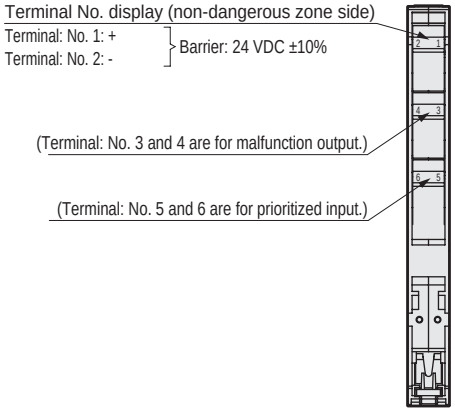
*2: A filter is built into port P as standard.

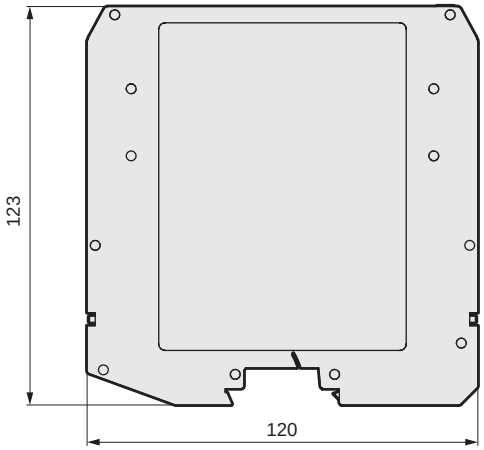
INSULATED EXPLOSION PROOF BARRIER dimensions

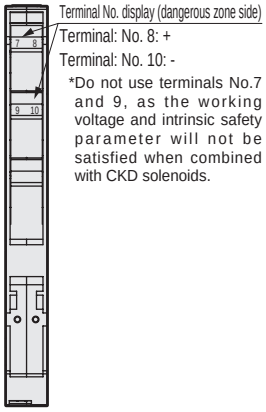
Model No.: **D5048S**











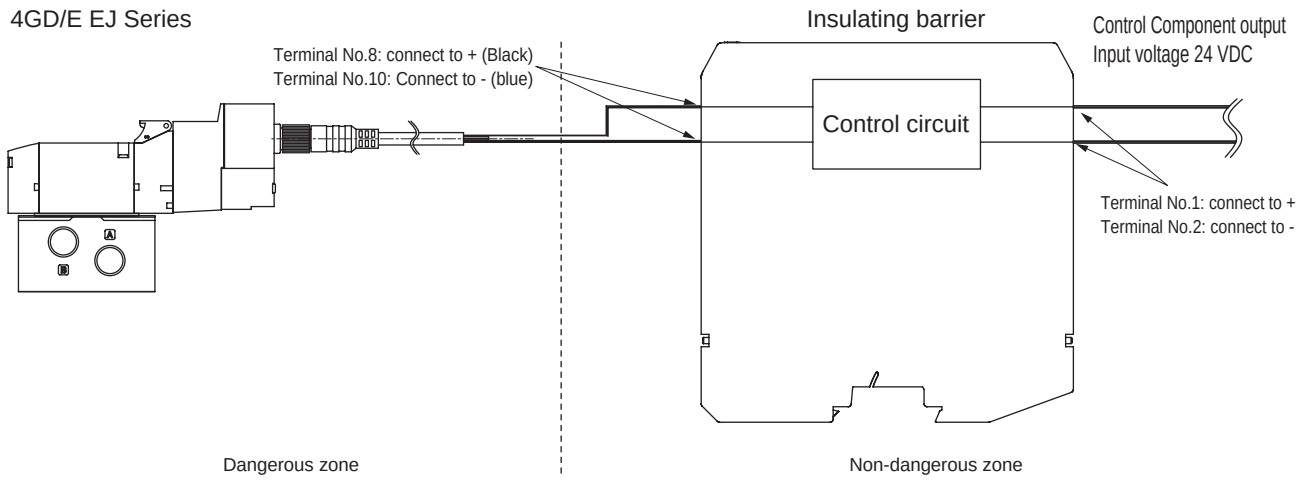
Barrier intrinsic safety parameters

Item	Between terminals No. 8-10
Intrinsic safety circuit max. voltage Uo	24.8V
Intrinsic safety circuit max. current Io	108mA
Intrinsic safety circuit max. power Po	667mW
Intrinsic safety circuit allowable capacitance Co	0.113 µF
Intrinsic safety circuit allowable inductance Lo	1.42mH
Operating ambient temperature range	-40 to 70°C

*1: Always use valves in combination with a barrier.
*2: Connection terminals are polarized. Take care to prevent incorrect wiring.
*3: Applicable wire is 0.25 to 2.5mm^2.
*4. Recommended terminal tightening torque is 0.5 to 0.6N• m.
*5: Barrier degree of protection is IP20.

Supply source: IDEC Co., Ltd. (G.M.I.)
Refer to the IDEC or G.M.I catalog or the WEB for detailed specifications and a non-judgment document.

About Valve and Barrier Connections



* Voltage equivalent to 12 VDC is supplied to the valve via an insulating barrier.

M4G D E 1 2 3 Manifold specifications sheet

Date issued / /
Company
Contact
Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M □ G D E □ □ 0EJ- □ - □ □ □ - □ - □ -P4

Solenoid valves | Solenoid position | Port size | Electrical connections | Other options | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G □ □ □ 9EJ- □																											
4G □ □ □ 9EJ- □																											
4G □ □ □ 9EJ- □																											
4G □ □ □ 9EJ- □																											
4G □ □ □ 9EJ- □																											
3G □ □ □ 9EJ- □																											
3G □ □ □ 9EJ- □																											
Masking plate 4G □ R-MP																											
Air supply spacer 4G □ R-P- □																											
Exhaust spacer 4G □ R-R- □																											

Mounting rail: L_2 = □
* Write an integer multiple of 12.5.

Included part:

Blanking plug								For M□G D E 1□0EJ
GWP 4-B		GWP 6-B		GWP 8-B		GWP 10-B		Push-in fitting tube remover (attached as standard) Not required (check the box) □
Threaded plug								
4G1R-M5P		4G2R-06P		4G3R-08P				

M4G$^{D}_{E}$4Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M4G$^{D}_{E}$4 [ ] 0EJ- [ ] - [ ] [ ] [ ] - [ ] - [ ] - P4

Solenoid position | Port size | Electrical connections | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	Fitting CX A	Fitting CX B	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Quantity
4G [ ] 4 [ ] 9EJ- [ ]																											
4G [ ] 4 [ ] 9EJ- [ ]																											
4G [ ] 4 [ ] 9EJ- [ ]																											
4G [ ] 4 [ ] 9EJ- [ ]																											
4G [ ] 4 [ ] 9EJ- [ ]																											
Masking plate 4G [ ] 4-MP																											

Mounting rail	Included part	Blanking plug					
L2= [ ] * Write an integer multiple of 12.5.		GWP 8-B		GWP 10-B		GWP 12-B	
		Threaded plug					
		4G4-8 [ ] P		4G4-10 [ ] P		4G4-15 [ ] P	

M4G[D/E][1/2/3] Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M□G[D/E]□□0EX-□-□□□-□-□-P4

Solenoid valves / Solenoid position / Port size / Electrical connections / Other options / Station No. / Voltage

Solenoid valve model No.	Fitting CX		Valve installation position																							Quantity
	A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
4G□□□9EX-□																											
4G□□□9EX-□																											
4G□□□9EX-□																											
4G□□□9EX-□																											
4G□□□9EX-□																											
3G□□□9EX-□																											
3G□□□9EX-□																											
Masking plate 4G□R-MP																											
Air supply spacer 4G□R-P-□																											
Exhaust spacer 4G□R-R-□																											

Included parts	Blanking plug								For M□G[D/E]1□0EX
	GWP 4-B		GWP 6-B		GWP 8-B		GWP 10-B		Push-in fitting tube remover (attached as standard) Not required (check the box) □
	Threaded plug								
	4G1R-M5P		4G2R-06P		4G3R-08P				

M4G$^{D}_{E}$4Manifold specifications sheet

Date issued / /

Company

Contact

Order No.

● Contact ● Quantity set(s) ● Delivery date /

Slip No.	Order No.

● Manifold model No.

M4G$^{D}_{E}$4 [ ] 0 E X - [ ] - [ ] [ ] - [ ] - [ ] - P4

Solenoid position / Port size / Electrical connections / Option / Station No. / Voltage

Solenoid valve model No.	Fitting CX		Valve installation position																							Quantity
	A	B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
4G [ ] 4 [ ] 9EX- [ ]																											
4G [ ] 4 [ ] 9EX- [ ]																											
4G [ ] 4 [ ] 9EX- [ ]																											
4G [ ] 4 [ ] 9EX- [ ]																											
4G [ ] 4 [ ] 9EX- [ ]																											
Masking plate 4G [ ] 4-MP																											

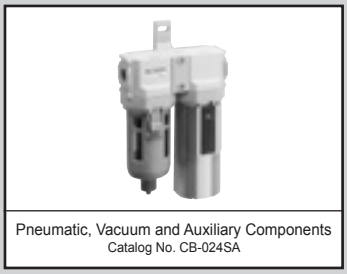
Included parts						
Blanking plug						
GWP 8-B		GWP 10-B		GWP 12-B		
Threaded plug						
4G4-8 [ ] P		4G4-10 [ ] P		4G4-15 [ ] P		

Clean air components



CONTENTS

Super dryer (High polymer membrane air dryer)	SU300E/400E/ SD300E/400E-W	416
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	SD3000/4000	427
Desiccant air dryers	SHD	431
Medium main line filter	AF2	434
Large main line filter	AF3000	435
	AF5000	439
Compact regulator	RB500	447
Precision regulator	RP1000/2000	448
	RPE1000	452
Digital electro-pneumatic regulator	EVD1000/3000	454
Air filter	F1000/2000/3000/ 4000/6000/8000-W	463
Oil mist filter	M1000/2000/3000/ 4000/6000/8000-W	466
Regulator	R1000/2000/3000/ 4000/6000/8000-W	468
Reverse regulator	R1100/2100/3100/ 4100/6100/8100-W	473
Filter/regulator	W1000/2000/3000/ 4000/6000/8000-W	478
Reverse filter/regulator	W1100/2100/3100/ 4100/6100/8100-W	483
Drain separator	FX	488
Bracket/joiner	B-W/B/J-W	491
Pressure gauge	G40D/41D/49D/59D	492
Inline clean filter	FCS500/1000	495
Clean exhaust filter	FAC	496
Pressure switch	P1100/4100/8100-W	500
Compact mechanical pressure switch	APS-W	502
Digital pressure sensor	PPX	504
Compact flow rate sensor RAPIFLOW	FSM3/FSM2-D	508
Slow start valve	V3301-W	520
Residual pressure exhaust valve	V3000/3010/6010-W	521
Quick valve	2QV	523
Residual pressure exhaust valve with spool position detection	SNS	524



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Super dryer combination Super dryer

SU300E/SU400E/SD300E/SD400E-W Series

E Series, with small air loss and filter-like usability

- Reduces operation costs through energy-saving moisture removal with a purge ratio of 10%.
- 3 types of units are available. Appropriate system is available according to applications.
- Processing air flow rate: 75 to 450 ℓ/min (ANR) (0.7MPa, atmospheric dew point -15°C)

RoHS CAD

Specifications

The photos on this page are standard products. Appearance may differ from actual P4 specification products.

Item		SU301E -*-W-C1	SU302E -*-W-C1	SU401E -*-W-C1	SU402E -*-W-C1	SU301E -*-W-C2	SU302E -*-W-C2	SU401E -*-W-C2	SU402E -*-W-C2	SU301E -*-W-C3	SU302E -*-W-C3	SU401E -*-W-C3	SU402E -*-W-C3	SD301E -*-W	SD302E -*-W	SD401E -*-W	SD402E -*-W
Appearance		 Simple & space saving structure unit that removes moisture from the air from which solid impurities have already been removed. (*1)				 Unit supplying clean dry air with line not requiring pressure adjustment.				 A unit that supplies pressure-adjusted clean dry air just by supplying compressed air.				 Discrete super dryer enabling easy system configuration with peripheral devices due to modular design.			
Configuration		Oil mist filter Super dryer (High polymer membrane air dryer)				Air filter Oil mist filter (with differential pressure gauge) Super dryer (High polymer membrane air dryer)				Air filter Oil mist filter (with differential pressure gauge) Super dryer (High polymer membrane air dryer) Regulator				Super dryer (High polymer membrane air dryer)			
Range of working conditions	Working fluid	Compressed air															
	Inlet air pressure MPa	0.4 to 1.0															
	Proof pressure MPa	1.5															
	Inlet air temperature °C	5 to 50															
	Ambient temperature °C	5 to 50															
Standard rating	Outlet air atmospheric dew point°C	−15															
	Inlet air flow rate ℓ/min (ANR)	75	150	300	450	75	150	300	450	75	150	300	450	75	150	300	450
	Outlet air flow ℓ/min (ANR)	67	135	270	405	67	135	270	405	67	135	270	405	67	135	270	405
	Purge flow rate ℓ/min (ANR)	8	15	30	45	8	15	30	45	8	15	30	45	8	15	30	45
	Inlet air pressure dew point°C	25															
	Inlet air pressure MPa	0.7															
	Inlet air temperature °C	25															
	Ambient temperature °C	25															
Air filter	Degree of filtration μm	—				5								—			
Oil mist filter	Oil removal mg/m³	0.1 [about 0.1 PPM] (inlet air at 30°C)												—			
Regulator	Set pressure range MPa	—								0.05 to 0.85				—			
	Relief pressure MPa	—								Setting pressure plus 0.05				—			
Standard accessories		Bracket				Differential pressure gauge/bracket				Pressure gauge/differential pressure gauge/bracket				—			

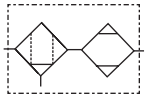
*1: Oil mist filter cannot be controlled with a differential pressure gage for C1. Replace the oil mist filter mantle every year.
*2: Purge flow rate in standard rating section is also the same value at 0.5MPa.
*3: Drainage is manual discharge.

JIS symbol

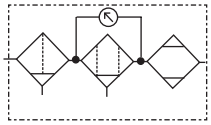
SD301E to 402E-*



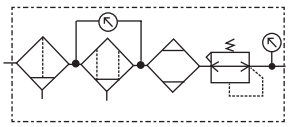
SU301E to 402E-*-C1



SU301E to 402E-*-C2

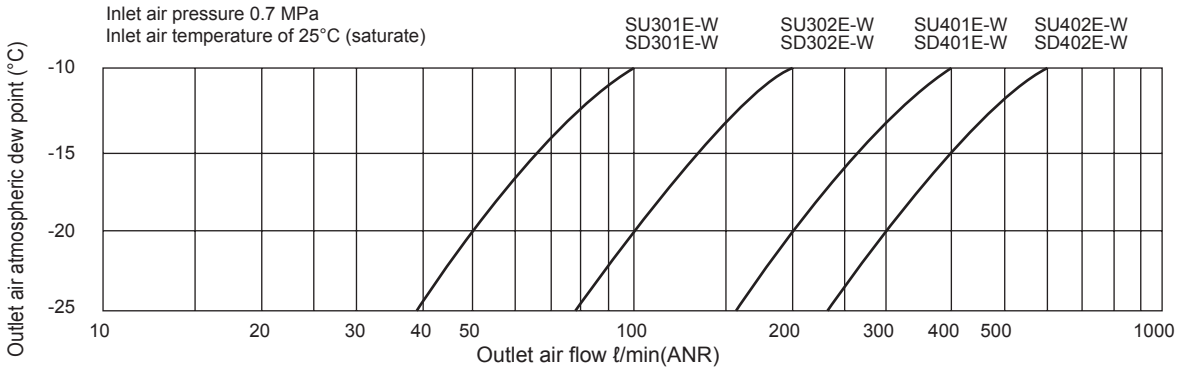


SU301E to 402E-*-C3

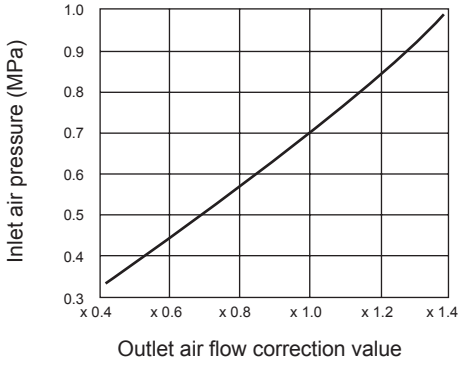


Dew point performance Refer to page 430 for selection guide and compensation method

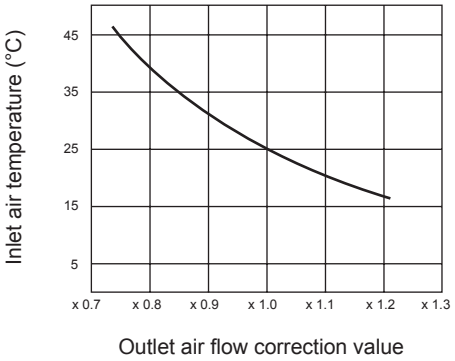
● Dew point performance curve



Inlet pressure - outlet air flow rate correction curve



Inlet temperature - outlet air flow rate correction curve



Compatibility table by variation

	SU
Port size	Rc3/8
P4	●
P40	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

*1: Applicable only for common exhaust.
*2: Auto-drain is not available.
*3: For unit option C3, zinc die-casting is used in the diaphragm part of the regulator.For pressure adjustment springs without regulator gas contact and pressure adjustment screw units in P40, zinc plating is used.

How to order

● Super dryer combination

SU301E - 05 - W - C1 - E - P4

Ⓐ Model No.

Code	Item
Ⓐ Model No.	
SU301E	
SU302E	
SU401E	
SU402E	

Ⓑ Inlet air pressure

Code	Item
Ⓑ Inlet air pressure	
05	0.5 MPa (*1)
07	0.7 MPa (*1)

Ⓒ Unit

Code	Item
Ⓒ UnitG type	
C1	
C2	
C3	

Ⓓ Option *5

Code	Item
Ⓓ Option	
E	Common exhaust (*4)
X1	Reversed inlet and outlet (*3)

● Super dryer (High polymer membrane air dryer)

SD402E - 05 - W - E - P4

Ⓐ Model No.

Code	Item
Ⓐ Model No.	
SD301E	
SD302E	
SD401E	
SD402E	

Ⓑ Inlet air pressure

Code	Item
Ⓑ Inlet air pressure	
05	0.5 MPa (*1)
07	0.7 MPa (*1)

Ⓒ Option *5

Code	Item
Ⓒ Option	
B	With C-bracket (*2)
E	Common exhaust (*4)
X1	IN-OUT reverse (*3)

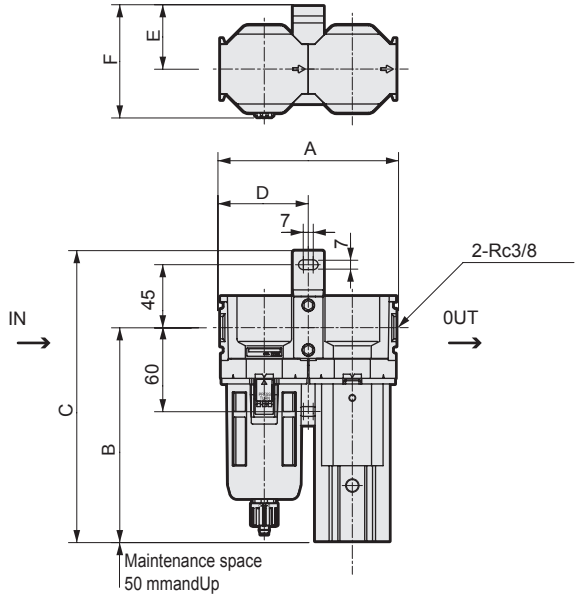
Precautions for model No. selection

*1: If inlet air pressure is less than 0.7 MPa, indicate 05, while 0.7 MPa and over, indicate 07.
*2: If fixed by C-bracket, modular connection with peripheral devices is not possible.
*3: Viewed from the front, standard products have an air inlet on the left port and an air outlet on the right port. For "X1", an air inlet is provided on the right port, with an air outlet provided on the left port.
*4 : In size of exhaust port, Rc1/8 is provided for 300 Series, while Rc1/4 for 400 Series.
*5 : When ordering several options, indicate the required options in alphabetical order.

Dimensions

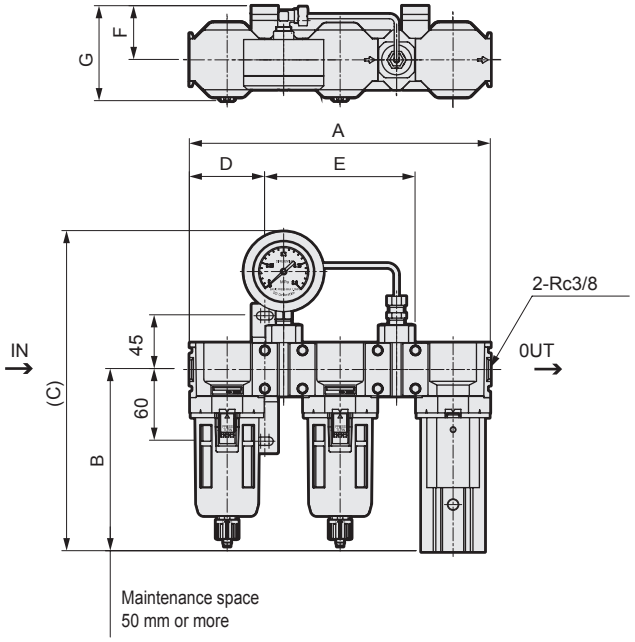
CAD

● Unit C1



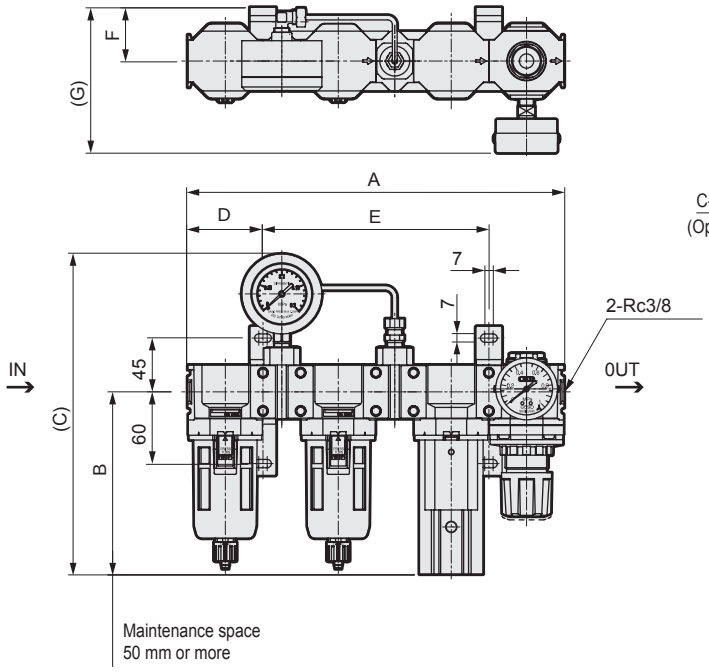
	A	B	C	D	E	F	Weight (kg)
SU301E-*-W-C1-*-P4	126	153	208	63	45	79	1.0
SU302E-*-W-C1-*-P4	143	223	278	80	55	97	1.6
SU401E-*-W-C1-*-P4	160	223	278	80	55	97	2.1
SU402E-*-W-C1-*-P4	160	328	383	80	55	95	3.5

● Unit C2 type



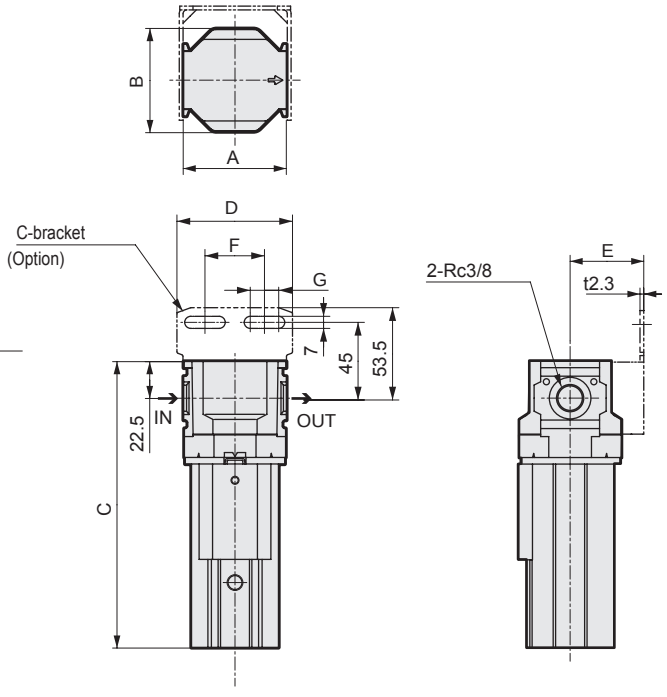
	A	B	C	D	E	F	G	Weight (kg)
SU301E-*-W-C2-*-P4	252	153	268	63	126	45	79	2.5
SU302E-*-W-C2-*-P4	286	223	338	80	143	55	97	3.3
SU401E-*-W-C2-*-P4	303	223	338	80	143	55	97	3.8
SU402E-*-W-C2-*-P4	303	328	443	80	143	55	97	5.2

● Unit C3 type

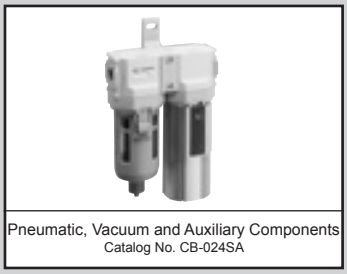


	A	B	C	D	E	F	G	Weight (kg)
SU301E-*-W-C3-*-P4	315	153	268	63	189	45	137	3.1
SU302E-*-W-C3-*-P4	366	223	338	80	206	55	137	4.1
SU401E-*-W-C3-*-P4	383	223	338	80	223	55	137	4.6
SU402E-*-W-C3-*-P4	383	328	443	80	223	55	137	6.0

● SD300E/SD400E



	A	B	C	D	E	F	G	Weight (kg)
SD301E-*-W-*-P4	63	63	175	67	45	34.5	16.5	0.6
SD302E-*-W-*-P4	63	63	245	67	45	34.5	16.5	0.9
SD401E-*-W-*-P4	80	80	245	84	55	55	14	1.4
SD402E-*-W-*-P4	80	80	315	84	55	55	14	1.8



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Super dryer combination Super dryer

SU300D/SU400D/SD300D/SD400D-W Series

Slim body and high performance D series

- Small and powerful removal performance. Appropriate for integrating in devices.
- 3 types of units are available. Appropriate system is available according to applications.
- Processing air flow rate: 125 to 750 ℓ/min (ANR) (0.7MPa, atmospheric dew point -20°C)

CAD

Specifications

The photos on this page are standard products. Appearance may differ from actual P4 specification products.

Item		SU301D -*-W-C1	SU302D -*-W-C1	SU401D -*-W-C1	SU402D -*-W-C1	SU301D -*-W-C2	SU302D -*-W-C2	SU401D -*-W-C2	SU402D -*-W-C2	SU301D -*-W-C3	SU302D -*-W-C3	SU401D -*-W-C3	SU402D -*-W-C3	SD301D -*-W	SD302D -*-W	SD401D -*-W	SD402D -*-W
Appearance		 Simple & space saving structure unit that removes moisture from the air from which solid impurities have already been removed. (*1)				 Unit supplying clean dry air with line not requiring pressure adjustment.				 Clitoris pressurized just by supplying compressed airA unit that supplies clean dry air.				 Discrete super dryer enabling easy system configuration with peripheral devices due to modular design.			
Configuration		Oil mist filter Super dryer (High polymer membrane air dryer)				Air filter Oil mist filter (with differential pressure gauge) Super dryer (High polymer membrane air dryer)				Air filter Oil mist filter (with differential pressure gauge) Super dryer (High polymer membrane air dryer) Regulator				Super dryer (High polymer membrane air dryer)			
Range of working conditions	Working fluid	Compressed air															
	Inlet air pressure MPa	0.4 to 1.0															
	Proof pressure MPa	1.5															
	Inlet air temperature °C	5 to 50															
	Ambient temperature °C	5 to 50															
Standard rating	Outlet air atmospheric dew point°C	−20															
	Inlet air flow rate ℓ/min (ANR)	125	250	500	750	125	250	500	750	125	250	500	750	125	250	500	750
	Outlet air flow ℓ/min (ANR)	100	200	400	600	100	200	400	600	100	200	400	600	100	200	400	600
	Purge flow rate ℓ/min (ANR)	25	50	100	150	25	50	100	150	25	50	100	150	25	50	100	150
	Inlet air pressure dew point °C	25															
	Inlet air pressure MPa	0.7															
	Inlet air temperature °C	25															
	Ambient temperature °C	25															
Air filter	Degree of filtration μm	—				5								—			
Oil mist filter	Oil removal mg/m³	0.1 [about 0.1 PPM] (inlet air at 30°C)												—			
Regulator	Set pressure range MPa	—								0.05 to 0.85				—			
	Relief pressure MPa	—								Setting pressure plus 0.05				—			
Standard accessories		Bracket				Differential pressure gauge/bracket				Pressure gauge/differential pressure gauge/bracket				—			

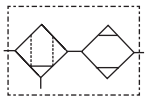
*1: Oil mist filter cannot be controlled with a differential pressure gauge for C1. Replace the oil mist filter mantle every year.
*2: Purge flow rate in standard rating section is also the same value at 0.5MPa.
*3: Drainage is manual discharge.

JIS symbol

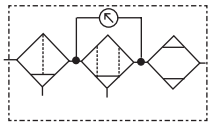
SD301D to 402D-*



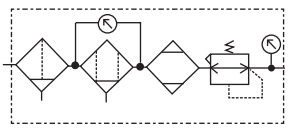
SU301D to 402D-*-C1



SU301D to 402D-*-C2



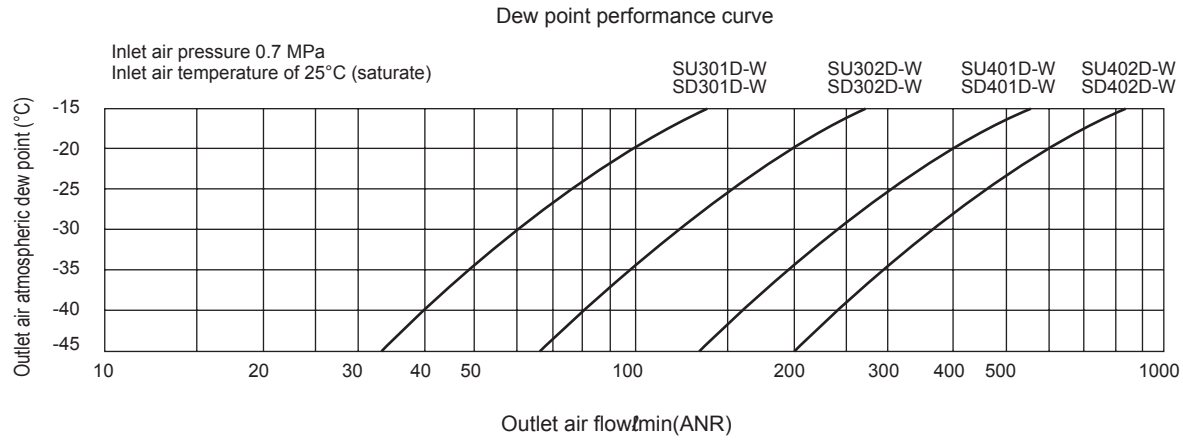
SU302D to 402D-*-C3

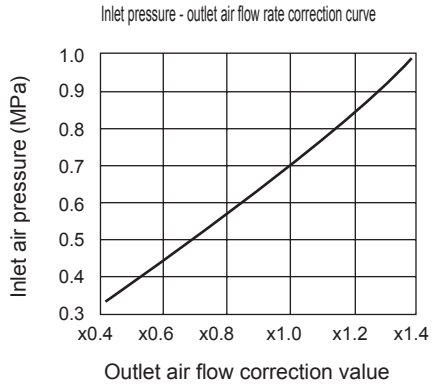


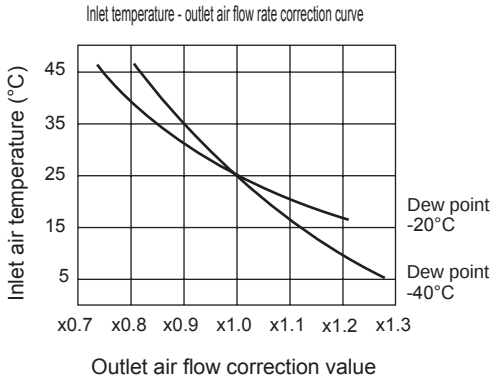
Dew point performance

Refer to page 430 for selection guide and compensation method

● Dew point performance curve







Compatibility table by variation

	SU
Port size	Rc3/8
P4	●
P40	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

*1: Applicable only for common exhaust.
*2: Auto-drain is not available.
*3: For unit option C3, zinc die-casting is used in the diaphragm part of the regulator. For pressure adjustment springs without regulator gas contact and pressure adjustment screw units in P40, zinc plating is used.

How to order

● Super dryer combination

SU301D - 05 - W - C1 - E - P4

Code	Item	
Ⓐ **Model No.**		
SU301D		
SU302D		
SU401D		
SU402D		
Ⓑ **Inlet air pressure**		
05	0.5 MPa	(*1)
07	0.7 MPa	(*1)
Ⓒ **UnitG type**		
C1		
C2		
C3		
Ⓓ **Option**		
E	Common exhaust	(*4)
X1	IN/OUT reverse	(*3)

Ⓐ Model No.
Ⓑ Inlet air pressure
Ⓒ Unit
Ⓓ Option *5

● Super dryer (High polymer membrane air dryer)

SD402D - 05 - W - E - P4

Code	Item	
Ⓐ **Model No.**		
SD301D		
SD302D		
SD401D		
SD402D		
Ⓑ **Inlet air pressure**		
05	0.5 MPa (*1)	
07	0.7 MPa (*1)	
Ⓒ **Option**		
B	With C-bracket (*2)	
E	Common exhaust (*4)	
X1	Reversed inlet and outlet (*3)	

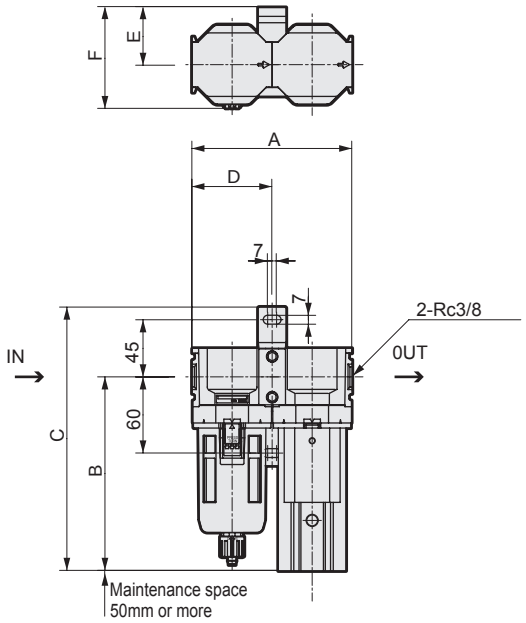
Ⓐ Model No.
Ⓑ Inlet air pressure
Ⓒ Option *5

⚠ Precautions for model No. selection

*1: If inlet air pressure is less than 0.7MPa, indicate 05; for 0.7MPa and over, indicate 07.
*2: If fixed by C-bracket, modular connection with peripheral devices is not possible.
*3: Viewed from the front, standard products have an air inlet on the left port and an air outlet on the right port. For "X1", an air inlet is provided on the right port, with an air outlet provided on the left port.
*4: In size of exhaust port, Rc1/8 is provided for 300 Series, while Rc1/4 for 400 Series.
*5: When using multiple options,Indicate in alphabetical order.

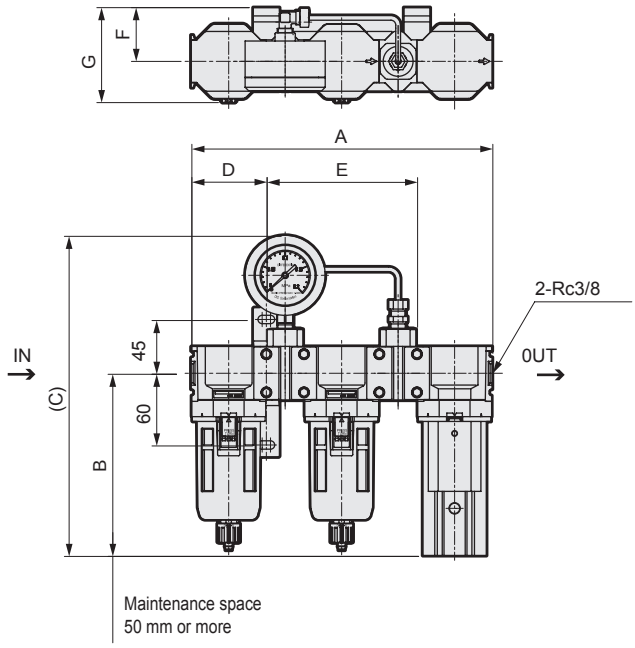
Dimensions

● Unit C1



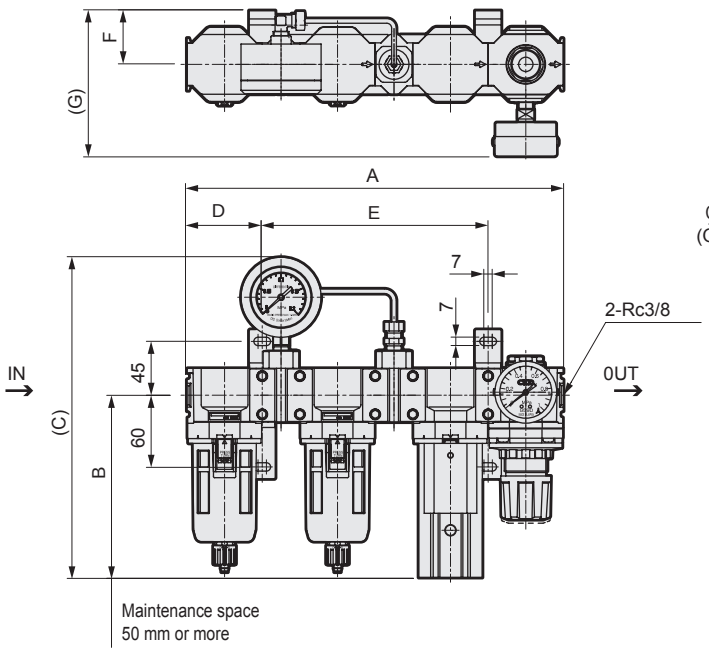
	A	B	C	D	E	F	Weight (kg)
SU301D-*-W-C1-*-P4	143	171	226	80	55	97	1.3
SU302D-*-W-C1-*-P4	143	223	278	80	55	97	1.6
SU401D-*-W-C1-*-P4	160	328	383	80	55	95	3.1
SU402D-*-W-C1-*-P4	160	328	383	80	55	95	3.5

● Unit C2 type



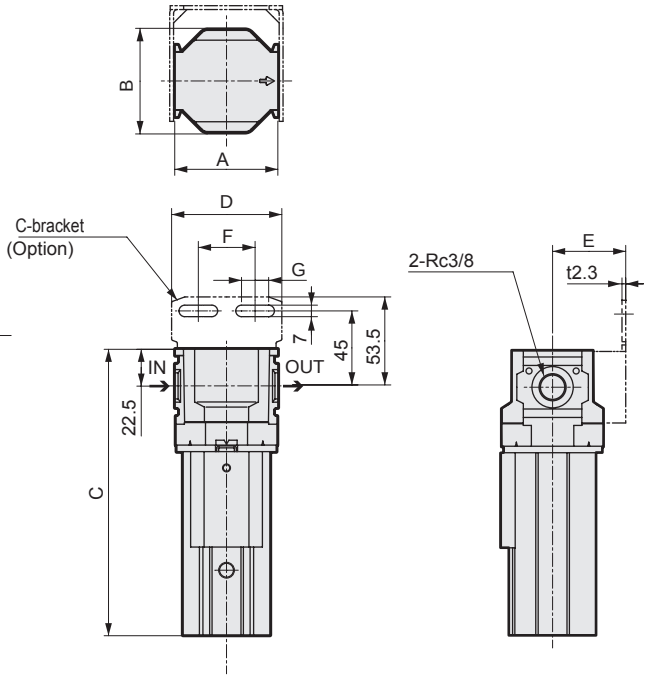
	A	B	C	D	E	F	G	Weight (kg)
SU301D-*-W-C2-*-P4	286	171	286	80	143	55	97	3.0
SU302D-*-W-C2-*-P4	286	223	338	80	143	55	97	3.3
SU401D-*-W-C2-*-P4	303	328	443	80	143	55	97	4.8
SU402D-*-W-C2-*-P4	303	328	443	80	143	55	97	5.2

● Unit C3 type

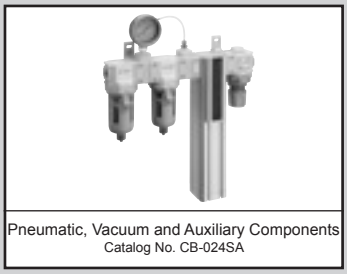


	A	B	C	D	E	F	G	Weight (kg)
SU301D-*-W-C3-*-P4	366	171	286	80	206	55	122	3.8
SU302D-*-W-C3-*-P4	366	223	338	80	206	55	137	4.1
SU401D-*-W-C3-*-P4	383	328	443	80	206	55	137	5.6
SU402D-*-W-C3-*-P4	383	328	443	80	223	55	137	6.0

● SD300D/SD400D



	A	B	C	D	E	F	G	Weight (kg)
SD301D-*-W-*-P4	63	63	175	67	45	34.5	16.5	0.6
SD302D-*-W-*-P4	63	63	245	67	45	34.5	16.5	0.9
SD401D-*-W-*-P4	80	80	245	84	55	55	14	1.4
SD402D-*-W-*-P4	80	80	315	84	55	55	14	1.8



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Super dryer combination

SU3000/SU4000-W Series

Easily and stably supplying ultra dry air.

- Ultra dry air with atmospheric dew point -60°C is obtained just by piping to a pneumatic source.
- All in one unit with superior installation performance.
- Processing air flow rate: 35 to 1500 ℓ/min (ANR) (at 0.7MPa and -40°C atmospheric dew point)

CAD

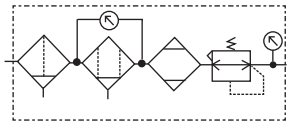
Specifications

The photos on this page are standard products. Appearance may differ from actual P4 specification products.

Item		SU 3015-A-W	SU 3025-A-W	SU 3035-A-W	SU 3050-A-W	SU 3075-A-W	SU 4100-A-W	SU 3015-B-W	SU 3025-B-W	SU 3050-B-W	SU 4050-B-W	SU 4100-B-W
Range of working conditions	Working fluid	Compressed air										
	Inlet air pressure MPa	0.4 to 1.0										
	Proof pressure MPa	1.5										
	Inlet air temperature °C	5 to 50										
	Ambient temperature °C	5 to 50										
Standard rating	Outlet air atmospheric dew point °C	−20						−40				
	Inlet air flow rate ℓ/min(ANR)	125	300	490	760	1200	1500	35	90	230	410	890
	Outlet air flow ℓ/min(ANR)	100	240	390	610	960	1260	25	65	170	300	650
	Purge flow rate ℓ/min(ANR)	25	60	100	150	240	240	10	25	60	110	240
	Inlet air pressure dew point °C	25										
	Inlet air pressure MPa	0.7										
	Inlet air temperature °C	25										
	Ambient temperature °C	25										
Air filter	Degree of filtration μm	5										
Oil mist filter	Oil removal mg/m³	0.1[Approx.0.1PPM] (Inlet air 30°C)										
Regulator	Set pressure range MPa	0.05 to 0.85										
	Relief pressure MPa	Setting pressure plus 0.05										
Standard accessories		Pressure gauge/differential pressure gauge/bracket										

*1: Drainage is manual discharge.

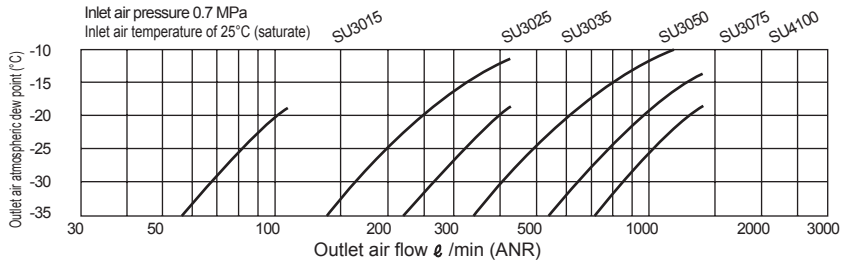
JIS symbol



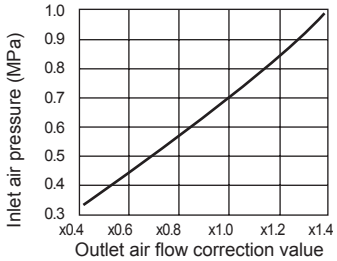
Dew point performance

Refer to page 430 for selection guide and compensation method

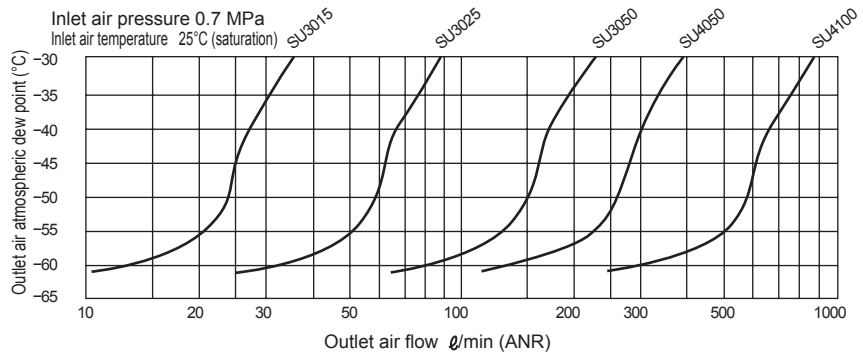
● Dew point performance curve (-20°C specifications)



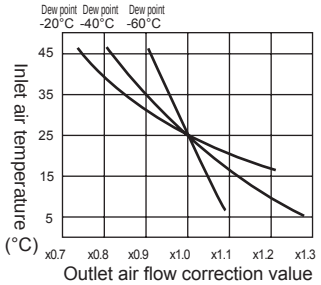
● Inlet pressure - outlet air flow rate correction curve



● Dew point performance curve (-40, 60°C specifications)



● Inlet temperature - outlet air flow rate correction curve



Compatibility table by variation

	SU
Port size	Rc3/8, 1/2
P4	●
P40	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

*1: Applicable only for common exhaust.
*2: Zinc die-casting is used in the diaphragm part of the regulator. For pressure adjustment springs without regulator gas contact and pressure adjustment screw units in P40, zinc plating is used.

How to order

● Super dryer combination

SU3015 - A 05 - W - E - P4

Ⓐ Model No.

Code	Item
Ⓐ **Model No.**	
SU3015	
SU3025	
SU3035	
SU3050	
SU3075	
SU4050	
SU4100	

Ⓑ Outlet air Atmospheric dew point

Ⓑ Outlet air atmospheric dew point	
A	-20°C
B	-40°C, -60°C (*5)

Ⓒ Inlet air pressure

Ⓒ Inlet air pressure	
05	0.5 MPa (*1)
07	0.7 MPa (*1)

Ⓓ Option *6

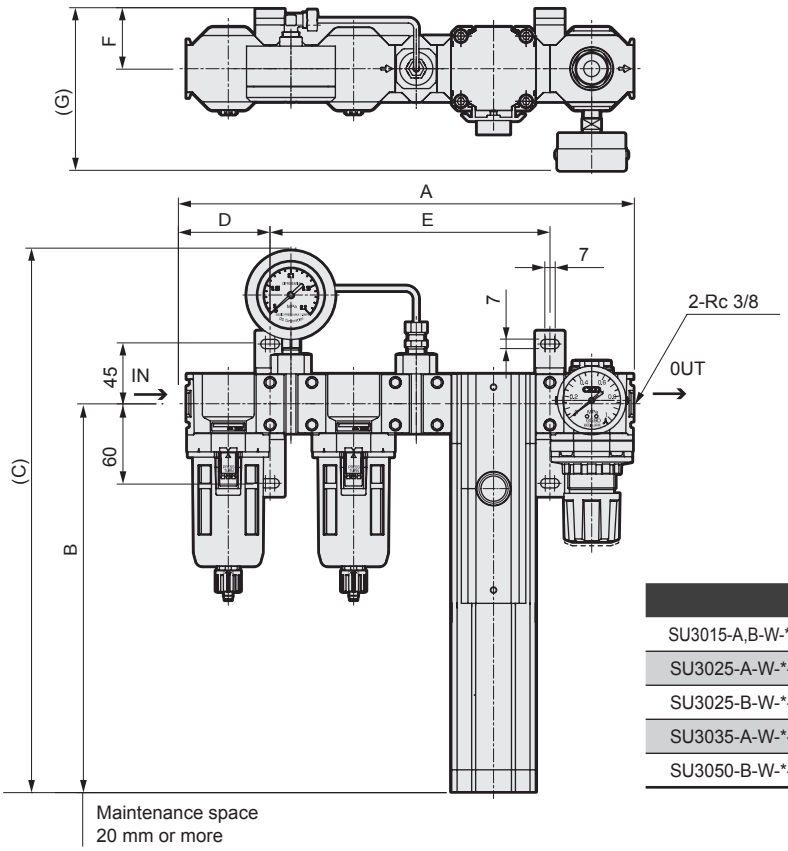
Ⓓ Option	
E	Common exhaust (*3)
X1	IN/OUT reverse (*2)

⚠ Precautions for model No. selection

*1: If inlet air pressure is less than 0.7 MPa, indicate 05, while 0.7 MPa and over, indicate 07.
*2: Viewed from the front, standard products have an air inlet on the left port and an air outlet on the right port. For "X1", an air inlet is provided on the right port, with an air outlet provided on the left port.
*3: Size of exhaust port is Rc1/2.
*4: Purge flow rate in standard rating section is also the same value at 0.5 MPa.
*5: If outlet atmospheric dew point is -60°C, model No. is "B" as at -40°C.
*6: When ordering several options, indicate the required options in alphabetical order.

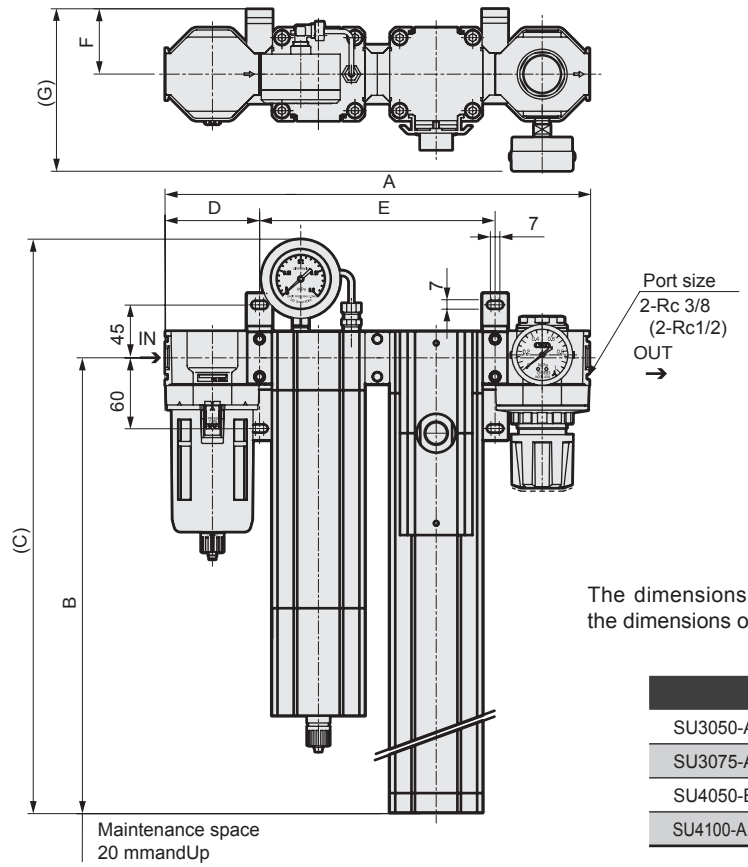
Dimensions CAD

● SU3015-A/B-W SU3025-A/B-W SU3035-A-W SU3050-B-W



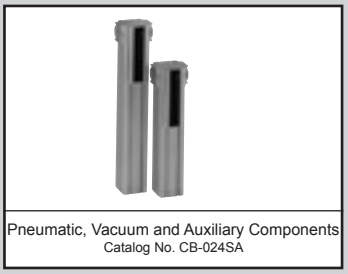
	A	B	C	D	E	F	G	Weight (kg)
SU3015-A,B-W-*-P4	337	193	308	63	211	45	122	4.0
SU3025-A-W-*-P4	388	293	408	80	228	55	137	5.1
SU3025-B-W-*-P4	337	293	408	63	211	45	122	4.4
SU3035-A-W-*-P4	388	393	508	80	228	55	137	5.5
SU3050-B-W-*-P4	388	543	658	80	228	55	137	6.0

● SU3050-A-W SU3075-A-W SU4050-B-W SU4100-A/B-W



The dimensions in ( ) indicate the dimensions of SU4000.

	A	B	C	D	E	F	G	Weight (kg)
SU3050-A-W-*-P4	345	543	644	80	185	55	137	8.3
SU3075-A-W-*-P4	345	793	894	80	185	55	137	9.3
SU4050-B-W-*-P4	360	543	644	80	200	55	137	9.7
SU4100-A,B-W-*-P4	360	1043	1144	80	200	55	137	12.5



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Super dryer (High polymer membrane air dryer)

SD3000/SD4000 Series

Modular design for easy system expansion with peripheral devices

- Quickly supplies ultra dry air of -60°C atmospheric dew point.
- Available with max. working pressure of 1.5 MPa and a wide range of applications.
- Processing air flow rate: 35 to 890 ℓ/min (ANR) (at 0.7MPa and -40°C atmospheric dew point)

CAD

Specifications

The photos on this page are standard products. Appearance may differ from actual P4 specification products.

Item				SD3015	SD3025	SD3035	SD3050	SD3075	SD4050	SD4075	SD4100
Range of working conditions	Working fluid			Compressed air							
	Inlet air pressure MPa			0.4 to 1.5							
	Proof pressure		MPa	2.25							
	Inlet air temperature °C			5 to 50							
	Ambient temperature °C			5 to 50							
Standard rating	Inlet air pressure dew point °C			25							
	Inlet air pressure MPa			0.7							
	Inlet air temperature °C			25							
	Ambient temperature °C			25							
Outlet air atmospheric dew point		Inlet air flow rate	ℓmin(ANR)	125	300	490	760	1200	680	1100	1500
	-20°C	Outlet air flow	ℓmin(ANR)	100	240	390	610	960	570	930	1260
		Purge flow rate	ℓmin(ANR)	25	60	100	150	240	110	170	240
		Inlet air flow rate	ℓmin(ANR)	35	90	150	230	370	410	650	890
	-40°C	Outlet air flow	ℓmin(ANR)	25	65	110	170	270	300	480	650
		Purge flow rate	ℓmin(ANR)	10	25	40	60	100	110	170	240
		Inlet air flow rate	ℓmin(ANR)	20	55	90	140	220	240	380	520
	-60°C	Outlet air flow	ℓmin(ANR)	10	30	50	80	120	130	210	280
		Purge flow rate	ℓmin(ANR)	10	25	40	60	100	110	170	240

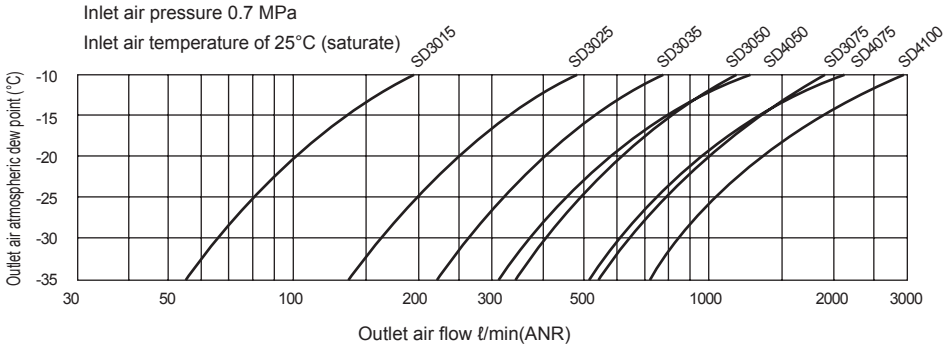
JIS symbol



Dew point performance

Refer to page 430 for selection guide and compensation method

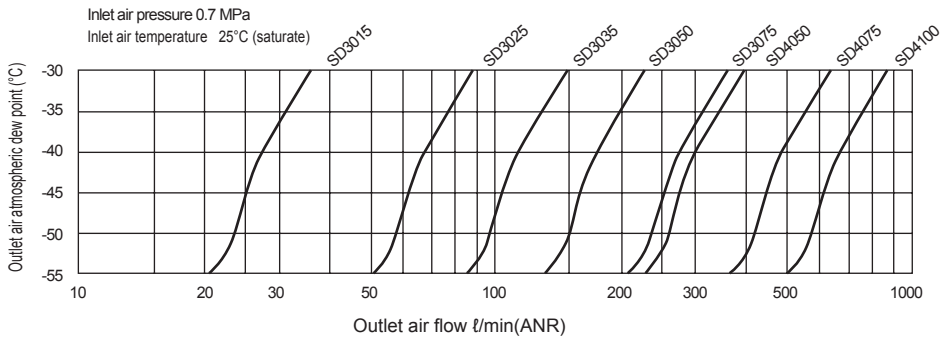
- Dew point performance curve (-20°C specifications)



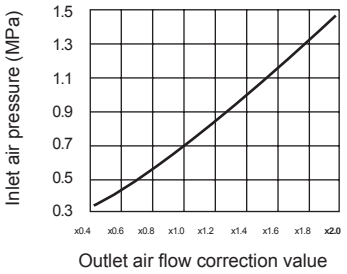
Dew point performance

Refer to page 430 for selection guide and compensation method

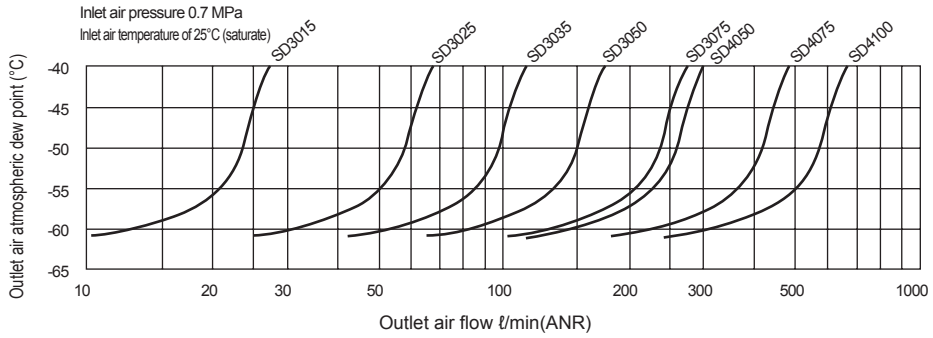
● Dew point performance curve (-40°C specifications)



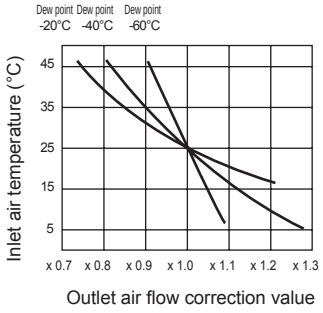
● Inlet pressure - outlet air flow rate correction curve



● Dew point performance curve (-60°C specifications)



● Inlet temperature - outlet air flow rate correction curve



● Super dryer (High polymer membrane air dryer)

How to order

SD3015 - A 05 - E - P4

- A Model No.
- B Outlet air atmospheric dew point
- C Inlet air pressure *1 *2
- D Option *3 *4 *5

Code	Description
A Model No.	
SD3015	
SD3025	
SD3035	
SD3050	
SD3075	
SD4050	
SD4075	
SD4100	
B Outlet air atmospheric dew point	
A	-20°C
B	-40°C
C	-60°C
C Inlet air pressure	
05	0.5 MPa
07	0.7 MPa
14	1.4 MPa (Outlet air atmospheric dew point"A"-20°C cannot be selected.)
D Option	
B	With bracket
E	Common exhaust (Note4)
X1	IN-OUT reverse (Note3)

Compatibility table by variation

	SD
Port size	Rc3/8, 1/2
P4	●
P40	▲

*1: Applicable only for common exhaust.

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

Precautions for model No. selection

*1: Select 05 if the inlet air pressure is less than 0.7M P a, and 07 if it is 0.7MPa and over and less than 1.4MPa.

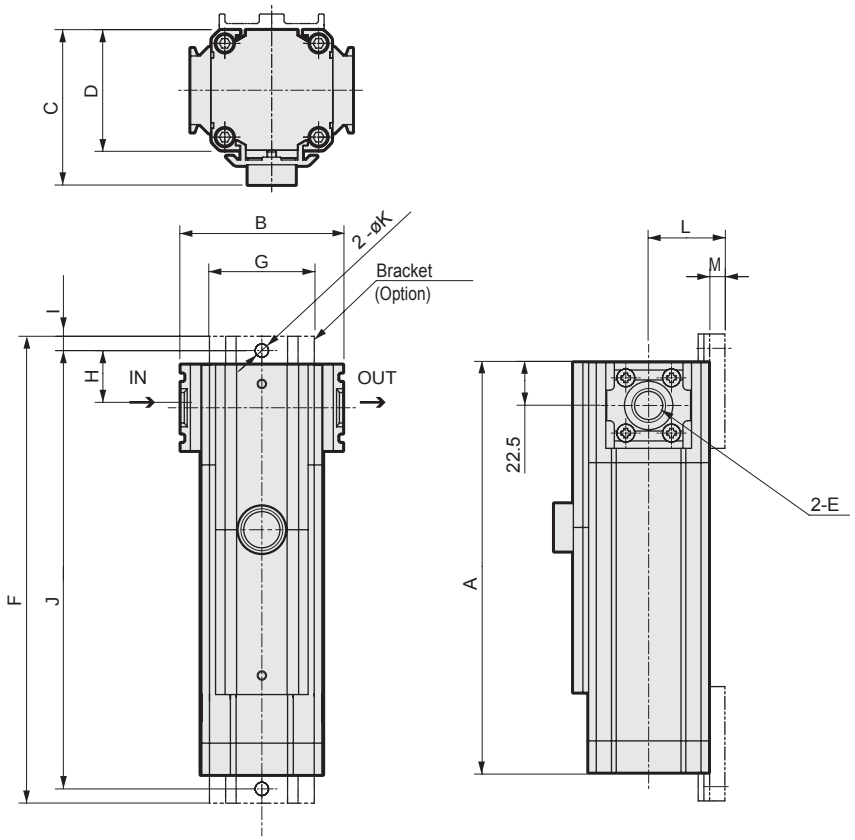
*2: 1.4MPa inlet air pressure and -20°C outlet air atmospheric dew point cannot be selected together. As the atmospheric dew point will be -14°C when the inlet air temperature is 25°C and the pressure is 1.4MPa, there is no point in using the dryer. Select -40°C or -60°C.

*3: Viewed from the front, a standard product has air inlet on the left port and an air outlet on the right port. For "X1", an air inlet is provided on the right port with an air outlet on the left port.

*4: Size of exhaust port is Rc1/2.

*5: When ordering several options, indicate the required options in alphabetical order.

Dimensions



Model No.	A	B	C	D	E	Weight (kg)	Bracket relational dimensions							
							F	G	H	I	J	K	L	M
SD3015-**-*-P4	215	85	81	63	Rc 3/8	1.5	245	55	30	7.5	230	7	40	8
SD3025-**-*-P4	315	85	81	63	Rc 3/8	1.9	345	55	30	7.5	330	7	40	8
SD3035-**-*-P4	415	85	81	63	Rc 3/8	2.3	445	55	30	7.5	430	7	40	8
SD3050-**-*-P4	565	85	81	63	Rc 3/8	2.8	595	55	30	7.5	580	7	40	8
SD3075-**-*-P4	815	85	81	63	Rc 3/8	3.7	845	55	30	7.5	830	7	40	8
SD4050-**-*-P4	565	100	104	79	Rc 1/2	4.1	605	70	32.5	10	585	9	50	10
SD4075-**-*-P4	815	100	104	79	Rc 1/2	5.5	855	70	32.5	10	835	9	50	10
SD4100-**-*-P4	1065	100	104	79	Rc 1/2	6.9	1105	70	32.5	10	1085	9	50	10

Selection guide

[Selection guide]

Each performance curve shows the relation of the outlet air flow and the outlet air atmospheric dew point of each model at an inlet pressure of 0.7 MPa and inlet air temperature of 25°C (saturation). Select the model according to the intersection of the required dew point and required flow rate shown on the right.

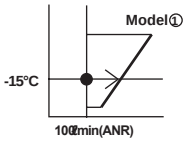
[Flow rate compensation method]

If the inlet pressure and inlet temperature differ from the rated values, the outlet air flow rate that can be supplied will change. Use each compensation curve and compensate in this case.

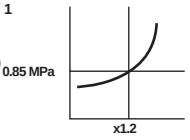
(Rated outlet air flow) × (correction value) = (outlet air flow rate under conditions)

In addition, when the inlet air is the air which comes through the refrigeration air dryer, regardless of actual temperature, select the model with inlet air temperature of 10°C.

(Example) Required dew point of -15°C
When the required flow rate is 100 ℓ/min (ANR), model ① located on the right side of an intersection point can be selected.

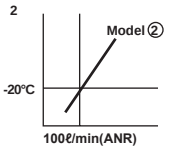


(Example) Inlet pressure of 0.85 MPa
Required dew point of -20°C
Required flow rate 120 ℓ/With min (ANR)



1. Obtain compensation (in this case 1.2) from the pressure flow rate compensation curve.

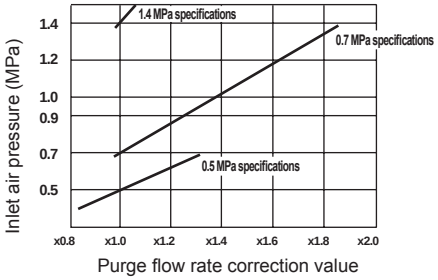
2. Model ② has an outlet atmospheric dew point of -20°C and outlet air flow rate of 100 ℓ/min, allowing up to a 1.2-fold rate of 120 ℓ/min (ANR); therefore model ② is selectable.



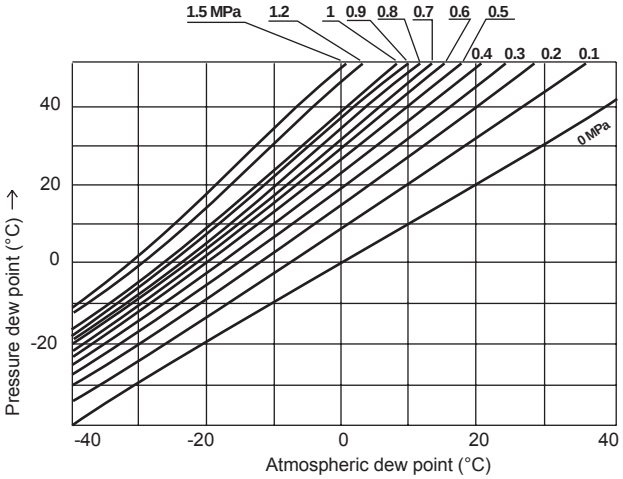
Purge flow rate

Make sure that the flow rate including the purge flow rate as well as the outlet side operating air flow rate can be supplied from the inlet. If the inlet air pressure differs from the rated valve, the purge flow rate will be obtained by multiplying the rated purge flow rate with the compensation value shown on the right.

Inlet pressure - purge flow rate correction curve

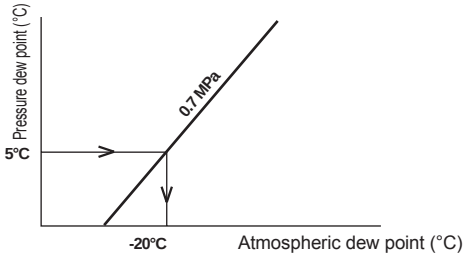


Pressure dew point - atmospheric dew point conversion table



Reading pressure dew point - atmospheric dew point conversion table

This table is used to convert the pressure dew point at each pressure into an atmospheric dew point, or vice versa. Example: Obtain the atmospheric dew point when the pressure is 0.7 MPa and the pressure dew point is 5°C.



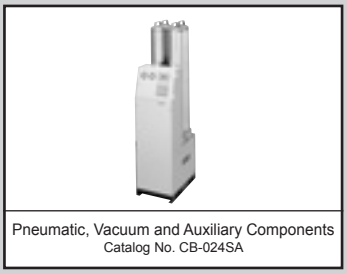
According to the above table, when the pressure is 0.7 MPa, the 5°C pressure dew point is converted into a -20°C atmospheric dew point.

Measuring the working air flow rate

If the working flow rate is not clear when selecting the super dryer model, measure the flow rate. The pneumatic flow rate sensor "FLUEREX Flow Sensor Tester Kit" with functions such as cumulative display, peak display, peak value hold, and analog output is handy for measuring the flow rate.

● FLUEREX Flow Sensor Tester Kit
FLUEREX PFK Series





Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Desiccant air dryer (heatless dryer)

SHD Series

JIS symbol 

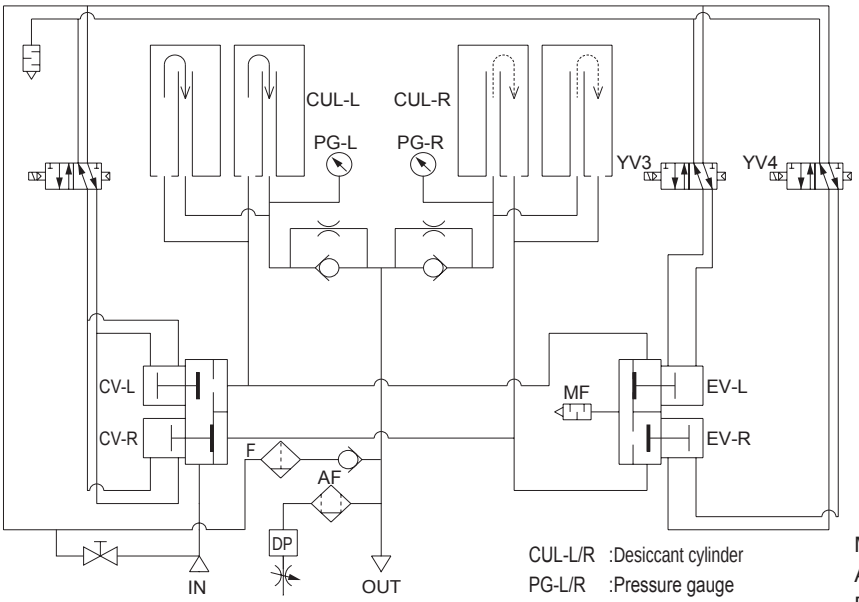
CAD

Specifications

Item		SHD3025	SHD3045	SHD3075	SHD3100	SHD3125	SHD3150	SHD3200	SHD3240
Working fluid		Compressed air							
Inlet air pressure range	MPa	0.4 to 1.0							
Inlet air temperature range	°C	5 to 50							
Ambient temperature	°C	0 to 40							
Rated conditions	Inlet air temperature	°C	35 (no water drops)							
	Ambient temperature	°C	25							
	Inlet air pressure	MPa	0.7							
	Inlet air flow rate	m³/min(ANR)	2.5	4.5	7.5	10	12.5	15	20	24
	Outlet pressure dew point	°C	−20, −40, −60							
	Average purge rate	%	-20°C: 14 / -40°C: 16.5 / -60°C: 23							
Desiccant cylinder module quantity			1	2	3	4	5	6	8	10
Regenerating method			Self-regeneration non-heating system							
Desiccant			Activated alumina, synthetic zeolite							
Dew point sensor			G type: Electrostatic capacitance temperature and humidity sensor / M type: Dew point meter (Electrostatic capacitance polymer sensor)							
Power supply			Single-phase 100/200 VAC 50/60 Hz							
Power consumption			15 W							
Port size		Rc	1	1	1 1/2	1 1/2	2	2	2 1/2	2 1/2
Weight		kg	120	180	240	300	370	430	550	670

*1: The standard paint color is quality cool white (Munsell No.5GY7.5/0.5).
*2: Attach the included accessory filters on the inlet side and the outlet side. Filters may be required for the sake of the system. In such cases, please prepare them separately.
*3: ANR shows conditions of 20°C atmospheric pressure and relative humidity 65%.
*4: Contact CKD for the model No. of accessory filters.

Functions



Moist compressed air coming in from IN goes through the valve CV and enters desiccant cylinder CUL-L. The moist compressed air evenly flows within the desiccant cylinder, the water vapor within the compressed air is suctioned by the desiccant, and once transformed into ultra dry air, comes out of the OUT via the check valve. Part of the ultra dry air that has been reduced in pressure via the orifice enters the desiccant cylinder CUL-R, is used for the regeneration drying of the desiccant of CUL-R, and is then released into the air. Part of the air exiting the OUT is guided to the dew point sensor DP for its dew point to be measured. Depending on the dew point, it will be in energy-saving mode in which the switching time is extended. (After the removal process ends, both cylinders are kept in an increased state of pressure and the switching time is extended.)

CUL-L/R :Desiccant cylinder
PG-L/R :Pressure gauge
CV-L/R :Inlet switching valve
EV-L/R :Exhaust switching valve
(L/R indicates the left and right sides.)

MF :Silencer
AF :Dew point sensor protection fill#
DP :Dew point sensor
YV1 :Valve for inlet switching valveB
YV3/4 :Valve for exhaust switchingB

How to order

SHD3 045 - G 07 - 40 - E3 - 100VAC - S * *

* Contact CKD for model No.

Model No.

Ⓐ Flow rate classification

Ⓑ Sensor *1

Ⓒ Inlet air pressure

Ⓓ Outlet pressure dew point

Ⓔ Option *3

Ⓕ Voltage

Code	Description
Ⓐ Flow rate classification	
025	2.5m³/min(ANR)
045	4.5m³/min(ANR)
075	7.5m³/min(ANR)
100	10m³/min(ANR)
125	12.5m³/min(ANR)
150	15m³/min(ANR)
200	20m³/min(ANR)
240	24m³/min(ANR)
Ⓑ Sensor	
G	Temperature and humidity sensor
M	Dew point meter
Ⓒ Inlet air pressure	
04	0.4 MPa
05	0.5 MPa
06	0.6 MPa
07	0.7 MPa
08	0.8 MPa
09	0.9 MPa
10	1 MPa
Ⓓ Outlet pressure dew point	
20	-20°C
40	-40°C
60	-60°C
Ⓔ Option	
E1	Without accessory filter
E2	AF4000 Series attached
E3	Standard (AF2 included)
G	Voltage specification
H	English language specifications
L	Foundation bolt nut (SS400)
L1	Foundation bolt nut (SUS304)
Ⓕ Voltage	
100 VAC	
200 VAC	

Compatibility table by variation

	SHD
P4	▲

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

Precautions for model No. selection

*1: With "G" type sensor, it is not possible to select the "-60°C" specification for the outlet pressure dew point. In addition, the dew point display value of the "G" type is of an accuracy to serve as a guide, as accuracy will be lowered in particular in the low dew point range. When prioritizing dew point management, use of the "M" type is recommended.
*2: The unit's full performance may not be obtained if used at less than the selected pressure. Be sure to select the model No. with your working pressure.
*3: When ordering several options, indicate the required options in alphabetical order.
*4: Made-to-order product. Contact CKD Sales for details.

	Dew point sensor	Rated dew point °C (*1)	Energy-saving/setting dew point °C (*2)	
SHD3000 Series	-G	−20	−10	3-step switching
		−40	−20	
			−40	
	-M	−20	−20	3-step switching
		−40	−40	
		−60	−60	

*1: Default setting (Setting purge rate)

*2: Configured by the user
Arbitrary configuration at 3 steps is possible depending on the applications or conditions of use

When the load is smaller than the rating, the unit will enter the energy conservation operating mode at this configured temperature.

Selection guide

Max. flow rate table

Values are with an inlet temperature of 35°C.

Model No.	SHD3025	SHD3045	SHD3075	SHD3100	SHD3125	SHD3150	SHD3200	SHD3240
Inlet air flow rate	2.5	4.5	7.5	10	12.5	15	20	24

*1: The -20, -40, and -60°C specifications will be of the same air flow rate.

Unit: m^3/min(ANR)

● Selection method

The above flow rate table lists values for when the inlet pressure is 0.7 MPa and the inlet air temperature is 35°C. When conditions differ, determine the specifications by using the coefficient table and curve listed below.

Inlet air flow rate = (Inlet flow rate of max. flow rate table (*2)) x (Pressure coefficient) x (Temperature coefficient)

Purge flow rate(*3)=(Inlet flow rate of max. flow rate table (*2))x(Purge rate by dew point (*4))

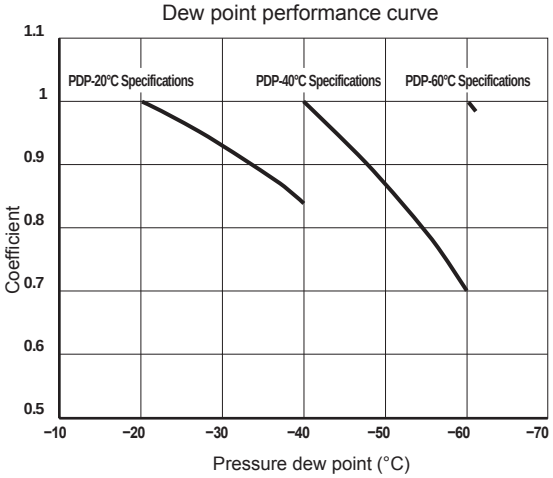
Outlet air flow =(Inlet air flow rate)-(Purge flow rate)

*2: These are values from the above table and are values decided based on the model No.
*3: The average value is listed.
*4: 14% for -20°C specifications, 16.5% for -40°C specifications, 23% for -60°C specifications.
*5: Abbreviation for PDP (pressure dew point).

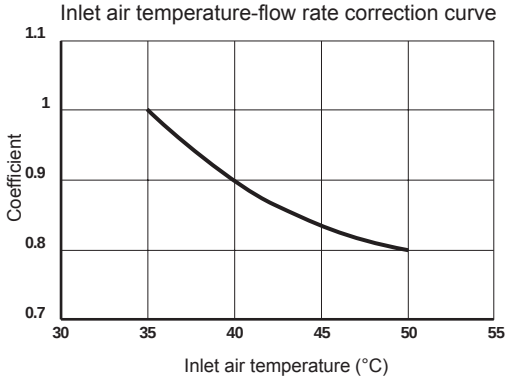
Pressure coefficient table (Always select with the pressure that will be used.)

Inlet air pressure (MPa)	0.4	0.5	0.6	0.7	0.8	0.9	1
Coefficient	0.63	0.75	0.88	1.00	1.13	1.25	1.38

Dew point performance curve



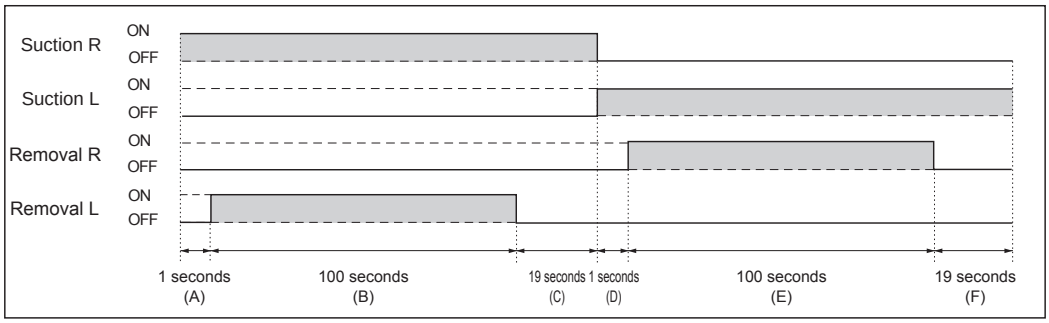
Inlet air temperature-flow rate correction curve



(Example)
Pressure 0.6 MPa, pressure dew point -40°C, inlet air temperature
Air flow rate of SHD3045 at 50°C

Inlet air flow rate = 4.5×0.88×0.8=3.168m^3/min
Purge flow rate = 4.5×0.165=0.743m^3/min
Outlet air flow rate = 3.168-0.743=2.425m^3/min

Time chart



The normal processes are listed on the left. During energy conservation, the state (C, F) after the removal has been completed will be retained. After this, as soon as the dew point degrades, switching will resume to return to the normal processes.

B and E indicate removal (regeneration) time; C and F indicate rising pressure time.

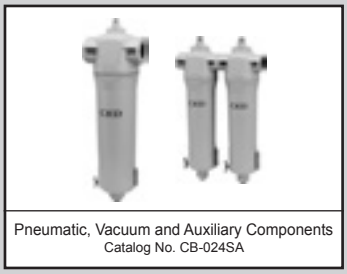
When a heatless dryer is installed

● Model No. SHD3075 to SHD3240 comes with a class 2 pressure vessel withstand pressure certificate. Keep this while using the components. (Applications to the Labor Standards Supervision Office are no longer required in Japan.)

● When starting a test after the installation of this unit, operate the unit for the period of time designated below with a flow rate that is approximately 10 to 20% of the flow rate that will be used.

Pressure dew point (°C)(*6)	−20	−30	−40	−60
(Reference) Atmospheric dew point (°C)	−40	−48	−57	−74
Time (h)	6	12	24	72

*6: The pressure dew point is for when the pressure is 0.7 MPa.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Medium main line filter

AF2 Series

Ideal for removal of solids, oil removing and deodorizing applications.
Processing air flow rate: 4.95 to 24.1m³/min (ANR)(At 0.7 MPa)

JIS symbol P M X

CAD

Specifications

Item		AF2-05□25 A	AF2-08□32 A	AF2-11□40 A	AF2-13 □50 A	AF2-20□50 A	AF2-24□65 A
Processing air flow rate	m³/min(ANR)	4.95	7.93	11.3	12.8	19.8	24.1
Working fluid		Compressed air					
Working pressure	MPa	0.1 to 1.0					
Proof pressure	MPa	1.5					
Port size	Rc	1	1 1/4	1 1/2	2		2 1/2
Weight	kg	2.2	6	5.9	5.7	6.9	13
Pop-up indicator		Standard equipment (Excluding X type)					
Drain discharger		No					
Drain outlet bore size	Rc	1/2					

□ indicates type name.

Item		P type	M type	X type
Operating ambient temperature range	°C	5 to 60		5 to 50
Filtration rating	μm	1	0.01	Suction by activated carbon
Secondary side oil concentration	mg/m³	0.3	0.01	0.003
Initial pressure drop	MPa	0.0055	0.0085	0.0115
Regular pressure drop	MPa	0.0125	0.0125	-

*1: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7MPa.
*2: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.
*3: The secondary side oil concentration is the value when the inlet air temperature is 21°C.
*4: Drainage is manual discharge.
*5: P/M elements must be replaced after one year or when the pop-up indicator turns red, whichever is faster.
*6: Replace the X element after 1000 hours (at 21°C) or when the deodorizing effect is lost.
*7: The initial pressure drop is 0.008MPa for AF2-20P50A and 0.011MPa for AF2-20M50A.

How to order

AF2 - 05 P 25A - P4

Ⓐ Flow rate classification
Ⓑ Element
Ⓒ Bore size

Code	Description
Ⓐ Flow rate classification	
05	4.95m³/min(ANR)
08	7.93m³/min(ANR)
11	11.3m³/min(ANR)
13	12.8m³/min(ANR)
20	19.8m³/min(ANR)
24	24.1m³/min(ANR)
Ⓑ Element	
P	P type (Solid/oil removing filter)
M	M type (high-performance solid/oil removing filter)
X	X type (odor removal filter)
Ⓒ Bore size	
25A	Rc1
32A	Rc1 1/4
40A	Rc1 1/2
50A	Rc2
65A	Rc2 1/2

Compatibility table by variation

	AF2
Port size	Rc1, 1 1/4, 1 1/2, 2, 2 1/2
P4	▲

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

⚠ Note on model No. selection

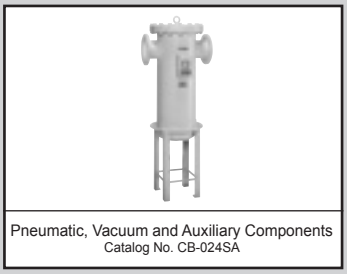
The unit's full performance may not be obtained if used at less than the selected pressure. Be sure to select the model No. with your working pressure.

Flow rate compensation coefficient

Pressure (MPa)	Compensation coefficient
0.1	0.38
0.2	0.53
0.3	0.65
0.4	0.76
0.5	0.84
0.6	0.92
0.7	1.0
0.8	1.07
0.9	1.13
1.0	1.19

If working pressure is other than 0.7 MPa, multiply processing air flow rate by the above coefficient.

*1. Made-to-order product. Contact CKD Sales for details.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Main line filter

AF3000P Series

Appropriate for large pre-filter.

● Processing air flow rate: 16 to 256m³/min (ANR)

JIS symbol



CAD

Specifications

Item	AF3016 P-50	AF3032 P-80	AF3048 P-100	AF3064 P-100	AF3080 P-150	AF3096 P-150	AF3128 P-150	AF3160 P-200	AF3192 P-200	AF3256 P-200
Processing air flow ratem³/min (ANR)	16	32	48	64	80	96	128	160	192	256
Working fluid	Compressed air									
Working pressure MPa	0.07 to 1.0									
Proof pressure MPa	1.5									
Ambient temperature °C	5 to 60									
Degree of filtration μm	3									
Pressure drop Initial MPa	Within 0.005									
Pressure drop Normal MPa	0.005 to 0.02									
Pressure drop Element replacementMPa	0.07									
Element quantity	1	2	3	4	5	6	8	10	12	16
Port size (*1) Flange	2B	3B	4B	4B	6B	6B	6B	8B	8B	8B
Weight kg	45	95	98	130	160	190	250	260	300	350
Differential pressure gauge	Contact CKD for details.									
Drain discharger	No									

*1: Flange is 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7MPa and initial pressure drop is 0.005MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.

How to order

AF3 016 P - 50 - ○ - P4

Ⓐ Flow rate classification
Ⓑ Bore size
Ⓒ Option *3

Code	Item
Ⓐ Flow rate classification	
016	16m³/min (ANR)
032	32m³/min (ANR)
048	48m³/min (ANR)
064	64m³/min (ANR)
080	80m³/min (ANR)
096	96m³/min (ANR)
128	128m³/min (ANR)
160	160m³/min (ANR)
192	192m³/min (ANR)
256	256m³/min (ANR)
Ⓑ Bore size	
Refer to the bore size/flow rate classification table on the left.	
Ⓒ Option	
Blank	No
H	English language specifications
K	Companion flange included
L	Foundation bolt/nut included (*2)
L1	Stainless steel foundation bolt/nut included (*2)
O	Outdoors
X1	IN/OUT reverse direction (*1)
Y2	Product photo

Compatibility table by variation

	AF3000
Port size	Flange 2B, 3B, 4B, 6B, 8B
P4	▲

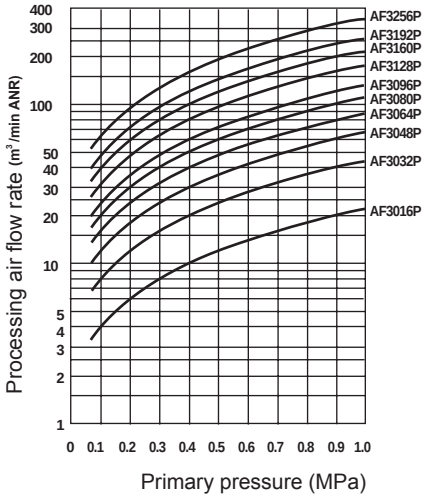
●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

Bore size/flow rate classification table

Ⓑ Bore size

Flow rate classification		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●									
80	Flange 3B		●								
100	Flange 4B			●	●						
150	Flange 6B					●	●	●			
200	Flange 8B								●	●	●

Flow characteristics

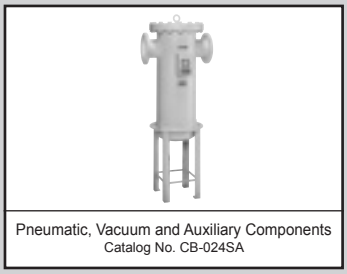


Precautions for model No. selection

*1: Viewed from the front, standard products have an air inlet on the left port and an air outlet on the right port."For "X1", an air inlet is provided on the right port, with an air outlet provided on the left port.
*2: Available for AF3032P to AF3256P.
*3: When ordering several options, indicate the required options in alphabetical order.
*4: Made-to-order product. Contact CKD Sales for details.

Note on selection

1. Never use model numbers found to be below the point of intersection of the selection conditions.
2. When the point of intersection found according to selecting conditions and flow characteristics curves are on the same line, the service life may be shortened, so select a model that is one size larger.
3. Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.



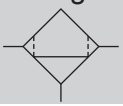
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Micro alescer

AF3000S Series

Protects expensive pneumatic components

● Flow rate range: 16 to 256m³/min (ANR)

JIS symbol 

CAD

Specifications

Item	AF3016 S-50	AF3032 S-80	AF3048 S-100	AF3064 S-100	AF3080 S-150	AF3096 S-150	AF3128 S-150	AF3160 S-200	AF3192 S-200	AF3256 S-200
Processing air flow ratem³/min(ANR)	16	32	48	64	80	96	128	160	192	256
Working fluid	Compressed air									
Working pressure MPa	0.07 to 1.0									
Proof pressure MPa	1.5									
Ambient temperature °C	5 to 60									
Degree of filtration μm	0.3									
Secondary oil content mg/m³	1.0 (inlet air 30°C)									
Pressure drop Initial MPa	Within 0.01									
Pressure drop Normal MPa	0.01 to 0.03									
Pressure drop Element replacementMPa	0.07									
Element quantity	1	2	3	4	5	6	8	10	12	16
Port size (*1) Flange	2 B	3 B	4 B	4 B	6 B	6 B	6 B	8 B	8 B	8 B
Weight kg	45	95	98	130	160	190	250	260	300	350
Differential pressure gauge	Contact CKD for details.									
Drain discharger	No									

*1: Flange is 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7MPa and initial pressure drop is 0.01MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.

How to order

AF3 | 016 | S | - | 50 | - | ○ | - P4

Ⓐ Flow rate classification

Code	Item
Ⓐ Flow rate classification	
016	16m³/min (ANR)
032	32m³/min (ANR)
048	48m³/min (ANR)
064	64m³/min (ANR)
080	80m³/min (ANR)
096	96m³/min (ANR)
128	128m³/min (ANR)
160	160m³/min (ANR)
192	192m³/min(ANR)
256	256m³/min (ANR)
Ⓑ Bore size	
	Refer to the bore size/flow rate classification table on the left.
Ⓒ Option	
Blank	No
H	English language specifications
K	Companion flange included
L	Foundation bolt/nut included (*2)
L1	Stainless steel foundation bolt/nut included (*2)
O	Outdoors
X1	IN/OUT reverse direction (*1)
Y2	Product photo

Compatibility table by variation

	AF3000
Port size	Flange 2B, 3B, 4B, 6B, 8B
P4	▲

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

Bore size/flow rate classification table

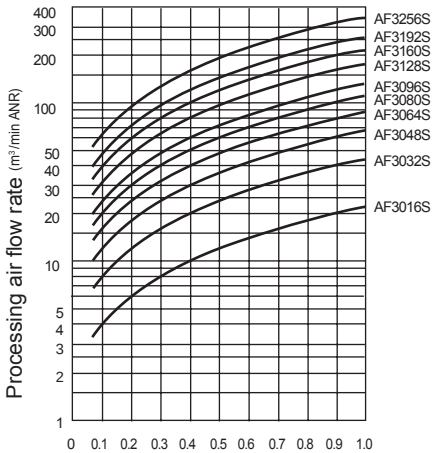
Ⓑ Bore size

Flow rate classification		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●									
80	Flange 3B		●								
100	Flange 4B			●	●						
150	Flange 6B					●	●	●			
200	Flange 8B								●	●	●

Ⓑ Bore size

Ⓒ Option

Flow characteristics

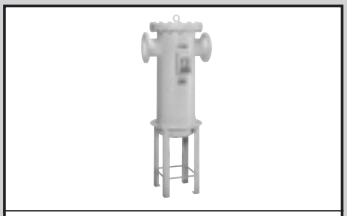


Precautions for model No. selection

*1: Viewed from the front, standard products have an air inlet on the left port and an air outlet on the right port. For "X1", an air inlet is provided on the right port, with an air outlet provided on the left port.
*2: Corresponds to AF3032S to AF3256S.
*3: Made-to-order product. Contact CKD Sales for details.

Note on selection

1. Model numbers found to be below the point of intersection of the selection conditionsbe strictly prohibited.
2. When the point of intersection found according to selecting conditions and the flow characteristics curve are on the same line, the service life may be shortened, so select one size larger model No.
3. The oil removing ratio drops if the inlet air temperature is 30°C or more. Maintain the inlet air temperature at 30°C or less.
4. Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

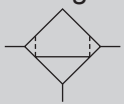
Micro alescer

AF3000M Series

For pneumatic circuits which prohibit passage of oil

● Flow rate range: 16 to 256m³/min (ANR)

JIS symbol



CAD

Specifications

Item	AF3016 M-50	AF3032 M-80	AF3048 M-100	AF3064 M-100	AF3080 M-150	AF3096 M-150	AF3128 M-150	AF3160 M-200	AF3192 M-200	AF3256 M-200
Processing air flow ratem³/min(ANR)	16	32	48	64	80	96	128	160	192	256
Working fluid	Compressed air									
Working pressure MPa	0.07 to 1.0									
Proof pressure MPa	1.5									
Ambient temperature °C	5 to 60									
Degree of filtration μm	0.01									
Secondary oil content mg/m³	0.1 (inlet air 30°C)									
Pressure drop Initial MPa	Within 0.01									
Pressure drop Normal MPa	0.02 to 0.04									
Pressure drop Element replacementMPa	0.07									
Element quantity	1	2	3	4	5	6	8	10	12	16
Port size (*1) Flange	2B	3B	4B	4B	6B	6B	6B	8B	8B	8B
Weight kg	45	95	98	130	160	190	250	260	300	350
Differential pressure gauge	Contact CKD for details.									
Drain discharger	No									

*1: Flange is 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7MPa and initial pressure drop is 0.01MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.

How to order

AF3 - 016 - M - 50 - ○ - P4

Ⓐ Flow rate classification

Code	Item
Ⓐ Flow rate classification	
016	16m³/min (ANR)
032	32m³/min (ANR)
048	48m³/min (ANR)
064	64m³/min (ANR)
080	80m³/min (ANR)
096	96m³/min (ANR)
128	128m³/min (ANR)
160	160m³/min (ANR)
192	192m³/min(ANR)
256	256m³/min (ANR)

Ⓑ Bore size

Ⓑ Bore size
Refer to the bore size/flow rate classification table on the left.

Ⓒ Option *3

Ⓒ Option	
Blank	No
H	English language specifications
K	Companion flange included
L	Foundation bolt/nut included (*2)
L1	Stainless steel foundation bolt/nut included (*2)
O	Outdoors
X1	IN/OUT reverse direction (*1)
Y2	Product photo

Compatibility table by variation

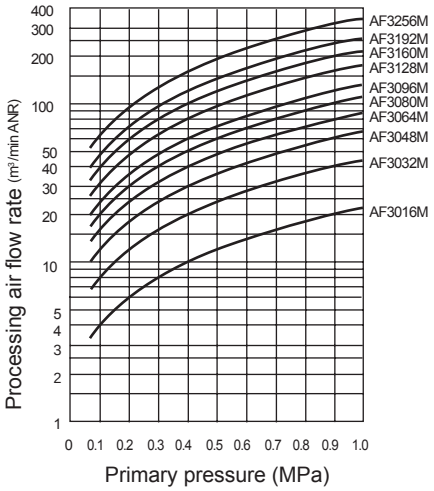
	AF3000
Port size	Flange 2B, 3B, 4B, 6B, 8B
P4	▲

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

Bore size/flow rate classification table

Ⓑ Bore size											
Flow rate classification		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●									
80	Flange 3B		●								
100	Flange 4B			●	●						
150	Flange 6B					●	●	●			
200	Flange 8B								●	●	●

Flow characteristics

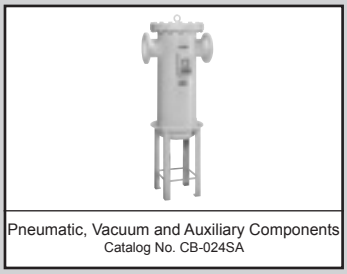


Note on selection

1. Model numbers found to be below the point of intersection of the selection conditionsbe strictly prohibited.
2. When the point of intersection found according to selecting conditions and the flow characteristics curve are on the same line, the service life may be shortened, so select one size larger model No.
3. For inlet air temperature 30°C or more, This will reduce the oil removal ratio, Inlet air temperature of 30°C or lessplease.
4. Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.

Precautions for model No. selection

*1: Viewed from the front, standard products have an air inlet on the left port,An air outlet is on the right port."X1" For, An air inlet is provided on the right port, while an air outlet is provided on the left port.
*2: Available for AF3032M to AF3256M.
*3: When ordering several options, indicate the required options in alphabetical order.
*4: Made-to-order product. Contact CKD Sales for details.



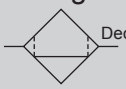
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Micro alescer

AF3000X Series

For pneumatic circuits which prohibit passage of odors

● Flow rate range: 16 to 256m³/min (ANR)

JIS symbol  Deodorizing

CAD

Specifications

Item	AF3016 X-50	AF3032 X-80	AF3048 X-100	AF3064 X-100	AF3080 X-150	AF3096 X-150	AF3128 X-150	AF3160 X-200	AF3192 X-200	AF3256 X-200
Processing air flow ratem³/min(ANR)	16	32	48	64	80	96	128	160	192	256
Working fluid	Compressed air									
Working pressure MPa	0.07 to 1.0									
Proof pressure MPa	1.5									
Ambient temperature °C	5 to 30									
Filtration method	Suction by activated carbon									
Secondary oil content mg/m³	0.03 (inlet air 30°C)									
Pressure drop MPa	Within 0.01									
Element quantity	1	2	3	4	5	6	8	10	12	16
Port size (*1) Flange	2 B	3 B	4 B	4 B	6 B	6 B	6 B	8 B	8 B	8 B
Weight kg	45	95	98	130	160	190	250	260	300	350
Differential pressure gauge	Contact CKD for details.									
Drain discharger	No									

*1: Flange is 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7MPa and initial pressure drop is 0.01MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.

How to order

AF3 - 016 - X - 50 - ○ - P4

Ⓐ Flow rate classification
Ⓑ Bore size
Ⓒ Option

Code	Item
Ⓐ Flow rate classification	
016	16m³/min (ANR)
032	32m³/min (ANR)
048	48m³/min (ANR)
064	64m³/min (ANR)
080	80m³/min (ANR)
096	96m³/min (ANR)
128	128m³/min (ANR)
160	160m³/min (ANR)
192	192m³/min(ANR)
256	256m³/min (ANR)
Ⓑ Bore size	
Refer to the bore size/flow rate classification table on the left.	
Ⓒ Option	
Blank	No
H	English language specifications
K	Companion flange included
L	Foundation bolt/nut included (*2)
L1	Stainless steel foundation bolt/nut included (*2)
O	Outdoors
X1	IN/OUT reverse direction (*1)
Y2	Product photo

Bore size/flow rate classification table

Ⓑ Bore size											
Flow rate classification		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●									
80	Flange 3B		●								
100	Flange 4B			●	●						
150	Flange 6B					●	●	●			
200	Flange 8B								●	●	●

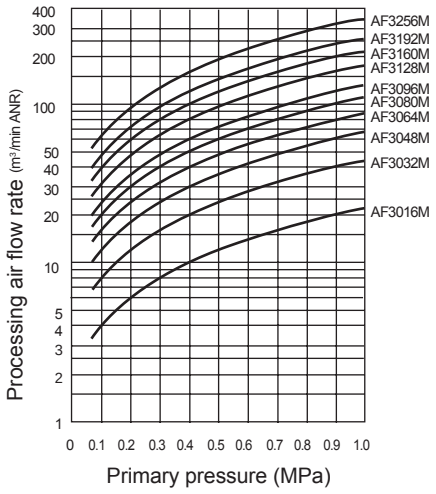
Compatibility table by variation

	AF3000
Port size	Flange 2B, 3B, 4B, 6B, 8B
P4	▲

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

Flow characteristics

Flow characteristics are the same as the AF3000M type. Be sure to use the AF3000M type as a pre-filter.



Precautions for model No. selection

*1: Viewed from the front, standard products have an air inlet on the left port and an air outlet on the right port. For "X 1", an air inlet is provided on the right port, with an air outlet provided on the left port.
*2: Corresponds to AF3032X to AF3256X.
*3: Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.
*4: Made-to-order product. Contact CKD Sales for details.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Main line filter

AF5000P Series

For air dryer pre-filter

● Flow rate range: 16 to 256m^3/min (ANR)

JIS symbol



CAD

Specifications

Model No. / Item		AF5016P-50	AF5032P-80	AF5048P-100	AF5064P-100	AF5080P-150	AF5096P-150	AF5128P-150	AF5160P-200	AF5192P-200	AF5256P-200
Processing air flow rate (*2, *3)	m^3/min(ANR)	16	32	48	64	80	96	128	160	192	256
Working fluid		Compressed air									
Working pressure	MPa	0.08 to 1.0									
Proof pressure	MPa	1.5									
Ambient temperature	°C	5 to 60									
Degree of filtration	μm	3									
Pressure drop	Initial MPa	Within 0.005									
	Normal MPa	0.01									
	Element replacement MPa	0.035									
Element quantity		1	2	3	4	5	6	8	10	12	16
Port size	(*1) flange	2 B	3B	4B	4B	6B	6B	6B	8B	8B	8B
Weight	kg	38	76	78	107	140	167	223	232	269	330
Differential pressure gauge		Contact CKD for details.									
Drain discharger		No									

*1: Flange is a 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7 MPa and initial pressure drop is 0.005 MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.

Flow rate compensation coefficient

If the working pressure is other than 0.7 MPa, multiply the processing air flow rate by the above coefficient.

Pressure(MPa)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Compensation coefficient	0.38	0.53	0.65	0.76	0.85	0.93	1.0	1.07	1.13	1.2

Compatibility table by variation

	AF5000
Port size	Flange 2B, 3B, 4B, 6B, 8B
P4	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

AF5 016 P - 50 - X1 - P4

Ⓐ Flow rate classification

Ⓑ Bore size

Ⓒ Option *1 *2 *4

Code	Description
Ⓐ Flow rate classification m³/min (ANR)	
016	16
032	32
048	48
064	64
080	80
096	96
128	128
160	160
192	192
256	256

Ⓑ Bore size

Flow rate classification		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●	–	–	–	–	–	–	–	–	–
80	Flange 3B	–	●	–	–	–	–	–	–	–	–
100	Flange 4B	–	–	●	●	–	–	–	–	–	–
150	Flange 6B	–	–	–	–	●	●	●	–	–	–
200	Flange 8B	–	–	–	–	–	–	–	●	●	●

Ⓒ Option

Blank	Standard product	
K	Companion flange included	
H	English language specifications	
H2	Stainless steel nameplate	
L	Foundation bolt/nut included (SS400)	(*1)
L1	Foundation bolt/nut included (SUS304)	(*1)
X1	IN/OUT reverse direction (*2)	
Y2	Product photo	

⚠ Precautions for model No. selection

*1: "L" and "L1" are applicable to AF5032P to AF5256P.
*2: Viewed from the front, a standard product has an air inlet on the left port, while an air outlet on the right port. For "X1", an air inlet is provided on the right port, while an air outlet is provided on the left port.
*3: Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.
*4: When ordering several options, indicate the required options in alphabetical order.
*5: Made-to-order product. Contact CKD Sales for details.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

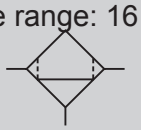
Micro alescer

AF5000S Series

Protects expensive pneumatic components

● Flow rate range: 16 to 256m^3/min (ANR)

JIS symbol



CAD

Specifications

Model No. / Item		AF5016S-50	AF5032S-80	AF5048S-100	AF5064S-100	AF5080S-150	AF5096S-150	AF5128S-150	AF5160S-200	AF5192S-200	AF5256S-200
Processing air flow rate (*2, *3) m^3/min (ANR)		16	32	48	64	80	96	128	160	192	256
Working fluid		Compressed air									
Working pressure MPa		0.08 to 1.0									
Proof pressure MPa		1.5									
Ambient temperature °C		5 to 60									
Degree of filtration μm		0.3									
Secondary oil content mg/m^3		0.5 (at inlet air 21°C or less)									
Pressure drop	Initial MPa	0.007									
	Normal MPa	0.014									
	Element replacement MPa	0.035									
Element quantity		1	2	3	4	5	6	8	10	12	16
Port size (*1) flange		2B	3B	4B	4B	6B	6B	6B	8B	8B	8B
Weight kg		38	76	78	107	140	167	223	232	269	330
Differential pressure gauge		Contact CKD for details.									
Drain discharger		No									

*1: Flange is a 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7 MPa and initial pressure drop is 0.007 MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.

Flow rate compensation coefficient

If the working pressure is other than 0.7 MPa, multiply the processing air flow rate by the above coefficient.

Pressure (MPa)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Compensation coefficient	0.38	0.53	0.65	0.76	0.85	0.93	1.0	1.07	1.13	1.2

Compatibility table by variation

	AF5000
Port size	Flange 2B, 3B, 4B, 6B, 8B
P4	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

AF5 016 S - 50 - X1 - P4

- **016** → Ⓐ Flow rate classification
- **50** → Ⓑ Bore size
- **X1** → Ⓒ Option *1 *2 *4

Code	Description
Ⓐ Flow rate classification m³/min (ANR)	
016	16
032	32
048	48
064	64
080	80
096	96
128	128
160	160
192	192
256	256

Ⓑ Bore size

Flow rate classification		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●	–	–	–	–	–	–	–	–	–
80	Flange 3B	–	●	–	–	–	–	–	–	–	–
100	Flange 4B	–	–	●	●	–	–	–	–	–	–
150	Flange 6B	–	–	–	–	●	●	●	–	–	–
200	Flange 8B	–	–	–	–	–	–	–	●	●	●

Ⓒ Option	
Blank	Standard product
K	Companion flange included
H	English language specifications
H2	Stainless steel nameplate
L	Foundation bolt/nut included (SS400)(Note1)
L1	Foundation bolt/nut included (SUS304)(Note1)
X1	IN/OUT reverse direction (*2)
Y2	Product photo

⚠ Precautions for model No. selection

*1: "L" and "L1" corresponds to AF5032S to AF5256S.
*2: Viewed from the front, a standard product has an air inlet on the left port, while an air outlet on the right port. For "X1", an air inlet is provided on the right port, while an air outlet is provided on the left port.
*3: Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.
*4: When ordering several options, indicate the required options in alphabetical order.
*5: Made-to-order product. Contact CKD Sales for details.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

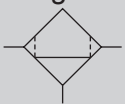
Micro alescer

AF5000M Series

For pneumatic circuits which prohibit passage of oil

● Flow rate range: 16 to 256m^3/min (ANR)

JIS symbol



CAD

Specifications

Model No. / Item		AF5016M-50	AF5032M-80	AF5048M-100	AF5064M-100	AF5080M-150	AF5096M-150	AF5128M-150	AF5160M-200	AF5192M-200	AF5256M-200
Processing air flow rate (*2. *3.) m^3/min(ANR)		16	32	48	64	80	96	128	160	192	256
Working fluid		Compressed air									
Working pressure MPa		0.08 to 1.0									
Proof pressure MPa		1.5									
Ambient temperature °C		5 to 60									
Degree of filtration µm		0.01									
Secondary oil content mg/m^3		0.01 (at inlet air 21°C or less)									
Pressure drop	Initial MPa	0.01									
	Normal MPa	0.02									
	Element replacement MPa	0.035									
Element quantity		1	2	3	4	5	6	8	10	12	16
Port size (*1) Flange		2 B	3 B	4 B	4 B	6 B	6 B	6 B	8 B	8 B	8 B
Weight kg		38	76	78	107	140	167	223	232	269	330
Differential pressure gauge		Contact CKD for details.									
Drain discharger		No									

*1: Flange is a 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7 MPa and initial pressure drop is 0.01 MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.

Flow rate compensation coefficient

If the working pressure is other than 0.7 MPa, multiply the processing air flow rate by the above coefficient.

Pressure (MPa)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Compensation coefficient	0.38	0.53	0.65	0.76	0.85	0.93	1.0	1.07	1.13	1.2

Compatibility table by variation

	AF5000
Port size	Flange 2B, 3B, 4B, 6B, 8B
P4	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

AF5 016 M - 50 - X1 - P4

Ⓐ Flow rate classification
Ⓑ Bore size
Ⓒ Option *1 *2 *4

Code	Description
Ⓐ Flow rate classification m³/min(ANR)	
016	16
032	32
048	48
064	64
080	80
096	96
128	128
160	160
192	192
256	256

Ⓑ Bore size

Flow rate classification		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●	–	–	–	–	–	–	–	–	–
80	Flange 3B	–	●	–	–	–	–	–	–	–	–
100	Flange 4B	–	–	●	●	–	–	–	–	–	–
150	Flange 6B	–	–	–	–	●	●	●	–	–	–
200	Flange 8B	–	–	–	–	–	–	–	●	●	●

Ⓒ Option

Blank	Standard product
K	Companion flange included
H	English language specifications
H2	Stainless steel nameplate
L	Foundation bolt/Nut included (SS400) (*1)
L1	Foundation bolt/Nut included (SUS304) (*1)
X1	IN/OUT reverse direction(*2)
Y2	Product photo

⚠ Precautions for model No. selection

*1: "L" and "L1" are applicable to AF5032M to AF5256M.
*2: Viewed from the front, standard products have an air inlet on the left port and an air outlet on the right port. For "X1", an air inlet is provided on the right port, while an air outlet is provided on the left port.
*3: Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.
*4: When ordering several options, indicate the required options in alphabetical order.
*5: Made-to-order product. Contact CKD Sales for details.



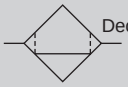
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Micro alescer

AF5000X Series

For pneumatic circuits which prohibit passage of odors

●Flow rate range:16 to 256 m^3/min (ANR)

JIS symbol  Deodorizing

CAD

Specifications

Model No. / Item	AF5016X-50	AF5032X-80	AF5048X-100	AF5064X-100	AF5080X-150	AF5096X-150	AF5128X-150	AF5160X-200	AF5192X-200	AF5256X-200
Processing air flow rate (*2, *3) m^3/min(ANR)	16	32	48	64	80	96	128	160	192	256
Working fluid	Compressed air									
Working pressure MPa	0.08 to 1.0									
Proof pressure MPa	1.5									
Ambient temperature °C	5 to 30									
Filtration method	Suction by activated carbon									
Secondary oil content mg/m^3	0.003 (at inlet air 21°C or less)									
Initial pressure drop MPa	Within 0.007									
Element quantity	1	2	3	4	5	6	8	10	12	16
Port size (*1) Flange	2B	3B	4B	4B	6B	6B	6B	8B	8B	8B
Weight kg	38	76	78	107	140	167	223	232	269	330

*1: Flange is a 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7 MPa and initial pressure drop is 0.007 MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.

Flow rate compensation coefficient

If the working pressure is other than 0.7 MPa, multiply the processing air flow rate by the above coefficient.

Pressure (MPa)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Compensation coefficient	0.38	0.53	0.65	0.76	0.85	0.93	1.0	1.07	1.13	1.2

Compatibility table by variation

	AF5000
Port size	Flange 2B, 3B, 4B, 6B, 8B
P4	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

AF5 016 X - 50 - X1 - P4

Ⓐ Flow rate classification
Ⓑ Bore size
Ⓒ Option *1 *2 *4

Code	Description
Ⓐ Flow rate classification m³/min(ANR)	
016	16
032	32
048	48
064	64
080	80
096	96
128	128
160	160
192	192
256	256

Ⓑ Bore size

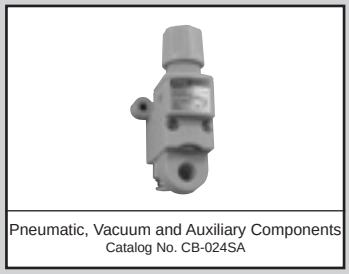
Flow rate classification		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●	–	–	–	–	–	–	–	–	–
80	Flange 3B	–	●	–	–	–	–	–	–	–	–
100	Flange 4B	–	–	●	●	–	–	–	–	–	–
150	Flange 6B	–	–	–	–	●	●	●	–	–	–
200	Flange 8B	–	–	–	–	–	–	–	●	●	●

Ⓒ Option

Blank	Standard product
K	Companion flange included
H	English language specifications
H2	Stainless steel nameplate
L	Foundation bolt/Nut included (SS400) (*1)
L1	Foundation bolt/Nut included (SUS304) (*1)
X1	IN/OUT reverse direction(*2)
Y2	Product photo

Precautions for model No. selection

*1: "L" and "L1" are applicable to AF5032P to AF5256P.
*2: Viewed from the front, standard products have an air inlet on the left port and an air outlet on the right port. For "X1", an air inlet is provided on the right port, while an air outlet is provided on the left port.
*3: Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.
*4: When ordering several options, indicate the required options in alphabetical order.
*5: Made-to-order product. Contact CKD Sales for details.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

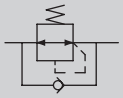
Compact regulator

RB500 Series

Compact, space saving structure and reverse flow function integrated.

●Port size:Push-in fitting ø4, ø6

JIS symbol



RoHS CAD

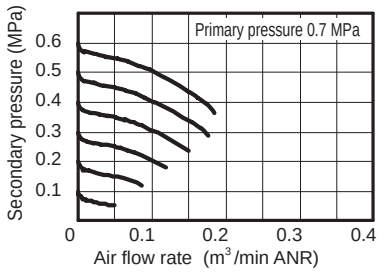
Specifications

Item		RB500
Working fluid		Compressed air
Max. working pressure MPa		1.0
Proof pressure MPa		1.5
Ambient/fluid temperatures °C		5 to 60
Set pressure MPa		0.05 to 0.7 (*1)
Pressure relief		Non-relief
Port size	IN/OUT	Push-in fitting: ø4/ø6
	GAUGE	Rc1/8
Weight g		68

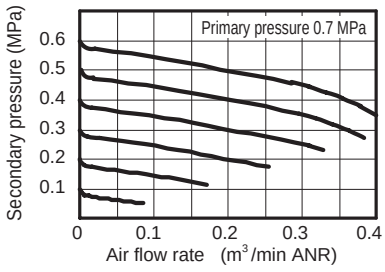
*1: Low pressure specifications are 0.05 to 0.35.

Flow characteristics

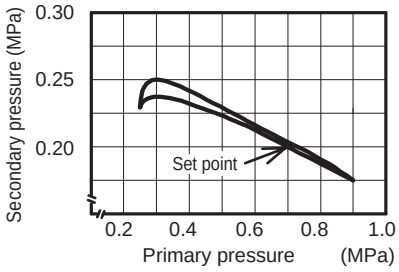
● RB500-SSC4



● RB500-SSC6



Pressure characteristics



Compatibility table by variation

	RB500
Port size	Push-in fitting ø4/ø6
P4	●
P40	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

*1: Pressure gauge/pressure sensor must be ordered separately.
(Pressure gauge option is "T" only)
*2: Non-relief only is available.
*3: Only straight direction is available for fittings.
*4: For pressure adjustment springs without gas contact and pressure adjustment screw units in P40, zinc plating is used.

How to order

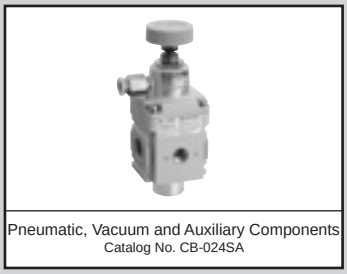
RB500 - SSC4 - NT P4 P40

Model No. Ⓐ Connection Ⓑ Option

Code		Description
Ⓐ Connection		
Direction IN	S	Straight
Direction OUT	S	Straight
Bore size	C4	ø4
	C6	ø6
Ⓑ Option		
Panel mount *1	Blank	Without nut
	P	With nut
Pressure range	Blank	0.05 to 0.7 MPa
	L	0.05 to 0.35 MPa
Pressure relief	N	Non-relief
Pressure gauge	T	No pressure gauge (gauge port Rc1/8)

Precautions for model No. selection

*1: Indicate option code "P" for panel mounting.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Precision regulator

RP1000 Series

●Port size:Rc1/4

JIS symbol



RoHS

Specifications

Item	RP1000-8-02	RP1000-8-04	RP1000−8−07
Working fluid	Compressed clean air ("in accordance with the recommended air circuit described in "Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA))		
Max. working pressure MPa	1.0		
Min. working pressure MPa	Set pressure +0.1 *1		
Proof pressure MPa	1.5		
Ambient/fluid temperatures °C	-5 to 60 (no freezing) *3		
Set pressure MPa	0.003 to 0.2	0.005 to 0.4	0.005 to 0.7
Sensitivity	Within 0.1% of full scale		
Repeatability	Within ±0.5% of full scale		
Air consumption *2 l/min(ANR)	1.3 or less		3.4 or less
Port size	Rc1/4		
Pressure gauge port size	Rc1/8		
Weight g	250		

*1: Flow rate of the secondary side is to be zero. For RP1000-8-04, if the set pressure is 0.3 MPa and over, increase +0.2 MPa in the set pressure.
*2: Conditions where the primary pressure is 0.7MPa. Air is normally released from the bleed port.

Compatibility table by variation

	RP1000
Port size	Rc1/4
P4	●
P40	▲

*1: Pressure gauge/pressure sensor must be ordered separately.
(Attachment options not available.)
*2: Zinc plating is used for pressure adjustment springs without gas contact in P40.
*3: Dimensions are different from the standard products. There are mounting restrictions because of bleed port connection. Check the dimensions for each case.

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

How to order

RP1000 - 8 (A) - 02 (B) P4 P40 - B3 (C)

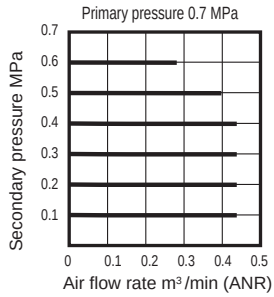
Model No.

A Port size		B Set pressure range		C Attachment (attachedwith)	
8	Rc1/4	02	MAX.0.2MPa	Blank	Without attachment
		04	MAX.0.4MPa	B3	L-bracket
		07	MAX.0.7MPa		

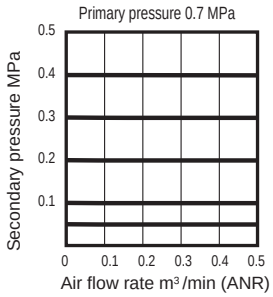
*1: Bracket is attached.
*2: One R1/8 plug and a dedicated fitting for the bleed port are attached with the product.

Flow characteristics

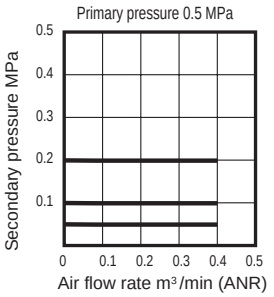
● RP1000-8-07



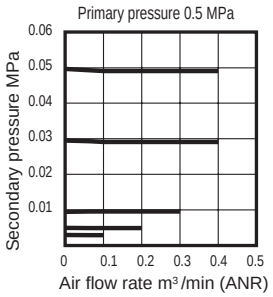
● RP1000-8-04



● RP1000-8-02

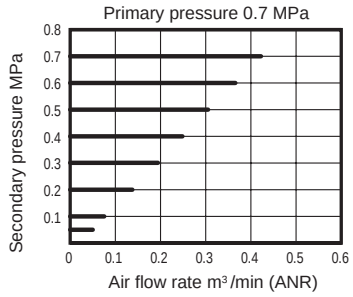


● RP1000-8-02
(Flow characteristics at low pressure)

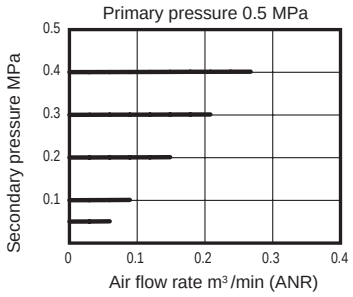


Relief flow characteristics

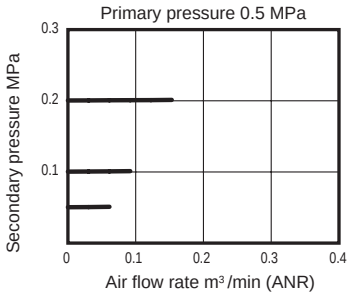
● RP1000-8-07



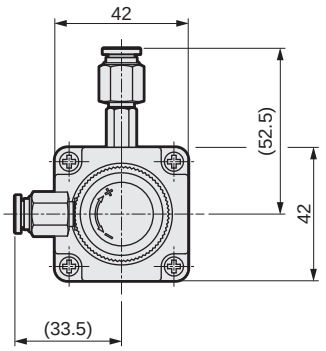
● RP1000-8-04

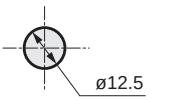


● RP1000-8-02

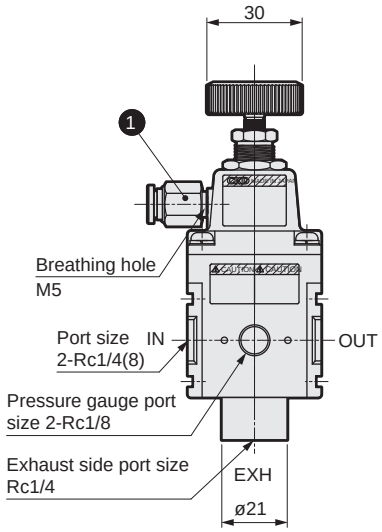


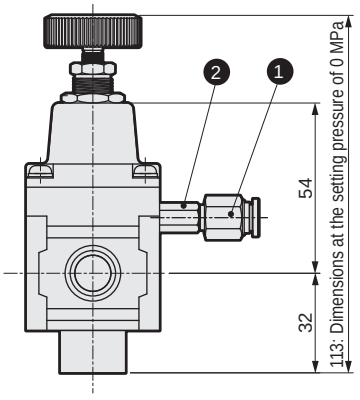
Dimensions CAD

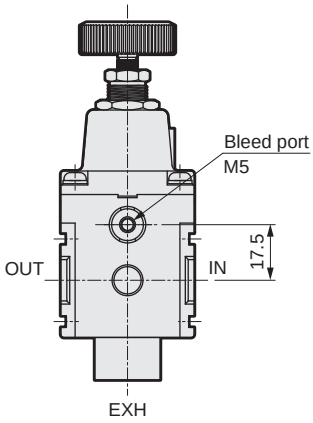




Panel cut dimension
(Panel plate thickness: max. 4 mm)

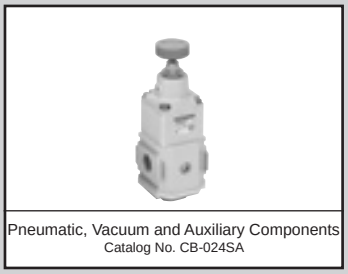






Parts list

Part No.	Part name
(1)	Two fittings (ZSP-C6-M5)
(2)	Bleed port extension fitting



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Precision regulator

RP2000 Series

●Port size: Rc1/4 Rc3/8

JIS symbol



RoHS

Specifications

Item		RP2000-8-08	RP2000-10-08
Working fluid		Using the recommended air circuit described in compressed clean air ("Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA))	
Max. working pressure MPa		1.0	
Min. working pressure MPa		Set pressure +0.1 *1	
Proof pressure	MPa	1.5	
Ambient/fluid temperatures °C		-5 to 60 (no freezing)	
Set pressure MPa		0.03 to 0.85	
Sensitivity		Within 0.2% of full scale	
Repeatability		Within ±0.5% of full scale	
Air consumption	ℓ/min(ANR)	5 or less *2	
Port size		Rc1/4	Rc3/8
Exhaust side port size		Rc3/8	
Pressure gauge port size		Rc1/8	
Weight g		470	

*1: Flow rate of the secondary side is to be zero.
*2: Conditions where the primary pressure is 0.7 MPa and set pressure is 0.3 MPa. Consumed air is released from the bleed port and EXH port, while air is normally released from the bleed port. Air consumption is the total of consumption volume released from the bleed port and EXH port. 1 from EXH port ℓAir /min (ANR) or less is released.

Compatibility table by variation

	RP2000
Port size	Rc3/8
P4	●
P40	▲

*1: Pressure gauge/pressure sensor must be ordered separately.
(Attachment options not available.)
*2: Zinc plating is used for pressure adjustment springs without gas contact in P40.
*3: Dimensions are different from the standard products. There are mounting restrictions because of bleed port connection. Check the dimensions for each case.

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

How to order

RP2000 - 8 - 08 - P4 / P40 - ○

Model No.

Ⓐ Port size

Ⓑ Set pressure range

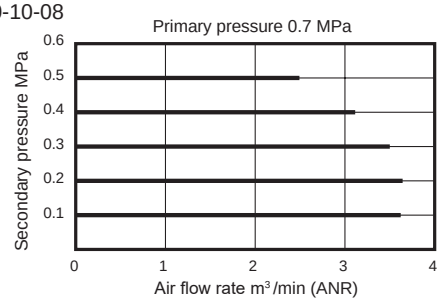
Ⓒ Attachment

Code	Description
Ⓐ Port size	
8	Rc1/4
10	Rc3/8
Ⓑ Set pressure range	
08	MAX.0.85MPa
Ⓒ Attachment	
Blank	Without attachment
B	C-bracket

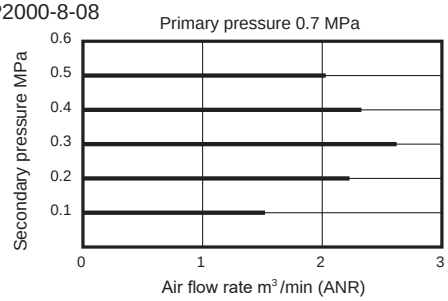
*1: If an Rc1/2 port size is required, use a pipe adaptor set (model No.: A400-15-W).
*2: Other attachments are included.
*3: The pipe adaptor set and C-bracket cannot be used together.
*4: One R1/8 plug and a dedicated fitting for the bleed port are attached with the product.

Flow characteristics

● RP2000-10-08

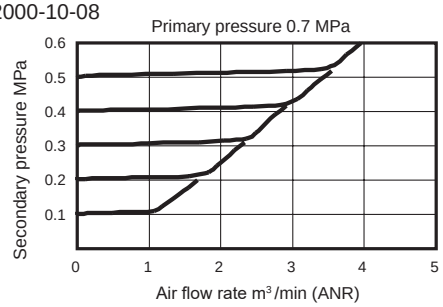


● RP2000-8-08

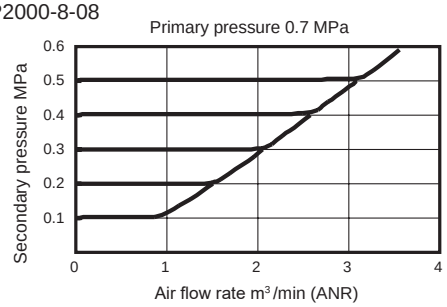


Relief flow characteristics

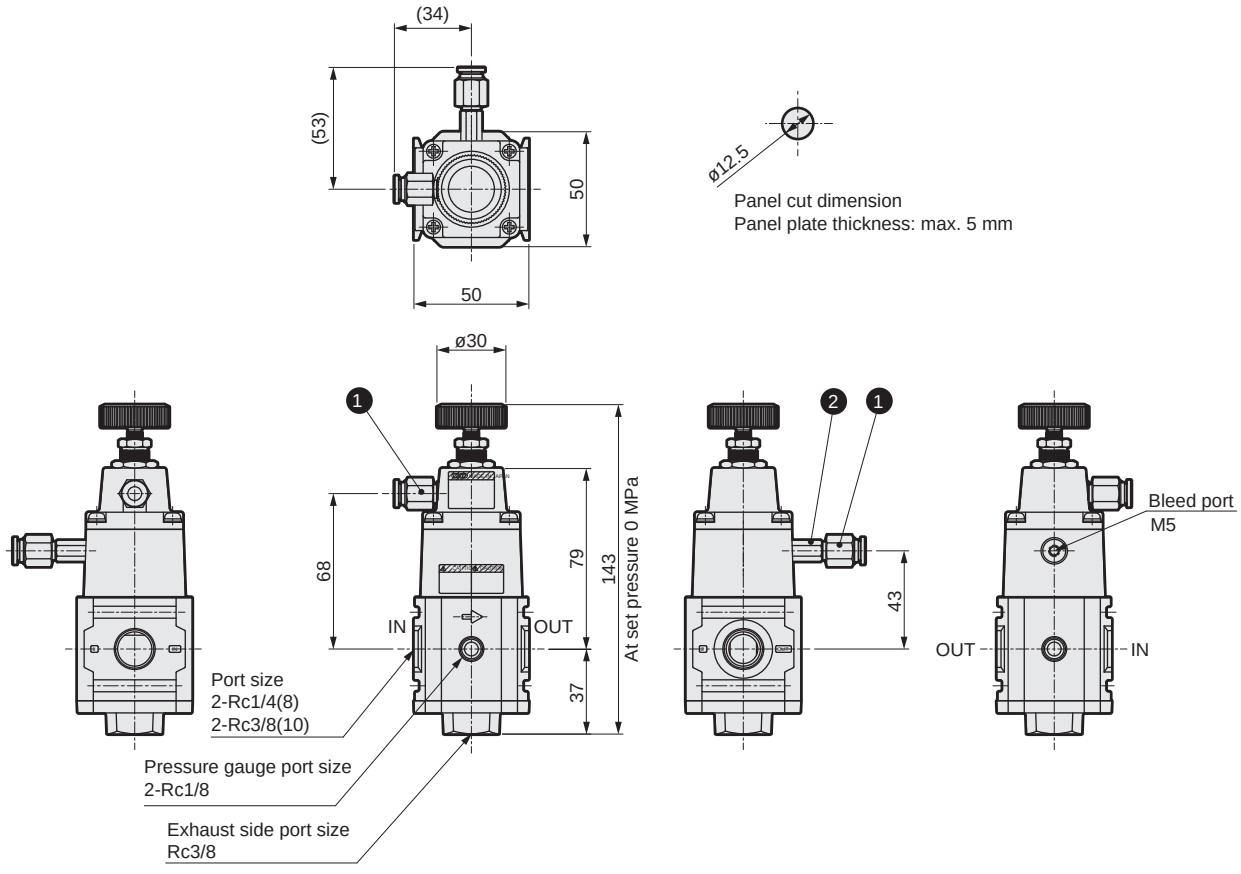
● RP2000-10-08



● RP2000-8-08

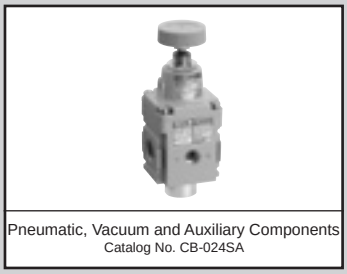


Dimensions CAD



Parts list

Part No.	Part name
(1)	Two fittings (ZSP-C6-M5)
(2)	Bleed port extension fitting



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Precision regulator

RPE1000 Series

●Port size: Rc1/4

JIS symbol 

RoHS

Specifications

Item	RPE1000-8-07
Working fluid	Compressed clean air (according to the recommended air circuit described in the single unit catalog (catalog No. CC-1072A))
Max. working pressure MPa	1.0
Min. working pressure MPa	Set pressure +0.1 *1
Proof pressure MPa	1.5
Ambient/fluid temperatures °C	-5 to 60 (no freezing)
Set pressure MPa	0.01 to 0.7
Sensitivity	Within 0.2% of full scale
Repeatability	Within ±0.5% of full scale
Air consumption *2 ℓ/min (ANR)	0.2 or less
Port size	Rc1/4
Pressure gauge port size	Rc1/8
Weight g	250 *3

*1: Flow rate of the secondary side is to be zero.
*2: Conditions where the primary pressure is 0.7MPa and air is consumed in the secondary side. When there is no air consumption, 1 ℓ/min or less air from the EXH port is released from the bleed port.
*3: ⓒFor weight when attachment is included, add the following weight. Bracket: 30 g

Compatibility table by variation

	RPE1000
P4	●

*1: Pressure gauge/pressure sensor must be ordered separately. (Attachment options not available.)
*2: RPE1000 Dimensions differs from the standard.

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

How to order

RPE1000 - 8 - 07 P4 - B3

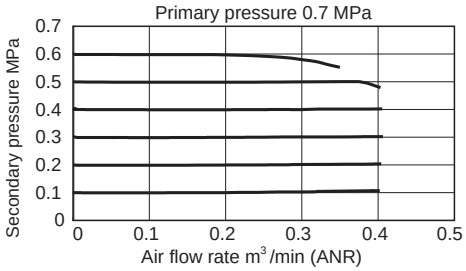
Model No.

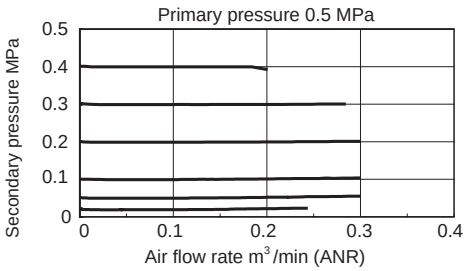
Ⓐ Port size
Ⓑ Set pressure range
Ⓒ Attachment

Code	Description
Ⓐ Port size	
8	Rc1/4
Ⓑ Set pressure range	
07	MAX.0.7MPa
Ⓒ Attachment	
Blank	Without attachment
B3	LModelBracket(B131)

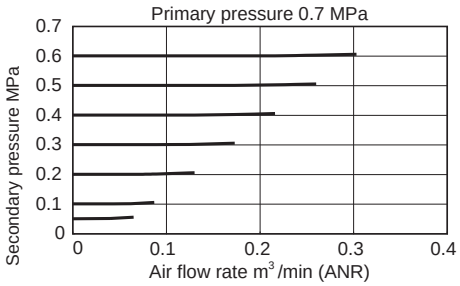
*1: Bracket is attached.
*2: The product includes, one R1/8 plug is included.

Flow characteristics

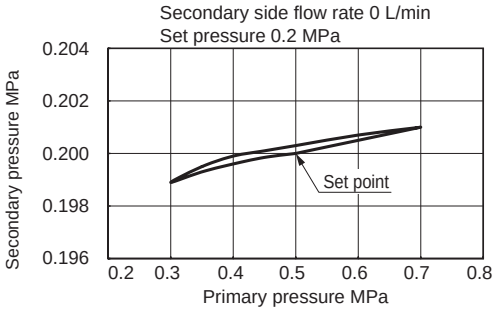




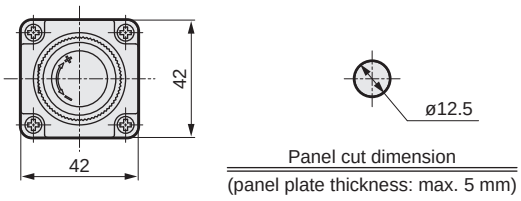
Relief flow characteristics

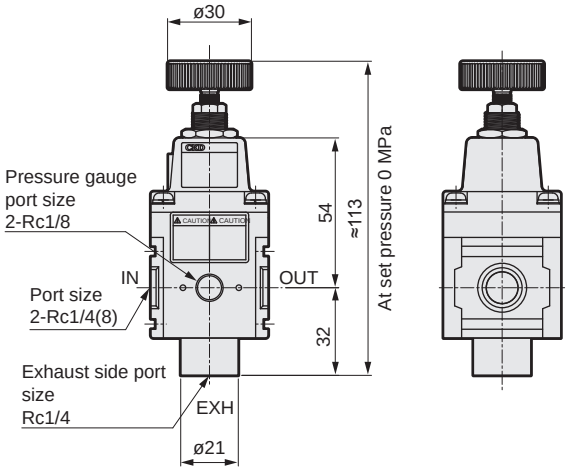


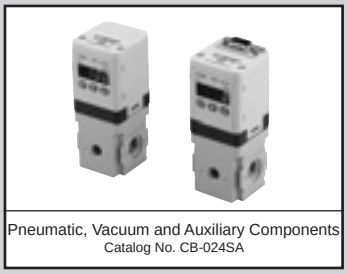
Pressure characteristics



Dimensions CAD







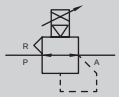
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Digital electro-pneumatic regulator

EVD-1000 Series

Analog/parallel

JIS symbol



Specifications

Item		EVD-1100-*08□ Analog output (*...0/1/2)	EVD-1100-P08□ Parallel	EVD-1500-*08□ Analog output (*...0/1/2)	EVD-1500-P08□ Parallel	EVD-1900-*08□ Analog output (*...0/1/2)	EVD-1900-P08□ Parallel
Working fluid		Clean compressed air (JIS B 8392-1: 2012 Grade 1.3.2 or equivalent)					
Max. working pressure		160 kPa		700 kPa		1000 kPa	
Min. working pressure		Set pressure +50 kPa		Set pressure +100kPa			
Proof pressure	Inlet	240 kPa		1050 kPa		1500 kPa	
	Output side	150 kPa		750 kPa		1350 kPa	
Pressure control range *1		0 to 100 kPa		0 to 500 kPa		0 to 900 kPa	
Power supply voltage		24 VDC ± 10% (stabilized power supply with ripple rate 1% or less)					
Current consumption		0.15 A or less (0.6 A or less rush current when the power is turned ON)					
Input signal (input impedance)		0-10 VDC (6.7kΩ) 0-5 VDC (10kΩ) 4-20mA DC (250Ω)	10bit	0-10 VDC (6.7kΩ) 0−5 VDC (10kΩ) 4-20mA DC (250Ω)	10bit	0-10 VDC (6.7kΩ) 0-5 VDC (10kΩ) 4-20mA DC (250Ω)	10bit
Preset input		8 points	No	8 points	No	8 points	No
Output signal *2		Output accuracy: ±6% F.S. or less, analog output: 1 to 5 VDC (connecting load impedance 500 kΩ and over)over)					
		Switch output: NPN or PNP open collector output, 30 V or less and 50 mA or less, voltage drop 2.4 V or less, PLC/relay compatiblecompatible					
Error output signal		NPN or PNP open collector output, 30 V or less and 50 mA or less, voltage drop 2.4 V or less, PLC/relay compatiblerelay compatible					
Direct memory setting		1 to 100 kPa (Min. setting width 1 kPa/setting resolution 1 kPa)		5 to 500 kPa (Min. setting width 1 kPa/setting resolution 1 kPa)		9 to 900 kPa (Min. setting width 1kPa/setting resolution 2kPa)	
Pressure display	Display method	7-segment LED 3 digits, indicator accuracy: ±2% F.S. or less					
	Display range	0 to 100 kPa		0 to 500 kPa		0 to 900 kPa	
	Display resolution	1 kPa		1 kPa		1 kPa	
Hysteresis *3		0.5% F.S. or less					
Linearity *3		±0.3% F.S. or less					
Resolution *3		0.2% F.S. or less					
Repeatability *3		0.3% F.S. or less					
Temperature characteristics	Zero point fluctuation	±0.15% F.S./°C or less					
	Span fluctuation	±0.07% F.S./°C or less					
Max. flow rate (ANR) *4		60ℓ/min		400ℓ/min			
Step response *5	No load	0.2 sec. or less					
Vibration resistance		98m/s^{2}or less					
Ambient temperature		5 to 50°C					
Fluid temperature		5 to 50°C					
Port size		Rc1/4					
Mounting orientation		Free					
Weight		280 g					
Protection circuit		Power reverse connection protection, switch output reverse connection protection, switch output load short-circuit protection					

*1: There is 1% F.S. or less residual pressure when the input signal is 0%. (EVD-1100: 1 kPa, EVD-1500: 5 kPa, EVD-1900: 9 kPa)
*2: Select the analog output or switch output.
*3: The characteristics above are: 24±0.1 VDC power supply voltage, 25±3°C ambient temperature, no load, EVD-1100 working pressure; Max. control pressure +50kPa/EVD-1500, 1900; the maximum control pressure is +100kPa and the control pressure is 10 to 90%. In addition, when the secondary side is a closed circuit, pressure fluctuations will occur if the product is used for blowing or for similar applications.
*4: The characteristics where working pressure is maximum and control pressure is maximum are shown.
*5: The characteristics above show the max. working pressure and the step amount at
- 50% F.S. → 100% F.S.
- 50% F.S. → 60% F.S.
- 50% F.S. → 40% F.S.

How to order

EVD-1 **500** - **0** **08** **AN** - **C1L11** - **3** - **P4**

Ⓐ Pressure control range
Ⓑ Input signal
Ⓒ Port size
Ⓓ Output signal
Ⓔ Option
Ⓕ Power supply voltage

Code	Description
Ⓐ Pressure control range	
100	0 - 100 kPa
500	0 - 500 kPa
900	0 - 900 kPa
Ⓑ Input signal	
0	0 - 10 VDC
1	0 - 5 VDC
2	4 to 20 mADC
P	Parallel 10 bit
Ⓒ Port size	
08	Rc1/4
Ⓓ Output signal	
AN	1-5 VDC analog, error (NPN)
AP	1-5 VDC analog, error (PNP)
SN	Switch (NPN), error (NPN)
SP	Switch (PNP), error (PNP)
Ⓔ Option	
Cable option	
Blank	No
C1	Analog 9-conductor, 1 m cable
C3	Analog 9-conductor, 3m cable
P1	Parallel 15-conductor, cable 1 m
P3	Parallel 15-conductor, 3m cable
Bracket is an included option	
Blank	No
L11	L-bracket, wall mounted type for exhaust fitting
Ⓕ Power supply voltage	
3	24 VDC

*1: The bracket option of EVD-1*00*-P4 is blank or L11 (L type, wall mounted for exhaust fitting). Standard B1 and L1 types cannot be selected.

● Discrete option (cable) model No.

EVD- **C1**

Ⓔ Option

● Discrete option (bracket) model No.

EVL- **L11**

Ⓔ Option

Compatibility table by variation

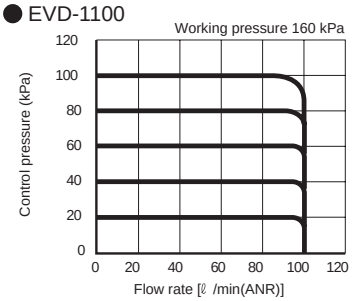
	EVD-1100/1500/1900
Port size	Rc1/4
P4	●

*: The bracket option of EVD-1*00*-P4 is blank or L11 (L type, wall mounted for exhaust fitting). Standard B1 and L1 types cannot be selected.

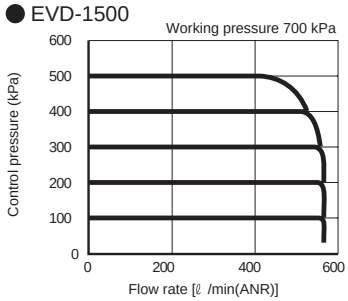
●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

Flow characteristics

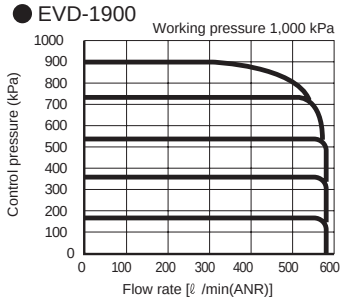
● EVD-1100



● EVD-1500

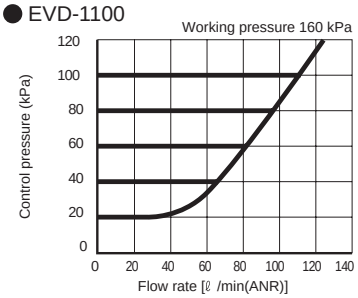


● EVD-1900

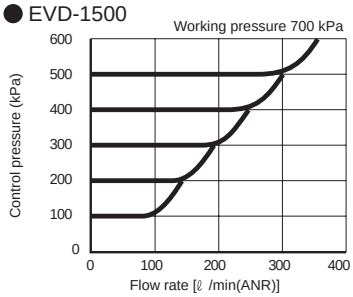


Relief characteristics

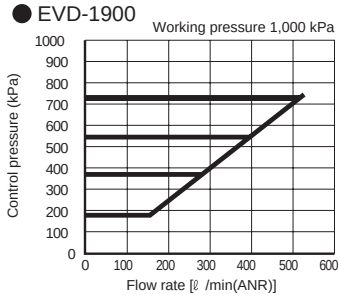
● EVD-1100

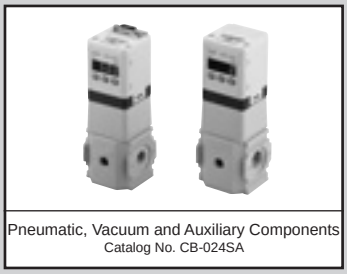


● EVD-1500



● EVD-1900





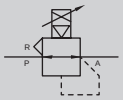
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Digital electro-pneumatic regulator

EVD-3000 Series

Analog/parallel

JIS symbol



c UL us LISTED CE RoHS

Specifications

Item		EVD-3100-*08□ EVD-3100-*10□ Analog output (*...0/1/2)	EVD-3100-P08□ EVD-3100-P10□ Parallel	EVD-3500-*08□ EVD-3500-*10□ Analog output (*...0/1/2)	EVD-3500-P08□ EVD-3500-P10□ Parallel	EVD-3900-*08□ EVD-3900-*10□ Analog output (*...0/1/2)	EVD-3900-P08□ EVD-3900-P10□ Parallel
Working fluid		Clean compressed air (JIS B 8392-1:2012 Grade 1.3.2 or equivalent)					
Max. working pressure		160 kPa		700 kPa		1000 kPa	
Min. working pressure		Set pressure +50 kPa		Set pressure +100kPa			
Proof pressure	Inlet	240 kPa		1050 kPa		1500 kPa	
	Output side	150 kPa		750 kPa		1350 kPa	
Pressure control range *1		0 to 100 kPa		0 to 500 kPa		0 to 900 kPa	
Power supply voltage		24 VDC ± 10% (stabilized power supply with ripple rate 1% or less)					
Current consumption		0.15 A or less (0.6 A or less rush current when the power is turned ON)					
Input signal (input impedance)		0−10 VDC (6.7 kΩ) 0−5 VDC (10 kΩ) 4-20mA DC (250 Ω)	10bit	0−10 VDC (6.7 kΩ) 0−5 VDC (10 kΩ) 4-20mA DC (250 Ω)	10bit	0−10 VDC (6.7 kΩ) 0−5 VDC (10 kΩ) 4-20mA DC (250 Ω)	10bit
Preset input		8 points	No	8 points	No	8 points	No
Output signal *2		Output accuracy: ±6% F.S. or less, analog output: 1 to 5 VDC (connecting load impedance 500 kΩ and over)					
		Switch output: NPN or PNP open collector output, 30 V or less and 50 mA or less, voltage drop 2.4 V or less, PLC/relay compatible					
Error output signal		NPN or PNP open collector output, 30 V or less and 50 mA or less, voltage drop 2.4 V or less, PLC/relay compatible					
Direct memory setting		1 to 100 kPa (Min. setting width 1 kPa/setting resolution 1 kPa)		5 to 500 kPa (Min. setting width 1 kPa/setting resolution 1 kPa)		9 to 900 kPa (Min. setting width 1kPa/setting resolution 2kPa)	
Pressure display	Display method	7-segment LED 3 digits, indicator accuracy: ±2% F.S. or less					
	Display range	0 to 100 kPa		0 to 500 kPa		0 to 900 kPa	
	Display resolution	1 kPa		1 kPa		1 kPa	
Hysteresis *3		0.5% F.S. or less					
Linearity *3		±0.3% F.S. or less					
Resolution *3		0.2% F.S. or less					
Repeatability *3		0.3% F.S. or less					
Temperature characteristics	Zero point fluctuation	±0.15% F.S./°C or less					
	Span fluctuation	±0.07% F.S./°C or less					
Max. flow rate (ANR) *4		700ℓ/min		1500ℓ/min			
Step response *5	No load	0.2 sec. or less					
Vibration resistance		98m/s^{2}or less					
Ambient temperature		5 to 50°C					
Fluid temperature		5 to 50°C					
Port size	IN, OUT port	Port size option 08...Rc1/4, 10...Rc3/8					
	EXH port	Rc3/8					
Mounting orientation		Free					
Weight		450 g					
Protection circuit		Power reverse connection protection, switch output reverse connection protection, switch output load short-circuit protection					

*1: There is 1%F.S. or less residual pressure when the input signal is 0%. (EVD-3100: 1 kPa, EVD-3500: 5 kPa, EVD-3900: 9 kPa)
*2: Select the analog output or switch output.
*3:The characteristics above are: 24±0.1 VDC power supply voltage, 25±3°C ambient temperature, no load, EVD-3100 working pressure; Max. control pressure +50kPa/EVD-3500, 3900; the maximum control pressure is +100kPa and the control pressure is 10 to 90%. In addition, when the secondary side is a closed circuit, pressure fluctuations will occur if the product is used for blowing or for similar applications.
*4: The characteristics where working pressure is maximum and control pressure is maximum are shown.
*5: The characteristics above show the max. working pressure and the step amount at
50% F.S. → 100% F.S.
50% F.S. → 60% F.S.
50% F.S. → 40% F.S.

Compatibility table by variation

	EVD-3100/3500/3900
Port size	Rc1/4, Rc3/8
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

EVD-3 **500** - **0** **08** **AN** - **C1B3** - **3** - **P4**

Ⓐ Pressure control range
Ⓑ Input signal
Ⓒ Port size (IN, OUT)
Ⓓ OutputSignal
Ⓔ Option
Ⓕ Power supply voltage

Code	Description
Ⓐ Pressure control range	
100	0 - 100 kPa
500	0 - 500 kPa
900	0 - 900 kPa
Ⓑ Input signal	
0	0 - 10 VDC
1	0 - 5 VDC
2	4 to 20 mADC
P	Parallel 10 bit
Ⓒ Port size (IN, OUT)	
08	Rc1/4
10	Rc3/8
Ⓓ Output signal	
AN	1-5 VDC analog, error (NPN)
AP	1-5 VDC analog, error (PNP)
SN	Switch (NPN), error (NPN)
SP	Switch (PNP), error (PNP)
Ⓔ Option	
Cable option	
Blank	No
C1	Analog 9-conductor, 1 m cable
C3	Analog 9-conductor, 3m cable
P1	Parallel 15-conductor, cable 1 m
P3	Parallel 15-conductor, 3m cable
Bracket is an included option	
Blank	No
B3	B-bracket, floor mounted
L3	L-bracket, wall mounted
Ⓕ Power supply voltage	
3	24 VDC

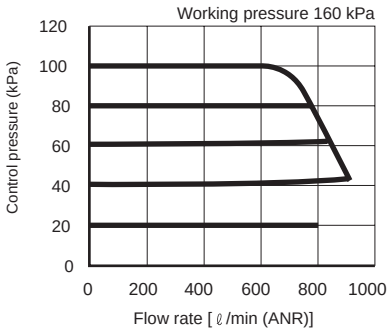
● Discrete option (cable, bracket) model No.

EVD- **C1**

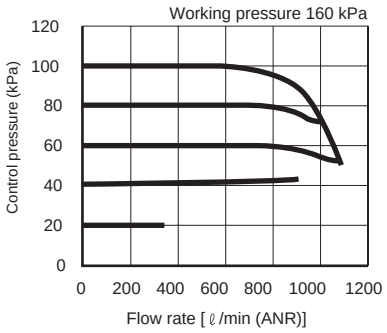
Ⓔ Option

Flow characteristics

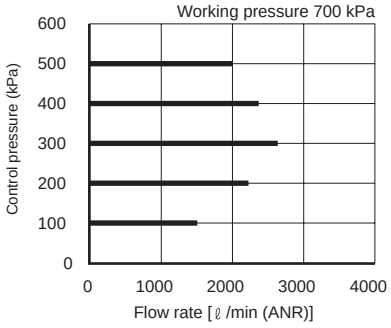
● EVD-3100-□08



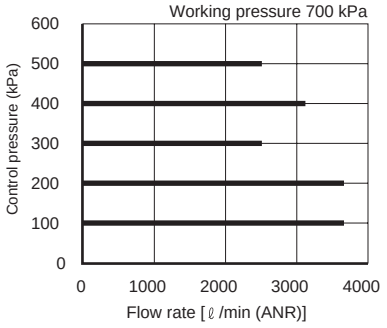
● EVD-3100-□10



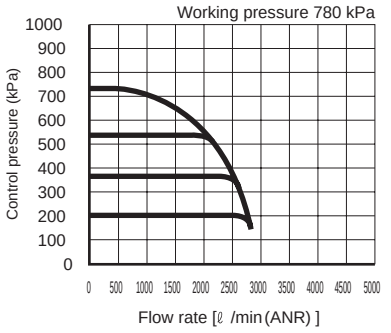
● EVD-3500-□08



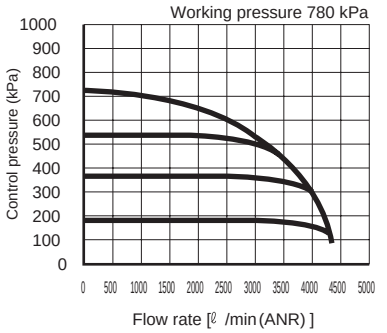
● EVD-3500-□10



● EVD-3900-□08

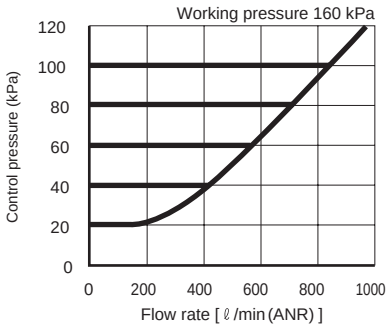


● EVD-3900-□10

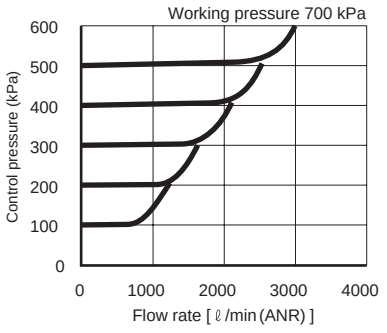


Relief characteristics

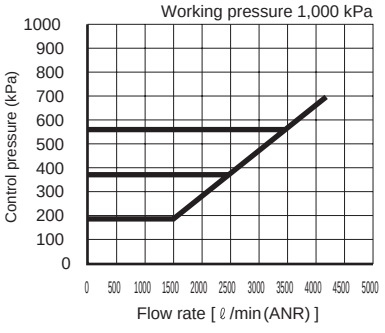
● EVD-3100

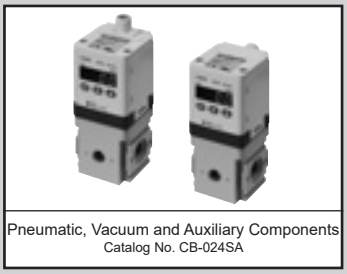


● EVD-3500



● EVD-3900





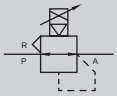
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Digital electro-pneumatic regulator

EVD-1000 Series

IO-Link

JIS symbol



Specifications

Item		EVD-1100-C[*2][*3]	EVD-1500-C[*2][*3]	EVD-1900-C[*2][*3]
Working fluid		Clean compressed air (ISO 1.3.2 or equivalent)		
Max. working pressure		160 kPa	700 kPa	1000 kPa
Min. working pressure		Set pressure +50 kPa	Set pressure +100kPa	
Proof pressure	Inlet	240 kPa	1050 kPa	1500 kPa
	Output side	150 kPa	750 kPa	1350 kPa
Pressure control range *1		0 to 100 kPa	0 to 500 kPa	0 to 900 kPa
Power supply voltage		24 VDC±10% (stabilized power supply with ripple rate 1% or less)		
Current consumption *2		0.15A or less (0.6A or less starting current when power is ON) (Port type A)		
Input signal		IO-Link		
Preset input		8 points (IO-Link)		
Pressure display	Display method	7-segment LED 3 digits, indicator accuracy: ±2%F.S. or less		
	Display range	0 to 100 kPa	0 to 500 kPa	0 to 900 kPa
	Display resolution	1 kPa	1 kPa	1 kPa
Direct memory setting		1 to 100 kPa (Min. setting width 1kPa /setting resolution 1kPa)	5 to 500 kPa (Min. setting width 1kPa /setting resolution 1kPa)	9 to 900 kPa (Min. setting width 1kPa /setting resolution 2kPa)
Hysteresis *3		0.5% F.S. or less		
Linearity *3		±0.3% F.S. or less		
Resolution *3		0.2% F.S. or less		
Repeatability *3		0.3% F.S. or less		
Temperature characteristics	Zero point fluctuation	±0.15% F.S./°C or less		
	Span fluctuation	±0.07% F.S./°C or less		
Max. flow rate (ANR) *4		60L/min	400L/min	
Step response *5	No load	0.2 sec. or less		
Vibration resistance		98m/s^{2}or less		
Ambient temperature		5 to 50°C		
Fluid temperature		5 to 50°C		
Port size [*2]		Port size option 08...Rc1/4		
Unit change [*3] *6	Blank	No unit change function		
	KA	Unit change kPa / psi / bar (Attachment: Unit seal psi / bar)		
Mounting orientation		Free		
Weight (body)		280g		
Protection circuit		Power reverse connection protection		

*1: There is 1% F.S. or less residual pressure when the input signal is 0%. EVD-1100:1kPa or less, EVD-1500:5kPa or less, EVD-1900:9kPa or less)
*2: Use a IO-Link master that has sufficient power supply per port.
*3: The conditions for the values above are: 24 VDC±0.1V power supply voltage, EVD-1100 working pressure: maximum control pressure +50kPa/ EVD-1500, 1900: maximum control pressure +100kPa, and 10 to 90% control pressure. (No load, ambient temperature 25±3°C) When the secondary side is a closed circuit, pressure fluctuations will occur if the product is used for blowing or for similar applications.
*4: The characteristics where working pressure is maximum and control pressure is maximum are shown.
*5: The characteristics above show the max. working pressure and the step amount at { 50% F.S. → 100% F.S. / 50% F.S. → 60% F.S. / 50% F.S. → 40% F.S.
*6: The unit change function KA type is available only outside Japan.

How to order

EVD-1 500 - C 08 KA - MS - 3 - P4

- Ⓐ Pressure control range
- Ⓑ Input signal
- Ⓒ Port size
- Ⓓ Unit change
- Ⓔ Option
- Ⓕ Power supply voltage

Code	Description
Ⓐ Pressure control range	
100	0 -100 kPa
500	0 -500 kPa
900	0 -900 kPa
Ⓑ Input signal	
C	IO-Link
Ⓒ Port size	
08	Rc1/4
Ⓓ Unit change *1	
Blank	No Unit Switching
KA	Unit change: Yes
Ⓔ Option	
Cable option	
Blank	None
MS	IO-Link Straight (female), straight (male) 3 m
ML	IO-Link L type (female) / straight (male) 3 m
MM	IO-Link One side straight (female) 3 m
Bracket option	
Blank	None
L11	L-bracket, wall mounted
Ⓕ Power supply voltage	
3	24 VDC

*1:The unit change function KA type is only available outside Japan.

● Discrete option (cable) model No.

EVD- MS3

Code	Description
Cable option	
MS3	Straight (female), straight (male) 3 m
ML3	L type (female) / straight (male) 3 m
MM3	One side straight (female) 3 m

● Discrete option (bracket) model No.

EVL- L11

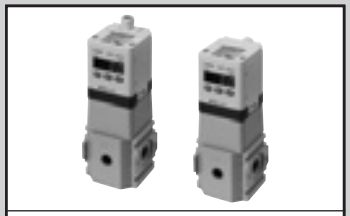
Ⓔ Option

Compatibility table by variation

	EVD-1100/1500/1900
Port size	Rc1/4
P4	●

Note: The bracket option of EVD-1*00-*-P4 is blank or L11 (L type, wall mounted for exhaust fitting). Standard B1 and L1 cannot be selected.

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable



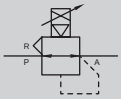
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Digital electro-pneumatic regulator

EVD-3000 Series

IO-Link

JIS symbol



Specifications

Item		EVD-3100-C[*2][*3]	EVD-3500-C[*2][*3]	EVD-3900-C[*2][*3]
Working fluid		Clean compressed air (ISO 1.3.2 or equivalent)		
Max. working pressure		160 kPa	700 kPa	1000 kPa
Min. working pressure		Set pressure +50 kPa	Set pressure +100kPa	
Proof pressure	Inlet	240 kPa	1050 kPa	1500 kPa
	Output side	150 kPa	750 kPa	1350 kPa
Pressure control range *1		0 to 100 kPa	0 to 500 kPa	0 to 900 kPa
Power supply voltage		24 VDC±10% (stabilized power supply with ripple rate 1% or less)		
Current consumption *2		0.15A or less (0.6A or less starting current when power is ON) (Port type A)		
Input signal		IO-Link		
Preset input		8 points (IO-Link)		
Pressure display	Display method	7-segment LED 3 digits, indicator accuracy: ±2% F.S. or less		
	Display range	0 to 100 kPa	0 to 500 kPa	0 to 900 kPa
	Display resolution	1 kPa	1 kPa	1 kPa
Direct memory setting		1 to 100 kPa (Min. setting width 1kPa /setting resolution 1kPa)	5 to 500 kPa (Min. setting width 1kPa /setting resolution 1kPa)	9 to 900 kPa (Min. setting width 1kPa /setting resolution 2kPa)
Hysteresis *3		0.5% F.S. or less		
Linearity *3		±0.3% F.S. or less		
Resolution *3		0.2% F.S. or less		
Repeatability *3		0.3% F.S. or less		
Temperature characteristics	Zero point fluctuation	±0.15% F.S./°C or less		
	Span fluctuation	±0.07% F.S./°C or less		
Max. flow rate (ANR) *4		700L/min	1500L/min	
Step response *5	No load	0.2 sec. or less		
Vibration resistance		98m/s^2 or less		
Ambient temperature		5 to 50°C		
Fluid temperature		5 to 50°C		
Port size [*2]	IN, OUT port	Port size option 08...Rc1/4, 10...Rc3/8		
	EXH port	Rc3/8		
Unit change [*3] *6	Blank	No unit change function		
	KA	Unit change kPa / psi / bar (Attachment: Unit seal psi / bar)		
Mounting orientation		Free		
Weight (body)		470g		
Protection circuit		Power reverse connection protection		

*1: There is 1% F.S. or less residual pressure when the input signal is 0%. (EVD-1100:1kPa or less, EVD-1500:5kPa or less, EVD-1900:9kPa or less)
*2: Use a IO-Link master that has sufficient power supply per port.
*3: The conditions for the values above are: 24VDC±0.1V power supply voltage, EVD-1100 working pressure: maximum control pressure +50kPa/ EVD-1500, 1900: maximum control pressure +100kPa, and 10 to 90% control pressure. (No load, ambient temperature 25±3°C) When the secondary side is a closed circuit, pressure fluctuations will occur if the product is used for blowing or for similar applications.
*4: The characteristics where working pressure is maximum and control pressure is maximum are shown.
*5: The characteristics above show the max. working pressure and the step amount at
50% F.S. → 100% F.S.
50% F.S. → 60% F.S.
50% F.S. → 40% F.S.
*6: The unit change function KA type is available only outside Japan.

How to order

EVD-3 **500** - **C** **08** **KA** - **MS** - **3** - **P4**

Code	Description
Ⓐ Pressure control range	
100	0 -100 kPa
500	0 -500 kPa
900	0 -900 kPa
Ⓑ Input signal	
C	IO-Link
Ⓒ Port size	
08	Rc1/4
10	Rc3/8
Ⓓ Unit change *1	
Blank	No Unit Switching
KA	Unit change: Yes
Ⓔ Option	
Cable option	
Blank	None
MS	IO-Link Straight (female), straight (male) 3 m
ML	IO-Link L type (female) / straight (male) 3 m
MM	IO-Link One side straight (female) 3 m
Bracket option	
Blank	None
B3	B-bracket, floor mounted
L3	L-bracket, wall mounted
Ⓕ Power supply voltage	
3	24 VDC

*1:The unit change function KA type is only available outside Japan.

● Discrete option (cable, bracket) model No.

EVD- **MS3**

Code	Description
Cable option	
MS3	Straight (female), straight (male) 3 m
ML3	L type (female) / straight (male) 3 m
MM3	One side straight (female) 3 m
Bracket option	
B3	B-bracket, floor mounted
L3	L-bracket, wall mounted

Compatibility table by variation

	EVD-3100/3500/3900
Port size	Rc1/4, Rc3/8
P4	●

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

Precautions for use (common to EVD-1000 Series, EVD-3000 Series)

⚠WARNING

■ Application, load current, voltage, temperature, impact, environment, etc., outside the specifications will result in damage or operation faults. Use the device as instructed in the specifications.

■ Never use this product in an explosive gas atmosphere. Never use in an explosive gas atmosphere as explosions or fires could result.

■ Static
Do not use this product where electrostatic discharge could occur.
Failure to do so may result in breakdown or malfunction of the system.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Air filter

F1000/F2000/F3000
F4000/F6000/F8000-W Series

New series using 5 µm elements for dust removal and
0.3 µm tar removing element (excluding F1000 Series) ● Port size: 1/8 to 1

JIS symbol 

RoHS CAD

Specifications

Item	F1000-W	F2000-W	F3000-W	F4000-W	F6000-W	F8000-W
Appearance						
Working fluid	Compressed air					
Max. working pressure MPa	1.0					
Proof pressure MPa	1.5					
Ambient/fluid temperatures °C	5 to 60					
Degree of filtration µm	5		5 or 0.3			
Drain capacity cm^3	12	25	45	80	80	80 (Note)
Port size Rc	1/8, 1/4 (3/8 uses an adaptor)	1/4, 3/8 (1/2 uses an adaptor)		1/4, 3/8, 1/2 (3 /4 uses an adaptor)	3 /4, 1 (1 1/4 uses an adaptor)	3 /4, 1 (1 1/4uses an adaptor)
Weight kg	0.087	0.24	0.25	0.45	0.9	1.16
Standard accessories	Bowl guard					

Note: Up to 170cm^3 is stored with the manual drain cock only.

Compatibility table by variation

	F1000-W	F2000-W	F3000-W	F4000-W	F6000-W	F8000-W
Port size	Rc1/8, 1/4	Rc1/4, 3/8	Rc1/4, 3/8	Rc1/4, 3/8,1/2	Rc3/4,1	Rc3/4,1
P4	●	●	●	●	●	●
P40		●	●	●	●	

●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable

*1: Auto-drain is not available.
*2: Metal bowl is not available.
*3: Y element is not available for P40.

How to order

F1000 - 6 - W - Z - P4 P40 - ○ - A6W ▭

Ⓐ Model No. Ⓑ Port size Ⓒ Option Ⓓ Pipe adaptor set (included) Ⓔ Bracket (attachment)

* Refer to "Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA) for options.

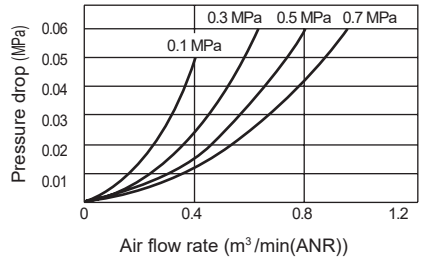
Code	Description	Ⓐ Model No. F1000	F2000	F3000	F4000	F6000	F8000
Ⓑ Port size							
6	Rc1/8	●					
8	Rc1/4	●	●	●	●		
10	Rc3/8		●	●	●		
15	Rc1/2				●		
20	Rc3/4					●	●
25	Rc1					●	●
Ⓒ Option							
Drainage *3	**Blank** With manual drain cock	●	●	●	●	●	●
Bowl material	**Blank** Polycarbonate bowl	●	●	●	●	●	●
***4**	**Z** Nylon bowl	●	●	●	●	●	●
Element *5	**Blank** 5 µm	●	●	●	●	●	●
	Y 0.3 µm (Submicron)			●	●	●	●
Flow Direction	**Blank** Standard flow (left → right)	●	●	●	●	●	●
	X1 Reverse flow (right → left)	●	●	●	●	●	●
Ⓓ Pipe adaptor set (included) *1, *2							
Blank	Not included	●	●	●	●	●	●
A6*W	1/8 pipe adaptor set	●					
A8*W	1/4 pipe adaptor set	●	●	●	●		
A10*W	3/8 pipe adaptor set	●	●	●	●		
A15*W	1/2 pipe adaptor set		●	●	●		
A20*W	3/4 pipe adaptor set				●	●	●
A25*W	1 pipe adaptor set					●	●
A32*W	1 1/4 pipe adaptor set					●	●
Ⓔ Bracket (attachment)							Page 491
Blank	Not included	●	●	●	●	●	●
BW	C-bracket	●	●	●	●	●	●

⚠ Precautions for model No. selection

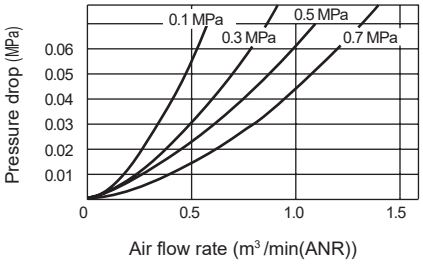
*1: The pipe adaptor set and C-bracket cannot be used together.
*2: The joiner set is included with the pipe adapter set.
*3: Auto-drain is not available.
*4: Metal bowl is not available.
*5: Y element is not available for P40.

Flow characteristics

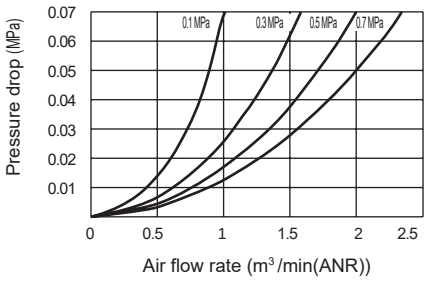
● F1000-6-W



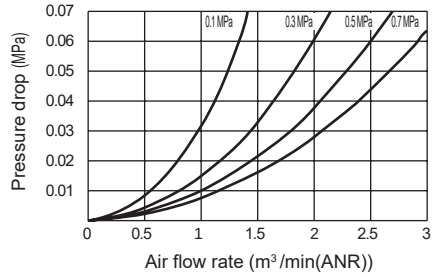
● F1000-8-W



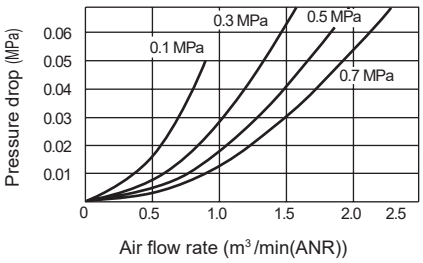
● F2000-8-W



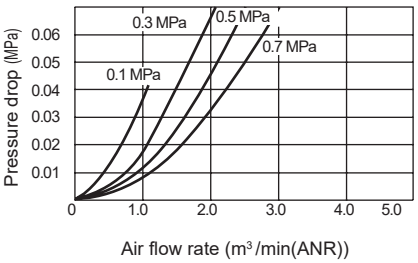
● F2000-10-W



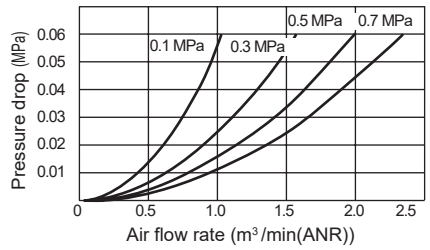
● F3000-8-W



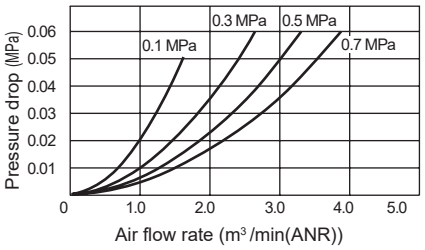
● F3000-10-W



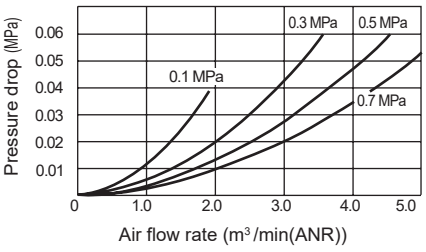
● F4000-8-W



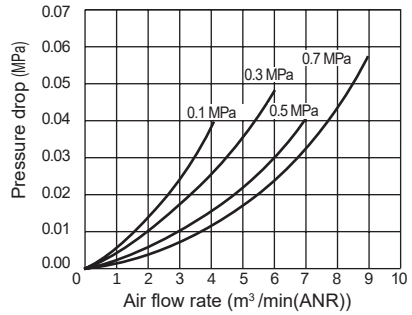
● F4000-10-W



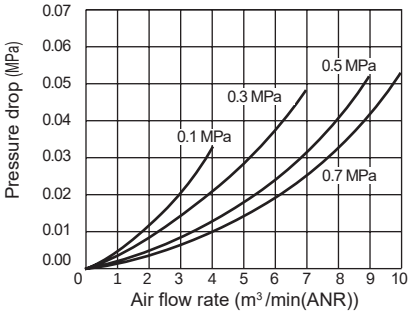
● F4000-15-W



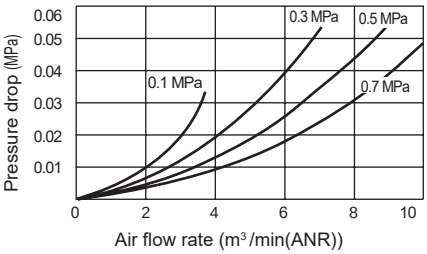
● F6000-20-W



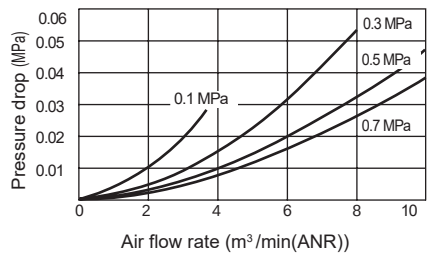
● F6000-25-W



● F8000-20-W

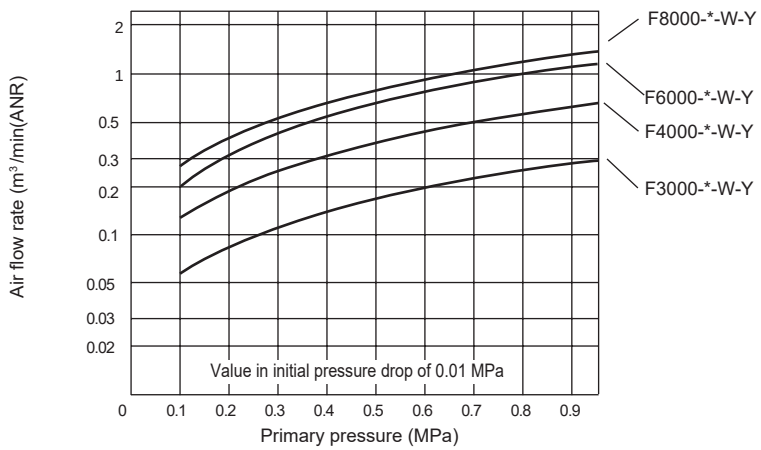


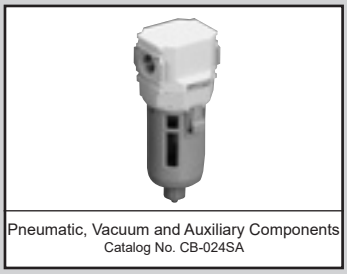
● F8000-25-W



● F3000
F4000
F6000
F8000 -*-W-Y (0.3 µm element)

(Max. processing flow rate)





Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Oil mist filter

M1000/M2000/M3000 M4000/M6000/M8000-W Series

Ideal for circuits susceptible to oil, including measuring and instrumentation circuits.

● Port size: 1/8 to 1

JIS symbol 

RoHS CAD

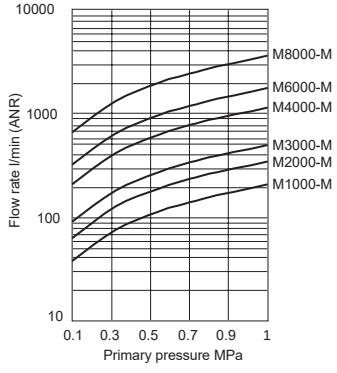
Specifications

Item	M1000-W	M2000-W	M3000-W	M4000-W	M6000-W	M8000-W
Appearance						
Working fluid	Compressed air					
Working pressure MPa	0.1 to 1.0					
Proof pressure MPa	1.5					
Drain capacity cm^3	3	25	45	80	80	80
Port size Rc	1/8, 1/4 (3/8 uses an adaptor)	1/4, 3/8 (1/2 uses an adaptor)		1/4, 3/8, 1/2 (3/4 uses an adaptor)	3/4, 1 (11/4 uses an adaptor)	3/4, 1 (1 1/4 uses an adaptor)
Weight kg	0.096	0.25	0.28	0.52	0.95	1.35
Standard accessories	Bowl guard					

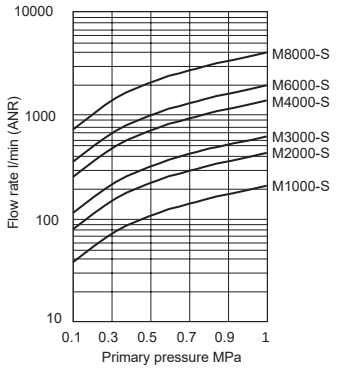
Mantle option name		Blank (M type)	S (S type)	X (X type)
Max. processing flow rate *1 ℓ/min (ANR) Primary pressure 0.7 MPaHour	M1000-□-W	150	150	150
	M2000-□-W	250	310	310
	M3000-□-W	360	450	450
	M4000-□-W	825	1000	1000
	M6000-□-W	1270	1400	1400
	M8000-□-W	2600	2900	2900
Ambient/fluid temperatures °C		5 to 60		5 to 30
Filtration rating μm		0.01 (nominal)	0.3	Suction by activated carbon
Secondary side oil concentration mg/m^3		0.01 or less (0.1 or less after oil saturation) *2,*3	0.5 or less *2	0.003 or less *4
Mantle (element) change		1 year (6000 hours) or pressure drop 0.1 MPa		- *5

*1: Use the product within the max. processing flow rate. If the max. processing flow rate is exceeded temporarily, or if the filter is installed at a location with high levels of pulsation, the mantle could be damaged or oil or drainage, etc., could splatter to the secondary side and result in a terminal malfunction.
*2: The secondary oil concentration is the value when the primary oil concentration is 30 mg/m^3 and inlet air temperature is 21°C.
*3: Install an oil mist filter (S type) as a pre-filter on the primary side to prevent early clogging.
*4: When an oil mist filter (M Series M type) is installed on the primary side.
*5: The mantle (element) replacement period differs depending on the odor density in compressed air, and thus cannot be clearly indicated. Consider the total period from initial installation to when the smell of oil is confirmed as the effective deodorizing period, and replace at the same time as the M type or control with usage time. (When the inlet temperature is 21°C, replace at the control time or 1,000 hours, whichever comes first) Keep the primary air temperature at 30°C or less. The deodorizing effect will drop if temperature is high, so provide heat dissipation measures.

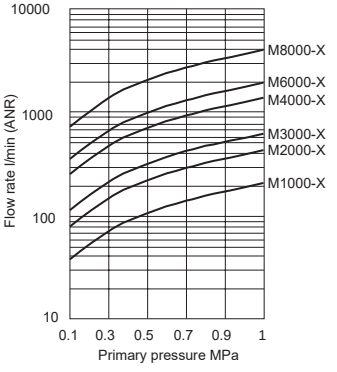
● M*000-W-M



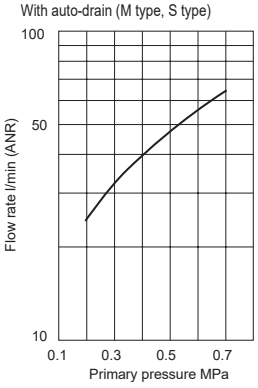
● M*000-W-S



● M*000-W-X



● M1000-W-F1
With auto-drain (M type, S type)



Compatibility table by variation

	M1000-W	M2000-W	M3000-W	M4000-W	M6000-W	M8000-W
Port size	Rc1/8, 1/4	Rc1/4, 3/8	Rc1/4, 3/8	Rc1/4, 3/8,1/2	Rc3/4,1	Rc3/4,1
P4	●	●	●	●	●	●
P40		●	●	●	●	

●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable

*1: Auto-drain is not available.
*2: Metal bowl is not available.
*3: With differential pressure indicator option is not available.

How to order

M1000 - 6 - W - S P4 P40 - A6W

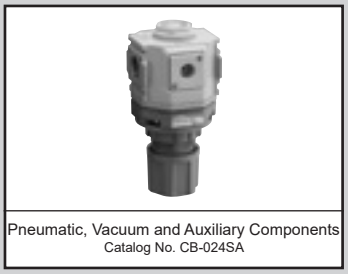
Ⓐ Model No.
Ⓑ Port size
Ⓒ Option
Ⓓ Pipe adaptor set (attachments)
Ⓔ Bracket (attachment)

*Refer to "Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA) for options.

Code		Description	Ⓐ Model No. M1000	M2000	M3000	M4000	M6000	M8000
Ⓑ Port size								
6		Rc1/8	●					
8		Rc1/4	●	●	●	●		
10		Rc3 /8		●	●	●		
15		Rc1/2				●		
20		Rc3 /4					●	●
25		Rc1					●	●
Ⓒ Option								
Drain discharge	**Blank**	With manual drain cock *3	●	●	●	●	●	●
Bowl material*4	**Blank**	Polycarbonate bowl	●	●	●	●	●	●
	Z	Nylon bowl	●	●	●	●	●	●
Mantle (Element)	**Blank**	M type (nominal 0.01 µm; remaining oil 0.01mg/m^3)	●	●	●	●	●	●
	S	S type (nominal 0.3 µm; remaining oil 0.5mg/m^3)	●	●	●	●	●	●
	X	X type (deodorization; Remaining oil 0.003mg/m^3)	●	●	●	●	●	●
Flow direction	**Blank**	Standard flow (left → right)	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●
Ⓓ Pipe adaptor set (attachments)								*1, *2
Blank		Not included	●	●	●	●	●	●
A6*W		1/8 pipe adaptor set	●					
A8*W		1/4 pipe adaptor set	●	●	●	●		
A10*W		3/8 pipe adaptor set	●	●	●	●		
A15*W		1/2 pipe adaptor set		●	●	●		
A20*W		3/4 pipe adaptor set				●	●	●
A25*W		1 pipe adaptor set					●	●
A32*W		1 1/4 pipe adaptor set					●	●
Ⓔ Bracket (attachment)								Page 491
Blank		Not included	●	●	●	●	●	●
BW		C-bracket	●	●	●	●	●	●

⚠ Precautions for model No. selection

*1: The pipe adaptor set and C-bracket cannot be used together.
*2: The joiner set is included with the pipe adapter set.
*3: Auto-drain is not available.
*4: Metal bowl is not available.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Regulator

R1000/R 2000/R 3000
R 4000/R 6000/R8000-W Series

Compact, pressure gauge embedded.

● Port size: 1/8 to 1

JIS symbol 

RoHS CAD

Specifications

Item	R1000-W	R2000-W	R3000-W	R4000-W	R6000-W	R8000-W
Working fluid	Compressed air					
Max. working pressure MPa	1.0					
Proof pressure MPa	1.5					
Ambient/fluid temperatures °C	5 to 60					
Set pressure MPa	0.05 to 0.85					
Pressure relief	With relief mechanism (R1000, R8000 are non-relief only)					
Port size Rc	1/8, 1/4 (3/8 uses an adaptor)	1/4, 3/8 (1/2 uses an adaptor)	1/4, 3/8 (1/2 uses an adaptor)	1/4, 3/8, 1/2 (3/4 uses an adaptor)	3/4, 1 (1 1/4 uses an adaptor)	3/4, 1 (1 1/4 uses an adaptor)
Weight kg	0.16	0.29	0.51	0.75	1.1	1.6
Standard accessories	Panel mounting nut					

Compatibility table by variation

	R1000-W	R2000-W	R3000-W	R4000-W	R6000-W	R8000-W
Port size	Rc1/8, 1/4	Rc1/4, 3/8	Rc1/4, 3/8	Rc1/4, 3/8,1/2	Rc3/4,1	Rc3/4,1
P4	●	●	●	●	●	●
P40		▲	▲	▲	▲	

●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable

*1: Pressure gauge/pressure sensor must be ordered separately. (Pressure gauge option is "T", "T8", "T6" only)
*2: R1 option is not available.
*3: R6000 Dimensions is different from the standard.
*4: For pressure adjustment springs without gas contact and pressure adjustment screw units in P40, zinc plating is used.
*5: R2 option is not available.
*6: For R1000 and R8000, only non-relief (option code: N) is available.
*7: Zinc die-casting is used in the diaphragm part of R3000 to R8000.

How to order

* Refer to "Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA) for options.

R1000 - 6 - W - NT P4/P40 - A6W ( )

Ⓐ Model No. | Ⓑ Port size | Ⓒ Option | Ⓓ Pipe adaptor set (attachments) | Ⓔ Attachment

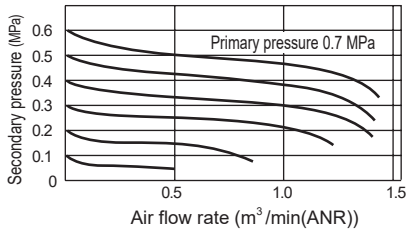
Code		Description	Ⓐ Model No. R1000	R2000	R3000	R4000	R6000	R8000
Ⓑ Port size								
6		Rc1/8	●					
8		Rc1/4	●	●	●	●		
10		Rc3/8		●	●	●		
15		Rc1/2				●		
20		Rc3/4					●	●
25		Rc1					●	●
Ⓒ Option								*1
Pressure range	Blank	0.05 to 0.85 MPa	●	●	●	●	●	●
	L	0.05 to 0.35 MPa	●	●	●	●	●	●
Pressure relief	Blank	With relief mechanism		●	●	●	●	
	N	Non-relief	●	●	●	●	●	●
Pressure gauge	T	Pressure gauge port (1/4) is assembled sealed	●	●	●	●	●	●
	T8	Pressure gauge port (1/4) is left open	●	●	●	●	●	●
	T6	Pressure gauge port (1/8) is left open	●	●	●	●	●	●
Flow direction	Blank	Standard flow (left → right)	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●
Ⓓ Pipe adaptor set (attachments)								*2, *3
Blank		Not included	●	●	●	●	●	●
A6*W		1/8 pipe adaptor set	●					
A8*W		1/4 pipe adaptor set	●	●	●	●		
A10*W		3/8 pipe adaptor set	●	●	●	●		
A15*W		1/2 pipe adaptor set		●	●	●		
A20*W		3/4 pipe adaptor set				●	●	●
A25*W		1 pipe adaptor set					●	●
A32*W		1 1/4 pipe adaptor set					●	●
Ⓔ Attachment								Page 491
Blank		Not included	●	●	●	●	●	●
BW		C-bracket	●	●	●	●	●	●
B3W		L-bracket *4	●	●	●	●	●	
B4W		B-bracket *5		●				

⚠ Precautions for model No. selection

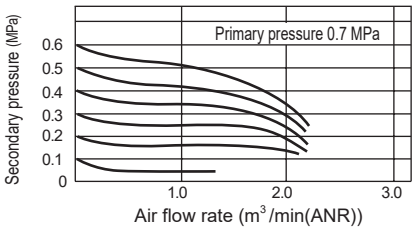
*1: When selecting options for several items, list options in order from the top.
*2: The pipe adaptor set and C-bracket cannot be used together.
*3: The joiner set is included with the pipe adapter set.
*4: For details on mounting the L-bracket, refer to "2. Regulator" of "⚠ Cautions and Installation & Adjustment" described in the "Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA).
*5: Refer to "Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA) for B-bracket.

Flow characteristics

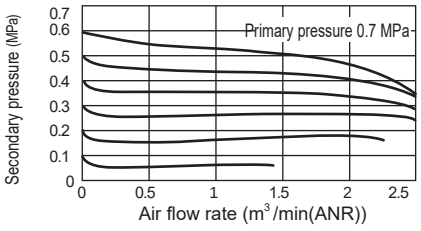
● R1000-6-W



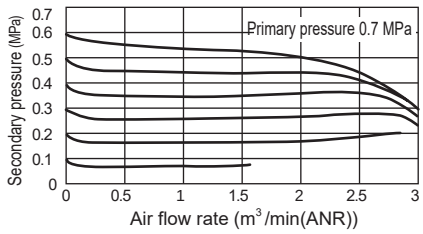
● R1000-8-W



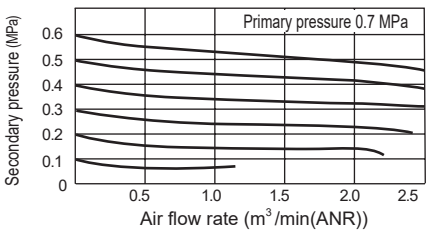
● R2000-8-W



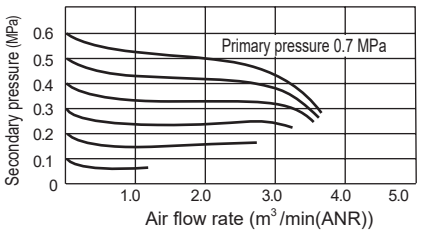
● R2000-10-W



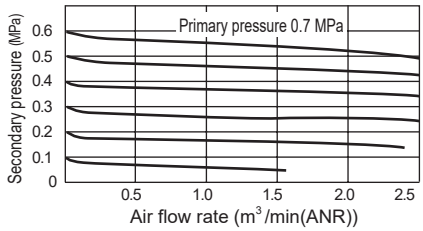
● R3000-8-W



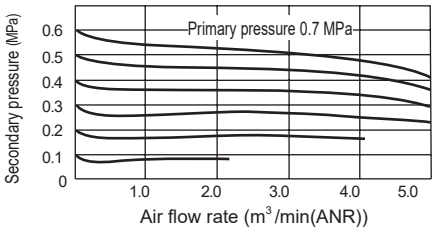
● R3000-10-W



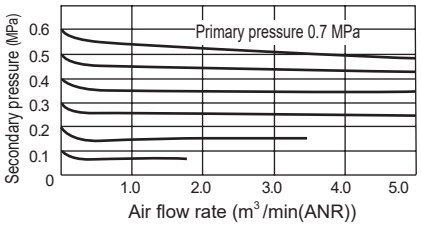
● R4000-8-W



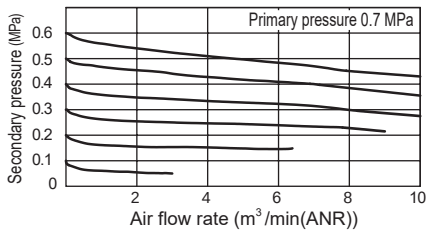
● R4000-10-W



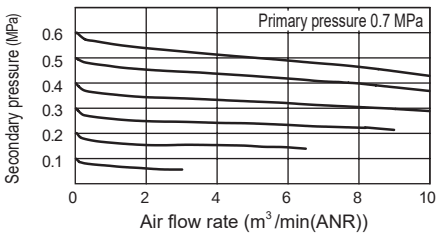
● R4000-15-W



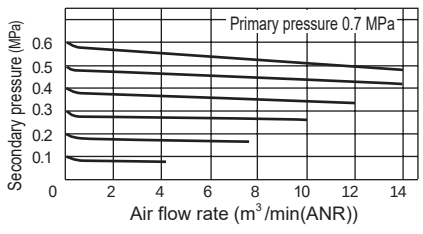
● R6000-20-W



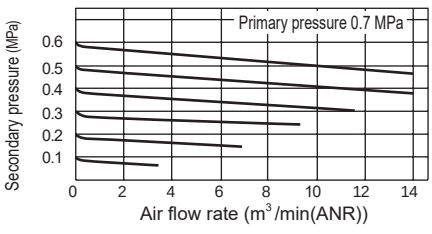
● R6000-25-W



● R8000-20-W

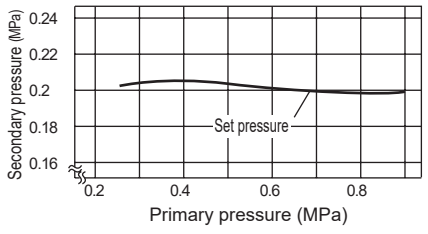


● R8000-25-W

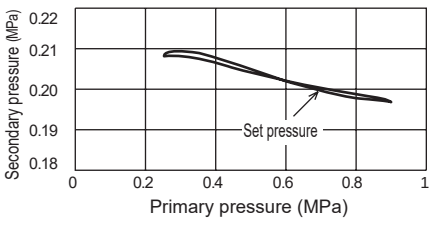


Pressure characteristics

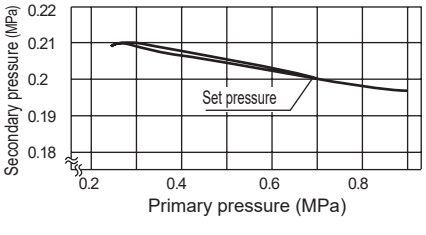
● R1000-W



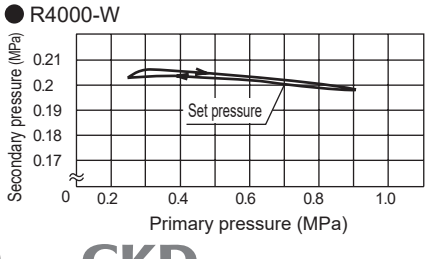
● R2000-W



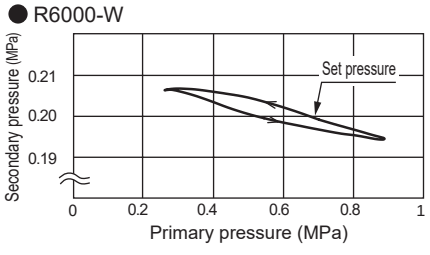
● R3000-W



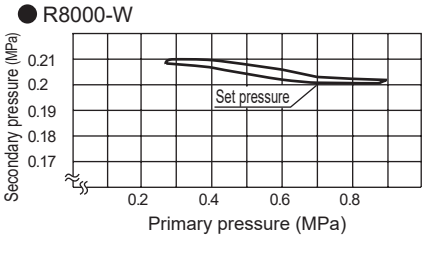
● R4000-W



● R6000-W

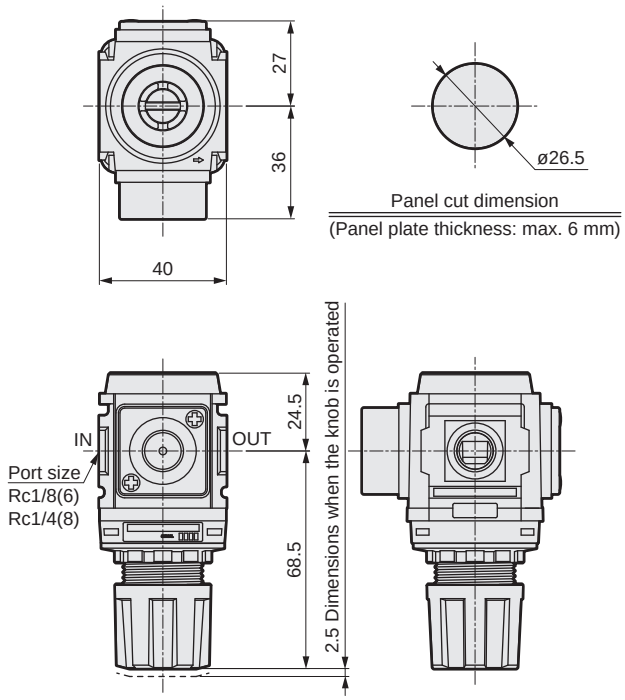


● R8000-W

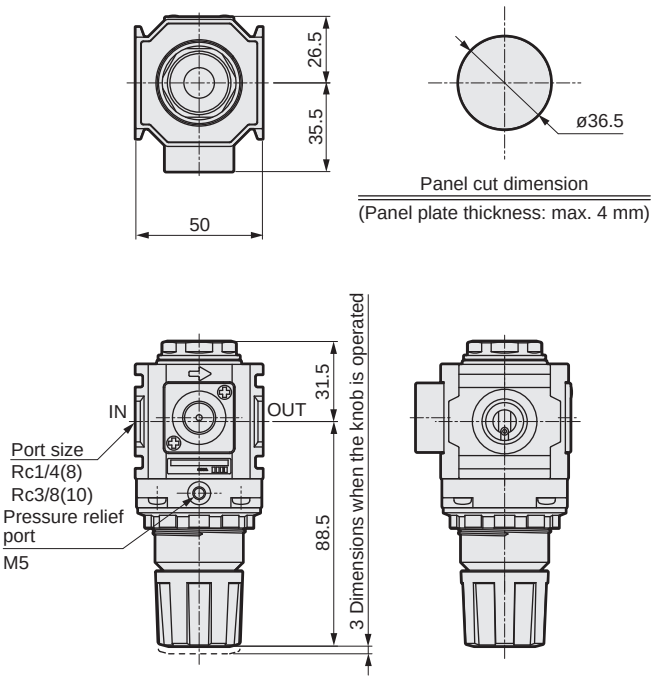


Dimensions CAD

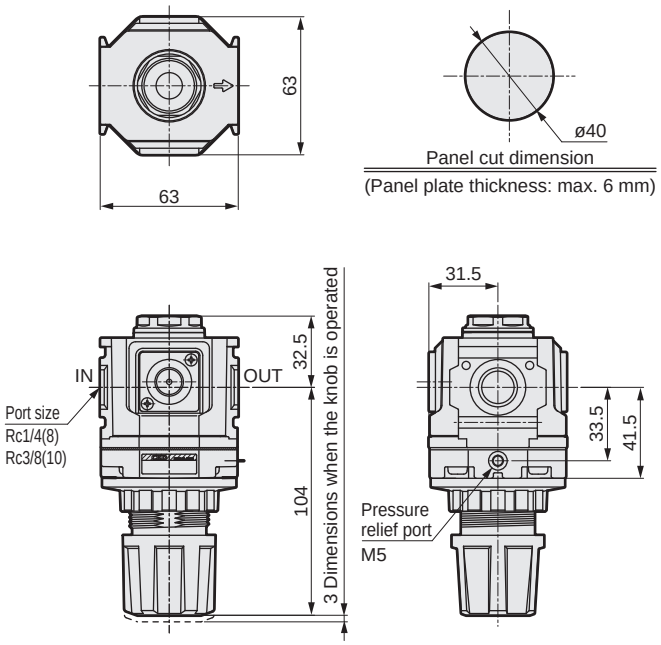
● R1000-*-W-*P4-*



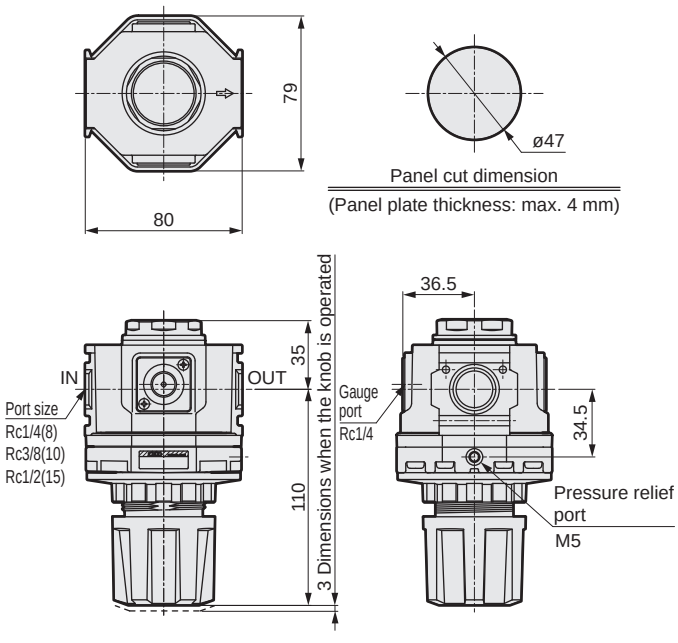
● R2000-*-W-*P4-*



● R3000-*-W-*P4-*

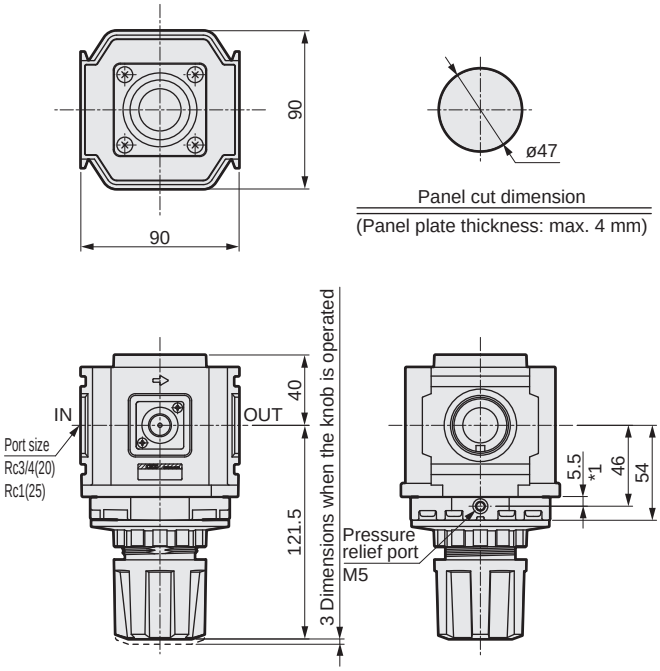


● R4000-*-W-*P4-*

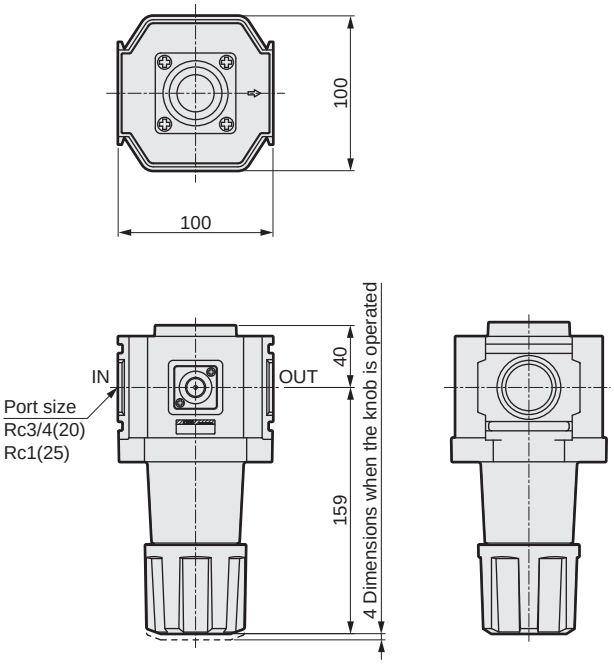


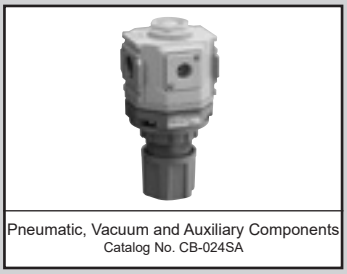
Dimensions CAD

● R6000-*-W-*P4-*



● R8000-*-W-*P4-*





Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

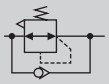
Reverse regulator

R1100/R2100/R3100
R4100/R6100/R8100-W Series

From secondary pressure to primary side with reverse flow function built in.

● Port size: 1/8 to 1

JIS symbol



RoHS

Specifications

Item	R1100-W	R2100-W	R3100-W	R4100-W	R6100-W	R8100-W
Working fluid	Compressed air					
Max. working pressure MPa	1.0					
Proof pressure MPa	1.5					
Ambient/fluid temperatures °C	5 to 60					
Set pressure (*1) MPa	0.05 to 0.85					
Pressure relief	With relief mechanism (R1100, R8100 are non-relief only)					
Port size Rc	1/8, 1/4 (3/8 uses an adaptor)	1/4, 3/8 (1/2 uses an adaptor)	1/4, 3/8 (1/2 uses an adaptor)	1/4, 3/8, 1/2 (3/4 uses an adaptor)	3/4, 1 (1 1/4 uses an adaptor)	3/4, 1 (1 1/4 uses an adaptor)
Weight kg	0.16	0.29	0.51	0.75	1.1	1.6
Standard accessories	Panel mounting nut					

*1: Refer to the set pressure range for the back pressure given on page 475 when selecting the model.
*2: Check that the primary pressure is at least 0.05 MPa more than the secondary pressure.

Compatibility table by variation

	R1100-W	R2100-W	R3100-W	R4100-W	R6100-W	R8100-W
Port size	Rc1/8, 1/4	Rc1/4, 3/8	Rc1/4, 3/8	Rc1/4, 3/8,1/2	Rc3/4,1	Rc3/4,1
P4	●	●	●	●	●	●
P40		▲	▲	▲	▲	

●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable

*1: Pressure gauge/pressure sensor must be ordered separately. (Pressure gauge option is "T", "T8", "T6" only)
*2: R1 option is not available.
*3: For pressure adjustment springs without gas contact and pressure adjustment screw units in P40, zinc plating is used.
*4: R2 option is not available.
*5: For R1100 and R8100, only non-relief (option code: N) is available.
*6: Zinc die-casting is used in the diaphragm part of R3100 to R8100.

How to order

* Refer to "Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA) for options.

R1100 - 6 - W - NT - P4 / P40 - A6W ( )

- R1100 — Ⓐ Model No.
- 6 — Ⓑ Port size
- NT — Ⓒ Option
- P4 / P40 — Ⓓ Pipe adaptor set (attachments)
- A6W — Ⓓ Pipe adaptor set (attachments)
- ( ) — Ⓔ Attachment

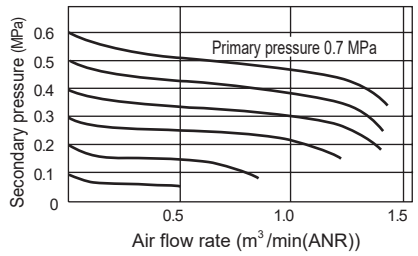
Code		Description	Ⓐ Model No. R1100	R2100	R3100	R4100	R6100	R8100
Ⓑ Port size								
6		Rc1/8	●					
8		Rc1/4	●	●	●	●		
10		Rc3/8		●	●	●		
15		Rc1/2				●		
20		Rc3/4					●	●
25		Rc1					●	●
Ⓒ Option								*1, *2
Pressure range	**Blank**	0.05 to 0.85 MPa	●	●	●	●	●	●
	L	0.05 to 0.35 MPa *3	●	●	●	●	●	●
Pressure relief	**Blank**	With relief mechanism		●	●	●	●	
	N	Non-relief	●	●	●	●	●	●
Pressure gauge	**T**	Pressure gauge port (1/4) is assembled sealed	●	●	●	●	●	●
	T8	Pressure gauge port (1/4) is left open	●	●	●	●	●	●
	T6	Pressure gauge port (1/8) is left open	●	●	●	●	●	●
Flow direction	**Blank**	Standard flow (left → right)	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●
Ⓓ Pipe adaptor set (attachments)								*3, *4
Blank		Not included	●	●	●	●	●	●
A6*W		1/8 pipe adaptor set	●					
A8*W		1/4 pipe adaptor set	●	●	●	●		
A10*W		3/8 pipe adaptor set	●	●	●	●		
A15*W		1/2 pipe adaptor set		●	●	●		
A20*W		3/4 pipe adaptor set				●	●	●
A25*W		1 pipe adaptor set					●	●
A32*W		1 1/4 pipe adaptor set					●	●
Ⓔ Attachment								Page 491
Blank		Not included	●	●	●	●	●	●
BW		C-bracket	●	●	●	●	●	●
B3W		L-bracket *5	●	●	●	●	●	
B4W		B-bracket *6		●				

⚠ Precautions for model No. selection

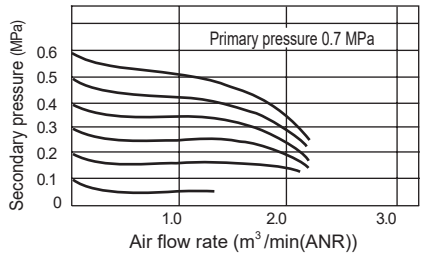
*1: When selecting options for several items, list options in order from the top.
2: Positions of check valve and pressure gauge mounting port cannot be changed. If the IN and OUT directions must be reversed, indicate "X1" at the end of the option field.
*3: The pipe adaptor set and C-bracket cannot be used together.
*4: The joiner set is included with the pipe adapter set.
*5: For details on mounting the L-bracket, refer to (2. Regulator) of "⚠Cautions and Installation & Adjustment" described in the "Pneumatic, Vacuum and Auxiliary components" (catalog No. CB-024SA).
*6: For the B-bracket, refer to "Pneumatic, Vacuum and Auxiliary Components" (Catalog No. CB-024SA.

Flow characteristics

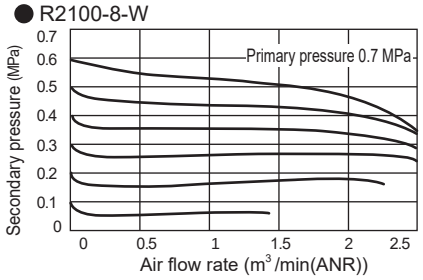
● R1100-6-W



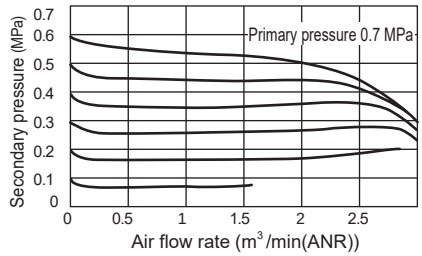
● R1100-8-W



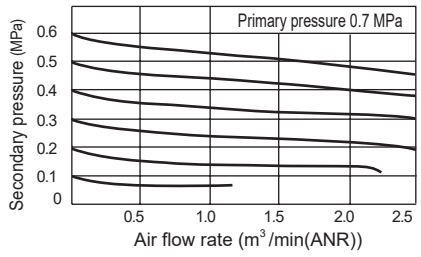
● R2100-8-W



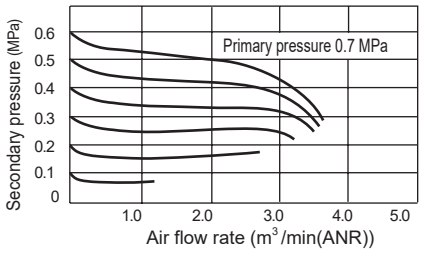
● R2100-10-W



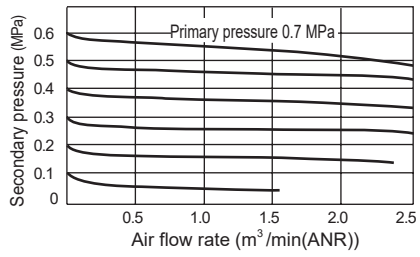
● R3100-8-W



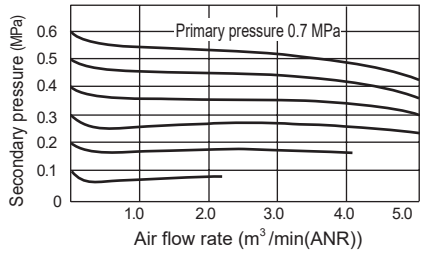
● R3100-10-W



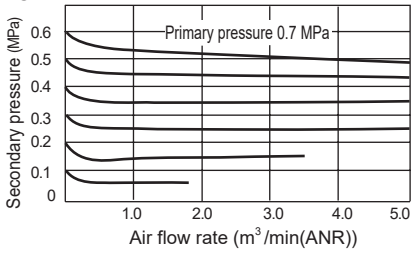
● R4100-8-W



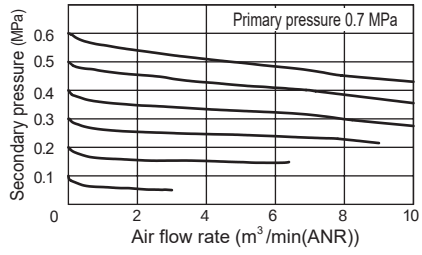
● R4100-10-W



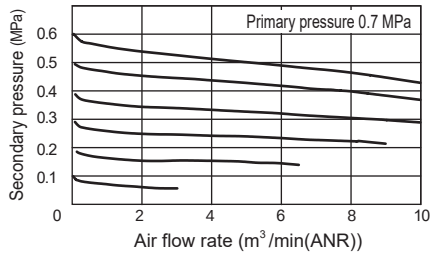
● R4100-15-W



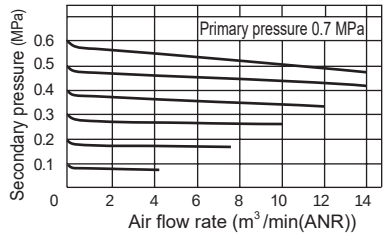
● R6100-20-W



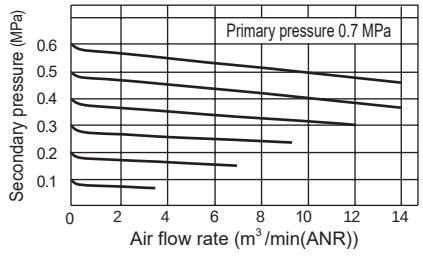
● R6100-25-W



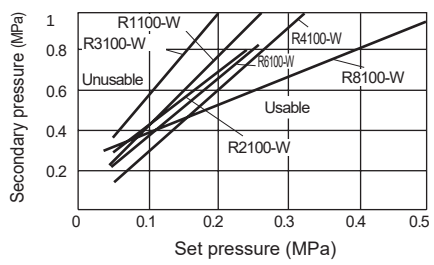
● R8100-20-W



● R8100-25-W



● Set pressure range to back pressure

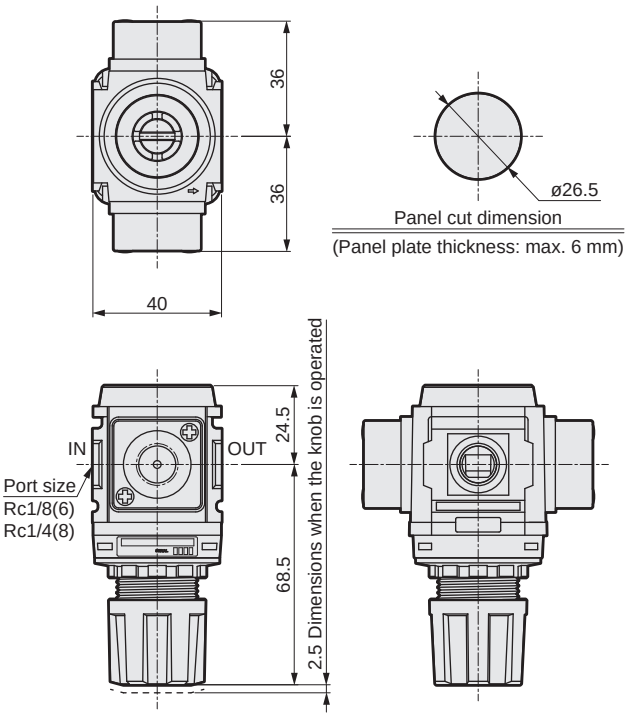


Note: The area above the graph line shows the unusable range and that below the graph line shows the usable range.

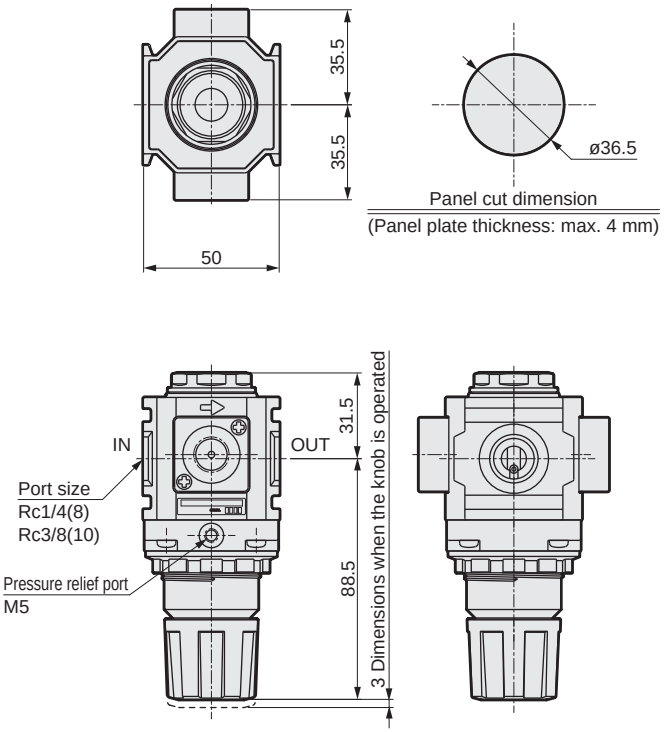
Example: If R4100-W is set to the set pressure 0.2MPa and the secondary back pressure is 0.6MPa and over, the secondary pressure will not be released to the primary side.

Dimensions CAD

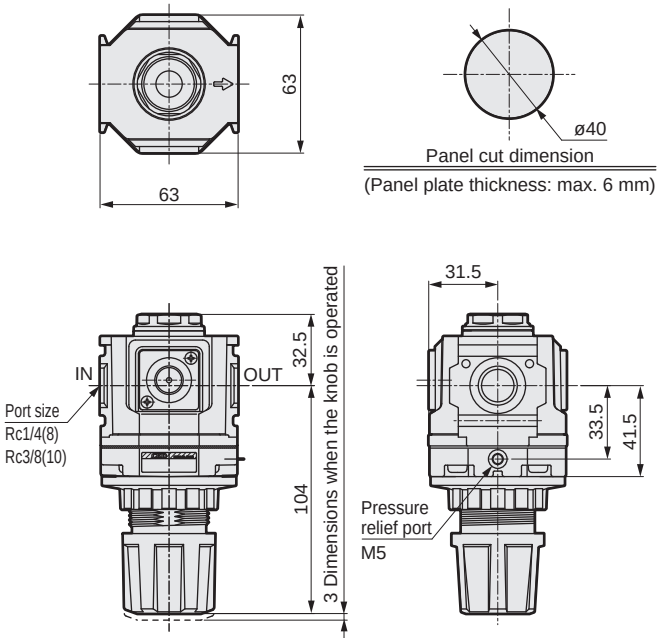
●R1100-*-W-*P4-*



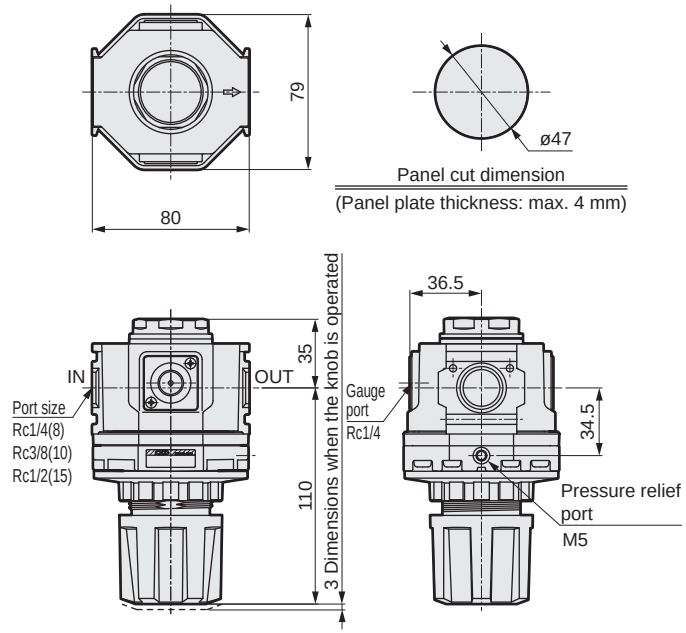
●R2100-*-W-*P4-*



● R3100-*-W-*P4-*

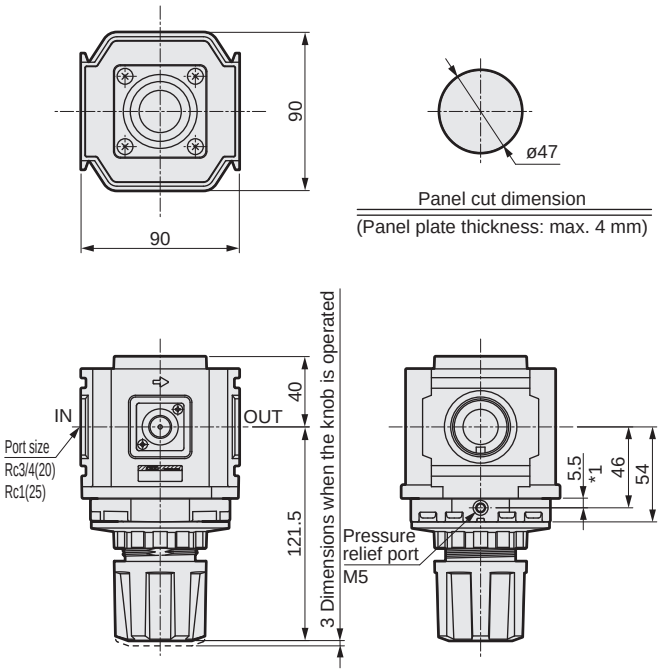


● R4100-*-W-*P4-*

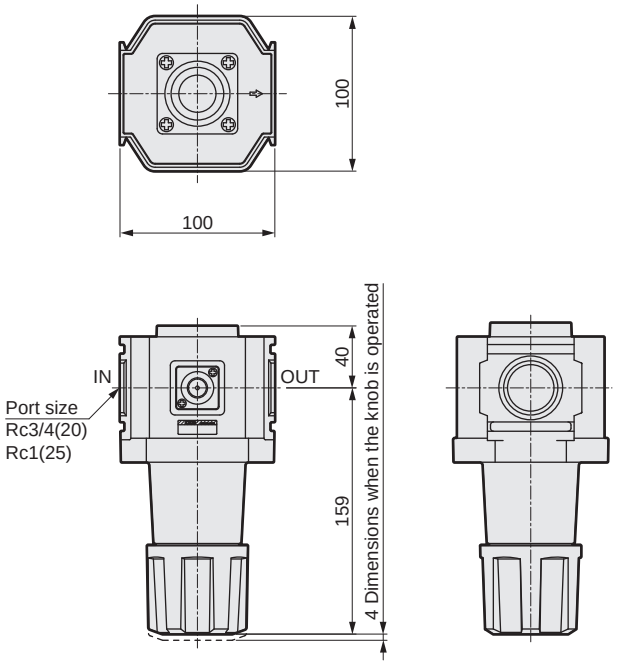


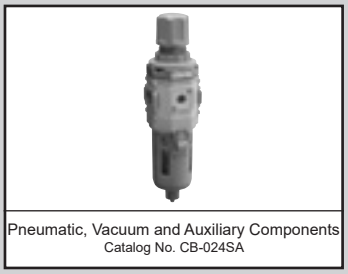
Dimensions CAD

●R6100-*-W-*P4-*



●R8100-*-W-*P4-*





Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Filter/Regulator

W1000/W2000/W3000/W4000/W8000-W Series

New series using 5 µm elements for dust removal, and 0.3 µm elements for tar removal.

● Port size: 1/8 to 1

JIS symbol 

Specifications

Item	W1000-W	W2000-W	W3000-W	W4000-W	W8000-W
Working fluid	Compressed air				
Max. working pressure MPa	1.0				
Proof pressure MPa	1.5				
Ambient/fluid temperatures °C	5 to 60				
Filtration rating µm	5		5 or 0.3		
Set pressure MPa	0.05 to 0.85	0.05 to 0.85			
Pressure relief	With relief mechanism (W1000, W8000 are non-relief only)				
Drain capacity cm^3	12	25	45	80	80 (Note)
Port size Rc	1/8, 1/4 (3/8 uses an adaptor)	1/4, 3/8 (1/2 uses an adaptor)	1/4, 3/8	1/4, 3/8,1/2 (3 /4 uses an adaptor)	3 /4, 1 (1 1/4uses an adaptor)
Weight kg	0.175	0.40	0.65	1.0	2.0
Standard accessories	Bowl guard				

Note: The max. capacity of the manual drain cock is 170cm^3.

Compatibility table by variation

	W1000-W	W2000-W	W3000-W	W4000-W	W8000-W
Port size	Rc1/8, 1/4	Rc1/4, 3/8	Rc1/4, 3/8	Rc1/4, 3/8,1/2	Rc3/4,1
P4	●	●	●	●	●
P40		▲	▲	▲	

●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable

*1: Pressure gauge/pressure sensor must be ordered separately. (Pressure gauge option is "T", "T8", "T6" only)
*2: Auto-drain is not available.
*3: Metal bowl is not available.
*4: R1 option is not available.
*5: For pressure adjustment springs without gas contact and pressure adjustment screw units in P40, zinc plating is used.
*6: R2 option is not available.
*7: For W1000 and W8000, only non-relief (option code: N) is available.
*8: W3000 to W8000 uses zinc die-casting in the diaphragm part.
*9: Y element is not available for P40.

How to order

W1000 - 6 - W - NT P4/P40 - A6W

Ⓐ Model No.
Ⓑ Port size
Ⓒ Option
Ⓓ Pipe adaptor setG (Attachment)
Ⓔ Attachment (Included)

* Refer to "Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA) for options.

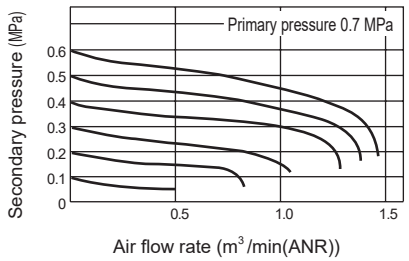
Code		Description	Ⓐ Model No. W1000	W2000	W3000	W4000	W8000
Ⓑ Port size							
6		Rc1/8	●				
8		Rc1/4	●	●	●	●	
10		Rc3/8		●	●	●	
15		Rc1/2				●	
20		Rc3/4					●
25		Rc1					●
Ⓒ Option							*1
Drain discharge	**Blank**	Manual drain cock	●	●	●	●	●
Bowl material	**Blank**	Polycarbonate bowl	●	●	●	●	●
	Z	Nylon bowl	●	●	●	●	●
Element *5	**Blank**	5 μm	●	●	●	●	●
	Y	0.3 μm (submicron)			●	●	●
Pressure range	Blank	0.05 to 0.85 MPa	●	●	●	●	●
	L	0.05 to 0.35 MPa	●	●	●	●	●
Pressure relief	Blank	With relief mechanism		●	●	●	
	N	Non-relief	●	●	●	●	●
Pressure gauge	T	Pressure gauge port (1/4) is assembled sealed	●	●	●	●	●
	T8	Pressure gauge port (1/4) is left open	●	●	●	●	●
	T6	Pressure gauge port (1/8) is left open	●	●	●	●	●
Flow Direction	Blank	Standard flow (left → right)	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●
Ⓓ Pipe adaptor set (attachments)							*2, *3
Blank		Not included	●	●	●	●	●
A6*W		1/8 pipe adaptor set	●				
A8*W		1/4 pipe adaptor set	●	●	●	●	
A10*W		3/8 pipe adaptor set	●	●	●	●	
A15*W		1/2 pipe adaptor set		●	●	●	
A20*W		3/4 pipe adaptor set				●	●
A25*W		1 pipe adaptor set					●
A32*W		1 1/4 pipe adaptor set					●
Ⓔ Attachment							Page 491
Blank		Not included	●	●	●	●	●
BW		C-bracket	●	●	●	●	●
B3W		L-bracket *4	●	●	●	●	

⚠ Precautions for model No. selection

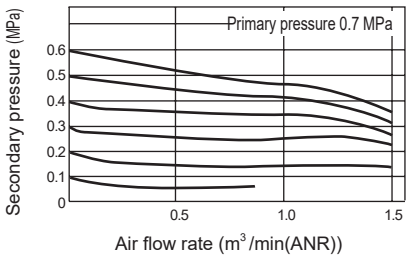
*1: Select options for drainage, bowl material, element, and regulator sections. When selecting options for several items, list options in order from the top.
*2: The pipe adaptor set and C-bracket cannot be used together.
*3: The joiner set is included with the pipe adapter set.
*4: For details on mounting the L-bracket, refer to 2. Regulator of "⚠ Cautions and Installation & Adjustment" described in the "Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA).
*5: Y element is not available for P40.

Flow characteristics

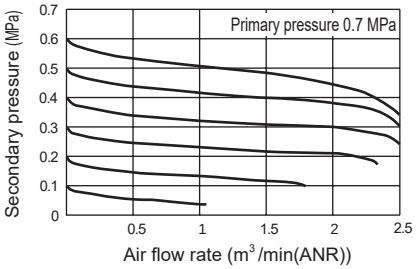
● W1000-6-W



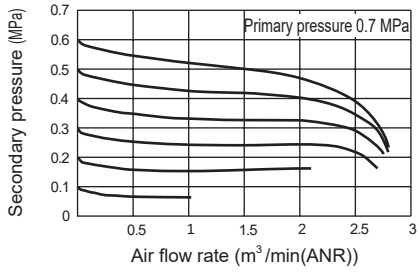
● W1000-8-W



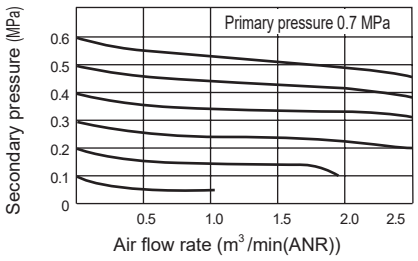
● W2000-8-W



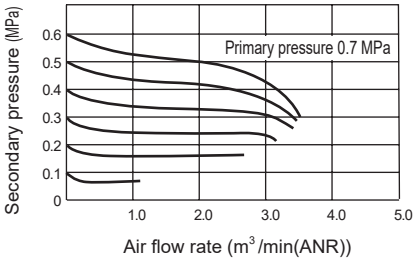
● W2000-10-W



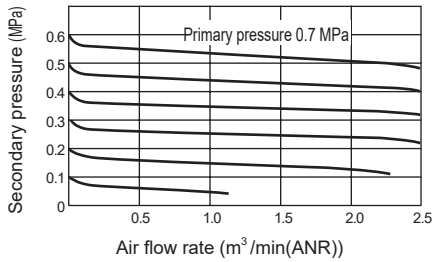
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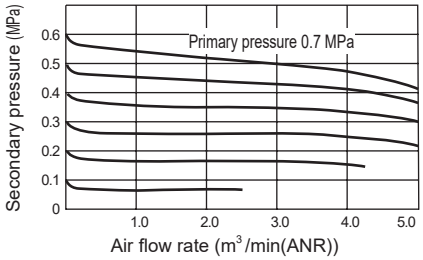
● W3000-10-W



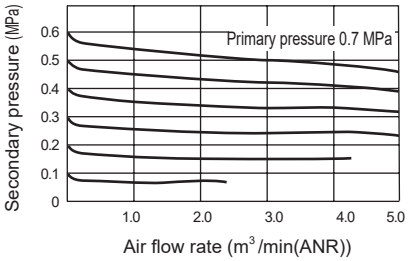
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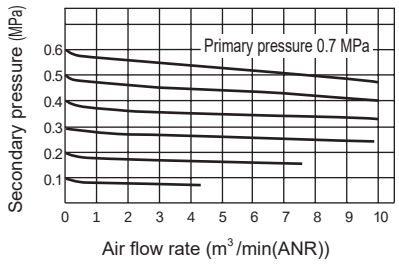
● W4000-10-W



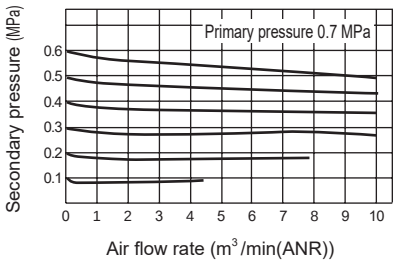
● W4000-15-W



● W8000-20-W

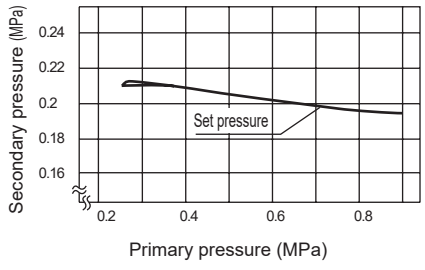


● W8000-25-W

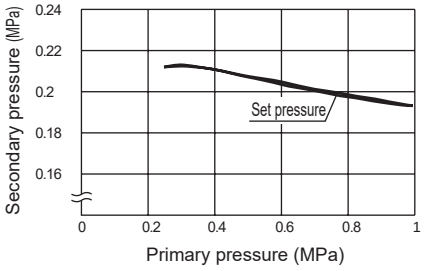


Pressure characteristics

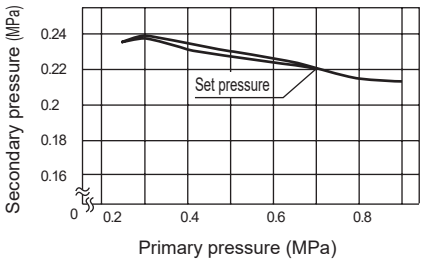
● W1000-W



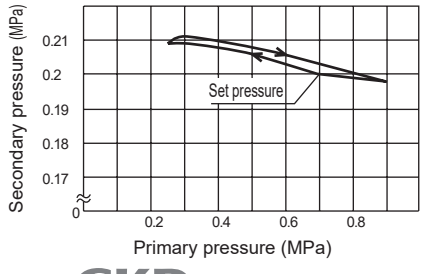
● W2000-W



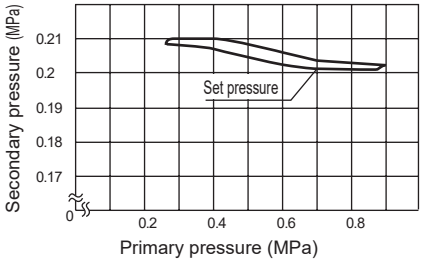
● W3000-W



● W4000-W

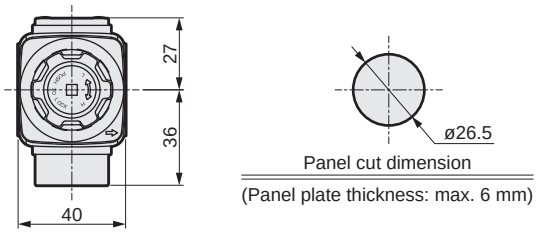


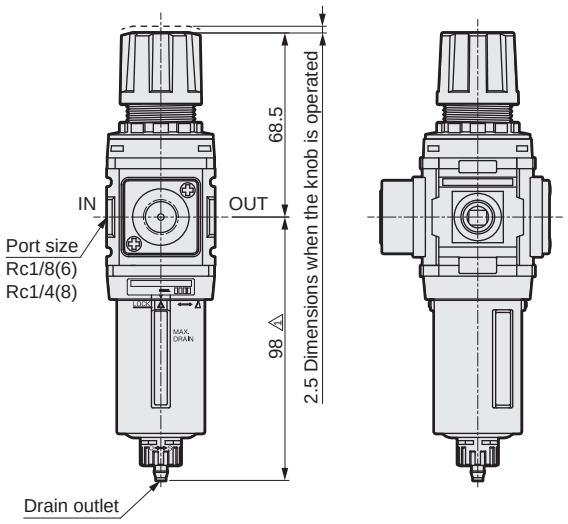
● W8000-W



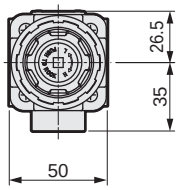
Dimensions CAD

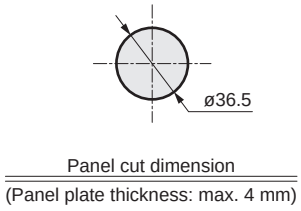
●W1000-*-W-*P4-*

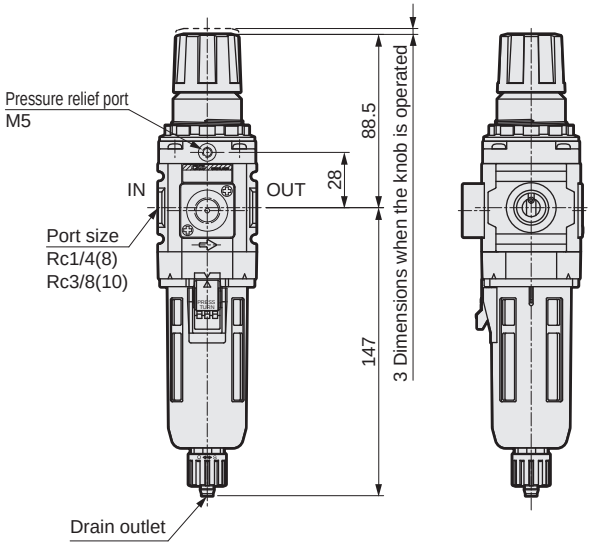




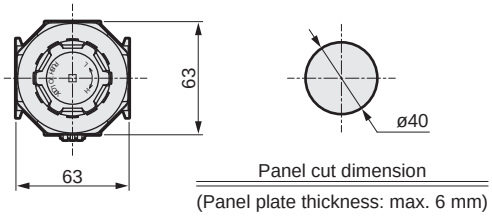
●W2000-*-W-*P4-*

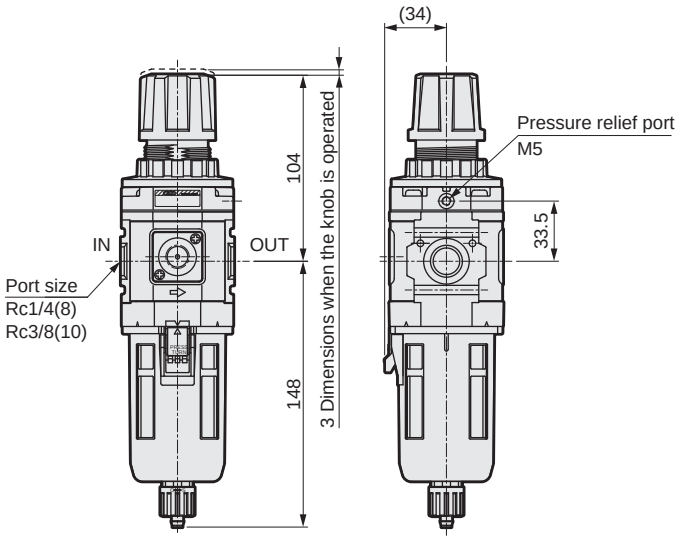






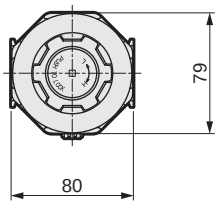
●W3000-*-W-*P4-*

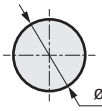




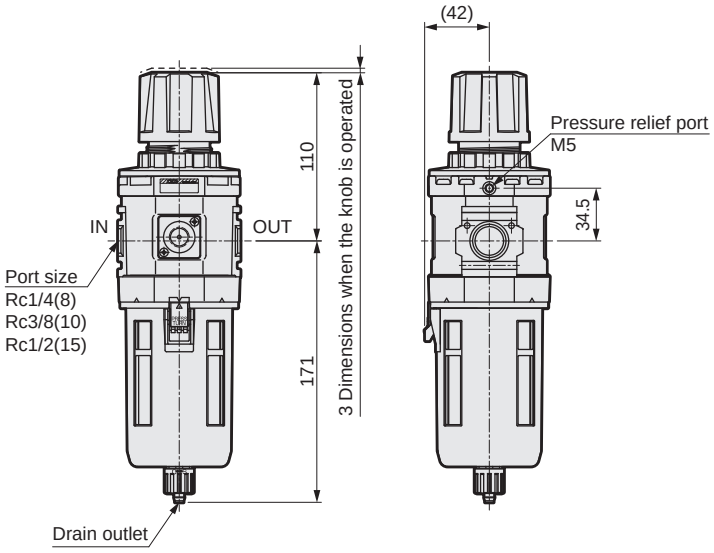
Dimensions CAD

●W4000-*-W-*P4-*

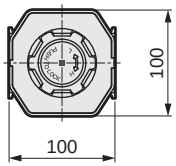


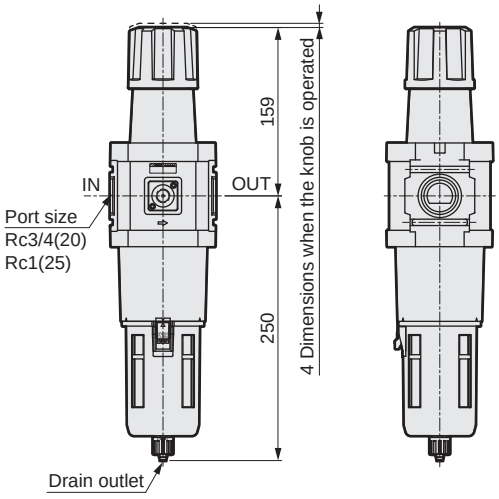


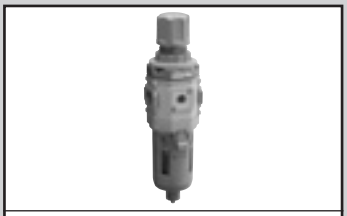
Panel cut dimension
(Panel plate thickness: max. 4 mm)



●W8000-*-W-*P4-*







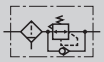
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Reverse filter/regulator

W1100/W2100/W3100/W4100/W8100-W Series

Introducing the 5 µm dust removing element and 0.3 µm tar removing element with reverse flow function to the lineup.

● Port size: 1/8 to 1

JIS symbol 

RoHS

Specifications

Item	W1100-W	W2100-W	W3100-W	W4100-W	W8100-W
Working fluid	Compressed air				
Max. working pressure MPa	1.0				
Proof pressure MPa	1.5				
Ambient/fluid temperatures °C	5 to 60				
Filtration rating µm	5		5 or 0.3		
Set pressure MPa	0.05 to 0.85	0.05 to 0.85			
Pressure relief	With relief mechanism (W1100, W8100 are non-relief only)				
Drain capacity cm^3	12	25	45	80	80 (*1)
Port size Rc	1/8, 1/4 (3/8 uses an adaptor)	1/4, 3/8 (1/2 uses an adaptor)	1/4, 3/8	1/4, 3/8,1/2 (3 /4 uses an adaptor)	3 /4, 1 (1 1/4uses an adaptor)
Weight kg	0.175	0.40	0.65	1.0	2.0
Standard accessories	Pressure gauge and bowl guard				

*1: Up to 170cm^3 is stored with the manual drain cock only.
*2: Check that the primary pressure is at least 0.05 MPa more than the secondary pressure.
*3: Refer to the set pressure range for the back pressure given on page 485 when selecting the model.

Compatibility table by variation

	W1100-W	W2100-W	W3100-W	W4100-W	W8100-W
Port size	Rc1/8, 1/4	Rc1/4, 3/8	Rc1/4, 3/8	Rc1/4, 3/8,1/2	Rc3/4,1
P4	●	●	●	●	●
P40		▲	▲	▲	

●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable

*1: Pressure gauge/pressure sensor must be ordered separately. (Pressure gauge option is "T", "T8", "T6" only)
*2: Auto-drain is not available.
*3: Metal bowl is not available.
*4: R1 option is not available.
*5: For pressure adjustment springs without gas contact and pressure adjustment screw units in P40, zinc plating is used.
*6: R2 option is not available.
*7: For W1100 and W8100, only non-relief (option code: N) is available.
*8: W3100 to W8100 uses zinc die-casting in the diaphragm part.
*9: Y element is not available for P40.

How to order

W1100 – 6 – W – NT – P4 / P40 – A6W [ ]

Ⓐ Model No.
Ⓑ Port size
Ⓒ Option
Ⓓ Pipe adaptor set (included)
Ⓔ Attachment (Attachment)

* Refer to "Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA) for options.

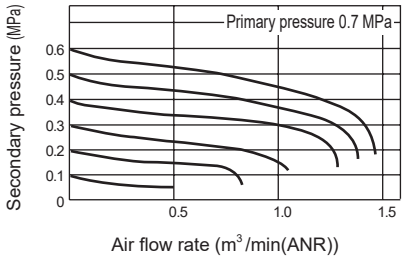
Code		Description	Ⓐ Model No. W1100	W2100	W3100	W4100	W8100
Ⓑ Port size							
6		Rc1/8	●				
8		Rc1/4	●	●	●	●	
10		Rc3/8		●	●	●	
15		Rc1/2				●	
20		Rc3/4					●
25		Rc1					●
Ⓒ Option							*1, *2
Drain discharge	Blank	Manual drain cock	●	●	●	●	●
Bowl material	Blank	Polycarbonate bowl	●	●	●	●	●
	Z	Nylon bowl	●	●	●	●	●
Element	Blank	5 µm	●	●	●	●	●
	Y	0.3 (submicron) *6			●	●	●
Pressure Range	Blank	0.05 to 0.85 MPa	●	●	●	●	●
	L	0.05 to 0.35 MPa	●	●	●	●	●
Pressure relief	Blank	With relief mechanism		●	●	●	
	N	Non-relief	●	●	●	●	●
Pressure gauge	T	Pressure gauge port (1/4) is assembled sealed	●	●	●	●	●
	T8	Pressure gauge port (1/4) is left open	●	●	●	●	●
	T6	Pressure gauge port (1/8) is left open	●	●	●	●	●
Flow direction	Blank	Standard flow (left → right)	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●
Ⓓ Pipe adaptor set (attachments)							*3, *4
Blank		Not included	●	●	●	●	●
A6*W		1/8 pipe adaptor set	●				
A8*W		1/4 pipe adaptor set	●	●	●	●	
A10*W		3/8 pipe adaptor set	●	●	●	●	
A15*W		1/2 pipe adaptor set		●	●	●	
A20*W		3/4 pipe adaptor set				●	●
A25*W		1 pipe adaptor set					●
A32*W		1 1/4 pipe adaptor set					●
Ⓔ Attachment							Page 491
Blank		Not included	●	●	●	●	●
BW		C-bracket	●	●	●	●	●
B3W		L-bracket *5	●	●	●	●	

⚠ Precautions for model No. selection

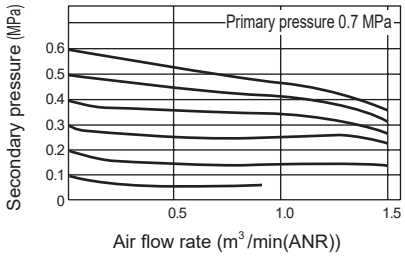
*1: Select options for drainage, bowl material, element, and regulator sections. When selecting options for several items, list options in order from the top.
*2: **Positions of check valve and pressure gauge cannot be changed. If the IN and OUT directions must be reversed, indicate "X1" at the end of the option field.**
*3: The pipe adaptor set and C-bracket cannot be used together.
*4: The joiner set is included with the pipe adapter set.
*5: For mounting the L-bracket, refer to "Pneumatic, Vacuum and Auxiliary Components" (Catalog No. CB-024SA) Refer to Section 2. Regulator of "⚠ CAUTION for Installation and Adjustment".
*6: Y element is not available for P40.

Flow characteristics

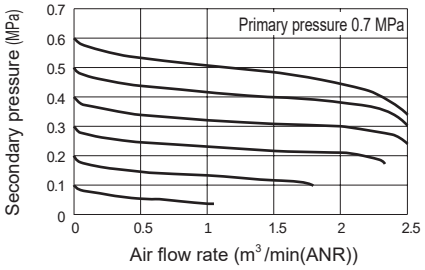
● W1100-6-W



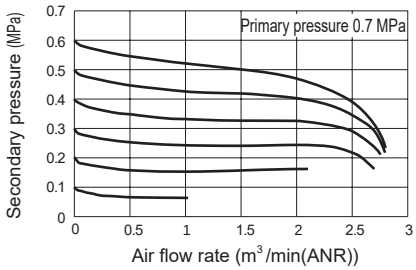
● W1100-8-W



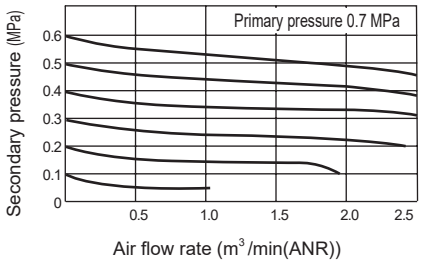
● W2100-8-W



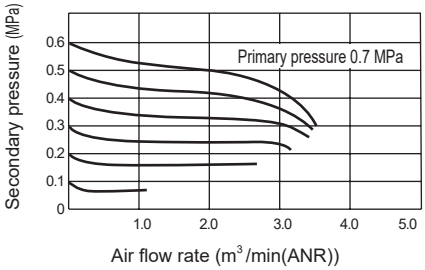
● W2100-10-W



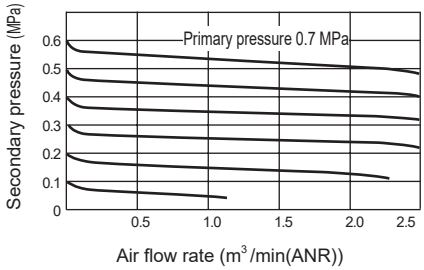
● W3100-8-W



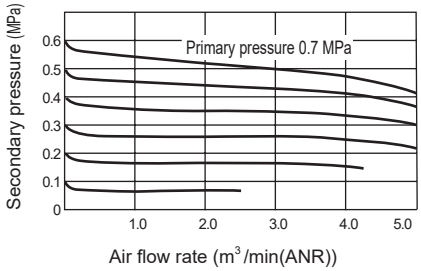
● W3100-10-W



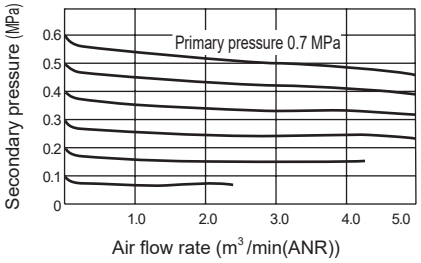
● W4100-8-W



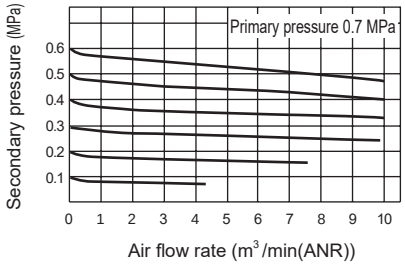
● W4100-10-W



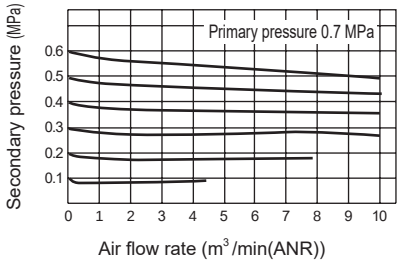
● W4100-15-W



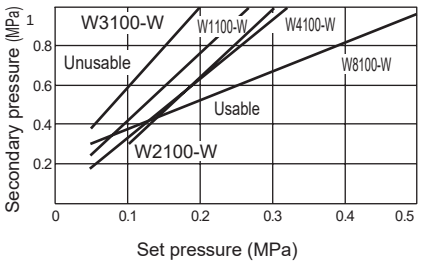
● W8100-20-W



● W8100-25-W



● Set pressure range to back pressure

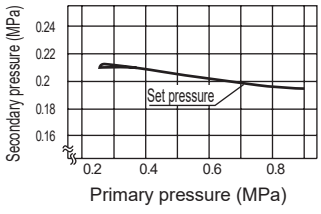


Note: The area above the graph line shows the unusable range and that below the graph line shows the usable range.

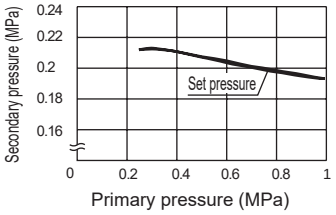
Example: If the set pressure of W4100-W is set to 0.2MPa and the secondary back pressure is set to 0.6MPa or more, the secondary side pressure will not be released to the primary side.

Pressure characteristics

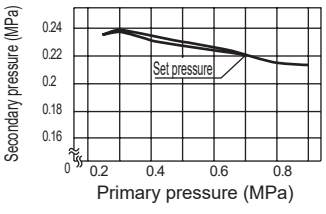
● W1100-W



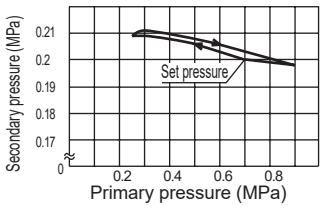
● W2100-W



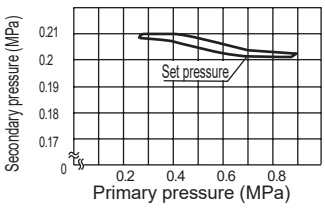
● W3100-W



● W4100-W

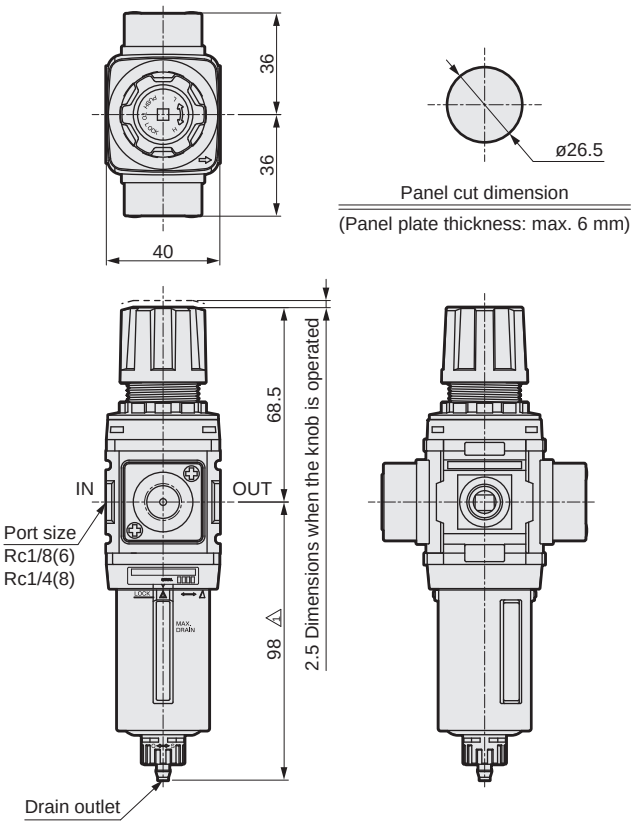


● W8100-W

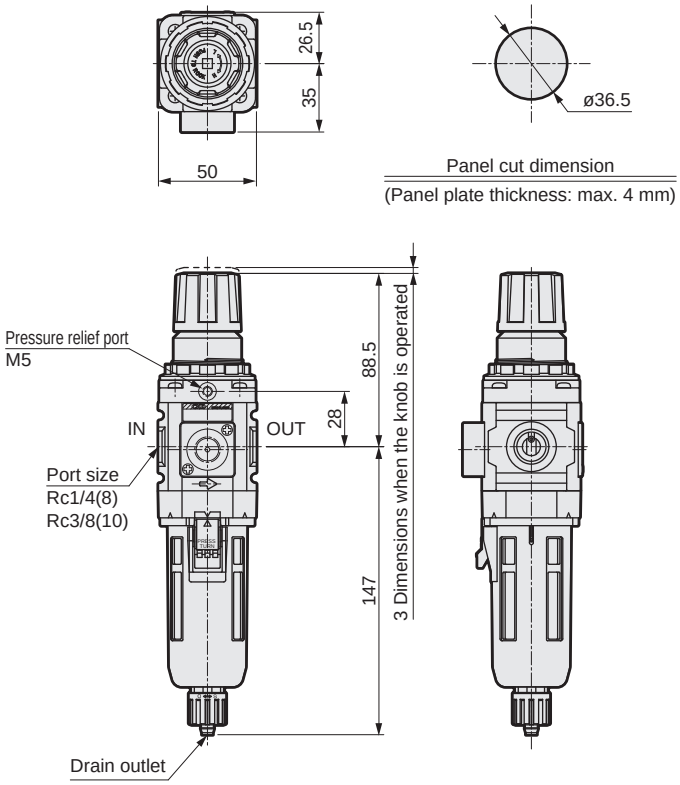


Dimensions CAD

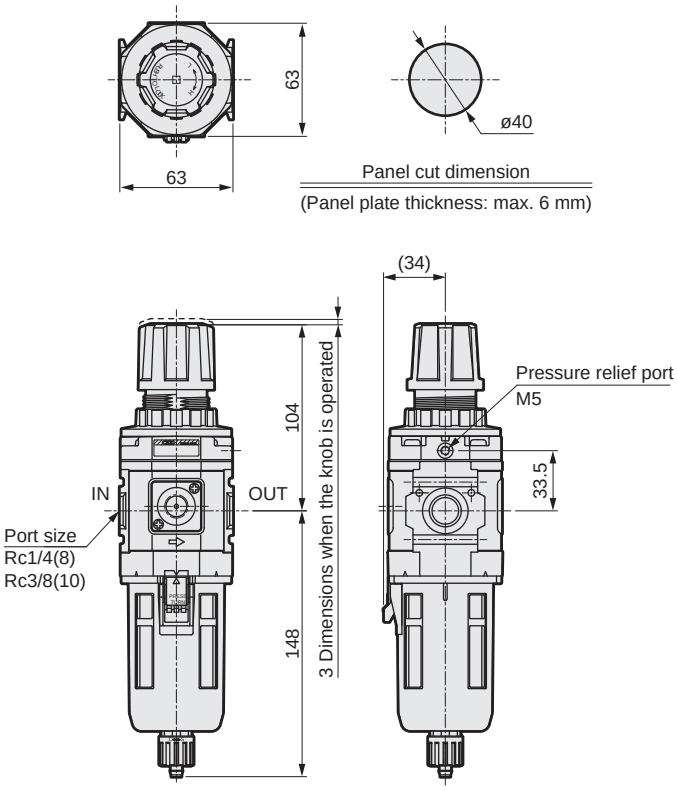
●W1100-*-W-*P4-*



●W2100-*-W-*P4-*

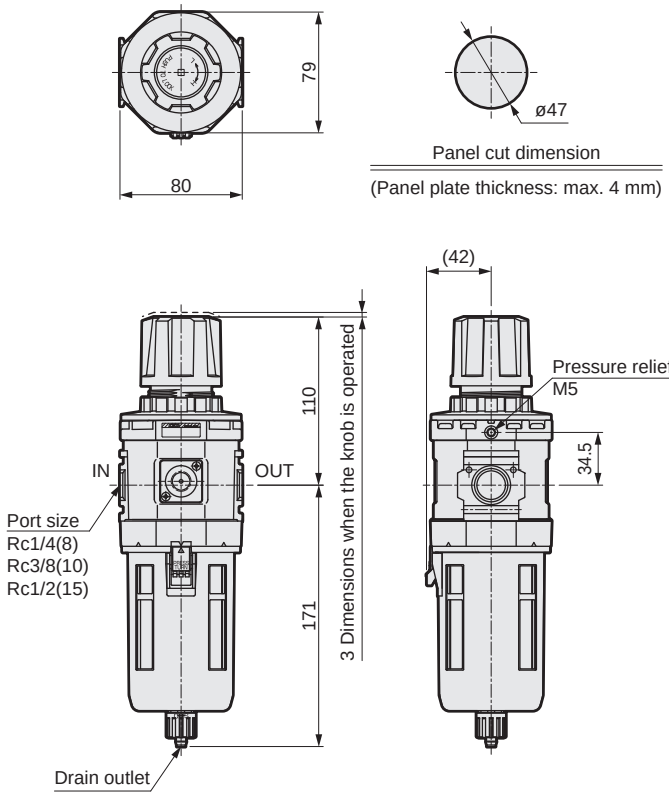


●W3100-*-W-*P4-*

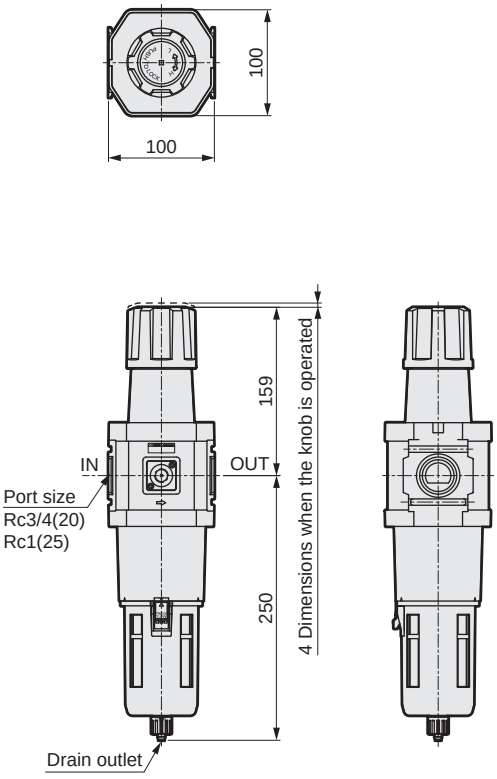


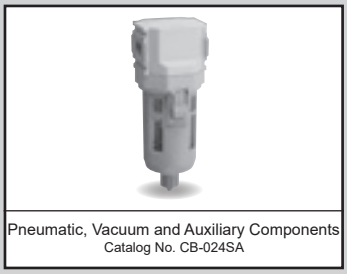
Dimensions

●W4100-*-W-*P4-*



●W8100-*-W-*P4-*



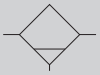


Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Drain separator FX Series

FX Series

With no need for element, 99% water separation efficiency is achieved

JIS symbol 

RoHS

Overview

The cyclone effect causes water droplets in the compressed air to strike the inner wall of the bowl; this gathers and enlarges them, removing 99% or more of the moisture. Ideal for easy drainage from air piping.

Features

- Lightweight compact drain separator
- Water separation efficiency 99%
- Compatible compressor 0.75kW to 37kW
- Modular connection of FX1004 and FX1011 to F.R.L. 3000 and 4000 Series and FX1037 to 6000 and 8000 Series is possible.

Specifications

Item		FX1004	FX1011	FX1037
Working fluid		Compressed air		
Working pressure	MPa	0.1 to 1.0		
Proof pressure	MPa	1.5		
Ambient/fluid temperatures	°C	5 to 60		
Water separation efficiency	%	99 *2		
Max. processing flow rate *1	L/min (ANR)	550	1800	6100
Port size	Rc	1/4, 3/8	1/4, 3/8, 1/2	3/4, 1
Product weight	kg	0.3	0.5	1.2

*1: At inlet pressure 0.7 MPa.
*2: Water separation efficiency during max. processing flow rate. (Evaporated water droplets (water vapor) cannot be separated)

Compatibility table by variation

	FX1004	FX1011	FX1037
Port size	Rc1/4, 3/8	Rc1/4, 3/8, 1/2	Rc3/4, 1
P4	●	●	●
P40	▲	▲	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details.
▭: Not applicable

*1: Auto-drain is not available.
*2: Metal bowl is not available.

How to order

FX1004 - **8** - **W** - **Z** - **P4 P40** - **BW**

Ⓐ Model No.
Ⓑ Port size
Ⓒ Option
Ⓓ Attachment

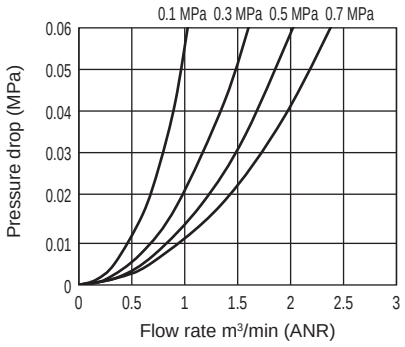
Code		Description	Ⓐ Model No. FX1004	FX1011	FX1037
Ⓑ Port size					
8		Rc1/4	●	●	
10		Rc3/8	●	●	
15		Rc1/2		●	
20		Rc3/4			●
25		Rc1			●
Ⓒ Option *1					
Drain discharge	**Blank**	Manual drain cock	●	●	●
Bowl material	**Blank**	Polycarbonate bowl	●	●	●
	Z	Nylon bowl	●	●	●
Flow direction	**Blank**	Standard flow (left → right)	●	●	●
	X1	Reverse flow (right → left)	●	●	●
Ⓓ Other attachments *2, *3					
Blank		Not included	●	●	●
A8*W		1/4 pipe adaptor set	●	●	
A10*W		3/8 pipe adaptor set	●	●	
A15*W		1/2 pipe adaptor set	●	●	
A20*W		3/4 pipe adaptor set		●	●
A25*W		1 pipe adaptor set			●
A32*W		1 1/4 pipe adaptor set			●
BW		C-bracket	●	●	●

⚠ Precautions for model No. selection

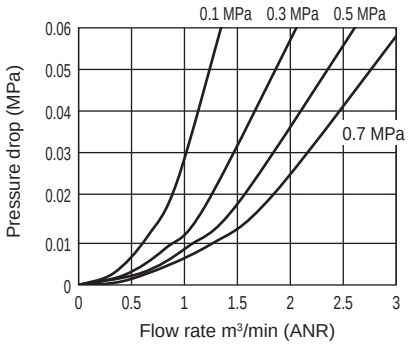
*1: Select options for the bowl material and flow direction Items. When selecting options for several items, list options in order from the top.
*2: The pipe adaptor set and C-bracket cannot be used together.
*3: The joiner set is included with the pipe adapter set.

Flow characteristics

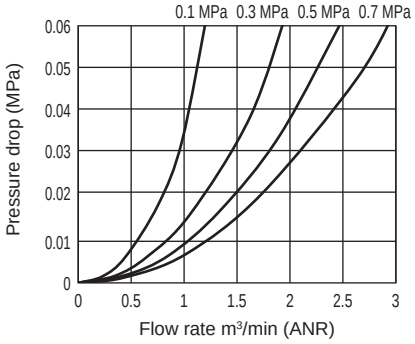
● FX1004-8-W



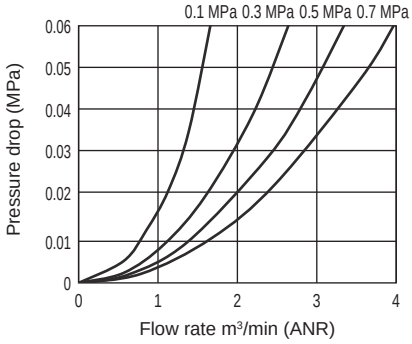
● FX1004-10-W



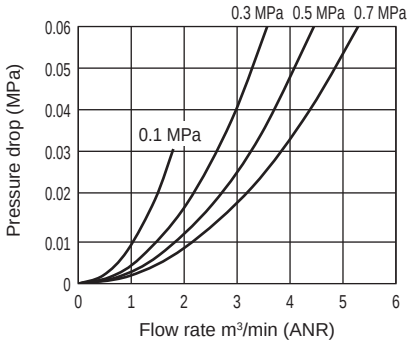
● FX1011-8-W



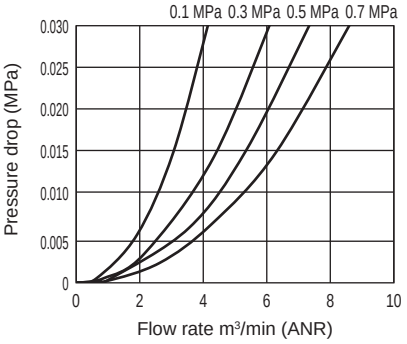
● FX1011-10-W



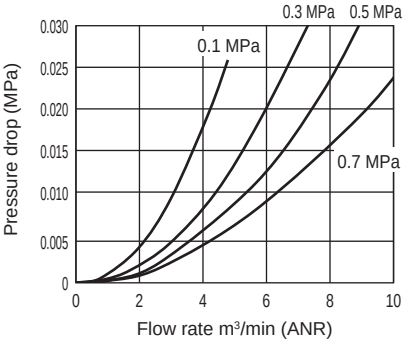
● FX1011-15-W



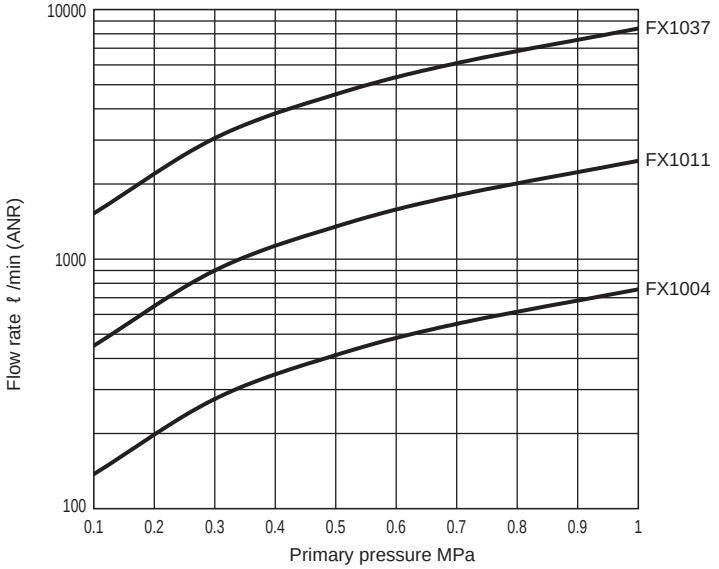
● FX1037-20-W

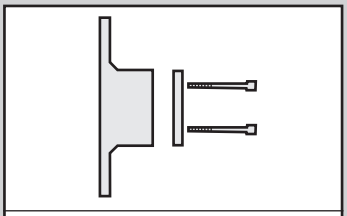


● FX1037-25-W



Max. processing flow rate





Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

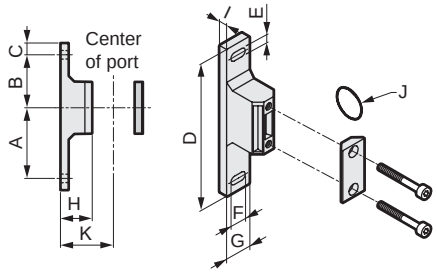
Bracket
B-W/B Series
Joiner
J-W Series

P4 compliant as standard

CAD RoHS

Dimensions and applications

T-bracket set



・Material: Polyamide resin (B110-W)
Aluminum alloy die-casting (B310 to B810-W)
Painting (B310 to B810-W)

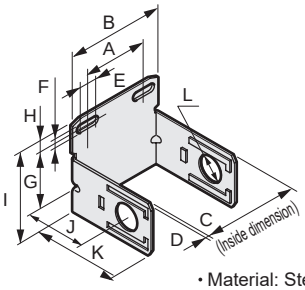
● Model No.: B110-W/B310-W/B410-W/B810-W
● Applications



Note:Select B410-W when using the 3000-W Series and 4000-W Series combined.

Model No.	Compatibility	A	B	C	D	E	F	G	H	I	J	K	Weight (kg)
B110-W	1000 Series	45	35	10	100	5.5	7.5	16	25	7.5	JASO-2013	40	0.024
B310-W	2000 Series 3000 Series	60	45	10	125	7	14	22	27	7	JISB2401-P21	45	0.086
B410-W	4000 Series	60	45	10	125	7	14	22	37	7	JISB2401-P21	55	0.094
B810-W	6000 Series 8000 Series	70	50	15	150	9	14	27	37	8	AS568-127	65	0.169

C-bracket



・Material: Steel
Zinc plated

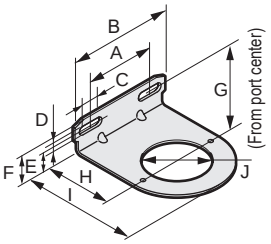
● Applications



● Model No.:B120/B220/B320/B420/B620/B820
● Attachment: BW

Model No.	Compatibility	A	B	C	D	E	F	G	H	I	J	K	L	Weight (kg)
B120	1000 Series	44	68	40	t2.0	10	6.5	35	8.5	61.5	40	60	ø19.5	0.1
B220	2000 Series	28	54	50	t2.3	10	7	33	8	63	45	69	17.3	0.15
B320	3000 Series	34.5	67	63	t2.3	16.5	7	45	8.5	75.5	45	69	ø21.7	0.17
B420	4000 Series	55	84	80	t2.3	14.0	7	45	8.5	75.5	55	79	ø21.7	0.21
B620	6000 Series	68	104	90	t2.3	16	9	54	11	97.5	60	97	ø35	0.34
B820	8000 Series	68	104	100	t2.3	16	9	50	11	93.5	65	102	ø35	0.36

L-bracket



・Material: Steel
Zinc plated

● Applications

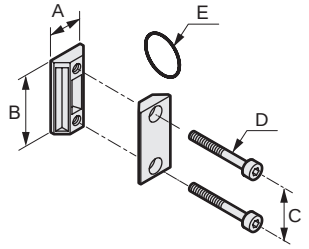


● Model No.: B130/B230/B330/B430
● Attachment: B3W

Loosen the mounting nut to remove the knob. After inserting the L-bracket, fix it by the mounting nut. Press the knob in manually after fixing.

Model No.	Compatibility	A	B	C	D	E	F	G	H	I	J	Other	Weight (kg)
B130	1000 Series	44	68	10	6.5	16	24.5	45	40	59	ø26.5		0.04
B230	2000 Series	28	54	10	7	18	26	52	45	69	38		0.06
B330	3000 Series	34.5	67	16.5	7	17.5	26	58 (63.5)	45	76	ø40	Values in ( ) are for W3000/3100	0.07
B430	4000 Series 6000 Series	55	84	14	7	17.5	26	58	55	94	ø47		0.11

Joiner set



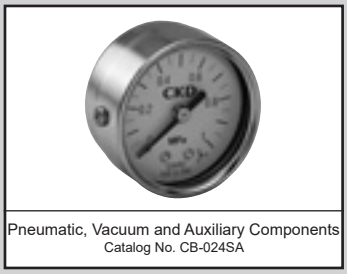
・Material: Polyamide resin (J100-W)
Aluminum alloy die-casting (J400 to J800-W)
Painting (J400, J800-W)

● Applications



● Model No.: C1000-J100-W
C4000-J400-W
C8000-J800-W

Model No.	Compatibility	A	B	C	D	E	Weight(kg)	
C1000-J100-W	1000 Series	10	36	26	M3.5	JAS0-2013	0.011	
C4000-J400-W	2000 Series 3000 Series 4000 Series	21	44	32	M5	JIS B2401-P21	0.036	
C8000-J800-W	6000 Series 8000 Series	26	65	50	M6	AS568-127	0.094	



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

General-use pressure gauge

G41D/G49D/G59D Series

●Port size:R1/8, R1/4

JIS symbol 

RoHS CAD

Specifications

Item		G49D	G59D	G41D
Working fluid		Liquid or gas (non-corrosive)		Compressed air
Fluid temperature °C		5 to 60		
Ambient temperature °C		5 to 60		
Accuracy		JIS3 or equivalent (±3%F.S) *1		
Shape		DT type (rear side screw, stock section square)		
Display size		ø42	ø52	ø42
Material	Stock/Bourdon tube	Stainless steel		
	Housing	Steel plate + chrome plating		Stainless steel
	Lens	Glass		Polycarbonate resin
Pressure range MPa		0 to 0.2 0 to 0.4 0 to 1.0 0 to 2.0		0 to 0.2 0 to 0.4 0 to 1.0
Port size R		1/8	1/4	1/8, 1/4
Weight g		90	140	82

*1: The guaranteed indicator accuracy temperature is 20±15°C.

How to order

G49D - 6 - P02 - P4

- Ⓐ Model No.
- Ⓑ Port size
- Ⓒ Pressure display

Code	Description	Ⓐ Model No. G41D	G49D	G59D
Ⓑ Port size				
6	R 1/8	●	●	
8	R 1/4	●		●
Ⓒ Pressure display				
P02	0 To 0.2 MPa	●	●	●
P04	0 To 0.4 MPa	●	●	●
P10	0 To 1.0 MPa	●	●	●
P20	0 To 2.0 MPa		●	●

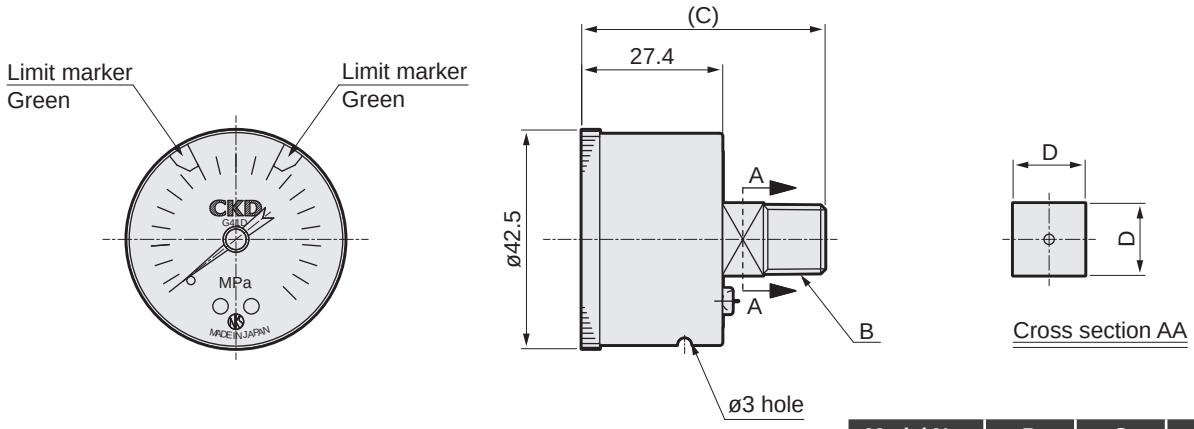
Compatibility table by variation

	G41D	G49D	G59D
	Display ø42 with limit marker	Display ø42	Display ø52
Port size	R1/8, 1/4	R 1/8	1/4
P4	●	●	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

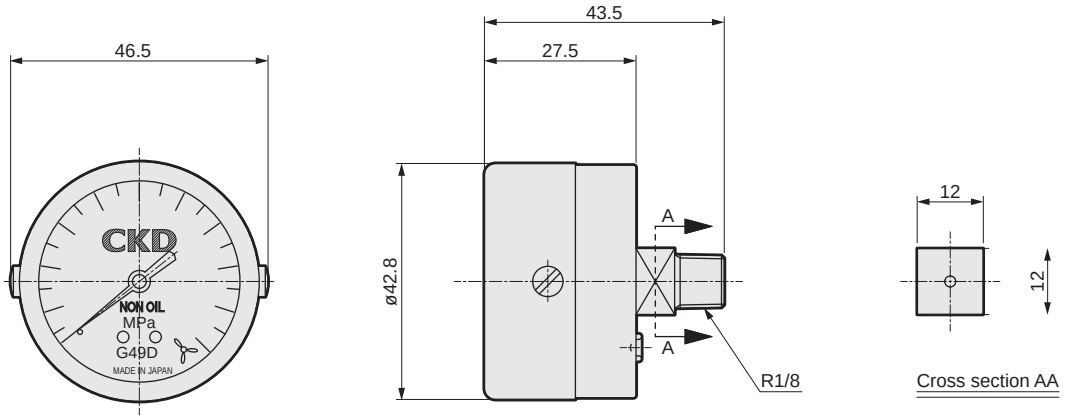
Dimensions CAD

●G41D-*-*-P4

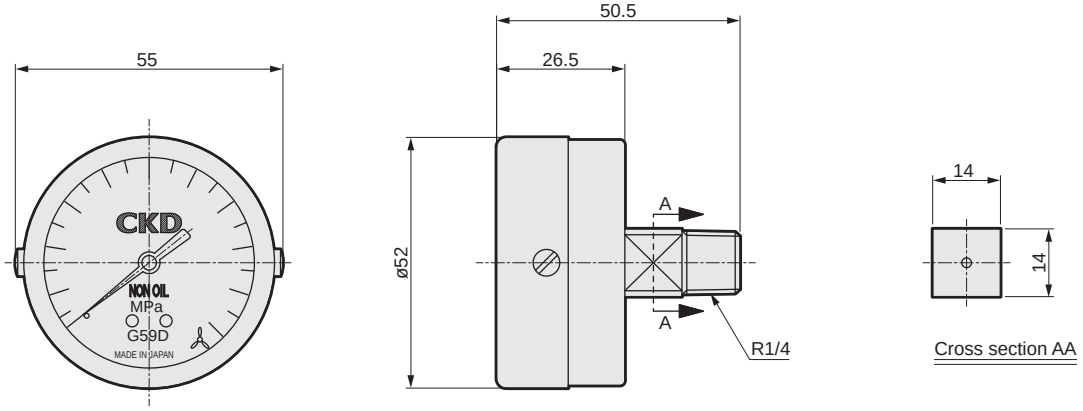


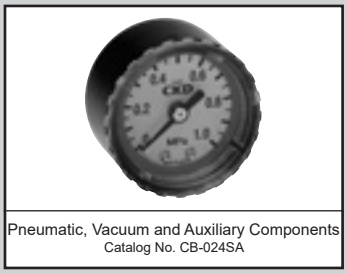
Model No.	B	C	D
G41D-6-P4	R 1/8	45.3	14
G41D-8-P4	R 1/4	47.3	14

●G49D-6-*-P4



●G59D-8-*-P4





Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Pressure gauge with safety marker

G40D Series

Easy visual inspection control due to green and red zone display.

●Port size: R1/8

JIS symbol 

RoHS CAD

Specifications

Item	G40D	
	P10	P04
Working fluid	Compressed air	
Full scale MPa	1.0	0.4
Safety marker setting range MPa	0.15 to 1.0	0.06 to 0.4
Max. setting width MPa	0.45	0.18
Ambient temperature °C	5 to 60	
Fluid temperature °C	5 to 60	
Port size R	1/8	
Accuracy *1	Full scale ±3%	
Weight g	85	

*1: The guaranteed indicator accuracy temperature is 20±15°C.

Compatibility table by variation

	G40D
	Display ø42.5 with safety marker
Port size	R 1/8
P4	●

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

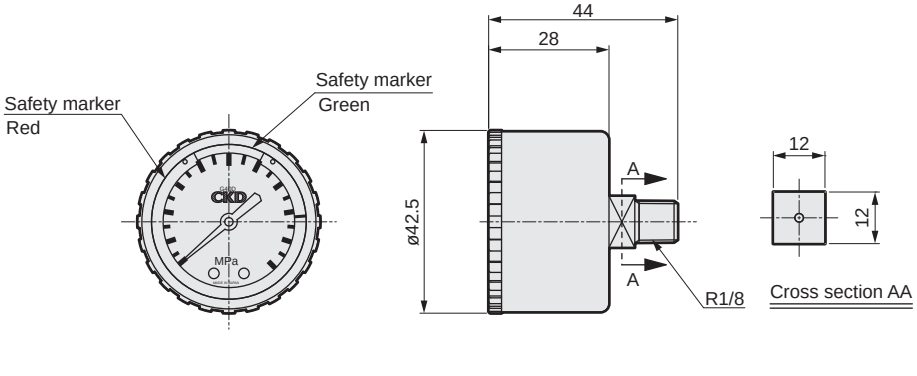
How to order

G40D - 6 - P10 - P4

- A Model No
- B Port size
- C Pressure display

Code	Description
A Model No.	
G40D	Pressure gauge with safety marker
B Port size	
6	R 1/8
C Pressure display	
P10	For 0 to 1.0 MPa
P04	For 0 to 0.4 MPa

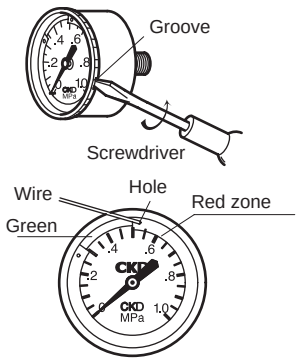
Dimensions and materials CAD



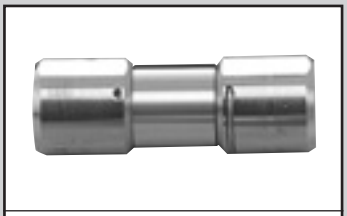
Part name	Material
Bourdon tube/stock	Stainless steel
Housing	Steel plate + paint
Lens	Polyamide resin
Mark	PBT resin

How to adjust pressure range

When removing the transparent face



Remove the transparent face and insert a needle into the hole in the red zone to move the red zone marker. After adjustment, always reattach the transparent face before supplying pneumatic pressure.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Inline clean filter

FCS500/FCS1000 Series

●Port size: Rc1/8, Rc1/4

JIS symbol



P4 compliant as standard

RoHS CAD

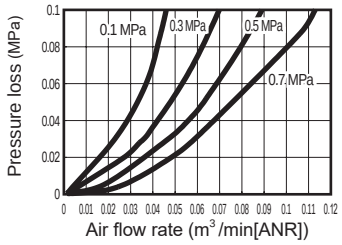
Specifications

Item		Stainless steel		Stainless steel (made to order)
		FCS500-66-P90 FCS500-66-P94	FCS500-88-P90 FCS500-88-P94	FCS1000-(*1) (*2)-P90 FCS1000-(*1) (*2)-P94
Working fluid		Compressed air, N_2		
IN side bore size (*1)		Rc1/8	Rc1/4	Select from Rc1/4 and Rc3/8
OUT side bore size (*2)		Rc1/8	Rc1/4	
Proof pressure MPa		2.25 (Compressed air), 1.5(N_2)		
Differential resistant pressure MPa		0.5		
Working pressure MPa		-0.095 to 1.5 (Compressed air), -0.095 to 0.99 (N_2)		
Ambient/fluid temperatures °C		5 to 45		
Degree of filtration µm		0.01 (Removal efficiency 99.99%)		
Processing flow rate ℓ/min (ANR) *1		50	80	300 to 400 *1
Weight g		100	100	500
Material	Body	Stainless steel		
	Case	Stainless steel		
	Element	Polypropylene + urethane		
Assembling/inspection/packaging		Integrated production in cleanroom		
Cleaning		Degreasing		

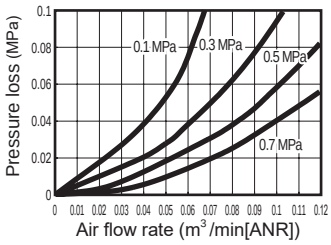
*1: Initial flow rate at primary pressure 0.7 MPa and pressure drop 0.03 MPa.
*2: Maximum working pressure varies with working temperature. Check graphs showing the relationship of working temperature and maximum working pressure.

Flow characteristics

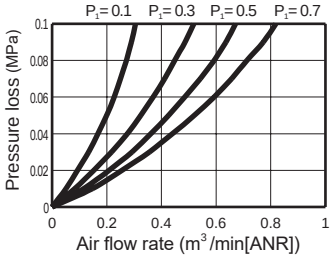
● FCS500-66-P90, P94



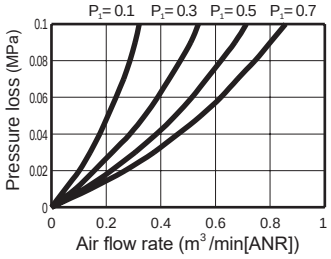
● FCS500-88-P90, P94



● FCS1000-88-P90, P94



● FCS1000-1010-P90, P94



● Stainless steel

FCS500 - 88 - B - P90

- FCS500: Model No. (Clean-room specifications) (oil-prohibited specifications)
- 88: Ⓐ Port size
- B: Ⓑ Attached
- P90: Ⓒ Clean-room specifications

Ⓐ Port size	
66	IN side/OUT side port size Rc1/8
88	IN side/OUT side port size Rc1/4

Ⓑ Attached	
Blank	No
B	Bracket, mounting screw

Ⓒ Clean-room specifications		
	Structure/treatment	Material restrictions
P90	Stainless steel material used Oil-free treatment	-
P94	Stainless steel material used Oil-free treatment	Use of copper-, silicon-, or halogen-based materials (e.g. fluorine, chlorine, or bromine) is not possible.

Note: " P94 " is made to order.

FCS1000 - 8 8 - P90

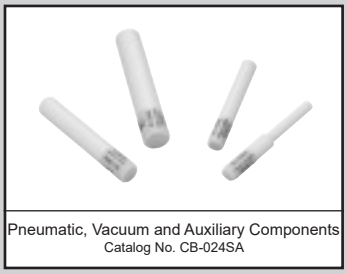
- FCS1000: Model No. (Clean-room specifications) (oil-prohibited specifications)
- 8: Ⓐ IN side port size
- 8: Ⓑ OUT side port size
- P90: Ⓒ Clean-room specifications

Ⓐ IN side port size	
8	Rc1/4
10	Rc3/8

Ⓑ OUT side port size	
8	Rc1/4
10	Rc3/8

Ⓒ Clean-room specifications		
	Structure/treatment	Material restrictions
P90	Stainless steel material used Oil-free treatment	-
P94	Stainless steel material used Oil-free treatment	Use of copper-, silicon-, or halogen-based materials (e.g. fluorine, chlorine, or bromine) is not possible.

Note: " P94 " is made to order.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Clean exhaust filter

FAC10 Series

●Port size: ø4, ø6, ø8, ø10

P4 compliant as standard

RoHS CAD

Specifications

Model No.	FAC10-4P	FAC10-6P	FAC10-8P	FAC10-10P
Working fluid	Compressed air			
Max. working pressure MPa	0.1			
Min. working pressure MPa	0			
Proof pressure MPa	0.3			
Ambient/fluid temperatures °C	5 to 45			
Port size	ø4	ø6	ø8	ø10
Weight g	2			3
Degree of filtration µm	0.01 (removal efficiency 99.99% and over)			
Secondary side cleanliness	100% removal of 0.1 µm or larger particles *1			
Max. processing flow rate ℓ/min (ANR)	4	10	20	35

*1: Maximum processing flow rate for measurement, or 28.3 ℓ/min (ANR) when the maximum processing flow rate is 28.3 ℓ/min. (ANR) or more

How to order

FAC10 - 4P

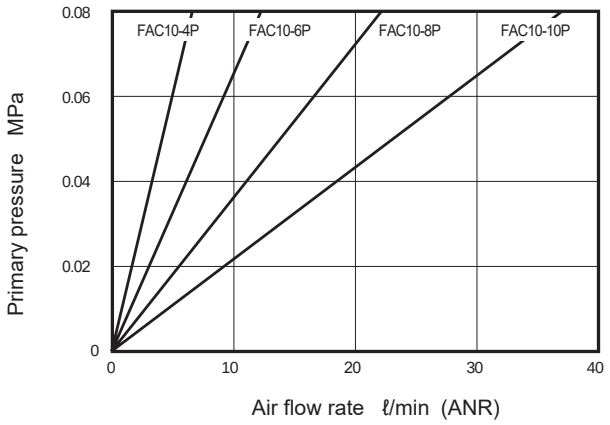
Ⓑ Port size

Code	Description
Ⓑ **Port size**	
4P	ø4
6P	ø6
8P	ø8
10P	ø10

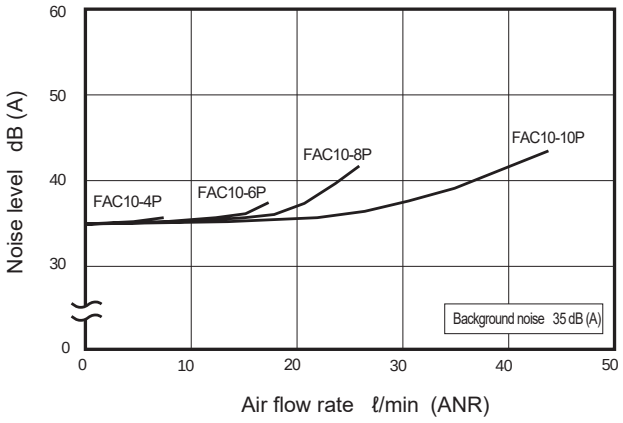
Compatibility table by variation

	FAC10
Port size	ø4 to ø10
P4	Standard compliance

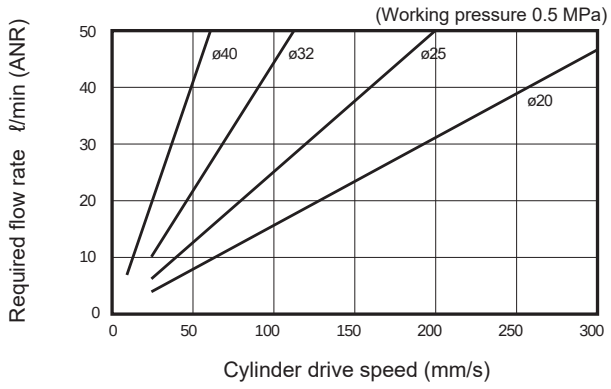
Flow characteristics



Noise level

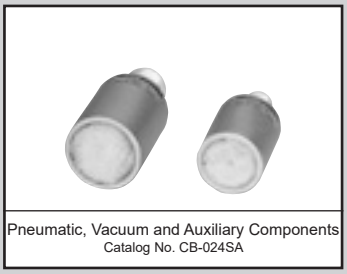


Selection guide



The clean exhaust filter model is selected based on the working circuit's required flow rate.
(1)Calculate the required flow rate for the actuator being used.
(2)Multiply the calculated required flow rate by 1.4.
(3)Select a model having a processing flow rate exceeding the required flow rate multiplied by 1.4.

The above graphs show the required flow rate multiplied by 1.4 for each air cylinder size. Use this graph to select a model.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Clean exhaust filter

FAC100/FAC200 Series

● Port size: R1/8, R1/4, R3/8, R1/2

P4 compliant as standard

RoHS CAD

Specifications

Model No.	FAC100	FAC200
Working fluid	Compressed air	
Max. working pressure MPa	0.1	
Min. working pressure MPa	0	
Proof pressure MPa	0.3	
Ambient/fluid temperatures °C	5 to 40	
Port size	R1/8, R1/4	R 3/8, R1/2
Weight g	65	85
Degree of filtration µm	0.01 (removal efficiency 99.99% and over)	
Secondary side cleanliness	100% removal of 0.1 µm or larger particles *1	
Max. processing flow rate ℓ/min (ANR)	100	200

*1: Flow rate at measurement 28.3ℓ/min (ANR) condition

Compatibility table by variation

	FAC100	FAC200
Port size	R1/8, 1/4	R3/8, 1/2
P4	Standard compliance	

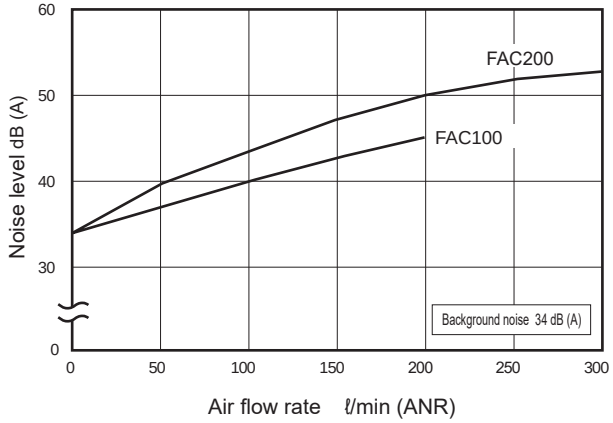
How to order

FAC100 - 8A

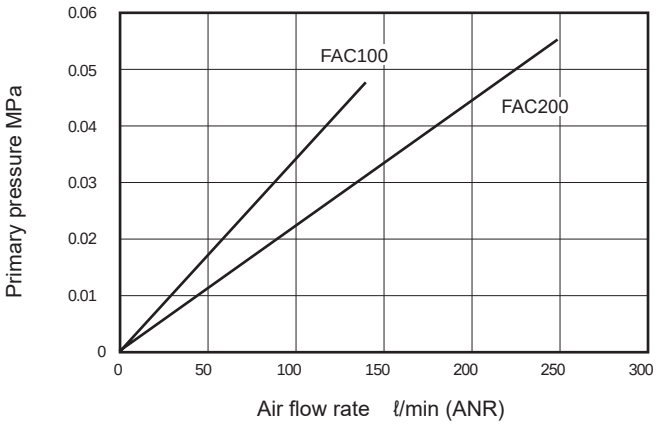
Ⓐ Model No. Ⓑ Port size

		Ⓐ Model No.	
Code	Description	FAC100	FAC200
Ⓑ Port size			
6A	R 1/8	●	
8A	R1/4	●	
10A	R3/8		●
15A	R1/2		●

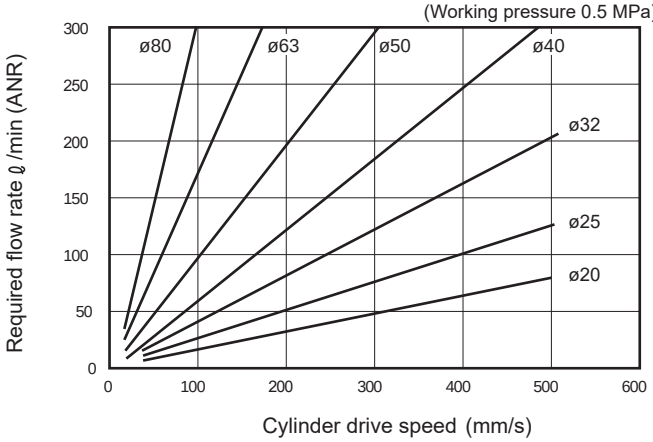
Noise level



Flow characteristics



Selection guide



The clean exhaust filter model is selected based on the working circuit's required flow rate.

(1) Calculate the required flow rate for the actuator being used.
(2) Multiply the calculated required flow rate by 1.4.
(3) Select a model having a processing flow rate exceeding the required flow rate multiplied by 1.4.

The above graphs show the required flow rate multiplied by 1.4 for each air cylinder size. Use this graph to select a model.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Clean exhaust filter

FAC3000 Series

● Port size: Rc3/8, Rc1/2

P4 compliant as standard

RoHS CAD

Specifications

Model No.	FAC3000
Working fluid	Compressed air
Max. working pressure MPa	0.1
Min. working pressure MPa	0
Proof pressure MPa	0.3
Ambient/fluid temperatures °C	5 to 45
Port size	Rc3/8, Rc1/2
Weight kg	0.29
Degree of filtration μm	0.01 (removal efficiency 99.99% and over)
Attachment weight kg	0.17
Secondary side cleanliness	100% removal of 0.1 μm or larger particles *1
Max. processing flow rate ℓ/min (ANR)	600

*1: Flow rate at measurement 28.3 ℓ/min (ANR) condition

How to order

FAC3000 - **10** - **B**

Model No.

Ⓐ Port size

Ⓑ Attachment

Code	Description
Ⓐ Port size	
10	Rc3/8
15	Rc1/2
Ⓑ Attachment	
Blank	Without attachment
B	C-bracket: B320-P70

Note: Two attachments are included, one R1/8 plug and one plug corresponding to the connection port size (R3/8 or R1/2).

Model No. of single bracket

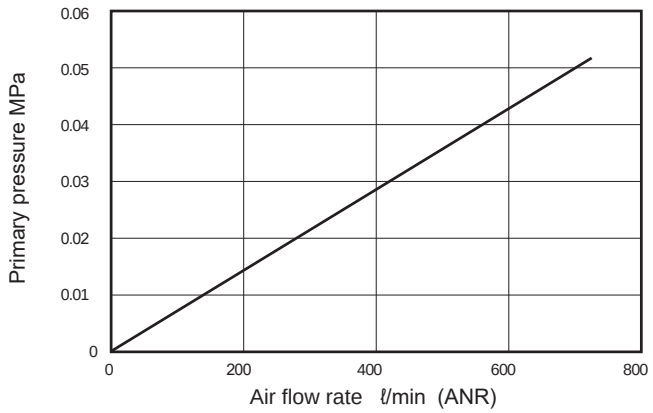
B320-P70

Compatibility table by variation

	FAC3000
Port size	Rc3/8, Rc1/2
P4	Standard compliance

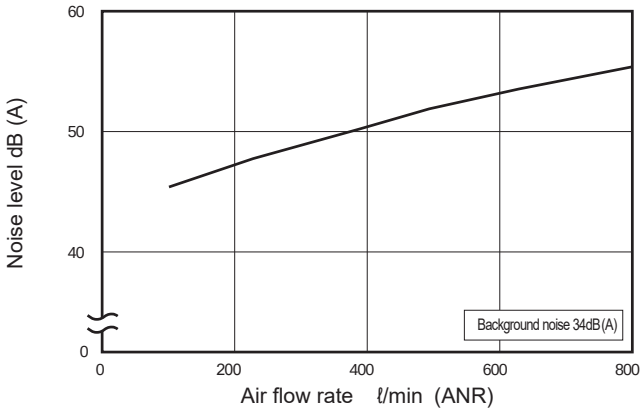
Flow characteristics

● FAC3000



Noise level

● FAC3000



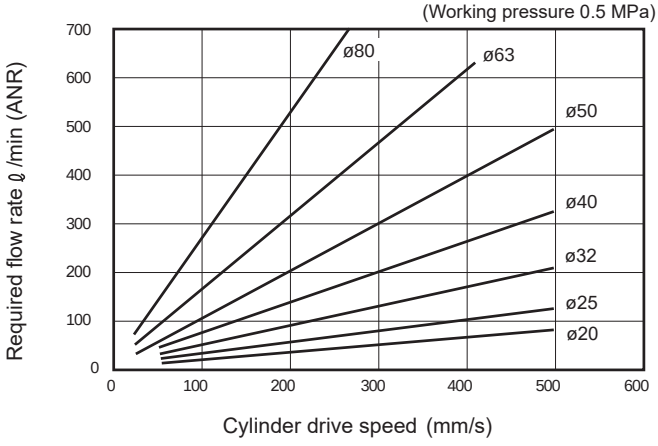
Selection guide

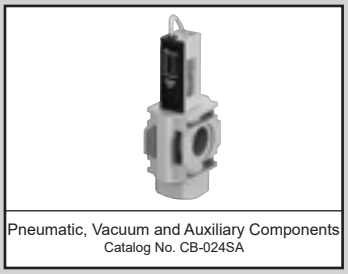
The clean exhaust filter model is selected based on the working circuit's required flow rate.

(1) Calculate the required flow rate for the actuator being used.
(2) Multiply the calculated required flow rate by 1.4.
(3) Select a model having a processing flow rate exceeding the required flow rate multiplied by 1.4.

The graph at right shows the required flow rate multiplied by 1.4 for each air cylinder size. Use this graph to select a model.

(Working pressure 0.5 MPa)



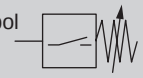


Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Reed switch compact mechanical pressure switch

P1100-W/P4100-W/P8100-W Series

• Compatible with module connection to SELEX F.R.L.

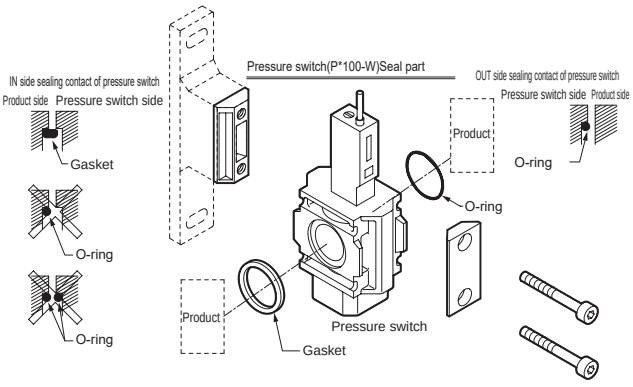
JIS symbol 

Specifications

Item	P1100-W	P4100-W	P8100-W
Working fluid	Compressed air		
Max. working pressure MPa	1.0		
Set pressure MPa	0.1 to 0.6		
Hysteresis MPa	0.08 or less		
Repeatability MPa	±0.02 or less		
Contact array	1a *1		
Wiring	Lead wire (oil resistant vinyl cabtyre cable 2-conductor 0.2mm^2)		
Ambient/fluid temperatures	5 to 60°C		
Degree of protection *2	IP 20 or equiv.		
Product weight(joiner is not included.) kg	0.13	0.19	0.41

*1: The contact turns ON if air pressure exceeding the scale set pressure is applied.
*2: Note that when connecting a fitting into the atmospheric pressure inlet port and extending the tube until water does not enter, IP65 or equivalent is applied. Not for outdoor use.

How to assemble (P1100-W, P4100-W, P8100-W)



How to order (modular design)

P 1100 - 6 L - W - P4 - B11W - 3
(White)

- A Series model No.
- B Port size
- C Branch direction
- D Accessories
- E Length of lead wire

Code	Description
A Series model No.	
1100	1000-W Series modular design
4100	2000-W, 3000-W, 4000-W Series modular design
8100	6000-W, 8000-W Series modular design

B Port size

		1100	4100	8100
6	Rc1/8	●		
8	Rc1/4	●	●	
10	Rc3/8		●	
15	Rc1/2		●	
20	Rc3/4			●
25	Rc1			●

C Branch direction *1

Blank *2	L	R
		

D Accessories

		1100	4100	8100
Blank	Joiner set, gasket	●	●	●
B11W	T-bracket, gasket	●		
B31W	T-bracket, gasket		●	
B41W	T-bracket, gasket		●	
B81W	T-bracket, gasket			●

E Length of lead wire

Blank	1m
3	3m
5	5m

Compatibility table by variation

	P1100	P4100	P8100
Port size	Rc1/8, 1/4	Rc1/4, 3/8, 1/2	Rc3/4, 1
P4		●	

*1: The atmospheric pressure inlet port is M5.
*2: Fitting attachment option for atmosphere introduction port is not available.

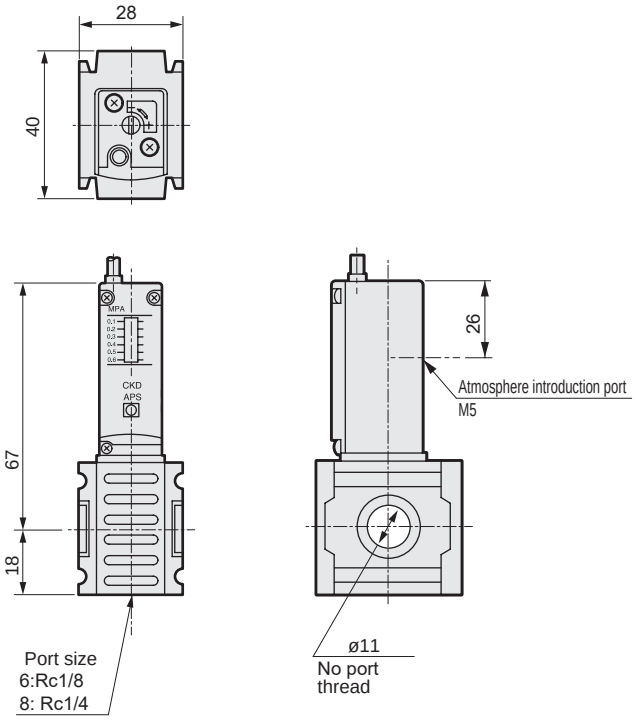
●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

Precautions for model No. selection

*1: This is used for the intermediate connection of the module series and so the module connection section is not threaded.
*2: A masking plug matching the port size is attached.
*3: When piping with P□100-W Discrete, use a pipe adaptor or A□00-W. (The horizontal direction port does not have threads.)

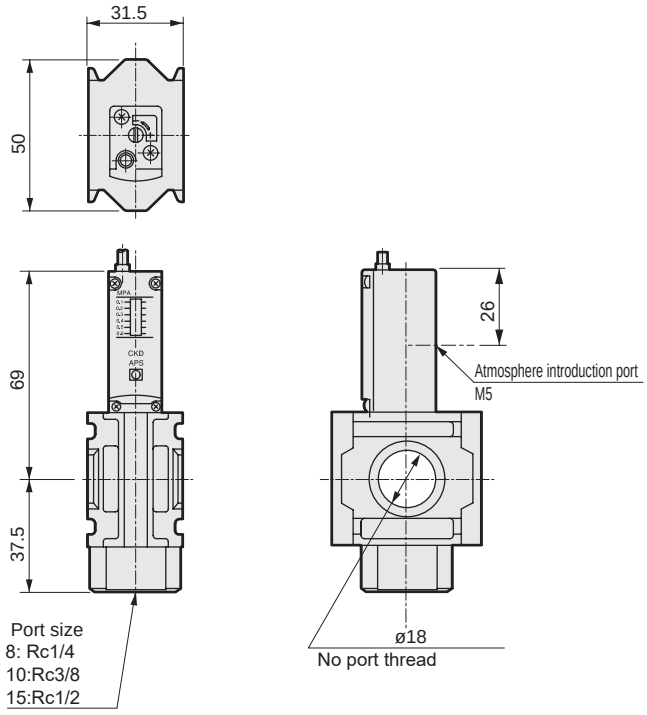
Dimensions CAD

● P1100-W



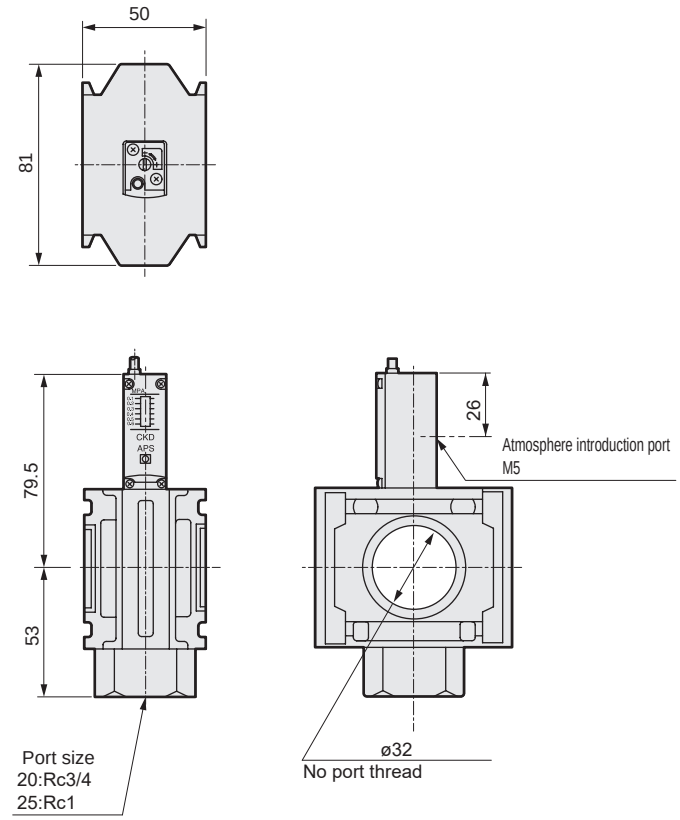
Weight 126g

● P4100-W

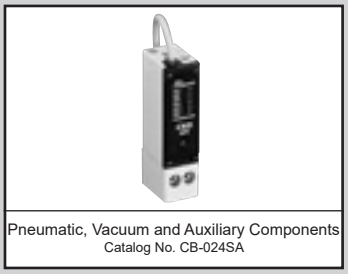


Weight 190g

● P8100-W



Weight 467g

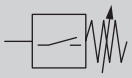


Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Compact mechanical pressure switch

APS-W Series

●General purpose discrete specifications (APS)

JIS symbol 

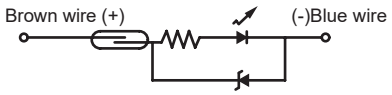
Specifications

Item	APS-W
Working fluid	Compressed air
Max. working pressure MPa	1.0
Set pressure MPa	0.1 to 0.6
Hysteresis MPa	0.08 or less
Repeatability MPa	±0.02 or less
Contact array	1a *1
Wiring	Lead wire (oil resistant vinyl cabtyre cable 2-conductor 0.2mm^2)
Ambient/fluid temperatures	5 to 60°C
Degree of protection *2	IP 20 or equiv.
Weight g	69

*1: The contact turns ON if air pressure exceeding the scale set pressure is applied.
*2: However, mounting direction is to be vertical. Connect a fitting to the atmospheric pressure inlet port, Note that when extending the tube until water does not enter, IP65 or equivalent is applied. Not for outdoor use.

Wiring section specifications		
Load voltage	12/24 VDC	100 VAC
Load current	5 to 50 mA	7 to 20 mA
Internal voltage drop	3 V or less	
Lamp	LED (Lit when ON)	
Max. shock	294 m/s^2	
Insulation resistance	20 MΩ and over with 500 VDC megger	
Withstand voltage	No failure after 1 minute of 1,000 VAC application.	

Internal circuit diagram



Compatibility table by variation

	APS
Port size	Rc1/8
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable
*1: The atmospheric pressure inlet port is M5.
*2: Fitting attachment option for atmospheric introduction port is not available.

How to order

APS - 6D 3 - W - 2 - P4
(White)

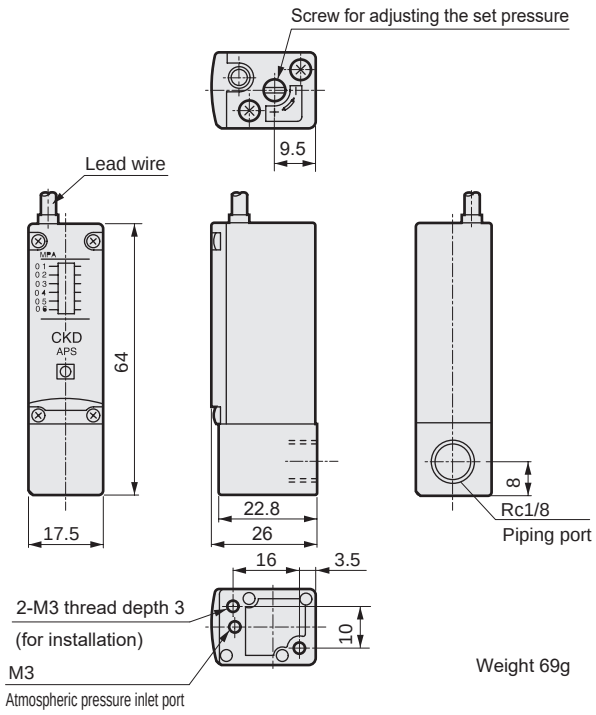
Model
Ⓐ Position of piping port/bore size/scale plate direction
Ⓑ Lead wire length
Ⓒ Option

Code	Description
Ⓐ Position of piping port/bore size/scale plate direction	
6 B	Back surface Rc1/8, vertical *1
6D	Bottom surface Rc1/8, vertical
6F	Back surface flange, vertical
6L	Both side surfaces Rc1/8, vertical *1
6Y	Back surface flange, horizontal
Ⓑ Lead wire length	
Blank	1m
3	3m
5	5m
Ⓒ Option	
Blank	No
1	DIN rail bracket attached (6D) only
2	Nipple attached (6D) only

*1: When installing, be careful not to block the atmospheric release port.

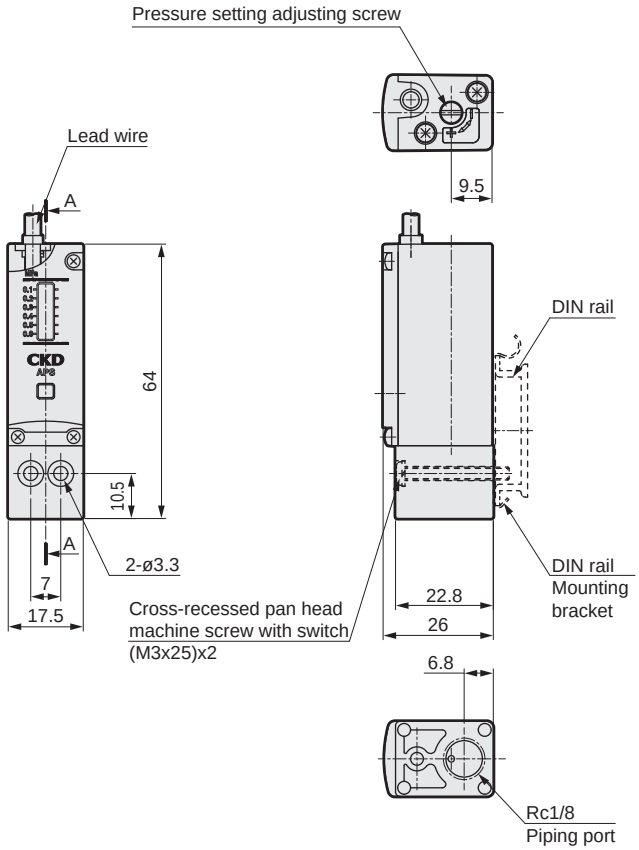
Dimensions

● APS-6B-W-*-P4

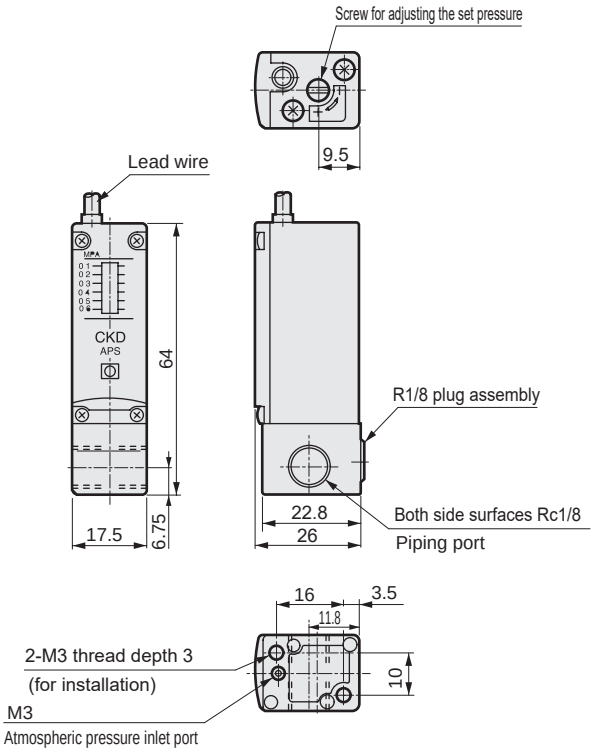


Note: When installing on the bottom, be careful not to block the atmospheric release port.

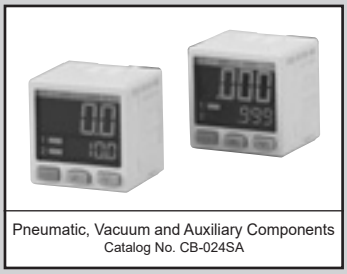
● APS-6D-W-*-P4



● APS-6L-W-*-P4



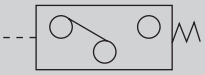
Note: When installing on the bottom, be careful not to block the atmospheric release port.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Digital pressure sensor

PPX Series

JIS symbol 

P4 compliant as standard

Specifications

Item		Standard		High-function	
		For low pressure PPX-R01□	For high pressure PPX-R10□	For low pressure PPX-R01□H	For high pressure PPX-R10□H
Type of pressure		Gauge pressure			
Rated pressure		-100.0 to +100.0 kPa	-0.100 to +1.000 MPa	-100.0 to +100.0 kPa	-0.100 to +1.000 MPa
Set pressure		-101.0 to +101.0 kPa	-0.101 to +1.010 MPa	-101.0 to +101.0 kPa	-0.101 to +1.010 MPa
Proof pressure		500 kPa	1.5 MPa	500 kPa	1.5 MPa
Applicable fluid		Air/non-corrosive gas			
Power supply voltage		12 to 24 VDC±10% ripple P-P10% or less			
Power consumption		At normal: 720mW or less (Current consumption 30mA or less at 24 V power supply voltage) ECO mode: 480mW or less at STD (Current consumption 20mA or less at 24 V power supply voltage) 360mW or less at FULL (Current consumption 15mA or less at 24 V power supply voltage)			
Comparison output (Comparison output 1, comparison output 2)		[NPN output] NPNTransistor/open collector • Max. inrush current: 100 mA • Applied voltage: 30 VDC or less (comparison output-between 0 V) • Residual voltage: 2 V or less (at inrush current 100 mA)		[PNP output] PNP transistor/open collector • Max. output current: 100 mA • Applied voltage: 30 VDC or less (comparison output - +V interval) • Residual voltage: 2 V or less (at outflow current 100 mA)	
	Output operation	Select NO/NC with key operation			
	Output motorDrain discharge	EASY mode/Hysteresis mode/window comparator mode			
	Hysteresis (Hysteresis)	Min. 1 digit (variable)			
	Repeatability	±0.1% F.S. (within ±2 digits)	±0.2% F.S. (within ±2 digits)	±0.1% F.S. (within ±2 digits)	±0.2% F.S. (within ±2 digits)
	Response time	2.5 ms, 5 ms, 10 ms, 25 ms, 50 ms, 100 ms, 250 ms, 500 ms, 1000 ms, 5000 ms select by key operation			
	Short-circuit protection	Equipped			
External input (Auto-referenceFunction/ Remote zero adjustmentFunction)		—		[NPN output] ON voltage: 0.4 VDC or less OFF voltage: 5 to 30 VDC or release Input impedance: 10 kΩ Input time: 1 ms and over	[PNP output] ON voltage: 5V up+VDC OFF voltage: 0.6 VDC or less or release Input impedance: 10 kΩ Input time: 1 ms and over
AnaroG VoltageOutput		—		Output voltage: 1 to 5 V Zero point: 3 V±5% F.S. or less Span: 4 V±5% F.S. or less Linearity:±1% F.S. or less Output impedance: 1 kΩ	Output voltage: 0.6 to 5 V Zero point: 1 V±5% F.S. or less Span: 4.4V±5% F.S. or less Linearity:±1% F.S. or less Output impedance: 1 kΩ
AnaroG currentOutput		—		Output current: 4 to 20 mA Zero point: Within 12 mA ±5% F.S. Span: Within 16 mA ±5% F.S. Linearity: Within ±1% F.S. Load resistance: 250 Ω (max.)	Output voltage: 2.4 to 20 mA Zero point: 4 mA±5% F.S. or less Span: 17.6mA±5% F.S. or less Linearity:±1% F.S. or less Load resistance: 250 Ω (max.)
Display		4-digit + 4-digit 3-color LCD display (display updating cycle: 250 ms, 500 ms, 1000 ms select by key operation)			
	Display pressure range	-101.0 to +101.0 kPa	-0.101 to +1.010 MPa	-101.0 to +101.0 kPa	-0.101 to +1.010 MPa
Display lamp		Orange LED (comparison output 1 operation indicator lamp, comparison output 2 operation indicator lamp: Lit when comparison output is ON)		Orange LED (comparison output 1 operation indicator lamp: Lit when comparison output is ON, analog voltage output operation indicator lamp: Lit at setup)	
Environment conditions	Degree of protection	IP40 (IEC)			
	Ambient temperature	-10 to +50°C, in storage: -10 to +60°C			
	Ambient humidity	35 to 85%RH (whereand, condensationandfreezingnot to) at storage: 35 to 85%RH			
	Withstand voltage	1000 VAC for 1 minute applied to all charged sections/between cases			
	Insulation resistance	500 VDC meggerand50 MΩ and over all charged sections/between cases			
	Vibration resistance	Durability 10 to 500 Hz compound amplitude 3 mm 2 hours each in XYZ directions (when mounted on panel: durability 10 to 150 Hz compound amplitude 0.75 mm 2 hours each in XYZ directions)			
	Shock resistance	Durability 100m/S^2(approx. 10 G) 3 times each in XYZ directions			
Temperature characteristics (characteristics at +20°C are taken as standard)		Within ±0.5% F.S.	Within ±1% F.S.	Within ±0.5% F.S.	Within ±1% F.S.
Port size *1		M5 female thread + R (PT) 1/8 male thread			
Material		Case: PBT (glass fiber included), LCD display part: acrylic resin, pressure port: SUS 303, mounting screw part: copper alloy (nickeling), switch part: silicone rubber			
Connection		Connector connection			
Wire length		When wire is extended, up to 100 m permissible with 0.3 mm^2 and over cable (less than 30 m when CE Mark-compliant)			
Unit change function		Overseas (-KA) only (MPa, kPa.kgf/cm^2, bar, psi, mmHg, inchHg)			
Weight		Body weight: Approx. 40g, Weight of package: Approx. 130g			
Accessory *2		PPX-C2 (2 m cable with connector): 1 pc. Unit seal label (With unit change function -KA): MPa, kPa.kgf/cm^2, bar, psi, mmHg, inchHg			

*1: Refer to Table 1 on the next page for export use.
*2: For (- J), connector cable is not attached.

How to order

[How to order for domestic market]

PPX - R01 N - 6M - ○

- A Pressure range
- B Output
- C Piping shape
- D Connector cable

Code	Description
A Pressure range	
R 01	−100.0 to 100.0 kPa
R 10	−0.100 to 1.000 MPa
B Output	
N	NPN transistor 2 output points (Standard)
P	PNP transistor output 2 points (Standard)
NH	NPN transistor output 1 point + analog voltage output or external input (high-function)
PH	PNP transistor output 1 point + analog voltage output or external input (high-function)
C Piping shape	
6M	R 1/8, M5 female thread
D Connector cable	
Blank	2 m connector cable attached
J *1	Without connector cable

*1: B Selectable only when "N" or "P" is selected for Output.

[How to order for overseas markets]

PPX - R01 N - 6M - ○ - KA

- A Pressure range
- B Output
- C Piping shape
- D Connector cable
- E Unit change

In compliance with new Measurement Laws, export models with unit select function cannot be used in Japan.

Code	Description
A Pressure range	
R01	−100.0 to 100.0 kPa
R10	−0.100 to 1.000 MPa
B Output	
N	NPN transistor output 2 point (Standard)
P	PNP transistor output 2 points (Standard)
NH	NPN transistor output 1 point + analog voltage output or external input (high-function)
PH	PNP transistor output 1 point + analog voltage output or external input (high-function)
C Piping shape	
6M *1	R1/8, M5 female thread
6N	NPT1/8, M5 female thread
6G *2	G1/8, M5 female thread
D Connector cable	
Blank	2 m connector cable attached
J *3	Connector cableNo
E Unit change	
KA	With unit change function

*1: Only "N" or "NH" can be selected for B Output.
*2: Selectable only when "P" or "PH" is selected for B Output.
*3: Selectable only when "N" or "P" is selected for B Output.

Compatibility table by variation

	PPX
Port size	Rc1/8 M5 female thread
P4	Supports P4 specifications as standard
P40	● The product is*2Limited to listed model No.

*1: Bracket mounting is not possible for P40.
*2: P40 is compatible only with PPX-R10P-6M-J-P40/PPX-R10N-6M-J-P40.
*3: P40 Connector must be ordered separately. PPX-C2-FL401967-P40

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

Destination	Switch output		Unit	Unit change function	Unit seal label included *1	Piping port
	NPN	PNP				
Domestic	○	○	kPa/MPa	-	-	R1/8 (M5)
Asia	○	-	kPa/MPa	○	○	R1/8 (M5)
Europe	-	○	kPa/MPa	○	○	G1/8 (M5)
North America	○	○	kPa/MPa	○	○	NPT1/8 (M5)

*1: Refer to the attached unit sealant,"Pneumatic, Vacuum and Auxiliary Components (catalog No. CB-024SA).

[Table 1]

Type	Model No.	Port size	Output	Remarks
Standard	PPX-R01N-6M-(J)-KA	M5 female thread + R (PT) 1/8 male thread	NPN transistor/Open collector	For Asia
	PPX-R10N-6M-(J)-KA			
High-function	PPX-R01NH-6M-KA			
	PPX-R10NH-6M-KA			
Standard	PPX-R01P-6G-(J)-KA	M5 female thread + G1/8 male thread	PNP transistor/Open collector	For Europe
	PPX-R10P-6G-(J)-KA			
High-function	PPX-R01PH-6G-KA			
	PPX-R10PH-6G-KA			
Standard	PPX-R01N-6N-(J)-KA	M5 female thread +NPT1/8 male thread	NPN transistor/Open collector	For North America
	PPX-R01P-6N-(J)-KA		PNP transistor/Open collector	
	PPX-R10N-6N-(J)-KA		NPN transistor/Open collector	
	PPX-R10P-6N-(J)-KA		PNP transistor/Open collector	
High-function	PPX-R01NH-6N-KA		NPN transistor/Open collector	
	PPX-R01PH-6N-KA		PNP transistor/Open collector	
	PPX-R10NH-6N-KA		NPN transistor/Open collector	
	PPX-R10PH-6N-KA		PNP transistor/Open collector	

Precautions for use

⚠WARNING

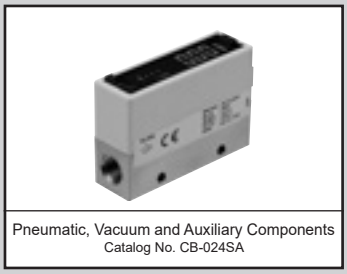
■ Applications outside the specifications, Load current, Voltage, Temperature, Shock, Otherwise, damage and/or misoperations may occur. Therefore, the dimensions are within the specified rangefor vacuum piping.

■ Never use this product in an explosive gas atmosphere. Never use in an explosive gas atmosphere as explosions or fires could result.

■ Static

Do not use this product where electrostatic discharge could occur.
Failure to do so may result in Breakdown or malfunction of the system.

MEMO



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Compact flow rate sensor (RAPIFLOW)

FSM3 Series

LCD display

P4 compliant as standard

●Stainless steel body (flow rate range: 500mL/min to 1000L/min)

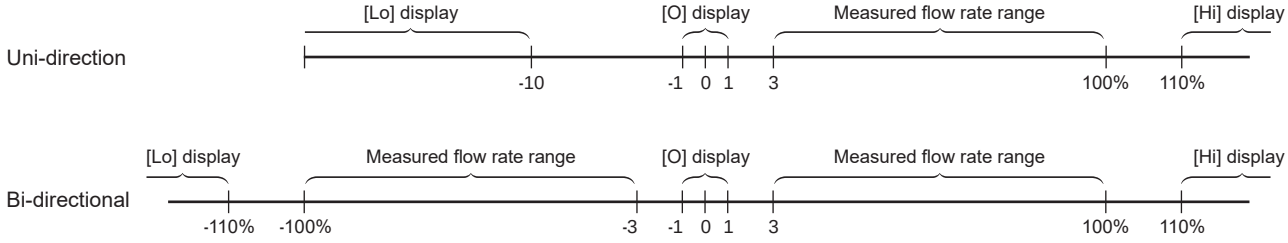
CE RoHS

LCD display specifications * Products with needle valves are not P4 compliant.

Item			FSM3-[A][B][C][D][E][F][G][H][I]-[ ]										
			[B]										
			005	010	020	050	100	200	500	101	201	501	102
Flow direction	[C]	U	Uni-direction										
		B	Bi-direction										
Measured flow rate range (□/min) *1	[B]	U	15 to 500mL	30 to 1000mL	0.06 to 2.00L	0.15 to 5.00L	0.30 to 10.00L	0.6 to 20.0L	1.5 to 50.0L	3.0 to 100.0L	6 to 200L	15 to 500L	30 to 1000L
		B	-500 to -15, 15 to 500mL	-1000 to -30, 30 to 1000mL	-2.00 to -0.06, 0.06 to 2.00L	-5.00 to -0.15, 0.15 to 5.00L	-10.00 to -0.30, 0.30 to 10.00L	-20.0 to -0.6, 0.6 to 20.0L	-50.0 to -1.5, 1.5 to 50.0L	-100.0 to -3.0, 3.0 to 100.0L	-200 to -6, 6 to 200L	-500 to -15, 15 to 500L	-1000 to -30, 30 to 1000L
Display			4 digit + 4 digit 2 color LCD										
Flow rate display range (□/min) *2	[B]	U	-49 to 549mL	-99 to 1099mL	-0.19 to 2.19L	-0.49 to 5.49L	-0.99 to 10.99L	-1.9 to 21.9L	-4.9 to 54.9L	-9.9 to 109.9L	-19 to 219L	-49 to 549L	-99 to 1099L
		B	-549 to 549mL	-1099 to 1099mL	-2.19 to 2.19L	-5.49 to 5.49L	-10.99 to 10.99L	-21.9 to 21.9L	-54.9 to 54.9L	-109.9 to 109.9L	-219 to 219L	-549 to 549L	-1099 to 1099L
Integration display (*3)		Display range	0 to ±9999999mL		0.00 to ±99999.99L			0.0 to ±999999.9L			0 to ±9999999L		
		Pulse output rate	5mL	10mL	0.02L	0.05L	0.1L	0.2L	0.5L	1L	2L	5L	10L
Working conditions		Applicable fluids *4	Clean air (JIS B 8392-1:2012 1.1.1 to 5.6.2), compressed air (JIS B 8392-1:2012 1.1.1 to 1.6.2), nitrogen gas										
			Argon, carbon dioxide, and gas mixture (argon + carbon dioxide)									-	
			Oxygen (When oxygen specification is selected, Ⓜ Clean-room specifications of workpiece cannot be selected. Specifications automatically become oil-prohibited specifications.)									-	
		Temperature range	0 to 50°C (no condensation)										
		Pressure range	-0.09 to 1.00 MPa									-0.09 to 0.75 MPa	
		Proof pressure	1.5 MPa										
Operating ambient temperature/humidity			0 to 50 °C, 90% RH or less										
Storage temperature			-10 to 60°C										
Accuracy *5 (Fluid: in dry air)		Accuracy *6	Within ±3% F.S. (Secondary side released to atmosphere) (The scope of warranty is in accordance with the "measured flow rate range.")										
		Repeatability *7)	Within ±1% F.S. (Secondary side released to atmosphere)										
		Temperature characteristics	Within ±0.2% F.S./°C (15 to 35°C, base temperature 25°C)										
		Pressure characteristics	Within ±5%F.S. (secondary side released to atmosphere reference)								Within ±5% F.S (0.35 MPa reference)		
Response time *8			50 msec or less (setting response time OFF)										
Switch output	[G]	A, B, E, F	NPN open collector output (50 mA or less, voltage drop 2.4 V or less)										
		C, D, G, H	PNP open collector output (50 mA or less, voltage drop 2.4 V or less)										
Analog output *9		A, B, C, D	1 to 5 V voltage output (connecting load impedance 50 kΩ or more)										
		E, F, G, H	4 to 20 mA current output (connecting load impedance 0 to 300 Ω)										
Power supply voltage *10		A, B, C, D	12 to 24 VDC (10.8 to 26.4 V) ripple rate 1% or less										
		E, F, G, H	24 VDC (21.6 to 26.4 V) ripple rate 1% or less										
Current consumption *11			45 mA or less										
Lead wire			ø3.7, AWG26 or equivalent x 5-conductor (connector), insulator O.D. 1.0										
Functions *12			①Gas switching, ②Setting copy function, ③Flow rate integration, ④Peak hold, etc.										
Degree of protection			IP40 or equivalent (IEC standard)										
Protection circuit *13			Power reverse connection protection, switch output reverse connection protection, switch output load short-circuit protection										
Vibration resistance			10 to 150 Hz, max. 100m/s^2, X, Y, Z directions, every 2 hours										
EMC Directive			EN55011, EN61000-6-2, EN61000-4-2/3/4/6/8										
Mounting		Mounting orientation *14	Unrestricted in vertical/horizontal direction										
		Straight piping section *15	Not required										

*1: The value converted to volumetric flow rate at standard condition (20°C 1 barometric pressure (101 kPa) 65% RH).
(For gases other than air, 20°C, 1 barometric pressure (101 kPa), relative humidity 0%Rh.

*2: Display at each flow rate is as follows.



*3: The accumulated flow is a calculated (reference) value. When using the integrated save function, take care to prevent the number of saves from exceeding the access count limit of the storage device (1 million times).(Changes to the settings are counted in number of accesses.)

$$\text{Number of saves} = \frac{\text{Usage time}}{5 \text{ mins}} < 1 \text{ million times}$$

When instantaneous flow rate is below 1% it is not counted as integrating flow.

*4: Use dry gas which does not contain corrosive elements such as chlorine, sulfur or acids, and which is clean and does not contain dust or oil mist. When using compressed air, use clean air that complies with JIS B 8392-1:2012 Class 1.1.1 to 1.6.2. Compressed air from the compressor contains drainage (water, oil oxides, foreign matter, etc.). To maintain the function of this product, filter and air dryer are provided on the primary side (upstream side) of this product.(Min. pressure dew point 10°C or less) and oil mist filter (max. oil content 0.1mg/m^3) for use. The sensor for oxygen gas is a custom model. To prevent ignition accidents, do not allow oxygen to flow again when it has been used on fluids other than oxygen to flow even once.

*5: Compressed air is used for adjusting and inspecting this product. Accuracy for gas types other than air is a guideline.

*6: Accuracy is based on a CKD standard flow rate meter. It does not indicate absolute accuracy. Repeatability, temperature characteristics, and pressure characteristics are not included for an accuracy of ± 3% F.S. Consider separately according to the working environment and working conditions.

*7: Repeatability is calculated during a short period of time. Change over time is not included. (Refer to the product specifications sheet for details.)

*8: The actual response time changes depending on the piping conditions. As a guideline, the response time can be set within the range of 50 msec to 1.5 sec.

*9: The output impedance of the analog output section is approx. 1 kΩ. If the impedance of the connecting load is small, output and error increase. Check error with the impedance of the connecting load before using.

*10: The power supply voltage specifications differ for the voltage output type and current output type.

*11: Current for when 24 VDC is connected, and no load is applied. Please note that the current consumption changes depending on the load connection status.

*12: The gas type switching function enables switching to argon, carbon dioxide and a gas mixture of argon 80% + carbon dioxide 20%. (Note that the oxygen, 500L/min, and 1000L/min models do not have a gas change function.) The full scale flow rate after switching to carbon dioxideHalf of the flow rate range. Analog output can also be selected as output.

Gas	Flow direction	Measurement flow rate range (xxx/min)							
		005	010	020	100	200	500	101	201
・Air ・Nitrogen ・Argon ・Argon 80% +Carbon dioxide 20%	Uni-direction	15 to 500mL	30 to 1000mL	0.06 to 2.00L	0.30 to 10.00L	0.6 to 20.0L	1.5 to 50.0L	3.0 to 100.0L	6 to 200L
	Bi-direction	-500 to -15mL	-1000 to -30mL	-2.00 to -0.06L	-10.00 to -0.30L	-20.0 to -0.6L	-50.0 to -1.5L	-100.0 to -3.0L	-200 to -6L
		15 to 500mL	30 to 1000mL	0.06 to 2.00L	0.30 to 10.00L	0.6 to 20.0L	1.5 to 50.0L	3.0 to 100.0L	6 to 200L
・Carbon dioxide	Uni-direction	15 to 250mL	30 to 500mL	0.06 to 1.00L	0.30 to 5.00L	0.6 to 10.0L	1.5 to 25.0L	3.0 to 50.0L	6 to 100L
	Bi-direction	-250 to -15mL	-500 to -30mL	-1.00 to -0.06L	-5.00 to -0.30L	-10.0 to -0.6L	-25.0 to -1.5L	-50.0 to -3.0L	-100 to -6L
		15 to 250mL	30 to 500mL	0.06 to 1.00L	0.30 to 5.00L	0.6 to 10.0L	1.5 to 25.0L	3.0 to 50.0L	6 to 100L

Gas	Flow direction	Analog output			
		Output A		Output B	
		Voltage	Current	Voltage	Current
・Carbon dioxide	Uni-direction	1 to 3 V	4 to 12mA	1 to 5 V	4 to 20mA
	Bi-direction	2 to 4 V	8 to 16mA	1 to 5 V	4 to 20mA

The "Setting copy function" setting is selected at "Ⓖ Output specifications".
Note that the “External input” function is not available on models on which the “Setting copy function” is enabled.

*13: This product's protection circuit is effective only for specific misconnections and load short-circuits. It does not provide protection for all misconnections.

*14: This product measures changes in heat distribution that are caused by flow. If installed vertically, the heat distribution may change due to the effect of convection, and the zero point may be shifted.

*15: Accuracy may be affected by the piping conditions. For more accurate measurements, use a straight pipe with a ten-times greater internal diameter. With the 500 L/min and 1,000 L/min models, use piping with an internal diameter of 9 mm or more. If it is less than 9 mm, accuracy may be negatively affected.

How to order

FSM3 - L 005 U 2 AA 1 A 1 N - B M R - P80

Model No. FSM3

A Display — L

B Flow rate range (Full scale flow rate) — 005

C Flow direction — U

D Body material/applicable fluids — 2

E Port size — AA

F Piping direction — 1

G Output specifications — A

H Unit specifications — 1

I Valve Option — N

J Lead wire — B

K Mounting attachment — M

L Included documents — R

M Clean Specifications — P80

Code	Description
A Display	
L	Liquid crystal display

B Flow rate range (full scale flow rate)			
005	500mL/min	**500**	50L/min
010	1000mL/min	**101**	100L/min
020	2L/min	**201**	200L/min
050	5L/min	**501**	500L/min
100	10L/min	**102**	1000L/min
200	20L/min		

C Flow direction	
U	Uni-direction
B	Bi-direction

D Body material/applicable fluids		
	Body material	Applicable fluid
2	SUS	Air (gas switchable)
3	SUS	Oxygen (oil-prohibited specifications) *2

E Port size		
AA	Rc1/8	
BA	Rc1/4	
CA	Rc1/2	
AF	G1/8	*3
BF	G1/4	*3
CF	G1/2	*3
AB	G1/8	*4
BB	G1/4	*4
CB	G1/2	*4
AC	NPT1/8	
BC	NPT1/4	
CC	NPT1/2	
AD	1/4" double barbed fitting (50 L/min or less)	
BD	1/4" double barbed fitting (50 to 200 L/min)	
AE	1/4" JXR male fitting (50 L/min or less)	
BE	1/4" JXR male fitting (50 to 200 L/min)	

F Piping direction	
1	Straight

G Output specifications			
	Analog output	Switch output	Setting copy function
A	1 points (Voltage output) 1-5V	1 points (NPN)	Yes
B		2 points (NPN)	-
C		1-point output (PNP)	Yes
D		2-point output (PNP)	-
E	1 points Current output 4 to 20mA	1 points (NPN)	Yes
F		2 points (NPN)	-
G		1-point output (PNP)	Yes
H		2-point output (PNP)	-

H Unit specifications	
1	SI units only
2	With unit change function (only for overseas) *5

I Valve option	
N	No

J Lead wire	
Blank	No
A	5 conductor 1 m
B	5 conductor 3 m

K Mounting attachment *6	
Blank	No
H	Bracket 1 (for models 200 L or less)
J	Bracket 2 (for 500 or 1000 L models)
K	Panel mounting (for sensor products of models 200 L or less)
M	DIN rail mounting (for models 200 L or less)

L Included documents	
Blank	No
R	inspection certificate
S	Company certification + Traceability certification

M Clean-room specifications *9		
Blank	No	
P70	Anti-dust generation	*7
P80	Oil-prohibited	*8

[Example of model No.]

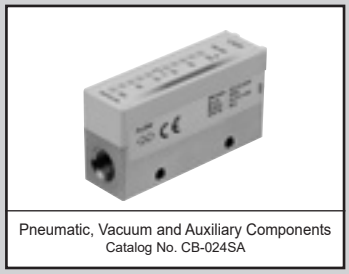
FSM3-L005U2AA1A1N-BMR-P80

Model: RAPIFLOW FSM3 Series

A Display	L	: Liquid crystal display
B Flow rate range	005	: 500mL/min
C Flow direction	U	: Uni-direction
D Body material/applicable fluids	2	: SUS/air
E Port size	AA	: Rc1/8
F Piping direction	1	: Straight
G Output specifications	A	: Analog voltage output X1, NPN switch output X1, With setting copy function
H Unit specifications	1	: SI units only
I Valve option	N	: No
J Lead wire	B	: 5 conductor 3 m
K Mounting attachment	M	: DIN rail mount
L Included documents	R	: inspection certificate
M Clean-room specifications	P80	: Oil-prohibited

Precautions for model No. selection

*1: During selection, always check the compatibility table on page 517.
*2: "3: Oxygen" cannot be selected with 500 L/min and 1000 L/min models.
*3: The G thread connection shape is ISO16030-compliant.
*4: G thread connection shape is JIS B 2351-1O type compliant.
*5: Models with the unit switching function are not sold in Japan.
*6: Optional parts will come with the product. They are not pre-assembled.
*7: The product surface is degreased and cleaned before packaging, and heat-sealed into an antistatic bag on a clean bench (Class 1000 or more).
*8: P70 specifications and gas-contact sections are degreased and cleaned.
*9: This cannot be selected on an oxygen type (blank only).



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Compact flow rate sensor (RAPIFLOW)

FSM3 Series

Bar display

●Stainless steel body (flow rate range: 500mL/min to 1000L/min)

P4 compliant as standard

Bar display specifications

Item			FSM3-[A][B][C][D][E][F][G][H][I]-[ ]										
			[B]										
			005	010	020	050	100	200	500	101	201	501	102
Flow direction	[C]	U	Uni-direction										
		B	Bi-direction										
Measured flow rate range (□/min) *1	[B]	U	15 to 500mL	30 to 1000mL	0.06 to 2.00L	0.15 to 5.00L	0.30 to 10.00L	0.6 to 20.0L	1.5 to 50.0L	3.0 to 100.0L	6 to 200L	15 to 500L	30 to 1000L
		B	-500 to -15, 15 to 500mL	-1000 to -30, 30 to 1000mL	-2.00 to -0.06, 0.06 to 2.00L	-5.00 to -0.15, 0.15 to 5.00L	-10.00 to -0.30, 0.30 to 10.00L	-20.0 to -0.6, 0.6 to 20.0L	-50.0 to -1.5, 1.5 to 50.0L	-100.0 to -3.0, 3.0 to 100.0L	-200 to -6, 6 to 200L	-500 to -15, 15 to 500L	-1000 to -30, 30 to 1000L
Display			LED bar display										
Working conditions		Applicable fluids *2	Clean air (JIS B 8392-1:2012 1.1.1 to 5.6.2), compressed air (JIS B 8392-1:2012 1.1.1 to 1.6.2), nitrogen gas										
			Oxygen (When oxygen specification is selected, Ⓜ Clean-room specifications cannot be selected. Specifications automatically become oil-prohibited specifications.)									-	
		Temperature range	0 to 50°C (no condensation)										
		Pressure range	-0.09 to 1.00 MPa									-0.09 to 0.75MPa	
		Proof pressure	1.5 MPa										
Operating ambient temperature/humidity			0 to 50°C, 90% RH or less										
Storage temperature			-10 to 60°C										
Accuracy		Accuracy *3	Within ±3% F.S. (Secondary side released to atmosphere) (The scope of warranty is in accordance with the "measured flow rate range.")										
		Repeatability *4	Within ±1% F.S. (Secondary side released to atmosphere)										
		Temperature characteristics	Within ±0.2% F.S./°C (15 to 35°C, base temperature 25°C)										
		Pressure characteristics	Within ±5%F.S. (secondary side released to atmosphere reference)								Within ±5% F.S (0.35MPa reference)		
Response time *5			50 msec or less										
Analog output *6	[G]	J	1 to 5 V voltage output (connecting load impedance 50 kΩ or more)										
		K	4 to 20 mA current output (connecting load impedance 0 to 300 Ω)										
Power supply voltage *7		J	12 to 24 VDC (10.8 to 26.4 V) ripple rate 1% or less										
		K	24 VDC (21.6 to 26.4 V) ripple rate 1% or less										
Current consumption *8			45 mA or less										
Lead wire			ø3.7 AWG26 equivalent × 4-conductor (connector connection), insulator outer diameter ø1.0										
Degree of protection			IP40 or equivalent (IEC standard)										
Protection circuit *9			Power reverse connection protection										
Vibration resistance			10 to 150 Hz, max. 100m/s^2, X, Y, Z directions, every 2 hours										
EMC Directive			EN55011, EN61000-6-2, EN61000-4-2/3/4/6/8										
Mounting		Mounting orientation *10	Unrestricted in vertical/horizontal direction										
		Straight piping section *11	Not required										

*1: The value converted to volumetric flow rate at standard condition (20°C 1 barometric pressure (101 kPa) 65% RH)
(For gases other than air, 20°C, 1 barometric pressure (101 kPa), relative humidity 0%RH.

*2: Use dry gas which does not contain corrosive elements such as chlorine, sulfur or acids, and which is clean and does not contain dust or oil mist. When using compressed air, use clean air that complies with JIS B 8392-1:2012 Class 1.1.1 to 1.6.2. Compressed air from the compressor contains drainage (water, oil oxides, foreign matter, etc.). To maintain the function of this product, filter and air dryer are provided on the primary side (upstream side) of this product.(Min. pressure dew point 10°C or less) and oil mist filter (max. oil content 0.1mg/m^3) for use.
The sensor for oxygen gas is a custom model. To prevent ignition accidents, do not allow oxygen to flow again when it has been used on fluids other than oxygen to flow even once.

*3: Accuracy is based on a CKD standard flow rate meter. It does not indicate absolute accuracy. Repeatability, temperature characteristics, and pressure characteristics are not included for an accuracy of ± 3% F.S. Consider separately according to the working environment and working conditions.

*4: Repeatability is calculated during a short period of time. Change over time is not included. (Refer to the product specifications for details.)

*5: The actual response time changes depending on the piping conditions.

*6:The output impedance of the analog output section is approx. 1 kΩ. If the impedance of the connecting load is small, output and error increase. Check error with the impedance of the connecting load before using.

*7: The power supply voltage specifications differ for the voltage output type and current output type.

*8: Current for when 24 VDC is connected, and no load is applied. Please note that the current consumption changes depending on the load connection status.

*9: This product's protection circuit is effective only for specific misconnections and load short-circuits. It does not provide protection for all misconnections.

*10: This product measures changes in heat distribution that are caused by flow. If installed vertically, the heat distribution may change due to the effect of convection, and the zero point may be shifted.

*11:Accuracy may be affected by the piping conditions. For more accurate measurements, use a straight pipe with a ten-times greater internal diameter. With the 500 L/min and 1,000 L/min models, use piping with an internal diameter of 9 mm or more. If it is less than 9 mm, accuracy may be negatively affected.

How to order

FSM3 - B 005 U 2 AA 1 J 1 N - D H S - P70

- FSM3: Model No.
- B: Display
- 005: Flow rate range (Full scale flow rate)
- U: Flow direction
- 2: Body material/applicable fluids
- AA: Port size
- 1: Piping direction
- J: Output specifications
- 1: Unit specifications
- N: Valve Option
- D: Lead wire
- H: Mounting attachment ment
- S: Included documents
- P70: Clean-room specifications

Code	Description
Ⓐ Display	
B	Bar display

Ⓑ Flow rate range (full scale flow rate)

005	500mL/min	500	50L/min
010	1000mL/min	101	100L/min
020	2L/min	201	200L/min
050	5L/min	501	500L/min
100	10L/min	102	1000L/min
200	20L/min		

Ⓒ Flow direction

U	Uni-direction
B	Bi-direction

Ⓓ Body material/applicable fluids

	Body material	Applicable fluid
2	SUS	Air
3	SUS	Oxygen (oil-prohibited specifications)*3

Ⓔ Port size

AA	Rc1/8	
BA	Rc1/4	
CA	Rc1/2	
AF	G1/8	*4
BF	G1/4	*4
CF	G1/2	*4
AB	G1/8	*5
BB	G1/4	*5
CB	G1/2	*5
AC	NPT1/8	
BC	NPT1/4	
CC	NPT1/2	
AD	1/4" double barbed fitting (50 L/min or less)	
BD	1/4" double barbed fitting (50 to 200 L/min)	
AE	1/4" JXR male fitting (50 L/min or less)	
BE	1/4" JXR male fitting (50 to 200 L/min)	

Ⓕ Piping direction

1	Straight

Ⓖ Output specifications *2

J	Analog voltage outputx 1 point
K	Analog current outputx 1 point

Ⓗ Unit specifications

1	SI units only

Ⓘ Valve option

N	No

Ⓙ Lead wire

Blank	No
C	4 conductor 1 m
D	4 conductor 3 m

Ⓚ Mounting attachment *6

Blank	No
H	Bracket 1 (for models 200 L or less)
J	Bracket 2 (for 500 or 1000 L models)
M	DIN rail mounting (for models 200 L or less)

Ⓛ Included documents

Blank	No
R	inspection certificate
S	Company certification + traceability certificate

Ⓜ Clean-room specifications *9

Blank	No	
P70	Anti-dust generation	*7
P80	Oil-prohibited	*8

[Example of model No.]

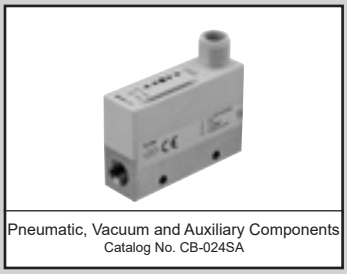
FSM3-B005U2AA1J1N-DHS-P70

Model: RAPIFLOW FSM3 Series

Ⓐ Display	B	: Bar display
Ⓑ Flow rate range	005	: 500mL/min
Ⓒ Flow direction	U	: Uni-direction
Ⓓ Body material/applicable fluids	2	: SUS/air
Ⓔ Port size	AA	: Rc1/8
Ⓕ Piping direction	1	: Straight
Ⓖ Output specifications	J	: Analog voltage output X1
Ⓗ Unit specifications	1	: SI units only
Ⓘ Valve option	N	: No
Ⓙ Lead wire	D	: 4 conductor 3 m
Ⓚ Mounting attachment	H	: Bracket
Ⓛ Included documents	S	: Company certification + traceability certificate
Ⓜ Clean-room specifications	P70	: Anti-dust generation

Precautions for model No. selection

*1: During selection, always check the compatibility table on page 517.
*2: When using in combination with a separated display (FSM2-D), select "J".
*3: "3: Oxygen" cannot be selected with 500 L/min and 1000 L/min models.
*4: The G thread connection shape is ISO16030-compliant.
*5: The G thread connection shape is JIS B 2351-1 O type-compliant.
*6: Optional parts are provided with the product. They are not pre-assembled.
*7 : The product surface is degreased and cleaned before packaging, and heat-sealed into an antistatic bag on a clean bench (Class 1000 or more).
*8: P70 specifications and gas-contact sections are degreased and cleaned.
*9: This cannot be selected on an oxygen type (blank only).



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Compact flow rate sensor (RAPIFLOW)

FSM3 Series

IO-Link

P4 compliant as standard

●Stainless steel body (flow rate range: 500mL/min to 1000L/min)

IO-Link specifications

Item			FSM3-[A][B][C][D][E][F][G][H][I]-[ ]										
			[B]										
			005	010	020	050	100	200	500	101	201	501	102
Flow direction	[C]	U	Uni-direction										
		B	Bi-direction										
Measured flow rate range (□/min) *1	[B]	U	15 to 500mL	30 to 1000mL	0.06 to 2.00L	0.15 to 5.00L	0.30 to 10.00L	0.6 to 20.0L	1.5 to 50.0L	3.0 to 100.0L	6 to 200L	15 to 500L	30 to 1000L
		B	-500 to -15, 15 to 500mL	-1000 to -30, 30 to 1000mL	-2.00 to -0.06, 0.06 to 2.00L	-5.00 to -0.15, 0.15 to 5.00L	-10.00 to -0.30, 0.30 to 10.00L	-20.0 to -0.6, 0.6 to 20.0L	-50.0 to -1.5, 1.5 to 50.0L	-100.0 to -3.0, 3.0 to 100.0L	-200 to -6, 6 to 200L	-500 to -15, 15 to 500L	-1000 to -30, 30 to 1000L
Display			LED display (power and status indicators)										
Working conditions		Applicable fluids *2	Clean air (JIS B 8392-1:2012 1.1.1 to 5.6.2), compressed air (JIS B 8392-1:2012 1.1.1 to 1.6.2), nitrogen gas										
			Argon, carbon dioxide, and gas mixture (argon + carbon dioxide)									-	
			Oxygen (When oxygen specification is selected, Ⓜ Clean-room specifications cannot be selected. Specifications automatically become oil-prohibited specifications.)									-	
		Temperature range	0 to 50°C (no condensation)										
		Pressure range	-0.09 to 1.00 MPa									-0.09 to 0.75 MPa	
		Proof pressure	1.5 MPa										
Operating ambient temperature/humidity			0 to 50°C, 90% RH or less										
Storage temperature			-10 to 60°C										
Accuracy *3		Accuracy *4	Within ±3% F.S. (Secondary side released to atmosphere) (The scope of warranty is in accordance with the "measured flow rate range.")										
		Repeatability *5	Within ±1% F.S. (Secondary side released to atmosphere)										
		Temperature characteristics	Within ±0.2% F.S./°C (15 to 35°C, base temperature 25°C)										
		Pressure characteristics	Within ±5%F.S. (secondary side released to atmosphere reference)								Within ±5% F.S (0.35MPa reference)		
Response time *6			50 msec or less										
Power supply voltage			18 to 30 VDC (ripple rate 1% or less)										
Current consumption *7			45 mA or less										
Lead wire *8			M12 both-end connector lead wire (3 m), AWG23 or equivalent, 4-conductor										
Functions *9 *10			①Gas switching, ②Flow rate integration, ③Peak hold, etc.										
Degree of protection			IP40 or equivalent (IEC standard)										
Protection circuit *11			Power reverse connection protection										
Vibration resistance *12			10 to 150 Hz, max. 100m/s^2, X, Y, Z directions, every 2 hours										
EMC Directive			EN55011, EN61000-6-2, EN61000-4-2/3/4/6/8										
Mounting		Mounting orientation *13	Unrestricted in vertical/horizontal direction										
		Straight piping installation section *14	Not required										

*1:The value converted to volumetric flow rate at standard condition (20°C 1 barometric pressure (101 kPa) 65%).
(For gases other than air, 20°C, 1 barometric pressure (101 kPa), 0%RH.

*2:Use dry gas which does not contain corrosive elements such as chlorine, sulfur or acids, and which is clean and does not contain dust or oil mist. When using compressed air, use clean air that complies with JIS B 8392-1:2012 Class 1.1.1 to 1.6.2. Compressed air from the compressor contains drainage (water, oil oxides, foreign matter, etc.). To maintain the function of this product, filter and air dryer are provided on the primary side (upstream side) of this product.(Min. pressure dew point 10°C or less) and oil mist filter (max. oil content 0.1mg/m^3) for use.
The sensor for oxygen gas is a custom model. To prevent ignition accidents, do not allow oxygen to flow again when it has been used on fluids other than oxygen to flow even once.

*3: Compressed air is used for adjusting and inspecting this product. Accuracy for gas types other than air is a guideline.

*4: Accuracy is based on a CKD standard flow rate meter. It does not indicate absolute accuracy. Repeatability, temperature characteristics, and pressure characteristics are not included for an accuracy of ± 3% F.S. Consider separately according to the working environment and working conditions.

*5: Repeatability is calculated during a short period of time. Change over time is not included. (Refer to the product specifications for details.)

*6: The actual response time changes depending on the piping conditions.

*7: Current for when 24 VDC is connected, and no load is applied. Please note that the current consumption changes depending on the load connection status.

*8: The male end is straight, and the female end is angled. Tighten the M12 connector with a torque of 0.5 N·m or lower. Tightening with excessive force may lead to damage.

*9: The gas type switching function enables switching to argon, carbon dioxide and a gas mixture of argon 80% + carbon dioxide 20%. The measurement flow rate ranges after switching are as follows. (Note that the gas type cannot be changed with the oxygen, 500 L/min, and 1000 L/min models.)

Gas	Flow direction	Measurement flow rate range (xxx/min)							
		005	010	020	100	200	500	101	201
• Air • Nitrogen • Argon • Argon 80% +Carbon dioxide 20%	Uni-direction	15 to 500mL	30 to 1000mL	0.06 to 2.00L	0.30 to 10.00L	0.6 to 20.0L	1.5 to 50.0L	3.0 to 100.0L	6 to 200L
	Bi-direction	-500 to -15mL	-1000 to -30mL	-2.00 to -0.06L	-10.00 to -0.30L	-20.0 to -0.6L	-50.0 to -1.5L	-100.0 to -3.0L	-200 to -6L
		15 to 500mL	30 to 1000mL	0.06 to 2.00L	0.30 to 10.00L	0.6 to 20.0L	1.5 to 50.0L	3.0 to 100.0L	6 to 200L
• Carbon dioxide	Uni-direction	15 to 250mL	30 to 500mL	0.06 to 1.00L	0.30 to 5.00L	0.6 to 10.0L	1.5 to 25.0L	3.0 to 50.0L	6 to 100L
	Bi-direction	-250 to -15mL	-500 to -30mL	-1.00 to -0.06L	-5.00 to -0.30L	-10.0 to -0.6L	-25.0 to -1.5L	-50.0 to -3.0L	-100 to -6L
		15 to 250mL	30 to 500mL	0.06 to 1.00L	0.30 to 5.00L	0.6 to 10.0L	1.5 to 25.0L	3.0 to 50.0L	6 to 100L

*10: The accumulated flow is a calculated (reference) value. When using the integrated save function, take care to prevent the number of saves from exceeding the access count limit of the storage device (1 million times). (Changes to the settings are counted in number of accesses.)

$$\text{Number of saves} = \frac{\text{Usage time}}{5 \text{ mins}} < 1 \text{ million times}$$

When instantaneous flow rate is below 1% it is not counted as integrating flow.

*11: This product's protection circuit is effective only for specific misconnections and load short-circuits. It does not provide protection for all misconnections.

*12: A communication error might occur depending on the vibration conditions. Install this product in a place not subject to vibration.

*13: This product measures changes in heat distribution that are caused by flow. If installed vertically, the heat distribution may change due to the effect of convection, and the zero point may be shifted.

*14: Accuracy may be affected by the piping conditions. For more accurate measurements, use a straight pipe with a ten-times greater internal diameter. With the 500 L/min and 1,000 L/min models, use piping with an internal diameter of 9 mm or more. If it is less than 9 mm, accuracy may be negatively affected.

How to order

FSM3 - C 005 U 2 AA 1 L 1 N - G H R - P70

Model No.

A Display

B Flow rate range (Full scale flow rate)

C Flow direction

D Body material/applicable fluids

E Port size

F Piping direction

G Output specifications

H Unit specifications

I Valve option

J Lead wire

K Mounting attachment

L Included documents

M Clean-room specifications

Code	Description
A Display	
C	IO-Link

B Flow rate range (full scale flow rate)			
005	500mL/min	500	50L/min
010	1000mL/min	101	100L/min
020	2L/min	201	200L/min
050	5L/min	501	500L/min
100	10L/min	102	1000L/min
200	20L/min		

C Flow direction	
U	Uni-direction
B	Bi-direction

D Body material/applicable fluids		
	Body material	Applicable fluid
2	SUS	Air (gas switchable)
3	SUS	Oxygen (oil-prohibited specifications)*2

E Port size	
AA	Rc1/8
BA	Rc1/4
CA	Rc1/2
AF	G1/8 *3
BF	G1/4 *3
CF	G1/2 *3
AB	G1/8 *4
BB	G1/4 *4
CB	G1/2 *4
AC	NPT1/8
BC	NPT1/4
CC	NPT1/2
AD	1/4" double barbed fitting (50 L/min or less)
BD	1/4" double barbed fitting (50 to 200 L/min)
AE	1/4" JXR male fitting (50 L/min or less)
BE	1/4" JXR male fitting (50 to 200 L/min)

F Piping direction	
1	Straight

G Output specifications	
L	IO-Link communication

H Unit specifications	
1	SI units only

I Valve option	
N	No

J Lead wire	
Blank	No
G	M12 both-end lead wire with connector (3 m)

K Mounting attachment *5	
Blank	No
H	Bracket 1 (for models 200 L or less)
J	Bracket 2 (for 500 or 1000 L models)
M	DIN rail mounting (for models 200 L or less)

L Included documents	
Blank	No
R	inspection certificate
S	Company certification + traceability certificate

M Clean-room specifications *8		
Blank	No	
P70	Anti-dust generation	*6
P80	Oil-prohibited	*7

[Example of model No.]

FSM3-C005U2AA1L1N-GHR-P70

Model: RAPIFLOW FSM3 Series

A Display	C	: IO-Link
B Flow rate range	005	: 500mL/min
C Flow direction	U	: Uni-direction
D Body material/applicable fluids	2	: SUS/air
E Port size	AA	: Rc1/8
F Piping direction	1	: Straight
G Output specifications	L	: IO-Link
H Unit specifications	1	: SI units only
I Valve option	N	: No
J Lead wire	G	: M12 both-end lead wire with connector (3 m)
K Mounting attachment	H	: Bracket
L Included documents	R	: inspection certificate
M Clean-room specifications	P70	: Anti-dust generation

Precautions for model No. selection

*1: During selection, always check the compatibility table on page 517.
*2: "3: Oxygen" cannot be selected with 500 L/min and 1000L/min models.
*3: The G thread connection shape is ISO16030-compliant.
*4: The G thread connection shape is JIS B 2351-1 O type-compliant.
*5: Optional parts will come with the product. They are not pre-assembled.
*6: The product surface is degreased and cleaned before packaging, and heat-sealed into an antistatic bag on a clean bench (Class 1000 or more).
*7: P70 specifications and gas-contact sections are degreased and cleaned.
*8: This cannot be selected on an oxygen type (blank only).

Flow rate range and port size

Ⓑ Flow rate range	Ⓔ Port size															
	AA	BA	CA	AF	BF	CF	AB	BB	CB	AC	BC	CC	AD	BD	AE	BE
	Rc1/8	Rc1/4	Rc1/2	G1/8	G1/4	G1/2	G1/8	G1/4	G1/2	NPT1/8	NPT1/4	NPT1/2	1/4" Double barbed fitting		1/4" JXR male fitting	
005	●			●			●			●			●		●	
010	●			●			●			●			●		●	
020	●			●			●			●			●		●	
050	●			●			●			●			●		●	
100	●			●			●			●			●		●	
200	●			●			●			●			●		●	
500	●	●		●	●		●	●		●	●		●	●	●	●
101		●			●			●			●			●		●
201		●			●			●			●			●		●
501			●			●			●			●				
102			●			●			●			●				

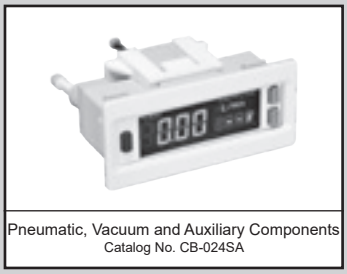
Discrete option model No. method

FSM3 - K - P70

Ⓐ Option

Ⓑ Clean-room specifications

Code	Description
Ⓐ Option	
A	5-conductor lead wire 1 m (for LCD display)
B	5-conductor lead wire 3 m (for LCD display)
C	4-conductor lead wire 1 m (for bar display)
D	4-conductor lead wire 3 m (for bar display)
G	M12 both-end lead wire with connector (3 m) (for IO-Link)
H	Bracket 1 (for models with a flow rate range below 200 L/min)
J	Bracket 2 (for models with a flow rate range of 500 L/min or 1000 L/min)
K	Panel mounting kit 1 (for sensor unit models with a flow rate range below 200 L/min)
M	DIN rail mountKit (for models with a flow rate range below 200L/min)
Ⓑ Clean-room specifications	
Blank	No
P70	Anti-dust generation (FSM3-G-P70 cannot be selected.)



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Compact flow rate sensor (RAPIFLOW)

FSM2-D Series

Separated display

P4 compliant as standard

RoHS

Separated display specifications

Item				Separated display FSM2-D-[*1][*2]-□-[*3]
Settable flow rate range *1			mL	5,10,50,100,500,1000
			L	2,4,5,10,12,20,25,32,50,100, 200,500,1000
			m^3	1.5
Operating ambient temperature/humidity				0 to 50°C
Display				4 digit + 4 digit 2 color LCD
Input voltage				1 to 5V
Output	Switch output	*1	N	Output 2 points (NPN open collector output, 50 mA or less, voltage drop 2.4 V or less)
			P	Output 2 points (PNP open collector output, 50 mA or less, voltage drop 2.4 V or less)
	Analog output	*2	V	1 to 5 V voltage output 1 point (connecting load impedance 50 kΩ or more) *6
			A	4 to 20 mA current output 1 point (connecting load impedance 0 to 300 Ω)
Power supply voltage		*2	V	12 to 24 VDC (10.8 to 26.4V)
			A	24 VDC (21.6 to 26.4V)
Current consumption *2				40 mA or less (when 24 VDC is connected, and no load is connected)
Lead wire				ø3.7, AWG26 or equivalent x 5-conductor (connector), insulator O.D. 1.0
Functions				Flow rate display, flow rate display peak hold, switch output, analog output
Degree of protection				IEC standards IP40 or equivalent
Protection circuit *3				Power reverse connection protection
EMC Directive				EN55011, EN61000-6-2, EN61000-4-2/3/4/6/8
Accessory				1 connector for sensors (e-con), compatible cable AWG 24 to 26, insulated outside diameter 1.0 to 1.2
Weight (main body only)				Approx. 40 g
Clean-room specifications *4	*3		P70	Anti-dust generation

*1: The flow rate range, flow direction and gas are automatically recognized only when the FSM3 bar display or FSM2 separated display is connected. (Default state) The FSM-H Series, FSM-V Series and WFK3000 Series flow rate ranges are supported, but automatic recognition is not supported. Always set the product's flow rate range, flow direction and gas type before use. The connectable flow rate ranges are shown in "Display by flow rate range" below. The "Gas Type Setting" function of this product is not a "Gas Type Switching" function that switches the sensor characteristics to match the gas type. If a “Gas Type Switching” function is required, use the LCD display type. When the sensor section is changed, the previous flow rate range settings, etc., will still be recorded. Always reset the settings before using.

*2: Current for when 24 VDC is connected, and no load is connected. Please note that the current consumption changes depending on the load connection status.

*3: This product's protection circuit is effective only for specific misconnections and load short-circuits. It does not provide protection for all misconnections.

*4: [P70] Anti-dust generation (product surface is degreased and cleaned before packing. Heat seal into antistatic bags in clean bench (Class 1000 and over).)

*5: When connecting to the FSM-V Series or WFK3000 Series, the lead wire size is different so a separate compatible sensor connection connector (e-con) will be required. Contact your CKD Sales or dealer. The attached sensor connector (e-con) can be used with the FSM2 Series, FSM3 Series and FSM-H Series.

*6: The output impedance of the analog output voltage output is approximately 1 kΩ. If the impedance of the connecting load is small, output and error increase. Check error with the impedance of the connecting load before using.

*7: When connecting the FSM3 bar display with oxygen specification, the gas display will be "Ai" (air, N2), but this does not cause problems during use.

Display for each flow rate range

Flow rate display																								
Display range	Uni-direction	0 up 500 mL/min	0 up 1000 mL/min	0 up 2.00 L/min	0 up 4.00 L/min	0 up 5.00 L/min	0 up 10.00 L/min	0 up 12.0 L/min	0 up 20.0 L/min	0 up 25.0 L/min	0 up 32.0 L/min	0 up 50.0 L/min	0 up 100.0 L/min	0 up 200 L/min	0 up 500 L/min	0 up 1000 L/min	0 up 1.50 m^3/min	0 up 5.00 mL/min	0 up 10.00 mL/min	0 up 50.0 mL/min	0 up 100.0 mL/min
	Bi-direction	-500 to 500 mL/min	-1000 to 1000 mL/min	-2.00 to 2.00 L/min	-	-5.00 to 5.00 L/min	-10.00 to 10.00 L/min	-	-20.0 to 20.0 L/min	-	-	-50.0 to 50.0 L/min	-100.0 to 100.0 L/min	-200 to 200 L/min	-500 to 500 L/min	-1000 to 1000 L/min	-1.50 up 1.50 m^3/min	-5.00 up 5.00 mL/min	-10.00 to 10.00 mL/min	-50.0 to 50.0 mL/min	-100.0 to 100.0 mL/min
Display resolution		1mL/min		0.01L/min				0.1L/min						1L/min			0.01m^3/min	0.01mL/min		0.1mL/min			
Integrating functions *2 Display range		9999999mL		99999.99L				999999.9L						9999999L			99999.99m^3	99999.99mL		999999.9mL			
Integrating functions *2 Display resolution		1mL		0.01L				0.1L						1L			0.01m^3	0.01mL		0.1mL			
Integrating functions *2 Integrated pulse output rate		5mL	10mL	0.02L	0.04L	0.05L	0.1L	0.12L	0.2L	0.25L	0.32L	0.5L	1L	2L	5L	10L	15L	0.05mL	0.1mL	0.5mL	1mL

* The corresponding sensor is the voltage output (1-5 V) type. If the current output type or other voltage output type is connected, it will not operate properly.

*1: The flow rate display is rounded off at approximately ±1% or less (forced zero).

*2: The integrating flow is a calculated (reference) value. It is reset when the power is turned OFF.

How to order

FSM2 - D - N V - 3 P - P70

- Ⓐ Output
- Ⓑ Analog output
- Ⓒ Lead wire
- Ⓓ Bracket
- Ⓔ Clean-room specifications

Code	Description
Ⓐ Output	
N	Switch output (NPN) 2 points, analog output 1 point
P	Switch output (PNP) 2 points, analog output 1 point
Ⓑ Analog output	
V	Voltage output (1 to 5 V)
A	Current output (4 to 20 mA)
Ⓒ Lead wire	
Blank	No
1	1m
3	3m
Ⓓ Bracket	
Blank	No
P	Panel mounting kit
Ⓔ Clean-room specifications	
Blank	No
P70	Anti-dust generation

CAUTION

The corresponding sensor is the voltage output (1-5 V) type. If the current output type or other voltage output type is connected, it will not operate properly. When using FSM3, use the bar display voltage output.

Discrete option model No.

FSM2-EC - P70

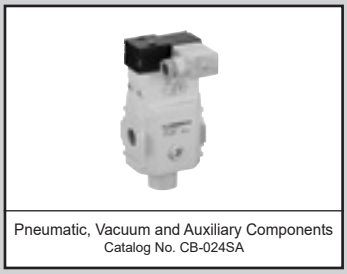
- Ⓐ Option
- Ⓑ Clean-room specifications

Code	Description
Ⓐ Option	
FSM2-EC	Sensor connector (e-con) 5 pcs. set
FSM3-A	5-conductor lead wire 1 m
FSM3-B	5-conductor lead wire 3 m
FSM3-K	Panel mounting kit
Ⓑ Clean-room specifications	
Blank	No
P70	Anti-dust generation

Precautions for use (common to FSM3 Series, FSM2-D Series)

WARNING

- Applications outside the specifications, Load current, Voltage, Temperature, Shock, Otherwise, damage and/or misoperations may occur. Therefore, the dimensions are within the specified rangefor vacuum piping.
- Never use this product in an explosive gas atmosphere. Never use in an explosive gas atmosphere as explosions or fires could result.
- Static
  Do not use this product where electrostatic discharge could occur.
  Failure to do so may result in breakdown or malfunction of the system.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

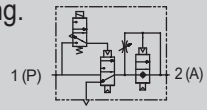
Slow start valve

V3301-W Series

Ensuring safety when starting and stopping.

● Port size: Rc1/4 to Rc1/2

JIS symbol



RoHS CAD

Specifications

Item		V3301-W/V3321-W		
Actuation		Pilot operated soft spool valve		
Working fluid		Compressed air (excluding ultra-dry compressed air) *1		
Working pressure MPa		0.2 to 1.0		
Proof pressure MPa		1.5		
Ambient/fluid temperatures °C		5 to 60		
Port size	1(P)/2(A) port	Rc1/4	Rc3/8	Rc1/2
	3(R) port	Rc3/8		
	Gauge port	Rc1/4		
Effective cross-sectional area mm^2	Low speed air supply	6		
	High speed air supply	40	64	76
	High speed exhaust	50	74	78
Response time		0.2 sec or less		
Lubrication		No lubrication *2		
Weight g		V3301-W:635 V3321-W:515		

Solenoid valve specifications	V3301-W		
Rated voltage V	100 AC (50/60Hz)	200 AC (50/60Hz)	24 DC
Starting current A	0.076/0.058	0.038/0.030	0.092
Holding current A	0.038/0.029	0.019/0.015	
Power consumption W	2.2/1.7	2.2/1.7	2.2
Temperature rise K	40 or less		
Voltage fluctuation range	±10%		
Insulation class	Class B		
Electrical connections	Grommet lead wire/terminal box		

*1: Consult with CKD when using ultra dry compressed air.
*2: Use turbine oil Class 1 ISO VG32 for lubrication.

Compatibility table by variation

	V3301	
Port size	Rc1/4 to Rc1/2	
P4	▲	(*1)
P40	▲	(*1)

*1: Only LS is available for electrical connection.

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

How to order

● Solenoid valve **V3301** - **08** - **W** - **FL** ▭

(White)

Ⓐ Port size

Code	Description
Ⓐ **Port size**	
1(P)/2(A) port	
08	Rc1/4
10	Rc3/8
15	Rc1/2

⚠ *1: When installing the V3301-W on the primary side of the regulator and filter regulator, select the reverse regulator (R*100-W) and reverse filter regulator (W*100-W).
*2: Made-to-order product. Contact CKD Sales for details.



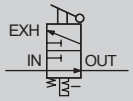
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Residual pressure exhaust valve

V3000-W Series

One action exhaust operation. Ideal for preventing accidents due to residual pressure in pneumatic lines.

● Port size: 1/8 to 1/2

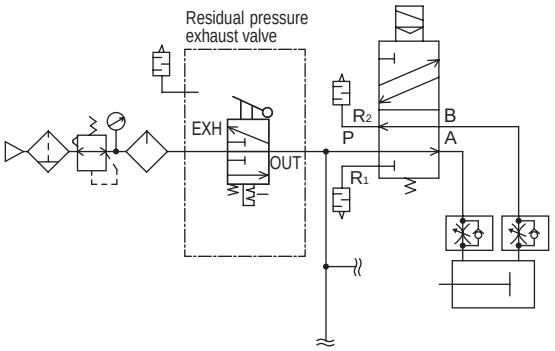
JIS symbol 

Specifications

Item		V3000-8-W	V3000-10-W	V3000-15-W
Working fluid		Compressed air		
Max. working pressure MPa		1.0		
Proof pressure MPa		1.5		
Ambient/fluid temperatures °C		5 to 60		
Operation lever switching angle		90°		
Operating force	Pushing force N	80		
	Torque N·m	2		
Valve section leakage cm^3/min (ANR)		10		
External leakage cm^3/min (ANR)		10		
Port size (Rc)	IN/OUT	1/4	3/8	1/2
	EXH	3/8		
Weight kg		0.25		
Effective cross-sectional area [mm^2]	IN/OUT	40	70	85
	OUT / EXH	40	50	50

Applications

Explanation: When repairing or adjusting solenoid valves, air cylinders, etc., work is performed after the compressed air in the pneumatic circuit is discharged by the residual pressure discharge valve to ensure safety.



Compatibility table by variation

	V3000
Port size	Rc1/4 to Rc1/2
P4	●
P40	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

*1: In P40, the exhaust air flow path parts use zinc plating.

How to order

● For SELEX F.R.L3000., 4000 Series

V3000 - 8 - W - ( ) P4 P40 - BW

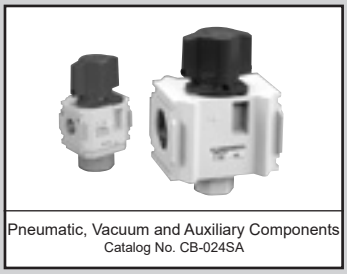
Ⓐ Port size
Ⓑ Option
Ⓒ Attachment

Code	Description
Ⓐ Port size	
8	Rc1/4
10	Rc3/8
15	Rc1/2
Ⓑ Option	
Blank	Standard flow (left → right)
X1	IN/OUT reverse flow (right → left)
Ⓒ Attachment	***1, *2**
Blank	Without accessories
A8*W	1/4 pipe adaptor set
A10*W	3/8 pipe adaptor set
A15*W	1/2 pipe adaptor set
A20*W	3/4 pipe adaptor set
BW	C-bracket

⚠ Precautions for model No. selection

*1: The pipe adaptor set and C-bracket cannot be used together.
*2: The joiner set is included with the pipe adapter set.

⚠ When installing the V3000-W on the primary side of the regulator and filter regulator, select the reverse regulator (R*100-W) and reverse filter regulator (W*100-W).



Pneumatic, Vacuum and Auxiliary Components
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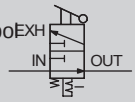
Residual pressure exhaust valve with locking hole (OSHA compliant)

V3010-W/V6010-W Series

Ideal for preventing accidents due to residual pressure in pneumatic lines.

● Port size: 1/4 to 1

JIS symbol



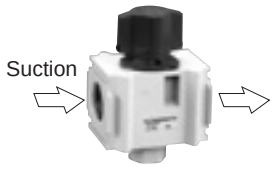
CAD RoHS

Specifications

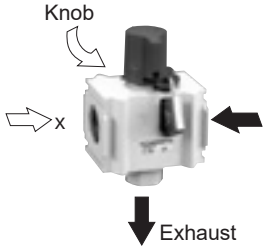
Item		V3010-8-W	V3010-10-W	V3010-15-W	V6010-20-W	V6010-25-W
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Proof pressure MPa		1.5				
Ambient/fluid temperatures °C		5 to 60				
Operation lever switching angle		90°				
Operating force	Pushing force N	80 or less				
	Torque N·m	2.5 or less				
Valve seat leakage cm^3/min (ANR)		10 or less				
External leakage cm^3/min (ANR)		10 or less				
Port size (Rc)	IN/OUT	1/4	3/8	1/2	Rc 3/4	Rc1
	EXH	3/8			Rc1/2	
Weight kg		0.3			0.8	
Effective cross-sectional area (mm^2)	IN→OUT	40	70	85	145	150
	OUT→EXH	40	50	50	105	110

How to use

● Regular use



● During maintenance
at the point where residual pressure is released. You can lock it.



OSHA (Occupational Safety and Health Administration)

Establishes safety standards for employees, as well as US safety standards.

[Lockout/Tagout Regulation]
When conducting maintenance on machinery, the air source shall be closed with a shut-off valve, and the residual pressure exhaust valve shall be discharged. If a third party inadvertently operates the valve during such operation and compressed air is applied, the cylinder, etc., could move suddenly and injure personnel. This standard states that, "All valves used for such purposes shall have a key or a structure which can be locked with a key."

How to order

● For SELEX F.R.L2000., 3000, 4000 Series

V3010 - 8 - W - ( ) P4 P40 - A8W

● For SELEX F.R.L6000., 8000 Series

V6010 - 20 - W - ( ) P4 P40 - A8W
(White)

Ⓐ Model No.
Ⓑ Port size
Ⓒ Option
Ⓓ Attachment

Code	Description	Ⓐ Model No. V3010	Ⓐ Model No. V6010
Ⓑ Port size			
8	Rc1/4	●	
10	Rc3/8	●	
15	Rc1/2	●	
20	Rc3/4		●
25	Rc1		●
Ⓒ Option			
Blank	None	●	●
X1	IN/OUT reverse flow (right → left)	●	●
Ⓓ Attachments *1, *2			
Blank	No attachment	●	●
A8W	1/4 pipe adaptor set	●	
A10W	3/8 pipe adaptor	●	
A15W	1/2 pipe adaptor	●	
A20W	3/4 pipe adaptor set	●	●
A25W	1 pipe adaptor set	●	●
A32W	1 1/4 pipe adaptor		●
BW	C-bracket	●	●

Precautions for model No. selection

*1:The pipe adaptor set and C-bracket cannot be used together.
*2:The joiner set is included with the pipe adapter set.

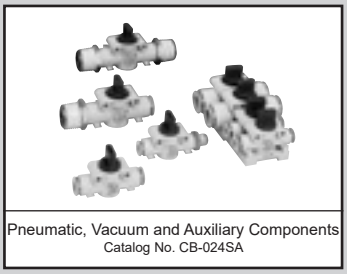
⚠ Select the reverse regulator (R*100-W) or reverse filter regulator (W*100-W) when installing the V*010-W onto the primary side of the regulator or filter regulator.

Compatibility table by variation

	V3010	V6010
Port size	Rc1/4 to Rc1/2	Rc3/4, Rc1
P4	●	●
P40	▲ (Note)	▲ (Note)

Note: For P40, zinc plating is used for the exhaust air flow path parts.

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable



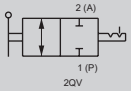
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Quick valve

2QV Series

●Port size: Push-in fitting ø4, ø6, ø8, ø10, ø12, R1/8 to R1/2

JIS symbol



RoHS CAD

Specifications

Item	2QV
Working fluid	Air
Max. working pressure MPa	1.0
Min. working pressure kPa	−100 (*1)
Proof pressure MPa	1.5
Fluid temperature °C	0 to 60
Ambient temperature °C	0 to 60
Switching angle °	90
Tube used	Soft nylon tube (tube F-15**) Urethane tube (tube U-95**, NU-**)
Mounting orientation	Arbitrary

*1: When using a urethane tube (U-95**, NU-**) under vacuum, use an insert ring.
*2: Lubricant is used, so oil-prohibited specification is not available.

How to order

● Quick valve

2QV - 04-04 - P4

Ⓐ Port size (PPo-)-(APo-)

Code	Description
2	2-way valve

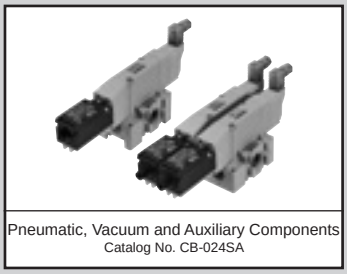
	Ⓐ Port size (PPo-)-(APo-)		Bracket *
		IN side - OUT side	
Standard	04−04	Push-in fitting ø4 - Push-in fitting ø4	2QV-P1
	06−06	Push-in fitting ø6 - Push-in fitting ø6	
	08S-08S	Push-in fitting ø8 - Push-in fitting ø8	
	08−08	Push-in fitting ø8 - Push-in fitting ø8	2QV-P2
	10−10	Push-in fitting ø10 - Push-in fitting ø10	
	12−12	Push-in fitting ø12 - Push-in fitting ø12	
Option	6A-04	R1/8 - Push-in fitting ø4	2QV-P1
	6A-06	R1/8 - Push-in fitting ø6	
	8A-06	R1/4 - Push-in fitting ø6	
	8A-08S	R1/4 - Push-in fitting ø8	
	10A-08	R3/8 - Push-in fitting ø8	2QV-P2
	10A-10	R3/8 - Push-in fittingø10	
	15A-10	R1/2 - Push-in fitting ø10	
	15A-12	R1/2 - Push-in fitting ø12	
	04-6A	Push-in fitting ø4 - R1/8	2QV-P1
	06-6A	Push-in fitting ø6 - R1/8	
	06-8A	Push-in fitting ø6 - R1/4	
	08S-8A	Push-in fitting ø8 - R1/4	
	08-10A	Push-in fitting ø8 - R3/8	2QV-P2
	10-10A	Push-in fittingø10 - R3/8	
	10-15A	Push-in fitting ø10 - R1/2	
	12-15A	Push-in fittingø12 - R1/2	
	6A-6A	R1/8 - R1/8	2QV-P1
	8A-8A	R1/4 - R1/4	
	10A-10A	R3/8 - R3/8	2QV-P2
	15A-15A	R1/2 - R1/2	

* Note that this may differ according to the body size.

Compatibility table by variation

	2QV
Port size	ø4, ø6, ø8, ø10, ø12
P4	●

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Residual pressure exhaust valve with spool position detection

SNS Series

●Port size: Rc3/8, Rc1/2, G1/2, NPT3/8, NPT1/2

as standard P4 compliant

CE RoHS

Common specifications

Item	Description
Valve type and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure	0.2 (For internal pilot specifications)
MPa	0 (For external pilot specifications)
External pilot pressure MPa	0.2 to 0.7
Proof pressure MPa	1.05
Ambient temperature °C	-5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common (Standard)
Lubrication *1	Not required
Degree of protection *2	Dust proof/water jet proof (IP65)
Vibration resistance m/s^2	50 or less
Shock resistance m/s^2	300 or less
Atmosphere	Cannot be used in corrosive gas environments
Maximum operating frequency	30 cycles/min.
Minimum operating frequency	1 cycle/week

Electrical specifications

Item	Description
Rated voltage V	24 DC
Voltage fluctuation range	±10%
Holding current A	0.042
Power consumption W	1.0
Thermal class	B
Surge suppressor	Varistor
Indicator	LED

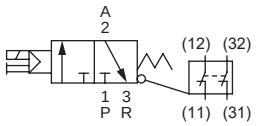
Individual specifications

Item		Description
Port size	Port P/A	Rc3/8, Rc1/2, G1/2, NPT3/8, NPT1/2
	Port R	Rc3/8, G3/8, NPT3/8

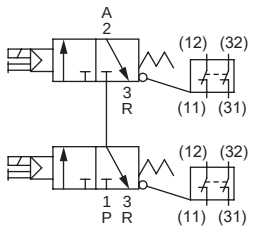
*1. Use turbine oil Class 1 ISO VG32 for lubrication. Excessive or intermittent lubrication results in unstable operation.
*2. Use the specified outer diameter of the cord and tightening torque for fixing. Do not use this product in environments where it will be constantly exposed to water or oil. IP65(IEC60529[IEC529:1989-11] Tested according to standards
*3. For the working pressure, refer to "Pneumatic, Vacuum and Auxiliary Components (Catalog No. CB-024SA).
*4. The pilot exhaust is released to the atmosphere. No port processing is performed.

JIS symbol

● 1 stations



● 2 stations



Weight

Unit: kg

Item			Weight
1 stations	With safety limit switch	Pg13.5	0.7
		M12-4P connector	0.7
	Without switch		0.6
2 stations	With safety limit switch	Pg13.5	1.2
		M12-4P connector	1.2

Flow characteristics

Model No.	Station No.	P→A	A→R
		C(dm^3/(s·bar))	
SNS	1 station	13	14
	2 stations	10	14

Limit switch specifications

Item	Limit switch specifications	
Manufacturer model	D4N-1B31 (OMRON)	D4N-9B31 (OMRON)
Terminal	Pg13.5	M12-4P connector
Contact resistance	25 mΩ or less	
Minimum applicable load	5 VDC 1 mA resistance load	
Rated insulation voltage V	300	
Insulation resistance MΩ	100	
Electric shock protection class	Class II	
Pollution degree (working environment)	3 (EN60947-5-1)	
Conditional short-circuit current A	100	

* Refer to the manufacturer's catalog for details.

Compatibility table by variation

	SNS
Port size	3/8, 1/2
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

SNS - 2 - 15A - M B L K ( ) S - 3

Model No.
Ⓐ Station No.
Ⓑ Port size
Ⓒ Manual override
Ⓓ Electrical connections
Ⓔ Safety limit switch
Ⓕ Pilot operated
Ⓖ Flow direction option
Ⓗ Silencer
Ⓘ Voltage

Code	Description
Ⓐ Station No.	
1	1 station
2	2 stations
Ⓑ Port size	
10A	Rc3/8
15A	Rc1/2
15G	G1/2
10N	NPT3/8
15N	NPT1/2
Ⓒ Manual override	
Blank	Manual override of non-locking/locking common
M	Non-locking manual override
Ⓓ Electrical connections	
B	DIN terminal box (Pg7) with surge suppressor/lamp
BN	DIN terminal box (Pg7) (without terminal box) With surge suppressor
Ⓔ Safety limit switch	
Blank	Without switch (*1)
L	Pg13.5 (D4N-1B31: OMRON)
M	M12-4P connector (D4N-9B31: OMRON)
Ⓕ Pilot operated	
Blank	Internal pilot
K	External pilot
Ⓖ Flow direction option	
Blank	Standard flow (left → right)
X1	Reverse flow (right → left) (*2)
Ⓗ Silencer	
Blank	None
S	Silencer (SLW-10L) included (*3)
Ⓘ Voltage	
3	24 VDC

Precautions for model No. selection

*1: Ⓐ Available only when Station No. is "1". * Not compliant with safety standards.
*2: Ⓐ Available only when Station No. is "1".
*3: Ⓑ Available only when Port size is 10A or 15A.

[Example of model No.]

SNS-2-15A-MBLKS-3

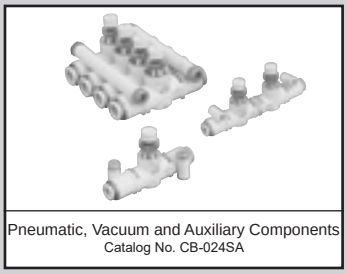
Model No.	: SNS
Ⓐ Station No.	: 2 stations
Ⓑ Port size	: Rc1/2
Ⓒ Manual override	: Non-locking manual override
Ⓓ Electrical connections	: DIN terminal box (Pg7) with surge suppressor/lamp
Ⓔ Safety limit switch	: Pg13.5 (D4N-1B31: OMRON)
Ⓕ Pilot operated	: External pilot
Ⓖ Flow direction option	: Standard flow (left → right)
Ⓗ Silencer	: Silencer (SLW-10L) included
Ⓘ Voltage	: 24 VDC

Speed controller/fitting/auxiliary valve/silencer/tube



CONTENTS

■ Speed controller	Speed controller Line type	SCL2/SCD2	528
	Speed controller, elbow	SC3W	530
	Speed controller with adjusting dial	DSC	532
	Polypropylene resin, speed controller, elbow	SC3F	535
	Polypropylene resin, speed controller, line type	SCLF	536
■ Fitting	Miniature fitting	FTS4/FPL	537
	Fittings, stainless steel series	ZW	538
	Polypropylene resin	ZSF	545
■ Auxiliary valve	Quick exhaust valve inline type	QEL	546
	Quick exhaust valve	QEV2	548
	Shuttle valve	SHV2	550
	Check valve	CHV2	552
■ Silencer	Metering valve with silencer	SMW2	553
	Exhaust cleaner	FA	554
■ Tube	Tube	UP/F/U/NU/KK/ SR2	556
	Fluoro resin tube	ET	560
	Polyolefin tube	PFH/S	561



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Speed controller Line type with push-in fitting

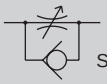
SCL2 Series

In/out speed controller Inline with push-in fitting

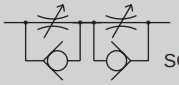
SCD2 Series

● Port size: ø4/ø6/ø8/ø10 (SCL2 only)

JIS symbol



SCL2 Series



SCD2 Series

RoHS CAD

Specifications

● Speed controller Line type SCL2

Model No.		SCL2-04	SCL2-06	SCL2-08	SCL2-10
Compatible tube O.D. mm		ø4	ø6	ø8	ø10
Working fluid		Compressed air			
Max. working pressure MPa		1.0			
Min. working pressure MPa		0.1			
Proof pressure MPa		1.5			
Fluid temperature °C		5 to 60 (no freezing. *3)			
Ambient temperature °C		0 to 60 (no freezing)			
Weight g		11.5	16	33	57
Dial value (needle position)		12 [15]			
Free	Flow rate ℓ/min (ANR)	130	300	550	1100
flow	Effective cross-sectional area mm^2	1.9	4.5	8	16.5
Controlled	Flow rate ℓ/min (ANR)	130 [13]	300 [13]	550	1100
flow	Effective cross-sectional area mm^2	1.9 [0.2]	4.5 [0.2]	8	16.5

● In/out speed controller Inline SCD2

Model No.	SCD2-04	SCD2-06	SCD2-08
Compatible tube O.D. mm	ø4	ø6	ø8
Working fluid	Compressed air		
Max. working pressure MPa	1.0		
Min. working pressure MPa	0.1		
Proof pressure MPa	1.5		
Fluid temperature °C	5 to 60 (no freezing. *3)		
Ambient temperature °C	0 to 60 (no freezing)		
Weight g	21.5	29	64
Dial value (needle position)	12 [15]		
Flow rate ℓ/min (ANR)	100 [13]	250 [13]	400
Effective cross-sectional area mm^2	1.5 [0.2]	3.7 [0.2]	6

*1: Flow rate is the atmospheric pressure conversion at 0.5 MPa.
*2: Values in [ ] indicate fine speed.
*3: Freezing may occur due to adiabatic expansion depending on the air quality (dew point).

Compatibility table by variation

	SCL2/SCD2
Port size	ø4, ø6, ø8, ø10
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

● Speed controller Line type

SCL2 - 04 - H44 - ( ) - P4

● In/out speed controller Inline

SCD2 - 04 - H44 - ( ) - P4

Model No.

Ⓐ Body size

Ⓑ Compatible tube O.D.

Body size and compatible tube Combination of O.D. and flow characteristics refer to the table at right.

Code	Description
Ⓐ Body size	
04	M5 thread equivalent
06	1/8 thread equivalent
08	1/4 thread equivalent
10	3/8 thread equivalent *SCL2 only
Ⓑ Compatible tube O.D.	
H44	ø4
H66	ø6
H88	ø8
H1010	Ø 10*SCL2 only

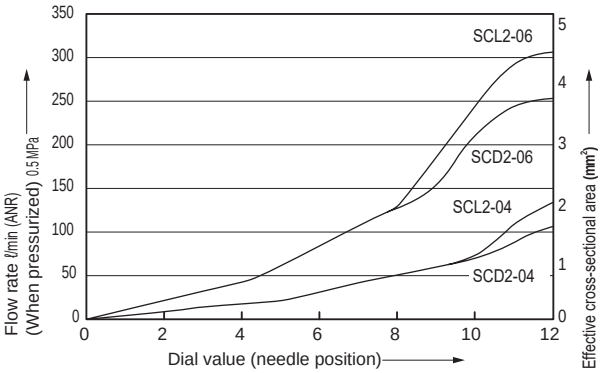
Body size and compatible tube O.D.,Flow characteristics combination

			Ⓐ Body size			
			04	06	08	10
Ⓑ Compatible tube O.D.	H44	ø4	●			
	H66	ø6		●		
	H88	ø8			●	
	H1010	ø10				● * SCL2 only

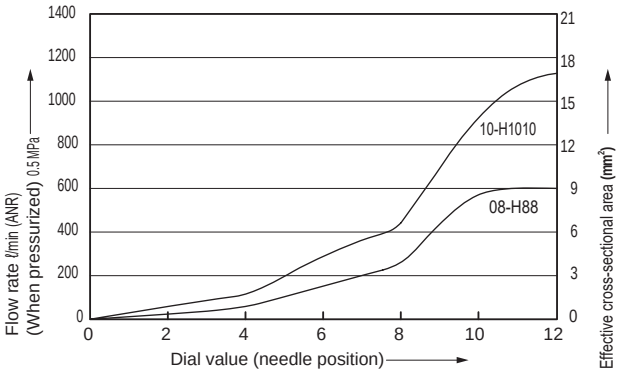
Not available

Flow characteristics

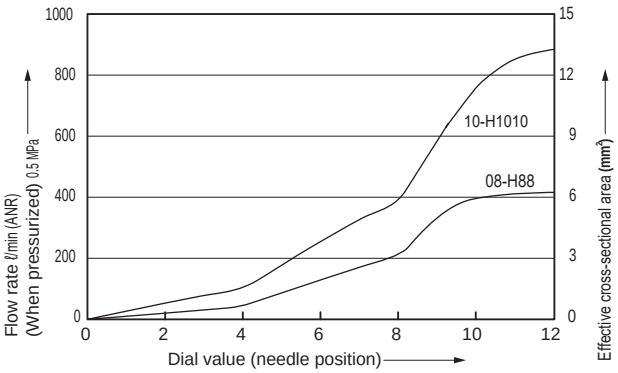
● Standard
SCL2-04, SCL2-06, SCD2-04, SCD2-06

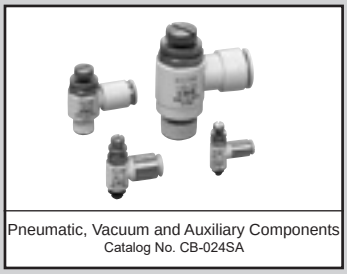


● Standard
SCL2-08, SCL2-10



● Standard
SCD2-08, SCD2-10





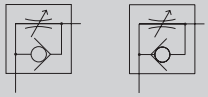
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Speed controller, elbow with push-in fitting

SC3W Series

●Port size: M3, M5, R1/8 to R1/2

JIS symbol



(Meter-out) (Meter-in)

RoHS CAD

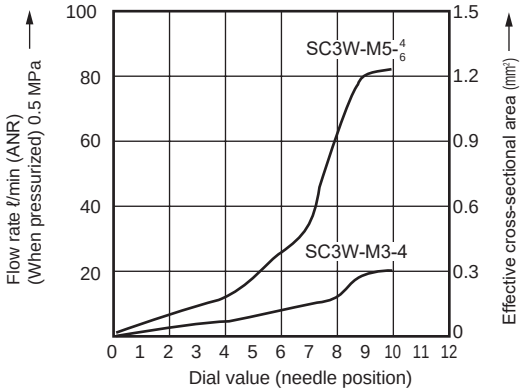
Specifications

Item		SC3W														
		SC3W-M3	SC3W-M5		SC3W-6			SC3W-8			SC3W-10				SC3W-15	
Compatible tube O.D. mm		ø4	ø4	ø6	ø4	ø6	ø8	ø6	ø8	ø10	ø6	ø8	ø10	ø12	ø10	ø12
Working fluid		Compressed air														
Max. working pressure MPa		1.0														
Min. working pressure MPa		0.05														
Proof pressure MPa		1.5														
Fluid temperature °C		5 to 60 (no freezing *3)														
Ambient temperature °C		0 to 60 (no freezing)														
Port size		M3	M5		R 1/8			R 1/4			R 3/8				R 1/2	
Weight g		5.7	8.8	9.6	25	26	27	50	51	54	63.7	75	78	81	134	138
Dial value (needle position) (times)		10 (14) or more	10 (16) or more		10 (15) or more			13 or more			13 or more				14 or more	
Free flow	Flow rate ℓ/min (ANR)	27 (20)	87 (80)		210 (210)	270 (270)	270	470	500	530	650	1000	1100		1500	1600
	Effective cross-sectional area mm²	0.4 (0.3)	1.3 (1.2)		3.2 (3.2)	4.0 (4.0)	4.0	7	7.5	8	10	15	16		22	24
Controlled flow	Flow rate ℓ/min (ANR)	20 (5.9)	80 (6.7)		190 (13)	240 (13)	240	430	470	470	650	930	1000		1500	1600
	Effective cross-sectional area mm²	0.3 (0.08)	1.2 (0.1)		2.8 (0.2)	3.6 (0.2)	3.6	6.5	7	7.0	10	14	15		22	24

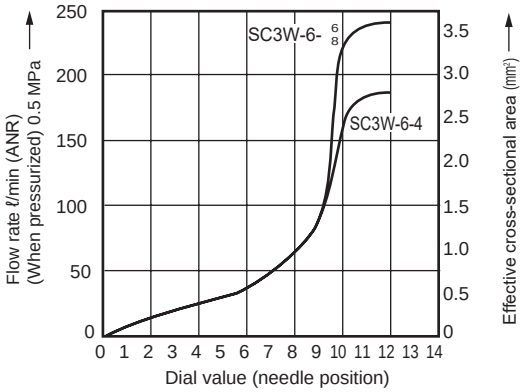
*1: Flow rate is the atmospheric pressure conversion value at pressure 0.5 MPa.
*2: Values in ( ) indicate low speed.
*3: Freezing may occur due to adiabatic expansion depending on the air quality (dew point).

Flow characteristics

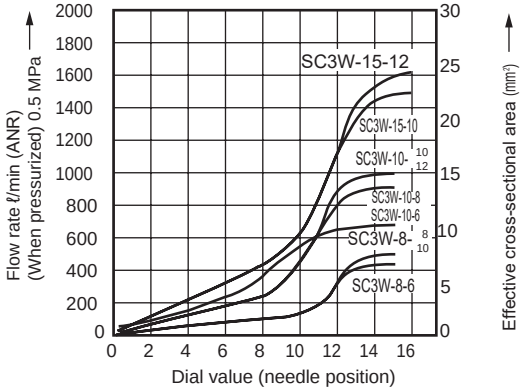
● Standard (port size M3, M5)



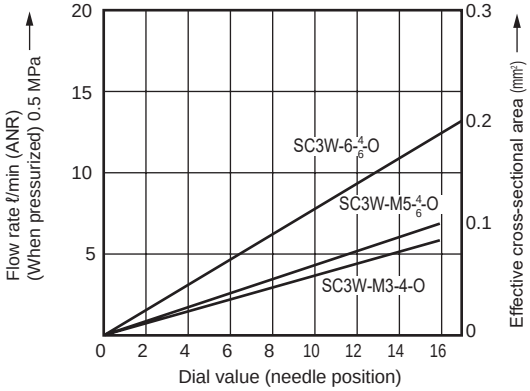
● Standard (port size 6)



● Standard (port size 8, 10, 15)



● Low speed



Compatibility table by variation

	SC3W
Port size	M3, M5, R1/8, 1/4, 3/8, 1/2
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

*1: The Dimensions of pipe size M5 product is different from the standard SC3W.
*2: Compatible tube O.D. 3 (ø3, 2) is not available.
*3: Option is meter-in only.

How to order

SC3W - M5 - 4 - I - P4

Model No.

Ⓐ Port size

Code	Description
Ⓐ Port size	
M3	M3 x 0.5
M5	M5 x 0.8
6	R1/8
8	R1/4
10	R3/8
15	R1/2

Ⓑ Compatible tube O.D.

		Piping size					
		M3	M5	6	8	10	15
4	ø4	●	●	●			
6	ø6		●	●	●	●	
8	ø8			●	●	●	
10	ø10				●	●	●
12	ø12					●	●

Ⓒ Option

Blank	Meter-out
I	Meter-in (Push ring color: black)

▭ indicates not available.

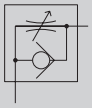
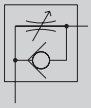


Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Speed controller with adjusting dial

DSC Series

●Port size: M5, R1/8 to R1/2

JIS symbol  (Meter-out)  (Meter-in)

RoHS CAD

Specifications

●Compact

Item			DSC-C-M5		DSC-C-6		
Compatible tube O.D.		mm	ø4	ø6	ø4	ø6	ø8
Port size			M5		R1/8		
Working fluid			Compressed air				
Max. working pressure		MPa	1.0				
Min. working pressure		MPa	0.05				
Proof pressure		MPa	1.5				
Fluid temperature		°C	5 to 60 (no freezing *2)				
Ambient temperature		°C	0 to 60 (no freezing)				
Needle control range			1 to 7 rotations				
Weight		g	11.5	12	22	23	24
Free flow	Flow rate	L/min (ANR)	100		210	270	
	Effective cross-sectional area	mm^2	1.5		3.2	4	
Controlled flow (Standard flow rate)	Flow rate	L/min (ANR)	60		160	200	
	Effective cross-sectional area	mm^2	0.9		2.4	3	
Controlled flow (Low flow rate)	Flow rate	L/min (ANR)	20		60		
	Effective cross-sectional area	mm^2	0.3		0.9		
Controlled flow (fine flow rate)	Flow rate	L/min (ANR)	6.7		13		-
	Effective cross-sectional area	mm^2	0.1		0.2		-

●Standard

Item			DSC-6			DSC-8			DSC-10				DSC-15	
Compatible tube O.D.		mm	ø4	ø6	ø8	ø6	ø8	ø10	ø6	ø8	ø10	ø12	ø10	ø12
Port size			R 1/8			R 1/4			R 3/8				R 1/2	
Working fluid			Compressed air											
Max. working pressure		MPa	1.0											
Min. working pressure		MPa	0.05											
Proof pressure		MPa	1.5											
Fluid temperature		°C	5 to 60 (no freezing *2)											
Ambient temperature		°C	0 to 60 (no freezing)											
Needle control range			1 to 10 rotations											
Weight		g	33	34	35	45	46	48	60	61	64	65	95	97
Free flow	Flow rate	L/min (ANR)	210	270		470	530		670	1000	1070		1470	1600
	Effective cross-sectional area	mm^2	3.2	4		7	8		10	15	16		22	24
Controlled flow (Standard flow rate)	Flow rate	L/min (ANR)	160	200		320	400		400	700	800		1120	1200
	Effective cross-sectional area	mm^2	2.4	3		5	6		6	10.5	12		17	17.5
Controlled flow (Low flow rate)	Flow rate	L/min (ANR)	60			130			270				400	
	Effective cross-sectional area	mm^2	0.9			2			4				6	

*1: Flow rate is the atmospheric pressure conversion value at pressure 0.5 MPa.
*2: Freezing may occur due to adiabatic expansion depending on the air quality (dew point).

How to order

DSC -C - 6 - 6 - I L - P4

- A Product size
- B Port size
- C Compatible tube O.D.
- D Control method
- E Flow rate

Code	Description
A Product size	
Blank	Standard
-C	Compact
B Port size	
M5	M5
6	R1/8
8	R1/4
10	R3/8
15	R1/2
C Compatible tube O.D.	
4	ø4
6	ø6
8	ø8
10	ø10
12	ø12
D Control method	
Blank	Meter-out
I	Meter-in (Push ring color: black)
E Flow rate	
Blank	Standard flow rate
L	Low flow rate
F	Fine flow rate (compact only)

Port size - compatible tube O.D. - flow rate combination

Product size	Compact		Standard			
Port size	M5	R1/8	R1/8	R1/4	R3/8	R1/2
ø4	◎	◎	○			
ø6	◎	◎	○	○	○	
ø8		○	○	○	○	
ø10				○	○	○
ø12					○	○

○: Flow rate "F" (fine flow rate) cannot be selected
◎: Flow rate "F" (fine flow rate) can be selected

Compatibility table by variation

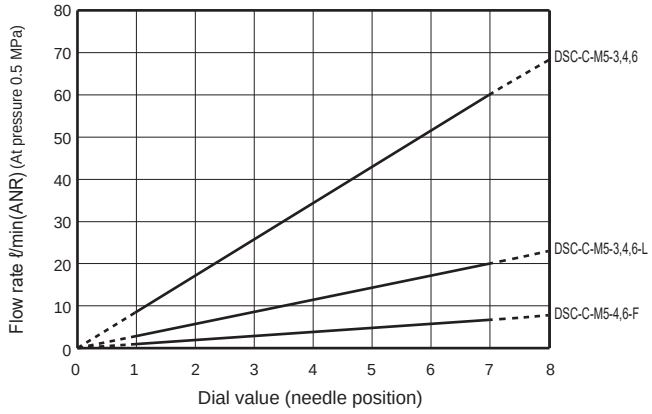
	DSC	DSC-C
Port size	M5, R1/8, 1/4, 3/8, 1/2	M5,R1/8
P4	●	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details.
▭: Not applicable

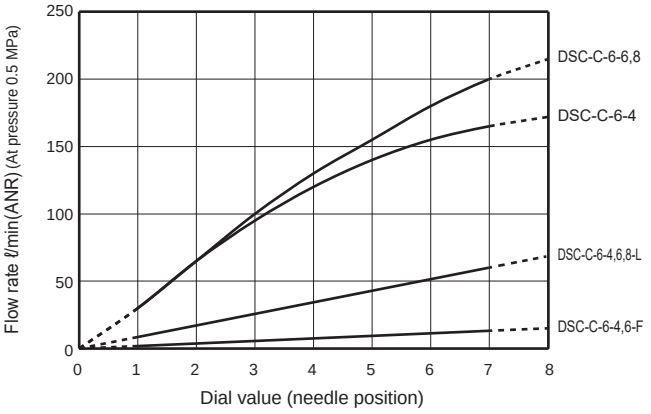
Flow characteristics

●Compact

●DSC-C-M5-*

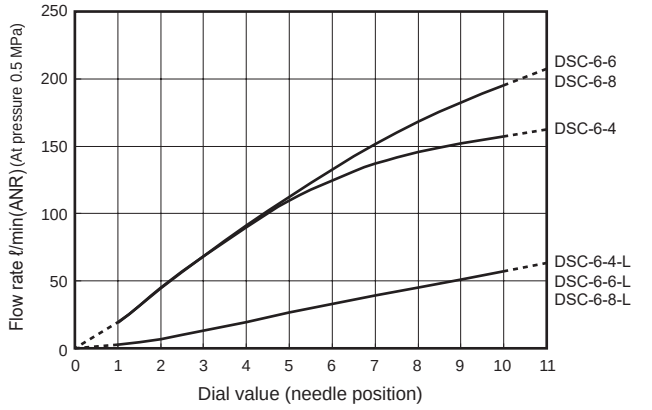


●DSC-C-6-*

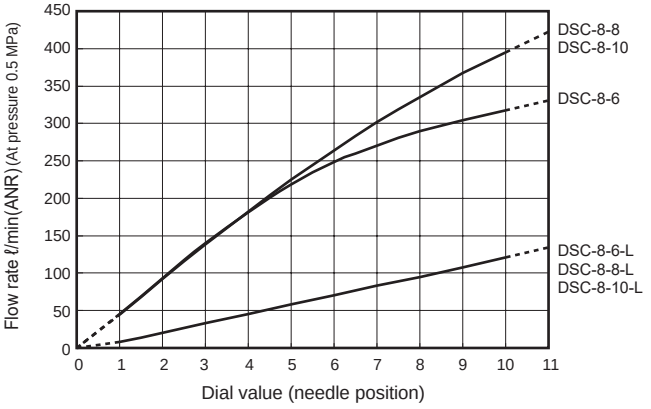


●Standard

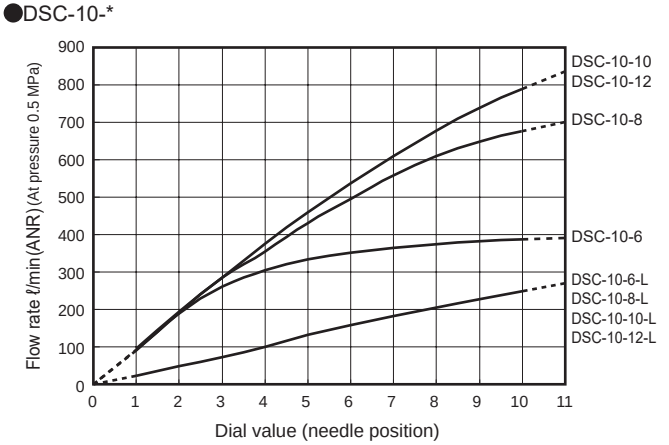
●DSC-6-*



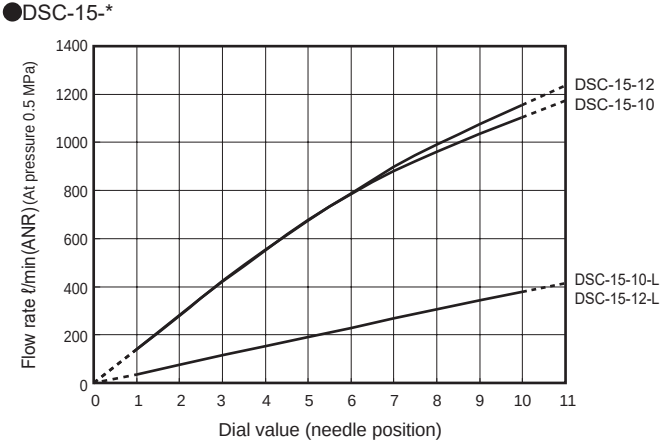
●DSC-8-*



●DSC-10-*



●DSC-15-*



Note: The flow characteristics may differ depending on the piping conditions around the unit and the temperature change.



Pneumatic piping components
Catalog No. CC-1101A

PP (polypropylene resin) type Speed controller, elbow

SC3F-P4 Series

- For air drive Component
- Port size M3, M5, R1/8 to R1/2

JIS symbol



RoHS

Specifications

Model No.		SC3F-P4														
Item		SC3F-M3	SC3F-M5		SC3F-6			SC3F-8			SC3F-10				SC3F-15	
Compatible tube O.D.	mm	ø4	ø4	ø6	ø4	ø6	ø8	ø6	ø8	ø10	ø6	ø8	ø10	ø12	ø10	ø12
Working fluid		Air														
Max. working pressure	MPa	1.0 (*1)													0.9 (*1)	
Min. working pressure	MPa	0.1														
Guaranteed proof pressure	MPa	1.5 (*2)													1.35 (*2)	
Operating ambient temperature range	°C	0 to 60 (no freezing) (*3)														
Port size	Rc	M3	M5		R 1/8			R 1/4			R 3/8				R 1/2	
Product weight	g	7.8	7	8	18	19	22	38	41	44	67	69	71	74	106	109
Dial value (needle position)		7 or more			12 or more			13 or more								

*1: The max. working pressure is the value at 20°C. When using in other temperature ranges, refer to the "Relation of operating ambient temperature and max. working pressure" in the single unit catalog.
*2: The proof pressure is the value at 20°C. The proof pressure is 1.5 times the maximum working pressure.
*3: Freezing may occur by adiabatic expansion depending on the air quality (dew point).

Flow rate and effective cross-sectional area

Model No.			SC3F-P4														
Item			SC3F-M3	SC3F-M5		SC3F-6			SC3F-8			SC3F-10				SC3F-15	
Compatible tube O.D.		mm	ø4	ø4	ø6	ø4	ø6	ø8	ø6	ø8	ø10	ø6	ø8	ø10	ø12	ø10	ø12
Free flow	Flow rate	ℓ/min (ANR)	40	55		200		230	390	400		600	800		840	1380	
	Effective cross-sectional area	mm²	0.6	0.8		3		3.4	5.8	5.9		8.8	12		12.4	20.5	
Controlled flow	Flow rate	ℓ/min (ANR)	65	70		150			270			550	850	920		1450	1600
	Effective cross-sectional area	mm²	0.95	1		2.2			4			8	12.5	13.5		21.5	23.5

*1: Flow rate is the atmospheric pressure conversion value at pressure 0.5 MPa.
*2: The effective cross-sectional area lists the value converted from the flow rate.

How to order

SC3F - 8 - 8 - I -P4

- Model No.
- Ⓐ Piping size
- Ⓑ Compatible tube O.D.
- Ⓒ Option

Code	Description
Ⓐ Piping size	
M3	M3 x 0.5
M5	M5 x 0.8
6	R 1/8
8	R 1/4
10	R 3/8
15	R 1/2

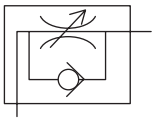
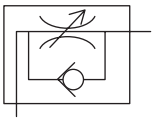
Ⓑ Compatible tube O.D.

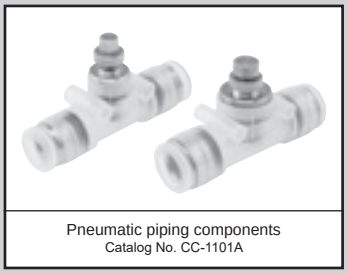
		Piping size					
		M3	M5	6	8	10	15
4	**ø4**	●	●	●			
6	**ø6**		●	●	●	●	
8	**ø8**			●	●	●	
10	**ø10**				●	●	●
12	**ø12**					●	●

Ⓒ Control method	
Blank	Meter-out control
I	Meter-in control (made to order)

indicates not available.

■ Control method

	Meter-out control	Meter-in control
JIS symbol		
	Male thread side	Male thread side

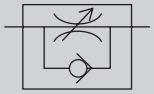


Pneumatic piping components
Catalog No. CC-1101A

PP (Polypropylene resin) Speed controller Line type

SCLF-P4 Series

- For air drive Component
- Port size ø4, ø6, ø8, ø10, ø12

JIS symbol 

RoHS

Specifications

Model No. / Item		SCLF-H44S-P4	SCLF-H66S-P4	SCLF-H88S-P4	SCLF-H1010S-P4	SCLF-H1212S-P4
Applicable tube diameter	mm	ø4	ø6	ø8	ø10	ø12
Working fluid		Air				
Max. working pressure	MPa	0.9 (*1)				
Min. working pressure	MPa	0.05				
Guaranteed proof pressure	MPa	1.35 (*2)				
Operating ambient temperature range	°C	0 to 60 (no freezing) (*3)				
Product weight	g	10	15	26	44	62
Dial value (needle position)		10 or more	11 or more	8 or more		

*1: The max. working pressure is the value at 20°C. When using in other temperature ranges, refer to the "Relation of operating ambient temperature and max. working pressure" given below.
*2: The proof pressure is the value at 20°C. The proof pressure is 1.5 times the maximum working pressure.
*3: Freezing may occur by adiabatic expansion depending on the air quality (dew point).

Flow rate and effective cross-sectional area

Model No. / Item			SCLF-P4				
			SCLF-H44S-P4	SCLF-H66S-P4	SCLF-H88S-P4	SCLF-H1010S-P4	SCLF-H1212S-P4
Compatible tube O.D.		mm	ø4	ø6	ø8	ø10	ø12
Free flow	Flow rate	ℓ/min (ANR)	145	310	50	950	1380
	Effective cross-sectional area	mm^2	2.1	4.6	8.2	14	20.5
Controlled flow	Flow rate	ℓ/min (ANR)	95	250	410	880	1300
	Effective cross-sectional area	mm^2	1.4	3.7	6.0	13	19

*1: Flow rate is the atmospheric pressure conversion value at pressure 0.5 MPa.
*2: The effective cross-sectional area lists the value converted from the flow rate.

How to order

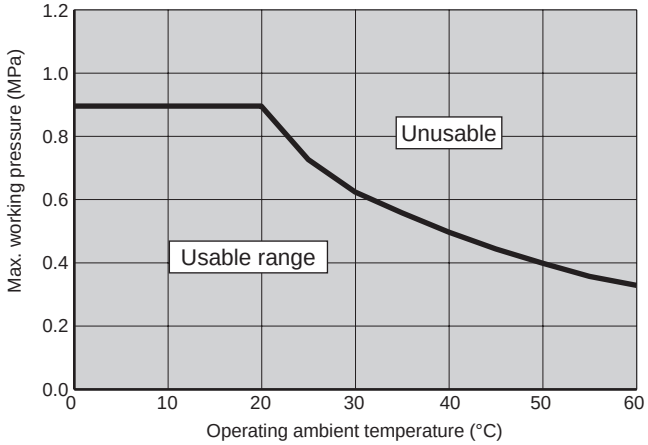
SCLF - H66S -P4

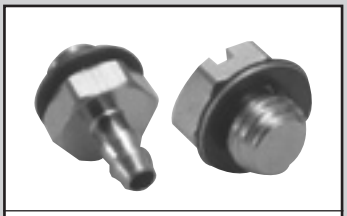
Union made of PP Straight Speed controller

Ⓐ Compatible tube O.D.

Code	Description
Ⓐ Compatible tube O.D.	
H44S	ø4
H66S	ø6
H88S	ø8
H1010S	ø10
H1212S	ø12

Relation of operating ambient temperature and max. working pressure





Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Miniature fitting

FTS4/FPL Series

●Port size: M3 to 1/8

Specifications

Item	F
Working fluid	Compressed air
Max. working pressure MPa	0.7 or less
Ambient/fluid temperatures °C	-5 to 60 (no freezing)
Tube used	Soft nylon tube (model No. FH-3224, F-1504, F-1506) Urethane tube (model No. U-9504, U-9506) Note

Note: Use urethane tubes within the range of 0 to 60°C.
Refer to "Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA) for tube dimensions and working pressure.

Compatibility table by variation

	FTS4	FPL
Port size	M3	M5
P4	▲	▲

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

Note : M3 gasket dimensions are different from the standard dimensions.

How to order

・Straight, compatible tube O.D. ø3.2, ø4, port size M3

FTS4 – M3 – P4

・Plug, port size M5

FPL – M5 – P4

*1: Refer to "Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA) for details on model combinations.
*2: Sales unit is 10 pcs./1 bag. Sales unit of each model is 10/1 bagit will be .
*3: Made-to-order product. Contact CKD Sales for details.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Fittings, stainless steel series

ZW Series

- Port size: M5 to R1/2
- Compatible tube: ø4 to ø12

RoHS

Specifications

Item	ZW
Working fluid	Compressed air
Max. working pressure MPa	1.0
Negative pressure KPa	−100 *2
Ambient temperature °C	-10 to 60 (no freezing)
Tube used	Soft nylon tube (F-15**)
	Urethane tube (U-92**, U-95**, NU-**) *1

*1: Refer to "Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA) for tube dimensions, ambient temperature and working pressure.
*2: Use an insert ring when using urethane tube (U-92**, U-95**, NU-**) under vacuum pressure. (This is a made-to-order product. Contact CKD regarding details.)

Compatibility table by variation

	ZW
Port size	ø4,ø6,ø8,ø10,ø12
P4	●

●: Applicable models ○: Semi-applicable models ▲:Contact CKD for details. ▭:Not applicable

How to order

* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for model combinations.

ZW - S 4 - 0 - X - P4
(A) (B) (C) (D)

(A) Shape	
S	Straight
L	Elbow
T	Tee
TR	Tetrapod
Y	Y tee
FY	FY
WY	Double Y
C	Cap
MF	Manifold

(B) Compatible tube O.D.	
4	ø4
6	ø6
8	ø8
10	ø10
12	ø12
44	ø4/ø4
46	ø4/ø6
48	ø4/ø8
64	ø6/ø4
66	ø6/ø6
68	ø6/ø8
610	ø6/ø10
86	ø8/ø6
88	ø8/ø8
810	ø8/ø10
108	ø10/ø8
1010	ø10/ø10
1012	ø10/ø12
1210	ø12/ø10
1212	ø12/ø12

(C) Port size	
M5	M 5 x 0.8
6	R 1/8
8	R 1/4
10	R 3/8
15	R 1/2
0	No thread
4P	Plug for ø4
6P	Plug for ø6
8P	Plug for ø8
10P	Plug for ø10
12P	Plug for ø12

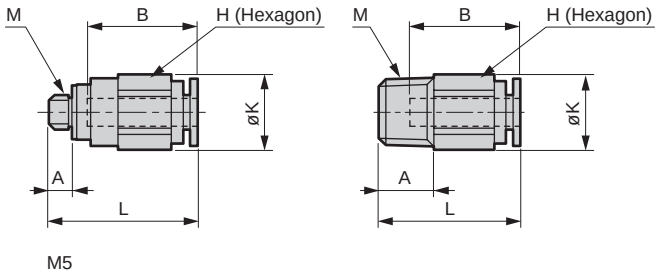
(D) Other combinations	
D	D type
X	Bulkhead

Note: Sales unit is one piece.

Dimensions: Single straight/bulkhead/straight/different diameter straight

Single straight

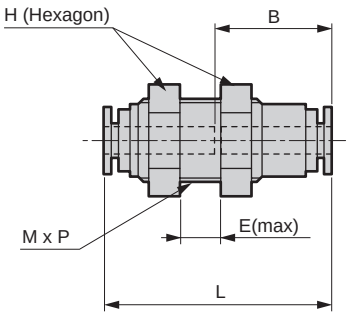
● ZW-S□-□-P4



Model No.	Compatible tube O.D. ø	M	H	K	L	A	B	Min. Hole diameter	Effective cross-sectional area mm²
ZW-S 4-M5-P4	4	M5 x 0.8	10	11	21.5	3.4	16	2.5	4
ZW-S 4 - 6-P4		R 1/8	10	11	20.5	8	16	2.5	4
ZW-S 4 - 8-P4		R 1/4	14	15.8	19.5	11	16	2.5	4
ZW-S 6-M5-P4	6	M5 x 0.8	12	13.5	23	3.4	17.5	2.5	4.4
ZW-S 6 - 6-P4		R 1/8	12	13.5	23	8	17.5	4	10.3
ZW-S 6 - 8-P4		R 1/4	14	15.8	23.5	11	17.5	4	10.3
ZW-S 6-10-P4		R 3/8	17	19.1	21.5	12	17.5	4	10.3
ZW-S 8 - 6-P4	8	R 1/8	14	15.8	28	8	19	5	17.5
ZW-S 8 - 8-P4		R 1/4	14	15.8	27	11	19	6	22.4
ZW-S 8-10-P4		R 3/8	17	19.1	22.5	12	19	6	22.4
ZW-S10- 6-P4	10	R 1/8	17	19.1	31	8	21.5	5	17.5
ZW-S10- 8-P4		R 1/4	17	19.1	32.5	11	21.5	8	30.5
ZW-S10-10-P4		R 3/8	17	19.1	28.5	12	21.5	8	30.5
ZW-S10-15-P4		R 1/2	22	24	26.5	15	21.5	8	30.5
ZW-S12- 8-P4	12	R 1/4	19	21.4	35.5	11	23	8	35.5
ZW-S12-10-P4		R 3/8	19	21.4	30.5	12	23	10	40
ZW-S12-15-P4		R 1/2	22	24	29.5	15	23	10	40

Bulkhead

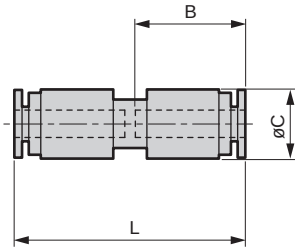
● ZW-S□-□-X-P4



Model No.	Compatible tube O.D. ø	H	L	B	E	MXP	Mounting Hole diameter	Min. Hole diameter	Effective cross-sectional area mm²
ZW-S 4-0-X-P4	4	14	33	16	7.5	M 12 x 1	13	2.5	4
ZW-S 6-0-X-P4	6	17	36	17.5	9.5	M 14 x 1	15	4	10
ZW-S 8-0-X-P4	8	19	39	19	12.5	M 16 x 1	17	6	22
ZW-S10-0-X-P4	10	23	44.5	21.5	18	M 20 x 1	21	8	30
ZW-S12-0-X-P4	12	26	47	23	20.5	M 22 x 1	23	9	35

Straight

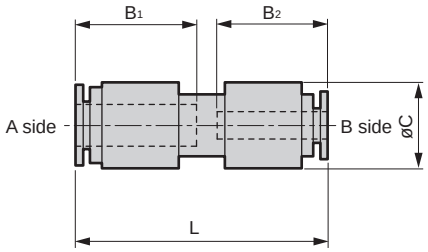
● ZW-S□-0-P4



Model No.	Compatible tube O.D. ø	L	B	C	Min. Hole diameter	Effective cross-sectional area mm²
ZW-S 4-0-P4	4	33.5	16	10	2.5	4
ZW-S 6-0-P4	6	36.5	17.5	12.5	4	10
ZW-S 8-0-P4	8	39.5	19	14.5	6	22
ZW-S10-0-P4	10	45	21.5	17.5	8	30
ZW-S12-0-P4	12	47.5	23	20	10	35

Different diameter straight

● ZW-S□-0-P4

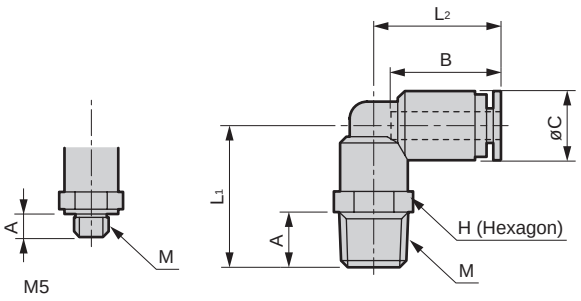


Model No.	Compatible tube O.D. ø		L	B_1	B_2	C	Min. Hole diameter	Effective cross-sectional area mm²
	A side	B side						
ZW-S 46-0-P4	6	4	36.5	17.5	16	12.5	2.5	4
ZW-S 68-0-P4	8	6	39.5	19	17.5	14.5	4	10
ZW-S 810-0-P4	10	8	45	21.5	19	17.5	6	22
ZW-S1012-0-P4	12	10	47.5	23	21.5	20	8	30

Dimensions: Single elbow/elbow/double tee/D tee

Single elbow

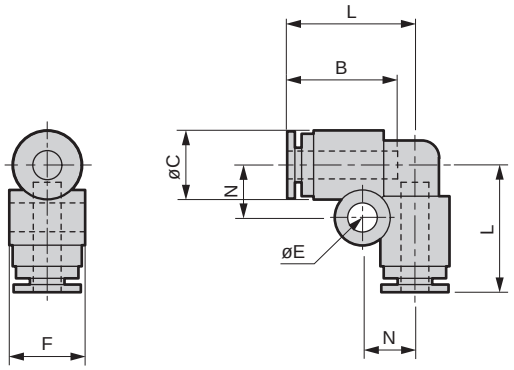
● ZW-L□-□-P4



Model No.	Compatible tube O.D. ø	M	H	L_1	L_2	A	B	C	Min. Hole diameter	Effective cross-sectional area mm²
ZW-L 4-M5-P4	4	M5 x 0.8	8	15	18	3.4	16	10	2.5	3.2
ZW-L 4- 6-P4		R 1/8	10	20.5	18.5	8	16	10	2.5	3.2
ZW-L 4- 8-P4		R 1/4	14	24	18.5	11	16	10	2.5	3.2
ZW-L 6-M5-P4	6	M5 x 0.8	10	15	20	3.4	17.5	12.5	2.5	4.2
ZW-L 6- 6-P4		R 1/8	12	24	21	8	17.5	12.5	4	8
ZW-L 6- 8-P4		R 1/4	14	27.5	21	11	17.5	12.5	4	8
ZW-L 6-10-P4		R 3/8	17	29	21	12	17.5	12.5	4	8
ZW-L 8- 6-P4	8	R 1/8	14	25.5	23.5	8	19	14.5	6	18
ZW-L 8- 8-P4		R 1/4	14	28.5	23.5	11	19	14.5	6	18
ZW-L 8-10-P4		R 3/8	17	30	23.5	12	19	14.5	6	18
ZW-L10- 6-P4	10	R 1/8	17	28	27	8	21.5	17.5	6.5	24.3
ZW-L10- 8-P4		R 1/4	17	31	27	11	21.5	17.5	8	27
ZW-L10-10-P4		R 3/8	17	32.5	27	12	21.5	17.5	8	27
ZW-L10-15-P4		R 1/2	22	35.5	27	15	21.5	17.5	8	27
ZW-L12- 8-P4	12	R 1/4	19	33	29.5	11	23	20	8.5	33
ZW-L12-10-P4		R 3/8	19	34.5	29.5	12	23	20	9	35
ZW-L12-15-P4		R 1/2	22	37.5	29.5	15	23	20	9	35.5

Elbow

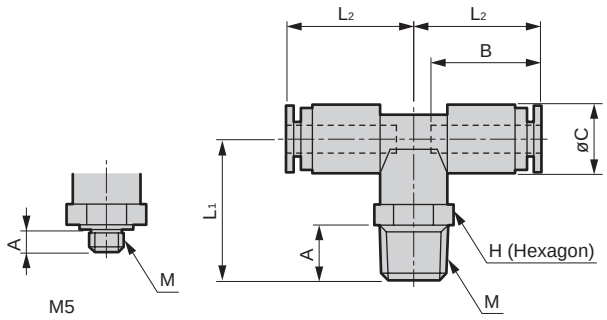
● ZW-L□-0-P4



Model No.	Compatible tube O.D. ø	L	B	C	N	E	F	Min. Hole diameter	Effective cross-sectional area mm²
ZW-L 4-0-P4	4	18.5	16	10	7.5	4.2	11	2.5	3
ZW-L 6-0-P4	6	21	17.5	12.5	8.5	4.2	13.5	4	7.5
ZW-L 8-0-P4	8	23.5	19	14.5	9.5	4.2	15.5	6	17
ZW-L10-0-P4	10	27	21.5	17.5	11	4.2	18.5	8	25.5
ZW-L12-0-P4	12	29.5	23	20	12	4.2	21	10	34

Double tee

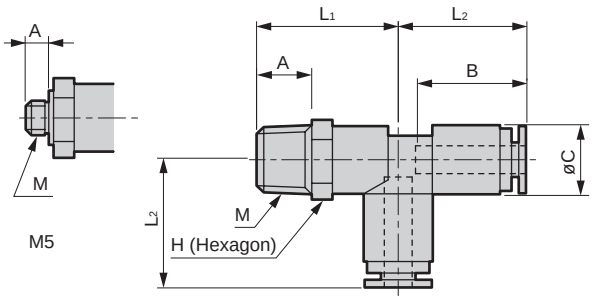
● ZW-T□-□-P4



Model No.	Compatible tube O.D. ø	M	H	L_1	L_2	A	B	C	Min. Hole diameter	Effective cross-sectional area mm²
ZW-T 4-M5-P4	4	M5 x 0.8	10	16.5	18.5	3.4	16	10	2.5	4.3
ZW-T 4- 6-P4		R 1/8	10	20.5	18.5	8	16	10	2.5	4.3
ZW-T 4- 8-P4		R 1/4	14	24	18.5	11	16	10	2.5	4.3
ZW-T 6-M5-P4	6	M5 x 0.8	12	20	21	3.4	17.5	12.5	2.5	4.3
ZW-T 6- 6-P4		R 1/8	12	24	21	8	17.5	12.5	4	10.5
ZW-T 6- 8-P4		R 1/4	14	27.5	21	11	17.5	12.5	4	10.5
ZW-T 6-10-P4		R 3/8	17	29	21	12	17.5	12.5	4	10.5
ZW-T 8- 6-P4	8	R 1/8	14	25.5	23.5	8	19	14.5	6	23.5
ZW-T 8- 8-P4		R 1/4	14	28.5	23.5	11	19	14.5	6	23.5
ZW-T 8-10-P4		R 3/8	17	30	23.5	12	19	14.5	6	23.5
ZW-T10- 8-P4	10	R 1/4	17	31	27	11	21.5	17.5	8	33.5
ZW-T10-10-P4		R 3/8	17	32.5	27	12	21.5	17.5	8	33.5
ZW-T10-15-P4		R 1/2	22	35.5	27	15	21.5	17.5	8	33.5
ZW-T12- 8-P4	12	R 1/4	19	33	29.5	11	23	20	8.5	37
ZW-T12-10-P4		R 3/8	19	34.5	29.5	12	23	20	9	41
ZW-T12-15-P4		R 1/2	22	37.5	29.5	15	23	20	9	41

D tee

● ZW-T□-□-D-P4

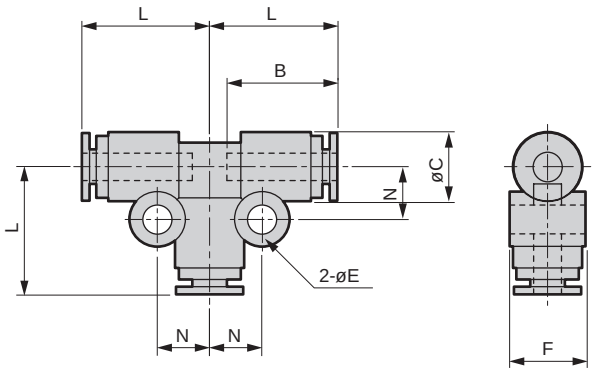


Model No.	Compatible tube O.D. ø	M	H	L_1	L_2	A	B	C	Min. Hole diameter	Effective cross-sectional area mm²
ZW-T 4-M5-D-P4	4	M5 x 0.8	10	16.5	18.5	3.4	16	10	2.5	4.3
ZW-T 4- 6-D-P4		R 1/8	10	20.5	18.5	8	16	10	2.5	4.3
ZW-T 4- 8-D-P4		R 1/4	14	24	18.5	11	16	10	2.5	4.3
ZW-T 6-M5-D-P4	6	M5 x 0.8	12	19.5	21	3.4	17.5	12.5	2.5	4.3
ZW-T 6- 6-D-P4		R 1/8	12	24	21	8	17.5	12.5	4	10.5
ZW-T 6- 8-D-P4		R 1/4	14	27.5	21	11	17.5	12.5	4	10.5
ZW-T 6-10-D-P4		R 3/8	17	29	21	12	17.5	12.5	4	10.5
ZW-T 8- 6-D-P4	8	R 1/8	14	25.5	23.5	8	19	14.5	6	23.5
ZW-T 8- 8-D-P4		R 1/4	14	28.5	23.5	11	19	14.5	6	23.5
ZW-T 8-10-D-P4		R 3/8	17	30	23.5	12	19	14.5	6	23.5
ZW-T10- 8-D-P4	10	R 1/4	17	31	27	11	21.5	17.5	8	33.5
ZW-T10-10-D-P4		R 3/8	17	32.5	27	12	21.5	17.5	8	33.5
ZW-T10-15-D-P4		R 1/2	22	35.5	27	15	21.5	17.5	8	33.5
ZW-T12- 8-D-P4	12	R 1/4	19	33	29.5	11	23	20	8.5	37
ZW-T12-10-D-P4		R 3/8	19	34.5	29.5	12	23	20	9	41
ZW-T12-15-D-P4		R 1/2	22	37.5	29.5	15	23	20	9	41

Dimensions: Tee/different diameter tee/Y tee/double Y tee

Tee

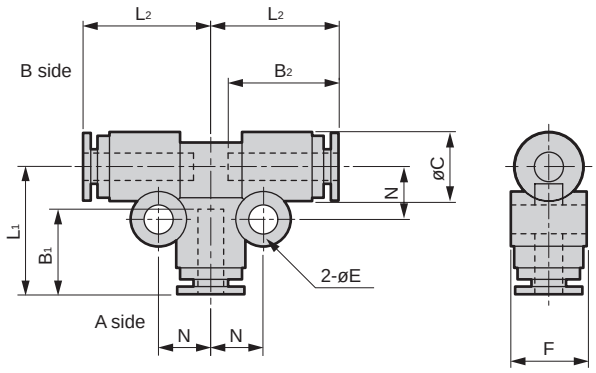
● ZW-T□-0-P4



Model No.	Compatible tube O.D. ø	L	B	C	E	F	N	Min. Hole diameter	Effective cross-sectional area mm²
ZW-T 4-0-P4	4	18.5	16	10	4.2	11	7.5	2.5	3.6
ZW-T 6-0-P4	6	21	17.5	12.5	4.2	13.5	8.5	4	9.7
ZW-T 8-0-P4	8	23.5	19	14.5	4.2	15.5	9.5	6	22
ZW-T10-0-P4	10	27	21.5	17.5	4.2	18.5	11	8	30
ZW-T12-0-P4	12	29.5	23	20	4.2	21	12	10	35.5

Different diameter tee

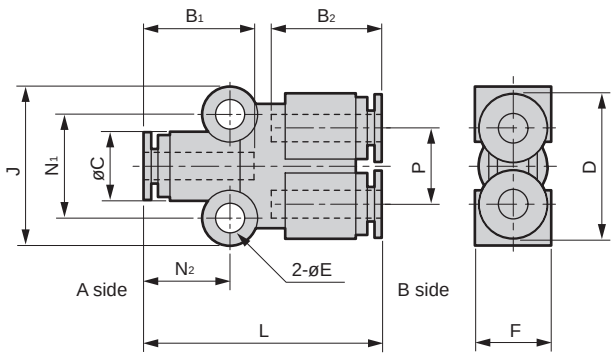
● ZW-T□-0-P4



Model No.	Compatible tube O.D. ø		L1	L2	B1	B2	C	E	F	N	Min. Hole diameter	Effective cross-sectional area mm²
	A side	B side										
ZW-T 46-0-P4	4	6	21	21	16	17.5	12.5	4.2	13.5	8.5	2.5	3.6
ZW-T 68-0-P4	6	8	23.5	23.5	17.5	19	14.5	4.2	15.5	9.5	4	9.7
ZW-T 810-0-P4	8	10	27.5	27	19	21.5	17.5	4.2	18.5	11	6	22
ZW-T1012-0-P4	10	12	29.5	29.5	21.5	23	20	4.2	21	12	8	30

Y tee

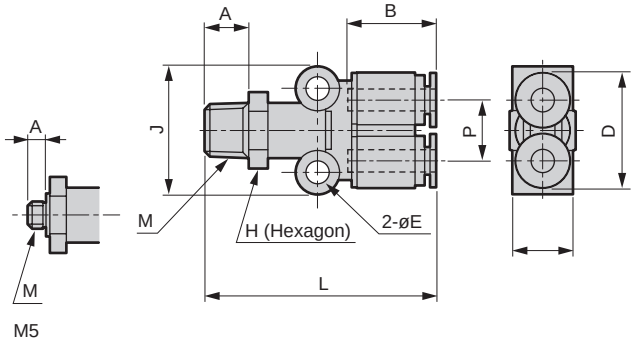
● ZW-Y□-0-P4



Model No.	Compatible tube O.D. ø		L	B1	B2	C	D	E	F	J	N1	N2	P	Effective cross-sectional area mm²
	A side	B side												
ZW-Y 44-0-P4	4	4	34.5	16	16	10	21	4.2	11	23	15	12.5	11	3.6
ZW-Y 66-0-P4	6	6	37.5	17.5	17.5	12.5	26	4.2	13.5	25.5	17.5	14	13.5	10.5
ZW-Y 88-0-P4	8	8	40.5	19	19	14.5	30	4.2	15.5	27	19	15	15.5	23
ZW-Y1010-0-P4	10	10	48	21.5	21.5	17.5	36	4.2	18.5	30	22	18	18.5	38
ZW-Y1212-0-P4	12	12	53	23	23	20	41	4.2	21	32	24	19.5	21	50
ZW-Y 64-0-P4	6	4	37.5	17.5	16	12.5	26	4.2	13.5	25.5	17.5	14	13.5	5.4
ZW-Y 86-0-P4	8	6	40.5	19	17.5	14.5	30	4.2	15.5	27	19	15	15.5	14.3
ZW-Y 108-0-P4	10	8	48	21.5	19	17.5	36	4.2	18.5	30	22	18	18.5	21.1
ZW-Y1210-0-P4	12	10	53	23	21.5	20	41	4.2	21	32	24	19.5	21	35.5

Double Y tee

● ZW-Y□-□-P4

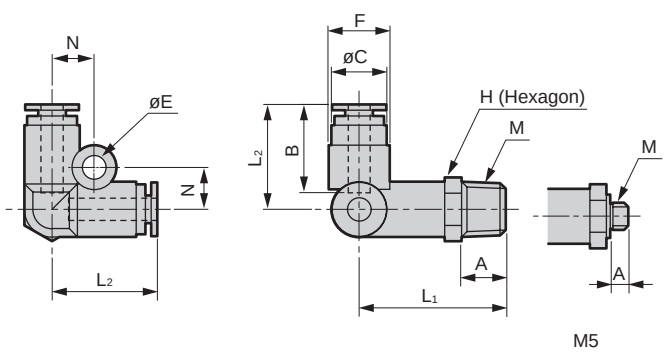


Model No.	Compatible tube O.D. ø	M	H	L	A	B	D	E	F	J	P	Effective cross-sectional area mm²
ZW-Y 4-M5-P4	4	M 5 x 0.8	12	38	3.4	16	21	4.2	11	23	11	4.5
ZW-Y 4- 6-P4		R 1/8	12	42	8	16	21	4.2	11	23	11	5.5
ZW-Y 4- 8-P4		R 1/4	14	45.5	11	16	21	4.2	11	23	11	5.5
ZW-Y 6-M5-P4	6	M 5 x 0.8	14	41	3.4	17.5	26	4.2	13.5	25.5	13.5	4.5
ZW-Y 6- 6-P4		R 1/8	14	46	8	17.5	26	4.2	13.5	25.5	13.5	17.5
ZW-Y 6- 8-P4		R 1/4	14	49	11	17.5	26	4.2	13.5	25.5	13.5	17.5
ZW-Y 6-10-P4		R 3/8	17	50.5	12	17.5	26	4.2	13.5	25.5	13.5	17.5
ZW-Y 8- 6-P4	8	R 1/8	17	49	8	19	30	4.2	15.5	27	15.5	25.5
ZW-Y 8- 8-P4		R 1/4	17	52	11	19	30	4.2	15.5	27	15.5	25.5
ZW-Y 8-10-P4		R 3/8	17	53.5	12	19	30	4.2	15.5	27	15.5	25.5
ZW-Y10- 8-P4	10	R 1/4	19	59.5	11	21.5	36	4.2	18.5	30	18.5	35
ZW-Y10-10-P4		R 3/8	19	61	12	21.5	36	4.2	18.5	30	18.5	38.5
ZW-Y10-15-P4		R 1/2	22	64	15	21.5	36	4.2	18.5	30	18.5	38
ZW-Y12- 8-P4	12	R 1/4	22	64.5	11	23	41	4.2	21	32	21	37
ZW-Y12-10-P4		R 3/8	22	66	12	23	41	4.2	21	32	21	37
ZW-Y12-15-P4		R 1/2	22	69	15	23	41	4.2	21	32	21	40.5

Dimensions: Tetrapod (With R)/FY(With R)/Double Y(With R)/Tetrapod

Tetrapod (with R)

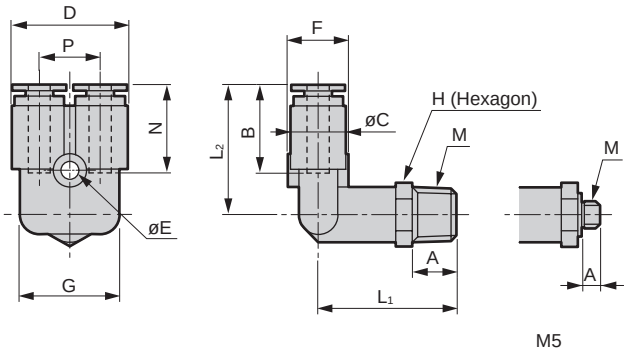
● ZW-TR□-□-P4



Model No.	Compatible tube O.D. ø	M	H	L1	L2	A	B	C	E	F	N	Min. hole diameter	Effective cross-sectional area mm²
ZW-TR 4-M5-P4	4	M5 x 0.8	10	22.5	19	3.4	16	10	4.2	11	7.5	2.5	4.3
ZW-TR 4- 6-P4		R 1/8	10	26.5	19	8	16	10	4.2	11	7.5	2.5	4.5
ZW-TR 4- 8-P4		R 1/4	14	30	19	11	16	10	4.2	11	7.5	2.5	4.5
ZW-TR 6-M5-P4	6	M5 x 0.8	14	25	21.5	3.4	17.5	12.5	4.2	13.5	8.5	2.5	4.3
ZW-TR 6- 6-P4		R 1/8	14	30	21.5	8	17.5	12.5	4.2	13.5	8.5	4	10.5
ZW-TR 6- 8-P4		R 1/4	14	33	21.5	11	17.5	12.5	4.2	13.5	8.5	4	10.5
ZW-TR 6-10-P4		R 3/8	17	34.5	21.5	12	17.5	12.5	4.2	13.5	8.5	4	10.5
ZW-TR 8- 6-P4	8	R 1/8	17	32.5	24	8	19	14.5	4.2	15.5	9.5	6	23.5
ZW-TR 8- 8-P4		R 1/4	17	35.5	24	11	19	14.5	4.2	15.5	9.5	6	23.5
ZW-TR 8-10-P4		R 3/8	17	37	24	12	19	14.5	4.2	15.5	9.5	6	23.5
ZW-TR10- 8-P4	10	R 1/4	19	39.5	27.5	11	21.5	17.5	4.2	18.5	13	8	35.5
ZW-TR10-10-P4		R 3/8	19	41	27.5	12	21.5	17.5	4.2	18.5	13	8	35.5
ZW-TR10-15-P4		R 1/2	22	44	27.5	15	21.5	17.5	4.2	18.5	13	8	35.5
ZW-TR12- 8-P4	12	R 1/4	22	41.5	30	11	23	20	4.2	21	14	8.5	37.5
ZW-TR12-10-P4		R 3/8	22	43	30	12	23	20	4.2	21	14	8.5	37.5
ZW-TR12-15-P4		R 1/2	22	46	30	15	23	20	4.2	21	14	8.5	37.5

FY (with R)

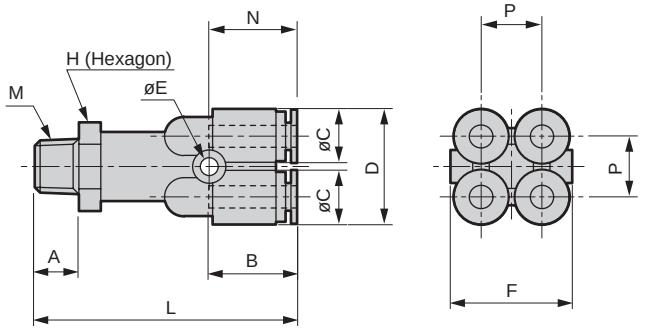
● ZW-FY□-□-P4



Model No.	Compatible tube O.D. ø	M	H	L1	L2	A	B	C	D	E	F	G	N	P	Min. hole diameter	Effective cross-sectional area mm²
ZW-FY 4-M5-P4	4	M5 x 0.8	10	21	23.5	3.4	16	10	21	3.2	11	18	15.5	11	2.5	4.5
ZW-FY 4- 6-P4		R 1/8	10	25	23.5	8	16	10	21	3.2	11	18	15.5	11	2.5	4.6
ZW-FY 4- 8-P4		R 1/4	14	28.5	23.5	11	16	10	21	3.2	11	18	15.5	11	2.5	4.6
ZW-FY 6-M5-P4	6	M5 x 0.8	14	23	27	3.4	17.5	12.5	26	4.2	13.5	22.5	17	13.5	2.5	4.5
ZW-FY 6- 6-P4		R 1/8	14	28	27	8	17.5	12.5	26	4.2	13.5	22.5	17	13.5	4	10.5
ZW-FY 6- 8-P4		R 1/4	14	31	27	11	17.5	12.5	26	4.2	13.5	22.5	17	13.5	4	10.5
ZW-FY 6-10-P4		R 3/8	17	32.5	27	12	17.5	12.5	26	4.2	13.5	22.5	17	13.5	4	10.5
ZW-FY 8- 6-P4	8	R 1/8	17	30.5	29	8	19	14.5	30	4.2	15.5	26.5	18	15.5	6	23
ZW-FY 8- 8-P4		R 1/4	17	33.5	29	11	19	14.5	30	4.2	15.5	26.5	18	15.5	6	23
ZW-FY 8-10-P4		R 3/8	17	35	29	12	19	14.5	30	4.2	15.5	26.5	18	15.5	6	23
ZW-FY10- 8-P4	10	R 1/4	19	37.5	33	11	21.5	17.5	36	4.2	18.5	31.5	20	18.5	8	34.4
ZW-FY10-10-P4		R 3/8	19	39	33	12	21.5	17.5	36	4.2	18.5	31.5	20	18.5	8	34.4
ZW-FY10-15-P4		R 1/2	22	42	33	15	21.5	17.5	36	4.2	18.5	32.5	20	18.5	8	34.4
ZW-FY12- 8-P4	12	R 1/4	22	39.5	35.5	11	23	20	41	4.2	21	37	21.5	21	8.5	37.5
ZW-FY12-10-P4		R 3/8	22	41	35.5	12	23	20	41	4.2	21	37	21.5	21	8.5	37.5
ZW-FY12-15-P4		R 1/2	22	44	35.5	15	23	20	41	4.2	21	37	21.5	21	8.5	37.5

Double Y (with R)

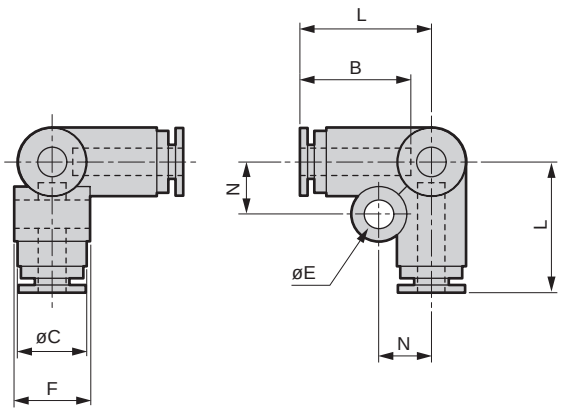
● ZW-WY□-□-P4



Model No.	Compatible tube O.D. ø	M	H	L	A	B	C	D	E	F	N	P	Effective cross-sectional area mm²
ZW-WY4- 6-P4	4	R 1/8	14	47.5	8	16	10	21	3.2	22	15.5	11	9.7
ZW-WY4- 8-P4		R 1/4	14	50.5	11	16	10	21	3.2	22	15.5	11	9.7
ZW-WY6- 6-P4	6	R 1/8	17	51.5	8	17.5	12.5	26	3.2	27	17	13.5	23

Tetrapod

● ZW-TR□-0-P4

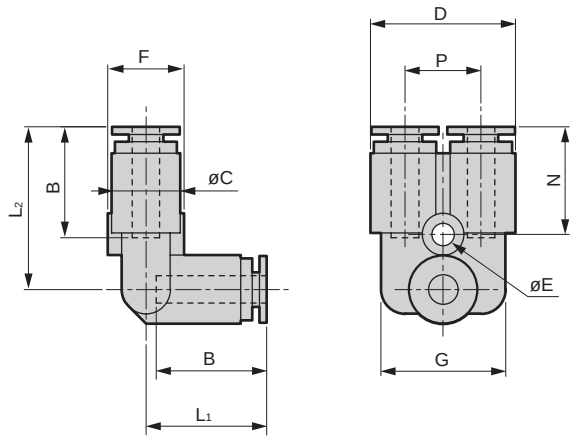


Model No.	Compatible tube O.D. ø	L	B	C	E	F	N	Min. hole diameter	Effective cross-sectional area mm²
ZW-TR 4-0-P4	4	19	16	10	4.2	11	7.5	2.5	4
ZW-TR 6-0-P4	6	21.5	17.5	12.5	4.2	13.5	8.5	4	9.5
ZW-TR 8-0-P4	8	24	19	14.5	4.2	15.5	9.5	6	12.5
ZW-TR10-0-P4	10	27.5	21.5	17.5	4.2	18.5	13	8	29.5
ZW-TR12-0-P4	12	30	23	20	4.2	21	14	10	35.5

Dimensions: FY/double Y/cap/manifold (Single/with R)

FY

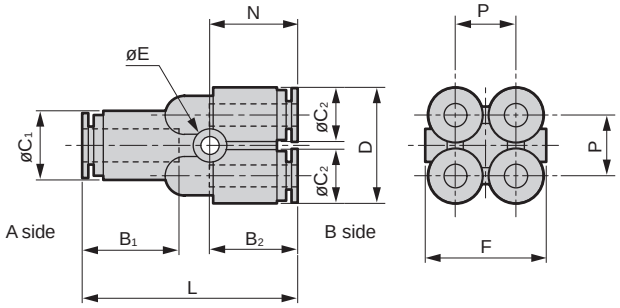
● ZW-FY□-0-P4



Model No.	Compatible tube O.D. ø	L1	L2	B	C	D	E	F	G	N	P	Min. Hole diameter	Effective cross-sectional area mm²
ZW-FY 4-0-P4	4	17.5	23.5	16	10	21	3.2	11	18	15.5	11	2.5	4
ZW-FY 6-0-P4	6	19.5	27	17.5	12.5	26	4.2	13.5	22.5	17	13.5	4	10
ZW-FY 8-0-P4	8	22	29	19	14.5	30	4.2	15.5	26.5	18	15.5	6	21
ZW-FY10-0-P4	10	25.5	33	21.5	17.5	36	4.2	18.5	31.5	20	18.5	8	29
ZW-FY12-0-P4	12	28	35.5	23	20	41	4.2	21	37	21.5	21	10	35.5

Double Y

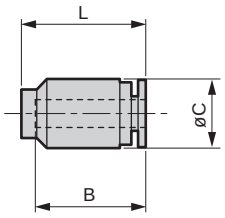
● ZW-WY□-0-P4



Model No.	Compatible tube O.D. ø		L	B1	B2	C1	C2	D	E	F	N	P	Effective cross-sectional area mm²
	A side	B side											
ZW-WY64-0-P4	6	4	39	17.5	16	12.5	10	21	3.2	22	15.5	11	9
ZW-WY86-0-P4	8	6	43	19	17.5	14.5	12.5	26	3.2	27	17	13.5	22

Cap

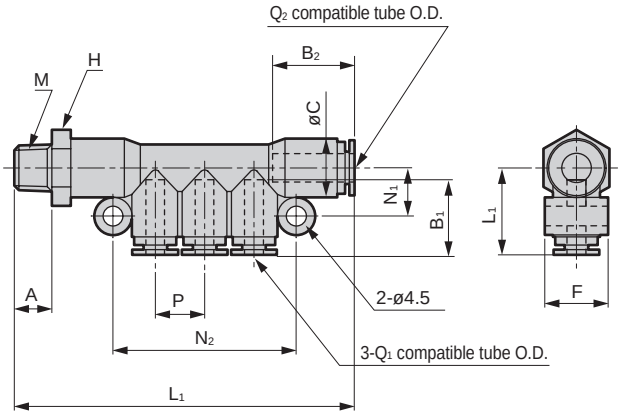
● ZW-C□-P4



Model No.	Compatible tube O.D. ø	B	øC	L
ZW-C 4-P4	4	16	10	18
ZW-C 6-P4	6	17.5	12.5	19.5
ZW-C 8-P4	8	19	14.5	21
ZW-C10-P4	10	21.5	17.5	24
ZW-C12-P4	12	23	20	26

Manifold (single/with R)

● ZW-MF□-□-P4

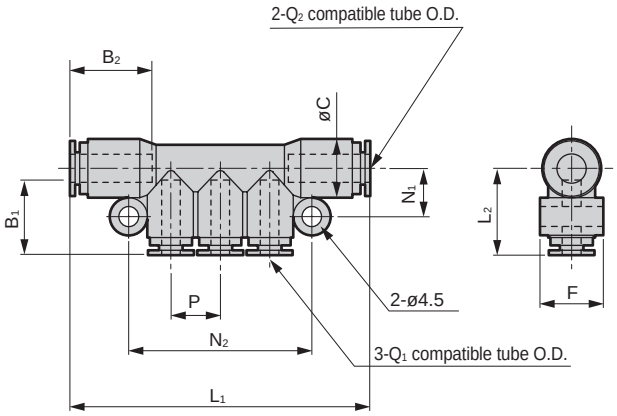


Model No.	Compatible tube O.D. ø		M	H	L1	L2	A	B1	B2	C	F	N1	N1	P	Effective cross-sectional area mm²
	Q1	Q2													
ZW-MF 46- 6-P4	4	6	R 1/8	14	72.5	18.5	8	16	17.5	12.5	13.5	10.5	39	10.5	8.3
ZW-MF 48- 8-P4	4	8	R 1/4	17	77.5	19.5	11	16	19	14.5	15.5	11.5	39	10.5	24.2
ZW-MF 68- 8-P4	6	8	R 1/4	17	84.5	21	11	17.5	19	14.5	15.5	11.5	46.5	13	24.2
ZW-MF810-10-P4	8	10	R 3/8	19	97.5	23.5	12	19	21.5	17.5	18.5	13	52.5	15	35.5

Dimensions: Manifold (Single)/Plug reducer

Manifold (single)

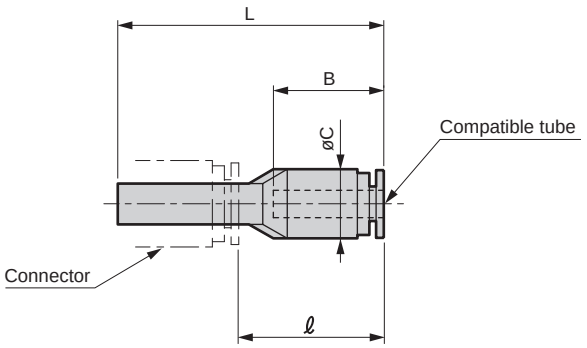
● ZW-MF□-0-P4



Model No.	Compatible tube O.D. ø		L1	L2	B1	B2	C	F	N1	N2	P	Effective cross-sectional area mm²
	Q1	Q2										
ZW-MF 46-0-P4	4	6	64	18.5	16	17.5	12.5	13.5	10.5	39	10.5	7.9
ZW-MF 48-0-P4	4	8	66	19.5	16	19	14.5	15.5	11.5	39	10.5	22
ZW-MF 68-0-P4	6	8	73	21	17.5	19	14.5	15.5	11.5	46.5	13	22
ZW-MF610-0-P4	6	10	78.5	22	17.5	21.5	17.5	18.5	13	46.5	13	30
ZW-MF810-0-P4	8	10	84.5	23.5	19	21.5	17.5	18.5	13	52.5	15	30

Plug reducer

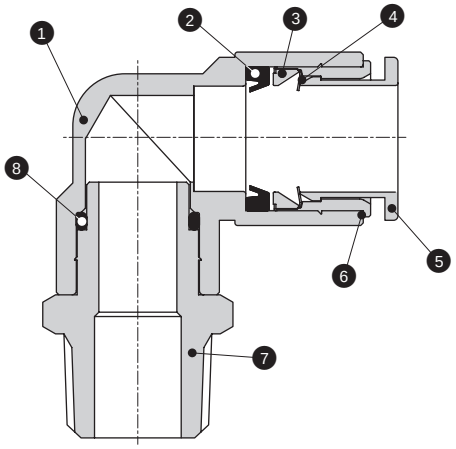
● ZW-S□-□P-P4



Model No.	Compatible tube O.D. ø	Fitting port size ø	L	ℓ※	B	C	Min. bore size	Effective cross-sectional area mm²
ZW-S 4- 6P-P4	4	6	38.5	21	16	10	2.3	3.5
ZW-S 4- 8P-P4		8	40.4	21.5	16	10	3	5.6
ZW-S 4-10P-P4		10	42	20.5	16	12.5	3	5.6
ZW-S 6- 4P-P4	6	4	42	26	17.5	12.5	2.3	3.5
ZW-S 6- 8P-P4		8	41	22	17.5	12.5	4	10
ZW-S 6-10P-P4		10	42	20	17.5	12.5	4	10
ZW-S 6-12P-P4		12	44	21	17.5	14.5	4	10
ZW-S 8-10P-P4	8	10	44.5	22.5	19	14.5	6	22
ZW-S 8-12P-P4		12	44	21	19	14.5	6	22
ZW-S10-12P-P4	10	12	48	25	21.5	17.5	8	30

* Dimensions for CKD connectors (ZW-P4 Series).

Internal structure and parts list



Part No.	Part name	Material
1	Body *1	Stainless steel
		Polybutylene terephthalate (flame-resistant resin *2)
2	Packing	Hydrogenated nitrile rubber
3	Chuck holder	polyether sulfone
4	Chuck	Stainless steel
5	Push ring	Polybutylene terephthalate (flame-resistant resin *2)
6	Outer ring	Stainless steel
7	Drive-in nipple	Stainless steel
8	O-ring	Nitrile rubber

*1: The body of the single straight bulkhead is stainless steel.
*2: Equivalent to UL94 standards V-0



Pneumatic piping components
Catalog No. CC-1101A

PP (Polypropylene resin) Fitting

ZSF-P4 Series

- For blow circuit
- Grease-free specifications
- ContactPort size M3, M5, R1/8 to R1/2
- Compatible tube ø4 to ø12

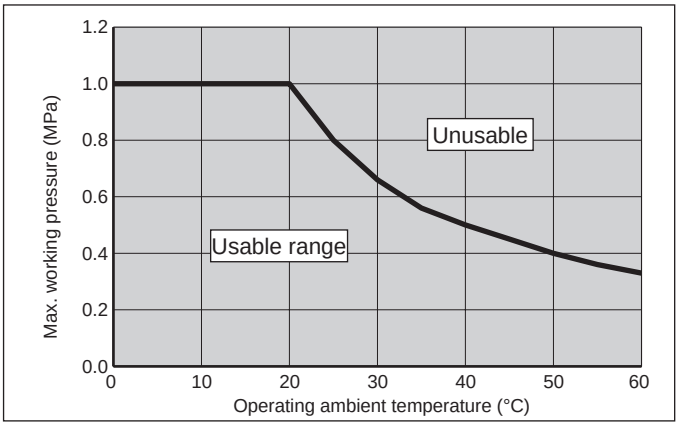
RoHS

Specifications

Item	ZSF-P4
Working fluid	Air (*1)
Max. working pressure MPa	1.0 (*2)
Working vacuum pressure kPa	−100
Guaranteed proof pressure MPa	1.5 (*3)
Working ambient temperature °C	0 to 60 (no freezing) (*4)

*1: Rubber EPDM material is used, so this product cannot be used with fluids that contain mineral oil.
*2: The max. working pressure is the value at 20°C. When using in other temperature ranges, refer to the "Relation of operating ambient temperature and max. working pressure" shown in the figure at right.
*3: The proof pressure is the value at 20°C. The proof pressure is 1.5 times the maximum working pressure.
*4: Freezing may occur due to adiabatic expansion depending on the air quality (dew point).

Relation of operating ambient temperature and max. working pressure



How to order

* Refer to "Pneumatic piping Component" (Catalog No.CC-1101A) for model combinations.

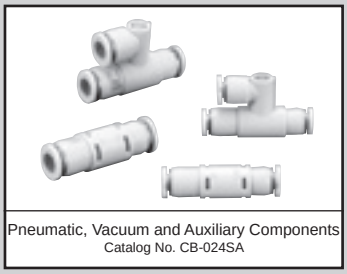
ZSF- C 4 - 6 -P4
A B C

A Shape	
C	Straight
U	Union straight
L	Elbow
V	Union elbow
B	Tee
E	Union tee
G	Different diameter union straight
D	Branch tee
Y	Union Y
EG	Different diameter union tee
X	Branch Y
W	Different diameter union Y
BP	Plug
MP	Bulkhead union
J	Reducer

B Compatible tube O.D.	
4	ø4
6	ø6
8	ø8
10	ø10
12	ø12

C Piping size *1	
M3	M3 x 0.5
M5	M5 x 0.8
6	R 1/8
8	R 1/4
10	R 3/8
15	R 1/2

*1: If C is the tube size, select from the table B.
* Sales unit is 10 pcs.

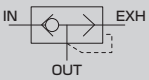


Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Quick exhaust valve inline type

QEL Series

●Piping bore size:ø4/ø6

JIS symbol 

RoHS

Features

● Compact/space saving inline
With ø4/ø6 push-in fitting
Atmosphere release type and type with exhaust port fitting are available

● Ozone-resistant materials as standard
Ozone-resistant materials are used as standard for to prevent degradation of the valving element

● Ecological products
All substances which adversely affect the global environment have been eliminated from the materials
RoHS Directive compliant products

Specifications

Model No. / Item		QEL-H44	QEL-H66
Working fluid		Compressed air	
Max. working pressure	MPa	0.7	
Min. working pressure	MPa	0.1	
Min. working pressure	MPa	0.05	
Proof pressure (normal temperature)	MPa	1.35	
Operating ambient temperature range	℃	5 to 60 (no freezing)	
Port size	IN, OUT	ø4	ø6
	EXH	ø4	ø6
Product weight	g	5.2	7.6
Mounting orientation		Unrestricted	
Effective cross-sectional area	IN→OUT mm^2	1.8	4
	OUT→EXH mm^2	1.8	4

Compatibility table by variation

	QEL
Port size	ø4, ø6
P4	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

*1: Applicable only for type with exhaust port fitting.

How to order

QEL - H44 - ○ - P4

Model No.

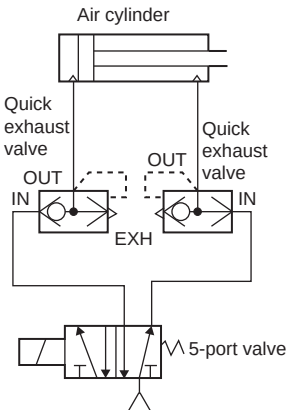
Ⓐ Compatible tube O.D.

Ⓑ Option

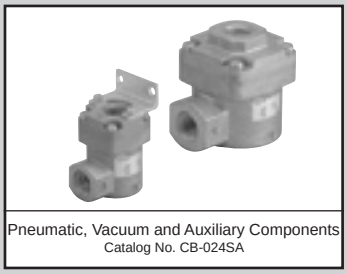
Code	Content
Ⓐ Compatible tube O.D	
H44	ø4
H66	ø6
Ⓑ Option	
Blank	Type with exhaust port fitting

Note: It is a made-to-order product.
Contact CKD Sales for details.

Applications



MEMO



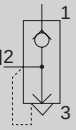
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Quick exhaust valve

QEV2 Series

●Port size: Rc1/8 to Rc1

JIS symbol



P4 compliant as standard

RoHS CAD

Features

● Large flow rate design realizing outstanding exhaust

● Variety of bore sizes available
Series includes piping bore sizes Rc1/8 to Rc1

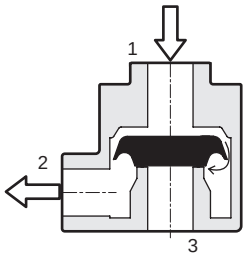
● Wide range of options
- Fluoro rubber specifications available as options
- Mounting bracket available (small bore)

● Eco-friendly product
- Eco-friendly design is free of lead and hexavalent chrome
- Paint-free
- Waste sorting is simplified

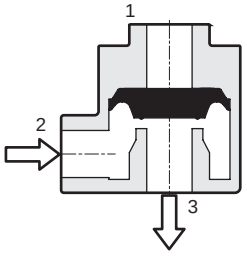
Specifications

Model No. / Item		QEV2-6	QEV2-8	QEV2-10	QEV2-15	QEV2-20	QEV2-25
Working fluid		Compressed air					
Max. working pressure MPa		1.0					
Min. working pressure MPa		0.05					
Proof pressure MPa		1.5					
Fluid temperature °C		5 to 60					
Ambient temperature °C		0 to 60 (no freezing)					
Port size Rc	1, 2	1/8	1/4	3/8	1/2	3/4	1
	3	1/4	1/4	1/2	1/2	1	1
Weight g		80	78	250	250	710	660
Mounting bracket weight g		15		-			
Mounting orientation		Unrestricted					
Effective cross-sectional area mm^2	1→2	25	35	90	105	205	275
	2→3	30	40	100	115	280	330

Operational explanation



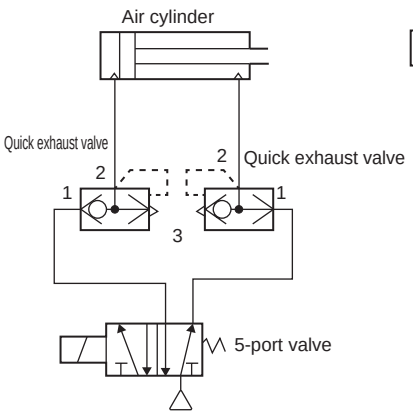
● 1→2
The valve closes port 3 with pressure from port 1. Air passes around the valve and flows to port 2.



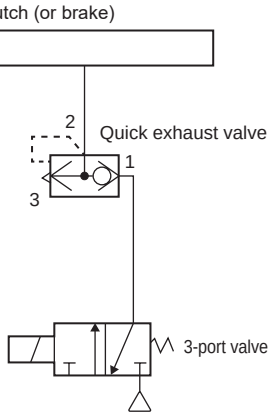
● 2→3
When port 1 pressure drops, the valve closes port 1, opens port 3, and exhausts port 2 air.

Applications

① Use to increase exhaust speed of air cylinder.



② Use to increase exhaust speed of clutch (or brake)



Compatibility table by variation

	QEV2
Port size	Rc1/8 to 1
P4	Standard compliance

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

How to order

● Quick exhaust valve

QEV2 - 6 - A P

Model No.

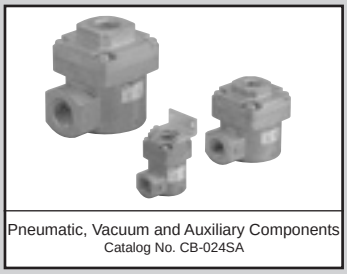
Ⓐ Port size

Ⓑ Option

Ⓒ Accessory

Code	Description
Ⓐ Port size	
6	Rc 1/8
8	Rc 1/4
10	Rc 3/8
15	Rc 1/2
20	Rc 3/4
25	Rc 1
Ⓑ Option	
Blank	No option
A	Fluoro rubber specifications
Ⓒ Accessory	
Blank	No
P	Mounting bracket attached

*1: Mounting bracket is attached for QEV2-6 and QEV2-8 only.
*2: P4 compliant as standard.



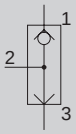
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Shuttle valve

SHV2 Series

●Port size:Rc1/8 to Rc1

JIS symbol



P4 compliant as standard

RoHS CAD

Features

● Variety of bore sizes available
Series includes piping bore sizes Rc1/8 to Rc1

● Wide range of options
- Fluoro rubber specifications available as options
- Mounting bracket available (small bore)

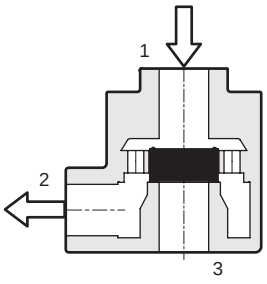
● Eco-friendly product
- Eco-friendly design is free of lead and hexavalent chrome.
- Paint-free
- Waste sorting is simplified

Specifications

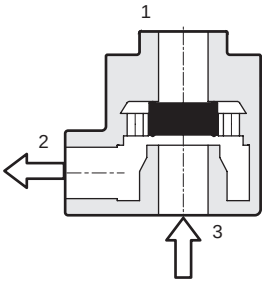
Model No. / Item		SHV2-6	SHV2-8	SHV2-10	SHV2-15	SHV2-20	SHV2-25
Working fluid	MPa	Compressed air					
Max. working pressure	MPa	1.0					
Min. working pressure	MPa	0.05					
Min. working differential pressure	MPa	0.05					
Proof pressure	°C	1.5					
Fluid temperature	°C	5 to 60					
Ambient temperature		0 to 60 (no freezing)					
Port size	Rc	1/8	1/4	3/8	1/2	3/4	1
Weight	g	86	82	270	270	760	700
Mounting bracket weight	g	15		-			
Mounting orientation		Unrestricted					
Effective cross-sectional area mm^2	1→2	20	28	90	105	205	245
	3→2	22	32	95	115	210	250
Min. required flow rate *1 ℓ/min		20	30	100		150	

*1: The valve may not change completely if the flow rate is less than this value.

Operational explanation



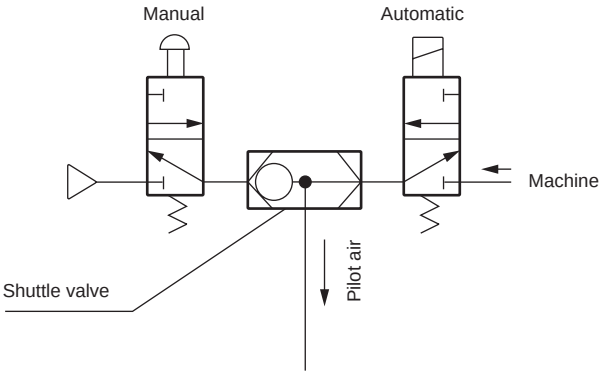
● 1→2
The valve closes port 3 with pressure from port 1. Air flows to port 2.



● 3→2
The valve closes port 1 with pressure from port 3. Air flows to port 2.

Applications

① Switching manual/auto



Compatibility table by variation

	SHV2
Port size	Rc1/8 to 1
P4	Standard compliance

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

Note: Select a fluoro rubber specification

How to order

● Shuttle valve

SHV2 - 6 - A P

Model No.

Ⓐ Port size

Ⓑ Option

Ⓒ Accessory

Code	Description
Ⓐ Port size	
6	Rc 1/8
8	Rc 1/4
10	Rc 3/8
15	Rc 1/2
20	Rc 3/4
25	Rc 1
Ⓑ Option	
A	Fluoro rubber specifications
Ⓒ Accessory	
Blank	No
P	Mounting bracket attached

*1: Mounting bracket is attached for SHV2-6 and SHV2-8 only.
*2: P4 compliant as standard.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Check valve

CHV2 Series

Completely prevents reverse flow of fluid such as compressed air. Ten types of wide variations.

● Port size: Rc1/8 to Rc1 1/2

JIS symbol



P4 compliant as standard

RoHS CAD

Features

● Wide variation
Series are available up to piping bore size Rc1/8 to Rc1 1/2.
● Compact and lightweight
● Wide range of options
Optional fluoro rubber and oil-prohibited specifications. An installation bracket is available for small bore sizes.
● Neat shape
● Eco-friendly product
Products can be sorted and processed for recycling.

Specifications

Model No.	CHV2-6	CHV2-8-J	CHV2-8	CHV2-10-J	CHV2-10	CHV2-15	CHV2-20	CHV2-25	CHV2-32	CHV2-40
Working fluid	Compressed air									
Max. working pressure MPa	1									
Min. working pressure MPa	0.03									
Proof pressure MPa	1.5									
Cracking pressure MPa	0.02									
Fluid temperature °C	5 to 60									
Ambient temperature °C	0 to 60 (no freezing)									
Port size Rc	1/8	1/4		3/8		1/2	3/4	1	1¼	1½
Weight g	47		81		140		265		875	
Mounting plate weight g	10		15		-					
Effective cross-sectional area mm²	28		55	60	94	110	220	250	700	730

How to order

CHV2 - 8 - J - A P

Model No.

A Port size

Compact small flow rate *1

B Option *2

C Accessory *3

Code	Description
A Port size	
6	Rc1/8
8	Rc1/4
10	Rc3/8
15	Rc1/2
20	Rc3/4
25	Rc1
32	Rc1 1/4
40	Rc1 1/2
B Option	
A	Fluoro rubber specifications
C Accessory	
Blank	No
P	Mounting plate included

*1: Small flow compact type (J) is only for port size Rc1/4 and Rc3/8.
*2: The options are listed in alphabetical order. (AP8)
*3: Mounting plate included CHV2-6, CHV2-8-J, CHV2-8 and CHV2-10-J only is supported.
*4: P4 compliant as standard.

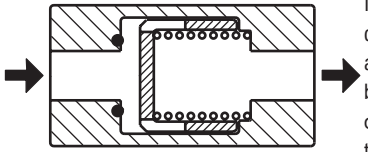
Compatibility table by variation

	CHV2
Port size	Rc1/8 to 1/1/2
P4	Standard compliance

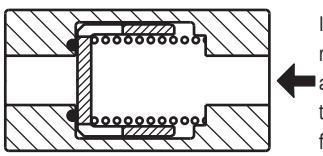
Note: Select a fluoro rubber specification

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

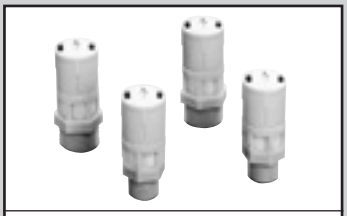
Operational principle



If pressurized in the direction of the arrow on the side body, the valve fully opens and the flow turns to free flow.



If pressurized in the reverse direction of arrow on the side body, the valve closes and flow is interrupted.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Metering valve with silencer

SMW2 Series

●Port size: R1/8 to R1/4

JIS symbol 

P4 compliant as standard

RoHS CAD

Features

- Compact, lightweight, and high flow rate
  Volume reduced by 50%, and weight reduced by 80% compared with conventional series, while max. effective cross-sectional area in the class is achieved.
- Noise reduction effect of 23dB(A) or higher
  P.P. sintering element with high damping effect integrated into the body to maintain low noise level.
- Uses a push-lock needle
  Knob with push lock mechanism enables easy and secure locking.
- Environmental friendly design
  By using plastic material only, sorting at disposal is eliminated.

Specifications

Item	SMW2-6A	SMW2-8A
Working fluid	Compressed air	
Max. working pressure MPa	0.7	
Min. working pressure MPa	0	
Proof pressure MPa	1.05	
Fluid temperature °C	5 to 60	
Ambient temperature °C	-10 to 60 (no freezing)	
Ambient humidity %RH	85 or less	
Port size R	1/8	1/4
Weight g	4.5	5
Cylinder bore size mm	ø20 to ø50	ø32 to ø75
Dial value (needle position)	9	
Noise reduction effect (*2) dB [A]	23 or more	28 or more
Flow rate (*1) ℓ/min (ANR)	370	660
Effective cross-sectional area mm^2	5.6	9.9

*1: Flow rate is the atmospheric pressure conversion at 0.5 MPa.
*2: Noise reduction effect at maximum flow rate is shown.

Compatibility table by variation

	SMW2
Port size	R1/8, 1/4
P4	Standard compliance

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details.
▭: Not applicable

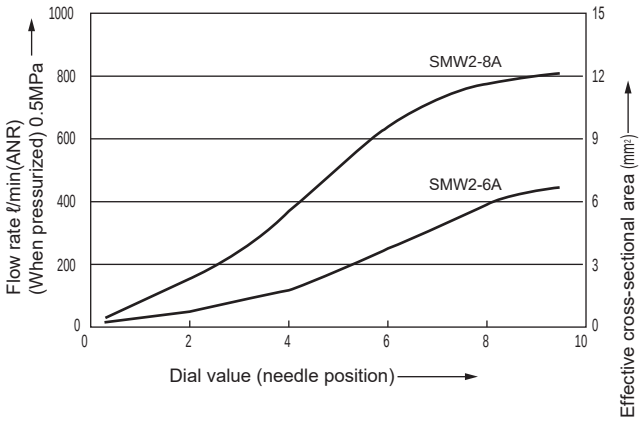
How to order

SMW2 - 6A

Code	Description
Ⓐ Port size	
6A	R1/8
8A	R1/4

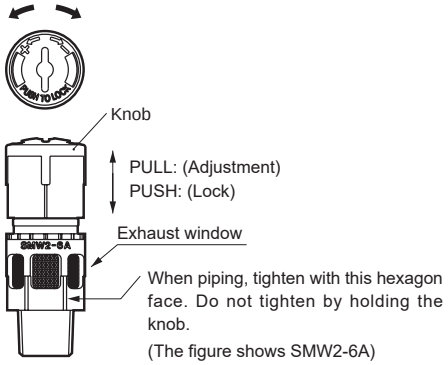
* P4 compliant as standard.

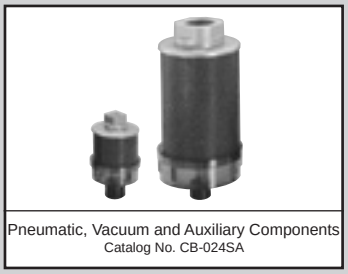
Flow characteristics



How to use

- The needle lock is released when the knob is pulled, and is locked when pressed.
- Pull the knob and the release the lock before adjusting the flow rate.
  The knob opens when turned to the left and closes when turned to the right.
- Return the knob to the closed state, and gradually open it to adjust speed.
- After adjusting speed, press the knob and confirm that the needle is locked.





Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Exhaust cleaner

FA Series

Exhaust noise and oil mist have been minimized.

● Port size: Rc3/8 to Rc2

JIS symbol



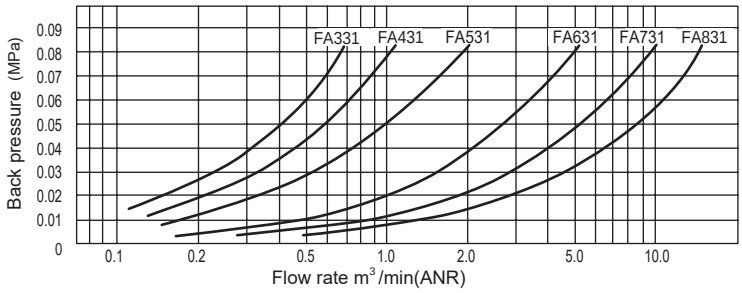
P4 compliant as standard

RoHS CAD

Specifications

Item	FA331-10A	FA431-15A	FA531-20A	FA631-25A	FA731-40A	FA831-50A
Port size Rc	3/8	1/2	3/4	1	1 1/2	2
Effective cross-sectional area mm^2	16	33	55	165	330	550
Max. processing flow rate m^3/min (ANR)	0.3	0.6	1	3	6	10
Fluid temperature	5 to 65°C (no freezing)					
Ambient temperature	0 to 65°C (no freezing)					
Noise reduction effect	35 dB and over (at the max. processing flow rate in oil saturated state)					
Oil mist collection efficiency	99.9% and over					
Oil storage capacity cm^3	80	130	150	250	350	550
Weight kg	0.2	0.3	0.4	0.6	1.1	1.5
Bracket No. (option)	B351-10A	B451-15A	B551-20A	B651-25A	-	-

Flow characteristics



Selection guide

Select an exhaust cleaner based on the air consumption in the circuit being used.

(1)Calculate the air consumption for the actuator being used.

(2) Multiply the calculated air consumption by 1.4.

(3)Select a model that has a flow rate exceeding the air consumption multiplied by 1.4.

The figure below shows the air consumption when multiplied by 1.4 for each air cylinder size. Use this graph to select a model.

Compatibility table by variation

	FA
Port size	Rc3/8 to 2
P4	Standard compliance

●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable

How to order

FA 3 31 - 10A - B

Exhaust cleaner

Ⓐ Series code

Code	Description
Ⓐ Series code	
3	Compact
4	Standard
5	Large
6	Large
7	Large bore size
8	Large bore size

Ⓑ Port size *1

	Series	3	4	5	6	7	8
10A	Rc3/8	●					
15A	Rc1/2		●				
20A	Rc3/4			●			
25A	Rc1				●		
40A	Rc1 1/2					●	
50A	Rc2						●

Ⓒ Option *2

Blank	Not included	●	●	●	●	●	●
B	Bracket	●	●	●	●		

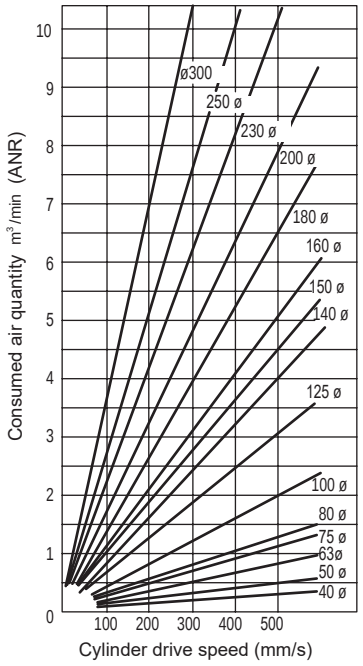
Precautions for model No. selection

*1: If port size NPT thread is required, do not indicate nominal size A. (Example) FA431-15

*2: Bracket option is not available for FA731 and FA831

*3: P4 compliant as standard.

(Working pressure 0.5 MPa)



UP.F.U.NU.KX.SR2

Tube

O.D.1.8/3.2/4/6/8/10/12/15mm

● Wide tube variation

A great variety of tubes are available according to the purpose and applications.
Furthermore, they are highly reliable, meeting needs of space saving and complex piping, etc.

■ Antistatic tube



O.D. x I.D. (mm)
3.2 x 1.8
4 x 2.5
6 x 4
8 x 5
10 x 6.5
12 x 8

■ Soft nylon tube

Manufacturer of colors other than white: Aoi Co., Ltd.



O.D. x I.D. (mm)
3.2 x 2.0
3.2 x 2.4
4 x 2.5
6 x 4
8 x 6
10 x 7.5
12 x 9
15 x 11.5
16 x 12

■ New urethane tube



O.D. x I.D. (mm)
4 x 2.5
6 x 4.5
8 x 6
10 x 7.5
12 x 9

■ Urethane tube

Aoi Co., Ltd.



O.D. x I.D. (mm)
3.2 x 1.8
4 x 2
6 x 4
8 x 5
10 x 6.5
12 x 8

■ Coiling tube

Aoi Co., Ltd.



O.D. x I.D. (mm)
6 x 4
8 x 6
10 x 7.5
12 x 9.2

■ Flame-resistant tube

Aoi Co., Ltd.



O.D. x I.D. (mm)
4 x 2.3
6 x 3.8
8 x 5.5
10 x 7
12 x 8.5

■ Tube cutter

Aoi Co., Ltd.



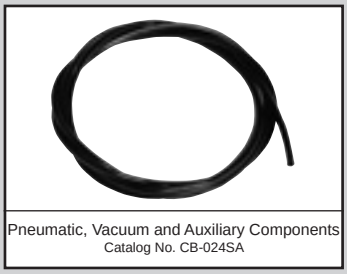
Tube cutter

Aoi Co., Ltd.
AZ-1200

Features
(1)Sharp cut with a right cut
Prevents air trouble.
(2)Extremely lightweight and compact.
(3)Easy blade replacement.
Applicable material
● Nylon tube
● Urethane tube
● PTFE tube
● Other plastic tubes

Sharp edge





Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Tube

F.U.NU.KX.SR2 Series

Wide bore size available according to purposes and applications.
Highly reliable piping tubes.
● O.D.: 3.2/4/6/8/10/12/15/16 mm

P4 compliant as standard

Soft nylon tube

Manufacturer of colors other than white: Aoi Co., Ltd.

The soft nylon tube is very flexible compared to the conventional nylon tubes, and optimal for piping in small or complicated spaces. The tube also has sufficient characteristics such as cold resistance, weather resistance, oil resistance and chemical resistance, etc.

How to order

FH-3224 - W

Size of soft nylon tube
ø3.2 x ø2.4

A

For miniature fitting.

A Tube color	
Blank	Black
W	White

F-15 04 - 20 - W

Soft nylon Tube

A B C

A Tube size (O.D.)				B Length per roll		C Tube color	
32	ø3.2	10	ø10	20	20m	Blank	Black (Standard)
04	ø4	12	ø12	100	100m	W	White (Standard)
06	ø6	15	ø15			R	Red
08	ø8	16	ø16			BU	Blue
						Y	Yellow
						G	Green
						O	Orange

Note: When tube color is white "W", length per roll 100mis not available.

Note: Use the FH-3224 for miniature fitting. F-1532 cannot be used.

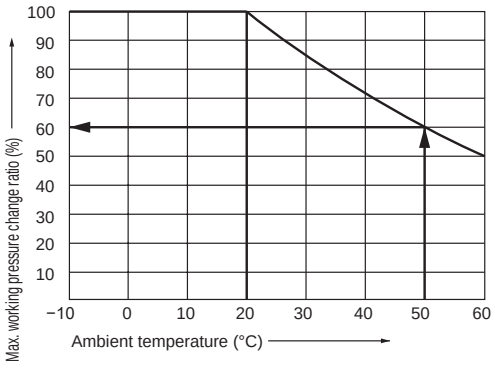
Specifications

This table indicates the value at 20°C.

Item	FH-3224	F-1532	F-1504	F-1506	F-1508	F-1510	F-1512	F-1515	F-1516
Working fluid	Compressed air								
O.D. x I.D. mm x mm	3.2 x 2.4	3.2 x 2.0	4 x 2.5	6 x 4	8 x 6	10 x 7.5	12 x 9	15 x 11.5	16 x 12
Ambient temperature °C	-10 to 60 (no freezing)								
Burst pressure MPa	5.39			4.9	3.9	3.43		2.94	3.3
Max. working pressure MPa	1.76			1.67	1.27	1.18		1	1.1
Durometer hardness	HDD 63	HDD 52							
Min. bending radius (JIS B 8381) mm	13	4.5	5	8	15	20	26	43	46
Min. installation radius mm	21	7	10	20	30	40	55	80	90
Tube color	White/black		White (20 m only)/black/red/ Blue/yellow/green/orange			White/black			Black
Standard length per roll m	20		20/100			20/100 (only black)			20/100

* Outer diameter dimension tolerance may vary within ±0.1 mm.

Relation of ambient temperature and max. working pressure



(Example) Tube F-1504 (ø4×ø2.5) At an ambient temperature of 50°C, the max. working pressure is 60% of that at 20°C.

$1.76 \times \frac{60}{100} = 1.06$ (MPa)

New urethane tube

RoHS

Due to the adoption of a new manufacturing process, larger inner diameter and increased strength are realized simultaneously with the same outer diameter. This piping tube is also used for larger flow rates. Also economical.

Common specifications

Item	Description
Working fluid	Air
Ambient temperature °C	0 to 60
Burst pressure MPa	4 (at 20°C)
Max.Working pressure MPa	1.0 (at 20°C)
Working vacuum pressure kPa	−100

Specifications

Item	NU-04	NU-06	NU-08	NU-10	NU-12
O.D. x I.D. mm x mm	4 x 2.5	6 x 4.5	8 x 6	10 x 7.5	12 x 9
Burst pressure MPa	4 to 2.4				
Ambient temperature °C	0 to 60 (no freezing)				
Durometer hardness (JIS K7215)	HDD 64				
Min. bending radius (JIS B 8381) mm	8	16	24	30	36
Min. installation radius mm	12	26	36	42	52
Outer diameter accuracy mm	0			+0.1 -0.15	
Weight g/m	10	15	28	42	62
Tube color	Black/white				
Standard length per roll m	20/100 (only black)				

Note: Refer to "Pneumatic, Vacuum and Auxiliary Components" (catalog No. CB-024SA) for relation of the tube length to the effective cross-sectional area.

How to order

NU - 04 - 20 - W

A Tube size (O.D.)		B Length per roll		C Tube color	
04	ø4	20	20m	Blank	Black (standard)
06	ø6	100	100m	w	White (standard)
08	ø8				
10	ø10				
12	ø12				

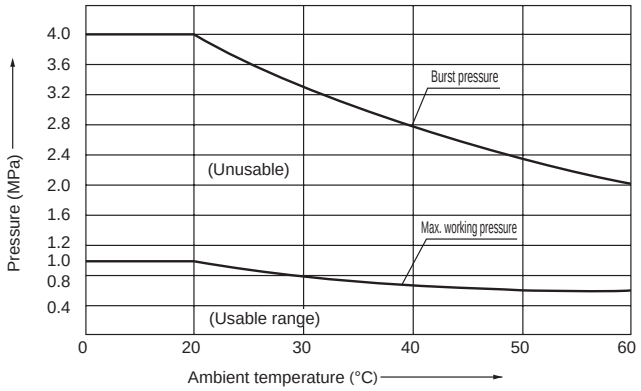
Note: "W" Length per roll 100 m is not available for white.

Clean-room specifications (Catalog No. CB-033SA)

● Anti-dust generation structure for use in cleanrooms

NU .....- P80

Relation of ambient temperature and pressure (use/burst)



Soft urethane tube

Aoi Co., Ltd.

How to order

U-92 - 06 - 20 - N

Soft urethane Tube

A Compatible tube O.D. size		B Length per roll		C Tube color	
04	ø4	20	20m	Blank	Black
06	ø6	100	100m	N	Transparent
08	ø8			PW	Pure white
10	ø10			R	Red
12	ø12			BU	Blue
				Y	Yellow
				G	Green
				O	Orange

Clean-room specifications

(Catalog No. CB-033SA)

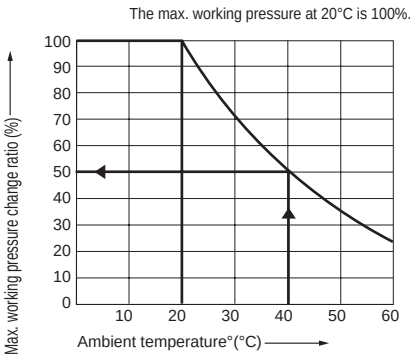
U-92 .....- P80

Specifications

This table indicates the value at 20°C.

Item	U-9204	U-9206	U-9208	U-9210	U-9212
Working fluid	Compressed air				
O.D. x I.D. mm x mm	4 x 2	6 x 3.7	8 x 5	10 x 6.5	12 x 8
Burst pressure MPa	4.1	2.9	2.8	2.6	2.6
Max. working pressure MPa	1.3	0.9	0.9	0.8	0.8
Durometer hardness JIS K 7215	HDA 92				
Min. bending radius mm	4	10	11	13	16.5
Min. mounting radius mm	8	17	25	30	36
Tube color	Black/transparent/red/blue/yellow/green/orange/pure white				
Standard length per roll m	20, 100				

Relation of ambient temperature and max. working pressure



When the temperature rises, the constant pressure gradually drops. Special consideration must be given for the ambient temperature.
(Example) In U-9208, the max. working pressure at an ambient temperature of 40°C is 50% of that at 20°C.

$0.9\times \frac{50}{100} \approx 0.45(\text{MPa})$

Urethane tube

Aoi Co., Ltd.

Since urethane tube has high mechanical strength, the tube strongly endures external force, and also has flexibility. This is widely used in general pneumatic lines, etc.

How to order

U-95 04 - 20 N

- U-95: Urethane tube
- A: 04
- B: 20
- C: N

A Compatible tube O.D. size		B Length per roll		C Tube color	
32	ø3.2	20	20m	Blank	Black
04	ø4	100	100m	N	Transparent
06	ø6				
08	ø8				
10	ø10				
12	ø12				

Note: Indicate tube color in the remarks on the order slip.

Clean-room specifications (Catalog No. CB-033SA)

U-95 .....- **P80**

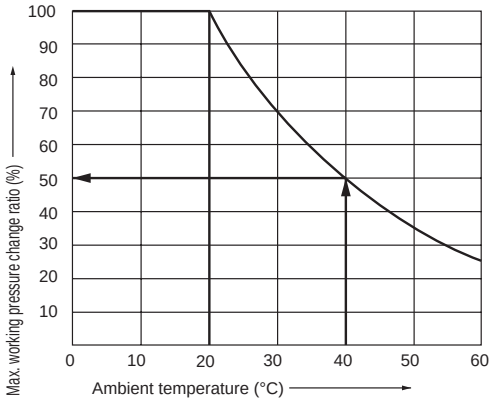
Specifications

This table indicates the value at 20°C.

Item	U-9532	U-9504	U-9506	U-9508	U-9510	U-9512
Working fluid	Compressed air					
O.D. x I.D. mm x mm	3.2 x 1.8	4 x 2	6 x 4	8 x 5	10 x 6.5	12 x 8
Ambient temperature °C	0 to 60 (no freezing)					
Burst pressure MPa	6.1	5.2	3.2	3.6	3.4	3.2
Max. working pressure MPa	1.5	1.7	1.0	1.2	1.1	1.0
Durometer hardness JIS K 7215	HDA 97					
Min. bending radius (JIS B 8381) mm	4	5	13	14	16	20
Min. installation radius mm	7	10	20	30	40	50
Tube color	Transparent/black					
Standard length per roll m	20	20, 100			20	

* Tolerance of outer diameter is manufactured within $^{+0.1}_{0.15}$ mm for U-9506 or less, and within $^{+0.1}_{0.2}$ mm for U-9508 and over.

Relation of ambient temperature and max. working pressure



When the temperature rises, the constant pressure gradually drops. Special consideration must be given for the ambient temperature.

(Example) In U-9506, the max. working pressure at an ambient temperature of 40°C is 50% of that at 20°C.

$1.0 \times \frac{50}{100} \approx 0.5$(MPa)

Coiling tube

Aoi Co., Ltd.

A coiling tube is a coil-like manufactured extensible tube. Unlike conventional products, fittings are easily installed and the coil contracts and expands very smoothly due to the straight section provided with the specified length in the direction of expansion and contraction. Durability of coil end is also excellent.

How to order

KX-12 06

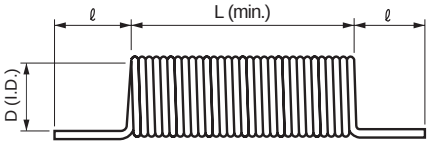
- KX-12: Coiling tube
- A: 06

A O.D. size	
06	ø6
08	ø8
10	ø10
12	ø12

Specifications

Item	KX-1206	KX-1208	KX-1210	KX-1212
O.D.× Bore size mm x mm	6 x 4	8 x 6	10 x 7.5	12 x 9.2
Ambient temperature °C	-10 to 60 (no freezing)			
Working extension m	2.5			
D mm	50	70		90
L mm	250	240	290	275
ℓ	100			
Tube color	Orange			

* Tolerance of outer diameter is manufactured within $^{+0.07}_{-0.1}$ mm.
* Tube is made of hard nylon.



Flame-resistant tube

Aoi Co., Ltd.

Single-core flame-resistant tube using flame-resistant materials. Even if welding sparks, etc., come into contact, the tube will not continue to burn.
(UL standard 94V-0 or equivalent...self-extinguishing)

Specifications

Item	SR2-4×2	SR2-6×3.8	SR2-8×5.5	SR2-10×7	SR2-12×8.5
O.D.× Bore size mm x mm	4 x 2	6 x 3.8	8 x 5.5	10 x 7	12 x 8.5
Ambient temperature °C	0 to 60 (no freezing)				
Burst pressure MPa	4.8	4.3	3.4	3.3	3.3
Max. working pressure MPa	1.6	1.4	1.1	1.1	1.1
Min. bending radius mm	8	14	24	32	35
Tube color	Black/red/blue/green				
Standard length per roll m	20, 100				

This table indicates the value at 23°C.

How to order

SR2 - 04 - 20 - ( )
Flame resistance Tube
A B C

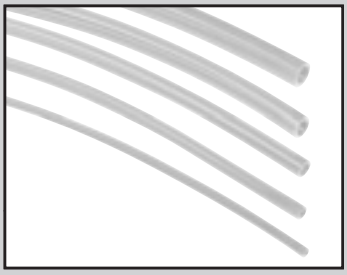
A Compatible tube O.D. size		B Length per roll		C Tube color	
4 x 2	ø4	20	20m	Blank	Black
6 x 3.8	ø6	100	100m	R	Red
8 x 5.5	ø8			BU	Blue
10 x 7	ø10			G	Green
12 x 8.5	ø12				

Note: Indicate tube color in the remarks on the order slip.

Max. working pressure change ratio by working and ambient temperature

Working and ambient temperature	23°C or less	30°C	40°C	60°C	80°C	100°C	120°C
Change ratio	100%	80%	70%	55%	35%	20%	10%

Ex.) Max. working pressure at 60°C for SR2-8 x 5.5
1.1 MPa (max. working pressure at conditions below 23°C) x 55% (change ratio for 60°C) = 0.6 MPa



Fluoro resin tube

ET Series

●O.D.: 4 mm, 6 mm, 8 mm, 10mm, 12mm

P4 compliant as standard

RoHS

Features

- Fluorine resin (FEP) tube with excellent cost performance
- 8 size variations are set (O.D.: ø4 to ø12)

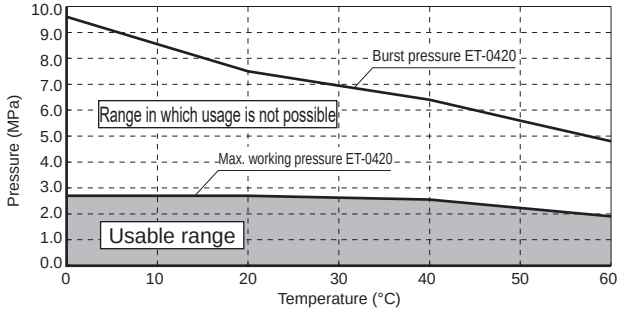
Specifications

Item		ET-0420	ET-0425	ET-0640	ET-0860	ET-1075	ET-1080	ET-1290	ET-1210
O.D. x I.D.	mm x mm	4 x 2	4 x 2.5	6 x 4	8 x 6	10 x 7.5	10 x 8	12 x 9	12 x 10
Working fluid		Air							
Max. working pressure (*1)	MPa	2.7	1.6	1.6	1	1	0.7	1	0.7
Burst pressure (*1)	MPa	7.5	4.6	4.6	3.3	3.3	2.1	3.3	2.1
Operating vacuum pressure	kPa	-100							
Operating ambient temperature range	°C	-20 to 80 (no freezing)							
Min. bending radius (JIS B 8381)	mm	7	14	14	27	40	50	47	67
Min. installation radius	mm	10	20	30	55	60	100	80	150
Material		Fluorine resin (FEP)							
Compatible tube fitting		Fitting ZSP, ZSF Series							

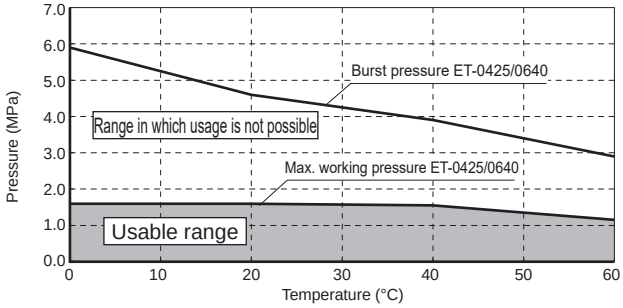
*1: The max. working pressure and burst pressure are the values at 20°C. When using in other temperature ranges, refer to the graph of "Relation of operating ambient temperature and pressure (use/burst)".

Relation of operating ambient temperature and pressure (use burst)

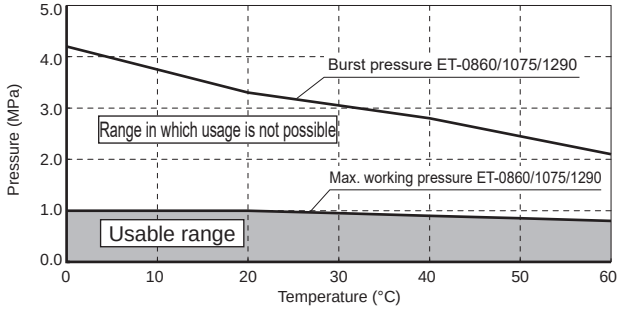
●ET-0420-*



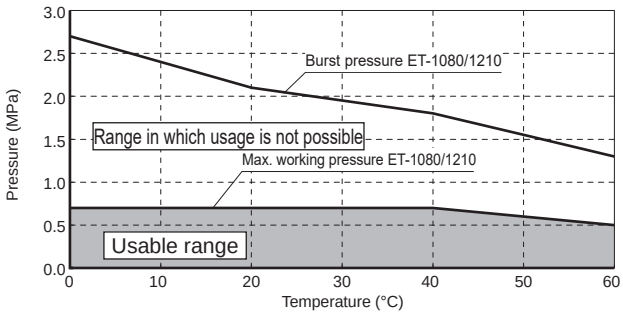
●ET-0425/0640-*



●ET-0860/1075/1290-*



●ET-1080/1210-*

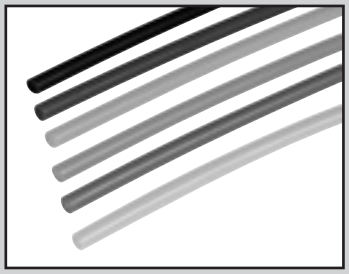


How to order

ET - 0425 - 20 - C

- C: Color; Transparent
- 20: Length per roll; 20m
- 0425: Ⓐ Tube size (O.D. x I.D.)

Code	Description
Ⓐ Tube size (O.D. x I.D.)	
0420	ø4 x ø2
0425	ø4 x ø2.5
0640	ø6 x ø4
0860	ø8 x ø6
1075	ø10 x ø7.5
1080	ø10 x ø8
1290	ø12 x ø9
1210	ø12 to ø10



Polyolefin tube

PFH/S Series

●O.D.: 4 mm, 6 mm, 8 mm, 10mm, 12mm

P4 compliant as standard

RoHS

Features

- Uses polyolefin-based resin suitable for clean environments
- 2 types of hardness, standard and soft, can be selected
- O.D.:ø4, ø6, ø8, ø10, ø12
- 6 tube colors as standard.

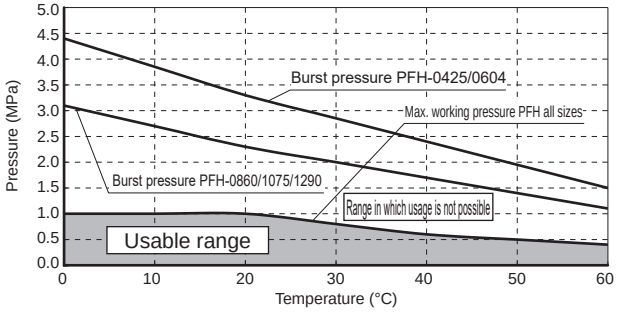
Specifications

Item		PFH-0425	PFH-0640	PFH-0860	PFH-1075	PFH-1290	PFS-0425	PFS-0640	PFS-0850	PFS-1065	PFS-1280
O.D. x I.D.	mm x mm	4 x 2.5	6 x 4	8 x 6	10 x 7.5	12 x 9	4 x 2.5	6 x 4	8 x 5	10 x 6.5	12 x 8
Working fluid		Air(*1)									
Max. working pressure (*2)	MPa	1.0					0.8				
Burst pressure (*2)	MPa	3.3		2.3			2.1				
Operating vacuum pressure	kPa	-100									
Operating ambient temperature range	°C	0 to 60 (no freezing)									
Min. bending radius (JIS B 8381)	mm	7	12	23	27	33	7	12	12	18	20
Min. installation radius	mm	15	25	37	46	54	15	25	25	29	41
Material		Polyolefin-based resin									
Compatible tube fitting		Fitting ZSP, ZSF Series									

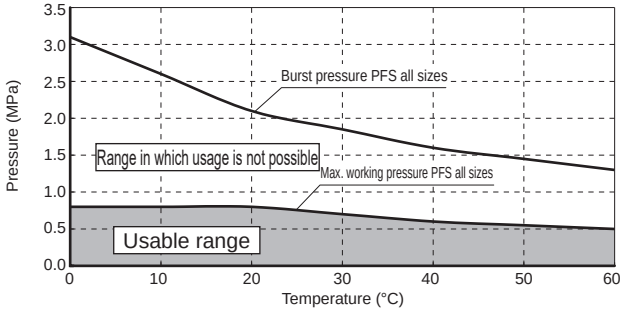
*1: Polyolefin-based resin is not suitable for piping in general pneumatic circuits, since it is susceptible to mineral oil.
*2: The max. working pressure and burst pressure are the values at 20°C. When using in other temperature ranges, refer to the graph of "Relation of operating ambient temperature and pressure (use/burst)".

Relation of operating ambient temperature and pressure (use burst)

●PFH; Polyolefin tube standard



●PFS; Polyolefin tube soft type



How to order

PF H - 0425 - 100 - CW - P4

- H: Ⓐ Type
- 0425: Ⓑ Tube size (O.D. x I.D.)
- 100: Length per roll; 100m
- CW: Ⓒ Color

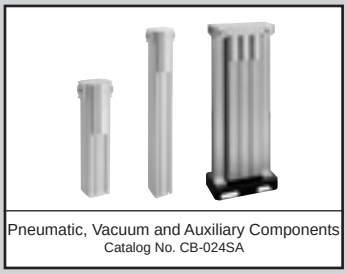
Code	Description	Model No. PFH	Model No. PFS
Ⓐ Type			
H	Standard	●	
S	Soft		●
Ⓑ Tube size (O.D. x I.D.)			
0425	ø4 x ø2.5	●	●
0640	ø6 x ø4	●	●
0850	ø8 x ø5		●
0860	ø8 x ø6	●	
1065	ø10 x ø6.5		●
1075	ø10 x ø7.5	●	
1280	ø12 x ø8		●
1290	ø12 x ø9	●	
Ⓒ Color			
B	Black	●	●
CW	Transparent white	●	●
CR	Transparent red	●	●
CB	Transparent blue	●	●
CG	Transparent green	●	●
CY	Transparent yellow	●	●

Gas generator



CONTENTS

■ Nitrogen Gas Extraction Unit NS 564



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Material compatible with the Food Sanitation Act

Nitrogen Gas Extraction Unit

NS Series

Modular design for easy system expansion with peripheral devices

■ Nitrogen gas is obtained just by supplying compressed air.

RoHS

Specifications

■Single cylinder

Item				NS-3S1	NS-3L1	NS-4S1	NS-4L1
Range of working conditions	Working fluid			Compressed air			
	Inlet air pressure	MPa		0.4 to 1.0			
	Proof pressure	MPa		1.5			
	Inlet air temperature	°C		5 to 50			
	Relative humidity of inlet air	RH		50% or less			
	Ambient temperature	°C		5 to 50			
Rating	Inlet air purity class			1:6:1 (JIS B 8392-1:2012, ISO 8573-1:2010)			
	Inlet air pressure	MPa		0.7			
	Inlet air temperature	°C		25			
	Ambient temperature	°C		25			
Rated flow	Outlet nitrogen gas flow rate L/min (ANR)	Nitrogen concentration (%) or higher	99.9	1.9	5.6	11.0	30.6
			99	5.0	15.5	28.2	66.9
			97	8.9	28.7	49.9	118.1
			95	14.0	39.8	65.3	169.2
			90	27.0	78.1	137.3	313.5
	Inlet air flow rate L/min (ANR)		99.9	17.3	50.9	100.0	278.2
			99	20.9	64.6	117.5	278.8
			97	24.1	77.6	134.9	319.2
			95	31.2	88.5	145.2	376.0
			90	60.0	173.6	305.1	696.7

■Double acting

Item				NS-4S2	NS-4S3	NS-4L2	NS-4L3	NS-4L4	NS-4S6	NS-4S8	NS-4SA	NS-4L6	NS-4L8
Range of working conditions	Working fluid			Compressed air									
	Inlet air pressure	MPa		0.4 to 1.0									
	Proof pressure	MPa		1.5									
	Inlet air temperature	°C		5 to 50									
	Relative humidity of inlet air	RH		50% or less									
	Ambient temperature	°C		5 to 50									
Rating	Inlet air purity class			1:6:1 (JIS B 8392-1:2012, ISO 8573-1:2010)									
	Inlet air pressure	MPa		0.7									
	Inlet air temperature	°C		25									
	Ambient temperature	°C		25									
Rated flow	Outlet nitrogen gas flow rate L/min (ANR)	Nitrogen concentration (%) or higher	99.9	22.0	33.0	61.2	91.8	122.4	66.0	88.0	110.0	183.6	244.8
			99	56.4	84.6	133.8	200.7	267.6	169.2	225.6	282.0	401.4	535.2
			97	99.8	149.7	236.2	354.3	472.4	299.4	399.2	499.0	708.6	944.8
			95	130.6	195.9	338.4	507.6	676.8	391.8	522.4	653.0	1015.2	1353.6
			90	274.6	411.9	627.0	940.5	1254.0	823.8	1098.4	1373.0	1881.0	2508.0
	Inlet air flow rate L/min (ANR)		99.9	200.0	300.0	556.4	834.6	1112.8	600.0	800.0	1000.0	1669.2	2225.6
			99	235.0	352.5	557.6	836.4	1115.2	705.0	940.0	1175.0	1672.8	2230.4
			97	269.8	404.7	638.4	957.6	1276.8	809.4	1079.2	1349.0	1915.2	2553.6
			95	290.4	435.6	752.0	1128.0	1504.0	871.2	1161.6	1452.0	2256.0	3008.0
			90	610.2	915.3	1393.4	2090.1	2786.8	1830.6	2440.8	3051.0	4180.2	5573.6

Note: The product will be floor-mounted for 6 units or more.

Selection guide

The temperature and inlet air pressure affect the outlet nitrogen gas flow and should be corrected if they differ from the ratings in the specification section.

STEP 1 Confirm the working conditions and the rated values listed in the specifications.
Use conditions: Inlet air pressure, inlet air temperature, required nitrogen gas flow rate

STEP 2 Confirm the compensation coefficient for outlet nitrogen gas flow rate affected by inlet air temperature.

(1) Temperature - Gas flow rate compensation coefficient

Temperature (°C)	Outlet nitrogen gas concentration				
	99.9%	99%	97%	95%	90%
5	0.64	0.79	0.79	0.75	0.78
10	0.73	0.84	0.84	0.81	0.84
25	1	1	1	1	1
35	0.97	1.05	1.04	1.07	1.07
40	0.95	1.08	1.06	1.11	1.11
50	0.9	1.09	1.11	1.15	1.2

STEP 3 Confirm the compensation coefficient for outlet nitrogen gas flow rate affected by inlet air pressure.

(2) Pressure - Gas flow rate compensation coefficient

Pressure(MPa)						
0.4	0.5	0.6	0.7	0.8	0.9	1.0
0.4	0.65	0.75	1	1.07	1.2	1.3

STEP 4 Determine the appropriate model from the rated outlet nitrogen gas flow rate of each model.
Rated outlet nitrogen gas flow rate x (1) temperature gas flow rate correction coefficient x (2) pressure gas flow rate correction coefficient = corrected outlet nitrogen gas flow rate
Select one with sufficient outlet nitrogen gas flow rate after correction with the above formula.

STEP 5 Confirm the compensation coefficient of inlet air flow rate affected by inlet air temperature.

(3) Temperature - Air flow rate compensation coefficient

Temperature (°C)	Outlet nitrogen gas concentration				
	99.9%	99%	97%	95%	90%
5	0.73	0.68	0.75	0.69	0.76
10	0.8	0.76	0.81	0.77	0.82
25	1	1	1	1	1
35	1.21	1.17	1.11	1.13	1.11
40	1.32	1.25	1.17	1.2	1.16
50	2.05	1.38	1.31	1.31	1.3

STEP 6 Confirm the compensation coefficient for inlet air flow rate affected by inlet air pressure.

(4) Pressure - Air flow rate compensation coefficient

Pressure (MPa)						
0.4	0.5	0.6	0.7	0.8	0.9	1.0
0.61	0.79	0.91	1	1.07	1.2	1.3

STEP 7 Find the inlet air flow rate from the rated outlet nitrogen gas flow rate of each model.
Inlet air flow rate of the model selected in STEP4 × (3) temperature air flow rate correction coefficient × (4) pressure air flow rate correction coefficient = corrected inlet air flow rate L/min (ANR)
Based on the inlet air flow rate corrected as above, confirm whether the compressor capacity is sufficient.

Example of calculation

Conditions	Working conditions	Selecting conditions	Compensation coefficient for outlet nitrogen gas flow rate	Compensation coefficient for inlet air flow rate
Inlet air temperature	35 to 39°C	40°C	(1)1.08	(3)1.25
Inlet air pressure	0.5 to 0.55 MPa	0.5 MPa	(2)0.65	(4)0.79

Substitute the above conditions into the equation above to obtain the outlet nitrogen gas flow rate when using NS-4L1 at a nitrogen concentration of 99%.
66.9 (rated outlet nitrogen gas flow rate) ×1.08×0.65=46.9L/min (ANR).
If the required nitrogen gas flow rate is less than or equal to this value, select that model.
In this case, the inlet air flow rate is 278.8 × 1.25 × 0.79 = 275.3L/min (ANR).

How to order

NS - 4 S 1 10A - E T - P4

- Model No.
- A Body size
- B Membrane unit size
- C Quantity
- D Port size
- E Option
- F Mounting direction

Code	Item
A Body size	
3	Body width 63
4	Body width 79
B Membrane unit size	
S	Short
L	Long
C Quantity	***1**
1	1 pc.
2	2 pcs. (available with NS-4S and 4L)
3	3 pcs. (available with NS-4S and 4L)
4	4 pcs. (available with NS-4L)
6	6 pcs. (available with NS-4S and 4L)
8	8 pcs. (available with NS-4S and 4L)
A	10 pcs. (available with NS-4S)
D Port size	
10 A	Rc 3/8 (NS-3S1,3L1,4S1,4L1)
20A	Rc 3/4 (NS-4S2,4S3,4L2,4L3,4L4)
25 A	Rc 1 (NS-4S6,4S8,4SA,4L6,4L8)
E Option	***2**
D	Bracket + exhaust port
F	Bracket + reverse flow + exhaust port
E	With exhaust port
H	Reverse flow + With exhaust port *3
F Mounting direction	
Blank	Vertical mounting
T	Horizontal mounting (available with NS-4S1 and 4L1)

⚠ Precautions for model No. selection

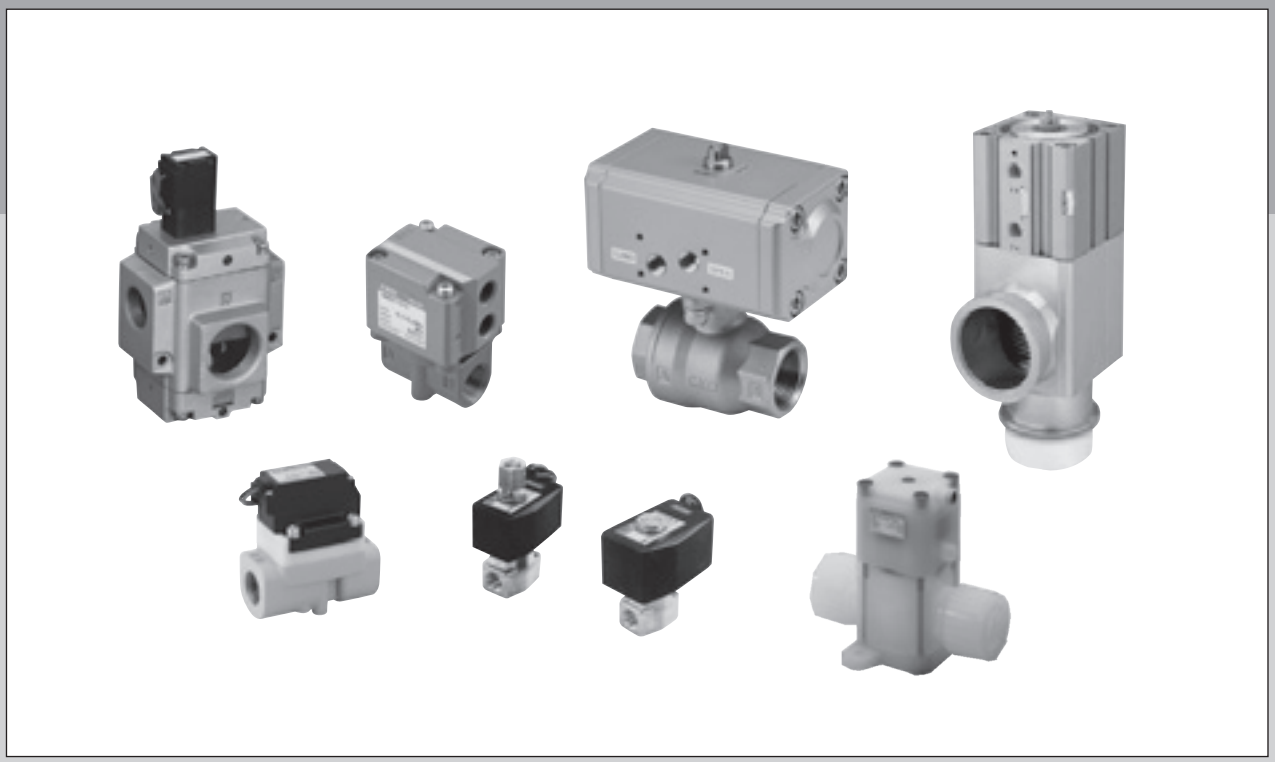
*1 : The product will be floor-mounted without bracket for 6 units or more.
*2: Exhaust air (oxygen-enriched gas) from standard products is released into the atmosphere. Size of exhaust port is Rc1/2.
*3: Viewed from the front, a standard product has an air inlet on the left port, while an air outlet on the right port. For "X", an air inlet is provided on the right port, with an air outlet provided on the left port.

Compatibility table by variation

	NS
Port size	Rc3/8, Rc3/4, Rc1
P4	▲

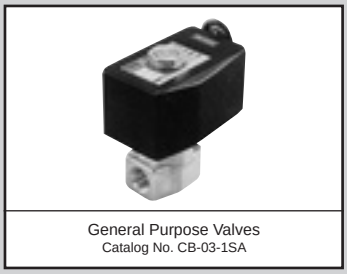
▲: Contact CKD for details.
*1: Applicable only for type with exhaust port.

Fluid control components



CONTENTS

■ Fluid control valves	General purpose valve For dry air	AB-Z/GAB-Z	568
		AG-Z/GAG-Z	572
		ADK11-Z	578
	Pilot operated 2-port solenoid valve for air	EXA	580
	Air operated 2, 3-port ball valve	CHB	582
		CHG	584
	Air operated 2-port valve	SAB/SVB	586
	Air operated 2-port valve	NAB/GNAB	596
	Diaphragm cylinder valve	NAD/GNAD	600
	Diaphragm cylinder valve	LAD	602
	Internal pilot 3-port valve	NP13/NP14	604
	Air operated 3-port valve	NAP11	606
	Air operated 3-port solenoid valve	NVP11	607
	3-port solenoid valve with spool position detection	SNP	608
	Solenoid valve for high vacuum	HVB	612
■ Wet Fine system	Air operated valve for chemical liquids	AMD3*3R	616
■ Dry Fine system	Air operated valve for high vacuum	AVB	618



General Purpose Valves
Catalog No. CB-03-1SA

Direct acting 2-port solenoid valve for dry air
(general purpose valve)

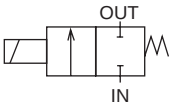
AB31/AB41-Z Series

- NC (Open when energized)
- Port size:Rc1/8 to Rc1/2

RoHS CAD

JIS symbol

● NC (open when energized)



Common specifications

Item	Standard specifications
Working fluid	Dry air (atmospheric dew point -70°C and over)/inert gas/low vacuum [1.33×10^{2}Pa(abs)]
Working pressure differential MPa	0 to 4 (refer to max. working pressure differential in individual specifications.)
Max. working pressure MPa	5
Proof pressure (water pressure) MPa	25
Fluid temperature °C	-10 to 45 (no freezing)
Ambient temperature °C	−10 to 45
Thermal class	Class 130 (B)
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Direct acting poppet structure
Valve seat leakage cm^3/min (ANR)	0.2 or less
Mounting orientation	Unrestricted

Individual specifications

Item / Model No.	Port size	Orifice size (mm)	Max. working pressure differential (MPa)	Rated voltage	Power consumption (W) AC	Power consumption (W) DC	Weight (kg)
AB31- 01/02 -1-******Z	Rc 1/8 Rc 1/4	1.5	2.5	100 VAC 50/60Hz 200 VAC 50/60Hz 12 VDC 24 VDC 48 VDC 100 VDC	17	14	0.45
-2-******Z		2.0	1.5				
-3-******Z		3.0	0.5				
-4-******Z		3.5	0.35				
-5-******Z		4.0	0.2				
-6-******Z		5.0	0.12				
AB41- 02/03 -1-******Z	Rc 1/4 Rc 3/8	1.5	4.0				0.57 (Rc1/4)
-2-******Z		2.0	2.5				
-3-******Z		3.0	0.9				
-4-******Z		3.5	0.6				0.59 (Rc3/8)
-5-******Z		4.0	0.4				
-6-******Z		5.0	0.2				
-7-******Z		7.0	0.1				
AB41- 03/04 -8-******Z	Rc3/8 / Rc1/2	10.0	0.03				0.68

*1: The model numbers above show the basic port size (Rc). Refer to How to order for other combinations.
*2: The port size model No. is 01 for Rc1/8 (6A), 02 for Rc1/4 (8A), 03 for Rc3/8 (10A) and 04 for Rc1/2 (15A).
*3: The voltage fluctuation range must be within ±10% of the rated voltage.
*4: The leakage current must be less than or equal to the values shown below.
*5: When using at low vacuum, vacuum the OUT port side.

Leakage current: Voltage / Model No.	100 VAC	200 VAC	12 VDC	24 VDC	48 VDC	100 VDC
AB31-*-*-******Z	10 mA or less	5 mA or less	40 mA or less	20 mA or less	10 mA or less	5 mA or less
AB41-*-*-******Z	10 mA or less	5 mA or less	40 mA or less	20 mA or less	10 mA or less	5 mA or less

Compatibility table by variation

	AB3/AB4-Z
Classification	Direct acting 2-port valve for dry air
Body material	Stainless steel
P4	●
P40	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

*1: Body material Select from stainless steel products.
*2: Body material/Seal combination code M only.
*3: Pipe material is SUS316.

How to order

AB31 - 02 - 3 - M - 3A - A - B - G - S Z P4/P40 - DC24V

AB41

Model No.

D Coil housing
E Manual override (locking)
F Mounting plate
G Other options
H With surge suppressor
I Voltage

A Port size
B Orifice size
C Body/sealant combination

Code	Item	Code	Item	Code	Item	Model No. AB31	AB41	AB41 Large flow rate
A Port size								
01	Rc 1/8	**1G**	G 1/8	**1 N**	1/8NPT	●		
02	Rc 1/4	**2G**	G 1/4	**2 N**	1/4NPT	●	●	
03	Rc 3/8	**3G**	G 3/8	**3 N**	3/8NPT		●	●
04	Rc 1/2	**4G**	G 1/2	**4 N**	1/2NPT			●
B Orifice size								
1	ø1.5					●	●	
2	ø 2					●	●	
3	ø 3					●	●	
4	ø 3.5					●	●	
5	ø 4					●	●	
6	ø 5					●	●	
7	ø 7						●	
8	ø 10							●

C Body/sealant combination

	Body	Seal	Treatment	Remarks			
M	Stainless steel	Fluoro rubber	Oil-prohibited	—	●	●	●

The combinations indicated with ● in the above table are available.

For Items Ⓓ to Ⓘ, the combinations indicated with codes are available. Note that if options for Items Ⓔ to Ⓗ are not required, they should be left blank.

D Coil housing			E	F	G Other options		H	I Rated voltage
Description			Manual override (Locking)	Mounting plate	Conduit (conduit piping) CTC-19	Conduit (conduit piping) G1/2	With surge suppressor	Description
3A	Open Frame type	Lead wire	**A**	**B**	**G**	**H**	**S**	12 VDC, 24 VDC, 48 VDC, 100 VDC
3I		HP terminal box (IP65 or equivalent) (G1/2)						
3J		HP terminal box with lamp (IP65 or equivalent) (G1/2)						12 VDC, 24 VDC, 100 VDC
5A	Open Frame type (diode integrated)	Lead wire	**A**	**B**	**G**	**H**		100 VAC, 200 VAC
5I		HP terminal box (IP65 or equivalent) (G1/2)						
5J		HP terminal box with lamp (IP65 or equivalent) (G1/2)						

3A 5A



● Open frame
Grommet lead wire 300 mm
● 5A (diode integrated)

3I 3J 5I 5J



● Open frame HP terminal box (IP65 or equivalent)
● 5I, 5J (diode integrated)

⚠ Refer to the following cautions for Items Ⓓ to Ⓘ.

G H



● Conduit
● G(CTC19)
● H(G1/2)

Refer to "General Purpose Valves" (catalog No. CB-03-1SA) for details on coil selection.

⚠ Precautions for model No. selection

Notes for Item D

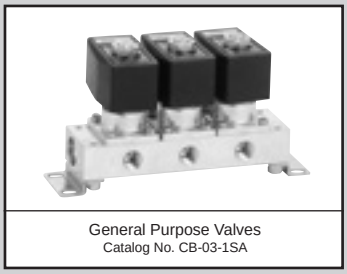
*1: Coils for 5A, 5I, and 5J convert AC voltage to DC with a diode. Voltage of less than 100 VAC is not available.

Notes for Items E to H

*2: The manual override (Item ⒺA) is not available for the low pressure large flow rate AB41-03, 04-8.
*3: For Ⓖ, select an option from G and H.
*4: The surge suppressor is attached with the lead wire coil. When selecting a coil with terminal box, the surge suppressor is mounted in the terminal box.
*5: Surge suppressor is incorporated as standard in the coil with diode.

Notes for Item I

*6: 100 VAC coil is compatible with 100 VAC 50/60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz.
*7: Contact CKD for voltages other than above.
*8: The lead wire is available in the standard 300mm length, as well as 500mm, 1000mm, 2000mm and 3000mm lengths. Contact CKD for more information.



General Purpose Valves
Catalog No. CB-03-1SA

Direct acting 2-port solenoid valve for dry air, manifold/actuator (general purpose valve)

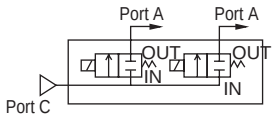
GAB312/GAB352/GAB412/GAB452-Z Series

- NC (Open when energized)
- Common supply (port C pressurization), Individual supply (Port A pressurization)

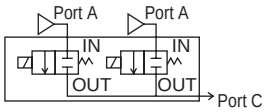
RoHS CAD

JIS symbol

● GAB312/412-Z
(Common supply/port C pressurization)



● GAB352/452-Z
(Individual supply/port A pressurization)



Common specifications

Item	Standard specifications
Working fluid	Dry air (atmospheric dew point -70°C and over)/inert gas/low vacuum [1.33×10^{2}Pa(abs)]
Working pressure differential MPa	0 to 4 (refer to max. working pressure differential in individual specifications.)
Max. working pressure MPa	5
Proof pressure (water pressure) MPa	10
Fluid temperature °C	-10 to 45 (no freezing)
Ambient temperature °C	−10 to 45
Thermal class	Class 130 (B)
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Direct acting poppet structure
Valve seat leakage cm^3/min (ANR)	0.2 or less
Mounting orientation	Unrestricted

Individual specifications

Item / Model No.	Port size	Orifice size (mm)	Max. working pressure differential (MPa)	Rated voltage	Power consumption (W)	
					5 VAC 0/60Hz	DC
GAB312/352-1-Z		1.5	2.5			
-2-Z		2.0	1.5	100 VAC 50/60Hz		
-3-Z		3.0	0.5			
-4-Z	—	3.5	0.35			
-5-Z		4.0	0.2			
-6-Z		5.0	0.12	200 VAC 50/60Hz		
GAB412/452-1-Z		1.5	4.0		17	14
-2-Z		2.0	2.5			
-3-Z		3.0	0.9	12 VDC 24 VDC 48 VDC 100 VDC		
-4-Z	—	3.5	0.6			
-5-Z		4.0	0.4			
-6-Z		5.0	0.2			
-7-Z		7.0	0.1			

*1: The model numbers above are for basic orifice sizes. Refer to How to order for other combinations.
*2: Refer to How to order and Dimensions in "General Purpose Valves" (catalog No.CB-03-1SA) for port size.
*3: The voltage fluctuation range must be within ±10% of the rated voltage.
*4: The leakage current must be less than or equal to the values shown below.
*5: When using at low vacuum, vacuum the OUT port side.

Leakage current: Voltage / Model No.	100 VAC	200 VAC	12 VDC	24 VDC	48 VDC	100 VDC
GAB312/352*-*-******Z	10 mA or less	5 mA or less	40 mA or less	20 mA or less	10 mA or less	5 mA or less
GAB412/452*-*-******Z	10 mA or less	5 mA or less	40 mA or less	20 mA or less	10 mA or less	5 mA or less

Compatibility table by variation

	GAB3/GAB4-Z
Classification	Direct acting 2-port valve for dry air
Body material	Stainless steel
P4	●
P40	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

*1: Body material Select from stainless steel products.
*2: Body material/Seal combination code M only.
*3: Pipe material is SUS316.

How to order

● Common supply (port C pressurization) **GAB312** □ - **1** - **5** - **M** **5A** **A** **G** **S** **Z** **P4 P40** - **AC100V**

● Individual supply (port A pressurization) **GAB352**

● Common supply (port C pressurization) **GAB412**

● Individual supply (port A pressurization) **GAB452**

Model No.

Ⓐ Orifice size

Ⓑ Manifold station No. *2

Ⓒ Body/sealant combination

Ⓓ Coil housing

Ⓔ Manual override (locking)

Ⓕ Other options

Ⓖ With surge suppressor

Ⓗ Rated voltage

Code	Item	Model No. GAB312 GAB352	Model No. GAB412 GAB452
Ⓐ Orifice size			
1	ø1.5	●	●
2	ø2	●	●
3	ø3	●	●
4	ø3.5	●	●
5	ø4	●	●
6	ø5	●	●
7	ø7		●
Ⓑ Manifold station No.			
2 to 10	2 stations to 10 stations	●	●
0	Actuator only	●	●

Ⓒ Body/sealant combination

	Body	Seal	Treatment	Remarks		
M	Stainless steel	Fluoro rubber	Oil-prohibited	—	●	●

The combinations indicated with ● in the above table are available.

For Items Ⓓ to Ⓗ, the combinations indicated with codes are available. Note that if options for Items Ⓔ to Ⓖ are not required, they should be left blank.

Ⓓ Coil housing			Ⓔ	Ⓕ Other options		Ⓖ	Ⓗ Rated voltage
Description			Manual override (Locking)	Conduit (conduit piping) CTC-19	Conduit (conduit piping) G1/2	With surge suppressor	Description
3 A	Open Frame type	Lead wire	A	G	H	S	12 VDC, 24 VDC, 48 VDC, 100 VDC
3I		HP terminal box (IP65 or equivalent) (G1/2)					
3J		HP terminal box with lamp (IP65 or equivalent) (G1/2)					12 VDC, 24 VDC, 100 VDC
5 A	Open Frame type (diode integrated)	Lead wire	A	G	H		100 VAC, 200 VAC
5I		HP terminal box (IP65 or equivalent) (G1/2)					
5J		HP terminal box with lamp (IP65 or equivalent) (G1/2)					

3A 5A



● Open frame
Grommet lead wire 300 mm
● 5A (diode integrated)

3I 3J 5I 5J



● Open frame HP terminal box (IP65 or equivalent)
● 5I, 5J (diode integrated)

⚠ Refer to the following cautions for Items Ⓓ to Ⓗ.

G H



● Conduit
● G(CTC19)
● H(G1/2)

Refer to "General Purpose Valves" (catalog No. CB-03-1SA) for details on coil selection.

⚠ Precautions for model No. selection

*1:Orders for only the masking plate and sub-plate are also available. Contact CKD for details.

Notes for Item Ⓑ

*2: For 11 or more manifold station No., contact CKD.

Notes for Item Ⓓ

*3: Coils for 5A, 5I, and 5J convert AC voltage to DC with a diode.

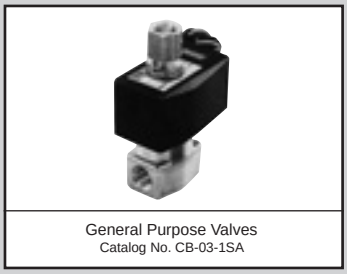
Notes for Items Ⓕ to Ⓖ

*4: For Item Ⓕ, select an option from G and H.

*5: The surge suppressor is attached with the lead wire coil. When selecting a coil with terminal box, the surge suppressor is mounted in the terminal box.
*6: Surge suppressor is incorporated as standard for coil with diode.

Notes for Item Ⓗ

*7: The 100 VAC coil can be used at 100 VAC 50/60H z and the 200 VAC coil can be used at 200 VAC 50/60Hz.
*8: For voltages other than above, contact CKD.
*9: The lead wire is available in the standard 300mm length, as well as 500mm, 1000mm, 2000mm and 3000mm lengths. Contact CKD for more information.



General Purpose Valves
Catalog No. CB-03-1SA

Direct acting 3-port solenoid valve for dry air
(general purpose valve)

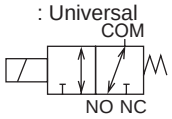
AG3*/AG4*- Z Series

- Universal, NC pressurization, NO pressurization
- Port size: Rc1/8, Rc1/4, Rc3/8

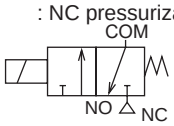
RoHS CAD

JIS symbol

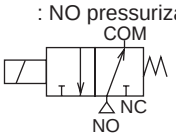
● AG31/41-Z
: Universal



● AG33/43-Z
: NC pressurization



● AG34/44-Z
: NO pressurization



Common specifications

Item	Standard specifications
Working fluid	Dry air (Atmospheric dew point-70°C or more)/inert gas/low vacuum [1.33x10^2 PA(abs)]
Working pressure differential MPa	0 to 1(Refer to max. working pressure differential in individual specifications.)
Proof pressure (water pressure) MPa	25
Fluid temperature °C	-10 to 45(no freezing)
Ambient temperature °C	−10 to 45
Thermal class	Class 130 (B)
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Direct acting poppet structure
Valve seat leakage cm^3/min(ANR)	0.2 or less
Mounting orientation	Unrestricted

Individual specifications

Model No.	Port size	Orifice size (mm) TOP	Orifice size (mm) BODY	Max. working pressure differential (MPa)	Max. working pressure MPa	Rated voltage	Power consumption (W) AC	Power consumption (W) DC	Weight (kg)
Universal									
AG31-01 -1-******Z	Rc 1/8	1.5	1.5	0.7	1	100 VAC 50/60Hz 200 VAC 50/60Hz 12 VDC 24 VDC 48 VDC 100 VDC	17	14	0.45
-2-******Z	Rc 1/4	2.0	2.0	0.4					
AG41-02 -1-******Z	Rc 1/4	2.0	2.0	0.65					0.57 (Rc1/4) 0.59 (Rc3/8)
-2-******Z	Rc 3/8	2.3	2.3	0.4					
NC pressurization									
AG33-01 -1-******Z	Rc 1/8	1.5	1.5	1.0	1				0.45
-2-******Z	Rc 1/4	2.0	2.0	0.7					
AG43-02 -4-******Z	Rc 1/4	3.0	3.0	0.7					0.57 (Rc1/4) 0.59 (Rc3/8)
-5-******Z	Rc 3/8	3.5	3.0	0.4					
NO pressurization									
AG34-01 -1-******Z	Rc 1/8	1.5	1.5	1.0	1.5				0.45
-2-******Z	Rc 1/4	2.0	2.0	0.45					
AG44-02 -1-******Z	Rc 1/4	2.0	2.0	0.75					0.57 (Rc1/4)
-3-******Z	Rc 3/8	2.0	3.0	0.7					0.59 (Rc3/8)
-4-******Z		3.0	3.0	0.25					

*1: The model numbers above show the basic port size (Rc). Refer to How to order for other combinations.
*2: The port size symbol is 01 for Rc1/8 (6A), 02 for Rc1/4 (8A) and 03 for Rc3/8 (10A).
*3: The voltage fluctuation range must be within ±10% of the rated voltage.
*4: The leakage current must be less than or equal to the values shown below.
*5: When using at low vacuum, vacuum the NO port side of NC pressurization type or the NC port side of NO pressurization type.

Leakage current: Voltage / Model No.	100 VAC	200 VAC	12 VDC	24 VDC	48 VDC	100 VDC
AG31/33/34-*-******Z	6 mA or less	3 mA or less	40 mA or less	20 mA or less	10 mA or less	5 mA or less
AG41/43/44-*-******Z	8 mA or less	4 mA or less	40 mA or less	20 mA or less	10 mA or less	5 mA or less

Compatibility table by variation

	AG3/AG4-Z
Classification	Direct acting 3-port valve for dry air
Body material	Stainless steel
P4	●
P40	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

*1: Body material Select from stainless steel products.
*2: Body material/Seal combination code M only.
*3: Pipe material is SUS316.

How to order

● Universal

AG31 - 02 - 2 - M 3A A B G S Z P4 P40 - DC24V

AG41

● NC pressurization

AG33

AG43

● NO pressurization

AG34

AG44

Model No.

Ⓐ Port size
Ⓑ Orifice size
Ⓒ Body/sealant combination
Ⓓ Coil housing
Ⓔ Manual override (Locking)
Ⓕ Mounting plate
Ⓖ Other options
Ⓗ With surge suppressor
Ⓘ Voltage

Code	Item	Code	Item	Code	Item	Model No. AG31	AG41	AG33	AG43	AG34	AG44
Ⓐ Port size											
01	Rc 1 / 8	1G	G 1 / 8	1 N	1 / 8NPT	●		●		●	
02	Rc 1 / 4	2G	G 1 / 4	2 N	1 / 4NPT	●	●	●	●	●	●
03	Rc 3 / 8	3G	G 3 / 8	3 N	3 / 8NPT		●		●		●

Ⓑ Orifice size

	AG31		AG41		AG33		AG43		AG34		AG44							
	TOP	BODY	TOP	BODY	TOP	BODY	TOP	BODY	TOP	BODY	TOP	BODY						
1	ø1.5	ø1.5	ø2.0	ø2.0	ø1.5	ø1.5	-	-	ø1.5	ø1.5	ø2.0	ø2.0	●	●	●		●	●
2	ø2.0	ø2.0	ø2.3	ø2.3	ø2.0	ø2.0	-	-	ø2.0	ø2.0	-	-	●	●	●		●	
3	-	-	-	-	-	-	-	-	-	-	ø2.0	ø3.0						●
4	-	-	-	-	-	-	ø3.0	ø3.0	-	-	ø3.0	ø3.0				●		●
5	-	-	-	-	-	-	ø3.5	ø3.0	-	-	-	-				●		

Ⓒ Body/sealant combination

	Body	Seal	Treatment	Remarks						
M	Stainless steel	Fluoro rubber	Oil-prohibited	—	●	●	●	●	●	●

The combinations indicated with ● in the above table are available.

For Items Ⓓ to Ⓘ, the combinations indicated with codes are available. Note that if options for Items Ⓔ to Ⓗ are not required, they should be left blank.

Ⓓ Coil housing			Ⓔ	Ⓕ	Ⓖ Other options		Ⓗ	Ⓘ Rated voltage
Description			Manual override (Locking)	Mounting plate	Conduit (conduit piping) CTC-19	Conduit (conduit piping) G 1 / 2	With surge suppressor	Description
3A	Open frame type	Lead wire	A	B	G	H	S	12 VDC, 24 VDC, 48 VDC, 100 VDC
3I		HP terminal box (IP65 or equivalent) (G1/2)						
3J		HP terminal box with lamp (IP65 or equivalent) (G1/2)						12 VDC, 24 VDC, 100 VDC
5A	Open frame type (diode integrated)	Lead wire	A	B	G	H		100 VAC, 200 VAC
5I		HP terminal box (IP65 or equivalent) (G1/2)						
5J		HP terminal box with lamp (IP65 or equivalent) (G1/2)						

⚠ Refer to the following cautions for Items Ⓓto Ⓘ.

3A 5A		● Open frame Grommet lead wire 300 mm ● 5 A(diode integrated)
3I 3J 5I 5J		● Open frame HP terminal box (IP65Phaseequivalent) ● 5I,5J(diode integrated)

G H		● Conduit ● G(CTC19) ● H(G1/2)

Refer to "General Purpose Valves" (catalog No. CB-03-1SA) for details on coil selection.

⚠ Precautions for model No. selection

Notes for Item Ⓓ

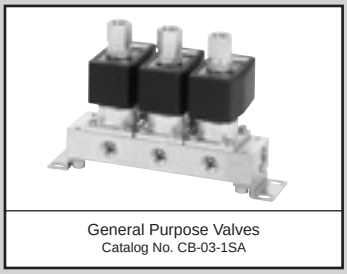
*1: Coils for 5A, 5I, and 5J convert AC voltage to DC with a diode. Voltage of less than 100 VAC is not available.

Notes for Items Ⓖ to Ⓗ

*2: For Ⓖ, select an option from G and H.
*3: The surge suppressor is attached with the lead wire coil. When selecting a coil with a terminal box, the surge suppressor is mounted in the terminal box.
*4: Surge suppressor is incorporated as standard in the coil with diode.

Notes for Item Ⓘ

*5: 100 VAC coil is compatible with 100 VAC 50/60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz.
*6: Contact CKD for voltages other than above.
*7: The lead wire is available in the standard 300mm length, as well as 500mm, 1000mm, 2000mm and 3000mm lengths. Contact CKD for more information.



General Purpose Valves
Catalog No. CB-03-1SA

Direct acting 3-port solenoid valve for dry air, manifold/actuator (general purpose valve)

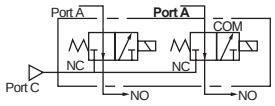
GAG31*/GAG35*/GAG41*/GAG45* - Z Series

- Universal
- Common supply/individual exhaust, common supply/separate flow

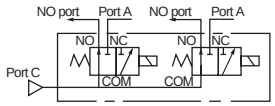
RoHS CAD

Manifold circuit configuration

- GAG31*/41*-Z
  (Common supply/individual exhaust)



- GAG35*/45*- Z
  (Common supply/separate flow)



Common specifications

Item	Standard specifications
Working fluid	Dry air (atmospheric dew point -70°C and over)/inert gas/low vacuum [1.33×10^{2}Pa (abs)
Working pressure differential MPa	0 to 1 (Refer to max. working pressure differential in individual specifications.)
Max. working pressure MPa	1
Proof pressure (Water pressure) MPa	10
Fluid temperature °C	-10 to 45 (no freezing)
Ambient temperature °C	−10 to 45
Thermal class	Class 130 (B)
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Direct acting poppet structure
Valve seat leakage cm^3/min(ANR)	0.2 or less
Mounting orientation	Unrestricted

Individual specifications

Item / Model No.		NO port Port size	Orifice size (mm) TOP	Orifice size (mm) BODY	Max. working pressure differential (MPa)	Rated voltage	Power consumption (W) AC50/60Hz	Power consumption (W) DC
GAG	311-1-Z	Rc1/8	1.5	1.5	0.7	100 VAC 50/60Hz	17	14
	351-2-Z		2.0	2.0	0.4			
GAG	312-1-Z	Rc1/4	1.5	1.5	0.7	200 VAC 50/60Hz		
	352-2-Z		2.0	2.0	0.4			
GAG	412-1-Z	Rc1/4	2.0	2.0	0.65			
	452-2-Z		2.3	2.3	0.4	12 VDC 24 VDC 48 VDC 100 VDC		
GAG	413-1-Z	Rc3/8	2.0	2.0	0.65			
	453-2-Z		2.3	2.3	0.4			

*1: The model numbers above are for the basic NO port size and orifice size. Refer to How to order for other combinations.
*2: Refer to How to order and Dimensions in "General Purpose Valves" (catalog No. CB-03-1SA) for port size of ports A and C.
*3: The voltage fluctuation range must be within ±10% of the rated voltage.
*4: When using in a continuously energized state, use fluoro rubber seal.
*5: The leakage current must be less than or equal to the values shown below.

Leakage current: Voltage / Model No.	100 VAC	200 VAC	12 VDC	24 VDC	48 VDC	100 VDC
GAG31*-******Z	6 mA or less	3 mA or less	40 mA or less	20 mA or less	10 mA or less	5 mA or less
GAG41*-******Z	8 mA or less	4 mA or less	40 mA or less	20 mA or less	10 mA or less	5 mA or less

Compatibility table by variation

	GAG3/GAG4-Z
Classification	Direct acting 3-port valve for dry air
Body material	Stainless steel
P4	●
P40	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

*1: Body material Select from stainless steel products.
*2: Body material/Seal combination code M only.
*3: Pipe material is SUS316.

How to order

● Common supply/individual exhaust (port C pressurization)

GAG31 1 ○ - 1 - 7 - M 5A A G S Z P4/P40 - AC100V

● Common supply/separate flow (port C pressurization)

GAG35 1

● Common supply/individual exhaust (port C pressurization)

GAG41 2

● Common supply/separate flow (port C pressurization)

GAG45 2

Model No.

Ⓐ NO port size

Ⓑ Orifice size

Ⓒ Manifold station *2 No.

Ⓓ Body/sealant combination

Ⓔ Coil housing

Ⓕ Manual override (locking)

Ⓖ Other options

Ⓗ With surge suppressor

Ⓘ Rated voltage

Code	Item	Model No. GAG3**	Model No. GAG4**
Ⓐ NO port size			
1	1/8	●	
2	1/4	●	●
3	3/8		●

Ⓑ Orifice size

	GAG3** TOP	GAG3** BODY	GAG4** TOP	GAG4** BODY	GAG3**	GAG4**
1	ø1.5	ø1.5	ø2.0	ø2.0	●	●
2	ø2.0	ø2.0	ø2.3	ø2.3	●	●

Ⓒ Manifold station No.

2 to 10	2 stations to 10 stations	●	●
0	Actuator only	●	●

Ⓓ Body/sealant combination

	Body	Seal	Treatment	Remarks		
M	Stainless steel	Fluoro rubber	Oil-prohibited	—	●	●

The combinations indicated with ● in the above table are available.

For Items Ⓔ to Ⓘ, the combinations indicated with codes are available. Note that if options for Items Ⓕ to Ⓗ are not required, they should be left blank.

Ⓔ Coil housing: Description			Ⓕ Manual override (Locking)	Ⓖ Other options: Conduit (conduit piping) CTC-19	Ⓖ Other options: Conduit (conduit piping) G 1/2	Ⓗ With surge suppressor	Ⓘ Rated voltage: Description
3A	Open Frame type	Lead wire	A	G	H	S	12 VDC, 24 VDC, 48 VDC, 100 VDC
3I		HP terminal box (IP65 or equivalent) (G1/2)					
3J		HP terminal box with lamp (IP65 or equivalent) (G1/2)					12 VDC, 24 VDC, 100 VDC
5A	Open Frame type (diode integrated)	Lead wire	A	G	H		100 VAC, 200 VAC
5I		HP terminal box (IP65 or equivalent) (G1/2)					
5J		HP terminal box with lamp (IP65 or equivalent) (G1/2)					

3A 5A		● Open frame Grommet lead wire 300 mm ● 5 A(diode integrated)
3I 3J 5I 5J		● Open frame HP terminal box (IP65Phaseequivalent) ● 5I,5J(diode integrated)

⚠ Refer to the following cautions for Items Ⓔ to Ⓘ.

G H		● Conduit ● G(CTC19) ● H(G1/2)

Refer to "General Purpose Valves" (catalog No. CB-03-1SA) for details on coil selection.

⚠ Precautions for model No. selection

*1: Orders for only the masking plate and sub-plate are also available. Contact CKD for details.

Notes for Item Ⓒ

*2: For 11 or more manifold station No., contact CKD.

Notes for Item Ⓔ

*3: Coils for 5A, 5I, and 5J convert AC voltage to DC with a diode.

Notes for Items Ⓖ to Ⓗ

*4: For Item Ⓖ, select an option from G and H.

*5: The surge suppressor is attached with the lead wire coil. When selecting a coil with a terminal box, the surge suppressor is mounted in the terminal box.

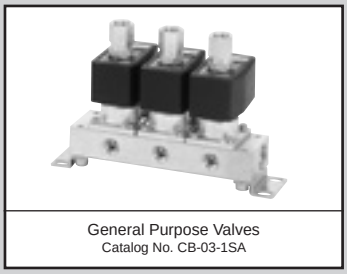
*6: Surge suppressor is incorporated as standard in the coil with diode.

Notes for Item Ⓘ

*7: 100 VAC coil can be used at 100 VAC 50/60Hz and 200 VAC coil can be used at 200 VAC 50/60Hz.

*8: For voltages other than above, contact CKD.

*9: The lead wire is available in the standard 300mm length, as well as 500mm, 1000mm, 2000mm and 3000mm lengths. Contact CKD for more information.



General Purpose Valves
Catalog No. CB-03-1SA

Direct acting 3-port solenoid valve for dry air, manifold/actuator (general purpose valve)

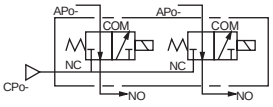
GAG33*/GAG43*- Z Series

- NC pressurization
- Common supply/individual exhaust

RoHS CAD

JIS symbol

● GAG33*/GAG43*-Z
(Common supply/individual exhaust)



Common specifications

Item	Standard specifications
Working fluid	Dry air (atmospheric dew point -70°C and over)/inert gas/low vacuum [1.33×10²Pa(abs)]
Working pressure differential MPa	0 to 1 (refer to max. working pressure differential in individual specifications.)
Max. working pressure MPa	1
Proof pressure (water pressure) MPa	10
Fluid temperature °C	-10 to 45 (no freezing)
Ambient temperature °C	−10 to 45
Thermal class	Class 130 (B)
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Direct acting poppet structure
Valve seat leakageRecm³/min(ANR)	0.2 or less
Mounting orientation	Unrestricted

Individual specifications

Item / Model No.	NO port Port size	Orifice size (mm) TOP	Orifice size (mm) BODY	Max. working pressure differential (MPa)	Rated voltage	Power consumption (W) AC50/60Hz	Power consumption (W) DC
GAG331-1-Z	Rc1/8	1.5	1.5	1.0	100 VAC 50/60Hz	17	14
-2-Z		2.0	2.0	0.7			
GAG332-1-Z	Rc1/4	1.5	1.5	1.0	200 VAC 50/60Hz		
-2-Z		2.0	2.0	0.7			
GAG432-4-Z	Rc1/4	3.0	3.0	0.7			
-5-Z		3.5	3.0	0.4	12 VDC 24 VDC 48 VDC 100 VDC		
GAG433-4-Z	Rc3/8	3.0	3.0	0.7			
-5-Z		3.5	3.0	0.4			

*1: The model numbers above are for the basic NO port size (Rc) and orifice size. Refer to How to order for other combinations.
*2: Refer to How to order and Dimensions in "General Purpose Valves" (catalog No. CB-03-1SA) for port size of ports A and C.
*3: The voltage fluctuation range must be ±10% of the rated voltage.
*4: The leakage current must be less than or equal to the values shown below.
*5: When using at low vacuum, vacuum the NO port side.

Leakage current: Voltage / Model No.	100 VAC	200 VAC	12 VDC	24 VDC	48 VDC	100 VDC
GAG33*-******Z	6 mA or less	3 mA or less	40 mA or less	20 mA or less	10 mA or less	5 mA or less
GAG43*-******Z	8 mA or less	4 mA or less	40 mA or less	20 mA or less	10 mA or less	5 mA or less

Compatibility table by variation

	GAG3/GAG4-Z
Classification	Direct acting 3-port valve for dry air
Body material	Stainless steel
P4	●
P40	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

*1: Body material Select from stainless steel products.
*2: Body material/Seal combination code M only.
*3: Pipe material is SUS316.

How to order

● Common supply/individual exhaust (port C pressurization)

GAG33 / GAG43 — 1 — - — 2 — - — 6 — - — M — 5A — A — G — S — Z — P4 / P40 — - — AC100V

- 5A: Ⓔ Coil housing
- A: Ⓕ Manual override (locking)
- G: Ⓖ Other options
- S: Ⓗ With surge suppressor
- AC100V: Ⓘ Rated voltage

Model No.

Ⓐ NO port size

Code	Item	Model No. GAG33*	Model No. GAG43*
1	1/8	●	
2	1/4	●	●
3	3/8		●

Ⓑ Orifice size

	GAG33* TOP	GAG33* BODY	GAG43* TOP	GAG43* BODY	GAG33*	GAG43*
1	ø1.5	ø1.5	-	-	●	
2	ø2.0	ø2.0	-	-	●	
4	-	-	ø3.0	ø3.0		●
5	-	-	ø3.5	ø3.0		●

Ⓒ Manifold station No. *2

2 to 10	2 stations to 10 stations	●	●
0	Actuator only	●	●

Ⓓ Body/sealant combination

	Body	Seal	Treatment	Remarks		
M	Stainless steel	Fluoro rubber	Oil-prohibited	—	●	●

The combinations indicated with ● in the above table are available.

For Items Ⓔ to Ⓘ, the combinations indicated with codes are available. Note that if options for Items Ⓕ to Ⓗ are not required, they should be left blank.

Ⓔ Coil housing: Description			Ⓕ Manual override (Locking)	Ⓖ Other options: Conduit (Conduit piping) CTC-19	Ⓖ Other options: Conduit (Conduit piping) G1/2	With surge suppressor	Ⓘ Rated voltage: Description
3A	Open Frame type	Lead wire	A	G	H	S	12 VDC, 24 VDC, 48 VDC, 100 VDC
3I		HP terminal box (IP65 or equivalent) (G1/2)					
3J		HP terminal box with lamp (IP65 or equivalent) (G1/2)					12 VDC, 24 VDC, 100VDC
5A	Open Frame type (diode integrated)	Lead wire	A	G	H		100 VAC, 200 VAC
5I		HP terminal box (IP65 or equivalent) (G1/2)					
5J		HP terminal box with lamp (IP65 or equivalent) (G1/2)					

3A 5A		● Open frame Grommet lead wire 300 mm ● 5A (diode integrated)
3I 3J 5I 5J		● Open frame HP terminal box (IP65Phaseequivalent) ● 5I,5J (diode integrated)

⚠ Refer to the following cautions for Items Ⓔ to Ⓘ.

G H		● Conduit ● G (CTC19) ● H (G1/2)

Refer to "General Purpose Valves" (catalog No. CB-03-1SA) for details on coil selection.

⚠ Precautions for model No. selection

*1: Orders for only the masking plate and sub-plate are also available. Contact CKD for details.

Notes for Item Ⓒ

*2: Contact CKD regarding manifold station No. of 11 stations or more.

Notes for Item Ⓔ

*3: Coils for 5A, 5I, and 5J convert AC voltage to DC with a diode.

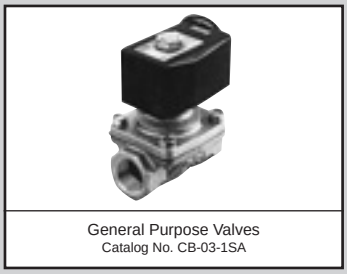
Notes for Items Ⓖ to Ⓗ

*4: For Item Ⓖ, select an option from G and H.

*5: The surge suppressor is attached with the lead wire coil. When selecting a coil with terminal box, the surge suppressor is mounted in the terminal box.
*6: Surge suppressor is incorporated as standard in the coil with diode.

Notes for Item Ⓘ

*7: 100 VAC coil can be used at 100 VAC 50/60Hz and 200 VAC coil can be used at 200 VAC 50/60Hz.
*8: Contact CKD for voltages other than above.
*9: The lead wire is available in the standard 300mm length, as well as 500mm, 1000mm, 2000mm and 3000mm lengths. Contact CKD for more information.



General Purpose Valves
Catalog No. CB-03-1SA

Pilot kick 2-port solenoid valve for dry air
(general purpose valve)

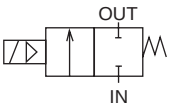
ADK11-Z Series

- NC (Normally Closed)
- Port size: Rc1/4 to Rc1
- Diaphragm drive

RoHS CAD

JIS symbol

● NC (Normally Closed)



Common specifications

Item	Standard specifications
Working fluid	Dry air (atmospheric dew point -70°C and over)/inert gas/low vacuum [1.33×10^3 Pa(abs)]
Working pressure differential MPa	0 to 0.7 (refer to max. working pressure differential in individual specifications...)
Max. working pressure MPa	2
Proof pressure (water pressure) MPa	4
Fluid temperature °C	5 to 40 (no freezing)
Ambient temperature °C	−10 to 40
Thermal class	Class 130 (B)
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Pilot kick poppet/diaphragm drive
Valve seat leakage cm^3/min (ANR)	1 or less (8A/10A: at 0.02 to 0.7 MPa, 15A to 25A: at 0.02 to 0.6 MPa)*
Mounting orientation	Unrestricted

* When used at a pressure less than 0.02MPa, the sealant may be unstable. Contact CKD in this case.

Individual specifications

Item / Model No.		Port size	Orifice size (mm)	Min. working pressure differential (MPa)	Max. working pressure differential (MPa)	Rated voltage	Power consumption (W) AC	Power consumption (W) DC	Weight (kg)
ADK11	-8A-*****Z	Rc 1/4	12	0	0.7	100 VAC 50/60Hz 200 VAC 50/60Hz 12 VDC 24 VDC 48 VDC 100 VDC	15.5	14	0.8
	-10A-*****Z	Rc 3/8	12		0.7				0.8
	-15A-*****Z	Rc 1/2	16		0.6				1.0
	-20A-*****Z	Rc 3/4	23		0.6				1.1
	-25A-*****Z	Rc 1	28		0.6				1.5

*1: The model numbers above show the basic port size (Rc). Refer to How to order for other combinations.
*2: The voltage fluctuation range must be within ±10% of the rated voltage.
*3: The leakage current must be less than or equal to the values shown below.

Leakage current

Voltage / Model No.	100 VAC	200 VAC	12 VDC	24 VDC	48 VDC	100 VDC
ADK11-8A to 25A-*****Z	10 mA or less	5 mA or less	40 mA or less	20 mA or less	10 mA or less	5 mA or less

Compatibility table by variation

	ADK11-Z
Classification	Pilot kick 2-port valve for dry air
Body material	Stainless steel
P4	●
P40	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭:Not applicable

*1: Body material Select from stainless steel products.
*2: Body material/Seal combination code M only.
*3: Pipe material is SUS316.

How to order

ADK11 - 15 A - M 3A B G S Z P4/P40 - DC24V

- Model No.
- A Port size
- B Thread
- C Body/sealant combination
- D Coil housing
- F Other options
- E Mounting plate
- G With surge suppressor
- H Rated voltage

Code	Item
A Port size	
8	1/4
10	3/8
15	1/2
20	3/4
25	1
B Thread	
A	Rc
G	G
N	NPT

C Body/sealant combination

	Body	Seal	Treatment	Remarks
M	Stainless steel	Fluoro rubber	Oil-prohibited	—

For Items Ⓓ to Ⓗ, the combinations indicated with codes are available. Note that if options for Items Ⓔ to Ⓖ are not required, they should be left blank.

D Coil housing			E	F Other options		G	H Rated voltage
Description			Mounting plate	Conduit (conduit piping) CTC-19	Conduit (conduit piping) G 1/2	With surge suppressor	Description
3A	Open Frame type	Lead wire	**B**	**G**	**H**	**S**	12 VDC, 24 VDC, 48 VDC, 100 VDC
3I		HP terminal box (IP65 or equivalent) (G1/2)					
3J		HP terminal box with lamp (IP65 or equivalent) (G1/2)					12 VDC, 24 VDC, 100 VDC
5A	Open Frame type (diode integrated)	Lead wire	**B**	**G**	**H**		100 VAC, 200 VAC
5I		HP terminal box (IP65 or equivalent) (G1/2)					
5J		HP terminal box with lamp (IP65 or equivalent) (G1/2)					

3A 5A



- Open frame
  Grommet lead wire 300 mm
- 5A (diode integrated)

3I 3J 5I 5J



- Open frame HP terminal box
  (IP65 or equivalent)
- 5I, 5J (diode integrated)

⚠ Refer to the following cautions for Items Ⓓ to Ⓗ.

G H



- Conduit
- G(CTC19)
- H(G1/2)

Refer to "General Purpose Valves" (catalog No. CB-03-1SA) for details on coil selection.

⚠ Precautions for model No. selection

Notes for Item Ⓓ

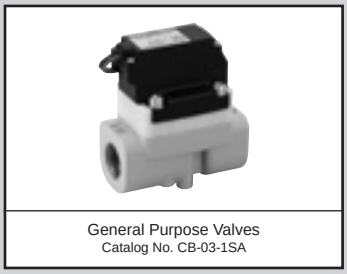
*1: Coils for 5A, 5I, and 5J convert AC voltage to DC with a diode. Voltage of less than 100 VAC is not available.

Notes for Items Ⓔ to Ⓖ

*2: For Ⓕ, select an option from G and H.
*3: The surge suppressor is attached with the lead wire coil. When selecting a coil with terminal box, the surge suppressor is mounted in the terminal box.
*4: Surge suppressor is incorporated as standard in the coil with diode.

Notes for Item Ⓗ

*5: 100 VAC coil is compatible with 100 VAC 50/60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz.
*6: For voltages other than above, contact CKD.
*7: The lead wire is available in the standard 300mm length, as well as 500mm, 1000mm, 2000mm and 3000mm lengths. Contact CKD for more information.



General Purpose Valves
Catalog No. CB-03-1SA

Pilot operated 2-port solenoid valve for air

EXA Series Aluminum body

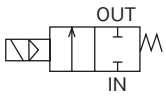
- NC (Normally Closed)
- Port size: Rc1/4, 3/8

P4 specifications as standard

RoHS CAD

JIS symbol

NC (Normally Closed)



Specifications

Item		EXA-8A	EXA-10A
Working fluid		Compressed air, dry air (atmospheric dew point -70°C and over)	
Working pressure differential	MPa	0.01 to 0.7	
Max. working pressure	MPa	0.7	
Proof pressure (water pressure)	MPa	1.05	
Fluid temperature	°C	0 to 55 (no freezing)	
Ambient temperature	°C	-5 to 55	
Atmosphere		Place free of corrosive gas/explosive gas and not exposed to water	
Valve structure		Pilot operated diaphragm drive	
Internal leakage	cm^3/min	2 or less	
External leakage	cm^3/min	2 or less	
Mounting orientation		Unrestricted	
Port size		Rc1/4	Rc3/8
C[dm^3/(s·bar)]		4.5	4.7
b		0.18	0.17
Weight *1	g	56	57
Electrical specifications			
Rated voltage		100 VAC (50/60 Hz), 24 VDC, 12 VDC *2	
Apparent power	VA	1.2	
Power consumption	W DC	0.6	
Thermal class		Class 130 (B)	
Degree of protection (IEC standard: 529)		Lead wire: IPX0, with DIN terminal box: IPX5	

*1: Weight with the DIN terminal box is +20 g.
*2: The voltage fluctuation range is ±10%.

How to order

EXA - 8A - 0 2C B - 1

Model No. | Ⓐ Port size | Ⓑ Sealant | Ⓒ Coil option | Ⓓ Other options | Ⓔ Voltage

Code	Item
Ⓐ Port size	
8A	Rc1/4
8G	G1/4
8N	1/4NPT
10A	Rc3/8
10G	G3/8
10N	3/8NPT
Ⓑ Sealant	
0	H-NBR, internal exhaust specifications
Ⓒ Coil option *1	
2C (Standard)	Lead wire (without both lamp/surge suppressor)
2G (Option)	DIN terminal box (Pg7), without lamp
2GS (Option)	DIN terminal box (Pg7), without lamp/with surge suppressor
2H (Option)	DIN terminal box (Pg7), with lamp (inside terminal box)
2HS (Option)	DIN terminal box (Pg7), with lamp (inside terminal box)/with surge suppressor
Ⓓ Other options	
Blank	No
B	With mounting plate
Ⓔ Voltage *1	
1	100 VAC
3	24 VDC
4	12 VDC

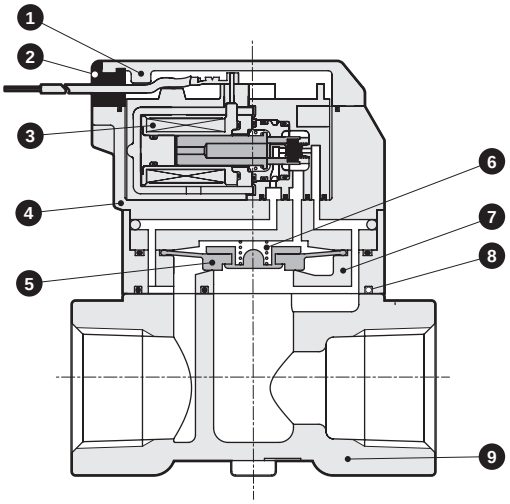
*1: Refer to the table on the left for the available coil option and voltage combinations.

[Example of model No.]
EXA-8A-02CB-1
Model:Compact air blow valve EXA Aluminum body
Ⓐ Port size : Rc1/4
Ⓑ Sealant material : H-NBR, internal exhaust specifications
Ⓒ Coil option : Lead wire
Ⓓ Other options : With mounting plate
Ⓔ Voltage : 100 VAC

Coil option	Voltage 1	3	4
2C	●	●	●
2G	●		
2GS		●	●
2H	●		
2HS		●	●

Select from the combinations indicated with ● above.

Internal structure and parts list



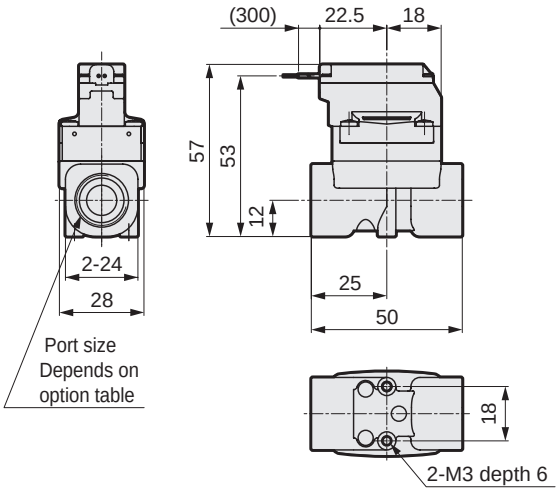
No.	Part name	Material	
1	Cover (*1)	PBT	Polybutylene terephthalate
2	Bush	NBR	Nitrile rubber
3	Coil assembly	-	-
4	Stuffing	PPS	Polyphenylene sulfide
5	Diaphragm assembly	H-NBR/PPS	Hydrogenated nitrile rubber/polyphenylene sulfide
6	Spring	SUS	Stainless steel
7	Valve body	PBT	Polybutylene terephthalate
8	Gasket	H-NBR	Hydrogenated nitrile rubber
9	Body	ADC12	Aluminum

*1: PA66 and polyamide are used when the DIN terminal box is attached.

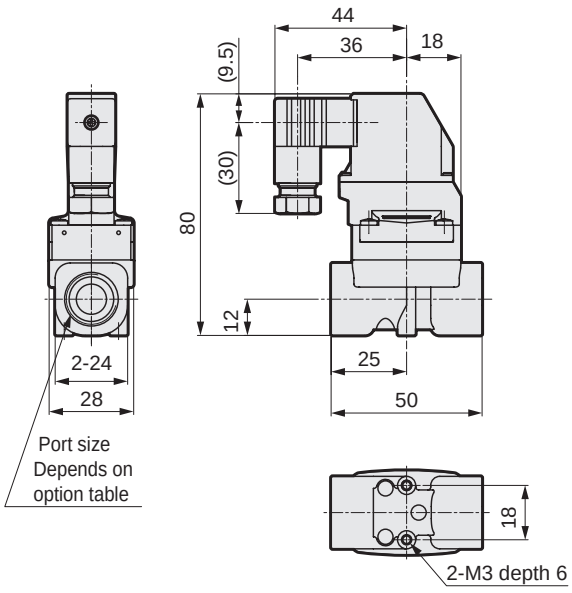
Cannot be disassembled

Dimensions

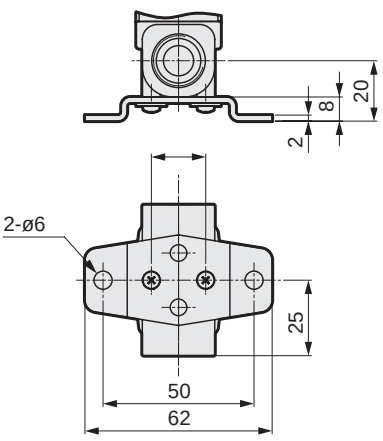
● Lead wire

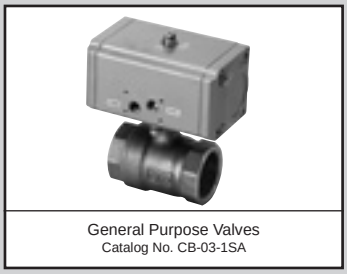


● DIN terminal box



● With mounting plate





General Purpose Valves
Catalog No. CB-03-1SA

Air operated 2-port ball valve
(Compact rotary valves)

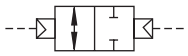
CHB Series

● Port size: Rc3/8 to Rc2

RoHS CAD

JIS symbol

● CHB
(double acting)



Common specifications

Item		Double acting
		CHB (Standard bore)
Actuation		Air operated: Double acting
Working fluid		Water/air/oil (500 mm^2/s or less)
Working pressure MPa		0 to 1.0
Proof pressure (water pressure) MPa		2.0
Fluid temperature °C		0 to 80 (no freezing)
Ambient temperature°C		-10 to 60 (no freezing)
Working environment		Indoors
Valve seat leakagecm^3/min		0 (Initial value of water pressure 1MPa)
Mounting orientation		Unrestricted
Frequency cycles/min.		1 or less
Rotary actuator	Pilot fluid	Compressed air
	Lubrication	Not required (Use turbine oil class 1 ISO VG32 if necessary for lubrication.)
	Proof pressure (water pressure) MPa	1.5
	Working pressureMPa	0.35 to 0.7
	Fluid temperature°C	5 to 60
	Port size	Rc1/8

Individual specifications

Item / Model No.		Port size	Orifice size(mm)	Cv	Weight (kg)
					Double acting
Standard bore	CHB-10	Rc3/8	10	10	1.0
	CHB-15	Rc1/2	10	6	1.0
	CHB-20	Rc3/4	15	16	1.2
	CHB-25	Rc1	20	29	1.3
	CHB-32	Rc1¼	25	50	2.1
	CHB-40	Rc1½	32	98	2.6
	CHB-50	Rc2	40	125	3.3

Compatibility table by variation

	CHB-N
Port size	Rc3/8, 1/2, 3/4, 1, 1 1/4, 1 1/2, 2
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

Note: Body material code N only.

How to order

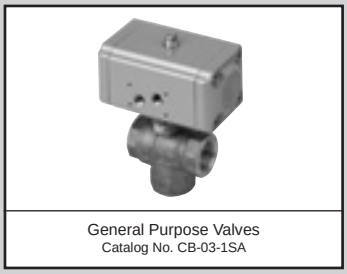
CHB - 15 - N - P4

Model No.

Ⓐ Port size

Ⓑ Body material

Code	Description
Ⓐ Port size	
10	Rc3/8
15	Rc1/2
20	Rc3/4
25	Rc1
32	Rc1¼
40	Rc1½
50	Rc2
Ⓑ Body material	
N	Stainless steel Oil-prohibited specifications



General Purpose Valves
Catalog No. CB-03-1SA

Air operated 3-port ball valve
(Compact rotary valves)

CHG Series

● Port size: Rc1/2 to Rc2

RoHS CAD

JIS symbol

● CHG (Double acting)



Common specifications

Item		CHG(Double acting)
Actuation		Air operated: Double acting
Working fluid		Water/air/oil(500 mm^2/s or less)
Working pressure MPa		0 to 1.0
Proof pressure (water pressure) MPa		2.0
Fluid temperature °C		0 to 80 (no freezing)
Ambient temperature°C		−10 to 60 (no freezing)
Working environment		Indoors
Valve seat leakage cm^3/min		0 (Initial value of water pressure 1MPa)
Mounting orientation		Unrestricted
Frequency cycles/min.		1 or less
Pressurization direction		Port C pressurization only
Flow path shape		Multi-fluid type(90°Rotation switching method)
Rotary actuator	Pilot fluid	Compressed air
	Lubrication	Not required (Use turbine oil class 1 ISO VG32 if necessary for lubrication.)
	Proof pressure (water pressure) MPa	1.5
	Working pressure MPa	0.35 to 0.7
	Fluid temperature°C	5 to 60
	Port size	Rc1/8

Individual specifications

Item / Model No.	Port size	Orifice size(mm)	Cv	Weight (kg) Double acting
CHG-15	Rc1/2	10	3	1.0
CHG-20	Rc3/4	14	6	1.2
CHG-25	Rc1	19	11	1.4
CHG-32	Rc1 1/4	23	16	2.2
CHG-40	Rc1 1/2	30	28	2.7
CHG-50	Rc2	38	47	3.5

Compatibility table by variation

	CHG-N
Port size	Rc1/2, 3/4, 1, 1 1/4, 1 1/2, 2
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

Note: Body material code N only.

How to order

CHG - 20 - N - P4

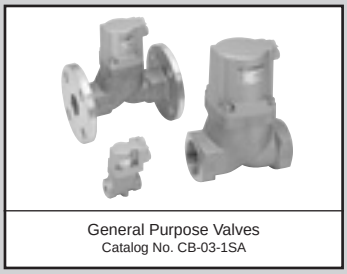
Model No.

Ⓐ Port size

Code	Description
Ⓐ Port size	
15	Rc1/2
20	Rc3/4
25	Rc1
32	Rc1¼
40	Rc1½
50	Rc2

Ⓑ Body material

Code	Description
Ⓑ Body material	
N	Stainless steel/oil-prohibited specifications



General Purpose Valves
Catalog No. CB-03-1SA

Air operated 2-port valve
(cylinder valve)

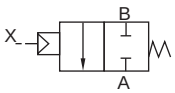
SAB*A Series

- NC (Normally Closed), NO (Normally Open), double acting
- Port size: Rc1/4 to Rc2 32 to 50 flange
- Working fluids: Air, gas

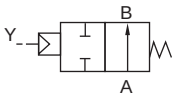
RoHS CAD

JIS symbol

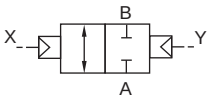
- NC (Normally Closed)



- NO (Normally Open)



- Double acting



Common specifications

Item	SAB1A	SAB2A	SAB3A
Actuation	NC (Normally Closed)	NO (Normally Open)	Double acting
Working fluid	Air/gas (*1)		
Working pressure MPa	0 to 0.9	0 to 1	
Proof pressure (water pressure)MPa	2.0		
Fluid temperature °C	−10 to 90 (no freezing)		
Ambient temperature °C	−10 to 60		
Valve seat leakage cm^3/min	0.12 or less (Pneumatic pressure)		
Mounting orientation	Unrestricted		
Pilot fluid	Air		
Pilot pressure MPa	0.35 to 0.7	Refer to the following page.	

*1: Refer to the working fluid check list described in "General Purpose Valves" (catalog No. CB-03-1SA).

Individual specifications

Item / Model No.	Port size	Orifice size(mm)	C [dm^3/(s·bar)]	b	S (mm^2)	Allowable back pressure (MPa)	Pilot port size	Weight (kg)
NC (Normally Closed)								
SAB1A-8A	Rc 1/4	10	8.3	0.4	-	0.5	Rc 1/8	0.3
SAB1A-10A	Rc 3/8	10	11	0.4	-			0.3
SAB1A-15A	Rc 1/2	15	-	-	120	0.1		0.6
SAB1A-20A	Rc 3/4	16	-	-	150			0.8
SAB1A-25A	Rc 1	20	-	-	240			1.1
SAB1A-32A	Rc 1 1/4	26	-	-	390			2.2
SAB1A-32F	32 flange	26	-	-	390			5.2
SAB1A-40A	Rc 1 1/2	32	-	-	610			3.2
SAB1A-40F	40 flange	32	-	-	610			6.3
SAB1A-50A	Rc 2	42	-	-	920			5.2
SAB1A-50F	50 flange	42	-	-	920			9.1
NO (Normally Open)								
SAB2A-8A	Rc 1/4	10	8.9	0.4	-	0.1	Rc 1/8	0.3
SAB2A-10A	Rc 3/8	10	12	0.3	-			0.3
SAB2A-15A	Rc 1/2	15	-	-	140			0.6
SAB2A-20A	Rc 3/4	16	-	-	180			0.8
SAB2A-25A	Rc 1	20	-	-	280			1.1
SAB2A-32A	Rc 1 1/4	26	-	-	450	0.05		2.2
SAB2A-32F	32 flange	26	-	-	450			5.2
SAB2A-40A	Rc 1 1/2	32	-	-	680			3.2
SAB2A-40F	40 flange	32	-	-	680			6.3
SAB2A-50A	Rc 2	42	-	-	1020			5.2
SAB2A-50F	50 flange	42	-	-	1020			9.1
Double acting (*1)								
SAB3A-8A	Rc 1/4	10	8.3 (8.9)	0.4	-	1	Rc 1/8	0.3
SAB3A-10A	Rc 3/8	10	11 (12)	0.4 (0.3)	-			0.3
SAB3A-15A	Rc 1/2	15	-	-	120 (140)			0.6
SAB3A-20A	Rc 3/4	16	-	-	150 (180)			0.8
SAB3A-25A	Rc 1	20	-	-	240 (280)			1.1
SAB3A-32A	Rc 1 1/4	26	-	-	390 (450)			2.2
SAB3A-32F	32 flange	26	-	-	390 (450)			5.2
SAB3A-40A	Rc 1 1/2	32	-	-	610 (680)			3.2
SAB3A-40F	40 flange	32	-	-	610 (680)			6.3
SAB3A-50A	Rc 2	42	-	-	920 (1020)			5.2
SAB3A-50F	50 flange	42	-	-	920 (1020)			9.1

*1: The values in C, b and S ( ) for double acting are the flow rate when port A is pressurized.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

Compatibility table by variation

	SAB
Port size	Rc1/4 to Rc2, 32 flange, 40 flange, 50 flange
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

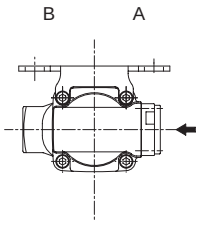
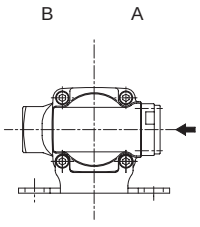
SAB 2 A - 15 A - E B - □ - P4

- SAB — Model No.
- 2 — Actuation (A)
- A — Working fluid (For air/gas)
- 15 — Port size (B)
- A — Type of thread/flange (C)
- E — Body/sealant combination (D)
- B — Other options (E) *1
- □ — Assembly direction (F) *1 *2 *3

Code	Description
A Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting
B Port size	
8	1/4
10	3/8
15	1/2
20	3/4
25	1
32	$1^{1}/_{4}$, 32 (Flange)
40	$1^{1}/_{2}$, 40 (Flange)
50	2, 50 (Flange)
C Type of thread/flange	
A	Rc (8A to 50A)
F	Flange (32F to 50F)

D Body/sealant combination			
		Body	**Seal**
E	Option	Stainless steel	Fluoro rubber

E Other options	
Blank	No option
B	Mounting plate *1

F Assembly direction		
Blank	No option	
R	Mounting plate assembly position reversed	
Code	B (with mounting plate)	B-R *2
Direction	No rotation	Mounting plate reversed
Layout		

← shows pilot port IN.

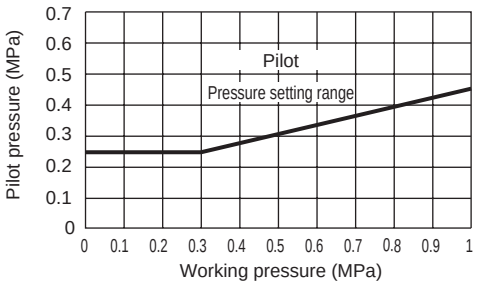
Precautions for model No. selection

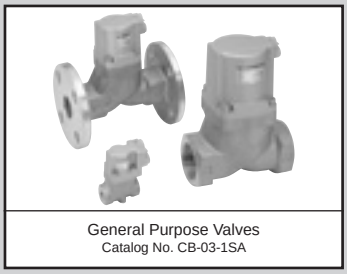
*1: The mounting plate (Item E B) can be attached to only the female thread of port sizes 8 to 32.
*2: Reversed mounting plate (Item F B-R) is available for port sizes 15 to 32.
*3: Clockwise when viewed from above with port A on the right.
*4: Available as made to order. Contact CKD Sales for details.

■ Pilot pressure

Set pilot pressure within the specified range. In particular, set the pilot pressure for the SAB/SVB Series NO and double acting as shown in the graph below. If the product is used with a pressure below the range shown in the graph, sealant failure may occur; if the product is used with a pressure above the range shown in the graph, durability may be compromised
The NC is recommended when the pilot pressure cannot be controlled.

●SAB 2/3 W A V Series/SVB2 W A V Series





General Purpose Valves
Catalog No. CB-03-1SA

Air operated 2-port valve
(cylinder valve)

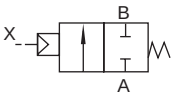
SAB*V Series

- NC (Normally Closed), NO (Normally Open), double acting
- Port size: Rc1/4 to Rc2, 32 to 50 flange
- Working fluid: Low vacuum

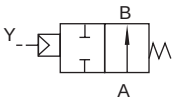
RoHS CAD

JIS symbol

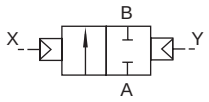
● NC (Normally Closed)



● NO (Normally Open)



● Double acting



Common specifications

Item	SAB1V	SAB2V	SAB3V
Actuation	NC (Normally Closed)	NO (Normally Open)	Double acting
Working fluid	Low vacuum (Air, water) (*1)		
Working pressure Pa (abs)	1.3×10^2 to 7×10^5 (refer to working pressure in individual specifications.)		
Proof pressure (water pressure) MPa	2.0		
Fluid temperature °C	−10 to 60 (no freezing) (*2)		
Ambient temperature °C	−10 to 60		
Valve seat leakage Pa·m³/s He	1.33×10^{-3} or less		
Pilot fluid	Air		
Mounting orientation	Unrestricted		

*1: Refer to the working fluid check list in General Purpose Valves (CB-03-1SA).

Individual specifications

Item / Model No.	Port size	Orifice size (mm)	C [dm³/(s·bar)]	b	S (mm²)	Working pressure Pa (abs) NC	Working pressure Pa (abs) NO	Working pressure Pa (abs) Double acting	Pilot pressure (MPa) NC	Pilot pressure (MPa) NO	Pilot pressure (MPa) Double acting	Pilot port size	Weight (kg) NC	Weight (kg) NO	Weight (kg) Double acting
SAB*V-8A	Rc 1/4	10	8.9	0.4	-	1.3×10^2 to 7×10^5	1.3×10^2 to 1×10^6		0.35 to 0.7	(*1)		Rc 1/8	0.3		
SAB*V-10A	Rc 3/8	10	12	0.3	-								0.3		
SAB*V-15A	Rc 1/2	15	-	-	140								0.6		
SAB*V-20A	Rc 3/4	16	-	-	180								0.8		
SAB*V-25A	Rc 1	20	-	-	280								1.1		
SAB*V-32A	Rc 1¼	26	-	-	450	1.3×10^2 to 5×10^5	1.3×10^2 to 1×10^6		0.25 to 0.7				2.3	2.2	2.2
SAB*V-32F	32 flange	26	-	-	450								5.3	5.2	5.2
SAB*V-40A	Rc 1½	32	-	-	680								3.4	3.2	3.2
SAB*V-40F	40 flange	32	-	-	680								6.5	6.3	6.3
SAB*V-50A	Rc 2	42	-	-	1020								5.5	5.2	5
SAB*V-50F	50 flange	42	-	-	1020								9.4	9.1	8.9

*1: Refer to page 587 for the pilot pressure for the NO and double acting types.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

Compatibility table by variation

	SAB
Port size	Rc1/4 to Rc2, 32 flange, 40 flange, 50 flange
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

SAB 3 V - 15 A - E B - ( ) - P4

- SAB: Model No.
- 3: Actuation
- V: Working fluid (for low vacuum)
- 15: Port size
- A: Type of thread/flange
- E: Body/sealant combination
- B: Other options *1
- ( ): Assembly direction *1 *2 *3
- P4

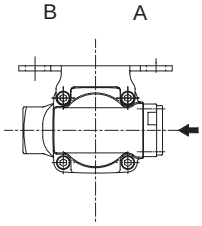
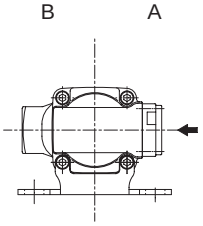
Code	Description
A Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting
B Port size	
8	1/4
10	3/8
15	1/2
20	3/4
25	1
32	$1^{1}/_{4}$, 32 (Flange)
40	$1^{1}/_{2}$, 40 (Flange)
50	2, 50 (Flange)
C Type of thread/flange	
A	Rc (8A to 50A)
F	Flange (32F to 50F)

D Body/sealant combination

		Body	Seal
E	Option	Stainless steel	Fluoro rubber

E Other options	
Blank	No option
B	Mounting plate *2

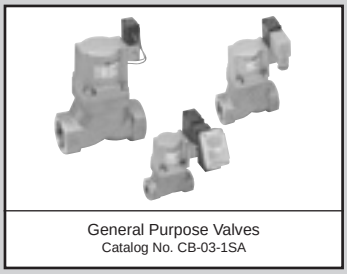
F Assembly direction

Blank	No option	
R	Mounting plate assembly position reversed	
Code	B (with mounting plate)	B-R *2
Direction	No rotation	Mounting plate reversed
Layout		

←shows pilot port IN.

Precautions for model No. selection

*1: The mounting plate (Item E B) can be attached to only the female thread of port sizes 8 to 32.
*2: Reversed mounting plate (Item F B-R) is available for port sizes 15 to 32.
*3: Clockwise when viewed from above with port A on the right.



General Purpose Valves
Catalog No. CB-03-1SA

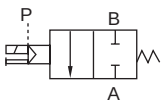
Air operated 2-port solenoid valve
(cylinder valve)

SVB*A Series

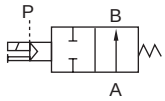
- NC, NO
- Port size: Rc1/4 to Rc2, 32 to 50 flange
- Working fluids: Air, inert gas

JIS symbol

● NC (Open when energized)



● NO (Closed when energized)



Common specifications

Item	SVB1A	SVB2A
Actuation	NC (Open when energized)	NO (Closed when energized)
Working fluid	Air/inert gas (*1)	
Working pressure MPa	0 to 0.9	0 to 1
Proof pressure (water pressure) MPa	2.0	
Fluid temperature °C	−10 to 60 (no freezing)	
Ambient temperature °C	−10 to 60	
Valve seat leakage cm^3/min	0.12 or less (Pneumatic pressure)	
Pilot fluid	Air	
Pilot pressure MPa	0.35 to 0.7	Refer to next page
Mounting orientation	Unrestricted	

*1: Refer to the working fluid check list described in "General Purpose Valves" (catalog No. CB-03-1SA).

Electrical specifications		
Rated voltage	24 VDC	
Power consumption(W) DC	2.0	
Thermal class	Class 130 (B)	
Degree of protection (IEC standards 529)	Grommet lead wire	IPX2
	With DIN terminal box (Pg9)	IPX5
	With T type terminal box (G1/2)	IPX5

*1: Use the product within ±10% of the rated voltage.

Individual specifications

Item / Model No.	Port size	Orifice size (mm)	C [$dm^3/(s \cdot bar)$]	b	S (mm^2)	Allowable back pressure (MPa)	Pilot port size	Weight (kg)
NC (Normally Closed)								
SVB1A-8A	Rc 1/4	10	8.3	0.4	-	0.5	Rc 1/8	0.5
SVB1A-10A	Rc 3/8	10	11	0.4	-			0.5
SVB1A-15A	Rc 1/2	15	-	-	120	0.1		0.8
SVB1A-20A	Rc 3/4	16	-	-	150			1
SVB1A-25A	Rc 1	20	-	-	240			1.3
SVB1A-32A	Rc 1¼	26	-	-	390			2.4
SVB1A-32F	32 flange	26	-	-	390			5.4
SVB1A-40A	Rc 1½	32	-	-	610			3.4
SVB1A-40F	40 flange	32	-	-	610			6.5
SVB1A-50A	Rc 2	42	-	-	920			5.4
SVB1A-50F	50 flange	42	-	-	920			9.3
NO (Normally Open)								
SVB2A-8A	Rc 1/4	10	8.9	0.4	-	0.1	Rc 1/8	0.5
SVB2A-10A	Rc 3/8	10	12	0.3	-			0.5
SVB2A-15A	Rc 1/2	15	-	-	140			0.8
SVB2A-20A	Rc 3/4	16	-	-	180			1
SVB2A-25A	Rc 1	20	-	-	280			1.3
SVB2A-32A	Rc 1¼	26	-	-	450	0.05		2.4
SVB2A-32F	32 flange	26	-	-	450			5.4
SVB2A-40A	Rc 1½	32	-	-	680			3.4
SVB2A-40F	40 flange	32	-	-	680			6.5
SVB2A-50A	Rc 2	42	-	-	1020			5.4
SVB2A-50F	50 flange	42	-	-	1020			9.3

*1: Refer to the next page for the NO pilot pressure.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

Compatibility table by variation

	SVB
Port size	Rc1/4 to Rc2, 32 flange, 40 flange, 50 flange
P4	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

● With solenoid valve

SVB 1 A - 15 A - E 2G S - ○ - DC24V - P4

- SVB: Model No.
- 1: Working fluid (For air/gas)
- A: Actuation
- 15: Port size
- A: Type of thread/flange
- E: Body/sealant combination
- 2G: Coil
- S: Other options
- ○: Assembly direction
- DC24V: Voltage
- P4

Code	Description
A Actuation	
1	NC (Open when energized)
2	NO (Closed when energized)
B Port size	
8	1/4
10	3/8
15	1/2
20	3/4
25	1
32	1 1/4, 32 (Flange)
40	1 1/2, 40 (Flange)
50	2, 50 (Flange)
C Type of thread/flange	
A	Rc (8A to 50A)
F	Flange (32F to 50F)
D Body/sealant combination	
E	Option / Body: Stainless steel / Seal: Fluoro rubber
E Coil	
2C	Standard: Grommet lead wire
2G	Option: With DIN terminal box (Pg9)
2H	Option: DIN terminal box with lamp (Pg9)
3T	Option: With T type terminal box (G1/2)
3R	Option: T type terminal box with lamp (G1/2)
F Other options	
Blank	No option
S	With surge suppressor
B	Mounting plate *1
G Assembly direction	
Blank	No option
X	Cylinder cover rotated 90°
Y	Cylinder cover rotated 180°
Z	Cylinder cover rotated 270°
R	Coil reversed 180° [With solenoid valve] Mounting plate/coil reversed 180° [With solenoid valve]
Refer to page 594 for the layout drawing.	
H Voltage	
DC24V	24 VDC

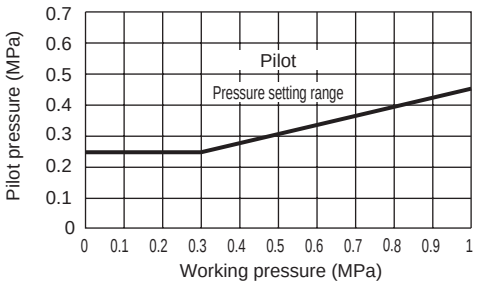
⚠ Precautions for model No. selection

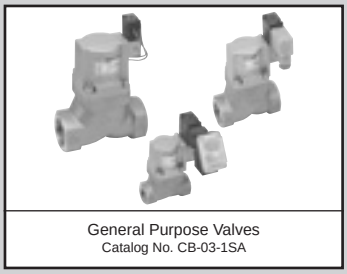
*1: The mounting plate (Item F B) can be attached to only the female thread of port sizes 8 to 32.
*2: To add both the surge suppressor and mounting plate options, indicate Item F as SB.
*3: The surge suppressor is attached with the lead wire coil. When selecting a coil with terminal box, the surge suppressor is mounted in the terminal box.
*4: Manual override (non-locking) is provided as standard.
*5: This will be made to order. Contact our Sales for details.

■ Pilot pressure

Set pilot pressure within the specified range. In particular, set the pilot pressure for the SAB/SVB Series NO and double acting as shown in the graph below. If the product is used with a pressure below the range shown in the graph, sealant failure may occur; if the product is used with a pressure above the range shown in the graph, durability may be compromised.
The NC is recommended when the pilot pressure cannot be controlled.

●SAB$^{2}_{3}{}^{W}_{V}$ Series/SVB2$^{W}_{V}$ Series





General Purpose Valves
Catalog No. CB-03-1SA

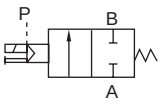
Air operated 2-port solenoid valve
(cylinder valve)

SVB*V Series

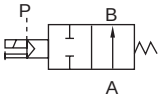
- NC, NO
- Port size: Rc1/4 to Rc2, 32 to 50 flange
- Working fluid: Low vacuum

JIS symbol

● NC (Normally Closed)



● NO (closed when energized)



Common specifications

Item	SVB1V	SVB2V
Actuation	NC (Normally Closed)	NO (closed when energized)
Working fluid	Low vacuum (Air/water) (*1)	
Working pressure PA(abs)	1.3×10^2 to 7×10^5 (Refer to the working pressure range in the individual specifications.)	
Proof pressure (water pressure) MPa	2.0	
Fluid temperature °C	−10 to 60 (no freezing)	
Ambient temperature °C	−10 to 60	
Valve seat leakage Pa·m³/s He	1.33×10^{-3} or less	
Pilot fluid	Air	
Mounting orientation	Unrestricted	

*1: Refer to the working fluid check list described in "General Purpose Valves" (catalog No. CB-03-1SA).

Electrical specifications		
Rated voltage	24 VDC	
Power consumption (W) DC	2.0	
Thermal class	Class 130 (B)	
Degree of protection (IEC standards 529)	Grommet lead wire	IPX2
	With DIN terminal box (Pg9)	IPX5
	With T type terminal box (G1/2)	IPX5

*1: Use the product within ±10% of the rated voltage.

Individual specifications

Item / Model No.	Port size	Orifice size (mm)	C [dm³/(s·bar)]	b	S (mm²)	Working pressure Pa (abs) NC	Working pressure Pa (abs) NO	Pilot pressure (MPa) NC	Pilot pressure (MPa) NO	Pilot port size	Weight (kg) NC	Weight (kg) NO
SVB*V-8A	Rc 1/4	10	8.3	0.4	-	1.3×10^2 to 7×10^5	1.3×10^2 to 1×10^6	0.35 to 0.7	(*1)	Rc 1/8	0.5	
SVB*V-10A	Rc 3/8	10	12	0.3	-						0.5	
SVB*V-15A	Rc 1/2	15	-	-	140						0.8	
SVB*V-20A	Rc 3/4	16	-	-	180						1	
SVB*V-25A	Rc 1	20	-	-	280						1.3	
SVB*V-32A	Rc 1¼	26	-	-	450	1.3×10^2 to 5×10^5	1.3×10^2 to 1×10^6	0.25 to 0.7	(*1)		2.5	2.4
SVB*V-32F	32 flange	26	-	-	450						5.5	5.4
SVB*V-40A	Rc 1½	32	-	-	680						3.6	3.4
SVB*V-40F	40 flange	32	-	-	680						6.7	6.5
SVB*V-50A	Rc 2	42	-	-	1020						5.7	5.4
SVB*V-50F	50 flange	42	-	-	1020						9.6	9.3

* Refer to the next page for the NO pilot pressure.

How to order

● With solenoid valve

SVB 1 V - 15 A - E 2G S - ○ - DC24V - P4

- SVB: Model No.
- 1: Working fluid (for low vacuum) V
- Ⓐ Actuation: 15
- Ⓑ Port size: A
- Ⓒ Type of thread/flange: E
- Ⓓ Body/sealant combination: 2G
- Ⓔ Coil: S
- Ⓕ Other options *1 *2 *3 *4: ○
- Ⓖ Assembly direction: DC24V
- Ⓗ Voltage: P4

Code	Description
Ⓐ Actuation	
1	NC (Open when energized)
2	NO (Closed when energized)
Ⓑ Port size	
8	1/4
10	3/8
15	1/2
20	3/4
25	1
32	1 1/4, 32 (Flange)
40	1 1/2, 40 (Flange)
50	2, 50 (Flange)
Ⓒ Type of thread/flange	
A	Rc (8A to 50A)
F	Flange (32F to 50F)

Ⓓ Body/sealant combination			
		Body	**Seal**
E	Option	Stainless steel	Fluoro rubber

Ⓔ Coil		
2C	Standard	Grommet lead wire
2G	Option	With DIN terminal box (Pg9)
2H		DIN terminal box with lamp (Pg9)
3T		With T type terminal box (G1/2)
3R		T type terminal box with lamp (G1/2)

Ⓕ Other options	
Blank	No option
S	With surge suppressor
B	Mounting plate *1

Ⓖ Assembly direction	
Blank	No option
X	Cylinder cover rotated 90°
Y	Cylinder cover rotated 180°
Z	Cylinder cover rotated 270°
R	Coil reversed 180° [With solenoid valve] Mounting plate/coil reversed 180° [With solenoid valve]

Refer to page 594 for the layout drawing.

Ⓗ Voltage	
DC24V	24 VDC

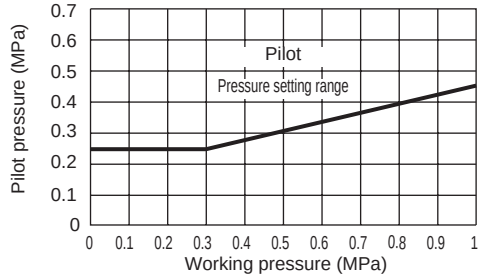
Precautions for model No. selection

*1: The mounting plate (Item Ⓕ B) can be attached to only the female thread of port sizes 8 to 32.
*2: To add both the surge suppressor and mounting plate options, indicate Item Ⓕ as SB.
*3: The surge suppressor is attached with the lead wire coil. When selecting a coil with terminal box, the surge suppressor is mounted in the terminal box.
*4: Manual override (non-locking) is provided as standard.
*5: This will be made to order. Contact our Sales for details.

■ Pilot pressure

Set pilot pressure within the specified range. In particular, set the pilot pressure for the SAB/SVB Series NO and double acting as shown in the graph below. If the product is used with a pressure below the range shown in the graph, sealant failure may occur; if the product is used with a pressure above the range shown in the graph, durability may be compromised.
The NC is recommended when the pilot pressure cannot be controlled.

●SAB 2/3 W/A/V Series/SVB2 W/A/V Series



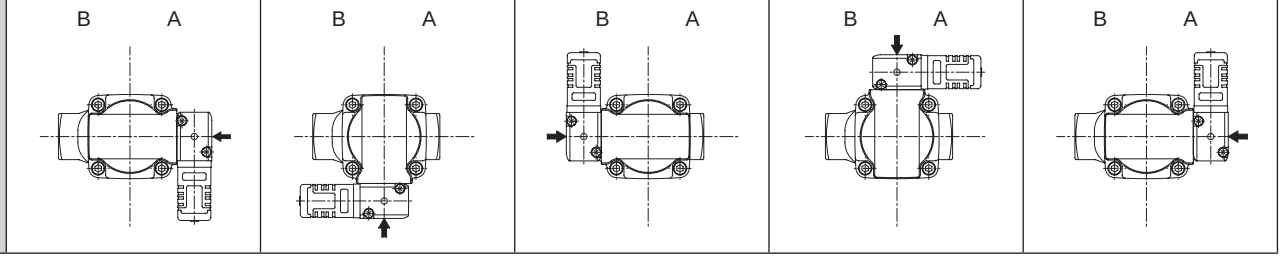
Compatibility table by variation

	SVB
Port size	Rc1/4 to Rc2, 32 flange, 40 flange, 50 flange
P4	▲

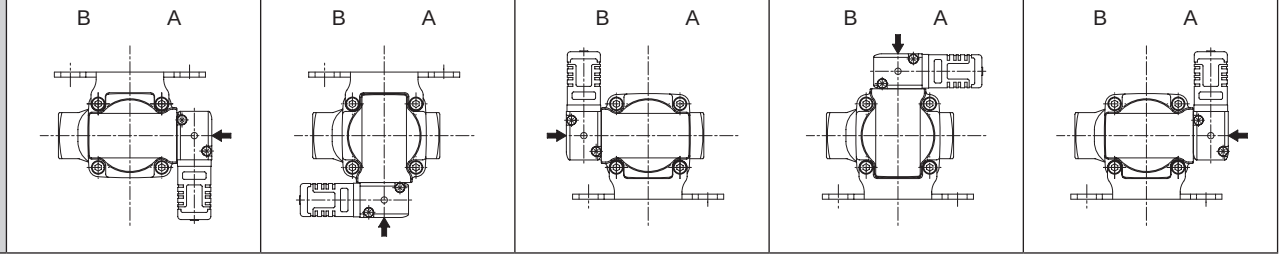
●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

Item G Assembly direction

SVB [With solenoid valve] *6

Code	Blank (standard)	X	Y	Z	R
Direction	No rotation	Cylinder cover rotated 90°	Cylinder cover rotated 180°	Cylinder cover rotated 270°	Coil reversed
Layout					

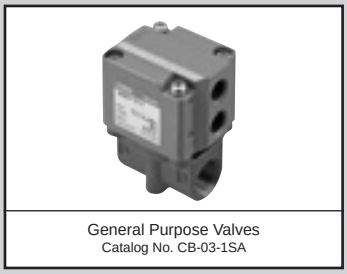
SVB [With solenoid valve] *1, *6

Code	B (with mounting plate)	B-X	B-Y *7	B-Z *7	B-R *8
Direction	No rotation	Cylinder cover rotated 90°	Cylinder cover rotated 180° Mounting plate reversed	Cylinder cover rotated 270° Mounting plate reversed	Coil reversed Mounting plate reversed
Layout					

*6: Clockwise rotating angle when viewed from above with port A on the right.
*7: The mounting plate will be reversed 180° and attached.
*8: The mounting plate for port size 10A is installed at the bottom, so only the coil position is reversed.

⬅ shows pilot port IN.

MEMO



General Purpose Valves
Catalog No. CB-03-1SA

Air operated 2-port valve, single unit
(Compact cylinder valve)

NAB*/NAB*V Series

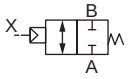
- NC (Normally Closed), NO (Normally Open), double acting
- Port size: Rc1/4, Rc3/8
- Working fluids: Air, gas, low vacuum

RoHS CAD

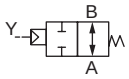
JIS symbol

● NAB*
(*1)

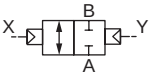
NC (Normally Closed)



NO (Normally Open)

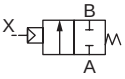


Double acting

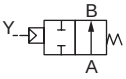


*1:If port B is normally pressurized, be sure to read the individual precautions in "General Purpose Valves (No. CB-03-1SA)".

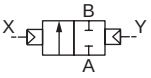
● NAB*V
NC (Normally Closed)



NO (Normally Open)



Double acting



Specifications

Item	NAB*			NAB*V		
	NAB1	NAB2	NAB3	NAB1V	NAB2V	NAB3V
Actuation	NC (Normally Closed)	NO (Normally Open)	Double acting	NC (Normally Closed)	NO (Normally Open)	Double acting
Working fluid	Air, gas (*2)			Low vacuum (air) (*2)		
Fluid viscosity mm^2/s	500 or less					
Working pressure	0 to 0.7 MPa			1.3×10^2 to 7×10^5Pa (abs)		
Proof pressure (water pressure) MPa	1.4					
Fluid temperature °C	-10 to 60 (no freezing)					
Ambient temperature °C	-10 to 60					
Valve seat leakage	$0.12cm^3$/min or less (pneumatic pressure)			$1.33 \times 10^{-3}Pa \cdot m^3$/sHe or less		
Port size	Rc1/4, Rc3/8					
Orifice size mm	7					
Cv	1.2					
C [$dm^3/(s \cdot bar)$]	5.2 (*3)					
b	0.3					
Weight kg	0.28 (depends on type)					
Mounting orientation	Unrestricted					
Pilot fluid	Air					
Pilot pressure MPa	0.25 to 0.7	Refer to the descriptions below.		0.25 to 0.7	Refer to the descriptions below.	
Pilot port size	Rc1/8					

*2: **Refer to the working fluid check list in the General Purpose Valves (No. CB-03-1SA).**
*3: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Compatibility table by variation

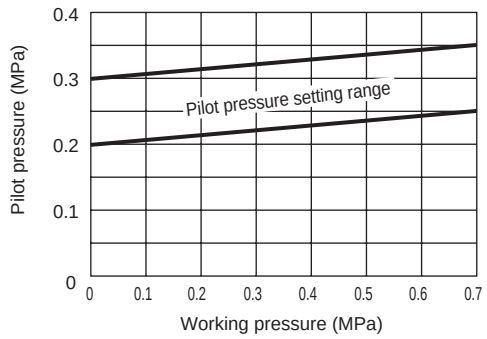
	NAB
Port size	Rc1/4, 3/8
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

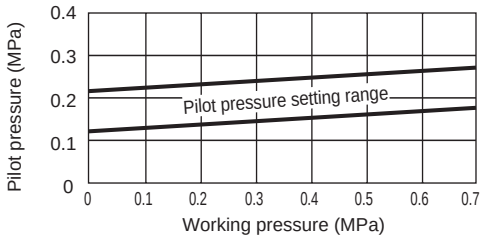
■ Pilot pressure

Set pilot air pressure within the specified range.
Set the pilot pressure for the NAB/GNAB Series NO and double acting as shown in the graph below.If the product is used with a pressure below the range shown in the graph, sealant failure may occur; if the product is used with a pressure above the range shown in the graph, durability may be compromised.
The NC is recommended when the pilot pressure cannot be controlled.

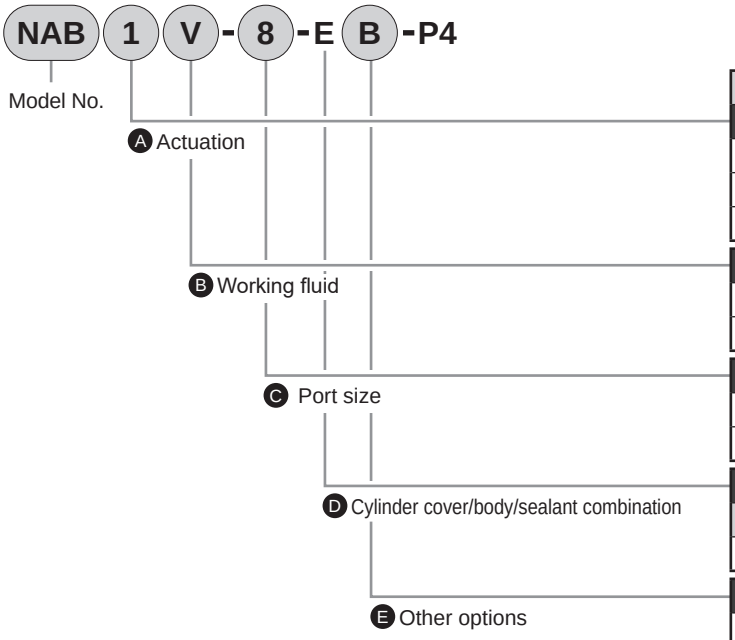
●NAB^2_{2V} Series/$GNAB^2_{2V}$ Series



●NAB^3_{3V}Series/$GNAB^3_{3V}$Series



How to order

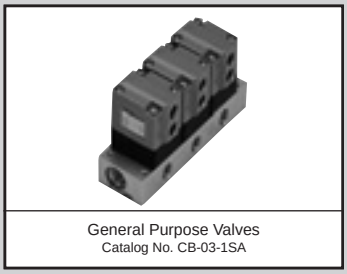


Code	Description		
A Actuation			
1	NC (Normally Closed)		
2	NO (Normally Open)		
3	Double acting		
B Working fluid			
Blank	General purpose (air/gas)		
V	Low vacuum (air)		
C Port size			
8	Rc1/4		
10	Rc3/8		
D Cylinder cover/body/sealant combination			
	Cylinder guard	**Body**	**Seal**
E	Aluminum die-casting	Stainless steel	Fluoro rubber
E Other options			
Blank	No option		
B	Mounting plate		

[Example of model No.]

NAB1V-8-EB-P4

Model: NAB
A Actuation : NC (Normally Closed)
B Working fluid : Low vacuum (air)
C Port size : Rc1/4
D Cylinder cover/body/sealant combination
: Cylinder cover - aluminum die-casting
Body - stainless steel
Sealant - fluoro rubber
E Other options : Mounting plate



General Purpose Valves
Catalog No. CB-03-1SA

Air operated 2-port valve, manifold
(Compact cylinder valve)

GNAB*/GNAB*V Series

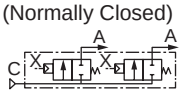
- NC (Normally Closed), NO (Normally Open), double acting
- Port size: Rc1/4, Rc3/8
- Working fluids: Air, gas, low vacuum

RoHS CAD

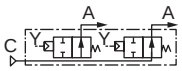
JIS symbol

● Common supply
(port C pressurization, port A vacuum pump side)

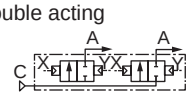
NC (Normally Closed)



NO (Normally Open)

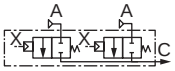


Double acting

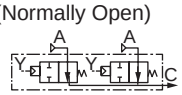


● Individual supply
(port A pressurization, port C vacuum pump side)

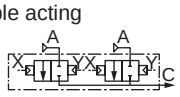
NC (Normally Closed)



NO (Normally Open)



Double acting



Specifications

Item	GNAB*			GNAB*V		
	GNAB1	GNAB2	GNAB3	GNAB1V	GNAB2V	GNAB3V
Actuation	NC (Normally Closed)	NO (Normally Open)	Double acting	NC (Normally Closed)	NO (Normally Open)	Double acting
Working fluid	Air, gas (*1)			Low vacuum (air) (*1)		
Fluid viscosity mm^2/s	500 or less					
Working pressure	0 to 0.7 MPa			1.3×10^2 to 7×10^5Pa (abs)		
Proof pressureForce(water pressure)MPa	1.4					
Fluid temperature °C	-10 to 60 (no freezing)					
Ambient temperature °C	-10 to 60					
Valve seat leakage	$0.12cm^3$/min or less (pneumatic pressure)			1.33×10^{-3}Pa·m^3/sHe or less		
Orifice size mm	7					
Cv	1.0					
C [dm^3/(s·bar)]	3.8 (*2)					
b	0.3					
Mounting orientation	Unrestricted					
Pilot fluid	Air					
Pilot pressure MPa	0.25 to 0.7	Refer to the descriptions below.		0.25 to 0.7	Refer to the descriptions below.	
Pilot port size	Rc1/8					

*1:**Refer to the working fluid check list in the General Purpose Valves (No. CB-03-1SA).**
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Compatibility table by variation

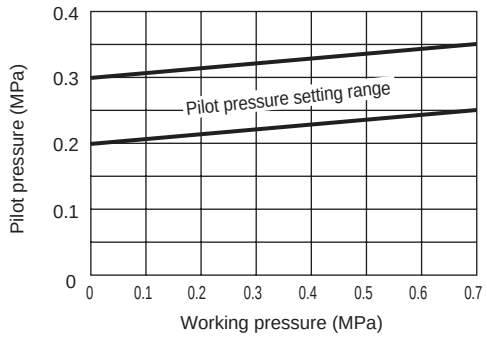
	GNAB
Port size	Rc1/4, 3/8
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

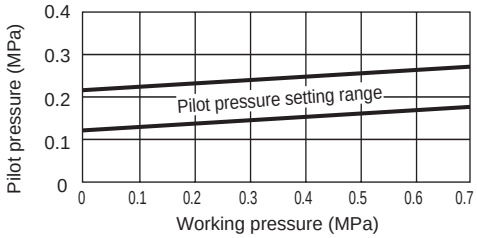
■ Pilot pressure

Set pilot air pressure within the specified range.
Set the pilot pressure for the NAB/GNAB Series NO and double acting as shown in the graph below. If the product is used with a pressure below the range shown in the graph, sealant failure may occur; if the product is used with a pressure above the range shown in the graph, durability may be compromised.
The NC is recommended when the pilot pressure cannot be controlled.

●NAB $^{2}_{2V}$ Series/GNAB $^{2}_{2V}$ Series



●NAB $^{3}_{3V}$ Series/GNAB $^{3}_{3V}$ Series



How to order

GNAB 2 V - 1 - 2 - 7 - P4

Model No.

Ⓐ Actuation

Ⓑ Working fluid

Ⓒ Air supply category

Ⓓ Manifold station No.

Ⓔ Cylinder cover/sub-plate/body/sealant combination

Code	Description
Ⓐ Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting
Ⓑ Working fluid	
Blank	General purpose (air/gas)
V	Low vacuum (air)
Ⓒ Air supply category	
1	Common supply (port C pressurization), port A vacuum pump side
5	Individual supply (port A pressurization), port C vacuum pump side
Ⓓ Manifold station No.	
2 to10	2 to 10 stations
0	Actuator only

Ⓔ Cylinder cover/sub-plate/body/sealant combination

	Cylinder guard	Sub-plate	Body	Seal
7	Aluminum die-casting	Stainless steel	Polypropylene	Fluoro rubber
E	Aluminum die-casting	Stainless steel	Stainless steel	Fluoro rubber
2	Aluminum die-casting	Aluminum	Polypropylene	Fluoro rubber

[Example of model No.]

GNAB2V-1-2-7-P4

Model name: GNAB

Ⓐ Actuation : NO (Normally Open)
Ⓑ Working fluid : Low vacuum (air)
Ⓒ Air supply : Port A vacuum pump side
Ⓓ Manifold station No. : 2 stations
Ⓔ Cylinder cover/sub-plate/body/sealant combination
: Cylinder cover - aluminum die-casting
Sub-plate - stainless steel
Body - polypropylene
Sealant - fluoro rubber



General Purpose Valves
Catalog No. CB-03-1SA

Diaphragm cylinder valve, single unit

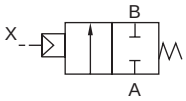
NAD*V Series

- NC (Normally Closed), NO (Normally Open), double acting
- Port size: Rc3/8
- Working fluid: Low vacuum

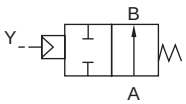
RoHS

JIS symbol

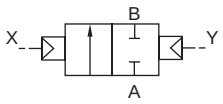
- NC (Normally Closed)



- NO (Normally Open)



- Double acting



Specifications

Item	NAD1V-10	NAD2V-10	NAD3V-10
Actuation	NC (Normally Closed)	NO (Normally Open)	Double acting
Working fluid	Low vacuum (air/water)		
Fluid viscosity mm^2/s	500 or less		
Working pressure	1.3×10^2 to 5×10^5 Pa (abs) (secondary pressure 4×10^5 Pa (abs) or less)		
Proof pressure (water pressure) MPa	1.0		
Fluid temperature °C	-10 to 50 (no freezing)		
Ambient temperature °C	-10 to 50		
Valve seat leakage	1.33×10^{-3} Pa·m^3/sHe or less		
Port size	Rc3/8		
Orifice size mm	7		
Cv	1.1		
C[dm^3/(s·bar)]	4.4		
b	0.1		
Weight kg	0.32		
Mounting orientation	Unrestricted		
Pilot fluid	Air		
Pilot pressure MPa	0.4 to 0.5		
Pilot port size	Rc1/8		

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

How to order

NAD 1 V - 10 - R B - P4

- NAD: Model No.
- V: Working fluid (for low vacuum)

Ⓐ Actuation

Code	Description
Ⓐ Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

Ⓑ Port size

Code	Description
Ⓑ Port size	
10	Rc3/8

Ⓒ Body/sealant combination

Code	Body	Seal
Ⓒ Body/sealant combination		
R	Stainless steel	Ethylene propylene rubber

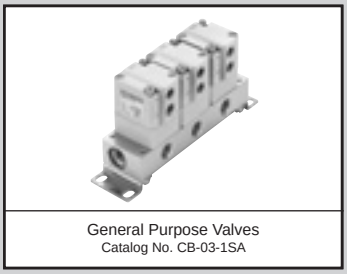
Ⓓ Other options

Code	Description
Ⓓ Other options	
Blank	No option
B	Mounting plate

Compatibility table by variation

	NAD
Port size	Rc3/8
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable



General Purpose Valves
Catalog No. CB-03-1SA

Diaphragm cylinder valve, manifold

GNAD*V Series

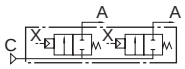
- NC (Normally Closed), NO (Normally Open), double acting
- Port size: Rc1/4,Rc3/8
- Working fluid: Low vacuum

RoHS

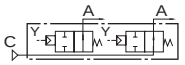
JIS symbol

● Common supply (port C pressurization)

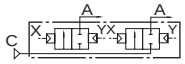
NC (Normally Closed)



NO (Normally Open)

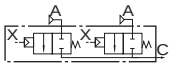


Double acting

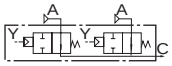


● Individual supply (port A pressurization)

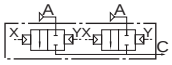
NC (Normally Closed)



NO (Normally Open)



Double acting



Specifications

Item		GNAD1V-1, 5	GNAD2V-1, 5	GNAD3V-1, 5
Actuation		NC (Normally Closed)	NO (Normally Open)	Double acting
Working fluid		Low vacuum (air/water)		
Fluid viscosity	mm^2/s	500 or less		
Working pressure		1.3 x 10^2 to 5 x 10^5 Pa (abs) (secondary pressure 4 × 10^5 Pa (abs) or less)		
Proof pressure (water pressure)	MPa	1.0		
Fluid temperature	°C	-10 to 50 (no freezing)		
Ambient temperature	°C	-10 to 50		
Valve seat leakage		1.33 x 10^{-3}Pa·m^3/sHe or less		
Orifice size	mm	7		
Cv		0.7		
C[dm^3/(s·bar)]		3.4		
b		-		
Mounting orientation		Unrestricted		
Pilot fluid		Air		
Pilot pressure	MPa	0.4 to 0.5		
Pilot port size		Rc1/8		

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

How to order

GNAD 1 V - 1 - 3 - R - P4

Model No. GNAD

Working fluid (for low vacuum) V

Ⓐ Actuation

Code	Description
Ⓐ Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

Ⓑ Air supply category

Code	Description
Ⓑ Air supply category	
1	Common supply
5	Individual supply

Ⓒ Manifold station No.

Code	Description
Ⓒ Manifold station No.	
2	2 stations
to	to
10	10 stations
0	Actuator only

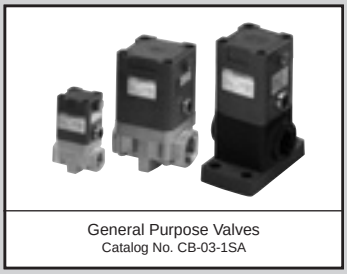
Ⓓ Sub-plate/body/sealant combination

Code	Sub-plate	Body	Seal
Ⓓ Sub-plate/body/sealant combination			
R	Stainless steel	Stainless steel	Ethylene propylene rubber
3	Aluminum	Polypropylene	Ethylene propylene rubber

Compatibility table by variation

	NAD
Port size	Rc1/4, Rc3/8
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable



General Purpose Valves
Catalog No. CB-03-1SA

Diaphragm cylinder valve

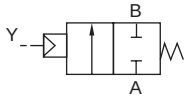
LAD Series

- NC (Normally Closed), NO (Normally Open), double acting
- Port size: Rc3/8, Rc1/2, Rc3/4, Rc1
- Working fluids: Pure water, water, air, N_2Gas

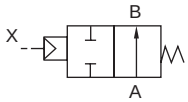
RoHS CAD

JIS symbol

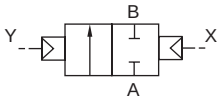
- NC (Normally Closed)



- NO (Normally Open)



- Double acting



Common specifications (PTFE diaphragm)

Item			LAD1	LAD2	LAD3
Actuation			NC (Normally Closed)	NO (Normally Open)	Double acting
Working fluid			Water, pure water, air, N_2 gas, non-corrosive/non-absorbable fluid (*1)		
Fluid temperature		°C	5 to 90 (*2)		
Proof pressure (water pressure)		MPa	0.9		
Working pressure (A→B)		MPa	0 to 0.3		
Valve seat leakage		cm^3/min	0 (water pressure), 1 or less (pneumatic pressure)		
Back pressure		MPa	0 to 0.1		
Ambient temperature		°C	0 to 60		
Mounting orientation			Unrestricted		
Operating section	Pilot fluid		Air		
	Pilot pressure	MPa	0.3 to 0.5		0.3 to 0.4
	Pilot port size		Rc1/8 (*3)		

*1: Check the compatibility of product structural materials, working fluids and atmosphere. Strong acids and highly absorbable fluids cannot be used.
*2: 5 to 100°C for stainless steel body (SCS13).
*3: With stainless steel reinforcing ring.

Individual specifications (PTFE diaphragm)

Item / Model No.	Port size	Orifice size mm	Cv	Frequency cycles/min.	Weight kg	
					PPS body	SCS13 body
LAD*-10A	Rc3/8	8	1.7	30 or less	0.15	0.3
LAD*-15A	Rc1/2	12	3.3	20 or less	0.28	0.6
LAD*-20A	Rc3/4	20	8.5	20 or less	0.55	1.1
LAD*-25A	Rc1	20	8.5	20 or less	0.60	1.2

Common specifications (EPDM diaphragm)

Item			LAD1	LAD2	LAD3
Actuation			NC (Normally Closed)	NO (Normally Open)	Double acting
Working fluid			Water, air, N_2Gas, non-corrosive/non-absorbable fluid (*1)		
Fluid temperature		°C	0 to 60 (no freezing)		
Proof pressure (water pressure)		MPa	1.5 (refer to proof pressure in individual specifications.)		
Working pressure (A→B)		MPa	0 to 0.5 (refer to working pressure range in individual specifications.)		
Valve seat leakage		cm^3/min	0 (water pressure), 0.12 or less (pneumatic pressure)		
Back pressure		MPa	0 to 0.1		
Ambient temperature		°C	0 to 60		
Mounting orientation			Unrestricted		
Operating section	Pilot fluid		Air		
	Pilot pressure	MPa	0.3 to 0.5		0.3 to 0.4
	Pilot port size		Rc1/8 (*2)		

*1: Check the compatibility of product structural materials, working fluids and atmosphere. Strong acids and highly absorbable fluids cannot be used.
*2: With stainless steel reinforcing ring.

Individual specifications (EPDM diaphragm)

Item / Model No.	Port size	Proof pressure (water pressure) MPa	Working pressure (A→B) MPa	Orifice size mm	Cv	Frequency cycles/min.	Weight kg	
							PPS body	SCS13 body
LAD*-10A	Rc3/8	1.5	0.5	8	1.7	30 or less	0.15	0.3
LAD*-15A	Rc1/2	1.5	0.5	12	3.3	20 or less	0.28	0.6
LAD*-20A	Rc3/4	1.2	0.4	20	8.5	20 or less	0.55	1.1
LAD*-25A	Rc1	1.2	0.4	20	8.5	20 or less	0.60	1.2

Compatibility table by variation

	LAD
Port size	Rc3/8, 1/2, 3/4, 1
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

LAD 1 - 15A - C B - P4

Model No.

Ⓐ Actuation

Ⓑ Port size

Ⓒ Material combination

Ⓓ Other options

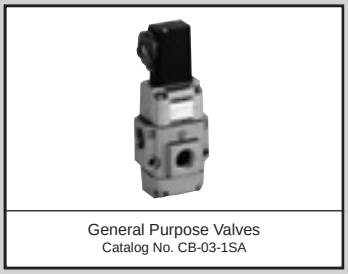
Code	Description
Ⓐ Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

Ⓑ Port size	
10A	Rc3/8
15A	Rc1/2
20A	Rc3/4
25A	Rc1

Ⓒ Material combination	Body	Diaphragm
P	PPS	EPDM
C	PPS	PTFE
R	SCS13	EPDM
F	SCS13	PTFE

Ⓓ Other options	
Blank	No option
B	Mounting plate

Note: Contact CKD for the "indicator" type.



General Purpose Valves
Catalog No. CB-03-1SA

Internal pilot 3-port solenoid valve

NP13/NP14 Series

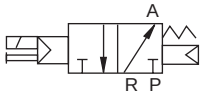
- NC (Open when energized), NO (Closed when energized)
- Port size: Rc3/8 to Rc2

JIS symbol

- NC (open when energized)



- NO (closed when energized)



Common specifications

Item	NP13	NP14
Actuation	NC (Open when energized)	NO (Closed when energized)
Fluid pressure supply port	Port P	Port R
Working fluid	Compressed air	
Proof pressure MPa	1.2	
Working pressure MPa	0.2 to 0.8	
Fluid temperature °C	5 to 60	
Ambient temperature °C	10 A to 25 A: -5 to 60 and 32 A to 50 A: -5 to 40 for both NP13/NP14	
Thermal class	Class 130 (B)	
Lubrication	No lubrication (Use turbine oil Class 1 ISO VG32 for lubrication.)	
Valve seat leakage cm^3/min	1 or less (at pneumatic pressure 0.2 to 0.8MPa)	
Valve structure	Internal pilot balance poppet structure	
Mounting orientation	Unrestricted	

Individual specifications

Item / Model No.	Port size: P, A Port	Port size: Port R	Orifice size (mm)	Response time (ms)	Rating Voltage	Power consumption (W): DC	Weight (kg)
NC (port P pressurization)							
NP13-10A	Rc3/8	Rc1/2	14.8 or equiv.	30 or less (*1)	24 VDC	4	0.7
NP13-15A	Rc1/2						0.7
NP13-20A	Rc3/4	Rc 1	25.4 or equiv.	60 or less (*1)			1.5
NP13-25A	Rc 1						1.5
NP13-32A	Rc1 1/4	Rc 2	41.4 or equiv.	120 or less (*1)		8	4.5
NP13-40A	Rc1 1/2						4.5
NP13-50A	Rc 2						4.4
NO (port R pressurization)							
NP14-10A	Rc3/8	Rc1/2	14.8 or equiv.	30 or less (*1)	24 VDC	4	0.7
NP14-15A	Rc1/2						0.7
NP14-20A	Rc3/4	Rc 1	25.4 or equiv.	60 or less (*1)			1.5
NP14-25A	Rc 1						1.5
NP14-32A	Rc1 1/4	Rc 2	41.4 or equiv.	120 or less (Note1)		8	4.5
NP14-40A	Rc1 1/2						4.5
NP14-50A	Rc 2						4.4

*1: The response times are values with supply pressure of 0.5MPa, without lubrication, and with the power ON. They depend on the pressure and the lubricant quality.
*2: Use the product within ±10% of the rated voltage.

Flow characteristics

Model No.	P→A				A→R			
	C[dm³/(s·bar)]	b	Cv	S(mm²)	C[dm³/(s·bar)]	b	Cv	S(mm²)
NC (port P pressurization)								
NP13-10A	15	0.31	3.4	-	16	0.28	3.4	-
NP13-15A	18	0.29	3.6	-	17	0.26	3.6	-
NP13-20A	35	0.27	8.4	-	41	0.21	8.6	-
NP13-25A	-	-	8.6	200	-	-	9.0	210
NP13-32A	-	-	25.8	600	-	-	26.2	610
NP13-40A	-	-	27.0	630	-	-	26.6	620
NP13-50A	-	-	28.2	660	-	-	27.0	630
Model No.	**R→A**				**A→P**			
	C[dm³/(s·bar)]	b	Cv	S(mm²)	C[dm³/(s·bar)]	b	Cv	S(mm²)
NO (port R pressurization)								
NP14-10A	15	0.31	3.4	-	15	0.33	3.4	-
NP14-15A	17	0.30	3.6	-	18	0.31	3.6	-
NP14-20A	41	0.21	8.6	-	35	0.27	8.4	-
NP14-25A	-	-	9.0	210	-	-	8.6	200
NP14-32A	-	-	26.2	610	-	-	25.8	600
NP14-40A	-	-	26.6	620	-	-	27.0	630
NP14-50A	-	-	27.0	630	-	-	28.2	660

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

Compatibility table by variation

	NP13/NP14
Bore size	Rc3/8 to Rc1
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

*1: Coil option is 2G, 2H, 2GS, 2HS only.
*2: Voltage: 24 VDC only.
*3: Rc1 1/4 to Rc2 is a made-to-order product.

How to order

NP1 3 - 15A - 1 2G S - 3 - P4

Model No.
Ⓐ Actuation
Ⓑ Port size
Ⓒ Body/sealant combination
Ⓓ Coil housing *1
Ⓔ Other Option *2
Ⓕ Rated voltage

Code	Description	
Ⓐ Actuation		
3	NC (Normally Closed)	
4	NO (closed when energized)	
Ⓑ Port size		
10 A	Rc 3/8	
15 A	Rc 1/2	
20A	Rc 3/4	
25 A	Rc 1	
32 A	Rc 1 1/4	(Made-to-order product)
40 A	Rc 1 1/2	(Made-to-order product)
50 A	Rc 2	(Made-to-order product)
Ⓒ Body/sealant combination		
	Body	Seal
1	Aluminum	Nitrile rubber
Ⓓ Coil housing		
2G	Option: DIN terminal box (Pg thread)	
2H	Option: DIN terminal box with lamp (Pg thread)	
Ⓔ Other options		
Blank	No option	
S	With surge suppressor	
Ⓕ Rated voltage		
3	24 VDC	

⚠ Precautions for model No. selection

*1: Pg thread of the DIN terminal box is Pg9 for port size 10A to 25A, and Pg11 for 32A to 50A.
*2: The surge suppressor is mounted in the terminal box when the coil is with terminal box.
*3: Manual override (non-locking) is provided as standard.



General Purpose Valves
Catalog No. CB-03-1SA

Air operated 3-port valve

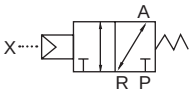
NAP11 Series

- Universal
- Port size: Rc3/8 to Rc2

RoHS CAD

JIS symbol

- Universal



Common specifications

Item	NAP11
Actuation	Universal
Working fluid	Compressed air, low vacuum
Proof pressure MPa	1.2
Working pressure MPa	0 to 0.8 (when using with vacuum, 1.3×10^2 to 8×10^5Pa(abs))
Fluid temperature °C	5 to 60
Ambient temperature °C	−5 to 60
Lubrication	No lubrication (use turbine oil Class 1 ISO VG32 for lubrication.)
Valve seat leakagecm^3/min	1 or less (at pneumatic pressure 0.02 to 0.8 MPa)
Valve structure	External pilot balance poppet structure
Mounting orientation	Unrestricted
Pilot fluid	Air
Pilot pressure MPa	0.35 to 0.7
Pilot port size (port X)	Rc1/8

Individual specifications

Item / Model No.	Port size: P, A Port	Port size: Port R	Orifice size (mm)	Response time (ms)	Weight (kg)
NAP11-10A	Rc3/8	Rc1/2	14.8 or equiv.	30 or less (*1)	0.6
NAP11-15A	Rc1/2				0.6
NAP11-20A	Rc3/4	Rc 1	25.4 or equiv.	60 or less (*1)	1.4
NAP11-25A	Rc 1				1.4
NAP11-32A	Rc1 1/4	Rc 2	41.4 or equiv.	120 or less (*1)	4.2
NAP11-40A	Rc1 1/2				4.2
NAP11-50A	Rc 2				4.1

*1: The response times are values with supply pressure of 0.5 MPa, without lubrication, and with the power ON. They depend on the pressure and the lubricant quality.

How to order

NAP1 1 - 15A - 1 - P4

- Model No.
- Ⓐ Actuation
- Ⓑ Port size
- Ⓒ Body/sealant combination

Compatibility table by variation

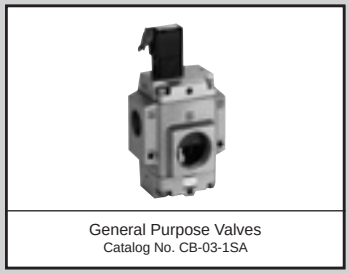
	NAP11
Port size	Rc3/8 to 2
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

Code	Description
Ⓐ Actuation	
1	Universal

Ⓑ Port size	
10A	Rc 3/8
15A	Rc 1/2
20A	Rc 3/4
25A	Rc 1
32A	Rc 1 1/4
40A	Rc 1 1/2
50A	Rc 2

Ⓒ Body/Sealant combination		
	Body	Seal
1	Aluminum	Nitrile rubber



General Purpose Valves
Catalog No. CB-03-1SA

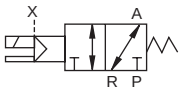
Air operated 3-port solenoid valve

NVP11 Series

- Universal
- Port size: Rc3/8 to Rc2

JIS symbol

- Universal



Common specifications

Item	NVP11
Actuation	Universal
Working fluid	Compressed air, low vacuum
Proof pressure MPa	1.2
Working pressure MPa	0 to 0.8 (when using with vacuum, 1.3×10^2 to 8×10^5Pa(abs))
Fluid temperature °C	5 to 60
Ambient temperature °C	10 A to 25 A: -5 to 60 and 32 A to 50 A: -5 to 40
Thermal class	Class 130 (B)
Lubrication	No lubrication (Use turbine oil Class 1 ISO VG32 for lubrication.)
Valve seat leakage cm^3/min	1 or less (at pneumatic pressure 0.02 to 0.8 MPa)
Valve structure	External pilot balance poppet structure
Mounting orientation	Unrestricted
Pilot fluid	Air
Pilot pressure MPa	0.35 to 0.7
Pilot port size (port X)	Rc1/8

Individual specifications

Item / Model No.	Port size: P, A Port	Port size: Port R	Orifice size (mm)	Response time (ms)	Rated voltage	Power consumption (W): DC	Weight (kg)
NVP11-10A	Rc3/8	Rc1/2	14.8 or equiv.	30 or less (*1)	24 VDC	4	0.7
NVP11-15A	Rc1/2						0.7
NVP11-20A	Rc3/4	Rc 1	25.4 or equiv.	60 or less (*1)			1.5
NVP11-25A	Rc 1						1.5
NVP11-32A	Rc1 1/4	Rc 2	41.4 or equiv.	120 or less (*1)		8	4.5
NVP11-40A	Rc1 1/2						4.5
NVP11-50A	Rc 2						4.4

*1: The response times are values with supply pressure of 0.5 MPa, without lubrication, and with the power ON. They depend on the pressure and the lubricant quality.
*2: Use the product within ±10% of the rated voltage.

How to order

NVP1 1 - 15A - 1 2G S - 3 - P4

- Model No.
- A Actuation
- B Port size
- C Body/sealant combination
- D Coil housing *1
- E Other options *2
- F Rated voltage

Precautions for model No. selection

*1: Pg thread of the DIN terminal box is Pg9 for a port size of 10A to 25A and Pg11 for 32A to 50A.
*2: The surge suppressor is mounted in the terminal box when the coil is with terminal box.
*3: Manual override (non-locking) is provided as standard.

Code	Description	
A Actuation		
1	Universal	
B Port size		
10A	Rc 3/8	
15A	Rc 1/2	
20A	Rc 3/4	
25A	Rc 1	
32A	Rc 1 1/4	(Made-to-order product)
40A	Rc 1 1/2	(Made-to-order product)
50A	Rc 2	(Made-to-order product)

C Body/sealant combination	Body	Seal
1	Aluminum	Nitrile rubber

D Coil housing		
2G	Option	DIN terminal box (Pg thread)
2H		DIN terminal box with lamp (Pg thread)

E Other options	
Blank	No option
S	With surge suppressor

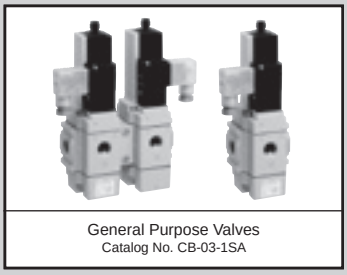
F Rated voltage		
3	Standard	24 VDC

Compatibility table by variation

	NVP11
Port size	Rc3/8 to 2
P4	●

●: Applicable models
○: Semi-applicable models
▲: Contact CKD for details.
▭: Not applicable

*1: Coil option is 2G, 2H, 2GS, 2HS only.
*2: Voltage: 24 VDC only.
*3: Rc1 1/4 to Rc2 is a made-to-order product.



General Purpose Valves
Catalog No. CB-03-1SA

3-port solenoid valve with spool position detection

SNP Series

● Port size: Rc3/8 to 3/4

Spool position detection for reliable open/close detection Module connection also allows double breaker circuit.

Features

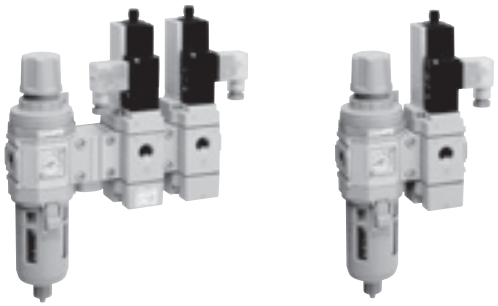
◆Serves as an electromagnetic residual pressure discharge valve in pneumatic systems.

◆Main valve spool with safety type limit switch Signal output of valve open/close is possible by detecting the position.

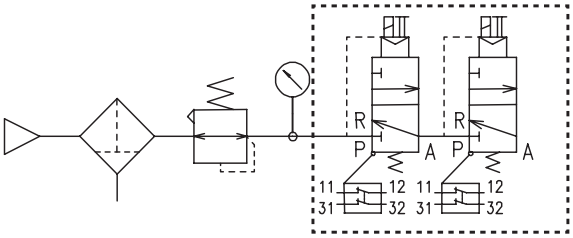
◆Two modules can be connected to configure a double breaker circuit.

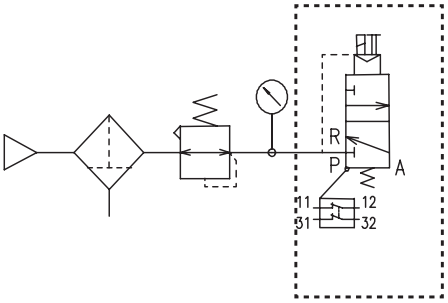
◆Can be modular-integrated into the F.R.L. unit.
Reduces piping space.

Unit configuration example



Example of system circuit





Specifications

Model		SNP		
Port size		Rc3/8	Rc1/2	Rc3/4
Actuation		NC (Normally Closed)		
Fluid pressure supply port		Port P		
Working fluid		Compressed air		
Proof pressure	MPa	1.05		
Working pressure range	MPa	0.2 to 0.7		
Fluid temperature	°C	5 to 60		
Ambient temperature	°C	-5 to 60		
Weight	kg	0.8(1.7) *1		1.8(3.7) *1
Orifice size	mm	14.8 or equiv.		25.4 or equiv.
Valve seat leakage		1 or less (at pneumatic pressure 0.2 to 0.7 MPa)		
Valve structure		Internal pilot balance poppet structure		
Mounting orientation		Unrestricted		

*1: Values in ( ) are the weight for modules
*2: External pilot also supported. Contact CKD for details.

Electrical specifications			
Rated voltage	(*3)	24 VDC	
Power consumption (W)	DC	2.0	
Thermal class		B	
Degree of protection (IEC standards 529		DIN terminal box (Pg 9)	IPX5
		DIN terminal box (M12-4P connector)	

*3: The voltage range must be within ±10% of the rated voltage.
*4: Contact CKD for details on reliability data (B10).

Limit switch specifications

Limit switch specifications		
Manufacturer model	D4N-1B31	D4N-9B31
Terminal	Pg13.5	M12-4P connector
Contact resistance	25 mΩ or less	
Minimum applicable load	5 VDC 1 mA resistance load	
Rated insulation voltage V	300	
Insulation resistance MΩ	100	
Electric shock protection class	Class II	
Pollution degree (working environment)	3 (EN60947-5-1)	
Conditional short-circuit current A	100	

* Refer to the manufacturer's catalog for details.

Flow characteristics

Model No.		P→A		A→R	
		C[dm³/(s·bar)]	S (mm²)	C[dm³/(s·bar)]	S (mm²)
Single unit	SNP-10A	13	64	14	70
	SNP-15A	15	76	16	80
	SNP-20A	34	170	36	180
2 stations	SNP-10A	10	50	14	70
	SNP-15A	12	59	16	80
	SNP-20A	26	130	36	180

SNP Series

How to order

Compatibility table by variation

	SNP
Port size	Rc3/8, 1/2, 3/4
P4	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

How to order

SNP - 1R - 15A - 0 2HS L B3 S2 - 3 - P4

Ⓐ Station No.
Ⓑ Port size
Ⓒ Sealant
Ⓓ Coil option
Ⓔ Limit switch
Ⓕ Bracket *1, *2
Ⓖ Silencer
Ⓗ Voltage

Code	Description
Ⓐ Station No.	
1R	Single unit (terminal box right-facing)
1L	Single unit (terminal box left-facing)
2	2 (2 modules)
Ⓑ Port size	
10A	Rc3/8
15A	Rc1/2
20A	Rc3/4
Ⓒ Sealant	
0	NBR
Ⓓ Coil option	
2 G	DIN terminal box
2HS	DIN terminal box with lamp/surge suppressor
2J	DIN terminal box (M12-4P connector)
2KS	DIN terminal box with lamp/surge suppressor (M12-4P connector)
Ⓔ Limit switch	
L	Pg13.5 (D4N-1B31: OMRON)
M	M12-4P connector (D4N-9B31: OMRON)
Ⓕ Bracket *1	

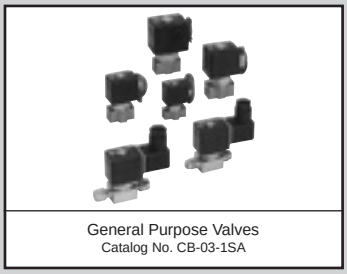
		10 A	15 A	20A
Blank	No option	●	●	●
B3	With bracket (2000 Series, 3000 Series)	●	●	
B4	With bracket (4000 Series)	●	●	
B8	With bracket (8000 Series)			●

Ⓖ Silencer	
Blank	No option
S2	Resin
Ⓗ Voltage	
3	24 VDC

Precautions for model No. selection

*1: The bracket can be selected when Ⓐ Station No. is "2".
*2: The bracket option "B8" can be selected only for 20A.
*3: Silencer is attached to the product.

MEMO



General Purpose Valves
Catalog No. CB-03-1SA

Solenoid valve for high vacuum

HVB$^{2}_{3}_{4}_{5}$12 Series

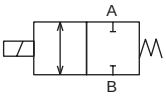
- Orifice: ø1, ø2, ø3, ø4.5, ø6
- NC (Normally Closed)

P4 compliant as standard

CE RoHS CAD

JIS symbol

- NC (Open when energized)



Common specifications

Item	HVB*12
Working fluid	Air/vacuum/inert gas (*1)
Proof pressure MPa	5.0
Fluid temperature °C	5 to 55
Ambient temperature °C	0 to 55 (no freezing)
Thermal class	Class 130 (B)
Voltage fluctuation range	Rated voltage ±10%
Atmosphere	No explosive or corrosive atmospheres
Valve structure	Direct acting poppet structure
Valve seat leakage Pa·m^3/sHe	1.0 x 10^{-9} or less (*2)
External leakage Pa·m^3/sHe	1.0 x 10^{-9} or less
Mounting orientation	Unrestricted
Durability	2 million cycles

Individual specifications

Item / Model No.	Port size (*3)	Orifice size (mm)	CvValue(*5)	Working pressure Pa(abs) (*10)	Max. operation Pressure difference (*6) (MPa)	Back pressure (*7) (MPa)	Rated voltage	Power consumption (W) AC	Power consumption (W) DC	Weight (*9)(kg)
NC (Open when energized)										
HVB212	1/4"JXR male fitting 1/4"Double barbed fitting NPT 1/8,Rc 1/8	1	0.04	1.0 x 10^{-6} to 1.0 x 10^{6}	1.0	0.6	100 VAC 50/60Hz 200 VAC 50/60Hz 24 VDC 12 VDC	4.3	4	0.16
		2	0.17	1.0 x 10^{-6} to 0.3 x 10^{6}	0.3	0.15				
HVB312	1/4"JXR male fitting 1/4"Double barbed fitting NPT 1/8,1/4,Rc 1/8,1/4	2	0.17	1.0 x 10^{-6} to 0.8 x 10^{6}	0.8	0.5		6.5	6	0.29
		3	0.33	1.0 x 10^{-6} to 0.3 x 10^{6}	0.3	0.25				
HVB412	1/4"JXR male fitting 1/4"Double barbed fitting NPT 1/4,Rc 1/4	3	0.33	1.0 x 10^{-6} to 1.0 x 10^{6}	1.0	0.4		8.3	8 (*8)	0.50
		4.5	0.6	1.0 x 10^{-6} to 0.3 x 10^{6}	0.3	0.2				
	3/8"JXR male fitting 3/8"Double barbed fitting NPT 3/8,Rc 3/8	6	1.05	1.0 x 10^{-6} to 0.2 x 10^{6}	0.1	0.05				
HVB512	1/4"JXR male fitting 1/4"Double barbed fitting NPT 1/4,Rc 1/4	4.5	0.6	1.0 x 10^{-6} to 0.8 x 10^{6}	0.8	0.2		11.8	11.5	0.69
	3/8"JXR male fitting 3/8"Double barbed fitting NPT 3/8,Rc 3/8	6	1.05	1.0 x 10^{-6} to 0.3 x 10^{6}	0.3	0.15				

*1: The number of durability times may become much lower depending on the degree of dryness.
*2: Value when port A is on the vacuum side.
*3: JXR fitting can be connected to VCR fitting.
*4: The leakage current must be less than or equal to the values shown below.
*5: Cv shown in the table are values for NPT connection.
*6: The max. working pressure differential is the difference between port B (high-pressure side) and port A (low-pressure side).
*7: Atmospheric pressure at port B that can be applied from port A.
*8: 8.6 (W) for 12 VDC.
*9: Weights shown in the table are for grommet lead wire/NPT connection.
*10: The working pressure vacuum does not guarantee the vacuum attainment time or that the vacuum will not change.
*11: FKM is used for sealant material, so consider the generation of discharge gas during use.
*12: High vacuum grease is used on the O-rings of gas contacting parts.

Leakage current: Voltage / Model No.	100 VAC	200 VAC	24 VDC	12 VDC
HVB*12	2 mA or less	1 mA or less	1 mA or less	2 mA or less

How to order

HVB 2 12 - 4RM - 2 - 2C B - DC24V

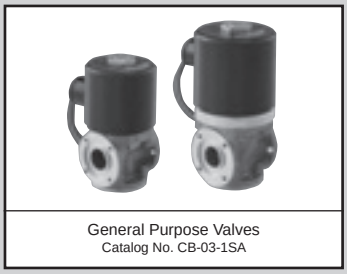
- A Series size(Coil width)
- B Connection
- C Orifice size
- D Coil option
  *1
  *2
- E Other Option
- F Voltage

Code	Description	Model No. HVB212	HVB312	HVB412	HVB512
A Series size					
2	22 mm	●			
3	28 mm		●		
4	34 mm			●	
5	40 mm				●
B Connection (refer to Table 1)					
4RM	1/4"JXR male fitting	●	●	●	●
6RM	3/8"JXR male fitting			●	●
4S	1/4"Double barbed fitting	●	●	●	●
6S	3/8"Double barbed fitting			●	●
6N	NPT 1/8	●	●		
8N	NPT 1/4		●	●	●
10N	NPT 3/8			●	●
6	Rc 1/8	●	●		
8	Rc 1/4		●	●	●
10	Rc 3/8			●	●
C Orifice size (refer to Table 1)					
Z	ø1	●			
2	ø2	●	●		
3	ø3		●	●	
5	ø4.5			●	●
6	ø6			●	●
D Coil option					
For AC					
2CR	Standard: Grommet lead wire/with full-wave rectifier	●	●	●	●
For DC					
2C	Standard: Grommet lead wire	●	●	●	●
2CS	Option: Grommet lead wire with surge suppressor	●	●	●	●
2G	Option: With DIN terminal box (Pg11)	●	●	●	●
2HS	Option: DIN terminal box with lamp With surge suppressor (Pg11)	●	●	●	●
E Other options					
Blank	Standard: No	●	●	●	●
B	Option: Mounting plate	●	●	●	●
F Voltage					
AC100V	100 VAC 50/60Hz	●	●	●	●
AC200V	200 VAC 50/60Hz	●	●	●	●
DC24V	24 VDC	●	●	●	●
DC12V	12 VDC	●	●	●	●

Select from the combinations indicated with ● above.
*1: Surge suppressors are built into the full-wave rectifier locations as standard.
*2: For HVB212 Item D 2G/2HS, the compact terminal box (Pg9) is used.

Table 1: Table of fitting and orifice size combination

	Connection B	Fitting	Size	C Orifice size Z ø1	2 ø2	3 ø3	5 ø4.5	6 ø6
HVB212	4RM	JXR male	1/4"	●	●			
	4S	Double barbed	1/4"	●	●			
	6N	NPT	1/8"	●	●			
	6	Rc	1/8"	●	●			
HVB312	4RM	JXR male	1/4"		●	●		
	4S	Double barbed	1/4"		●	●		
	6N	NPT	1/8"		●	●		
	8N	NPT	1/4"		●	●		
	6	Rc	1/8"		●	●		
	8	Rc	1/4"		●	●		
HVB412	4RM	JXR male	1/4"			●	●	
	6RM	JXR male	3/8"					●
	4S	Double barbed	1/4"			●	●	
	6S	Double barbed	3/8"					●
	8N	NPT	1/4"			●	●	
	10N	NPT	3/8"					●
	8	Rc	1/4"			●	●	
	10	Rc	3/8"					●
HVB512	4RM	JXR male	1/4"				●	
	6RM	JXR male	3/8"					●
	4S	Double barbed	1/4"				●	
	6S	Double barbed	3/8"					●
	8N	NPT	1/4"				●	
	10N	NPT	3/8"					●
	8	Rc	1/4"				●	
	10	Rc	3/8"					●



General Purpose Valves
Catalog No. CB-03-1SA

Solenoid valve for high vacuum

HVB$^{6}_{7}$12 Series

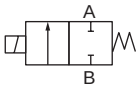
- NC (Open when energized)
- Port size: Flange ø48,ø52

P4 compliant as standard

RoHS

JIS symbol

- NC (open when energized)

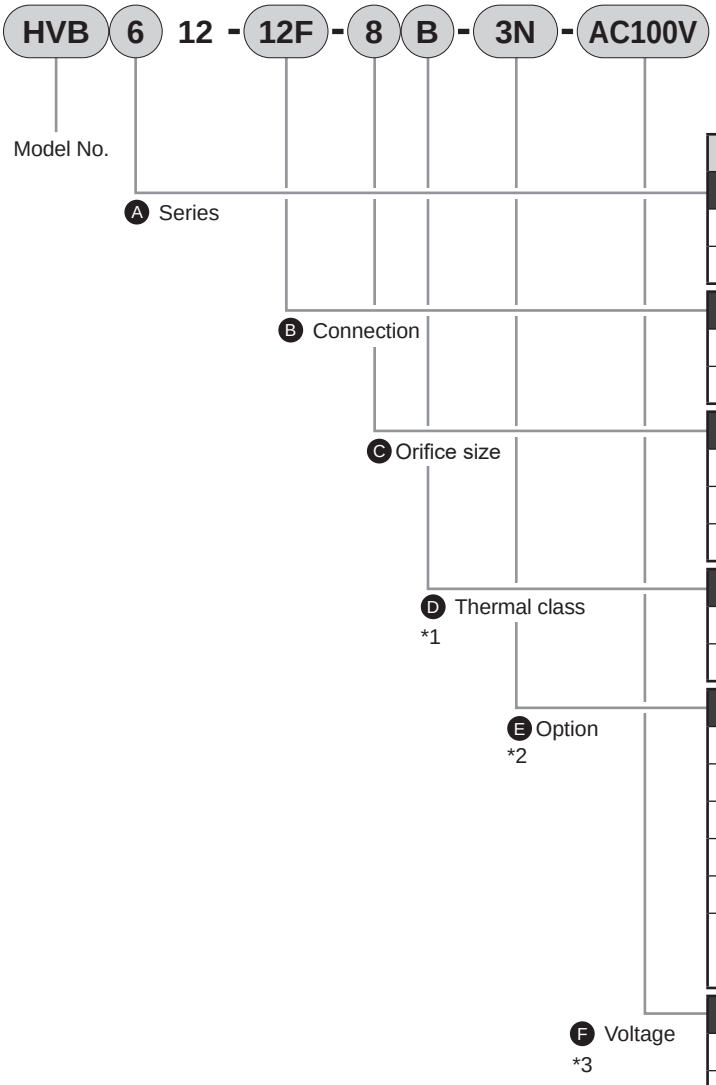


Specifications

Model No.		HVB612-12F			HVB712-15F			
Item		-8 B	-8H	-12 B	-12 B	-12H	-15 B	-15H
Working fluid		Vacuum and inert gas (*1)						
Working pressure PA(abs)		1.3×10^{-6} to 2.0×10^{5}	1.3×10^{-6} to 3.0×10^{5}	1.3×10^{-6} to 1.0×10^{5}	1.3×10^{-6} to 1.5×10^{5}	1.3×10^{-6} to 3.0×10^{5}	1.3×10^{-6} to 1.0×10^{5}	1.3×10^{-6} to 1.0×10^{5}
Max. working pressure differential (*7) MPa		0.2	0.3	0.1	0.15	0.3	0.1	0.1
Orifice size mm		8		12	12		15	
Cv	Straight	1.8		2.7	3.2		4.3	
	L direction	2.1		3.2	3.6		4.7	
Back pressure (*2) MPa		0.1		0.02	0.1		0.02	0.1
Valve seat leakage $Pa \cdot m^3/s$ (He)		1.0×10^{-9} or less (*6)						
External leakage $Pa \cdot m^3/s$ (He)		1.0×10^{-9} or less						
Proof pressure MPa		0.5						
Fluid temperature °C		5 to 55						
Ambient temperature °C		0 to 55						
Frequency cycles/min. or less		10						
Mounting orientation		Unrestricted						
Port size		ø48 flange			ø52 flange			
Weight kg		1.15			2.0			
Electrical specifications								
Rated voltage		100/200 VAC (50/60Hz), 24 VDC						
Voltage fluctuation range		Rated voltage ±10%						
Power consumption W		14.3	28	14.3	19	AC: 32.5 DC: 40	19	AC: 32.5 DC: 40
Thermal class		B	H	B	B	H	B	H
Temperature rise K		75	125	75	75	125	75	125

*1: The number of durability times may become much lower depending on the degree of dryness.
*2: Atmospheric pressure at port B that can be applied from port A. (Reverse vacuum is not possible with HVB612-12F-12B and HVB712-15F-15B.)
*3: Grease for high vacuum is used on the O-rings of gas contacting parts.
*4: The working pressure vacuum does not guarantee the vacuum attainment time or that the vacuum will not change.
*5: FKM is used for sealant material, so consider the generation of discharge gas during use.
*6: Value when port A is on the vacuum side.
*7: The max. working pressure differential is the difference between port B (high-pressure side) and port A (low-pressure side).

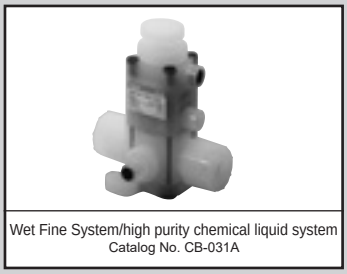
How to order



Code	Description	Model No. HVB612	Model No. HVB712
A Series size			
6	60 mm	●	
7	70 mm		●
B Connection			
12F	Flange ø48	●	
15F	Flange ø52		●
C Orifice size			
8	ø8	●	
12	ø 12	●	●
15	ø 15		●
D Thermal class			
B	Class 130 (B)	●	●
H	Class 180 (H)	●	●
E Option			
Blank	No	●	●
3M	HP terminal box G1/2	●	●
3 N	HP terminal box with lamp G 1/2	●	●
F	With companion flange	●	●
3MF	HP terminal box G1/2 + companion flange	●	●
3NF	HP terminal box with lamp G 1/2 + Companion flange	●	●
F Voltage			
AC100V	100 VAC (50/60 Hz) With full-wave rectifier	●	●
AC200V	200 VAC (50/60 Hz) With full-wave rectifier	●	●
DC24V	24 VDC	●	●

⚠ Precautions for model No. selection

*1: For Item D H, HVB612 with orifice size ø12 is not available.
*2: For 3M/3N/3MF/3NF of Item E with H selected for Item D , AC voltage type is not available.
*3: Surge suppressor is included as standard in the models with full-wave rectifier.



Wet Fine System/high purity chemical liquid system
Catalog No. CB-031A

Air operated valve for chemical liquids

AMD3 *3 R Series

P4 compliant as standard

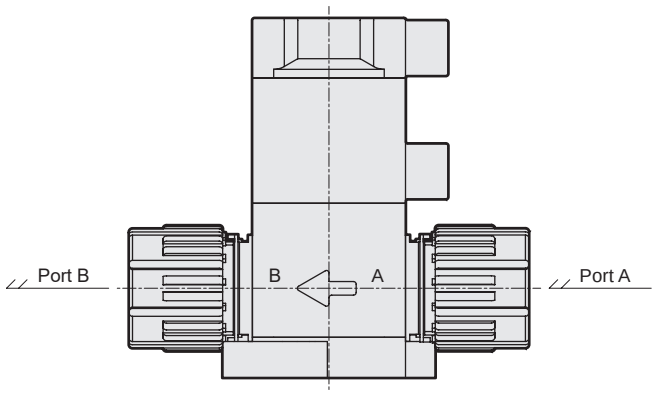
RoHS CAD

Specifications

Item		AMD3*3R				
Body option		N (normal body)			B (body with bypass)	
Working fluid		Chemical liquids, pure water, air, N_2 gas (*1)				
Fluid temperature	°C	5 to 120 (*3, *4)			5 to 90	
Proof pressure	MPa	1.0				
Working pressure (A→B)	MPa	0 to 0.5			Refer to figure below for "Working pressure"	
Working pressure (B→A)	MPa	0 to 0.5			Refer to figure below for "Working pressure"	
Valve seat leakage	cm^3/min	0 (water pressure)				
Back pressure	MPa	0 to 0.5			Refer to figure below for "Working pressure"	
Ambient temperature	°C	0 to 60 (0 to 50 when sensor attached)				
Frequency		30 cycles/min. or less				
Mounting orientation		Unrestricted				
Connection		O.D. ø10/ø12 tube connection (integrated fitting) O.D. 3/8" / 1/2" tube connection (integrated fitting)				
Orifice size		ø6	ø7	ø8	ø9	ø10
Cv		0.7	1	1.25	1.6	1.8
Bypass orifice size		-			ø2.3	
Operating section	Operating pressure MPa	NC/NO: 0.35 to 0.5 Double acting: 0.3 to 0.4				
	Operating port	Rc1/8 (operation ports used NC: port Y NO: port X Double acting: ports X, Y)				
Sensor		Refer to General Purpose Valves (catalog No. CB-03-1SA).				
Weight	kg	0.21			0.23	

*1: Check the compatibility of product structural materials, working fluids and atmosphere. Refer to the compatibility check list described in "General Purpose Valves" (catalog No. CB-03-1SA).
Body with bypass cannot be used for hydrofluoric acid or chemical liquids containing hydrofluoric acid.
*2: Refer to Wet Fine System/High Purity Chemical Liquid System (Catalog No. CB-031A) for flow characteristics.
*3: For hydrofluoric acid or chemical liquids containing hydrofluoric acid, use within the range of 5 to 80°C.
*4: 5 to 100°C if the connection is F-LOCK60 Series fitting.

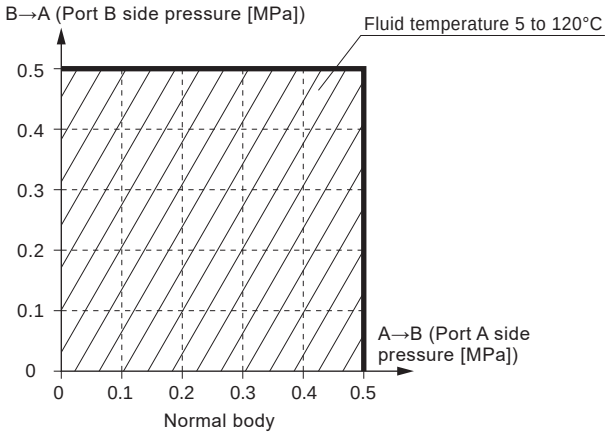
Structure and parts list

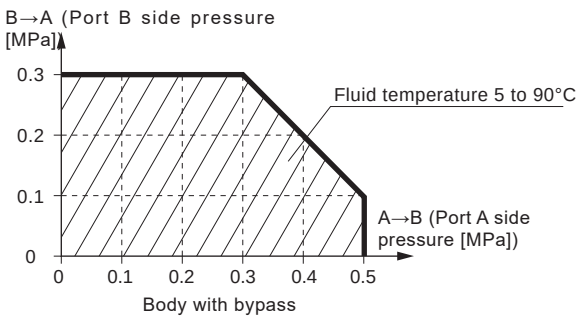


Part name	Material
Actuator	PVDF and others
Diaphragm	PTFE
Body	PFA, PTFE
Mounting plate	PVDF

* Refer to Wet Fine System/High Purity Chemical Liquid System (Catalog No. CB-031A) for specifications of AMDZ*3R, 0*3R, 4*3R, and 5*3R.

Working pressure





How to order

AMD3 (1) 3R - (10UP) - (00) (N) (4) (F)

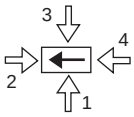
- Model No.
- (A) Actuation
- (B) Connection
- (C) Actuator Option
- (D) Body Option
- (E) Operating port direction
- (F) Mounting method

(A) Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting

(B) Connection (*1)	10UP	10BUP	12UP	15BUP	10UR	10BUR	12UR	15BUR
	Super 300 Pillar fitting P series integrated				F-LOCK 60 Series Integrated fitting			
	ø10xø8Tube connection	3/8"x1/4"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection	ø10xø8Tube connection	3/8"x1/4"Tube connection	ø12xø10Tube connection	1/2"x3/8"Tube connection

Code	Item			Orifice size	ø8		ø10		ø7	ø6	ø9	
(C) Actuator option												
00	ON/OFF only (with indicator)				●	●	●	●	●	●	●	●
10	With flow rate adjustment				●	●	●	●	●	●	●	●
With sensor	Transistor	Cable direction (*2)	Cable length									
A1	NPN	Operating port side	1m		●	●	●	●	●	●	●	●
A3			3m		●	●	●	●	●	●	●	●
B1		Opposite side to operating port	1m		●	●	●	●	●	●	●	●
B3			3m		●	●	●	●	●	●	●	●
C1	PNP	Operating port side	1m		●	●	●	●	●	●	●	●
D1		Opposite side to operating port	1m		●	●	●	●	●	●	●	●

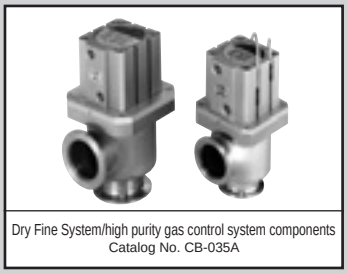
(D) Body option		Body material			
N	Normal body	PFA	PFA	PTFE	PTFE
B	Body with bypass	PTFE	PFA	PTFE	PTFE

(E) Operating port direction (*2)									
4		With valve viewed from above, ← indicates fluid flow in the direction of ⇐ indicates the operating port direction.	●	●	●	●	●	●	●	●
1			●	●	●	●	●	●	●	●
2			●	●	●	●	●	●	●	●
3			●	●	●	●	●	●	●	●

(F) Mounting method (*2)									
F	Flange mounting	●	●	●	●	●	●	●	●
H	4-point flange mounting	●	●	●	●	●	●	●	●
X	Bottom mounting	●	●	●	●	●	●	●	●

Precautions for model No. selection

*1: Made-to-order product if the body material is PTFE.
*2: Refer to external dimensions of Wet Fine System/High Purity Chemical Liquid System (Catalog No. CB-031A) for operating port direction, sensor cable direction, and mounting plate.



Dry Fine System/high purity gas control system components
Catalog No. CB-035A

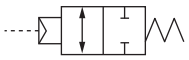
Air operated valve for high vacuum NC

AVB*13 Series

●Molded bellows ●Stainless steel compact body

RoHS CAD

Specifications

Descriptions	AVB513	AVB613	AVB713	AVB813
Working fluid	Vacuum and inert gas			
Working pressure Pa (abs)	1.3×10^{-6} to 1×10^{5}			
Max. working differential pressure MPa	0.1			
Valve seat leakage Pa·m³/s (He)	1.3×10^{-10} or less			
External leakage Pa·m³/s (He)	1.3×10^{-11} or less			
Proof pressure MPa	0.3			
Fluid temperature °C	5 to 60			
Ambient temperature °C	0 to 60 (no freezing)			
Orifice size mm	ø24	ø40	ø50	ø80
Stroke length mm	10	20	22	32
Conductance *1 ℓ/s	13	52	80	242
Connection	NW25	NW40	NW50	NW80
Operating pressure MPa	0.4 to 0.6			
JIS symbol	 NC			

*1: The conductance value is the theoretical calculation value in the molecular region, and not the actual measured value.
*2: Grease for vacuum is applied to the O-rings of outer seal parts.

How to order

AVB 6 1 3 - X ☐

Model No.

Ⓐ Series

Actuation
NC

Code	Content
Ⓐ Series	
5	Orifice size ø24
6	Orifice size ø40
7	Orifice size ø50
8	Orifice size ø80

Precautions for model No. selection

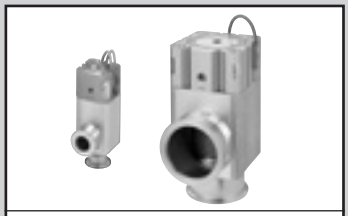
*1:The switch must be ordered separately
*2: Refer to Intro Pages 23 to 26 for switches.
*3: Made to order. Contact CKD Sales for details.

Compatibility table by variation

	AVB**3
Port size	NW25,NW40,NW50,NW80
P4	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

Note: Use after checking the compatibility of the working fluid with the gas-contacting materials.



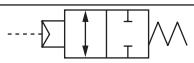
Dry Fine System/high purity gas control system components
Catalog No. CB-035A

For high vacuum Air operated valve NC

AVB*17 Series

●Molded bellows, Aluminum body

Specifications

Item	AVB217	AVB3 17	AVB417	AVB517	AVB617
Working fluid	Vacuum and inert gas				
Working pressure Pa (abs)	1.3×10^{-6} to 1×10^{5}				
Max. working differential pressure MPa	0.1				
Valve seat leakage Pa·m³/s (He)	1.3×10^{-10} or less				
External leakage Pa·m³/s (He)	1.3×10^{-11} or less				
Proof pressure MPa	0.3				
Fluid temperature °C	5 to 60 (5 to 150) *1				
Ambient temperature °C	0 to 60 (no freezing)				
Orifice size mm	ø17	ø24	ø39	ø48	ø68
Conductance *2 ℓ/s	5	13	43	74	166
Connection	NW16	NW25	NW40	NW50	NW63
Operating pressure MPa	0.4 to 0.6				
Weight kg	0.4	0.5	1.2	2.0	3.5
JIS symbol	 NC				

*1: The values in ( ) are for high temperature specifications.
*2: The conductance value is the theoretical calculation value in the molecular region, and not the actual measured value.
*3: Grease for vacuum is applied to the O-rings of outer seal parts.

How to order

AVB 4 17-X

- AVB: Model No.
- 4: Ⓐ Series
- 17: Actuation, NC
- X: Ⓐ Series

Code	Description
Ⓐ Series	
2	Orifice size ø17
3	Orifice size ø24
4	Orifice size ø39
5	Orifice size ø48
6	Orifice size ø68

Precautions for model No. selection

*1: The switch must be ordered separately
*2: Refer to Intro Pages 23 to 26 for switches.
*3: Refer to the CKD Sales for operating port positions and switch mounting positions for details.
*4: Made to order. Contact CKD Sales for details.

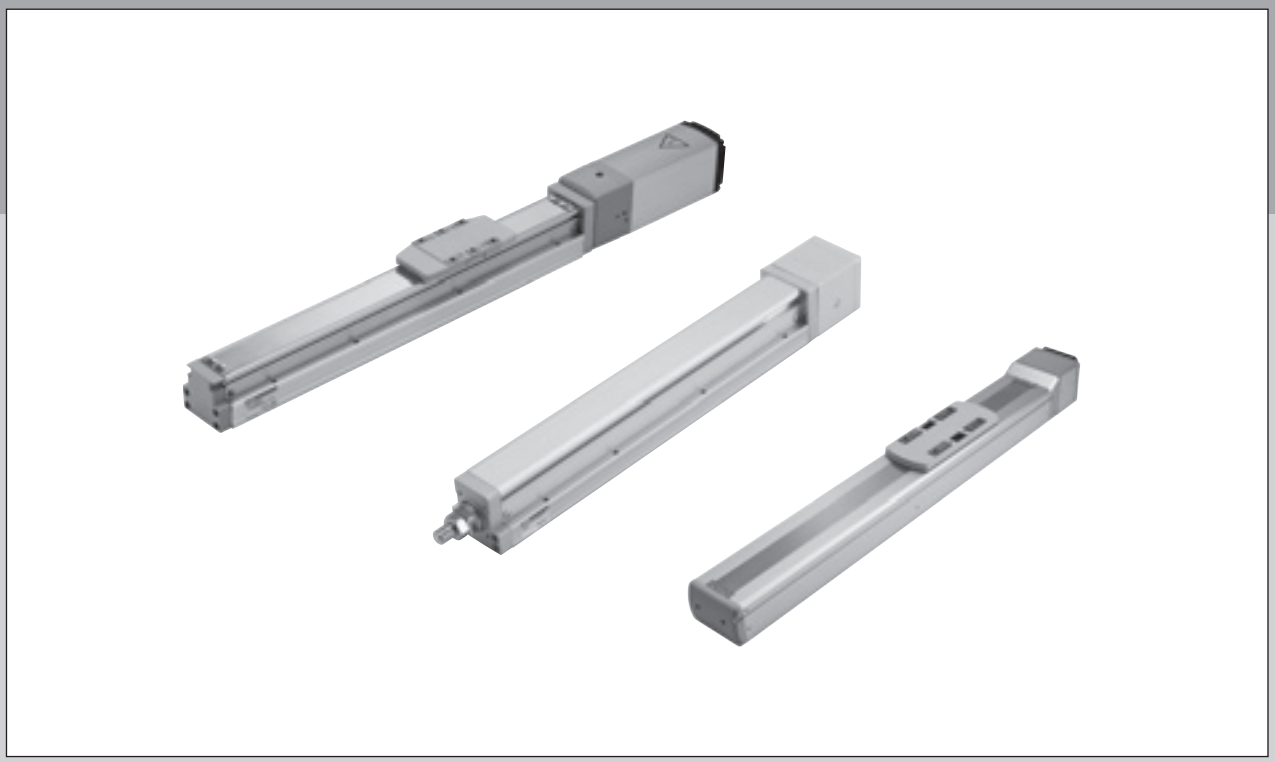
Compatibility table by variation

	AVB**7
Port size	NW16, NW25, NW40, NW50, NW63
P4	▲

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. ▭: Not applicable

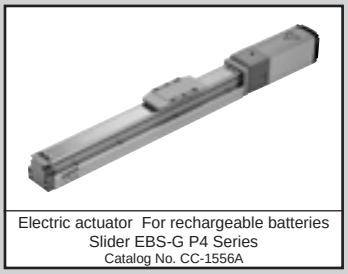
Note: Use after checking the compatibility of the working fluid with the gas-contacting materials.

Electric actuator



CONTENTS

■ Electric actuator Motor specification	EBS-G	622
	EBR-G	624
■ Electric actuator Motorless specification	EBS-L	626
	EBR-L	630
	ETS	634
	ECS	638
	EKS	642



Electric actuator For rechargeable batteries
Slider EBS-G P4 Series
Catalog No. CC-1556A

Electric actuator Stepper motor specification
Slider

EBS-*G* Series

Specifications

Item		EBS-04GE		EBS-04GR/D/L	
Motor		□35. Stepping motor			
Encoder type		Battery-less absolute encoder/ incremental encoder			
Drive method		Ball screw ø10			
Stroke *1 *2	mm	50 to 500			
Screw lead	mm	6	12	6	12
Max.workload *3	kg Horizontal	20	15	20	11.7
	Vertical	9.2	3.3	9.2	3.3
Operation speed range *4	mm/s	7 to 260	15 to 400	7 to 200	15 to 320
Maximum pressing force	N	155	77	155	77
Repeatability	mm	±0.01			
Lost motion	mm	0.1 or less			
Static allowable moment	N·m	MP:62 MY:62 MR:92			
Motor power supply voltage		24 VDC ±10%			
Motor section max. instantaneous current	A	2.4			
Brake current consumption	A	0.4			

Item		EBS-05GE				EBS-05GR/D/L			
Motor		□42. Stepper motor							
Encoder type		Battery-less absolute encoder/incremental encoder							
Drive method		Ball screw ø12							
Stroke *1 *2	mm	50 to 800							
Screw lead	mm	2	5	10	20	2	5	10	20
Max.workload *3	kg Horizontal	45	40	27.5	18.3	45	40	27.5	18.3
	Vertical	18.3	14	7	2.5	18.3	10	3.3	0.8
Operation speed range *4	mm/s	2 to 100	6 to 230	12 to 400	25 to 680	2 to 80	6 to 200	12 to 320	25 to 560
Maximum pressing force	N	550	220	110	55	550	220	110	55
Repeatability	mm	±0.01							
Lost motion	mm	0.1 or less							
Static allowable moment	N·m	MP:103 MY:103 MR:144							
Motor power supply voltage		24 VDC ±10%							
Motor section max. instantaneous current	A	2.7							
Brake current consumption	A	0.4							

Item		EBS-08GE			EBS-08GR/D/L		
Motor		□56. Stepping motor					
Encoder type		Battery-less absolute encoder/incremental encoder					
Drive method		Ball screw ø16					
Stroke *1	mm	50 to 1100					
Screw lead	mm	5	10	20	5	10	20
Max.workload *3	kg Horizontal	80	70	30	80	70	30
	Vertical	43.3	28.3	3.3	33.3	18.3	3.3
Operation speed range *4	mm/s	6 to 120	12 to 200	25 to 400	6 to 100	12 to 200	25 to 320
Maximum pressing force	N	965	482	241	965	482	241
Repeatability	mm	±0.01					
Lost motion	mm	0.1 or less					
Static allowable moment	N·m	MP:203 MY:203 MR:336					
Motor power supply voltage		24 VDC ±10%					
Motor section max. instantaneous current	A	4.0					
Brake current consumption	A	0.4					

*1 Stroke is 50 pitch.
*2 When the motor is left-side wrap (L) with fittings (C), 50 mm Stroke cannot be selected.
*3 Load capacity varies according to acceleration/deceleration and speed.
*4 The maximum speed may decrease depending on the conditions.

Compatibility table by variation

	EBS
P4	●

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

How to order

EBS - 05 G E - 10 0100 N B N - C S03 - U C - P4

Model No. EBS

Code	Description
A Body size	
04	Body width 44mm
05	Body width 54mm
08	Body width 82mm
B Compatible controllers	
G	For ECG
C Motor mounting direction	
E	Standard mounting (straight)
R	Right mounting
D	Bottom mounting
L	Left mounting
D Screw lead	
02	2 mm
05	5 mm
06	6 mm
10	10 mm
12	12 mm
20	20 mm
E Stroke *1	
0050 to 1100	50mm to 1100mm (In 50mm increments)
F Brake *2	
N	Without brake
B	With brake
G Encoder	
B	Battery-less absolute encoder
C	Incremental encoder
H Relay cable	
N00	None
S01	Fixed cable 1 m
S03	Fixed cable 3 m
S05	Fixed cable 5 m
S10	Fixed cable 10 m
R01	Movable cable 1 m
R03	Movable cable 3 m
R05	Movable cable 5 m
R10	Movable cable 10 m
I Anti-rust treatment *3	
N	None
U	Yes
J Fitting	
N	None
C	Yes (Included at shipment)

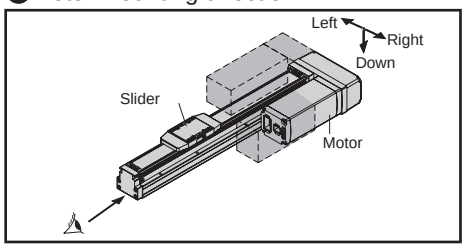
[Example of model No.]

EBS-05GE-100100NBN-CS03-UC-P4

- A Body size: body width 54mm
- B Compatible controller: For ECG
- C Motor mounting method: standard mounting (straight)
- D Screw lead: 10 mm
- E Stroke: 100 mm
- F Brake: Without brake
- G Encoder: Battery-less absolute encoder
- H Relay cable: fixed cable 3 m
- I Anti-rust treatment: with
- J Fitting: Yes (attached at shipment)

*1 For EBS-04 and 05 with fitting (C) for left side motor return (L), 50 mm Stroke cannot be selected.
*2 For vertical use, select "Yes".
*3 Positioning pin holes may not be surface treated.

C Motor mounting direction



[Applicable controller]

Refer to "Electric Actuator rechargeable battery compatible Controller ECG Series (Catalog No.CC-1556A)" for details.

ECG-ANNN30 - NP A 02

A Interface specifications	
NP	Parallel I/O (common to NPN and PNP)
LK	IO-Link
CL	CC-Link
EC	EtherCAT
EN	EtherNet/IP

B Mounting method	
A	Standard mount
D	DIN rail mount

C IO cable length *1	
00	None
02	2m
03	3m
05	5m
10	10m

*1 Select "None" unless the interface specification "parallel I/O" is selected.

● Motor cable (fixed/movable)

* An actuator type is also available.

EA-CBLM3 - S 01

A Cable type	
S	Fixed cable
R	Movable cable

B Cable length	
01	1m
03	3m
05	5m
10	10m

● Encoder cable (fixed/movable)

* An actuator type is also available.

EA-CBLE3 - S 01

A Cable type	
S	Fixed cable
R	Movable cable

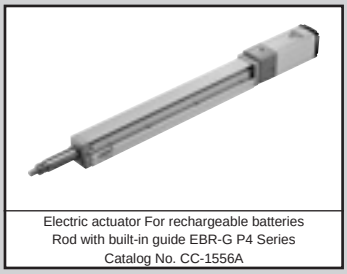
B Cable length	
01	1m
03	3m
05	5m
10	10m

● I/O cable

* Parallel I/O specification controller also available

EA-CBLNP2 - 02

A Cable length	
02	2m
03	3m
05	5m
10	10m



Electric actuator For rechargeable batteries
Rod with built-in guide EBR-G P4 Series
Catalog No. CC-1556A

Electric actuator Stepper motor specification
Rod with built-in guide

EBR-*G* Series

Specifications

Item			EBR-04GE		EBR-04GR/D/L	
Motor			□35. Stepping motor			
Encoder type			Battery-less absolute encoder/ incremental encoder			
Drive method			Ball screw ø10			
Stroke *1 *2	mm		50 to 400			
Screw lead	mm		6	12	6	12
Max.workload *3	kg	Horizontal	40	12.5	40	12.5
		Vertical	10	2.9	8.3	2.9
Operation speed range *4	mm/s		7 to 160	15 to 320	7 to 160	15 to 280
Maximum pressing force	N		155	77	155	77
Repeatability	mm		±0.01			
Lost motion	mm		0.1 or less			
Motor power supply voltage			24 VDC ±10%			
Motor section max. instantaneous current	A		2.4			
Brake current consumption	A		0.4			

Item			EBR-05GE				EBR-05GR/D/L			
Motor			□42. Stepper motor							
Encoder type			Battery-less absolute encoder/incremental encoder							
Drive method	mm		Ball screw ø12							
Stroke *1 *2	mm		50 to 400							
Screw lead	mm		2	5	10	20	2	5	10	20
Max.workload *3	kg	Horizontal	80	60	41.7	11.7	80	60	38.3	11.7
		Vertical	23.3	14	7	2.9	23.3	14	6.7	1.7
Operation speed range *4	mm/s		2 to 70	6 to 240	12 to 400	25 to 560	2 to 70	6 to 200	12 to 320	25 to 480
Maximum pressing force	N		550	220	110	55	550	220	110	55
Repeatability	mm		±0.01							
Lost motion	mm		0.1 or less							
Motor power supply voltage			24 VDC ±10%							
Motor section max. instantaneous current	A		2.7							
Brake current consumption	A		0.4							

Item			EBR-08GE			EBR-08GR/D/L		
Motor			□56. Stepping motor					
Encoder type			Battery-less absolute encoder/incremental encoder					
Drive method	mm		Ball screw ø16					
Stroke *1	mm		50 to 700					
Screw lead	mm		5	10	20	5	10	20
Max.workload *3	kg	Horizontal	80	70	35	80	70	35
		Vertical	55	23.3	10	55	20	8.3
Operation speed range *4	mm/s		6 to 100	12 to 240	25 to 400	6 to 100	12 to 200	25 to 320
Maximum pressing force	N		965	482	241	965	482	241
Repeatability	mm		±0.01					
Lost motion	mm		0.1 or less					
Motor power supply voltage			24 VDC ±10%					
Motor section max. instantaneous current	A		4.0					
Brake current consumption	A		0.4					

*1 Stroke is 50 pitch.
*2 For right (R) motor with fitting (C), 50 mm Stroke cannot be selected.
*3 Load capacity varies according to acceleration/deceleration and speed.
*4 The maximum speed may decrease depending on the conditions.

Compatibility table by variation

	EBR
P4	●

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

How to order

EBR - 05 G E - 00 - 10 0100 N B N - C S03 - C - P4

Model No. | A Body size | B Compatible controllers | C Motor mounting direction | D Mounting | E Screw lead | F Stroke | G Brake | H Encoder | I Relay cable | J Fitting

Code	Description
A Body size	
04	Body width 44mm
05	Body width 54mm
08	Body width 82mm
B Compatible controllers	
G	For ECG
C Motor mounting direction	
E	Standard mounting (straight)
R	Right mounting
D	Bottom mounting
L	Left mounting
D Mounting	
00	Basic
FA	Rod side flange
E Screw lead	
02	2 mm
05	5 mm
06	6 mm
10	10 mm
12	12 mm
20	20 mm
F Stroke	*1
0050 to 1100	50mm to 1100mm (In 50 mm increments)
G Brake	*2
N	Without brake
B	With brake
H Encoder	
B	Battery-less absolute encoder
C	Incremental encoder
I Relay cable	
N00	None
S01	Fixed cable 1 m
S03	Fixed cable 3 m
S05	Fixed cable 5 m
S10	Fixed cable 10 m
R01	Movable cable 1 m
R03	Movable cable 3 m
R05	Movable cable 5 m
R10	Movable cable 10 m
J Fitting	
N	None
C	Yes (Included at shipment)

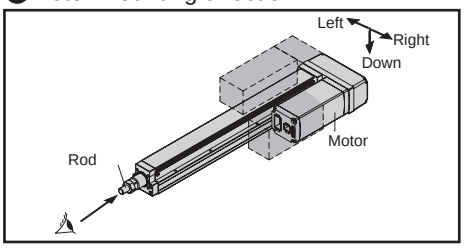
[Example of model No.]

EBR-05GE-00-100100NBN-CS03-C-P4

- A Body size: body width 54mm
- B Compatible controller: For ECG
- C Motor mounting method: standard mounting (straight)
- D Mounting: Basic
- E Screw lead: 10 mm
- F Stroke: 100 mm
- G Brake: Without brake
- H Encoder: Battery-less absolute encoder
- I Relay cable: fixed cable 3 m
- J Fitting: Yes (attached at shipment)

*1 For EBR-04 and 05 with fitting (C) for left side motor return (R), 50 mm Stroke cannot be selected.
*2 For vertical use, select "Yes".

C Motor mounting direction



[Applicable controller]

Refer to "Electric Actuator rechargeable battery compatible Controller ECG Series (Catalog No.CC-1556A)" for details.

ECG-ANNN30 - NP A 02

A Interface specifications	
NP	Parallel I/O (common to NPN and PNP)
LK	IO-Link
CL	CC-Link
EC	EtherCAT
EN	EtherNet/IP

B Mounting method	
A	Standard mount
D	DIN rail mount

C IO cable length	*1
00	None
02	2m
03	3m
05	5m
10	10m

*1 Select "None" unless the interface specification "parallel I/O" is selected.

● Motor cable (fixed/movable)

* An actuator type is also available.

EA-CBLM3 - S 01

A Cable type	
S	Fixed cable
R	Movable cable

B Cable length	
01	1m
03	3m
05	5m
10	10m

● Encoder cable (fixed/movable)

* An actuator type is also available.

EA-CBLE3 - S 01

A Cable type	
S	Fixed cable
R	Movable cable

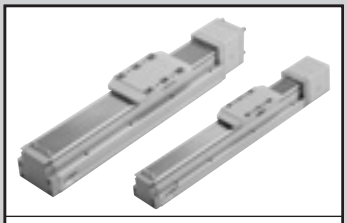
B Cable length	
01	1m
03	3m
05	5m
10	10m

● I/O cable

* Parallel I/O specification controller also available

EA-CBLNP2 - 02

A Cable length	
02	2m
03	3m
05	5m
10	10m



Electric Actuator Motorless General Catalog
Catalog No. CB-055A

Servo motor compatible electric actuator Motorless specification
Slider (standard model)

EBS-*L* Series

● Applicable motor size: 50W/100W/200W servo motor

RoHS CAD

Specifications

Item			EBS-04LE/R/D/L	
Applicable motor sizes			50 W servo motor	
Drive method			Ball screw ø10	
Stroke *1	mm		50 to 500	
Screw lead	mm		6	12
Max.workload *2	kg	Horizontal	20	12
		Vertical	5	2
Max. speed	mm/s		300	600
Rated thrust *2	N		141	71
Repeatability	mm		±0.01	
Lost motion	mm		0.1 or less	
Static allowable load	N		1030	
Static allowable moment	N·m		MP:62 MY:62 MR:92	

Item			EBS-05LE/R/D/L			
Applicable motor sizes			100 W servo motor			
Drive method			Ball screw ø12			
Stroke *1	mm		50 to 800			
Screw lead	mm		2	5	10	20
Max.workload *2	kg	Horizontal	30	30	15	10
		Vertical	10	10	5	2.5
Max. speed	mm/s		100	250	500	1000
Rated thrust *2	N		854	341	170	85
Repeatability	mm		±0.01			
Lost motion	mm		0.1 or less			
Static allowable load	N		1168			
Static allowable moment	N·m		MP:103 MY:103 MR:144			

Item			EBS-08LE/R/D/L		
Applicable motor sizes			200 W servo motor		
Drive method			Ball screw ø16		
Stroke *1	mm		50 to 1100		
Screw lead	mm		5	10	20
Max.workload *2	kg	Horizontal	50	30	12
		Vertical	15	8	2.5
Max. speed	mm/s		250	500	1000
Rated thrust *2	N		683	341	174
Repeatability	mm		±0.01		
Lost motion	mm		0.1 or less		
Static allowable load	N		2781		
Static allowable moment	N·m		MP:203 MY:203 MR:336		

Compatibility table by variation

	EBS
P4	●

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

*1 Stroke is 50 pitch.
*2 Rated thrust and maximum load capacity are guideline values, assuming that the motor mounted will output the rated torque.
*3 When wall-mounted, the load capacity is the same as when installed horizontally.

How to order

EBS - 05 L E - 02 0300 N NN - M 1 N N - N - P4

Model No.

Ⓐ Body size

Ⓑ Motor

Ⓒ Motor mounting direction

Ⓓ Screw lead

Ⓔ Stroke

Ⓕ Brake

Ⓖ Mounted motor specification

Ⓗ Motor size

Ⓘ Origin sensor

Ⓙ Limit sensor

Ⓚ Anti-rust treatment

Code	Description
Ⓐ Body size	
04	Body width 44mm
05	Body width 54mm
08	Body width 82mm
Ⓑ Motor	
L	None
Ⓒ Motor mounting direction	
E	Straight mounting
R	Right mounting
D	Bottom mounting
L	Left mounting
Ⓓ Screw lead	
02	2 mm
05	5 mm
06	6 mm
10	10 mm
12	12 mm
20	20 mm
Ⓔ Stroke	
0050 to 1100	50 mm (In 50 mm increments) 1100 mm
Ⓕ Brake	
N	None
Ⓖ Mounted motor specification	
M, Y, P, F	Select the mounted motor specification from the table below.
Ⓗ Motor size	
H	50 W (Body size: 04)
1	100 W (body size: 05)
2	200 W (body size: 08)
Ⓘ Origin sensor (1 pc) *1	
N	None
C	Yes (Attached at shipment)
Ⓙ Limit sensor (2 pcs) *1	
N	None
B	Yes (Attached at shipment)
Ⓚ Anti-rust treatment *2	
N	None
U	Yes

[Example of model No.]

EBS-05LE-020300NNN-M1NN-N-P4

- Ⓐ Body size: body width 54mm
- Ⓑ Motor: none
- Ⓒ Motor mounting direction: Straight
- Ⓓ Screw lead: 2 mm
- Ⓔ Stroke: 300 mm
- Ⓕ Brake: None
- Ⓖ Mounted motor specifications: Manufactured by Mitsubishi Electric Co., Ltd.
- Ⓗ Motor size: 100 W
- Ⓘ Origin sensor: none
- Ⓙ Limit sensor: none
- Ⓚ Anti-rust treatment: none

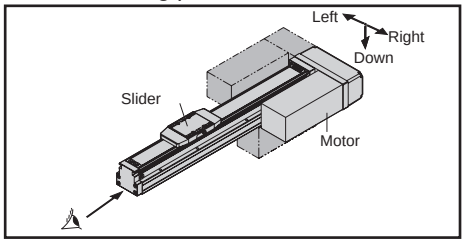
*1 Origin sensor and limit sensor are available as a set. As it is both-or-nothing, when either is "None", select "None" for both.

*2 Positioning pin holes may not be surface treated.

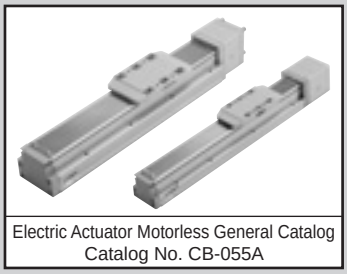
Ⓖ Mounted motor specification

Manufacturer	50W	100W	200W
Mitsubishi Electric Corporation	M	M	M
Delta Electronics Co., Ltd.	M	M	M
Sanyo Denki Co., Ltd.	M	M	M
YASKAWA Electric Corporation	Y	Y	Y
Keyence Corporation	Y	Y	Y
Panasonic Corporation	P	P	P
OMRON Corporation	M	M	P
Fuji Electric Co., Ltd.	M	M	M
FANUC CORPORATION	F	F	F
Bosch Rexroth Corporation	P	P	P
Rockwell Automation, Inc.	M	M	M
SIEMENS AG	M	M	M

Motor mounting position



For the motor list, dimensions and model selection recommended for mounting, refer to EBS-L Series servo motor compatibility in "Electric Actuator Motorless (CB-055A)".



Electric Actuator Motorless General Catalog
Catalog No. CB-055A

Stepper motor compatible electric actuator Motorless specifications
Slider (standard model)

EBS-*L* Series

● Applicable motor sizes: □42, □56, □60 Stepping motor

RoHS CAD

Specifications

Item			EBS-04LE/R/D/L	
Applicable motor sizes			□42. Stepper motor	
Drive method			Ball screw ø10	
Stroke *1	mm		50 to 500	
Screw lead	mm		6	12
Max.workload *2	kg	Horizontal	20	12
		Vertical	5	2
Max. speed *3	mm/s		300	600
Rated thrust *2	N		141	71
Repeatability	mm		±0.01	
Lost motion	mm		0.1 or less	
Static allowable load	N		1030	
Static allowable moment	N·m		MP:62 MY:62 MR:92	

Item			EBS-05LE/R/D/L			
Applicable motor sizes			□42. Stepper motor			
Drive method			Ball screw ø12			
Stroke *1	mm		50 to 800			
Screw lead	mm		2	5	10	20
Max.workload *2	kg	Horizontal	30	30	15	10
		Vertical	10	10	5	2.5
Max. speed *3	mm/s		100	250	500	1000
Rated thrust *2	N		854	341	170	85
Repeatability	mm		±0.01			
Lost motion	mm		0.1 or less			
Static allowable load	N		1168			
Static allowable moment	N·m		MP:103 MY:103 MR:144			

Item			EBS-08LE/R/D/L		
Applicable motor sizes			□56, □60 Stepping motor		
Drive method			Ball screw ø16		
Stroke *1	mm		50 to 1100		
Screw lead	mm		5	10	20
Max.workload *2	kg	Horizontal	50	30	12
		Vertical	15	8	2.5
Max. speed *3	mm/s		250	500	1000
Rated thrust *2	N		683	341	174
Repeatability	mm		±0.01		
Lost motion	mm		0.1 or less		
Static allowable load	N		2781		
Static allowable moment	N·m		MP:203 MY:203 MR:336		

Compatibility table by variation

	EBS
P4	●

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

*1 Stroke is 50 pitch.
*2 The rated thrust and maximum load capacity are the allowable values of the actuator body. The actual thrust and load capacity may be limited by the motor used.
*3 The max. speed is the speed when the motor mounted by the customer can output a rotation speed of 3000rpm.
*4 When wall-mounted, the load capacity is the same as when installed horizontally.

How to order

EBS - 05 L E - 02 0300 N NN - A A N N - N - P4

Model No. EBS

Code	Description
Ⓐ Body size	
04	Body width 44mm
05	Body width 54mm
08	Body width 82mm
Ⓑ Motor	
L	None
Ⓒ Motor mounting direction	
E	Straight mounting
R	Right mounting
D	Bottom mounting
L	Left mounting
Ⓓ Screw lead	
02	2 mm
05	5 mm
06	6 mm
10	10 mm
12	12 mm
20	20 mm
Ⓔ Stroke	
0050 to 1100	50 mm (In 50 mm increments) 1100 mm
Ⓕ Brake	
N	None
Ⓖ Mounted motor specification	
A, B, C	Select the mounted motor specification from the table below.
Ⓗ Motor size	
A	□42 (body size: 04, 05)
B	□56(Body size: 08)
C	□60 (Body size: 08)
Ⓘ Origin sensor (1 pc) *1	
N	None
C	Yes (Attached at shipment)
Ⓙ Limit sensor (2 pcs) *1	
N	None
B	Yes (Attached at shipment)
Ⓚ Anti-rust treatment *2	
N	None
U	Yes

[Example of model No.]

EBS-05LE-020300NNN-AANN-N-P4

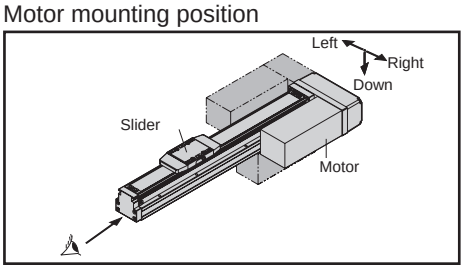
- Ⓐ Body size: body width 54mm
- Ⓑ Motor: none
- Ⓒ Motor mounting direction: Straight
- Ⓓ Screw lead: 2 mm
- Ⓔ Stroke: 300 mm
- Ⓕ Brake: None
- Ⓖ Mounted motor specification: Oriental Motor Co., Ltd.
- Ⓗ Motor size:□42
- Ⓘ Origin sensor: none
- Ⓙ Limit sensor: none
- Ⓚ Anti-rust treatment: none

*1 Origin sensor and limit sensor are a set. As it is both-or-nothing, when either is "None", select "None" for both.
*2 Positioning pin holes may not be surface treated.

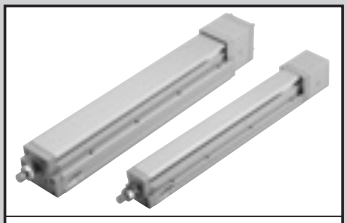
Ⓖ Mounted motor specification

Manufacturer	□42	□56	□60
Oriental Motor Co., Ltd.	A	-	A
MinebeaMitsumi Incorporated	B	B	-
Dyadic Systems Co.,Ltd.	B	C	-

Motor mounting position



For the motor list, Dimensions and model selection recommended for mounting, refer to EBS-L Series stepping motor support in "Electric Actuator Motorless (CB-055A)".



Electric Actuator Motorless General Catalog
Catalog No. CB-055A

Servo motor compatible electric actuator Motorless specification
Rod with built-in guide

EBR-*L* Series

● Applicable motor size: 50W/100W/200W servo motor

Specifications

Item			EBR-04LE/R/D/L	
Applicable motor sizes			50 W servo motor	
Drive method			Ball screw ø10	
Stroke *1	mm		50 to 400	
Screw lead	mm		6	12
Max.workload *2	kg	Horizontal	20	12
		Vertical	5	2
Max. speed	mm/s		300	600
Rated thrust *2	N		141	71
Repeatability	mm		±0.01	
Lost motion	mm		0.1 or less	

Item			EBR-05LE/R/D/L			
Applicable motor sizes			100 W servo motor			
Drive method			Ball screw ø12			
Stroke *1	mm		50 to 400			
Screw lead	mm		2	5	10	20
Max.workload *2	kg	Horizontal	30	30	15	10
		Vertical	10	10	5	2.5
Max. speed	mm/s		100	250	500	1000
Rated thrust *2	N		854	341	170	85
Repeatability	mm		±0.01			
Lost motion	mm		0.1 or less			

Item			EBR-08LE/R/D/L		
Applicable motor sizes			200 W servo motor		
Drive method			Ball screw ø16		
Stroke *1	mm		50 to 700		
Screw lead	mm		5	10	20
Max.workload *2	kg	Horizontal	50	30	12
		Vertical	15	8	2.5
Max. speed	mm/s		250	500	1000
Rated thrust *2	N		683	341	174
Repeatability	mm		±0.01		
Lost motion	mm		0.1 or less		

Compatibility table by variation

	EBR
P4	●

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

*1 Stroke is 50 pitch.
*2 When wall-mounted, the load capacity is the same as when installed horizontally.
*3 Rated thrust and maximum load capacity are guideline values, assuming that the motor mounted will output the rated torque.

How to order

EBR - 05 L E - 00 - 02 0050 N NN - M 1 N N - P4

Model No. EBR

Ⓐ Body size

Ⓑ Motor

Ⓒ Motor mounting direction

Ⓓ Screw lead

Ⓔ Stroke

Ⓕ Brake

Ⓖ Mounted motor specification

Ⓗ Motor size

Ⓘ Origin sensor

Ⓙ Limit sensor

Code	Description
Ⓐ Body size	
04	Body width 44mm
05	Body width 54mm
08	Body width 82mm
Ⓑ Motor	
L	None
Ⓒ Motor mounting direction	
E	Straight mounting
R	Right mounting
D	Bottom mounting
L	Left mounting
Ⓓ Screw lead	
02	2 mm
05	5 mm
06	6 mm
10	10 mm
12	12 mm
20	20 mm
Ⓔ Stroke	
0050 to 0700	50 mm (In 50 mm increments) 700 mm
Ⓕ Brake	
N	None
Ⓖ Mounted motor specification	
M, Y, P, F	Select the mounted motor specification from the table below.
Ⓗ Motor size	
H	50 W (Body size: 04)
1	100 W (body size: 05)
2	200 W (body size: 08)
Ⓘ Origin sensor (1 pc)	*1
N	None
C	Yes (Attached at shipment)
Ⓙ Limit sensor (2 pcs)	*1
N	None
B	Yes (Attached at shipment)

[Example of model No.]

EBR-05LE-00-020050NNN-M1NN-P4

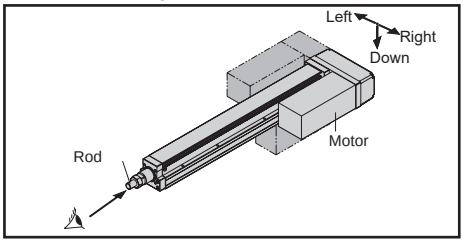
- Ⓐ Body size: body width 54mm
- Ⓑ Motor: none
- Ⓒ Motor mounting direction: Straight
- Ⓓ Screw lead: 2 mm
- Ⓔ Stroke: 50 mm
- Ⓕ Brake: None
- Ⓖ Mounted motor specifications: Manufactured by Mitsubishi Electric Co., Ltd.
- Ⓗ Motor size: 100 W
- Ⓘ Origin sensor: none
- Ⓙ Limit sensor: none

*1 Origin sensor and limit sensor are available as a set. As it is both-or-nothing, when either is "None", select "None" for both.

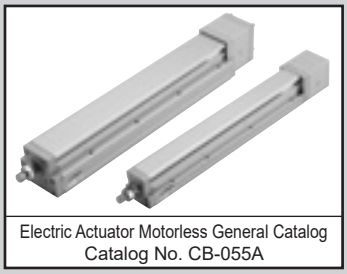
Ⓖ Mounted motor specification

Manufacturer	50W	100W	200W
Mitsubishi Electric Corporation	M	M	M
Delta Electronics Co., Ltd.	M	M	M
Sanyo Denki Co., Ltd.	M	M	M
YASKAWA Electric Corporation	Y	Y	Y
Keyence Corporation	Y	Y	Y
Panasonic Corporation	P	P	P
OMRON Corporation	M	M	P
Fuji Electric Co., Ltd.	M	M	M
FANUC CORPORATION	F	F	F
Bosch Rexroth Corporation	P	P	P
Rockwell Automation, Inc.	M	M	M
SIEMENS AG	M	M	M

Motor mounting position



For the motor list, Dimensions and model selection recommended for mounting, refer to EBR-L Series servo motor compatibility in "Electric Actuator Motorless (CB-055A)".



Electric Actuator Motorless General Catalog
Catalog No. CB-055A

Electric actuator Stepper motor compatible motorless specifications
Rod with built-in guide

EBR-*L* Series

● Applicable motor sizes: □42, □56, □60 Stepping motor

RoHS CAD

Specifications

Item			EBR-04LE/R/D/L	
Applicable motor sizes			□ 42 Stepper motor	
Drive method			Ball screw ø10	
Stroke *1	mm		50 to 400	
Screw lead	mm		6	12
Max.workload *2	kg	Horizontal	20	12
		Vertical	5	2
Max. speed *3	mm/s		300	600
Rated thrust *2	N		141	71
Repeatability	mm		±0.01	
Lost motion	mm		0.1 or less	

Item			EBR-05LE/R/D/L			
Applicable motor sizes			□ 42 Stepper motor			
Drive method			Ball screw ø12			
Stroke *1	mm		50 to 400			
Screw lead	mm		2	5	10	20
Max.workload *2	kg	Horizontal	30	30	15	10
		Vertical	10	10	5	2.5
Max. speed *3	mm/s		100	250	500	1000
Rated thrust *2	N		854	341	170	85
Repeatability	mm		±0.01			
Lost motion	mm		0.1 or less			

Item			EBR-08LE/R/D/L		
Applicable motor sizes			□ 56, □ 60 Stepping motor		
Drive method			Ball screw ø16		
Stroke *1	mm		50 to 700		
Screw lead	mm		5	10	20
Max.workload *2	kg	Horizontal	50	30	12
		Vertical	15	8	2.5
Max. speed *3	mm/s		250	500	1000
Rated thrust *2	N		683	341	174
Repeatability	mm		±0.01		
Lost motion	mm		0.1 or less		

Compatibility table by variation

	EBR
P4	●

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

*1: Stroke is 50 pitch.
*2: The rated thrust and maximum load capacity are the allowable values of the actuator body. The actual thrust and load capacity may be limited by the motor used.
*3: The max. speed is the speed when the motor mounted by the customer can output a rotation speed of 3000rpm.
*4: When wall-mounted, the load capacity is the same as when installed horizontally.

How to order

EBR - 05 L E - 00 - 02 0050 N NN - A A N N - P4

Model No. EBR

Ⓐ Body size

Code	Description
Ⓐ Body size	
04	Body width 44mm
05	Body width 54mm
08	Body width 82mm

Ⓑ Motor

Code	Description
Ⓑ Motor	
L	None

Ⓒ Motor mounting direction

Code	Description
Ⓒ Motor mounting direction	
E	Straight mounting
R	Right mounting
D	Bottom mounting
L	Left mounting

Ⓓ Screw lead

Code	Description
Ⓓ Screw lead	
02	2 mm
05	5 mm
06	6 mm
10	10 mm
12	12 mm
20	20 mm

Ⓔ Stroke

Code	Description
Ⓔ Stroke	
0050 to 0700	50 mm (In 50 mm increments) 700 mm

Ⓕ Brake

Code	Description
Ⓕ Brake	
N	None

Ⓖ Mounted motor specification

Code	Description
Ⓖ Mounted motor specification	
A	Select the mounted motor specification from the table below.
B	
C	

Ⓗ Motor size

Code	Description
Ⓗ Motor size	
A	□42 (body size: 04, 05)
B	□56 (body size: 08)
C	□60 (body size: 08)

Ⓘ Origin sensor

Code	Description
Ⓘ Origin sensor (1 pc)	*1
N	None
C	Yes (Attached at shipment)

Ⓙ Limit sensor

Code	Description
Ⓙ Limit sensor (2 pcs)	*1
N	None
B	Yes (Attached at shipment)

[Example of model No.]

EBR-05LE-00-020050NNN-AANN-P4

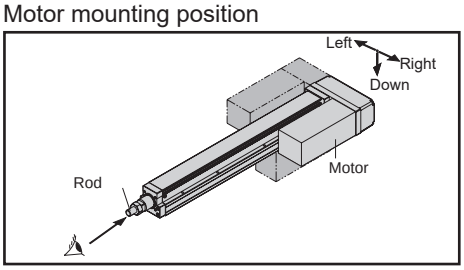
- Ⓐ Body size: body width 54mm
- Ⓑ Motor: none
- Ⓒ Motor mounting direction: Straight
- Ⓓ Screw lead: 2 mm
- Ⓔ Stroke: 50 mm
- Ⓕ Brake: None
- Ⓖ Mounted motor specification: Oriental Motor Co., Ltd.
- Ⓗ Motor size: □42
- Ⓘ Origin sensor: none
- Ⓙ Limit sensor: none

*1 Origin sensor and limit sensor are a set. As it is both-or-nothing, when either is "None", select "None" for both.

Ⓖ Mounted motor specification

Manufacturer	□42	□56	□60
Oriental Motor Co., Ltd.	A	-	A
MinebeaMitsumi Incorporated	B	B	-
Dyadic Systems Co.,Ltd.	B	C	-

Motor mounting position



For the motor list, dimensions and model selection recommended for mounting, refer to EBR-L Series stepping motor support in "Electric Actuator Motorless (CB-055A)".

Discontinued some variations



Electric Actuator Motorless General Catalog
Catalog No. CB-055A

Servo motor compatible electric actuator Motorless specification
Slider type (ball screw drive)

ETS Series

● Applicable motor size: 100W/200W/400W/750W servo motor

Sales of ETS-05 to ETS-12 will be terminated.

RoHS CAD

Specifications

Item			ETS-05-E/R/D/L			ETS-06-E/R/D/L		
Applicable motor sizes			100 W servo motor					
Drive method			Ball screw ø12					
Ball screw accuracy grade			C7					
Stroke *1		mm	50 to 800					
Screw lead		mm	2	5	10	2	5	10
Max.workload *2	Horizontal	kg	10	10	5	30	30	15
	Vertical	kg	7	3	1.5	15	10	5
Max. speed		mm/s	100	250	500	100	250	500
Rated thrust *2		N	854	341	170	854	341	170
Repeatability		mm	±0.01					
Lost motion		mm	0.1 or less					
Dynamic allowable load		N	551			1209		
Static allowable moment		N·m	MP:20 MY:16 MR:19			MP:80 MY:70 MR:75		
Dynamic allowable moment		N·m	MP:2.8 MY:2.8 MR:6.8			MP:8.9 MY:8.9 MR:24.8		

Item			ETS-10-E/B/R/D/L				ETS-12-E/B/R/D/L			
Applicable motor sizes			100 W/200W servo motor							
Drive method			Ball screw ø16							
Ball screw accuracy grade			C7							
Stroke *1		mm	50 to 1050							
Screw lead		mm	5	10	16	20	5	10	16	20
Max.workload *2	Horizontal	kg	50	30	22	18	50	30	22	18
	Vertical	kg	12	8	5	3	12	8	5	3
Max. speed		mm/s	250	500	800	1000	250	500	800	1000
Rated thrust *2	100 W	N	341	170	106	85	341	170	106	85
	200 W	N	683	341	213	174	683	341	213	174
Repeatability		mm	±0.01							
Lost motion		mm	0.1 or less							
Dynamic allowable load		N	2651				1660			
Static allowable moment		N·m	MP:110 MY:110 MR:120				MP:150 MY:150 MR:130			
Dynamic allowable moment		N·m	MP:24.1 MY:24.1 MR:24.8				MP:42.3 MY:42.3 MR:53.1			

Item			ETS-13-E/B/R/D/L				ETS-14-E/B/R/D/L			
Applicable motor sizes			200 W/400W servo motor							
Drive method			Ball screw ø16							
Ball screw accuracy grade			C7							
Stroke *1		mm	50 to 1050							
Screw lead		mm	5	10	16	20	5	10	16	20
Max.workload *2	Horizontal	200 W	70	47	30	24	95	75	44	35
	kg	400 W	70	47	30	24	110	88	48	40
	Vertical	200 W	17	12	6	4	27	18	7	6
	kg	400 W	17	12	6	4	33	22	10	8
Max. speed		mm/s	250	500	800	1000	250	500	800	1000
Rated thrust *2	200 W	N	683	341	213	174	683	341	213	174
	400 W	N	1388	694	433	347	1388	694	433	347
Repeatability		mm	±0.01							
Lost motion		mm	0.1 or less							
Dynamic allowable load		N	4822				6567			
Static allowable moment		N·m	MP:175 MY:174 MR:153				MP:552.0 MY:551.0 MR:485.0			
Dynamic allowable moment		N·m	MP:45.1 MY:45.1 MR:191.7				MP:262.7 MY:262.7 MR:261.0			

Item			ETS-17-E/B/R/D/L				ETS-22-E/B/R/D/L			
Applicable motor sizes			400 W/750W servo motor				750 W servo motor			
Drive method			Ball screw ø20				Ball screw ø25			ø20
Ball screw accuracy grade			C7							
Stroke *1		mm	50 to 1250				50 to 1500			
Screw lead		mm	5	10	20	40	5	10	25	40
Max.workload *2	Horizontal	400 W	120	110	75	35	-	-	-	-
	kg	750 W	120	120	83	50	150	150	120	60
	Vertical	400 W	40	30	14	7	-	-	-	-
	kg	750 W	50	40	25	10	55	45	20	10
Max. speed		mm/s	250	500	1000	2000	250	500	1250	2000
Rated thrust *2	400 W	N	1388	694	347	174	-	-	-	-
	750 W	N	2100	1050	525	260	2100	1050	420	260
Repeatability		mm	±0.01							
Lost motion		mm	0.1 or less							
Dynamic allowable load		N	10102				14174			
Static allowable moment		N·m	MP:1034.0 MY:1032.0 MR:908.0				MP:2052.0 MY:2052.0 MR:1810.0			
Dynamic allowable moment		N·m	MP:424.3 MY:424.3 MR:520.3				MP:1098.5 MY:1098.5 MR:999.3			

*1 Stroke is 50 pitch.
*2 Rated thrust and maximum load capacity are guideline values, assuming that the motor mounted will output the rated torque.
*3 When wall-mounted, the load capacity is the same as when installed horizontally.

Discontinued some variations

Sales of ETS-05 to ETS-12 will be terminated.

How to order

ETS - 06 - 05 040 - E M 1 N C B D P - M - U - P4

Model No.
A Body size
B Screw lead
C Stroke
D Motor mounting direction
E Mounted motor specification
F Motor size
G Brake
H Origin sensor
I Limit sensor
J Grease nipple
K Positioning pin hole
L Magnet Slider method
M Anti-rust treatment

[Example of model No.]
ETS-06-05040-EM1NCBDP-M-U-P4

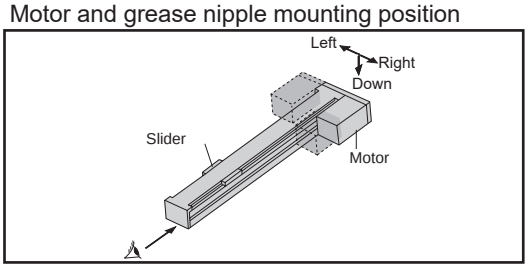
A Body size: body width 65mm
B Screw lead: 5 mm
C Stroke: 400 mm
D Motor mounting direction: Straight
E Mounted motor specification: Mitsubishi Electric Corporation
F Motor size: 100 W
G Brake: None
H Origin sensor: Outside motor side
I Limit sensor: Outside
J grease nipK: None (Body mounting direction: Bottom side)
K Positioning pin hole: Yes
L Magnet slider method: Yes
M Anti-rust treatment: with

*1 Yes can be selected only when motor mounting direction is "built-in mounting". For other mounting directions, select "None".
*2 Origin sensor and limit sensor are a set. As it is both-or-nothing, when either is "None", select "None" for both. The sensor dog is assembled at shipment regardless of the presence of the sensor.
*3 Select "Adopted" for ETS-05/06. Other sizes use the standard.

E Mounted motor specification

Manufacturer	100 W	200 W	400 W	750 W
Mitsubishi Electric Corporation	M	M	M	M
Delta Electronics Co., Ltd.	M	M	M	M
Sanyo Denki Co., Ltd.	M	M	M	-
YASKAWA Electric Corporation	Y	Y	Y	Y
Keyence Corporation	Y	Y	Y	Y
Panasonic Corporation	P	P	P	P
OMRON Corporation	M	P	P	P
Fuji Electric Co., Ltd.	M	M	M	M
FANUC CORPORATION	F	F	F	F
Bosch Rexroth Corporation	P	P	P	P
Rockwell Automation, Inc.	M	M	M	M
SIEMENS AG	M	M	M	M

Motor and grease nipple mounting position



For the motor list, dimensions and model selection recommended for mounting, refer to ETS Series servo motor compatibility in "Electric Actuator Motorless (CB-055A)".

Code	Description
A Body size	
05	Body width 51mm
06	Body width 65mm
10	Body width 102mm
12	Body width 102mm
13	Body width 135mm
14	Body width 135mm
17	Body width 170mm
22	Body width 220mm
B Screw lead	
02	2 mm
05	5 mm
10	10 mm
16	16 mm
20	20 mm
25	25 mm
40	40 mm
C Stroke	
005 to 150	50 mm (In 50 mm increments) 1500 mm
D Motor mounting direction	
E	Straight mounting
B	Built-in mounting
R	Right mounting
D	Bottom mounting
L	Left mounting
E Mounted motor specification	
M, Y, P, F	Select the mounted motor specification from the table below.
F Motor size	
1	100 W (body size: 05, 06, 10, 12)
2	200 W (body size: 10, 12, 13, 14)
4	400 W (body size: 13, 14, 17)
8	750 W (body size: 17, 22)
G Brake *1	
N	None
B	Yes
H Origin sensor (1 pc) *2	
N	None
A	Inside motor side
B	Inside opposite motor side
C	Outside motor side(Included at shipment)
D	Outside motor opposite side (Included at shipment)
I Limit sensor (2 pcs) *2	
N	None
A	Inside
B	Outside (Included at shipment)
J Grease nipple	
N	None (Body mounting direction: Standard)
D	None (Body mounting direction: Bottom side)
R	Right
L	Counterclockwise
K Positioning pin hole	
N	None
P	Yes
L Magnet slider method *3	
Blank	Standard
M	Adopted
M Anti-rust treatment	
N	None
U	Yes

Discontinued some variations



Electric Actuator Motorless General Catalog
Catalog No. CB-055A

Stepper motor compatible electric actuator Motorless specifications
Slider type (ball screw drive)

ETS Series

● Applicable motor sizes:□42, □56, □60 Stepping motor

Sales of ETS-05 to ETS-12 will be terminated.

RoHS CAD

Specifications

Item		ETS-05-E/R/D/L			ETS-06-E/R/D/L		
Applicable motor sizes		□42. Stepper motor					
Drive method		Ball screw ø12					
Ball screw accuracy grade		C7					
Stroke *1	mm	50 to 800					
Screw lead	mm	2	5	10	2	5	10
Max.workload *2	Horizontal kg	10	10	5	30	30	15
	Verticalkg	7	3	1.5	15	10	5
Max. speed *3	mm/s	100	250	500	100	250	500
Rated thrust *2	N	854	341	170	427	171	85
Repeatability	mm	±0.01					
Lost motion	mm	0.1 or less					
Dynamic allowable load	N	551			1209		
Static allowable moment	N·m	MP:20 MY:16 MR:19			MP:80 MY:70 MR:75		
Dynamic allowable moment	N·m	MP:2.8 MY:2.8 MR:6.8			MP:8.9 MY:8.9 MR:24.8		

Item		ETS-10-E/R/D/L				ETS-12-E/R/D/L			
Applicable motor sizes		□56,□60 Stepping motor							
Drive method		Ball screw ø16							
Ball screw accuracy grade		C7							
Stroke *1	mm	50 to 1050							
Screw lead	mm	5	10	16	20	5	10	16	20
Max.workload *2	Horizontal kg	50	30	22	18	50	30	22	18
	Verticalkg	12	8	5	3	12	8	5	3
Max. speed *3	mm/s	250	500	800	1000	250	500	800	1000
Rated thrust *2	N	683	341	213	174	683	341	213	174
Repeatability	mm	±0.01							
Lost motion	mm	0.1 or less							
Dynamic allowable load	N	2651				1660			
Static allowable moment	N·m	MP:110 MY:110 MR:120				MP:150 MY:150 MR:130			
Dynamic allowable moment	N·m	MP:24.1 MY:24.1 MR:24.8				MP:42.3 MY:42.3 MR:53.1			

Item		ETS-13-E/R/D/L				ETS-14-E/R/D/L			
Applicable motor sizes		□56,□60 Stepping motor							
Drive method		Ball screw ø16							
Ball screw accuracy grade		C7							
Stroke *1	mm	50 to 1050							
Screw lead	mm	5	10	16	20	5	10	16	20
Max.workload *2	Horizontal kg	70	47	30	24	110	88	48	40
	Verticalkg	17	12	6	4	33	22	10	8
Max. speed *3	mm/s	250	500	800	1000	250	500	800	1000
Rated thrust *2	N	1388	694	433	347	1388	694	433	347
Repeatability	mm	±0.01							
Lost motion	mm	0.1 or less							
Dynamic allowable load	N	4822				6567			
Static allowable moment	N·m	MP:175 MY:174 MR:153				MP:552.0 MY:551.0 MR:485.0			
Dynamic allowable moment	N·m	MP:45.1 MY:45.1 MR:191.7				MP:262.7 MY:262.7 MR:261.0			

*1 Stroke is 50 pitch.
*2 The rated thrust and maximum load capacity are the allowable values of the actuator body. The actual thrust and load capacity may be limited by the motor used.
*3 The max. speed is the speed when the motor mounted by the customer can output a rotation speed of 3000rpm.
*4 When wall-mounted, the load capacity is the same as when installed horizontally.

Discontinued some variations

Sales of ETS-05 to ETS-12 will be terminated.

How to order

ETS - 06 - 05 040 - E A A N C B D P - M - U - P4

- Model No.
- A Body size
- B Screw lead
- C Stroke
- D Motor mounting direction
- E Mounted motor specification
- F Motor size
- G Brake
- H Origin sensor
- I Limit sensor
- J Grease nipple
- K Positioning pin hole
- L Magnet slider method
- M Anti-rust treatment

Compatibility table by variation

	ETS
P4	●

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

[Example of model No.]

ETS-06-05040-EAANCBDP-M-U-P4

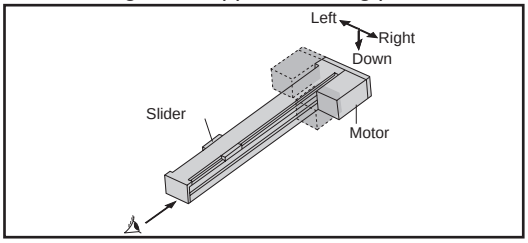
- A Body size: body width 65mm
- B Screw lead: 5 mm
- C Stroke: 400 mm
- D Motor mounting method: straight installation
- E Mounted motor specification: Oriental Motor Co., Ltd.
- F Motor size: □42
- G Brake: None
- H Origin sensor: Outside motor side
- I Limit sensor: Outside
- J grease nipK: None (Body mounting direction: Bottom side)
- K Positioning pin hole: Yes
- L Magnet slider method: Yes
- M Anti-rust treatment: with

*1 Origin sensor and limit sensor are a set. As it is both-or-nothing, when either is "None", select "None" for both. The sensor dog is assembled at shipment regardless of the presence of the sensor.
*2 Select "Adopted" for ETS-05/06. Other sizes use the standard.

E Mounted motor specification

Manufacturer	□42	□56	□60
Oriental Motor Co., Ltd.	A	-	A
MinebeaMitsumi Incorporated	B	B	-
Dyadic Systems Co.,Ltd.	B	C	-

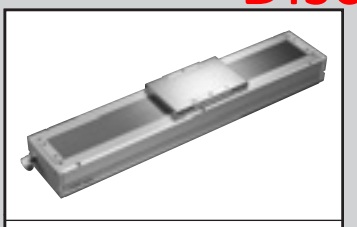
Motor and grease nipple mounting position



Code	Description
A Body size	
05	Body width 51mm
06	Body width 65mm
10	Body width 102mm
12	Body width 102mm
13	Body width 135mm
14	Body width 135mm
B Screw lead	
02	2 mm
05	5 mm
10	10 mm
16	16 mm
20	20 mm
C Stroke	
005 to 105	50 mm (In 50 mm increments) 1050 mm
D Motor mounting direction	
E	Straight mounting
R	Right mounting
D	Bottom mounting
L	Left mounting
E Mounted motor specification	
A, B, C	Select the mounted motor specification from the table below.
F Motor size	
A	□42 (body size: 05, 06)
B	□56 (Body size: 10, 12, 13, 14)
C	□60 (body size: 10, 12, 13, 14)
G Brake	
N	None
B	Yes
H Origin sensor (1 pc) *1	
N	None
A	Inside motor side
B	Inside opposite motor side
C	Outside motor side(Included at shipment)
D	Outside motor opposite side (Included at shipment)
I Limit sensor (2 pcs) *1	
N	None
A	Inside
B	Outside (Included at shipment)
J Grease nipple	
N	None (Body mounting direction: Standard)
D	None (Body mounting direction: Bottom side)
R	Right
L	Counterclockwise
K Positioning pin hole	
N	None
P	Yes
L Magnet slider method *2	
Blank	Standard
M	Adopted
M Anti-rust treatment	
N	None
U	Yes

For the motor list, Dimensions and model selection recommended for mounting, refer to the ETS Series stepping motor compatibility in "Electric Actuator Motorless (CB-055A)".

Discontinued some variations



Electric Actuator Motorless General Catalog
Catalog No. CB-055A

Electric actuator Servo motor compatible motorless specifications
Slider (ball screw drive low dust specifications)

ECS Series

● Applicable motor size: 100W/200W/400W/750W servo motor

Sales of ECS-05 to ECS-12 will be terminated.

RoHS CAD

Specifications

Item			ECS-05-E/R/D/L			ECS-06-E/R/D/L		
Applicable motor sizes			100 W servo motor					
Drive method			Ball screw ø12					
Ball screw accuracy grade			C7					
Stroke *1		mm	50 to 800					
Screw lead		mm	2	5	10	2	5	10
Max.workload *2	Horizontal	kg	10	10	5	30	30	15
	Vertical	kg	7	3	1.5	15	10	5
Max. speed		mm/s	100	250	500	100	250	500
Rated thrust *2		N	825	330	165	854	341	170
Repeatability		mm	±0.01					
Lost motion		mm	0.1 or less					
Dynamic allowable load		N	551			1209		
Static allowable moment		N·m	MP:20 MY:16 MR:19			MP:80 MY:70 MR:75		
Dynamic allowable moment		N·m	MP:2.8 MY:2.8 MR:6.8			MP:8.9 MY:8.9 MR:24.8		

Item			ECS-10-E/B/R/D/L				ECS-12-E/B/R/D/L			
Applicable motor sizes			100 W servo motor							
Drive method			Ball screw ø16							
Ball screw accuracy grade			C7							
Stroke *1		mm	50 to 1050							
Screw lead		mm	5	10	16	20	5	10	16	20
Max.workload *2	Horizontal	kg	50	30	22	18	50	30	22	18
	Vertical	kg	12	8	5	3	12	8	5	3
Max. speed		mm/s	250	500	800	1000	250	500	800	1000
Rated thrust *2		N	341	170	106	85	341	170	106	85
Repeatability		mm	±0.01							
Lost motion		mm	0.1 or less							
Dynamic allowable load		N	2651				1660			
Static allowable moment		N·m	MP:110 MY:110 MR:120				MP:150 MY:150 MR:130			
Dynamic allowable moment		N·m	MP:24.1 MY:24.1 MR:24.8				MP:42.3 MY:42.3 MR:53.1			

Item			ECS-14-E/B/R/D/L				ECS-17-E/B/R/D/L			
Applicable motor sizes			200 W/400W servo motor				400 W/750W servo motor			
Drive method			Ball screw ø16				Ball screw ø20			
Ball screw accuracy grade			C7							
Stroke *1		mm	50 to 1050				50 to 1250			
Screw lead		mm	5	10	16	20	5	10	20	40
Max.workload *2	Horizontal kg	200 W	95	75	44	35	-	-	-	-
		400 W	110	88	48	40	120	110	75	35
		750 W	-	-	-	-	120	120	83	50
	Vertical kg	200 W	27	18	7	6	-	-	-	-
		400 W	33	22	10	8	40	30	14	7
		750 W	-	-	-	-	50	40	25	10
Max. speed		mm/s	250	500	800	1000	250	500	1000	2000
Rated thrust *2		200 W	683	341	213	174	-	-	-	-
	N	400 W	1388	694	433	347	1388	694	347	174
		750 W	-	-	-	-	2100	1050	525	260
Repeatability		mm	±0.01							
Lost motion		mm	0.1 or less							
Dynamic allowable load		N	6567				10102			
Static allowable moment		N·m	MP:552 MY:551 MR:485				MP:1034 MY:1032 MR:908			
Dynamic allowable moment		N·m	MP:262.7 MY:262.7 MR:261.0				MP:424.3 MY:424.3 MR:520.3			

Item			ECS-22-E/B/R/D/L			
Applicable motor sizes			750 W servo motor			
Drive method			Ball screw ø25			ø20
Ball screw accuracy grade			C7			
Stroke *1		mm	50 to 1500			
Screw lead		mm	5	10	25	40
Max.workload *2	Horizontal	kg	150	150	120	60
	Vertical	kg	55	45	20	10
Max. speed		mm/s	250	500	1250	2000
Rated thrust *2		N	2100	1050	420	260
Repeatability		mm	±0.01			
Lost motion		mm	0.1 or less			
Dynamic allowable load		N	14174			
Static allowable moment		N·m	MP:2052 MY:2052 MR:1810			
Dynamic allowable moment		N·m	MP:1098.5 MY:1098.5 MR:999.3			

Compatibility table by variation

	ECS
P4	●

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

*1 Stroke is 50 pitch.
*2 Rated thrust and maximum load capacity are guideline values, assuming that the motor mounted will output the rated torque.
*3 When wall-mounted, the load capacity is the same as when installed horizontally.

Discontinued some variations

Sales of ECS-05 to ECS-12 will be terminated.

How to order

ECS - 06 - 05 040 - E M 1 N C B N P - M - U - P4

- Model No.
- A Body size
- B Screw lead
- C Stroke
- D Motor mounting direction
- E Mounted motor specification
- F Motor size
- G Brake
- H Origin sensor
- I Limit sensor
- J Grease nipple
- K Positioning pin hole
- L Magnet slider method
- M Anti-rust treatment

[Example of model No.]

ECS-06-05040-EM1NCBNP-M-U-P4

- A Body size: body width 65mm
- B Screw lead: 5 mm
- C Stroke: 100 mm
- D Motor mounting direction: Straight
- E Mounted motor specification: Mitsubishi Electric Corporation
- F Motor size: 100 W
- G Brake: None
- H Origin sensor: Outside motor side
- I Limit sensor: Outside
- J Grease nipple: None (Body mounting direction: Standard)
- K Positioning pin hole: Yes
- L Magnet slider method: Yes
- M Anti-rust treatment: with

*1 Select "Yes" only when the motor mounting direction is "built-in mounting". For other mounting directions, select "None".

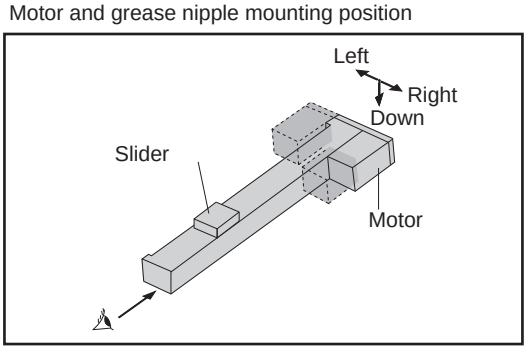
*2 Origin sensor and limit sensor are a set. As it is both-or-nothing, when either is "None", select "None" for both. The sensor dog is assembled at shipment regardless of the presence of the sensor.

*3 Select "Adopted" for ECS-05/06. Other sizes use the standard.

E Mounted motor specification

Manufacturer	100 W	200 W	400 W	750 W
Mitsubishi Electric Corporation	M	M	M	M
Delta Electronics Co., Ltd.	M	M	M	M
Sanyo Denki Co., Ltd.	M	M	M	-
YASKAWA Electric Corporation	Y	Y	Y	Y
Keyence Corporation	Y	Y	Y	Y
Panasonic Corporation	P	P	P	P
OMRON Corporation	M	P	P	P
Fuji Electric Co., Ltd.	M	M	M	M
FANUC CORPORATION	F	F	F	F
Bosch Rexroth Corporation	P	P	P	P
Rockwell Automation, Inc.	M	M	M	M
SIEMENS AG	M	M	M	M

Motor and grease nipple mounting position

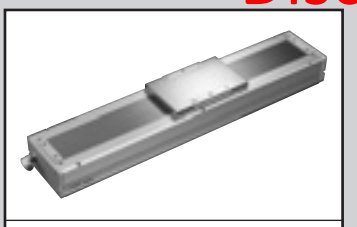


Refer to ECS Series servo motor compatibility in "Electric Actuator Motorless (CB-055A)" for the motor list, dimensions, and model selection recommended for mounting.

M Anti-rust treatment

Code	Description
A Body size	
05	Body width 51mm
06	Body width 65mm
10	Body width 102mm
12	Body width 102mm
14	Body width 135mm
17	Body width 170mm
22	Body width 220mm
B Screw lead	
02	2 mm
05	5 mm
10	10 mm
16	16 mm
20	20 mm
25	25 mm
40	40 mm
C Stroke	
005 to 150	50 mm (In 50 mm increments) 1500 mm
D Motor mounting direction	
E	Straight mounting
B	Built-in mounting
R	Right mounting
D	Bottom mounting
L	Left mounting
E Mounted motor specification	
M, Y, P, F	Select the mounted motor specification from the table below.
F Motor size	
1	100 W (body size: 05, 06, 10, 12)
2	200 W (body size: 14)
4	400 W (body size: 14, 17)
8	750 W (body size: 17, 22)
G Brake *1	
N	None
B	Yes
H Origin sensor (1 pc) *2	
N	None
A	Inside motor side
B	Inside opposite motor side
C	Outside motor side(Included at shipment)
D	Outside motor opposite side (Included at shipment)
I Limit sensor (2 pcs) *2	
N	None
A	Inside
B	Outside (Included at shipment)
J Grease nipple	
N	None (Body mounting direction: Standard)
R	Right
L	Counterclockwise
K Positioning pin hole	
N	None
P	Yes
L Magnet slider method *3	
Blank	Standard
M	Adopted
M Anti-rust treatment	
N	None
U	Yes

Discontinued some variations



Electric Actuator Motorless General Catalog
Catalog No. CB-055A

Electric actuator Stepper motor compatible motorless specifications
Slider (ball screw drive low dust specifications)

ECS Series

● Applicable motor sizes: □42, □56, □60 Stepping motor

Sales of ECS-05 to ECS-12 will be terminated.

RoHS CAD

Specifications

Item		ECS-05-E/R/D/L			ECS-06-E/R/D/L		
Applicable motor sizes		□42. Stepper motor					
Drive method		Ball screw ø12					
Ball screw accuracy grade		C7					
Stroke *1	mm	50 to 800					
Screw lead	mm	2	5	10	2	5	10
Max.workload *2	Horizontal kg	10	10	5	30	30	15
	Verticalkg	7	3	1.5	15	10	5
Max. speed *3	mm/s	100	250	500	100	250	500
Rated thrust *2	N	825	330	165	854	341	170
Repeatability	mm	±0.01					
Lost motion	mm	0.1 or less					
Dynamic allowable load	N	551			1209		
Static allowable moment	N·m	MP:20 MY:16 MR:19			MP:80 MY:70 MR:75		
Dynamic allowable moment	N·m	MP:2.8 MY:2.8 MR:6.8			MP:8.9 MY:8.9 MR:24.8		

Item		ECS-10-E/R/D/L				ECS-12-E/R/D/L			
Applicable motor sizes		□56, □60 Stepping motor							
Drive method		Ball screw ø16							
Ball screw accuracy grade		C7							
Stroke *1	mm	50 to 1050							
Screw lead	mm	5	10	16	20	5	10	16	20
Max.workload *2	Horizontal kg	50	30	22	18	50	30	22	18
	Verticalkg	12	8	5	3	12	8	5	3
Max. speed *3	mm/s	250	500	800	1000	250	500	800	1000
Rated thrust *2	N	683	341	213	174	683	341	213	174
Repeatability	mm	±0.01							
Lost motion	mm	0.1 or less							
Dynamic allowable load	N	2651				1660			
Static allowable moment	N·m	MP:110 MY:110 MR:120				MP:150 MY:150 MR:130			
Dynamic allowable moment	N·m	MP:24.1 MY:24.1 MR:24.8				MP:42.3 MY:42.3 MR:53.1			

Item		ECS-14-E/R/D/L			
Applicable motor sizes		□56, □60 Stepping motor			
Drive method		Ball screw ø16			
Ball screw accuracy grade		C7			
Stroke *1	mm	50 to 1050			
Screw lead	mm	5	10	16	20
Max.workload *2	Horizontal kg	110	88	48	40
	Verticalkg	33	22	10	8
Max. speed *3	mm/s	250	500	800	1000
Rated thrust *2	N	1388	694	433	347
Repeatability	mm	±0.01			
Lost motion	mm	0.1 or less			
Dynamic allowable load	N	6567			
Static allowable moment	N·m	MP:552 MY:551 MR:485			
Dynamic allowable moment	N·m	MP:262.7 MY:262.7 MR:261.0			

Compatibility table by variation

	ECS
P4	●

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

*1 Stroke is 50 pitch.
*2 The rated thrust and maximum load capacity are the allowable values of the actuator body. The actual thrust and load capacity may be limited by the motor used.
*3 The max. speed is the speed when the motor mounted by the customer can output a rotation speed of 3000rpm.
*4 When wall-mounted, the load capacity is the same as when installed horizontally.

Discontinued some variations

Sales of ECS-05 to ECS-12 will be terminated.

How to order

ECS - 06 - 05 040 - E A A N C B N P - M - U - P4

- Model No.
- A Body size
- B Screw lead
- C Stroke
- D Motor mounting direction
- E Mounted motor specification
- F Motor size
- G Brake
- H Origin sensor
- I Limit sensor
- J Grease nipple
- K Positioning pin hole
- L Magnet slider method
- M Anti-rust treatment

[Example of model No.]

ECS-06-05040-EAANCBNP-M-U-P4

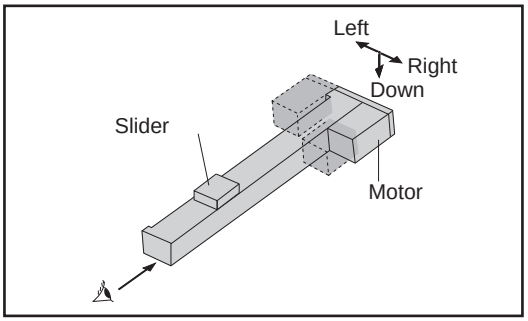
- A Body size: body width 65mm
- B Screw lead: 5 mm
- C Stroke: 100 mm
- D Motor mounting direction: Straight
- E Mounted motor specification: Oriental Motor Co., Ltd.
- F Motor size: □42
- G Brake: None
- H Origin sensor: Outside motor side
- I Limit sensor: Outside
- J Grease nipple: None (Body mounting direction: Standard)
- K Positioning pin hole: Yes
- L Magnet slider method: Yes
- M Anti-rust treatment: with

*1 Origin sensor and limit sensor are a set. As it is both-or-nothing, when either is "None", select "None" for both. The sensor dog is assembled at shipment regardless of the presence of the sensor.
*2 Select "Adopted" for ECS-05/06. Other sizes use the standard.

E Mounted motor specification

Manufacturer	□42	□56	□60
Oriental Motor Co., Ltd.	A	-	A
MinebeaMitsumi Incorporated	B	B	-
Dyadic Systems Co.,Ltd.	B	C	-

Motor and grease nipple mounting position



Code	Description
A Body size	
05	Body width 51mm
06	Body width 65mm
10	Body width 102mm
12	Body width 102mm
14	Body width 135mm
B Screw lead	
02	2 mm
05	5 mm
10	10 mm
16	16 mm
20	20 mm
C Stroke	
005 to 105	50 mm (In 50 mm increments) 1050 mm
D Motor mounting direction	
E	Straight mounting
R	Right mounting
D	Bottom mounting
L	Left mounting
E Mounted motor specification	
A, B, C	Select the mounted motor specification from the table below.
F Motor size	
A	□42 (body size: 05, 06)
B	□56 (body size: 10, 12, 14)
C	□60 (body size: 10, 12, 14)
G Brake	
N	None
B	Yes
H Origin sensor (1 pc) *1	
N	None
A	Inside motor side
B	Inside opposite motor side
C	Outside motor side(Included at shipment)
D	Outside motor opposite side (Included at shipment)
I Limit sensor (2 pcs) *1	
N	None
A	Inside
B	Outside (Included at shipment)
J Grease nipple	
N	None (Body mounting direction: Standard)
R	Right
L	Counterclockwise
K Positioning pin hole	
N	None
P	Yes
L Magnet slider method *2	
Blank	Standard
M	Adopted
M Anti-rust treatment	
N	None
U	Yes

For the motor list, dimensions and model selection recommended for mounting, refer to ECS Series stepping motor compatibility in "Electric Actuator Motorless (CB-055A)".



Electric Actuator Motorless General Catalog
Catalog No. CB-055A

Servo motor compatible electric actuator Motorless specification
Slider (high tackG/high rigidity model)

EKS-*L* Series

● Applicable motor sizes:50 W/100W/200W/400W/750W servo motor

RoHS CAD

Specifications

Item		EKS-04LE		EKS-04LR/D/L		EKS-05LE		EKS-05LR/D/L	
Applicable motor sizes		50 W/100 W servo motor				100 W servo motor			
Drive method		Ball screw ø10				Ball screw ø13			
Stroke *1	mm	100 to 900							
Screw lead	mm	10	16	10	16	10	20	10	20
Max.workload *2*3	kg Horizontal	19	14	19	14	26	7.5	26	7.5
	Wall-mounted	10.5	8	10.5	8	19	7.5	19	7.5
	Vertical	8.5	7	8.5	7	12.5	6	11.5	5
Max. speed	mm/s	500	800	500	800	500	1000	500	1000
Rated thrust *3	N	179	112	179	112	179	89	179	89
Repeatability	mm	±0.01							
Lost motion	mm	0.1 or less							
Static allowable load	N	2140				3100			
Static allowable moment	N·m	MP:103 MY:103 MR:58				MP:147 MY:147 MR:149			

Item		EKS-06LE		EKS-06LR/D/L		EKS-08LE		EKS-08LR/D/L	
Applicable motor sizes		200 W servo motor				400 W servo motor			
Drive method		Ball screw ø15				Ball screw ø20			
Stroke *1	mm	100 to 1300				100 to 1500			
Screw lead	mm	20	30	20	30	20	40	20	40
Max.workload *2*3	kg Horizontal	42	20.5	41	19	83.5	19	79.5	18
	Wall-mounted	20	18	20	18	45	19	45	18
	Vertical	12	7.5	10.5	6.5	23.5	10.5	20.5	9
Max. speed	mm/s	1000	1500	1000	1500	1000	2000	1000	2000
Rated thrust *3	N	180	120	180	120	359	179	359	179
Repeatability	mm	±0.01							
Lost motion	mm	0.1 or less							
Static allowable load	N	3250				4000			
Static allowable moment	N·m	MP:330 MY:216 MR:188				MP:730 MY:437 MR:387			

Item		EKS-10LE		EKS-10LR/D/L	
Applicable motor sizes		750 W servo motor			
Drive method		Ball screw ø25			
Stroke *1	mm	100 to 1500			
Screw lead	mm	25	50	25	50
Max.workload *2*3	kg Horizontal	118.5	40	92.5	37.5
	Wall-mounted	76	40	76	37.5
	Vertical	33.5	14.5	28	12.5
Max. speed	mm/s	1250	2500	1250	2500
Rated thrust *3	N	540	270	540	270
Repeatability	mm	±0.01			
Lost motion	mm	0.1 or less			
Static allowable load	N	5830			
Static allowable moment	N·m	MP:1048 MY:712 MR:671			

Compatibility table by variation

	EKS
P4	●
P40	●

●: Applicable models ○: Semi-applicable models
▲: Contact CKD for details. ▭: Not applicable

*1 stroke has 100 pitch.
*2 Values for max. load capacity are at acceleration/deceleration 0.5G. Refer to "Electric Actuator Motorless (No.CB-055A)" for details.
*3 Rated thrust and maximum load capacity are guideline values, assuming that the motor mounted will output the rated torque.

How to order: For models with no fittings

EKS - 04 L E - 10 0300 N NN - M 1 N C B - N N - P4 / P40

Without fitting *5*6

Model No.
A Body size
B Motor
C Motor mounting direction
D Screw lead
E Stroke
F Brake
G Mounted motor specification
H Motor size
I Motor shaft fixing method
J Origin sensor
K Limit sensor
L Anti-rust Treatment

[Example of model No.]
EKS-04LE-100300NNN-M1NCB-NN-P4

A Body size: body width 43mm
B Motor: none
C Motor mounting direction: Straight
D Screw lead: 10 mm
E Stroke: 300 mm
F Brake: None
G Mounted motor specifications: Manufactured by Mitsubishi Electric Co., Ltd.
H Motor size: 100 W
I Motor shaft fixing method: Straight
J Origin sensor: Yes
K Limit sensor: Yes
L Anti-rust treatment: None

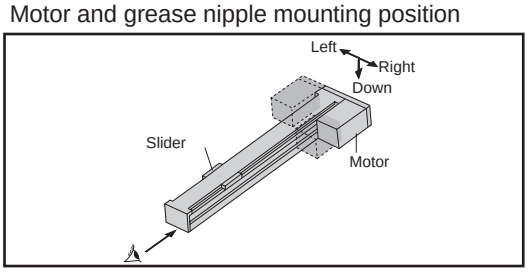
*1 When all body sizes and motor mounting direction are straight mounting, "For straight mounting".
*2 Select "flat" or "key" only for EKS-04, 05 and 06 mounting.
*3 Select "Friction locking" only for EKS-06, 08 and 10 left/right/bottom mounting.
*4 Origin sensor and limit sensor are a set. As it is both-or-nothing, select "None" for both.
*5 If rust proof treatment is "Yes", select "P40".
*6 For "P40", select "Straight mounting" for the motor mounting direction.

Code	Description
A Body size	
04	Body width 43mm
05	Body width 53mm
06	Body width 64mm
08	Body width 84mm
10	Body width 104mm
B Motor	
L	None
C Motor mounting direction *6	
E	Straight mounting
R	Right mounting
D	Bottom mounting
L	Left mounting
D Screw lead	
10	10 mm
16	16 mm
20	20 mm
25	25 mm
30	30 mm
40	40 mm
50	50 mm
E Stroke	
0100 to 1500	100 mm (In 100 mm increments) to 1500 mm
F Brake	
N	None
G Mounted motor specification	
M, Y, P	Select the mounted motor specification from the table below.
H Motor size	
H	50W (Body size: 04)
1	100 W (body size: 04, 05)
2	200 W (body size: 06)
4	400 W (body size: 08)
8	750 W (body size: 10)
I Motor shaft fixing method *1 *2 *3	
N	For straight mounting
D	Flat
K	Key
M	Friction locking
J Origin sensor (1 pc) *4	
N	None
C	Yes (Attached at shipment)
K Limit sensor (2 pcs) *4	
N	None
B	Yes (Attached at shipment)
L Anti-rust treatment *5	
N	None
U	Yes

G Mounted motor specification

Manufacturer	50 W	100 W	200 W	400 W	750 W
Mitsubishi Electric Corporation	M	M	M	M	M
Delta Electronics Co., Ltd.	M	M	M	M	M
Sanyo Denki Co., Ltd.	M	M	M	M	-
YASKAWA Electric Corporation	Y	Y	Y	Y	Y
Keyence Corporation	Y	Y	Y	Y	Y
Panasonic Corporation	P	P	P	P	P
OMRON Corporation	M	M	P	P	P
Fuji Electric Co., Ltd.	M	M	M	M	M
FANUC CORPORATION	M	M	-	-	-
Bosch Rexroth Corporation	P	P	P	P	P
Rockwell Automation, Inc.	M	M	M	M	M
SIEMENS AG	M	M	M	M	M

Motor and grease nipple mounting position



Refer to the EKS-L Series in "Electric Actuator Motorless (CB-055A)" for the recommended motor list, dimensions and model selection.

How to order: For models with fittings

EKS - 04 L E - 10 0300 N NN - M 1 N C B - N V - P4 / P40

Model No.
A Body size
B Motor
C Motor mounting direction
D Screw lead
E Stroke
F Brake
G Mounted motor specification
H Motor size
I Motor shaft fixing method
J Origin sensor
K Limit sensor
L Anti-rust treatment
With fitting
*3

[Example of model No.]

EKS-04LE-100300NNN-M1NCB-NV-P4

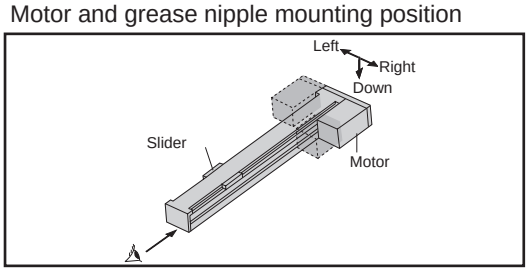
A Body size: body width 43mm
B Motor: none
C Motor mounting direction: Straight
D Screw lead: 10 mm
E Stroke: 300 mm
F Brake: None
G Mounted motor specifications: Manufactured by Mitsubishi Electric Co., Ltd.
H Motor size: 100 W
I Motor shaft fixing method: Straight
J Origin sensor: Yes
K Limit sensor: Yes
L Anti-rust treatment: none

*1 With fittings,"Straight mounting"only.
*2 Origin sensor and limit sensor are a set. As it is both-or-nothing, when either is "None", select "None" for both.
*3 When "Yes" is selected, select "P40".

G Mounted motor specification

Manufacturer	50 W	100 W	200 W	400 W	750 W
Mitsubishi Electric Corporation	M	M	M	M	M
Delta Electronics Co., Ltd.	M	M	M	M	M
Sanyo Denki Co., Ltd.	M	M	M	M	-
YASKAWA Electric Corporation	Y	Y	Y	Y	Y
Keyence Corporation	Y	Y	Y	Y	Y
Panasonic Corporation	P	P	P	P	P
OMRON Corporation	M	M	P	P	P
Fuji Electric Co., Ltd.	M	M	M	M	M
FANUC CORPORATION	M	M	-	-	-
Bosch Rexroth Corporation	P	P	P	P	P
Rockwell Automation, Inc.	M	M	M	M	M
SIEMENS AG	M	M	M	M	M

Motor and grease nipple mounting position



Code	Description
A Body size	
04	Body width 43mm
05	Body width 53mm
06	Body width 64mm
08	Body width 84mm
10	Body width 104mm
B Motor	
L	None
C Motor mounting direction	*1
E	Straight mounting
D Screw lead	
10	10 mm
16	16 mm
20	20 mm
25	25 mm
30	30 mm
40	40 mm
50	50 mm
E Stroke	
0100 to 1500	100 mm (In 100 mm increments) 1500 mm
F Brake	
N	None
G Mounted motor specification	
M, Y, P	Select the mounted motor specification from the table below.
H Motor size	
H	50W (Body size: 04)
1	100 W (body size: 04, 05)
2	200 W (body size: 06)
4	400 W (body size: 08)
8	750 W (body size: 10)
I Motor shaft fixing method	
N	For straight mounting
J Origin sensor (1 pc)	*2
N	None
C	Yes (Attached at shipment)
K Limit sensor (2 pcs)	*2
N	None
B	Yes (Attached at shipment)
L Anti-rust treatment	*3
N	None
U	Yes

Refer to the EKS-L Series in "Electric Actuator Motorless (CB-055A)" for the recommended motor list, dimensions and model selection.

Safety Precautions

Be sure to read this section before use.

When designing and manufacturing a device using CKD products, the manufacturer is obligated to check that device safety mechanism, pneumatic control circuit, or water control circuit and the system operated by electrical control that controls the devices is secured.
It is important to select, use, handle and maintain the product appropriately to ensure that the CKD product is used safely.
Observe warnings and precautions to ensure device safety.
Check that device safety is ensured, and manufacture a safe device.

WARNING

1 This product is designed and manufactured as a general industrial machine part.
It must be handled by an operator having sufficient knowledge and experience.

2 Use this product in accordance with specifications.

This product must be used within its stated specifications. In addition, never modify or additionally machine this product.
This product is intended for use in general industrial machinery equipment or parts. It is not intended for use outdoors (except for products with outdoor specifications) or for use under the following conditions or environments.
(Note that this product can be used when CKD is consulted prior to its usage and the customer consents to CKD product specifications. The customer should provide safety measures to avoid danger in the event of problems.)

❶ Use for applications requiring safety, including nuclear energy, railways, aircraft, marine vessels, vehicles, medical devices, devices or applications in contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.
❷ Use for applications where life or assets could be significantly affected, and special safety measures are required.

3 Observe organization standards and regulations, etc., related to the safety of device design and control, etc.

ISO4414, JIS B 8370 (Pneumatics fluid power - General rules and safety requirements for systems and their components)
JFPS2008 (Principles for pneumatic cylinder selection and use)
Including the High Pressure Gas Safety Act, Industrial Safety and Health Act, other safety rules, organization standards and regulations, etc.

4 Do not handle, pipe, or remove devices before confirming safety.

❶ Inspect and service the machine and devices after confirming safety of all systems related to this product.
❷ Note that there may be hot or charged sections even after operation is stopped.
❸ When inspecting or servicing the device, turn OFF the energy source (air supply or water supply), and turn OFF power to the facility.Discharge any compressed air from the system, and pay attention to possible water leakage and leakage of electricity.
❹ When starting or restarting a machine or device that incorporates pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.

5 Observe warnings and cautions in the following pages to prevent accidents.

■ The precautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

DANGER: When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries, and when there is a high degree of emergency to a warning.

WARNING: If handled incorrectly, a dangerous situation may occur, resulting in death or serious injury.

CAUTION: When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

Note that some items described as "CAUTION" may lead to serious results depending on the situation.
Every item provides important information and must be observed.

Warranty

1 Warranty period

The product specified herein is warranted for one (1) year from the date of delivery to the location specified by the customer.

2 Warranty coverage

If the product specified herein fails for reasons attributable to CKD within the warranty period specified above, CKD will promptly provide a replacement for the faulty product or a part thereof or repair the faulty product at one of CKD's facilities free of charge.
However, following failures are excluded from this warranty:

1) Failure caused by handling or use of the product under conditions and in environments not conforming to those stated in the catalog, the Specifications, or the Instruction Manual.
2) Failure caused by use of the product exceeding its durability (cycles, distance, time, etc.) or caused by consumable parts.
3) Failure not caused by the product.
4) Failure caused by use not intended for the product.
5) Failure caused by modifications/alterations or repairs not carried out by CKD.
6) Failure caused by reasons unforeseen at the level of technology available at the time of delivery.
7) Failure caused by acts of nature and disasters beyond control of CKD.

The warranty stated herein covers only the delivered product itself. Any loss or damage induced by failure of the delivered product is excluded from this warranty.
Note: For details on the durability and consumable parts, contact your nearest CKD sales office.

3 Compatibility check

The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines and equipment.

Related products

HP Series

Optimized sliding parts. Does not break even with high frequency usage

Long service life cylinder

HP1 Series **P4**

- Unexplained stops Significantly reduced
- Number of replacements Significantly reduced
- Durability count 20 million cycles or more

Subject to CKD prescribed conditions



Pencil shaped cylinder **SCPD3** P4

Round shaped cylinder **SCM** P4

Small bore size cylinder **CMK2** P4

Compact cylinder **SSD2** P4

Compact direct mounting cylinder **MDC2**

Small compact cylinder **MSD** P4

Small guided compact cylinder **MSDG-L** P4

Compact cylinder **SMG** P4

Linear slide cylinder **LCR** P4

Linear slide cylinder **LCG** P4

Guided cylinder **STM** P4

Guided cylinder **STG** P4

Twin rod cylinder **STR2** P4

Improved environmental resistance. Does not break even in dusty environments

Environment-resistant cylinder

G-HP1 Series

- Unexplained stops Significantly reduced
- Number of replacements Significantly reduced
- Environmentally-resistant improvement
- Durability count 5 million cycles and over

Subject to CKD prescribed conditions



Pencil shaped cylinder **SCPD3** New

Small bore size cylinder **CMK2**

Round shaped cylinder **SCM**

Tie rod cylinder **SCG**

Compact cylinder **SSD2**

Compact cylinder **SMG** New

Linear slide cylinder **LCR**

Guided cylinder **STG**

Guided cylinder **STS/ STL**

Increased linear guide rigidity. Achieves high rigidity, high precision, and high durability

Linear Slide Hand

LSH-HP1 Series **P4**
LST-HP1 Series

- Unexplained stops Significantly reduced
- Number of replacements Significantly reduced
- Exchangeable Significantly reduced
- Durability count 20 million cycles or more

Subject to CKD prescribed conditions



Grips and measures simultaneously. Can be replaced before breakdowns

Measuring hand

LSHM-HP2 Series
LSTM-HP2 Series

- Unexplained stops Significantly reduced
- Number of replacements Significantly reduced
- Predictive maintenance Available
- Durability count 20 million cycles or more

Subject to CKD prescribed conditions



Increased Component service life and productivity from compressed air

Air booster

ABP2-HP1 Series

- Unexplained stops Significantly reduced
- Number of replacements Significantly reduced
- Durability count 10 million cycles or more

Subject to CKD prescribed conditions



Models compatible with the P4* Series are also available. Refer to HP Series General Catalog (Catalog No.CC-1421A) for details.

Equipment related to rechargeable batteries P4* Series

These are not compatible with P4 Series Rechargeable Battery Components.

Electric motion components

ABSODEX

Direct drive motor

AX Series

Direct drive motor ideal for indexing table drive

Maximum torque: 1.2N•m to 1000N•m



τDISC Servo Motor

Direct drive motor

τDISC Series

Direct drive motor compatible with various high-end processing stages

Maximum torque: 8.5N•m to 3700N•m

NIKKI DENSO



ROBODEX Std.

Slider

ETV/ECV Series

- Motorless specifications
- Low dust specification (ECV)
- 6 sizes
- Servo motor 100 to 750W compatible
- Max. load capacity: 85kg (horizontal)
- Max. Stroke: 3500mm



Electric shuttle mover

ESM Series

- Motorless specifications
- Three-dimensional transport P&P system
- Belt drive
- Various motors can be mounted (motorless type)
- Long stroke with a max. length of 20 m



ROBODEX Pulse

Table

FLCR Series

- Ball screw + belt drive
- 3 sizes
- Built-in motor saves space
- G Option connects to controller ECG
- Brake options available



ROBODEX Pulse

Rotary

FGRC Series

- Worm gear + belt drive
- 3 sizes
- Manual table position adjustment
- Self-lock mechanism
- G Option connects to controller ECG



ROBODEX Pulse

2-Finger Gripper

FLSH Series

- Sliding screw drive
- 3 sizes
- Manual finger position adjustment
- Self-lock mechanism
- G Option connects to controller ECG



ROBODEX Pulse

Thin 2-Finger Gripper

FFLD Series

- 3 sizes
- Built-in controller
- 1 cable
- Max. Stroke 80mm (one side)
- Max. gripping power 500N (one side)
- Interface IO-Link



Related products

Image processing program

Facilea

Visual programming tool for image processing

Facilea

20-minute easy image processing even for beginners

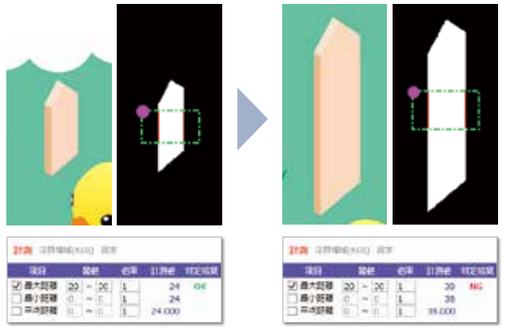


Simple 3-step

Anyone can easily build an image processing system by dragging and dropping and entering simple settings.

[Distance measurement]

Converts a color image to a gray image and binarisations*.
Measure the distance, and make a judgment.



* binarisation: Processing that converts an image to black and white

Assistive device

Transform workstyles with assistive devices

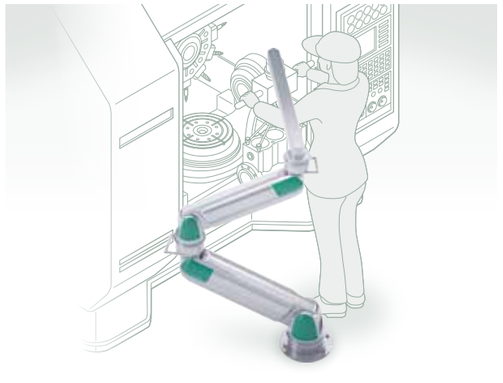
PAW Series Powerful Arm

PowerArm

PAW Series

Improves work environment by assisting in heavy duty work



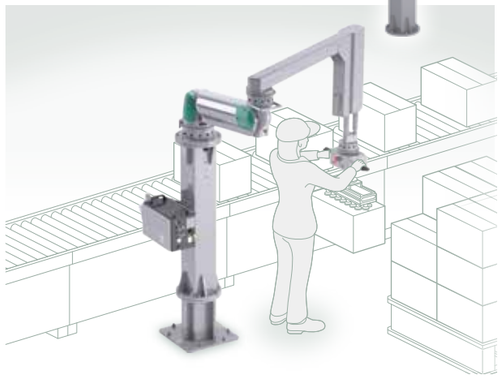


PowerArm (palletizing specifications)

PAW-A* Series

Space-saving and easy stacking and unloading of work





■Catalogs



Eight different catalogs are available.

- Pneumatic Valves (Catalog No. CB-023SA)
- Pneumatic Cylinders I and II (Catalogs No. CB-029SA, CB-030SA)
- General Purpose Valves (Catalog No. CB-03-1SA)
- Pneumatic, Vacuum and Auxiliary Components (Catalog No. CB-024SA)
- Vacuum System Components SELVACS (Catalog No. CC-796A)
- ABSODEX General (Catalog No. CB-054A)
- Electric actuator Motorless General (Catalog No. CB-055A)

● Please do not hesitate to make use of these resources, through application with your Sales representative or nearest CKD sales office.

Homepage

Catalog PDFs and CAD data of CKD products are available for download.

For PDF and DXF data of the general catalogs,

CKD Website Component Products > **Materials/download Digital catalogs/catalog PDFs**

For PDF and DXF data of new products,

CKD Website Component Products > **Search product list Search new products**

For 2D/3D CAD data

CKD Website Component Products > **Materials/download 2D/3D CAD data**

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- 無錫事務所(WUXI OFFICE)
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