CKD

Equipment for food manufacturing processes
FP Series



Satisfies a variety of needs for food processing

Equipment for food manufacturing processes FP Series

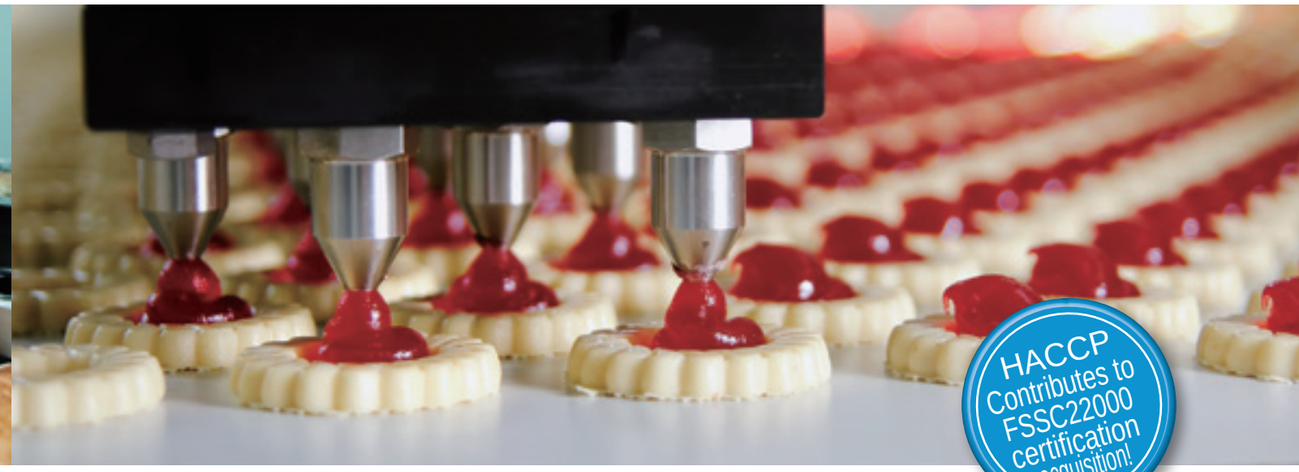
FP Food Process®

CKD Corporation
CC-1271A 5

Equipment for food manufacturing processes FP series







A broad standard lineup ranging from air filters to actuators that can be used safely and securely in food manufacturing processes

FP1 Series

Eliminates concerns over lubricant contamination!

Lubricant

FP2 Series

Uses safe materials!

Lubricant Materials Environment

FP3 Series

Pursuing further safety and security!

Lubricant Materials Structure Environment Shape



FP Food Process®

This logo represents our commitment to support food manufacturing processes with safe CKD products.

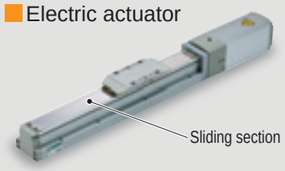
Total support for food manufacturing with total engineering capacity in packaging machines as well as pneumatic, fluid control, and electric-driven products

FP1 Series

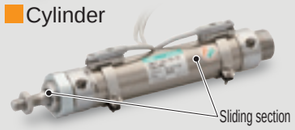
Food-grade (NSF H1) lubricants are used for flow paths and sliding parts.

* Materials and dimensions are the same as the standard products.

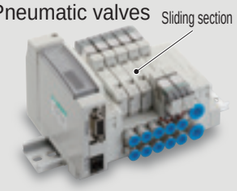
■ Electric actuator



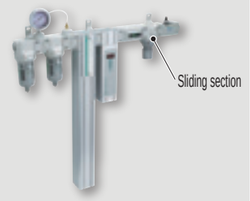
■ Cylinder



■ Pneumatic valves



■ Nitrogen Gas Extraction Unit

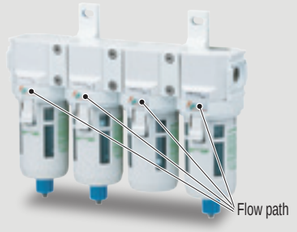


FP2 Series

In addition to FP1, the flow path uses compliant materials (resin, rubber) compliant with the Food Sanitation Act.

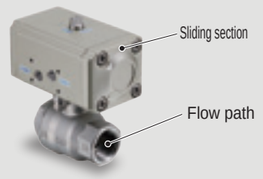
* Materials (excluding the flow path) and dimensions are the same as the standard products.

■ Anti-bacterial/bacteria-removing filter

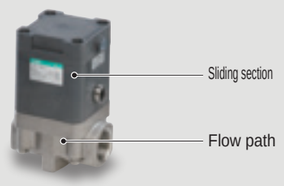


*Food Sanitation Act "Specifications and standards for foods, food additives, etc. (The Ministry of Health and Welfare Notification No. 34, 370)"

■ Air operated ball valve



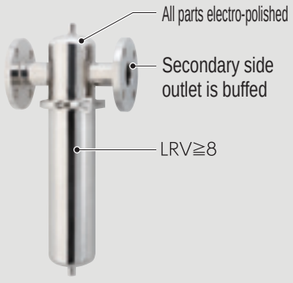
■ Diaphragm cylinder valve



FP3 Series

In addition to FP2, the component takes account lubrication, materials, shape, etc., in food manufacturing processes.

■ Bacteria removing filter



Reliable anti-bacterial and bacteria removing effects

A modularized triple block

Anti-bacterial pre-filter | Anti-bacterial high performance filter | Bacteria removing filter



Anti-bacterial/bacteria-removing filter

SFC Series

FDA
Conforming materials
Fluid passage section
Resin/rubber

Antibacterial Activity Value
4
or more

Bacteria trapping performance
LRV8
or more

Material compatible with the Food Sanitation Act
Fluid passage section
Resin/rubber

For food products
NSF H1
grease used

Exterior parts use
anti-bacterial
materials

Odor removal filter added

Uses fiber activated carbon. With a large activated carbon adsorption area, it realizes high suction performance and long life.



Push ring employed in SUS

Risk of contamination is reduced, and it can be installed safely near the point of use.



Maintenance

Elements are replaceable

Elements are easy to replace.

Maintenance label equipped as standard* *Included with product.

Replacement period will be visible.



* Antibacterial Activity Value and bacteria trapping performance are actual values from CKD's prescribed conditions.

Anti-bacterial

Proprietary anti-bacterial filter

Stops Bacteria growth!

Non-woven fabric filter element that uses silver-based anti-bacterial agent

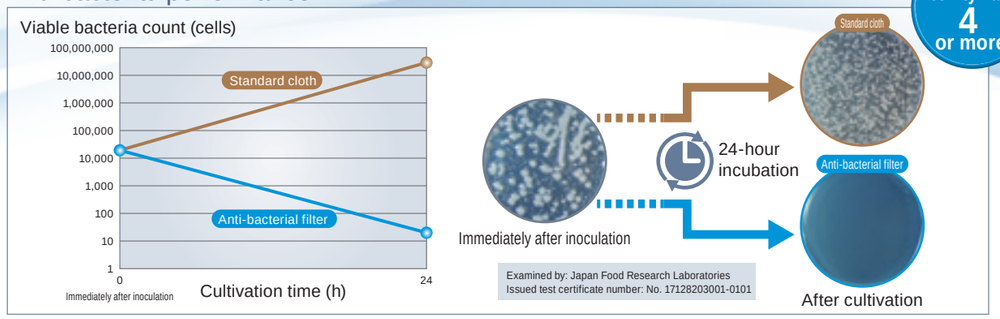
A silver-based anti-bacterial agent is used in the non-woven fabric element

The silver ion present in the antibacterial filter adsorbs into the cells of bacteria, the bacteria's enzyme actions are obstructed, and they die out.



Silver ions absorbed into bacteria cells | Inhibits enzyme actions | Bacteria die out

Anti-bacterial performance



JIS L 1902: Verification data from test done based on 2015

Bacteria-removing

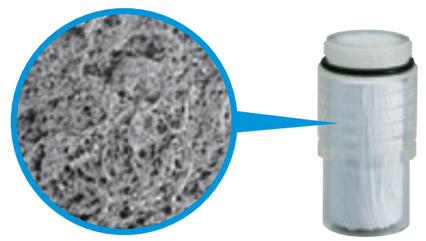
Proprietary bacteria removing filter

Bacteria Removed!

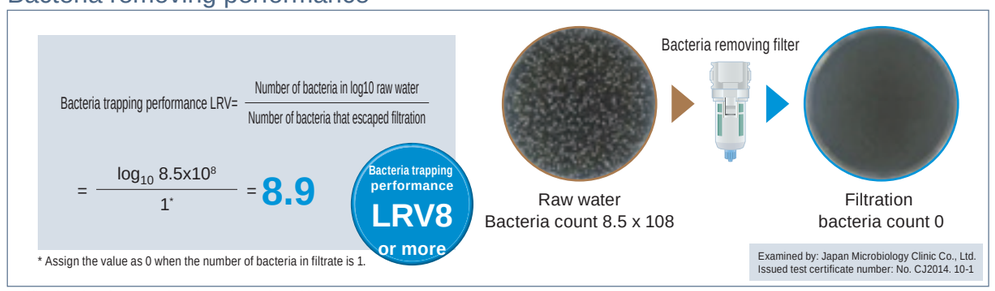
Removal rate 99.999999% **hollow fiber membrane**

Hollow fiber membrane

The straw-like fiber wall of the bacteria removing filter has numerous, special slit-like ultrafine pores. When compressed air passes through these holes, they capture bacteria.

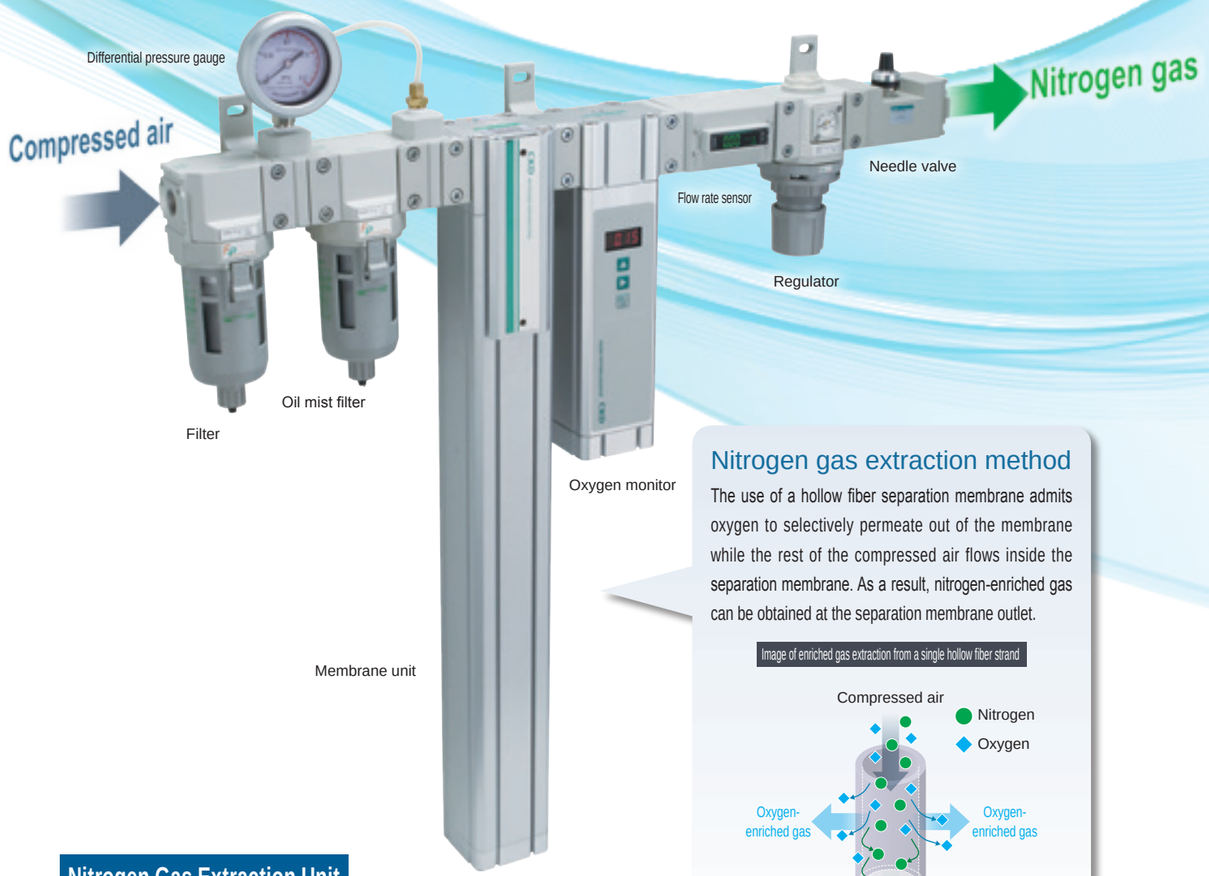


Bacteria removing performance



Verification data from test done based on JIS K 3835

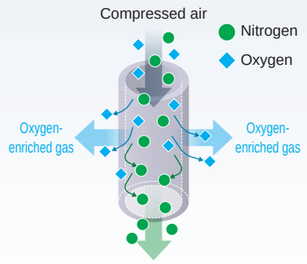
Nitrogen gas can be extracted easily from compressed air.



Nitrogen gas extraction method

The use of a hollow fiber separation membrane admits oxygen to selectively permeate out of the membrane while the rest of the compressed air flows inside the separation membrane. As a result, nitrogen-enriched gas can be obtained at the separation membrane outlet.

Image of enriched gas extraction from a single hollow fiber strand



Nitrogen Gas Extraction Unit

NS Series

Compatible with FP Series for secure food manufacturing processes

Safe and secure for food manufacturing processes.

For food products **NSF H1** grease used

Material compatible with the Food Sanitation Act
Fluid passage section
Resin/rubber

FP Food Process®

This logo represents our commitment to support food manufacturing processes with safe CKD products.

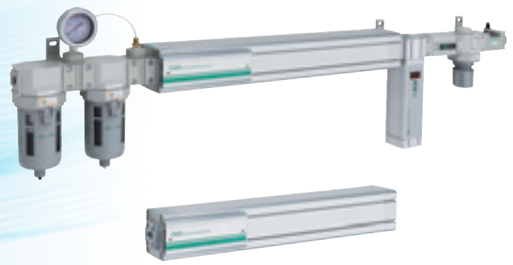
A new recommendation for nitrogen supply

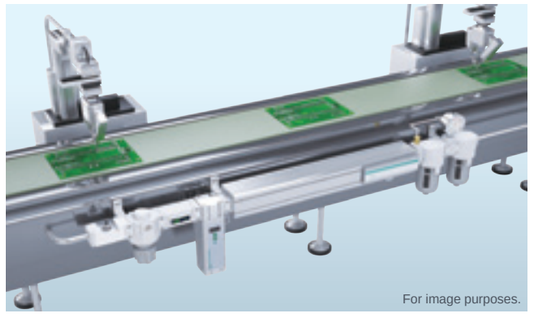
Flexibility in design

New

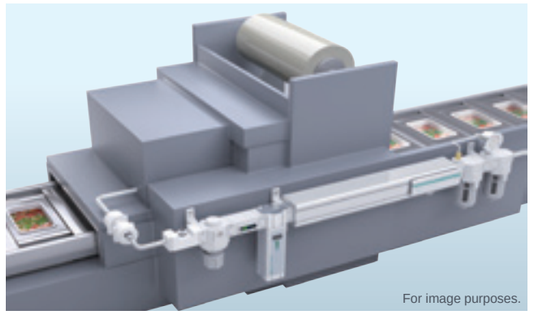
New horizontal mounting available

- Installation in dead spaces.
- Built-in installation into equipment.





For image purposes.

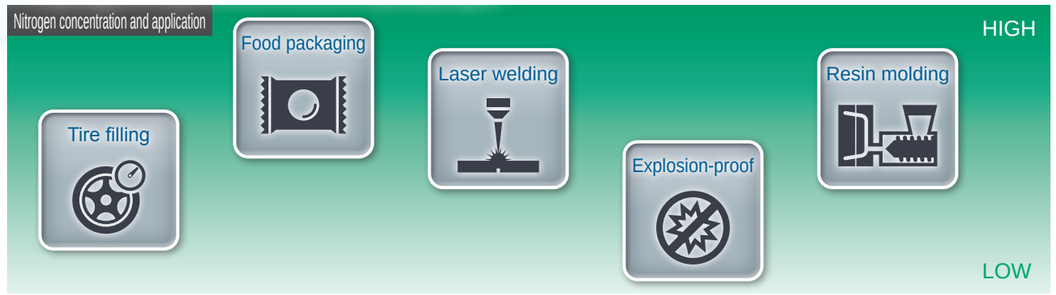


For image purposes.

Degrees of freedom in concentrations

New

- Nitrogen is now available from 90% concentration.
- Nitrogen supply to low nitrogen concentration environments for explosion-proofing, etc.

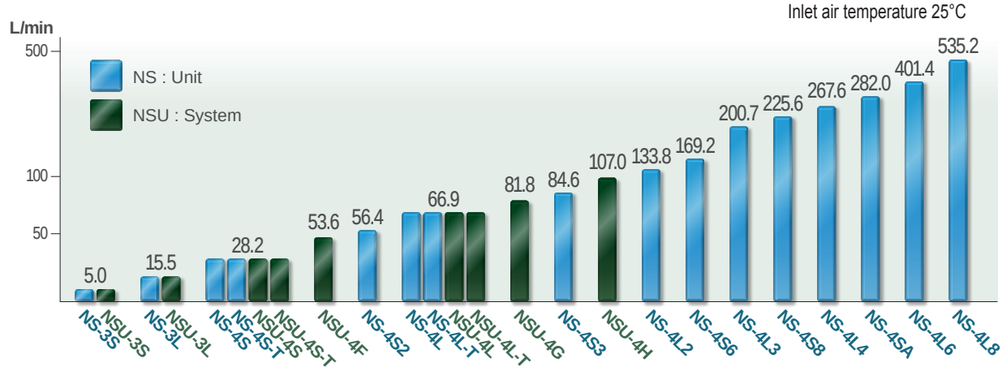


Degrees of freedom in selection

New

- Select the ideal model from the 17-flow rate and 25-lineup.

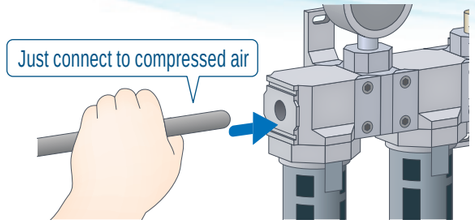
* 99% Nitrogen concentration
Inlet air pressure 0.7 MPa
Inlet air temperature 25°C



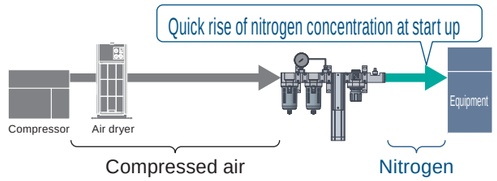
Install anywhere

Reduces processes, piping, and space

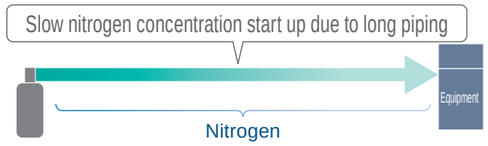
- Nitrogen-enriched gas can be obtained simply by supplying compressed air.
- Design and piping are done easily by providing system Components.
- Its small size and light weight allows it to be installed near the device. No need for long piping work dedicated to nitrogen.



With NS Series

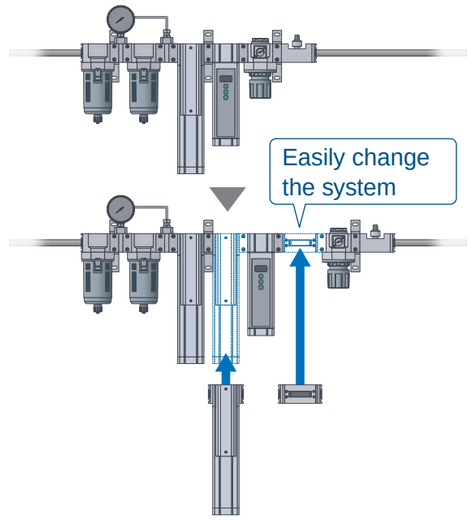


Conventional methods



Freely select

- The ideal system can be selected according to the required flow rate and concentration.
- Modular connection enables easy system changes such as expansion of stations after installation.



No power supply needed

- Usable even for explosion-proof atmospheres, different voltage regions, etc.
- No malfunctions due to electrical noise.
- Quiet, with no heat generation as there is no drive system.

*Power supply will be required when oxygen monitor and flow rate sensor (option) are selected.

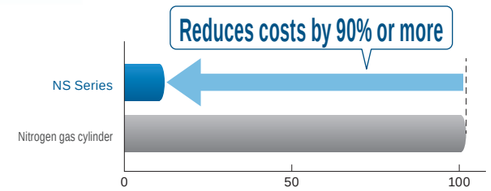
Low cost and reduced processes

Running cost reduction

- Running cost is only the cost of electricity for the air compressor.
- Tank replenishments and other ongoing costs are not incurred.

*Power supply will be required when oxygen monitor and flow rate sensor (option) are selected.

Nitrogen gas cylinder and gas unit price comparison



* Comparison assuming that the nitrogen gas concentration is 99% and the gas unit price is 100.

Reduced administrative processes

- Nitrogen volume control is no longer required.
- Oxygen monitor and flow rate sensor can be installed inline, enabling continuous control.

Control of oxygen concentration (nitrogen conc.)



Oxygen monitor

Nitrogen flow rate management



Flow rate sensor

Management of supplied compressed air quality

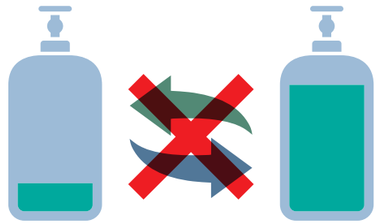


Differential pressure gauge

*Modular connection enables easy Component connection. Please ask our Sales Representative for details.

Replacement not required

- Troublesome tank management of remaining gases or replacement work is not required.



Easy maintenance

Sustainable reliability

- Since there are no movable parts, stable performance can be maintained.
- Parts replacement is possible without disassembling the piping.

Not subject to High Pressure Gas Safety Act

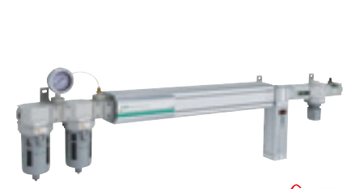
- There is no need for notifications or assignment of qualified personnel.



NS Series configuration

System

1-station	2-station
NSU	
Horizontal mounting	Vertical mounting







Unit

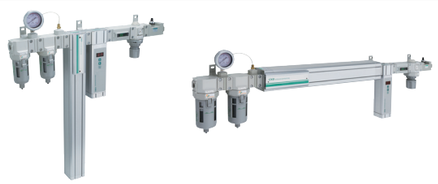
Single cylinder	Double acting
NS	
Horizontal mounting	Vertical mounting







■ Qty.: 1 unit

Model No.	Quantity	Appearance	Flow rate(L/min(ANR)) and nitrogen conc.(%) / Flow rate(L/min(ANR)) and nitrogen concentration(%)	Listed Page
NSU-3S	1		10 20 40 60 80 120 160 200 260 320 99.9 99.5 99 98 97 96 95 94 93 92 91 90	295
NSU-3L	1		99.9 99.5 99 98 97 96 95 94 93 92 91 90	
NSU-4S	1		99.9 99.5 99 98 97 96 95 94 93 92 91 90	
NSU-4L	1		99.9 99.5 99 98 97 96 95 94 93 92 91 90	

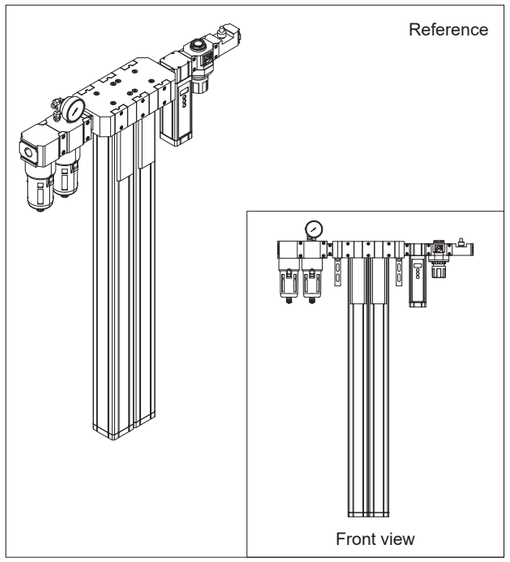
■ Qty.: 2 units

Model No.	Quantity	Appearance	Flow rate(L/min(ANR)) and nitrogen conc.(%) / Flow rate(L/min(ANR)) and nitrogen concentration(%)	Listed Page
NSU-4F	2		50 100 150 300 450 600 99.9 99.5 99 98 97 96 95 94 93 92 91 90	295
NSU-4G	2		99.9 99.5 99 98 97 96 95 94 93 92 91 90	
NSU-4H	2		99.9 99.5 99 98 97 96 95 94 93 92 91 90	

* The above shows the outlet nitrogen gas flow rate when the inlet air pressure is 0.7 MPa and the inlet air temperature is 25 °C.

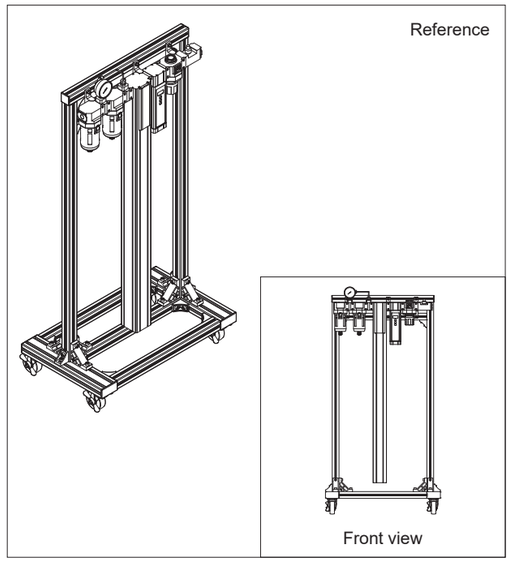
System example

● Compatible with the NS double cylinder system

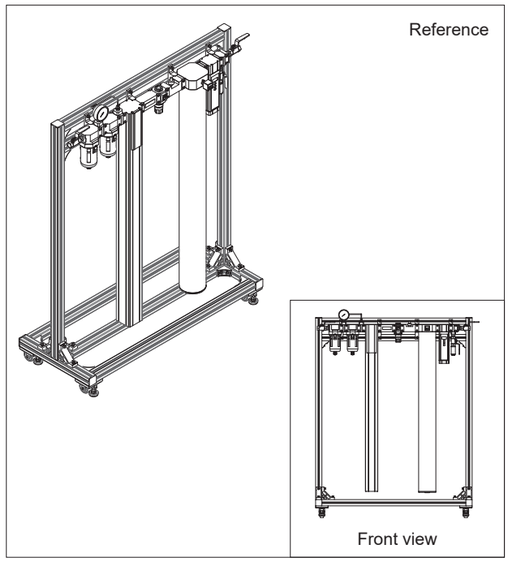


*Contact CKD for details.

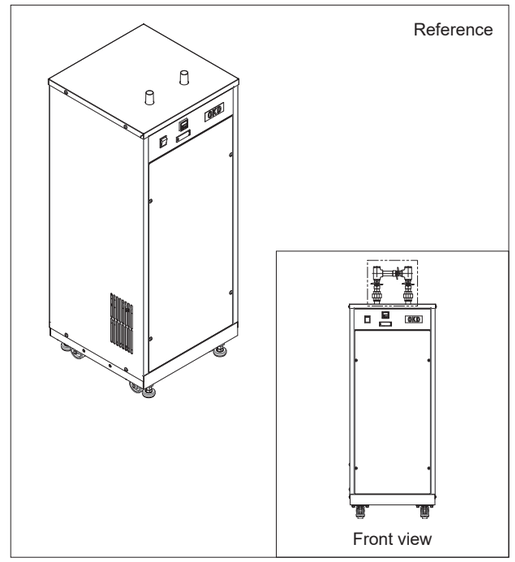
● Installation stand



● Intermittent operation tank combined system

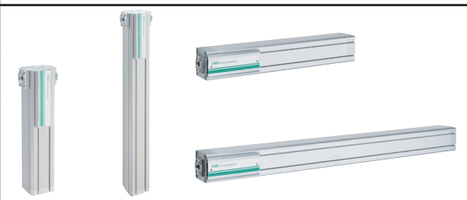


● Housing installation system



Supplement:
The indication of the nitrogen concentration of nitrogen gas obtained from the nitrogen gas purification unit accurately represents the total concentration of components other than oxygen (O_2). In addition to nitrogen and oxygen, the raw air contains argon, carbon dioxide and water vapor. Therefore, the product's nitrogen gas contains approximately 1% argon, which has as much difficulty permeating the membrane as nitrogen, whereas the easy permeating carbon dioxide lowers to a concentration of 10 to 50ppm, and water vapor reduces to -40°C at atmospheric dew point conversion.

■ Single cylinder

Model No.	Appearance	Flow rate(L/min(ANR)) and nitrogen concentration(%)	Listed Page
NS-3S1		10: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 20: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 40: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 60: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 80: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 120: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 160: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 200: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 260: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 320: 99.9 99.5 99 98 97 96 95 94 93 92 91 90	323
NS-3L1			
NS-4S1			
NS-4L1			

■ Double cylinder

Model No.	Quantity	Appearance	Flow rate(L/min(ANR)) and nitrogen concentration(%)	Listed Page
NS-4S2	2		50: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 100: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 150: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 300: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 450: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 600: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 750: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 900: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 1050: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 1300: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 2000: 99.9 99.5 99 98 97 96 95 94 93 92 91 90 2700: 99.9 99.5 99 98 97 96 95 94 93 92 91 90	323
NS-4S3	3			
NS-4L2	2			
NS-4L3	3			
NS-4L4	4			
NS-4S6	6			
NS-4S8	8			
NS-4SA	10			
NS-4L6	6			
NS-4L8	8			

* The above shows the outlet nitrogen gas flow rate when the inlet air pressure is 0.7 MPa and the inlet air temperature is 25 °C.

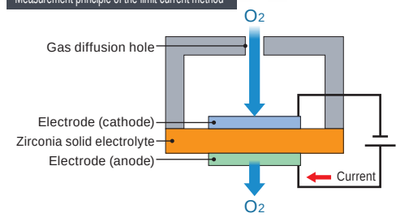
Oxygen concentration under pressurization can be known.



Limit current method

The PNA Series uses the limit current method. When voltage is applied to the zirconia element, an ion current flows with oxygen ions as carriers. When the oxygen concentration changes, the current characteristics change proportionally, enabling detection of the oxygen concentration. Durability and a long service life can be expected from this method.

Measurement principle of the limit current method

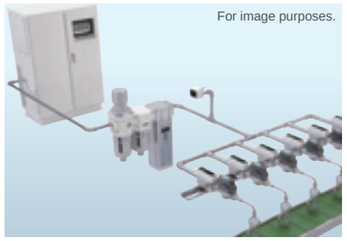


Inline oxygen monitor

PNA Series

Examples of applications

Terminal concentration check



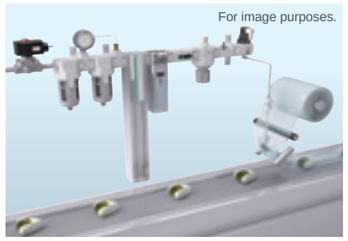
- Concentration check at start of operations
- Normal concentration check
- Understanding maintenance timing

Gas concentration check in explosion-proof areas



- Concentration check at start of operations
- Normal concentration check
- Alarm for hazardous concentrations

Nitrogen filling concentration check



- Concentration check during nitrogen filling
- Concentration setting

Checking gas for remaining oxygen removal

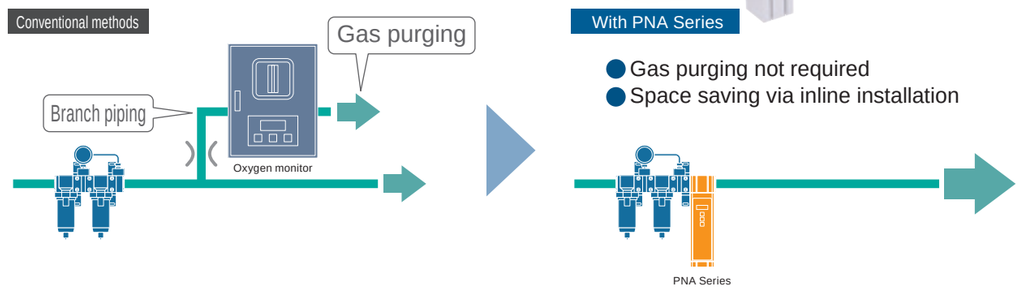


- Oxygen concentration check of removal gas
- Status monitoring

Saves energy, piping, and space

Realized pressure resistant structure for inline use.
Modular structure saves piping space
Conventional gas purging is no longer necessary





Easy to use

Oxygen/inert gas concentration display is switchable

› With 100-oxygen concentration, the inert gas concentration is clear at a glance.



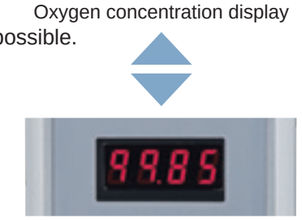
Oxygen concentration display

Upper/lower limit switch output setting and analog output are available

› Alarms can be set for concentration changes, and status monitoring is possible.

With self-diagnostic function

› Keeps you posted about abnormalities in the detector element.



Inert gas concentration display

Degree of protection IP65 or equivalent

› Wet or dry, it still functions.

Pressure-resistant structure

› Usable at pressures from atmospheric pressure through 1.0 MPa.

Compatible with FP Series for secure food manufacturing processes

Safe and secure for food manufacturing processes.

Material compatible with the Food Sanitation Act
Fluid passage section
Resin/rubber

FP Food Process®

This logo represents our commitment to support food manufacturing processes with safe CKD products.

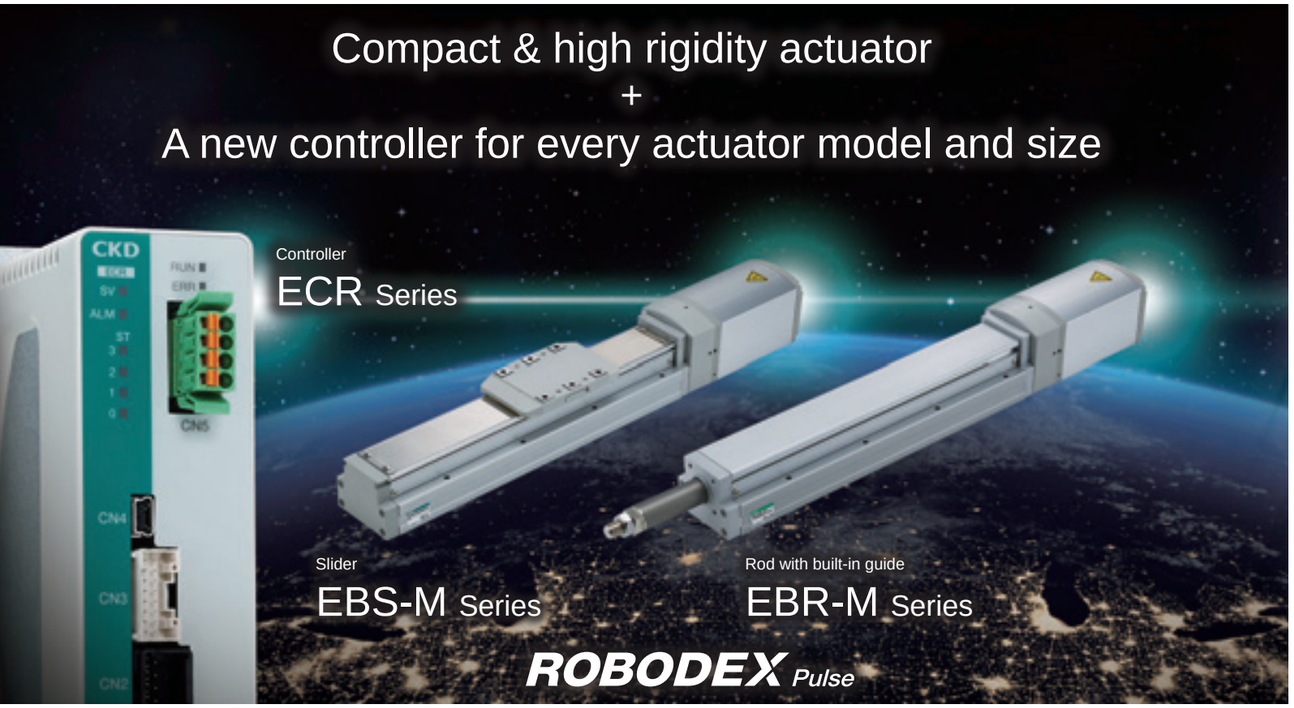
CKD after-sales service

Calibration certificates (with traceability series variation diagram) can be issued.

The sensor of the oxygen monitor may deteriorate depending on the working conditions. Therefore, regular inspection and adjustment is required to maintain stable performance. For even longer consistent performance, we recommend the yearly inspection and adjustment service (with calibration certificate).



Inspection/calibration/repair Feel free to contact us for details.

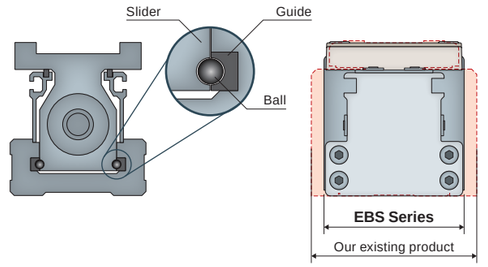


EBS

Smaller equipment footprint

Compact body with high rigidity

An outer rail is used for the guide which supports loads. The wide guide is integrated with the body to keep the system compact yet provide high rigidity.



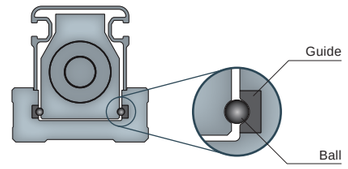
		Our existing product	EBS-05
Body width		64 mm	54 mm
Static allowable moment	MP	25.7 N·m	103 N·m
	MY	25.7 N·m	103 N·m
	MR	58 N·m	144 N·m

EBR

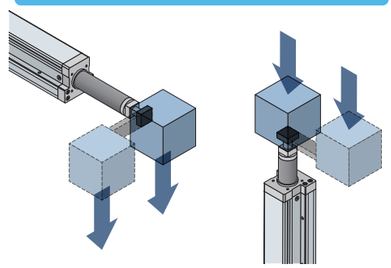
Reduces need for additional guides

Rod with built-in guide

Contains the same guide as the slider EBS. Provides a strong structure even for offset workpieces. It also provides a long stroke even greater than that of conventional products.



Supports offset workpieces



EBS

Easy maintenance

The product comes equipped with a lubrication port on both sides to allow direct lubrication from the exterior. Both the guide and ball screw can be maintained simply by lubricating from a single location, without disassembling the body.



FP1 series

Lubricant

Food-grade (NSF H1) lubricants are used for flow paths and sliding parts.

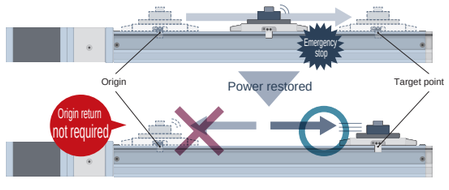
* The same grease is used for rod type EBR

EBS EBR

Shorter equipment stop times

Equipped as standard with a battery-less absolute encoder

The absolute encoder retains current position information without the use of a battery. The system does not need to return to origin when the power is turned ON, and there is no need to install an origin sensor. This allows quick recovery from an emergency stop or power outage. Because it uses no battery, there is no need to replace the encoder battery.

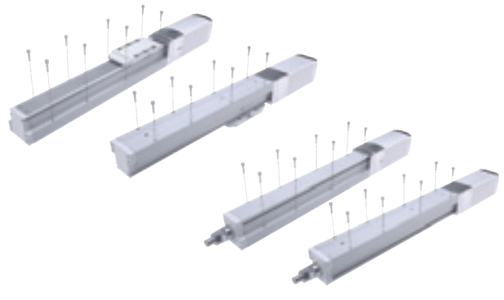


EBS EBR

Reduced installation time

Mounting holes provided on top and bottom of product

The product structure allows direct installation from the top or bottom, without disassembly. This significantly reduces work time, especially when installing from the top.

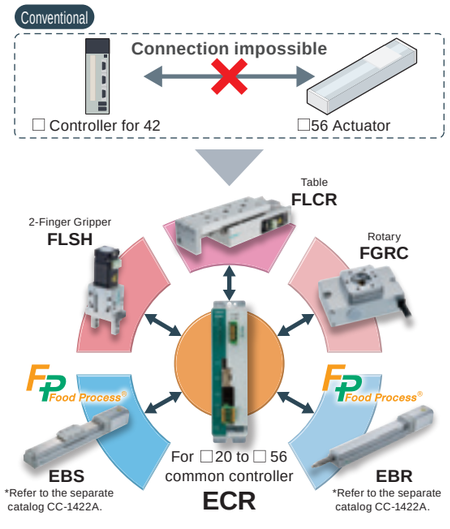


ECR

Reduced initial work hours and stock

"One controller" that connects to any actuator size

The same controller operates with actuators of different sizes and models. Equipped with an automatic recognition function that reads actuator information, for less work during initial setting. Further, with a common controller, work hours for selection and ordering can be reduced as well as inventory.



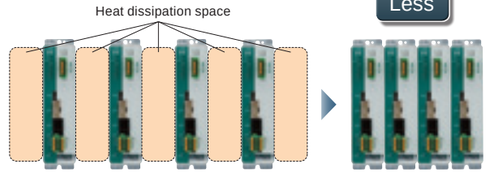
ECR

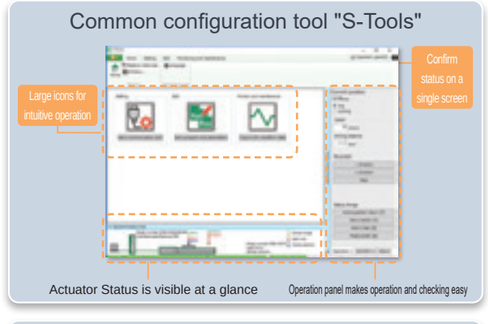
Reduced controller footprint

Compact, allowing adjacent installation

The optimized design eliminates the need for heat dissipation space at the sides.
This allows controllers to be installed next to one another.

56% Less





Compatible Network
CC-Link
IO-Link
EtherCAT
Parallel I/O

A wide range of variations corresponding to a wide range of applications

ROBODEX Std.

Actuator Motorless specification

Motorless specification allowing you to mount and use a servo motor or stepper motor you're familiar with. (7 in total)



Food Process®

	Slider						Rod
	Ball screw				Belt		
	EBS	ETS	ECS	EKS	ETV	ECV	EBR
							
Space saving	◎						◎
Variation		◎	○		○	○	
High speed		○	○	◎	◎	◎	
Fast tact				◎			
High rigidity	○			◎			○
Long stroke length					◎	◎	
Low dust specification			◎			◎	

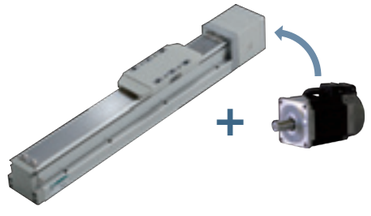
Top class motor manufacturers in the industry

List of motorless motor manufacturers

Supported servo motors Manufacturer list	EBS-L EBR-L	ETS/ECS/ ETV/ECV	EKS-L
Mitsubishi Electric Corporation	●	●	●
Delta Electronics Co., Ltd.	●	●	●
Sanyo Denki Co., Ltd.	●	●	●
YASKAWA Electric Corporation	●	●	●
Keyence Corporation	●	●	●
Panasonic Corporation	●	●	●
OMRON Corporation	●	●	●
Fuji Electric Co., Ltd.	●	●	●
FANUC CORPORATION	●	●	●
Bosch Rexroth AG	●	●	●
Rockwell Automation, Inc.	●	●	●
SIEMENS AG	●	●	●

Compatible stepping motor Manufacturer list (New)	EBS-L EBR-L	ETS ECS
Oriental Motor Co., Ltd.	●	●
MinebeaMitsumi Incorporated	●	●
Dyadic Systems Co.,Ltd.	●	●

* For compatible models and capacity, refer to the Electric Actuator Motorless General Catalog (CB-055A).



Slider EBS-L Series

Servo motor / Stepper motor



- Utilizes outer rail guide
- 3 sizes
- NEW Servo motor 50 to 200W compatible
- NEW Supports stepping motors 42 to 60
- Max. load capacity: 50kg (horizontal)
- Max. stroke length: 1100mm

Rod EBR-L Series

Servo motor / Stepper motor



- Utilizes outer rail guide
- 3 sizes
- NEW Servo motor 50 to 200W compatible
- NEW Supports stepping motors 42 to 60
- Max. load capacity: 50kg (horizontal)
- Max. stroke length: 700mm

Slider ETS Series

Servo motor / Stepper motor



- 8 sizes
- Servo motor 50 to 750W compatible
- NEW Supports stepping motors 42 to 60
- Max. load capacity: 150kg (horizontal)
- Max. stroke length: 1500mm

Slider (low dust generation) ECS Series

Servo motor / Stepper motor



- Full cover low dust specification
- 7 sizes
- Servo motor 100 to 750W compatible
- NEW Supports stepping motors 42 to 60
- Max. load capacity: 150kg (horizontal)
- Max. stroke length: 1500mm

Slider EKS-L Series

Servo motor



- Utilizes iron based outer rail guide
- 5 sizes
- Servo motor 50 to 750W compatible
- Max.workload: 118.5kg (horizontal)
- Max. stroke length: 1500mm

* Max. load capacity at acceleration of 0.5 G.

Slider ETV Series

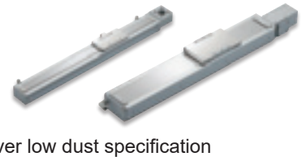
Servo motor



- 6 sizes
- Servo motor 100 to 750W compatible
- Max. load capacity: 85kg (horizontal)
- Max. stroke length: 3500mm

Slider (low dust generation) ECV Series

Servo motor



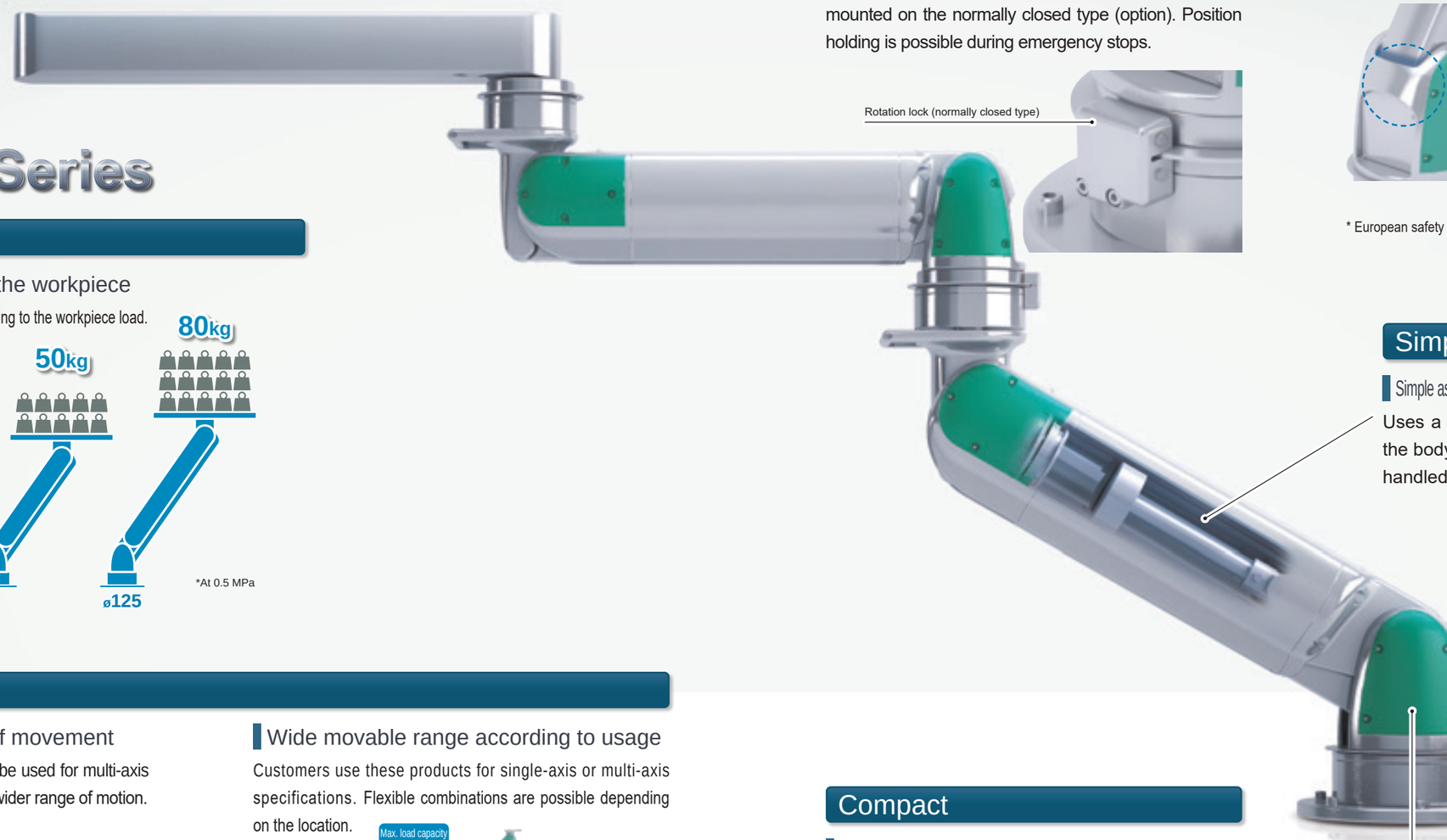
- Full cover low dust specification
- 6 sizes
- Servo motor 100 to 750W compatible
- Max. load capacity: 85kg (horizontal)
- Max. stroke length: 3500mm

HumanAssist

Transform workstyles with assistive devices.

Power Arm

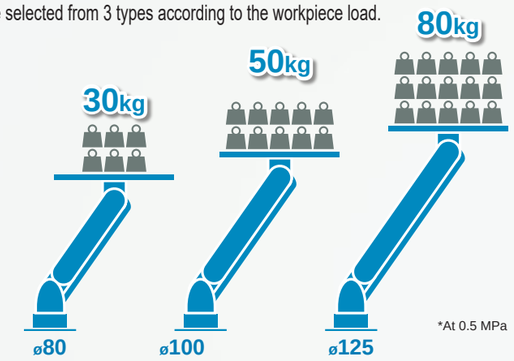
PAW Series



Variation

Arm variations tailored to the workpiece

The arm can be selected from 3 types according to the workpiece load.

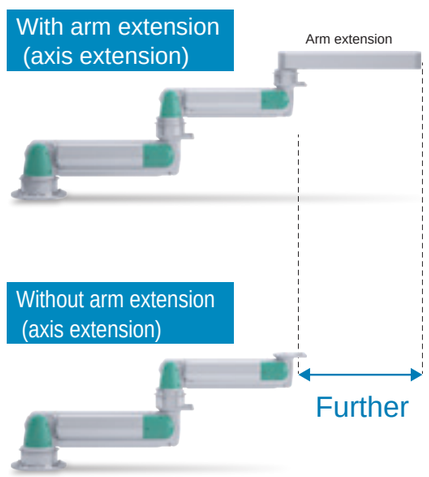


*At 0.5 MPa

Wide

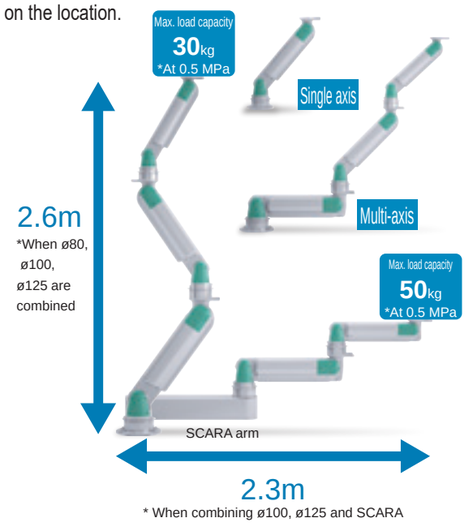
Achieving a wider range of movement

Arm extensions (axis extensions) can be used for multi-axis specification types to enable an even wider range of motion.



Wide movable range according to usage

Customers use these products for single-axis or multi-axis specifications. Flexible combinations are possible depending on the location.



* When combining ø100, ø125 and SCARA

Safety

Holds position when motor power (air, electric power) is down

In addition to a position-locking function (standard equipment) via block valve, a rotation lock can be mounted on the normally closed type (option). Position holding is possible during emergency stops.

Snag prevention

Fingers, etc., do not fit into the joint gaps.



In addition, the space remaining when the joints are closed keeps fingers from being snagged.



* European safety standard CE marking applies only to the PowerArm body.

Simple

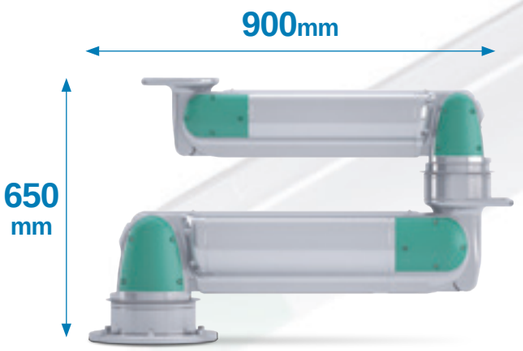
Simple assistive mechanism based on pneumatic pressure control

Uses a pneumatic pressure cylinder in part of the body. The simple mechanism can be easily handled.

Compact

Compact

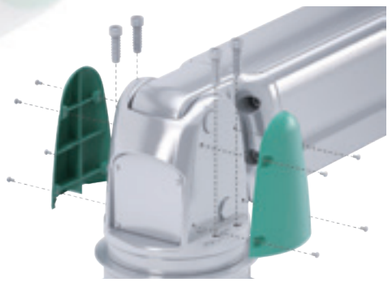
Multi-axis specification enables fold away for more compact storage than the arm or belt types.



Flexible

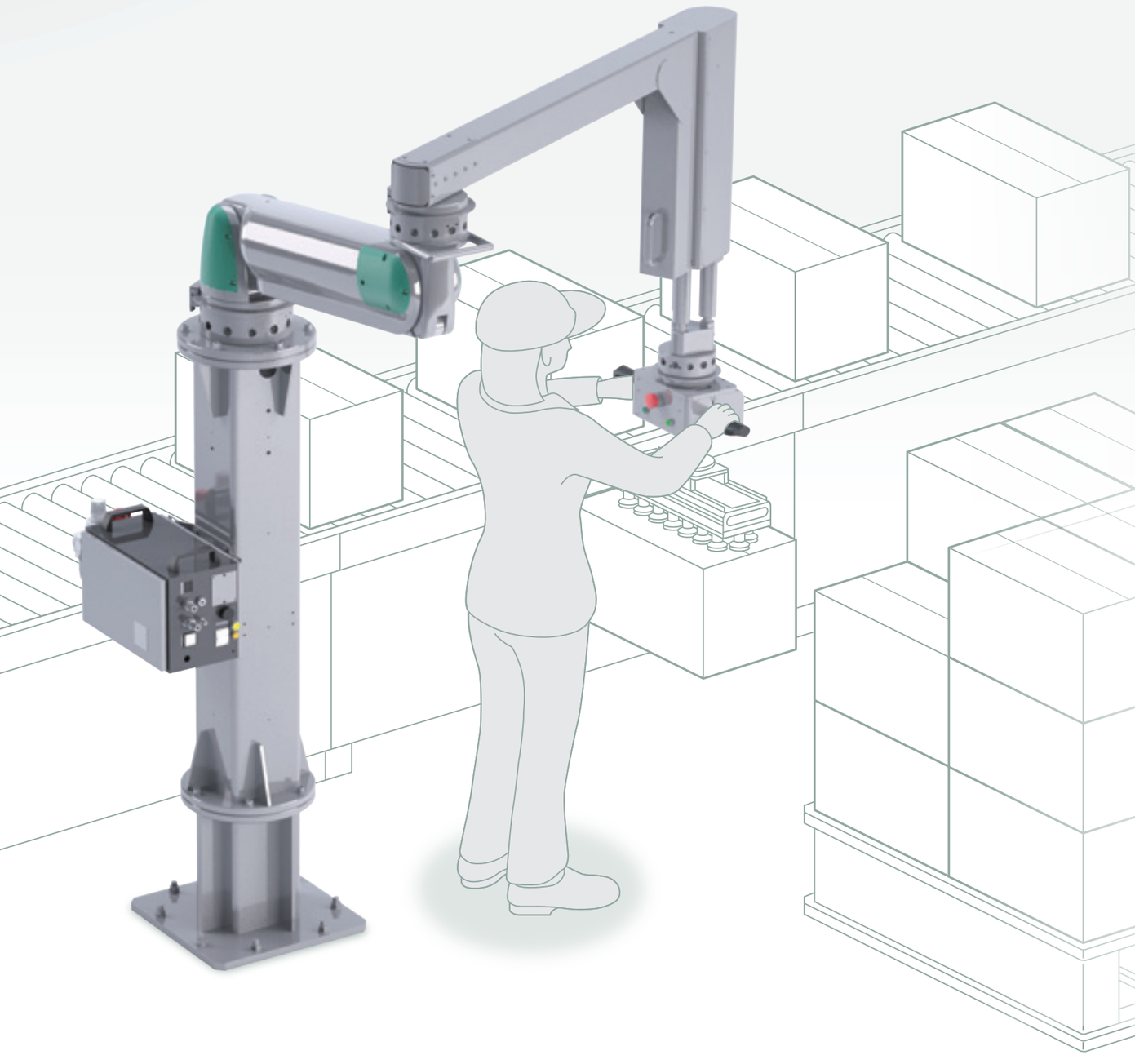
Customers can easily incorporate arms

With the simple structure, arm combinations can be flexibly changed by the customer.



HumanAssist

Palletizing specification that saves space and enables stacking and unloading work.



Specialized

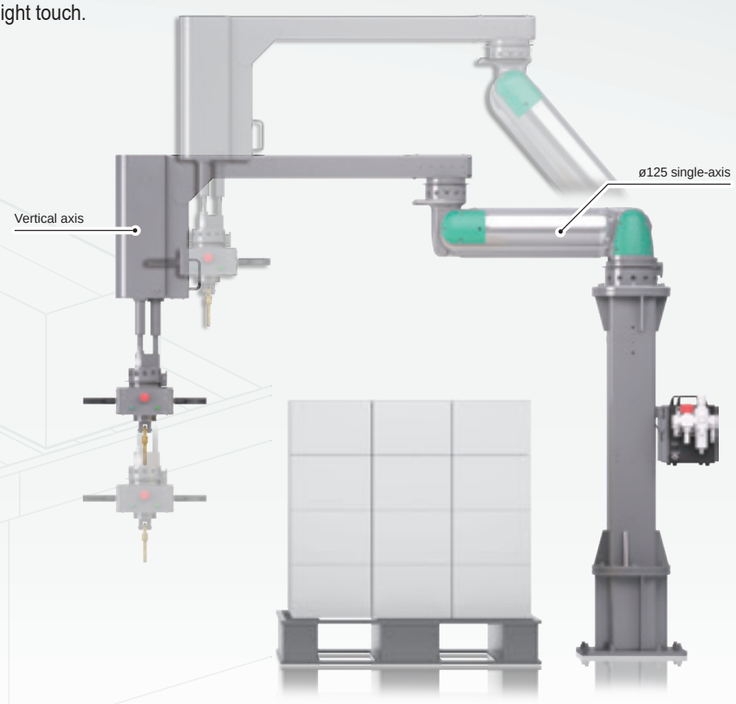
Focused on stacking and unloading tasks

A vertical axis is now equipped with this product to ensure easier use in the palletizing process while maintaining PowerArm signature features; a space-saving, compact design, and a light touch.

Wide

A wide moving range

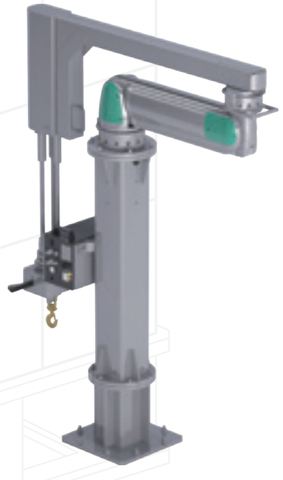
The combination of the ø125 single-axis and vertical axis provides a wider moving range.



Compact

Space saving storage

This product can be stored folded.

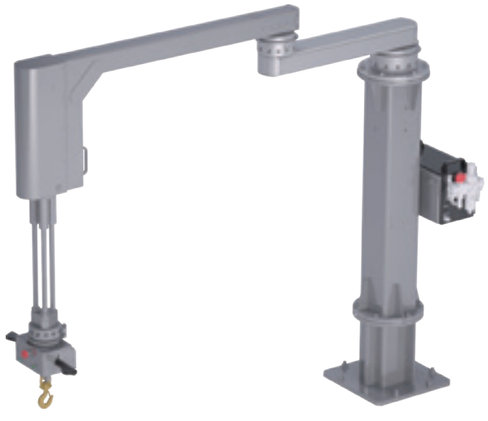


Stored condition

Variation

Simple combinations are possible

The vertical axis and SCARA arm can be combined and used if the product does not often make vertical strokes.



INDEX

Prevents food contamination by lubricants. Food-grade (NSF H1) lubricants are used.

FP1

Electric actuator Slider
EBS-M Series P1



Electric actuator Guide integrated rod
EBR-M Series P3



Electric actuator Slider
EBS-L Series P5



Electric actuator Guide integrated rod
EBR-L Series P9



Electric actuator Slider
ETS Series P13



Electric actuator Low dust generation
ECS Series P17



Electric actuator Belt type
ETV Series P21



Electric actuator Low dust generation belt type
ECV Series P23



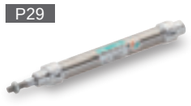
Electric actuator Fast tact/high rigidity
EKS-L Series P25



Pencil shaped cylinder
SCPD3 Series P27



Small bore size cylinder
CMK2 Series P29



Small bore size cylinder, stainless steel variation
CMK2-J Series P35



Round shaped cylinder
SCM Series P39



Tie rod air cylinders
SCG Series P45



Selex cylinder with T switch
SCA2 Series P49



Selex cylinder
SCS2 Series P55



Compact cylinder
SSD2 Series P57



Guided cylinder
STG-M Series P63



Rodless cylinder
SRL3 Series P67



Floating fitting
FJ Series P71



Feather hand (mini-parallel hand)
FH100 Series P73



Compact cross roller parallel hand
BHA/BHG Series P75



Compact wide parallel hand
HMF Series P79



Feather hand (mini-fulcrum hand)
FH500 Series P81



3-way finger bearing chuck
CKG Series P83



Powerful chuck
CKL2 Series P85



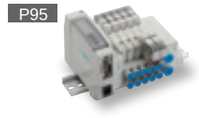
Powerful chuck with rubber cover
CKLG2 Series P87



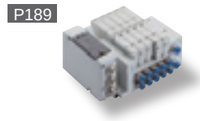
PowerArm
PAW Series P91



Pilot operated 3, 4, 5-port valve
4G Series P95



Pilot operated 3, 5-port valve
W4G*2 Series P189



Filter/regulator combination P229
C*020/ C*030/ C*040/ C*050/ C*060/ Series



Filter/regulator
W1*00 to W8*00 Series P239



Air filter
F1000 to F8000 Series P243



Oil mist filter
M(X)1000 to M(X)8000 Series P245



Regulator
R1*00 to R8*00 Series P249



Drain separator
FX Series P253



Reed switch compact pressure switch
P1100 to P8100 Series P255



Residual pressure exhaust valve P257
V1000/ V3000/ V3010/ V6010/ Series



Digital electro pneumatic regulator
EVD Series P261



Food Process®

Fitting
GW Series P265



Fitting (stainless steel Series)
ZW Series P267



Speed controller Elbow with push-in fitting
SC3W Series P273



Speed controller with adjusting dial
DSC Series P275



Speed controller line type with push-in fitting
SCL2 Series P277



Needle valve with adjusting dial
DVL-S Series P279



Speed controller
SC-M5 Series P281



Speed controller
SC1 Series P282



Metering valve with silencer
SMW/ SMW2 Series P283



Block valve
FPV Series P285



Quick valve
2QV/3QV Series P287



Single ejectors
VSH/VSC Series P289



Super dryer (High polymer membrane air dryer)
SU/SD Series P291



Nitrogen Gas Extraction Unit
NSU Series P295



Medium main line filter
AF Series P315



Pilot kick 2-port solenoid valve
APK Series P317



Air operated 2-port valve
SAB Series P319



Air operated 3-port valve
NAP Series P321



Materials compatible with the Food Sanitation Act are used

FP2

Nitrogen Gas Extraction Unit
NS Series P323



Oxygen monitor
PNA Series P329



Anti-bacterial/bacteria-removing filter P331
SFC/SFS Series



Suction pad
VSP Series P351



Pilot operated 2-port solenoid valve for compressed air
EXA Series P353



Compact pilot operated solenoid valve for water
FWD Series P355



Compact direct acting 2, 3-port solenoid valve
USB/G Series P357



Direct acting 2-port solenoid general purpose valve
AB31/41 Series P363



Direct acting 3-port solenoid general purpose valve
AG31/41/ 33/43/ 34/44 Series P365



Pilot 2-port solenoid general purpose valve for dry air
ADK11-Z Series P371



Diaphragm cylinder valve
LAD Series P373



Diaphragm cylinder valve
NAD Series P375



Diaphragm cylinder valve, manifold
GNAD Series P376



Compact rotary valves
CHB/ CHG Series P377



Pilot 2-port solenoid general purpose valve for dry air
MXB/ MXG Series P379



Pilot 2-port solenoid general purpose valve for dry air
SPK Series P383



Metal-free solenoid valves
MYB3 Series P385



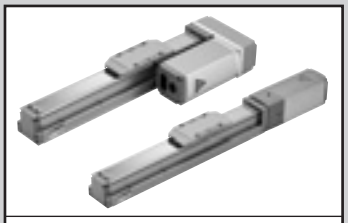
High corrosion resistant direct acting 2-port solenoid valve
HB Series P386



Check valve (nozzle)
CCN Series P387



Grease for pneumatic cylinder maintenance P89
Standard model supports. P401
Related products P404



Electric actuator EBS-M Series
Catalog No. CC-1422A

Electric actuator Slider

EBS-*M*-FP1 Series

● Applicable motor sizes: □35, □42, □56 Stepping motor with battery-less absolute encoder

EAR-compliant product (EAR99-embedded product)

Series variation

Type	Model No.	Motor Mounting Direction	Body width (mm)	Thread Lead (mm)	Max.workload (kg) *1 Horizontal	Max.workload (kg) *1 Vertical	Max.Pressing force (N)	Stroke (mm) and max. speed (mm/s) *2
Slider	EBS-04ME-06	Straight	44	6	16.6	8.3	177	400 mm/s (50–500 mm)
	EBS-04ME-12	Straight	44	12	13.3	3.3	89	800 (50–500 mm)
	EBS-04MR/D/L-06	Left/Right/Bottom	44	6	16.6	8.3	177	400 (50–500 mm)
	EBS-04MR/D/L-12	Left/Right/Bottom	44	12	13.3	3.3	89	700 (50–500 mm)
	EBS-05ME-02	Straight	54	2	45	24	385	130 (50–500 mm), 120 (550 mm), 105 (600 mm), 95 (650 mm), 80 (700 mm), 70 (750 mm)
	EBS-05ME-05	Straight	54	5	40	16.6	250	300 (50–500 mm), 270 (550 mm), 235 (600 mm), 200 (650 mm), 185 (700 mm)
	EBS-05ME-10	Straight	54	10	35	8.3	121	700 (50–500 mm), 625 (550 mm), 540 (600 mm), 475 (650 mm), 415 (700 mm), 370 (750 mm)
	EBS-05ME-20	Straight	54	20	16.6	4.5	44	1100 (50–500 mm), 1080 (550 mm), 950 (600 mm), 830 (650 mm), 740 (700 mm)
	EBS-05MR/D/L-02	Left/Right/Bottom	54	2	45	24	385	130 (50–500 mm), 120 (550 mm), 105 (600 mm), 95 (650 mm), 80 (700 mm), 70 (750 mm)
	EBS-05MR/D/L-05	Left/Right/Bottom	54	5	40	16.6	250	300 (50–500 mm), 270 (550 mm), 235 (600 mm), 200 (650 mm), 185 (700 mm)
	EBS-05MR/D/L-10	Left/Right/Bottom	54	10	35	8.3	121	600 (50–500 mm), 540 (550 mm), 475 (600 mm), 415 (650 mm), 370 (700 mm)
	EBS-05MR/D/L-20	Left/Right/Bottom	54	20	16.6	4.5	44	1100 (50–500 mm), 1080 (550 mm), 950 (600 mm), 830 (650 mm), 740 (700 mm)
	EBS-08ME-05	Straight	82	5	80	40	970	250 (50–600 mm), 220 (650 mm), 200 (700 mm), 180 (750 mm), 135 (800 mm), 120 (850 mm), 110 (900 mm), 100 (950 mm)
	EBS-08ME-10	Straight	82	10	70	18.3	477	550 (50–700 mm), 510 (750 mm), 450 (800 mm), 410 (850 mm), 370 (900 mm), 270 (950 mm), 240 (1000 mm), 225 (1050 mm), 200 (1100 mm)
	EBS-08ME-20	Straight	82	20	43.3	10	250	1100 (50–650 mm), 1000 (700 mm), 910 (750 mm), 820 (800 mm), 740 (850 mm), 540 (900 mm), 490 (950 mm), 450 (1000 mm), 410 (1050 mm), 410 (1100 mm)
	EBS-08MR/D/L-05	Left/Right/Bottom	82	5	80	40	970	225 (50–600 mm), 220 (650 mm), 200 (700 mm), 180 (750 mm), 135 (800 mm), 120 (850 mm), 110 (900 mm), 100 (950 mm)
	EBS-08MR/D/L-10	Left/Right/Bottom	82	10	70	18.3	477	550 (50–700 mm), 510 (750 mm), 450 (800 mm), 410 (850 mm), 370 (900 mm), 270 (950 mm), 240 (1000 mm), 225 (1050 mm), 200 (1100 mm)
	EBS-08MR/D/L-20	Left/Right/Bottom	82	20	43.3	8.3	250	1000 (50–650 mm), 910 (700 mm), 820 (750 mm), 740 (800 mm), 540 (850 mm), 490 (900 mm), 450 (950 mm), 410 (1000 mm), 410 (1050 mm), 410 (1100 mm)

* This data is at power supply voltage 48 VDC and acceleration/deceleration 0.3G.
*1 When wall-mounted, the load capacity is the same as when installed horizontally.
Load capacity varies according to acceleration/deceleration and speed.
*2 Stroke length is 50 pitch.

Common specifications

Item	Description
Encoder type	Battery-less absolute encoder
Repeatability mm	±0.01
Lost motion mm	0.1 or less
Degree of protection	IP40

Individual specifications

Item		EBS-04M				EBS-05M								EBS-08M					
Motor mounting direction		E		R/D/L		E				R/D/L				E			R/D/L		
Drive method		Ball screw ø10				Ball screw ø12								Ball screw ø16					
Screw lead mm		6	12	6	12	2	5	10	20	2	5	10	20	5	10	20	5	10	20
Motor size		□35				□42								□56					
Max.workload kg *1*2	Horizontal	16.6 (16.6)	13.3 (11.6)	16.6 (16.6)	13.3 (11.6)	45 (45)	40 (40)	35 (35)	16.6 (16.6)	45 (45)	40 (40)	35 (35)	16.6 (16.6)	80 (80)	70 (70)	43.3 (43.3)	80 (80)	70 (70)	43.3 (43.3)
	Vertical	8.3 (6.6)	3.3 (2.5)	8.3 (6.6)	3.3 (2.5)	24 (24)	16.6 (16.6)	8.3 (8.3)	4.5 (4.5)	24 (24)	16.6 (16.6)	8.3 (8.3)	4.5 (4.5)	40 (38.3)	18.3 (18.3)	10 (10)	40 (36.6)	18.3 (16.6)	8.3 (8.3)
Operation speed range *3*4 mm/s		7 to 400 (200)	15 to 800 (600)	7 to 400 (200)	15 to 700 (500)	2 to 130 (70)	6 to 300 (250)	12 to 700 (600)	25 to 1100 (900)	2 to 130 (70)	6 to 300 (250)	12 to 600 (500)	25 to 1100 (900)	6 up 250 (150)	12 up 550 (300)	25 up 1100 (600)	6 up 225 (100)	12 up 550 (300)	25 up 1000 (500)
Brake	Model/power supply voltage	Non-excitation operation, 24 VDC ±10%																	
	Power consumption W	7				7								8					
	Holding force N	126	63	126	63	471	188	94	47	471	188	94	47	754	377	188	754	377	188

*1 ( ) is the value at 24 VDC.
*2 Load capacity varies according to acceleration/deceleration and speed. Refer to the EBS-M Series of "Electric Actuator EBS-M/EBR-M/ECR Series (CC-1422A)" for details.
*3 ( ) is the max. speed at 24 VDC.
*4 The max. speed may decrease depending on the conditions.

How to order

EBS - 05 M E - 05 0300 N A N - C S03 - N - FP1

Model No. / A Body size / B Motor / C Motor mounting direction / D Screw lead / E Stroke / F Brake / G Encoder / H Relay cable / I Anti-rust treatment

Code	Description
A Body size	
04	Body width 44mm
05	Body width 54mm
08	Body width 82mm
B Motor	
M	Yes
C Motor mounting direction	
E	Straight mounting
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	
0050 to 1100	50 mm (In 50 mm increments) 1100 mm
F Brake	***1**
N	None
B	Yes
G Encoder	
A	Battery-less absolute encoder
H Relay cable	
N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R 01	Movable cable 1m
R 03	Movable cable 3 m
R 05	Movable cable 5 m
R 10	Movable cable 10 m
I Anti-rust treatment	
N	None
U	Yes

[Example of model No.]

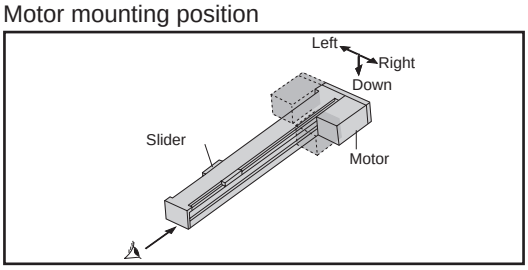
EBS-05ME-050300NAN-CS03-N-FP1

- A Body size: body width 54mm
- B Motor: Yes
- C Motor mounting direction: Straight
- D Screw lead: 5 mm
- E Stroke length: 300 mm
- F Brake: None
- G Encoder: Battery-less absolute encoder
- H Relay cable: fixing cable 3 m
- I Anti-rust treatment: none

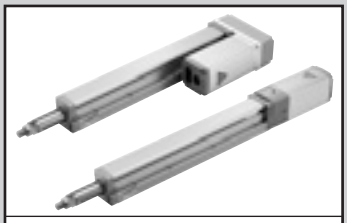
*1 When using vertically"Yes".

Select the controller from the separate catalog (No.CC-1422A).

Motor mounting position



For details on dimensions and model selection, refer to the "Electric actuator EBS-M/EBR-M/ECR Series(CC-1422A)" EBS-M Series.



Electric actuator EBR-M Series
Catalog No. CC-1422A

Electric actuator Rod with built-in guideType

EBR-*M*-FP1 Series

● Applicable motor sizes: □35, □42, □56 Stepping motor with battery-less absolute encoder

EAR-compliant product (EAR99-embedded product)

Series variation

Type	Model No.	Motor Mounting Direction	Body width (mm)	Thread Lead (mm)	Max.workload (kg) *1 Horizontal	Max.workload (kg) *1 Vertical	Max.Pressing force (N)	Stroke (mm) and max. speed (mm/s) *2 50 mm	100	150	200	250	300	350	400	450	500	550	600	650	700
Rod	EBR-04ME-06	Straight	44	6	33.3	10	131	350 mm/s				300	250								
	EBR-04ME-12			12	18.3	5	69	600					490								
	EBR-04MR/D/L-06	Left/Right/ Bottom		6	33.3	9.1	131	350				300	250								
	EBR-04MR/D/L-12			12	18.3	5	69	600					490								
	EBR-05ME-02	Straight	54	2	80	24	397	130					85								
	EBR-05ME-05			5	60	16.6	193	330					210								
	EBR-05ME-10			10	50	10	94	600					420								
	EBR-05ME-20			20	20	4.1	33	800													
	EBR-05MR/D/L-02	Left/Right/Bottom		2	80	24	397	120					85								
	EBR-05MR/D/L-05			5	60	16.6	193	330					210								
	EBR-05MR/D/L-10			10	36.6	8.3	94	500					420								
	EBR-05MR/D/L-20			20	18.3	4.1	33	800													
	EBR-08ME-05	Straight	82	5	80	38.3	1050	225						200							
	EBR-08ME-10			10	70	18.3	468	450						400							
	EBR-08ME-20			20	35	11.6	213	900						600							
	EBR-08MR/D/L-05	Left/Right/Bottom		5	80	38.3	1050	225						200							
	EBR-08MR/D/L-10			10	70	18.3	468	450						400							
	EBR-08MR/D/L-20			20	35	8.3	213	700						600							

* This data is at power supply voltage 48 VDC and acceleration/deceleration 0.3G.
*1 When wall-mounted, the load capacity is the same as when installed horizontally.
Load capacity varies according to acceleration/deceleration and speed.
*2 Stroke length is 50 pitch.

Common specifications

Item	Description
Encoder type	Battery-less absolute encoder
Repeatability mm	±0.01
Lost motion mm	0.1 or less
Degree of protection	IP40

Individual specifications

Item		EBR-04M				EBR-05M								EBR-08M					
Motor mounting direction		E		R/D/L		E				R/D/L				E			R/D/L		
Drive method		Ball screw ø10				Ball screw ø12								Ball screw ø16					
Screw lead mm		6	12	6	12	2	5	10	20	2	5	10	20	5	10	20	5	10	20
Motor size		□35				□42								□56					
Max.workload kg *1*2	Horizontal	33.3 (33.3)	18.3 (18.3)	33.3 (33.3)	18.3 (18.3)	80 (80)	60 (60)	50 (50)	20 (20)	80 (80)	60 (60)	36.6 (36.6)	18.3 (18.3)	80 (80)	70 (70)	35 (23.3)	80 (80)	70 (70)	35 (23.3)
	Vertical	10 (9.1)	5 (4.5)	9.1 (9.1)	5 (4.5)	24 (24)	16.6 (15)	10 (6.6)	4.1 (4.1)	24 (24)	16.6 (15)	8.3 (6.6)	4.1 (4.1)	38.3 (35)	18.3 (15)	11.6 (10)	38.3 (35)	18.3 (15)	8.3 (8.3)
Operation speed range *3*4 mm/s		7 up 350 (250)	15 up 600 (500)	7 up 350 (200)	15 up 600 (400)	2 up 130 (80)	6 up 330 (275)	12 up 600 (500)	25 up 800 (700)	2 up 120 (80)	6 up 330 (250)	12 up 500 (400)	25 up 800 (700)	6 up 225 (150)	12 up 450 (300)	25 up 900 (500)	6 up 225 (100)	12 up 450 (300)	25 up 700 (500)
Brake	Model/power supply voltage	Non-excitation operation, 24 VDC ±10%																	
	Power consumption W	7				7								8					
	Holding force N	126	63	126	63	471	188	94	47	471	188	94	47	754	377	188	754	377	188

*1 ( ) is the value at 24 VDC.
*2 Load capacity varies according to acceleration/deceleration and speed. Refer to the EBR-M Series of "Electric Actuator EBS-M/EBR-M/ECR Series (CC-1422A)" for details.
*3 ( ) is the max. speed at 24 VDC.
*4 The max. speed may decrease depending on the conditions.

How to order

EBR - 05 M E - 00 - 05 0300 N A N - C S03 - FP1

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	
M	Yes

Ⓒ Motor mounting direction

Code	Description
Ⓒ Motor mounting direction	
E	Straight mounting
R	Right mounting
D	Bottom mounting
L	Left mounting

Ⓓ Mounting

Code	Description
Ⓓ Mounting	
00	Basic
FA	Rod side flange

Ⓔ 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	***1**
N	None
B	Yes

Ⓗ Encoder

Code	Description
Ⓗ Encoder	
A	Battery-less absolute encoder

Ⓘ Relay cable

Code	Description
Ⓘ Relay cable	
N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R01	Movable cable 1 m
R03	Movable cable 3 m
R05	Movable cable 5 m
R10	Movable cable 10 m

[Example of model No.]

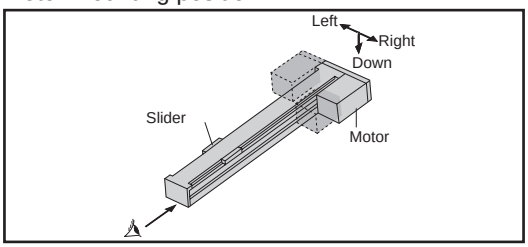
EBR-05ME-00-050300NAN-CS03-FP1

Ⓐ Body size: body width 54mm
Ⓑ Motor: Yes
Ⓒ Motor mounting direction: Straight
Ⓓ Mounting: Basic
Ⓔ Screw lead: 5 mm
Ⓕ Stroke length: 300 mm
Ⓖ Brake: None
Ⓗ Encoder: Battery-less absolute encoder
Ⓘ Relay cable: fixing cable 3 m

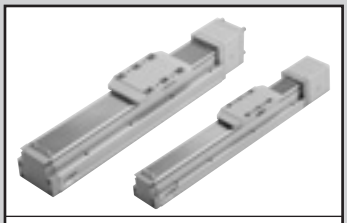
*1 When using vertically"Yes".

Select the controller from the separate catalog (No.CC-1422A).

Motor mounting position



For details on dimensions and model selection, refer to the "Electric actuator EBS-M/EBR-M/ECR Series(CC-1422A)" EBR-M Series.



Electric Actuator Motorless General
Catalog No. CB-055A

Servo motor compatible, Electric actuator, Motorless specification
Slider (standard model)

EBS-*L*-FP1 Series

● Applicable motor capacity: 50W/100W/200W servo motor

RoHS CAD

Specifications

Item			EBS-04LE/R/D/L	
Applicable motor capacity			50 W servo motor	
Drive method			Ball screw ø10	
Stroke length *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 capacity			100 W servo motor			
Drive method			Ball screw ø12			
Stroke length *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 capacity			200 W servo motor		
Drive method			Ball screw ø16		
Stroke length *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		

*1 Stroke length is 50 pitch.
*2 Rated thrust and maximum load capacity are guideline values, assuming that the motor mounted will output the rated torque.
*3 The same load capacity as when installed horizontally when wall-mounted.

How to order

EBS - 05 L E - 02 0300 N NN - M 1 N N - N - FP1

Model No. EBS

Code	Description
A Body size	
04	Body width 44mm
05	Body width 54mm
08	Body width 82mm
B Motor	
L	None
C Motor mounting direction	
E	Straight mounting
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	
0050 to 1100	50 mm (In 50 mm increments) to 1100 mm
F Brake	
N	None
G Mounted motor specification	
M, Y, P, F	Refer to the table below for mounted motor specifications. to change the setting.
H Motor capacity	
H	50W (Body size: 04)
1	100 W (body size: 05)
2	200 W (body size: 08)
I Origin sensor (1 pc) *1	
N	None
C	Yes (Attached at shipment)
J Limit sensor (2 pcs) *1	
N	None
B	Yes (Attached at shipment)
K Anti-rust treatment	
N	None
U	Yes

[Example of model No.]

EBS-05LE-020300NNN-M1NN-N-FP1

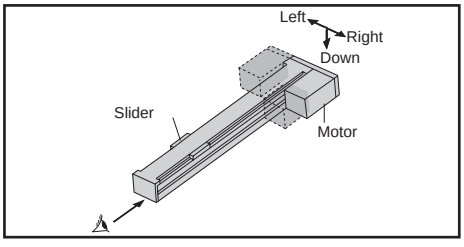
- A Body size: body width 54mm
- B Motor: none
- C Motor mounting direction: Straight
- D Screw lead: 2 mm
- E Stroke length: 300 mm
- F Brake: None
- G Mounted motor specifications: Manufactured by Mitsubishi Electric Co., Ltd.
- H Motor capacity: 100 W
- I Origin sensor: none
- J Limit sensor: none
- K Anti-rust treatment: none

*1 Origin sensor and limit sensor are a set.
As it is both-or-nothing, select "None" for both.

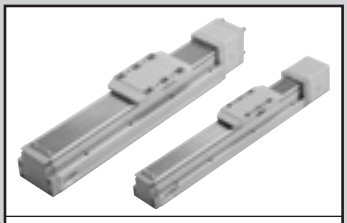
G Mounted motor specification

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 No. CB-055A

Stepper motor compatible, Electric actuator, Motorless specifications
Slider (standard model)

EBS-*L*-FP1 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 length *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 length *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 length *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		

*1 Stroke length 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 The same load capacity as when mounted horizontally for wall mounting.

How to order

EBS - 05 L E - 02 0300 N NN - A A N N - N - FP1

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	
A	Refer to the table below for mounted
B	motor specifications.
C	to change the setting.
Ⓗ 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	
N	None
U	Yes

[Example of model No.]

EBS-05LE-020300NNN-AANN-N-FP1

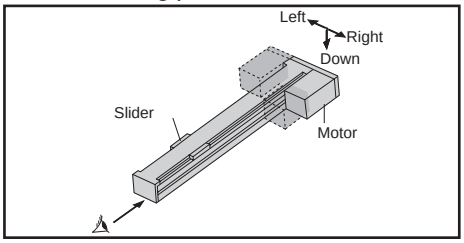
- ⒶBody size: body width 54mm
- ⒷMotor: none
- ⒸMotor mounting direction: Straight
- ⒹScrew lead: 2 mm
- ⒺStroke length: 300 mm
- ⒻBrake: None
- ⒼMounted motor specification: Oriental Motor Co., Ltd.
- ⒽMotor size: □42
- ⒾOrigin sensor: none
- ⒿLimit sensor: none
- ⓀAnti-rust treatment: none

*1 Origin sensor and limit sensor are a set.
As it is both-or-nothing, select "None" for both.

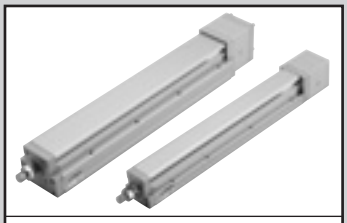
Ⓖ Mounted motor specification

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 EBS-L Series stepping motor support in "Electric Actuator Motorless (CB-055A)".



Electric Actuator Motorless General Catalog No. CB-055A

Servo motor compatible, Electric actuator, Motorless specification
Rod with built-in guide

EBR-*L*-FP1 Series

● Applicable motor capacity: 50W/100W/200W servo motor

RoHS CAD

Specifications

Item			EBR-04LE/R/D/L	
Applicable motor capacity			50 W servo motor	
Drive method			Ball screw ø10	
Stroke length *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 capacity			100 W servo motor			
Drive method			Ball screw ø12			
Stroke length *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 capacity			200 W servo motor		
Drive method			Ball screw ø16		
Stroke length *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		

*1 Stroke length is 50 pitch.
*2 When wall-mounted, the same load capacity 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 - FP1

Model No. EBR

Code	Description
A Body size	
04	Body width 44mm
05	Body width 54mm
08	Body width 82mm
B Motor	
L	None
C Motor mounting direction	
E	Straight mounting
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	
0050 to 0700	50 mm (In 50 mm increments) 700 mm
F Brake	
N	None
G Mounted motor specification	
M, Y, P, F	Refer to the table below for mounted motor specifications. to change the setting.
H Motor capacity	
H	50W (Body size: 04)
1	100 W (body size: 05)
2	200 W (body size: 08)
I Origin sensor (1 pc)	*1
N	None
C	Yes (Attached at shipment)
J Limit sensor (2 pcs)	*1
N	None
B	Yes (Attached at shipment)

[Example of model No.]

EBR-05LE-00-020050NNN-M1NN-FP1

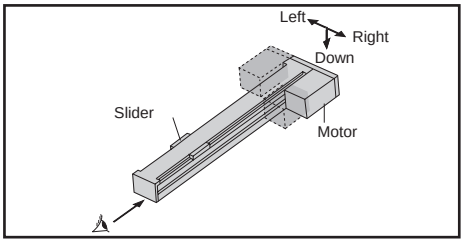
- A Body size: body width 54mm
- B Motor: none
- C Motor mounting direction: Straight
- D Screw lead: 2 mm
- E Stroke length: 50 mm
- F Brake: None
- G Mounted motor specifications: Manufactured by Mitsubishi Electric Co., Ltd.
- H Motor capacity: 100 W
- I Origin sensor: none
- J Limit sensor: none

*1 Origin sensor and limit sensor are a set.
As it is both-or-nothing, select "None" for both.

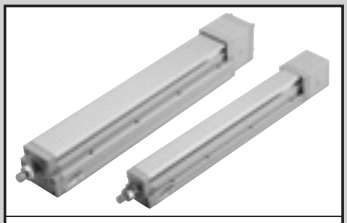
G Mounted motor specification

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 No. CB-055A

Electric actuator, Stepper motor compatible, Motorless specifications
Rod with built-in guideType

EBR-*L*-FP1 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 length *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 length *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 length *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		

*1 Stroke length 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 The same load capacity as when mounted horizontally for wall mounting.

How to order

EBR - 05 L E - 00 - 02 0050 N NN - A A N N - FP1

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	Refer to the table below for mounted
B	motor specifications.
C	to change the setting.

Ⓗ 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-FP1

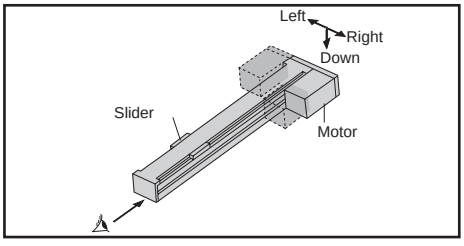
- Ⓐ Body size: body width 54mm
- Ⓑ Motor: none
- Ⓒ Motor mounting direction: Straight
- Ⓓ Screw lead: 2 mm
- Ⓔ Stroke length: 50 mm
- Ⓕ Brake: None
- Ⓖ Mounted motor specification: Oriental Motor Co., Ltd.
- Ⓗ Motor size:□42
- Ⓘ Origin sensor: none
- Ⓙ Limit sensor: none

*1 Origin sensor and limit sensor are a set.
As it is both-or-nothing, 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

NSF H1



Electric Actuator Motorless General Catalog
Catalog No. CB-055A

Servo motor compatible electric actuator Motorless specification
Slider type (ball screw drive)

ETS-FP1 Series

● Applicable motor capacity: 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 capacity			100 W servo motor					
Drive method			Ball screw ø12					
Ball screw accuracy grade			C7					
Stroke length *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 capacity			100 W/200W servo motor							
Drive method			Ball screw ø16							
Ball screw accuracy grade			C7							
Stroke length *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 capacity			200 W/400W servo motor							
Drive method			Ball screw ø16							
Ball screw accuracy grade			C7							
Stroke length *1		mm	50 to 1050							
Screw lead		mm	5	10	16	20	5	10	16	20
Max.workload *2	Horizontal kg	200 W	70	47	30	24	95	75	44	35
		400 W	70	47	30	24	110	88	48	40
	Vertical kg	200 W	17	12	6	4	27	18	7	6
		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 capacity			400 W/750W servo motor				750 W servo motor			
Drive method			Ball screw ø20				Ball screw ø25			ø20
Ball screw accuracy grade			C7							
Stroke length *1		mm	50 to 1250				50 to 1500			
Screw lead		mm	5	10	20	40	5	10	25	40
Max.workload *2	Horizontal kg	400 W	120	110	75	35	-	-	-	-
		750 W	120	120	83	50	150	150	120	60
	Vertical kg	400 W	40	30	14	7	-	-	-	-
		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 length is 50 pitch.
*2 Rated thrust and maximum load capacity are guideline values, assuming that the motor mounted will output the rated torque.
*3 The same load capacity as when installed horizontally when wall-mounted.

How to order

How to order

ETS - 06 - 05 040 - E M 1 N C B D P - M - FP1

- Model No.
- A Body size
- B Screw lead
- C Stroke
- D Motor mounting direction
- E Mounted motor specification
- F Motor capacity
- G Brake
- H Origin sensor
- I Limit sensor
- J Grease nipple
- K Positioning pin hole
- L Magnet slider method

[Example of model No.]

ETS-06-05040-EM1NCBDP-M-FP1

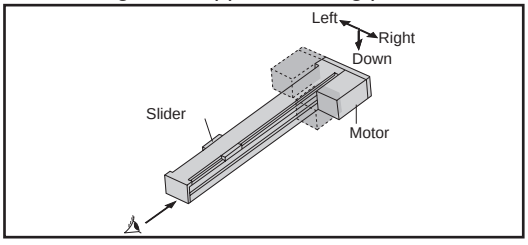
- A Body size: body width 65mm
- B Screw lead: 5 mm
- C Stroke length: 400 mm
- D Motor mounting method: straight installation
- E Mounted motor specification: Mitsubishi Electric Corporation
- F Motor capacity: 100 W
- G Brake: None
- H Origin sensor: Outside motor side
- I Limit sensor: Outside
- J grease nipK: None (Body mounting direction: Bottom side)
- K Positioning pin hole: Yes
- L Magnet slider method: Yes

*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, select "None" for both.
The sensor dog is assembled at shipment regardless of the presence of the sensor.
*3 ETS-05/06 uses a magnet slider method.
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



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 *1	
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 capacity	
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	Adoption

For the motor list, dimensions and model selection recommended for mounting, refer to ETS Series servo motor compatibility in "Electric Actuator Motorless (CB-055A)".



Electric Actuator Motorless General Catalog No. CB-055A

Stepper motor, compatible electric actuator, Motorless specifications
Slider type (ball screw drive)

ETS-FP1 Series

● Applicable motor sizes: □42/□56 /□60 Stepper 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 length *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 *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 length *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 *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 length *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
	Vertical kg	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 length 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 The same load capacity as when mounted horizontally for wall mounting.

How to order

ETS - 06 - 05 040 - E A A N C B D P - M - FP1

- 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

[Example of model No.]

ETS-06-05040-EAANCBDP-M-FP1

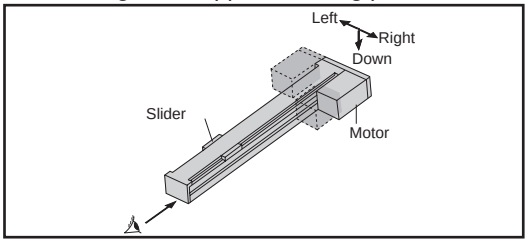
- A Body size: body width 65mm
- B Screw lead: 5 mm
- C Stroke length: 400 mm
- D Motor mounting method: straight installation
- E Mounted motor specification: Oriental Motor Co., Ltd.
- F Motor size: □42
- G Brake: None
- H Origin sensor: Outside motor side
- I Limit sensor: Outside
- J grease nipK: None (Body mounting direction: Bottom side)
- K Positioning pin hole: Yes
- L Magnet slider method: Yes

*1 Origin sensor and limit sensor are a set.
As it is both-or-nothing, select "None" for both.
The sensor dog is assembled at shipment regardless of the presence of the sensor.
*2 ETS-05/06 uses a magnet slider method.
Other sizes use the standard.

E Mounted motor specification

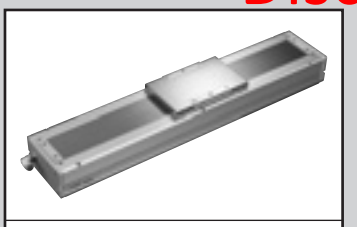
Manufacturer	□42	□56	□60
Oriental Motor Co., Ltd.	A	-	A
MinebeaMitsumi Incorporated	B	B	-
Dyadic Systems Co.,Ltd.	B	C	-

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	□62 (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	Adoption

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)".



Electric Actuator Motorless General Catalog No. CB-055A

Electric actuator, Servo motor compatible, Motorless specifications
Slider (ball screw drive low dust specifications)

ECS-FP1 Series

● Applicable motor capacity: 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 capacity			100 W servo motor					
Drive method			Ball screw ø12					
Ball screw accuracy grade			C7					
Stroke length *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 capacity			100 W servo motor							
Drive method			Ball screw ø16							
Ball screw accuracy grade			C7							
Stroke length *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 capacity			200 W/400W servo motor				400 W/750W servo motor			
Drive method			Ball screw ø16				Ball screw ø20			
Ball screw accuracy grade			C7							
Stroke length *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 capacity			750 W servo motor			
Drive method			Ball screw ø25			ø20
Ball screw accuracy grade			C7			
Stroke length *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			

*1 Stroke length is 50 pitch.
*2 Rated thrust and maximum load capacity are guideline values, assuming that the motor mounted will output the rated torque.
*3 The same load capacity as when installed horizontally when wall-mounted.

How to order

ECS - 06 - 05 040 - E M 1 N C B N P - M - FP1

- Model No.
- A Body size
- B Screw lead
- C Stroke
- D Motor mounting direction
- E Mounted motor specification
- F Motor capacity
- G Brake
- H Origin sensor
- I Limit sensor
- J Grease nipple
- K Positioning pin hole
- L Magnet slider method

[Example of model No.]

ECS-06-05040-EM1NCBNP-M-FP1

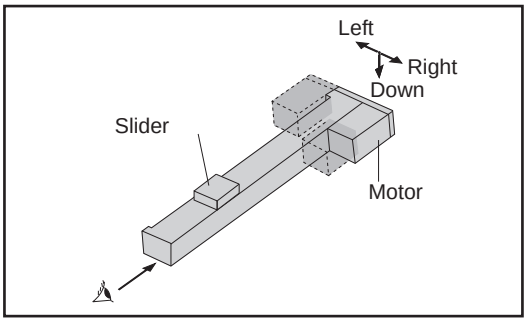
- A Body size: body width 65mm
- B Screw lead: 5 mm
- C Stroke length: 100 mm
- D Motor mounting direction: Straight
- E Mounted motor specification: Mitsubishi Electric Corporation
- F Motor capacity: 100 W
- G Brake: None
- H Origin sensor: Outside motor side
- I Limit sensor: Outside
- J Grease nipple: None (Body mounting direction: Standard)
- K Positioning pin hole: Yes
- L Magnet slider method: Yes

*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, select "None" for both. The sensor dog is assembled at shipment regardless of the presence of the sensor.
*3 ECS-05/06 uses a magnet slider method. 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

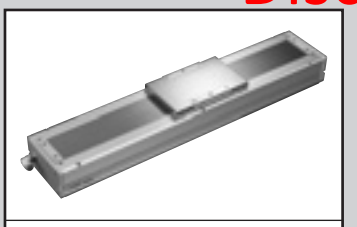


Code	Description
A Body size	
05	Body width 51mm
06	Body width 65mm
10	Body width 102mm
12	Body width 102mm
14	Body width 135mm
17	Body width 170mm
22	Body width 220mm
B Screw lead	
02	2 mm
05	5 mm
10	10 mm
16	16 mm
20	20 mm
25	25 mm
40	40 mm
C Stroke	
005 to 150	50 mm (In 50 mm increments) 1500 mm
D Motor mounting direction *1	
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 capacity	
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) *2F	
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	Adoption

Refer to ECS Series servo motor compatibility in "Electric Actuator Motorless (CB-055A)" for the motor list, dimensions and model selection recommended for mounting.

Discontinued some variations

NSF H1



Electric Actuator Motorless General Catalog No. CB-055A

Electric actuator, Stepper motor compatible, Motorless specifications
Slider (ball screw drive low dust specifications)

ECS-FP1 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 length *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 *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 length *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 *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 length *1	mm	50 to 1050			
Screw lead	mm	5	10	16	20
Max.workload *2	Horizontal kg	110	88	48	40
	Vertical kg	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			

*1 Stroke length 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 The same load capacity as when mounted horizontally for wall mounting.

How to order

ECS - 06 - 05 040 - E A A N C B N P - M - FP1

- 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 ethod

[Example of model No.]

ECS-06-05040-EAANCBNP-M-FP1

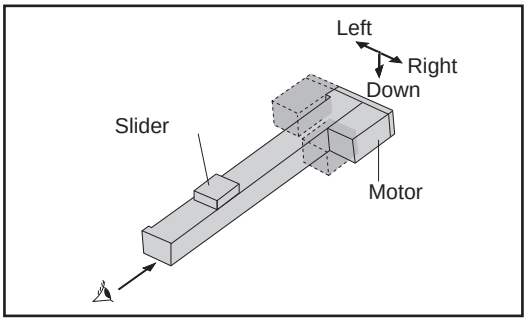
- A Body size: body width 65mm
- B Screw lead: 5 mm
- C Stroke length: 100 mm
- D Motor mounting direction: Straight
- E Mounted motor specification: Oriental Motor Co., Ltd.
- F Motor size:□42
- G Brake: None
- H Origin sensor: Outside motor side
- I Limit sensor: Outside
- J Grease nipple: None (Body mounting direction: Standard)
- K Positioning pin hole: Yes
- L Magnet slider method: Yes

*1 Origin sensor and limit sensor are a set.
As it is both-or-nothing, select "None" for both. The sensor dog is assembled at shipment regardless of the presence of the sensor.
*2 ECS-05/06 uses a magnet slider method.
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

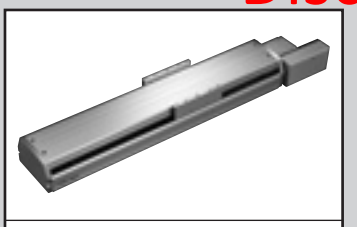


Code	Description
A Body size	
05	Body width 51mm
06	Body width 65mm
10	Body width 102mm
12	Body width 102mm
14	Body width 135mm
B Screw lead	
02	2 mm
05	5 mm
10	10 mm
16	16 mm
20	20 mm
C Stroke	
005 to 105	50 mm (In 50 mm increments) 1050 mm
D Motor mounting direction	
E	Straight mounting
R	Right mounting
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	Adoption

For the motor list, dimensions and model selection recommended for mounting, refer to ECS Series stepping motor compatibility in "Electric Actuator Motorless (CB-055A)".

Discontinued some variations

NSF H1



Electric Actuator Motorless General Catalog No. CB-055A

Servo motor compatible, Electric actuator, Motorless specification
Slider type (belt drive)

ETV-FP1 Series

● Applicable motor capacity: 100W/200W/400W/750W servo motor

Sales of ETV-05 to ETV-10 will be terminated.

RoHS CAD

Specifications

Item		ETV-05	ETV-06	ETV-10	ETV-14
Applicable motor capacity		100 W servo motor			200 W servo motor
Drive method		Belt width 9 mm	Belt width 12mm	Belt width 15mm	Belt width 22mm
Stroke length *1	mm	100 to 800		100 to 2550	100 to 3050
Lead equivalent	mm	40		32	40
Max.workload *2	Horizontal kg	3		10	25
	Vertical kg	-			
Max. speed	mm/s	2000		1600	2000
Rated thrust *2	N	42		61	100
Repeatability	mm	±0.08		±0.04	
Lost motion		0.2 mm or less		0.1 mm or less	
Dynamic allowable load	N	551.1	1209.1	2651.4	6566.9
Static allowable moment	N·m	MP:20 MY:16 MR:19	MP:80 MY:70 MR:75	MP:110 MY:110 MR:120	MP:552 MY:551 MR:485
Dynamic allowable moment	N·m	MP:2.8 MY:2.8 MR:6.8	MP:8.9 MY:8.9 MR:24.8	MP:24.1 MY:24.1 MR:24.8	MP:262.7 MY:262.7 MR:261.0

Item		ETV-17	ETV-22
Applicable motor capacity		400 W servo motor	750 W servo motor
Drive method		Belt width 30mm	Belt width 50mm
Stroke length *1	mm	100 to 3500	
Lead equivalent	mm	40	
Max.workload *2	Horizontal kg	45	85
	Vertical kg	-	
Max. speed	mm/s	2000	
Rated thrust *2	N	204	367
Repeatability	mm	±0.04	
Lost motion		0.1 mm or less	
Dynamic allowable load	N	10102.1	14174.2
Static allowable moment	N·m	MP:1034 MY:1032 MR:908	MP:2052 MY:2052 MR:1810
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 length is 50 pitch.
*2 Rated thrust and maximum load capacity are guideline values, assuming that the motor mounted will output the rated torque.
*3 The same load capacity as when installed horizontally when wall-mounted.

How to order

ETV - 06 - 40 010 - D M 1 X C B D P - FP1

- Model No.
- A Body size
- B Lead equivalent
- C Stroke
- D Motor mounting direction
- E Mounted motor specification
- F Motor capacity
- G Driving belt
- H Origin sensor
- I Limit sensor
- J Grease nipple
- K Positioning pin hole

[Example of model No.]

ETV-06-40010-DM1XCBDP-FP1

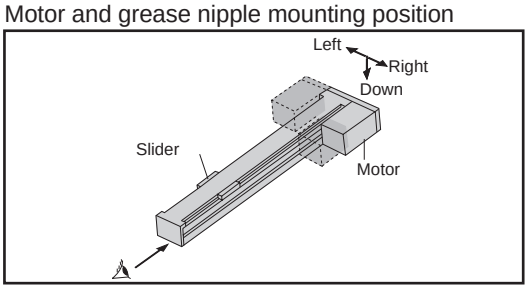
- A Body size: body width 65mm
- B Lead equivalent: 40mm
- C Stroke length: 100 mm
- D Motor mounting direction: bottom mounting
- E Mounted motor specification: Mitsubishi Electric Corporation
- F Motor capacity: 100 W
- G Driving belt: Standard (rubber)
- H Origin sensor: Outside motor side
- I Limit sensor: Outside
- J Grease nipple: None (Body mounting direction: Bottom side)
- K Positioning pin hole: Yes

*1 "32 mm"is compatible only with ETV-10.
*2 "U","D"indicates ETV-05/06only.
For other sizes,"R","S","T","L","V","W"only.
*3 ETV-05/For 06Belt"L"is not available.
*4 Origin sensor and limit sensor are a set.
As it is both-or-nothing, select "None" for both.
The sensor dog is assembled at shipment regardless of the presence of the sensor.

E Mounted motor specification

Manufacturer	100W	200W	400W	750W
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

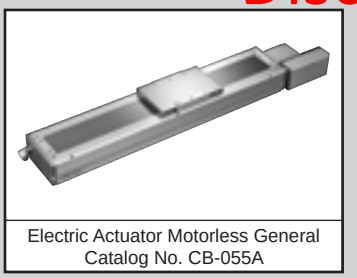


Code	Description
A Body size	
05	Body width 50mm
06	Body width 65mm
10	Body width 102mm
14	Body width 135mm
17	Body width 170mm
22	Body width 220mm
B Lead equivalent *1	
32	32 mm
40	40 mm
C Stroke	
010 to 350	100 mm (In 50 mm increments) 3500 mm
D Motor mounting direction *2	
U	Top mounting
D	Bottom mounting
R	Right mounting
S	Right top mounting
T	Right bottom mounting
L	Left mounting
V	Left top mounting
W	Left bottom mounting
E Mounted motor specification	
M, Y, P, F	Select the mounted motor specification from the table below.
F Motor capacity	
1	100 W (body size: 05, 06, 10)
2	200 W (body size: 14)
4	400 W (body size: 17)
8	750 W (body size: 22)
G Driving belt *3	
X	Standard (rubber)
L	Low dust generation (urethane)
H Origin sensor (1 pc) *4	
N	None
C	Outside motor side(Included at shipment)
D	Outside motor opposite side (Included at shipment)
I Limit sensor (2 pcs) *4	
N	None
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

Refer to the ETV Series in "Electric Actuator Motorless (CB-055A)" for the motor list, dimensions and model selection recommended for mounting.

Discontinued some variations

NSF H1



Electric Actuator Motorless General Catalog No. CB-055A

Electric actuator, Servo motor compatible, Motorless specifications
Slider (belt drive low dust specifications)

ECV-FP1 Series

● Applicable motor capacity: 100W/200W/400W/750W servo motor

Sales of ECV-05 to ECV-10 will be terminated.

RoHS CAD

Specifications

Item		ECV-05	ECV-06	ECV-10	ECV-14
Applicable motor capacity		100 W servo motor			200 W servo motor
Drive method		Belt width 9 mm	Belt width 12mm	Belt width 15mm	Belt width 22mm
Stroke length *1	mm	100 to 800		100 to 2550	100 to 3050
Lead equivalent	mm	40		32	40
Max.workload *2	Horizontal kg	3		10	25
	Vertical kg	-			
Max. speed	mm/s	2000		1600	2000
Rated thrust *2	N	42		61	100
Repeatability	mm	±0.08		±0.04	
Lost motion		0.2 mm or less		0.1 mm or less	
Dynamic allowable load	N	551.1	1209.1	2651.4	6566.9
Static allowable moment	N·m	MP:20 MY:16 MR:19	MP:80 MY:70 MR:75	MP:110 MY:110 MR:120	MP:552 MY:551 MR:485
Dynamic allowable moment	N·m	MP:2.8 MY:2.8 MR:6.8	MP:8.9 MY:8.9 MR:24.8	MP:24.1 MY:24.1 MR:24.8	MP:262.7 MY:262.7 MR:261.0

Item		ECV-17	ECV-22
Applicable motor capacity		400 W servo motor	750 W servo motor
Drive method		Belt width 30mm	Belt width 50mm
Stroke length *1	mm	100 to 3500	100 to 3400
Lead equivalent	mm	40	
Max.workload *2	Horizontal kg	45	85
	Vertical kg	-	
Max. speed	mm/s	2000	
Rated thrust *2	N	204	367
Repeatability	mm	±0.04	
Lost motion		0.1 mm or less	
Dynamic allowable load	N	10102.1	14174.2
Static allowable moment	N·m	MP:1034 MY:1032 MR:908	MP:2052 MY:2052 MR:1810
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 length is 50 pitch.
*2 Rated thrust and maximum load capacity are guideline values, assuming that the motor mounted will output the rated torque.
*3 The same load capacity as when installed horizontally when wall-mounted.

How to order

ECV - 06 - 40 010 - D M 1 X C B N P - FP1

- Model No.
- A Body size
- B Lead equivalent
- C Stroke
- D Motor mounting direction
- E Mounted motor specification
- F Motor capacity
- G Belt
- H Origin sensor
- I Limit sensor
- J Grease nipple
- K Positioning pin hole

[Example of model No.]

ECV-06-40010-DM1XCBNP-FP1

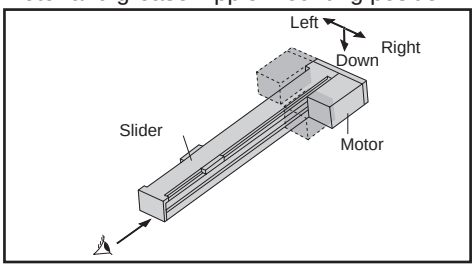
- A Body size: body width 65mm
- B Lead equivalent: 40mm
- C Stroke length: 100 mm
- D Motor mounting direction: bottom mounting
- E Mounted motor specification: Mitsubishi Electric Corporation
- F Motor capacity: 100 W
- G Belt: Standard (rubber)
- H Origin sensor: Outside motor side
- I Limit sensor: Outside
- J Grease nipple: None (Body mounting direction: Standard)
- K Positioning pin hole: Yes

*1 "32 mm"is compatible only with ETV-10.
*2 "U","D"indicates ETV-05/06only.
For other sizes,"R","S","T","L","V","W"only.
*3 ECV-05/For 06Belt"L"is not available.
*4 Origin sensor and limit sensor are a set.
As it is both-or-nothing, select "None" for both. The sensor dog is assembled at shipment regardless of the presence of the sensor.

E Mounted motor specification

Manufacturer	100W	200W	400W	750W
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



Code	Description
A Body size	
05	Body width 50mm
06	Body width 65mm
10	Body width 102mm
14	Body width 135mm
17	Body width 170mm
22	Body width 220mm
B Lead equivalent *1	
32	32 mm
40	40 mm
C Stroke	
010 to 350	100 mm (In 50 mm increments) 3500 mm
D Motor mounting direction *2	
U	Top mounting
D	Bottom mounting
R	Right mounting
S	Right top mounting
T	Right bottom mounting
L	Left mounting
V	Left top mounting
W	Left bottom mounting
E Mounted motor specification	
M, Y, P, F	Select the mounted motor specification from the table below.
F Motor capacity	
1	100 W (body size: 05, 06, 10)
2	200 W (body size: 14)
4	400 W (body size: 17)
8	750 W (body size: 22)
G Belt *3	
X	Standard (rubber)
L	Low dust generation (urethane)
H Origin sensor (1 pc) *4	
N	None
C	Outside, motor side (included at shipment)
D	Outside motor opposite side (Included at shipment)
I Limit sensor (2 pcs) *4	
N	None
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

Refer to the ECV Series in "Electric Actuator Motorless (CB-055A)" for the recommended motor list, Dimensions, and model selection.



Electric Actuator Motorless General Catalog No. CB-055A

Servo motor compatible electric actuator, Motorless specification
Slider (high tackG/high rigidity model)

EKS-*L*-FP1 Series

● Applicable motor capacity: 50W/100W/200W/400W/750W servo motor

RoHS CAD

Specifications

Item		EKS-04LE		EKS-04LR/D/L		EKS-05LE		EKS-05LR/D/L	
Applicable motor capacity		50 W/100 W servo motor				100 W servo motor			
Drive method		Ball screw ø10				Ball screw ø13			
Stroke length *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 capacity		200 W servo motor				400 W servo motor			
Drive method		Ball screw ø15				Ball screw ø20			
Stroke length *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 capacity		750 W servo motor			
Drive method		Ball screw ø25			
Stroke length *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			

*1 stroke is 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

EKS - 04 L E - 10 0300 N NN - M 1 N C B - N N - FP1

- EKS: Model No.
- 04: A Body size
- L: B Motor
- E: C Motor mounting direction
- 10: D Screw lead
- 0300: E Stroke
- N: F Brake
- NN: G Mounted motor specification
- M: H Motor capacity
- 1: I Motor shaft fixing method
- N: J Origin sensor
- C: K Limit sensor
- B: L Fitting
- N: M
- N: N
- FP1: P

[Example of model No.]

EKS-04LE-100300NNN-M1NCB-NN-FP1

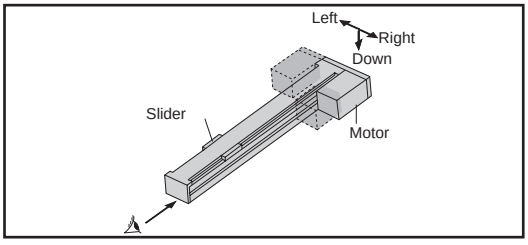
- A Body size: body width 43mm
- B Motor: none
- C Motor mounting direction: Straight
- D Screw lead: 10 mm
- E Stroke length: 300 mm
- F Brake: None
- G Mounted motor specifications: Manufactured by Mitsubishi Electric Co., Ltd.
- H Motor capacity: 100 W
- I Motor shaft fixing method: Straight
- J Origin sensor: Yes
- K Limit sensor: Yes
- L Fittings: none

*1 For full body size, straight installation, "For straight mounting".
*2 For EKS-04, 05 and 06 return mounting only"Flat" or "Key".
*3 For EKS-06, 08 and 10 return mounting only“Friction locking”.
*4 Origin sensor and limit sensor are a set.
As it is both-or-nothing, select "None" for both.
*5 "Available" indicates that the motor mounting direction is only for straight mounting.

E Mounted motor specification

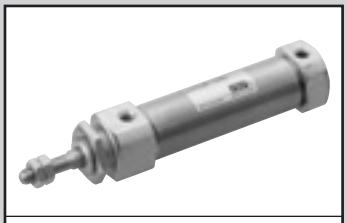
Manufacturer	50W	100W	200W	400W	750W
Mitsubishi Electric Corporation	M	M	M	M	M
Delta Electronics Co., Ltd.	M	M	M	M	M
Sanyo Denki Co., Ltd.	M	M	M	M	-
YASKAWA Electric Corporation	Y	Y	Y	Y	Y
Keyence Corporation	Y	Y	Y	Y	Y
Panasonic Corporation	P	P	P	P	P
OMRON Corporation	M	M	P	P	P
Fuji Electric Co., Ltd.	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	
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) 1500 mm
F Brake	
N	None
G Mounted motor specification	
M, Y, P	Refer to the table below for mounted motor specifications. to change the setting.
H Motor capacity	
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 Fitting *5	
N	None
V	Yes

Refer to the EKS-L Series in "Electric Actuator Motorless (CB-055A)" for the recommended motor list, dimensions and model selection.



Pneumatic Cylinders I
Catalog No. CB-029SA

Pencil shaped cylinder

SCPD3-FP1 Series

● Bore size: ø6/ø10/ø16

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 required		
Allowable absorbed energy	J	0.012	0.041	0.162

*1: The specifications above are for double acting/single rod.
Each item differs depending on variation. For details, refer to Pneumatic Cylinders I (CB-029SA).

Stroke (variation: blank, L, Z, ZL, M, ML, K, KL)

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

*1: The custom stroke length is available in 1 mm increments.
*2: Variation Z, ZL, M, and ML with bore size 6 are not available.

Stroke (variation: D, DL)

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø6	15, 30, 45, 60	60	5
ø10		120	
ø16			

*1: The custom stroke length is available in 1 mm increments.

For dimensions, refer to the SCPD3 Series in "Pneumatic Cylinders I (CB-029SA)".

How to order

Without switch

SCPD3 - Z - 00 - 10 - 15 - O ——— FP1 Y

With switch

SCPD3 - ZL - 00 - 10 - 15 - O - T2H - R - FP1 Y

Model No.

Ⓐ Variation

Ⓑ Mounting *1

Ⓒ Bore size

Ⓓ Stroke

Ⓔ Head side port direction *1

Ⓕ Switch model No. *3, *5
* indicates the lead wire length.

Ⓖ Switch quantity

Ⓗ Accessory *4

Code	Description			
Ⓐ Variation				
Bore size		6	10	16
Blank	Double acting/single rod	●	●	●
L	Double acting/single rod/with switch	●	●	●
D	Double acting/double rod	●	●	●
DL	Double acting/double rod/with switch	●	●	●
Z	Double acting/built-in speed controller (made to order)		●	●
ZL	Double acting/built-in speed controller/with switch (made to order)		●	●
M	Double acting/rotation-stop		●	●
ML	Double acting/rotation-stop/with switch		●	●
K	Double acting/high load (made to order)	●	●	●
KL	Double acting/high load/with switch (made to order)	●	●	●

Ⓑ Mounting				
Bore size		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 length (mm)
Refer to the stroke length table on page 27.

Ⓔ Head side port direction	
Blank	Vertical
O	Axial direction

Ⓕ Switch model No.

Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Indicator	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***		●	●	Without indicator lamp	
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***			●		3-wire
T2WH*	**T2WV***			●	2-color display	2-wire
T3WH*	**T3WV***			●		3-wire

*** Lead wire length**	
Blank	1m (standard)
3	3m (option)
5	5m (option)

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

Ⓗ Accessory				
Bore size		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:Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
*3:Magnet is not built into the type without switch.
*4:"I" and "Y" cannot be selected together.
*5:Switches are shipped with the product.

[Example of model No.]
SCPD3-ZL-00-10-15-O-T2H-R-FP1Y
Model: Pencil shaped cylinder Food-grade grease specifications

Ⓐ Variation: Double acting/built-in speed controller/with switch
Ⓑ Mounting: Basic
Ⓒ Bore size: ø10 mm
Ⓓ Stroke length: 15mm
Ⓔ Head side port direction: Axial direction
Ⓕ Switch model No.: Proximity switch T2H, lead wire 1m
Ⓖ Switch quantity: 1 on rod side
Ⓗ Accessory: Rod clevis

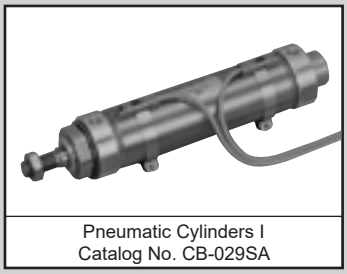
How to order mounting brackets

Bore size (mm) / 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.

How to order accessories

Bore size (mm) / Accessory	ø10	ø16
Rod eye (I)	P2-I-10-FP1	P2-I-16-FP1
Rod clevis (Y)	P2-Y-10-FP1	P2-Y-16-FP1
Eye bracket (B1)	P2-B1-10-FP1	P2-B1-16-FP1
Clevis bracket (B2)	P2-B2-10-FP1	P2-B2-16-FP1



Pneumatic Cylinders I
Catalog No. CB-029SA

Small bore size cylinder

CMK2-FP1 Series

● Bore size: ø20/ø25/ø32/ø40

Specifications

Item	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), $^{+2.4}_{0}$ (More than 200)			
Working piston speed mm/s	50 to 500			
Cushion	Rubber cushion			
Lubrication	Not required			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

*1: The specifications above are for double acting/single rod.
Each item differs depending on variation. For details,PneumaticConfirm with Cylinders I (CB-029SA).

Stroke

● Variation: blank, R, C, B, M, Z, G2, G3, with air cushion: *C

Bore size(mm)	Standard stroke (mm)	Max. Stroke (mm)		Min. stroke (mm)	
		Without bellows	With bellows	Without bellows Bellows "L"	Bellows "J"
ø20	25/50/75/100/150/200/250/300	750	650	5	25
ø25					
ø32					
ø40					

*1: The custom stroke length is available in 1 mm increments.
*2: One side foot (LS) has the max. stroke length of 50 mm.
*3: Contact CKD when stroke length shorter than 25 mm is required for "J" bellows.
*4: With bellows are not available for variations G2 and G3.

● Variation: S, SR

Bore size (mm)	Standard stroke (mm)	Max. Stroke (mm)		Min. stroke (mm)	
		Without bellows	With bellows	Without bellows Bellows "L"	Bellows "J"
ø20	25/50/75/100/150	300	300	5	25
ø25					
ø32	25/50/75/100/150/200				
ø40					

*1: The custom stroke length is available in 1 mm increments.
*2: One side foot (LS) has the max. stroke length of 50mm.
*3: Contact CKD when stroke length shorter than 25mm is necessary for "J" bellows.

● Variation: P

Bore size(mm)	Standard stroke (mm)	Max. stroke (mm)		Min. stroke (mm)	
		Without bellows	With bellows	Without bellows	With bellows
ø20	25/50/75/100/150/200/250/300	430	350	25	25
ø25					
ø32					
ø40		400			

1: The custom stroke length is available in 1 mm increments.
*2: One side foot (LS) has the max. stroke length of 50mm.
*3: Contact CKD when stroke length is shorter than 25 mm.

● Variation: D

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)		Min. stroke (mm)	
		Without bellows	With bellows	Without bellows Bellows "L"	Bellows "J"
ø20	25/50/75/100/150/200/250/300	480	300	5	25
ø25					
ø32					
ø40		450			

*1:The custom stroke length is available in 1 mm increments.
*2:One side foot (LS) has the max. stroke length of 50mm.
*3:Contact CKD whenever stroke length shorter than 25mm is necessary for "J" bellows.

How to order(Variation: blank, S, SR, C, D, M, Z, G2, G3)

Without switch

CMK2 - M - 00 - 20 ○ - 100 ——— FP1 Y

With switch

CMK2 - M - 00 - 20 ○ - 100 - T0H - R - V FP1 Y

Ⓐ Variation
Ⓑ Mounting *1
Ⓒ Bore size
Ⓓ Port thread
Ⓔ Stroke *1
Ⓕ Switch model No.
Ⓖ Switch quantity *7
Ⓗ Option *3
Ⓘ Accessory *4

Code	Description
Ⓐ Variation	
Blank	Double acting/single rod
S	Single acting/push
SR	Single acting/pull
C	Double acting/air cushioned
D	Double acting/double rod
M	Double acting/rotation-stop
Z	Double acting/built-in speed controller
G2	Double acting/coolant proof (packing NBR)
G3	Double acting/coolant proof (packing FKM)

Ⓑ 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
CC1	Eye bracket, bush pressfit
CB	Clevis Bracket (pin and split washer pin included)
TA	Rod side trunnion
TB	Head side trunnion

Ⓒ Bore size (mm)		
20	ø20	*8
25	ø25	*8
32	ø32	
40	ø40	

Ⓓ Port thread	
Blank	Rc thread
NN	NPT thread (made to order)
GN	G thread (made-to-order product)

Ⓔ Stroke length (mm)
Refer to the stroke length table on page 29.

Ⓕ Switch model No.
Refer to the switch model No. on page 34.

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

Ⓗ Option			
		Max. ambient temp	Instantaneous max. temp
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
M	Piston rod material (stainless steel)		*8/*9
V	Boss cutoff		

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

⚠ Precautions for model No. selection

*1: One side foot (LS) has the max. stroke length of 50mm.
*2: Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
*3: The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
*4: "I" and "Y" cannot be selected together.
*5: Refer to Pneumatic Cylinders I (CB-029SA) for made-to-order specifications of rod end form.
*6: Refer to Pneumatic Cylinders I (CB-029SA) for combinations of variations and options.
*7 : Up to three built-in switches can be used. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
*8 : 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.
*9 : For variations G2 and G3, the option M is unavailable.

[Model No. example]

CMK2-M-00-20-100-T0H-R-VFP1Y

Model:Small bore cylinder Food-grade grease specifications

Ⓐ Variation	: Double acting/rotation-stop
Ⓑ Mounting	: Basic
Ⓒ Bore size	: ø20 mm
Ⓓ Port thread	: Rc thread
Ⓔ Stroke	: 100 mm
Ⓕ Switch model No.	: Reed T0H switch, lead wire 1m
Ⓖ Switch quantity	: 1 on rod side
Ⓗ Option	: Boss cutoff
Ⓘ Accessory	: Rod clevis

For dimensions, refer to the CMK2 Series in "Pneumatic Cylinders I (CB-029SA)".

How to order(Variation: *C)

● Without switch

CMK2 - 00 - 20 [ ] C - 100 ——— V FP1 Y

● With switch

CMK2 - 00 - 20 [ ] C - 100 - T0H - R - V FP1 Y

Model No. | A Mounting *1 | Rubber-air Cushioned | B Bore size | C Port thread | D Stroke *1 | E Switch model No. * indicates the length. | F Switch quantity *7 | G Option *3 | H Accessory *4

Code	Description
A 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
CC1	Eye bracket, bush pressfit
CB	Clevis Bracket (pin and split washer pin included)
TA	Rod side trunnion
TB	Head side trunnion
B Bore size (mm)	
20	ø20 *8
25	ø25 *8
32	ø32
40	ø40
C Port thread	
Blank	Rc thread
N	NPT thread (made to order)
G	G thread (made-to-order product)
D Stroke length (mm)	
	Refer to the stroke length table on page 29.

E Switch model No.

Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***	Reed	●	●	Without indicator lamp	2-wire
T8H*	**T8V***	Reed	●	●	1-color display	2-wire
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***	Proximity		●	1-color display	3-wire
T3PH*	**T3PV***	Proximity		●	1-color display (made to order)	3-wire
T2WH*	**T2WV***	Proximity		●	2-color display	2-wire
T2YH*	**T2YV***	Proximity		●	2-color display	2-wire
T3WH*	**T3WV***	Proximity		●	2-color display	3-wire
T3YH*	**T3YV***	Proximity		●	2-color display	3-wire
T2JH*	**T2JV***	Proximity		●	1-color display off-delay	2-wire

*** Lead wire length**	
Blank	1m (standard)
3	3m (option)
5	5m (option)
F Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

G Option		Max. ambient temp	Instantaneous max. temp
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
M	Piston rod material (stainless steel) *8		
V	Boss cutoff		

H Accessory	
I	Rod eye
Y	Rod Clevis (pin and split washer pin included)
B2	Clevis bracket (pin and snap ring attached)

⚠ Precautions for model No. selection

*1:One side foot (LS) has the max. stroke length of 50mm.
*2: Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
*3: The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
*4: "I" and "Y" cannot be selected together.
*5: Refer to Pneumatic Cylinders I (CB-029SA) for made-to-order specifications of rod end form.
*6: Refer to Pneumatic Cylinders I (CB-029SA) for combinations of variations and options.
*7: Up to three built-in switches can be used. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
*8 : 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.

[Example of model No.]

CMK2-00-20C-100-T0H-R-VFP1Y

Model:Small bore size cylinder/rubber-air cushioned Food-grade grease specifications

- A Mounting : Basic
- B Bore size : ø20 mm
- C Port thread : Rc thread
- D Stroke length : 100mm
- E Switch model No. : Proximity switch T0H switch, lead wire 1 m
- F Switch quantity : 1 on rod side
- G Option : Boss cutoff
- H Accessory : Rod clevis

How to order(Variation: P, R)

Without switch

CMK2 - P - 00 - 32 ○ - 100 - 25 ——— M FP1 I

With switch

CMK2 - P - 00 - 32 ○ - 100 - 25 - T0H - D - M FP1 I

Ⓐ Variation
Ⓑ Mounting *1
Ⓒ Bore size
Ⓓ Port thread
Ⓔ Stroke
Ⓕ Adjustable stroke range
Ⓖ Switch model No.
Ⓗ Switch quantity *7
Ⓘ Option *3
Ⓙ Accessory *5

Code	Description		
Ⓐ Variation			
P	Double acting/adjustable stroke (push)		
R	Double acting/adjustable stroke (pull)		
Ⓑ Mounting			
00	Basic		
LB	Axial foot (Both sides)		
LS	Axial foot (One side)		
FA	Rod side flange		
FB	Head side flange		
TA	Rod side trunnion		
TB	Head side trunnion		
Ⓒ Bore size (mm)			
20	ø20		*8
25	ø25		*8
32	ø32		
40	ø40		
Ⓓ Port thread			
Blank	Rc thread		
NN	NPT thread (made to order)		
GN	G thread (made-to-order product)		
Ⓔ Stroke length (mm)			
Refer to the stroke length table on page 29.			
Ⓕ Adjustable stroke range (mm)			
25	25		
50	50		
Ⓖ Switch model No.			
Refer to the switch model No. on page 34.			
Ⓗ Switch quantity			
R	1 on rod side		
H	1 on head side		
D	2		
T	3		
Ⓘ Option			
		Max. ambient temp	Instantaneous max. temp
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
M	Piston rod material (stainless steel)		*8
Ⓙ Accessory			
I	Rod eye		
Y	Rod clevis(Pin and split washer pin included)		
B2	Clevis bracket (pin and snap ring attached)		

⚠ Precautions for model No. selection

*1: One side foot (LS) has the max. stroke length of 50mm.
*2: The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
*3: The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
*4: "I" and "Y"are not available.
*5: In the case of the back-to-back type, X and M dimensions have a tolerance of 0 to 1.5 mm because the port alignment is adjusted with a spacer.
*6: Refer to Pneumatic Cylinders I (CB-029SA) for combinations of variations and options.
*7: Up to three built-in switches can be used. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
*8 : 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.

[Model No. example]

CMK2-P-00-32-100-25-T0H-D-MFP1I

Model: Small bore cylinder Food-grade grease specifications

Ⓐ Variation	: Double acting/adjustable stroke (push)
Ⓑ Mounting	: Basic
Ⓒ Bore size	: ø32 mm
Ⓓ Port thread	: Rc thread
Ⓔ Stroke length	: 100mm
Ⓕ Adjustable stroke range	: 25 mm
Ⓖ Switch model No.	: Reed T0H switch, lead wire 1m
Ⓗ Switch quantity	: 2
Ⓘ Option	: Piston rod material stainless steel
Ⓙ Accessory	: Rod eye

How to order(Variation: B)

Without switch
CMK2 - B - 00 - 20 ○ - 25 (S1) —— 50 (S2) —— J FP1 I

With switch
CMK2 - B - 00 - 20 ○ - 25 - T0H - D - 50 - T0H - R - J FP1 I

Cylinder 1 stroke length S1 / Cylinder 2 stroke length S2
Cylinder 1 / Cylinder 2

Ⓐ Variation
Ⓑ Mounting
Ⓒ Bore size
Ⓓ Port thread
Ⓔ Stroke *1
Ⓔ Stroke
Ⓕ Switch model No.
Ⓕ Switch model No.
Ⓖ Switch quantity *6
Ⓖ Switch quantity
Ⓗ Option *2
Ⓘ Accessory

Code	Description	
Ⓐ Variation		
B	Double acting/back to back	
Ⓑ Mounting		
00	Basic	
LB	Axial foot (Both sides)	
FA	Rod side flange	
Ⓒ Bore size (mm)		
20	ø20	*7
25	ø25	*7
32	ø32	
40	ø40	
Ⓓ Port thread		
Blank	Rc thread	
NN	NPT thread (made to order)	
GN	G thread (made-to-order product)	
Ⓔ Stroke length (mm)		
Refer to the stroke length table on page 29.		

Ⓕ Switch model No.

Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***	Reed	●	●	Without indicator lamp	2-wire
T8H*	**T8V***	Reed	●	●	1-color display	2-wire
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***	Proximity		●	1-color display	3-wire
T3H*	**T3V***	Proximity		●	1-color display	3-wire
T3PH*	**T3PV***	Proximity		●	1-color display(Made to order)	3-wire
T2WH*	**T2WV***	Proximity		●	2-color display	2-wire
T2YH*	**T2YV***	Proximity		●	2-color display	2-wire
T3WH*	**T3WV***	Proximity		●	2-color display	3-wire
T3YH*	**T3YV***	Proximity		●	2-color display	3-wire
T2JH*	**T2JV***	Proximity		●	1-color display off-delay	2-wire

*** 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		Max. ambient temp	Instantaneous max. temp
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
M	Piston rod material (stainless steel) *7		

Ⓘ Accessory	
I	Rod eye
Y	Rod Clevis (pin and split washer pin included)
B2	Clevis bracket (pin and snap ring attached)

Precautions for model No. selection

*1: Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
*2: The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
*3: Made to order rod end formRefer to Pneumatic Cylinders I (CB-029SA) for added specifications.
*4: Refer to Pneumatic Cylinders I (CB-029SA) for combinations of variations and options.
*5: In the case of the back-to-back type, X and M dimensions have a tolerance of 0 to 1.5 mm because the port alignment is adjusted with a spacer.
*6: Up to three built-in switches can be used. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
*7: 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.

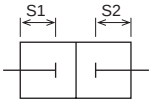
[Model No. example]

CMK2-B-00-20-25-T0H-D-50-T0H-R-JFP1I

Model: Small bore cylinder Food-grade grease specifications

Ⓐ Variation : Double acting/back to back
Ⓑ Mounting : Basic
Ⓒ Bore size : ø20 mm
Ⓓ Port thread : Rc thread
Ⓔ Stroke(S1) : 25mm
Ⓕ SwitchNo.(S1) : Reed T0H switch Lead wire 1 m
Ⓖ SwitchQuantity(S1) : 2 pcs. included
Ⓔ Stroke(S2) :50 mm
Ⓕ Switch model No.(S2): Reed T0H switch, Lead wire 1 m
Ⓖ Switch quantity(S2) : 1 on rod side
Ⓗ Option : Bellows,Max. ambient temp 100°C,Instantaneous max. temp 200°C
Ⓘ Accessory : Rod eye

1st stage stroke length 25 mm (S1)
+ 2nd stage stroke length 50mm S2
Total stroke length 75 mm S1 + S2



Switch model No.

● Variation: blank, S, SR, C, D, M, Z

Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead Line
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*	Proximity	●		1-color display	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●		3-wire
T3PH*	T3PV*			●	1-color display (made to order)	3-wire
T2WH*	T2WV*			●	2-color display	2-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*			●		3-wire
T3YH*	T3YV*			●		
T2JH*	T2JV*			●	1-color display Off-delay	2-wire
* Lead wire length						
Blank	1m (standard)					
3	3m (option)					
5	5m (option)					

● Variation: G2, G3

Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead Line
T2YLH*	T2YLV*	Proximity		●	2-color display	2-wire
T3YLH*	T3YLV*			●		3-wire
* Lead wire length						
Blank	1m (standard)					
3	3m (option)					
5	5m (option)					

How to order mounting brackets

● Variation: blank, S, SR, C, D, M, Z, *C, P, R, B

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic (00) *4	M1-00-20	M1-00-30	M1-00-30	M1-00-30
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-FP1	M1-CA-30-FP1	M1-CA-30-FP1	M1-CA-30-FP1
Clevis bracket (CB)	M1-CB-20-FP1	M1-CB-30-FP1	M1-CB-30-FP1	M1-CB-30-FP1

● Variation: G2, G3

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic (00) *4	M1-00-20	M1-00-30	M1-00-30	M1-00-30 (Head side)
Axial foot (LB/LS)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30 CMK2-G2-40-LS (LB rod side)
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	CMK2-G2-40-FA(FA) M1-FA-30(FB)
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	CMK2-G2-40-TA(TA) M1-TA-40(TB)
Eye bracket (CA)	M1-CA-20-FP1	M1-CA-30-FP1	M1-CA-30-FP1	M1-CA-30-FP1
Clevis bracket (CB)	M1-CB-20-FP1	M1-CB-30-FP1	M1-CB-30-FP1	M1-CB-30-FP1

*1 : The rod cover nut, LS bracket (LB rod side), FA bracket, and TA bracket for variation "G2" "G3" with a bore size of ø40 are different from the standard.

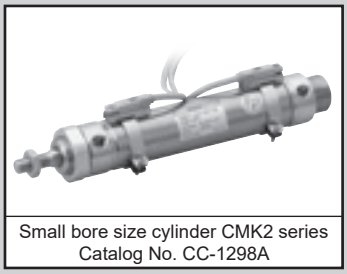
*2 : Regarding mounting brackets, mounting nuts and toothed washers are included with the axial foot type and flange type. The trunnion type includes mounting nuts.

*3 : The axial foot bracket kit in the table above has one foot bracket. If both sides (rod side and head side) are required, the respective brackets need to be arranged.

*4 : Mounting nut, toothed washer only. Although 00 set is attached with the basic product (1), use this when needed. (Contact CKD for rod side piping with a bore size of ø40 of variation "G2""G3".)

*5 : For variation "D" "P" "R" "B", mounting brackets not set on the product are not available.

For dimensions, refer to the CMK2 Series in "Pneumatic Cylinders I (CB-029SA)".



Small bore size cylinder CMK2 series
Catalog No. CC-1298A

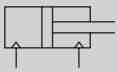
NSF H1

Tight cylinder double acting, appearance all stainless steel, water resistant type

CMK2-JG2/JG3-FP1 Series

● Bore size: ø20/ø25/ø32/ø40

JISCode



RoHS CAD

Specifications

Item	CMK2-JG2/JG3			
Bore size mm	ø20	ø25	ø32	ø40
Actuation	Double acting/water resistant			
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	Rc 1/8			
Stroke tolerance mm	$^{+2.0}_{0}$ (0 to 200) $^{+2.4}_{0}$ (More than 200)			
Working piston speed mm/s	50 to 500			
Cushion	Rubber cushion			
Lubrication	Not required			
permissionVolume absorbed energy J	0.166	0.308	0.424	0.639

Stroke

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

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

Switch specifications

Type/model No.	Proximity switch specifications	
Item	T2YLH/T2YLV	T3YLH/T3YLV
Applications	Dedicated for programmable controller	Programmable controller, relay
Output method	-	NPN output
Power supply voltage	-	10 to 28 VDC
Load voltage/current	10 to 30 VDC, 5 to 20 mA *1	30 VDC or less, 50 mA or less
Display lamp	Red/green LED (Lit when ON)	
Leakage current	1 mA or less	10 μA or less
Shock resistance	980 m / S^2	
Weight g	1 m: 33, 3 m: 87, 5 m: 142	

*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)

Cylinder weight

(Unit: kg)

Item/mounting / Bore size (mm)	Stroke length (S) = Product weight for 0 mm					Switch weight (per 1 pc)	Switch rail + Band weight	S= per 10mm Additional weight per
	Basic (00)	Axial foot (LB)	Axial foot (LS)	furanZigata (FA, FB)	Eye bracket (CC)			
ø20	0.31	0.57	0.44	0.46	0.37	Refer to the weight in the switch specifications.	0.005	0.01
ø25	0.32	0.58	0.45	0.47	0.39		0.005	0.01
ø32	0.43	0.69	0.56	0.58	0.55		0.009	0.02
ø40	0.65	0.91	0.78	0.80	0.90		0.009	0.02

(Example) Product weight of CMK2-JG2-FA-32-50-T2YL-D

Product weight when S = 0 mm..... 0.56 kg
Additional weight when S = 50 mm
..... Additional weight when S = 10 mm 0.02 × $\frac{\text{Product stroke length (50)}}{10}$ = 0.10 kg
Weight of 2 switches..... 0.062 kg
Weight of switch rail + 2 bands..... 0.018 kg
Product weight..... 0.56 kg + 0.1 kg + 0.062 kg + 0.018 kg = 0.74 kg

How to order mounting brackets

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Axial foot (LB, LS)	CMK2-JG2-20-LS	CMK2-JG2-20-LS	CMK2-JG2-20-LS	CMK2-JG2-40-LS CMK2-JG2-20-LS (LB head side)
Flange (FA, FB)	CMK2-JG2-20-FA	CMK2-JG2-20-FA	CMK2-JG2-20-FA	CMK2-JG2-20-FA (for FB) CMK2-JG2-40-FA (for FA)

*1: Regarding mounting brackets, mounting nuts are included with the axial foot type and flange type.
2: With the axial foot (LB), two sets of the "CMK2-JG2--LS" table above are required.

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa									
		0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	47.1	62.8	94.2	1.26 x 10^2	1.57 x 10^2	1.88 x 10^2	2.20 x 10^2	2.51 x 10^2	2.83 x 10^2	3.14 x 10^2
	Pull	35.3	47.1	70.7	94.2	1.18 x 10^2	1.41 x 10^2	1.65 x 10^2	1.88 x 10^2	2.12 x 10^2	2.36 x 10^2
ø25	Push	73.6	98.2	1.47 x 10^2	1.96 x 10^2	2.45 x 10^2	2.95 x 10^2	3.44 x 10^2	3.93 x 10^2	4.42 x 10^2	4.91 x 10^2
	Pull	56.7	75.6	1.13 x 10^2	1.51 x 10^2	1.89 x 10^2	2.27 x 10^2	2.64 x 10^2	3.02 x 10^2	3.40x 10^2	3.78 x 10^2
ø32	Push	1.21 x 10^2	1.61 x 10^2	2.41 x 10^2	3.22 x 10^2	4.02 x 10^2	4.83 x 10^2	5.63 x 10^2	6.43 x 10^2	7.24 x 10^2	8.04 x 10^2
	Pull	1.04 x 10^2	1.38 x 10^2	2.07 x 10^2	2.76 x 10^2	3.46 x 10^2	4.15 x 10^2	4.84x 10^2	5.53 x 10^2	6.22 x 10^2	6.91 x 10^2
ø40	Push	1.88 x 10^2	2.51 x 10^2	3.77 x 10^2	5.03 x 10^2	6.28 x 10^2	7.54 x 10^2	8.80 x 10^2	1.01 x 10^3	1.13 x 10^3	1.26 x 10^3
	Pull	1.65 x 10^2	2.21 x 10^2	3.31 x 10^2	4.41 x 10^2	5.51 x 10^2	6.62 x 10^2	7.72 x 10^2	8.82 x 10^2	9.92 x 10^2	1.10 x 10^3

How to order

Without switch

CMK2 - JG2 - 00 - 20 - 50 ——— FP1

With switch

CMK2 - JG2 - 00 - 20 - 50 - T2YLH - R - V FP1 Y

Ⓗ Accessory *4

Ⓐ Variation

Ⓑ Mounting *1

Ⓒ Bore size

Ⓓ Stroke

Ⓔ Switch model No.
* indicates the lead wire length.

Ⓕ Switch quantity *3

Ⓖ Option

Code	Description
Ⓐ Variation	
JG2	Exterior 100% stainless steel + water resistant scraper + packing NBR
JG3	Exterior 100% stainless steel + water resistant scraper + packing FKM

Ⓑ Mounting	
00	Basic
LB	Axial foot (Both sides)
LS	Axial foot (One side)
FA	Rod side flange
FB	Head side flange
CC	Eye bracket integrated

Ⓒ Bore size (mm)	
20	ø20
25	ø25
32	ø32
40	ø40

Ⓓ Stroke length (mm)

Bore size	Stroke length *2	Custom stroke length
ø20	5 to 750	In 1 mm increments
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

Ⓔ Switch model No.

Lead wire Straight	Lead wire L-shaped	Contact	Voltage	Indicator	Lead wire
T2YLH*	**T2YLV***	Proximity	DC	2-color display	2-wire
T3YLH*	**T3YLV***				3-wire

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

Ⓖ Option	
Blank	Standard
V	Boss cutoff

Ⓗ Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)

⚠ Precautions for model No. selection

*1:One side foot (LS) has the max. stroke length of 50mm.
*2: Refer to page 35 for the min. stroke length with switch.
*3: Up to three built-in switches can be used. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
*4: "I" and "Y" cannot be selected together.

[Model No. example]

CMK2-JG2-00-32-50-T2YLH-D-VFP1Y

Model: Small bore cylinder Food-grade grease specifications

Ⓐ Variation : Exterior 100% stainless steel + water resistant scraper + packing NBR
Ⓑ Mounting : Basic
Ⓒ Bore size : ø32
Ⓓ Stroke length : 50mm
Ⓔ Switch model No. : Proximity switch T2YLH, lead wire 1 m
Ⓕ Switch quantity : 2 pcs. included
Ⓖ Option : Boss cutoff
Ⓗ Accessory : Rod clevis

For dimensions, refer to the CMK2 Series in "Pneumatic Cylinders I (CB-029SA)".

MEMO



Pneumatic Cylinders I
Catalog No. CB-029SA

Round shaped cylinder

SCM-FP1 Series

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

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 required							
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 specifications on the left are for double acting/single rod. Each item differs depending on variation.For details, refer to Pneumatic Cylinders I (CB-029SA).
*2: The values of allowable absorbed energy for "No cushion" are the allowable absorbed energy on the non-specified side when an air cushion is selected for the other side ("R"→ Head side, "H"→ Rod side).
*3: Without a cushion, large energy generated by the external load cannot be absorbed. We recommend using an external shock absorber.

Stroke

● Variation: blank, R

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø20	25, 50, 75, 100, 125, 150, 200, 250, 300	1000	10
ø25			
ø32			
ø40		1500	
ø50			
ø63			
ø80			
ø100			

*1: The custom stroke length is available in 1 mm increments.

● Variation: X, Y

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø20	25, 50, 75 100, 125 150, 200	200	5
ø25			
ø32			
ø40			

*1: The custom stroke length is available in 1 mm increments.

● Variation: P, D, W, W4, M

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø20	25, 50, 75 100, 125, 150 200, 250, 300	600	10
ø25			
ø32			
ø40			
ø50			
ø63			

*1: The custom stroke length is available in 1 mm increments.
*2: Stroke length of more than 600 mm will be made to order. Contact CKD for details.

● Variation: B

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø20	25, 50, 75 100, 125, 150 200, 250, 300	500	10
ø25			
ø32			
ø40		750	
ø50			
ø63			

*1: The custom stroke length is available in 1 mm increments.

How to order(Variation: blank, X, Y, D, W4, M)

Without switch

SCM - M - LB - 40 ( ) B - 100 ——— J FP1 I

With switch

SCM - M - LB - 40 ( ) B - 100 - T2H - D - ( ) J FP1 I

- A Variation *1
- B Mounting *1, *2
- C Bore size
- D Port thread
- E Cushion *4
- F Stroke
- G Switch model No. *5
- H Switch quantity
- I Switch mounting
- J Option *2 *6 *8
- K Accessory *9

Precautions for model No. selection

*1: Mounting bracket will be shipped with the product.
*2: If the product is supplied with bellows and the mounting bracket is LB or FA, it will be shipped assembled with the product.
*3: Refer to Pneumatic Cylinders I (CB-029SA) for the switch quantity and the min. stroke length.
*4: For the variation X or Y, models with an air cushion cannot be selected.
*5: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch built-in is the rail type.
*6: The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
*7: Refer to Pneumatic Cylinders I (CB-029SA) for custom specifications of rod end form.
*8: "Q" (switch rail attached at shipment) is not available for "Z" switch mounting.
*9: "I" and "Y" cannot be selected together.
*10: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

SCM-M-LB-40B-100-T2H-D-JFP1I

Model: Round shaped cylinder Food-grade grease specifications

- A Variation : Double acting, rotation-stop
- B Mounting : Axial foot
- C Bore size : ø40 mm
- D Port thread : Rc thread
- E Cushion : With two-sided air cushion
- F Stroke length : 100 mm
- G Switch model No. : Proximity T2H switch, lead wire 1 m
- H Switch quantity : 2 pcs. included
- I Switch mounting : Rail
- J Option : Bellows, max. ambient temp 60°C, instantaneous max. temp 100°C
- K Accessory : Rod eye

Code	Description								
A Variation									
	Bore size	20	25	32	40	50	63	80	100
Blank	Double acting/single rod	●	●	●	●	●	●	●	●
X	Single acting/push	●	●	●	●				
Y	Single acting/pull	●	●	●	●				
D	Double acting/double rod	●	●	●	●	●	●	●	●
W 4	Double acting/tandem	●	●	●	●	●	●		
M	Double acting/rotation-stop	●	●	●	●	●	●		

B Mounting									
	Bore size	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	●	●	●	●	●	●		

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

D Port thread	
Blank	Rc thread
N	NPT thread (made to order) With air cushion: ø32 and over
G	G thread (made to order) With air cushion: ø32 and over

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

F Stroke length (mm)
Refer to the stroke length table on page 39.

G Switch model No.
Refer to the switch model No. on page 43.

H 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.)

I Switch mounting	
Blank	Rail method
Z	Band method

J Option			
		Max. ambient temp	**Instantaneous max. temp**
J	Bellows	60°C	100°C
K	Bellows	100°C	200°C
L	Bellows	250°C	400°C
Q	Switch rail attached at shipment		
M	Piston rod material stainless steel		

K Accessory									
	Bore size	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	●	●	●	●	●	●		

How to order(Variation: P, R)

Without switch

SCM - P - LB - 40 ◯ D - 100 - 25 —— J FP1 I

With switch

SCM - P - LB - 40 ◯ D - 100 - 25 - T0H - D - ◯ J FP1 I

- A Variation
- B Mounting *1
- C Bore size
- D Port thread
- E Cushion
- F Stroke
- G Adjustable stroke range
- H Switch model No. *3
- I Switch quantity
- J Switch mounting
- K Option *4, *6
- L Accessory *7

Code	Description
A Variation	
P	Double acting/adjustable stroke (push)
R	Double acting/adjustable stroke (pull)
B Mounting	
00	Basic
LB	Axial foot
FA	Rod side flange
TA	Rod side trunnion
TB	Head side trunnion
C Bore size (mm)	
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
D Port thread	
Blank	Rc thread
N	NPT thread (made to order)
G	G thread (made-to-order product)
E Cushion	
D	With two-sided rubber cushion
F Stroke length (mm)	
Refer to the stroke length table on page 39.	
G Adjustable stroke range (mm)	
25	25
50	50
H Switch model No.	
Refer to the switch model No. on page 43.	
I 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.)
J Switch mounting	
Blank	Rail method
Z	Band method
K Option	

		Max. ambient temp	Instantaneous max. temp
J	Bellows	60°C	100°C
K	Bellows	100°C	200°C
L	Bellows	250°C	400°C
Q	Switch rail attached at shipment		
M	Piston rod material (stainless steel)		

Code	Description
L Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B2	Clevis bracket

⚠ Precautions for model No. selection

*1: Mounting bracket will be shipped assembled with the product if LB, FB, or TB is selected. FA/TA is shipped with the product.
*2: For the number of installed switches and the min. stroke length,Pneumatic Cylinders I (CB-029SA).
*3: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch built-in is the rail type.
*4: The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
*5:Refer to Pneumatic Cylinders I (CB-029SA) for custom specifications of rod end form.
*6: "Q" (switch rail attached at shipment) is not available for "Z" switch mounting.
*7: "I" and "Y" cannot be selected together.
*8: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

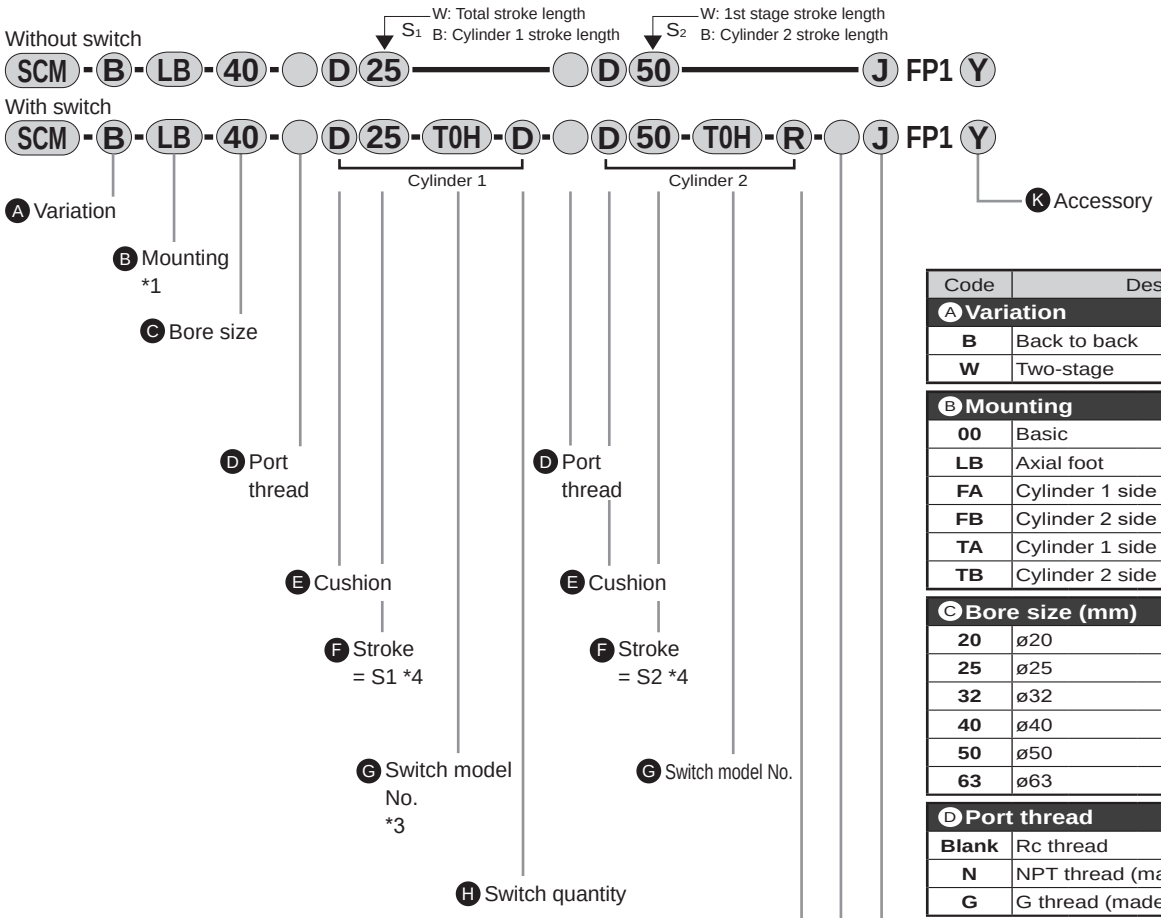
[Example of model No.]

SCM-P-LB-40D-100-25-T0H-D-JFP1I

Model: Round shaped cylinder Food-grade grease specifications

- A Variation: Double acting/stroke adjustable (push)
- B Mounting: Axial foot
- C Bore size: ø40 mm
- D Port thread: Rc thread
- E Cushion: Two-sided rubber cushion
- F Stroke length: 100mm
- G Adjustable stroke range: 25 mm
- H Switch model No.: Reed T0H switch, lead wire 1 m
- I Switch quantity: 2 pcs. included
- J Switch mounting: Rail
- K Option:Bellows, max. ambient temperature 60°C, instantaneous max. temperature 100°C
- L Accessory: Rod eye

How to order(Variation: B, W)



Code	Description
A Variation	
B	Back to back
W	Two-stage
B Mounting	
00	Basic
LB	Axial foot
FA	Cylinder 1 side flange
FB	Cylinder 2 side flange
TA	Cylinder 1 side trunnion
TB	Cylinder 2 side trunnion
C Bore size (mm)	
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
D Port thread	
Blank	Rc thread
N	NPT thread (made to order)
G	G thread (made-to-order product)
E Cushion	
D	With two-sided rubber cushion

F Stroke length (mm)

Bore size	B		W *4	
	S1	S2	S1	S2
ø20 to ø32	10 to 500	10 to 500	10 to 600	10 to 200
ø40 to ø63	10 to 750	10 to 750		

G Switch model No.	
Refer to the switch model No. on page 43.	
H Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3
4	4(for four or more switches, indicate switch quantity.)
I Switch mounting	
Blank	Rail method
Z	Band method

J Option

		Max. ambient temp	Instantaneous max. temp
J	Bellows	60°C	100°C
K	Bellows	100°C	200°C
L	Bellows	250°C	400°C
Q	Switch rail attached at shipment		
M	Piston rod material (stainless steel)		

K Accessory	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)
B2	Clevis bracket

⚠ Precautions for model No. selection

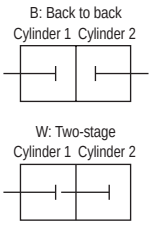
*1: Mounting bracket will be shipped with the product.
*2: If the product is supplied with bellows and the mounting bracket is LB, FA, or TA, it will be shipped assembled with the product.
*3: Refer to Pneumatic Cylinders I (CB-029SA) for the switch quantity and the min. stroke length.
*4: For variation W, no value can be selected when stroke S1=S2.
*5: T8H/V switches cannot be mounted when the bore size is ø20 to ø40 and switch built-in is the rail type.
*6: The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
*7: Refer to Pneumatic Cylinders I (CB-029SA) for custom specifications of rod end form.
*8: "Q" (switch rail attached at shipment) is not available for "Z" switch mounting.
*9: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

[Example of model No.]

SCM-B-LB-40-D25-T0H-D-D50-T0H-R-JFP1Y

Model: Round shaped cylinder Food-grade grease specifications

- A Variation : Double acting/back to back
- B Mounting : Axial foot
- C Bore size : ø40 mm
- D Port thread : Rc thread
- E Cushion : Two-sided rubber cushion — Cylinder 1
- F Stroke length : S1=25mm — Cylinder 1
- E Cushion : Two-sided rubber cushion — Cylinder 2
- F Stroke length : S2=50mm — Cylinder 2
- G Switch model No. : Reed T0H switch, Lead wire 1 m
- H Switch quantity : Cylinder 1; 2, Cylinder 2; 1 on rod side
- I Switch mounting : Rail
- J Option : Bellows, max. ambient temperature 60°C, instantaneous max. temperature 100°C
- K Accessory : Rod clevis



Switch model No.

Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*	Proximity	●		1-color display	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●		3-wire
T3PH*	T3PV*			●	1-color display (made to order)	
T2WH*	T2WV*			●	2-color display	2-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*			●		3-wire
T3YH*	T3YV*			●		
T2YD*	-			●	2-color display AC magnetic field	2-wire
T2YDT*	-			●		
T2JH*	T2JV*			●	1-color display off-delay	2-wire

* Lead wire length	
Blank	1m (standard)
3	3 m (option)
5	5 m (option)

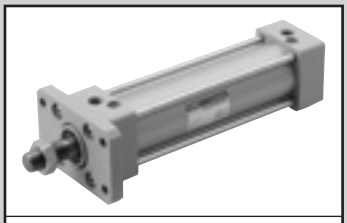
How to order mounting brackets

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-FP1	SCM-CB-100-FP1
Trunnion (TA/TB)	SCM-TA-20-FP1	SCM-TA-25-FP1	SCM-TA-32-FP1	SCM-TA-40-FP1	SCM-TA-50-FP1	SCM-TA-63-FP1	-	-

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

For dimensions, refer to the SCM Series in "Pneumatic Cylinders I (CB-029SA)".

MEMO



Pneumatic Cylinders I
Catalog No. CB-029S

Tie rod cylinder

SCG-FP1 Series

● Bore size: ø32/ø40/ø50/ø63/ø80/ø100

RoHS CAD

Specifications

Item		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), $^{+1.4}_{0}$ (361to 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 required					
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

*1: The specifications above are for double acting/single rod.
Each item differs depending on variation. For details, refer to Pneumatic Cylinders I (CB-029SA).

Stroke

● Variation: blank, G, G2, G3

Bore size(mm)	Standard stroke (mm)	Max. stroke (mm)	Available stroke (mm)	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 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.
*3: For the type with bellows, the available stroke length for ø32 to ø40 bore size is 500mm and 600mm for ø50 to 63 and 800mm for ø80 to ø100.
*4: Variation G2 and G3 with bore size ø32 are not available.

● Variation: M

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø32	25/50/75/100 150/200/250 300/350/400 450/500	600	1
ø40			
ø50			
ø63			

*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.

● Variation: D

Bore size(mm)	Standard stroke (mm)	Max. stroke (mm)	Min.Stroke(mm)
ø32	25/50/75/100 150/200/250 300/350/400 450/500	600	1
ø40			
ø50			
ø63			
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.
*3: For the type with bellows, the available stroke length for ø32 to ø40 bore size is 500mm and 600mm for ø50 to ø63 and 800mm for ø80 to ø100.

How to order

Without switch

SCG - M - LB - 40 ○ B - 100 ——— J FP1 I

With switch

SCG - M - LB - 40 ○ B - 100 - T2H - D - J FP1 I

Model No.

Ⓐ Variation

Ⓑ Mounting *1

Ⓒ Bore size

Ⓓ Port thread

Ⓔ Cushion *2

Ⓕ Stroke

Ⓖ Switch model No.

Ⓗ Switch quantity *4

Ⓘ Option *5 *6 *7

Ⓘ Accessory *8

Code	Description	32	40	50	63	80	100
Ⓐ Variation							
Blank	Double acting/single rod	●	●	●	●	●	●
D	Double acting/double rod	●	●	●	●	●	●
M	Double acting/rotation-stop	●	●	●	●		
G	Double acting/heavy duty scraper	●	●	●	●	●	●
G2	Double acting/coolant proof (packing NBR)		●	●	●	●	●
G3	Double acting/coolant proof (packing FKM)		●	●	●	●	●

Ⓑ 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

Ⓓ Port thread	
Blank	Rc thread
N	NPT thread (made to order)
G	G thread (made-to-order product)

Ⓔ Cushion	
B	Two-sided air cushion
D	Two-sided rubber cushion

Note: The rubber cushioned type has a longer total length than the air cushioned type.

Ⓕ Stroke length (mm)

Refer to the stroke length table on page 45.

Ⓖ Switch model No.

Refer to the switch model numbers on the following page.

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

Ⓘ Option		Max. ambient temp	Instantaneous ambient temperature
J	Bellows	60°C	100°C
M	Piston rod 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. (If the product is a trunnion type (TA, TB or TC) with bellows and the mounting bracket is LB or FA, it will be shipped assembled with the product.)
*2: For the variation G2 and G3, a model with the two-sided rubber cushion cannot be selected.
*3: Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length of the switch.
*4: 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.
*5: The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
*6: For the variation M, G2, and G3, the option M is unavailable.
*7: For the variation G, G2, and G3, the option J is unavailable.
*8: "I" and "Y" cannot be selected together.

[Model No. example]

SCG-M-LB-40B-100-T2H-D-JFP1I

Model: Tie rod cylinder Food-grade grease specifications

Ⓐ Variation :Double acting/rotation-stop
Ⓑ Mounting : Axial foot
Ⓒ Bore size : ø40 mm
Ⓓ Port thread : Rc thread
Ⓔ Cushion : With two-sided air cushion
Ⓕ Stroke length : 100mm
Ⓖ Switch model No. :Proximity T2H switch,Lead wire 1 m
Ⓗ Switch quantity : 2 pcs. included
Ⓘ Option : Bellows, max. ambient temperature 60°C, instantaneous max. temperature 100°C
Ⓙ Accessory : Rod eye

Switch model No.

● Variation: blank, D, M, G

Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*	Proximity	●		1-color display	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●		3-wire
T3PH*	T3PV*			●	1-color display (made to order)	
T2WH*	T2WV*			●	2-color display	2-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*			●		3-wire
T3YH*	T3YV*			●		
T2YD*	-			●	2-color display AC magnetic field	2-wire
T2YDT*	-			●		
T2JH*	T2JV*			●	1-color display off-delay	2-wire

* Lead wire length	
Blank	1m (standard)
3	3 m (option)
5	5 m (option)

● Variation: G2, G3

Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T2YLH*	T2YLV*	Proximity		●	2-color display	2-wire
T3YLH*	T3YLV*			●		3-wire

* Lead wire length	
Blank	1m (standard)
3	3 m (option)
5	5 m (option)

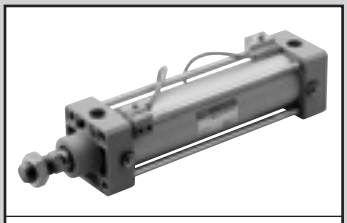
How to order mounting brackets

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-FP1	SCG-CA-40-FP1	SCG-CA-50-FP1	SCG-CA-63-FP1	SCG-CA-80-FP1	SCG-CA-100-FP1
Clevis bracket(CB)	SCG-CB-32-FP1	SCG-CB-40-FP1	SCG-CB-50-FP1	SCG-CB-63-FP1	SCG-CB-80-FP1	SCG-CB-100-FP1

*1: For flange (FA) with bellows, specify SCG-FA-(Bore size)-J".
*2: The foot mounting bracket (LB) is provided as 2 pcs./set.
*3: All mounting brackets have mounting bolts attached.

For dimensions, refer to the SCG Series in "Pneumatic Cylinders I (CB-029SA)".

MEMO



Pneumatic Cylinders I
Catalog No. CB-029SA

cylinder

SCA2-FP1 Series

● Bore size: ø40/ø50/ø63/ø80/ø100

RoHS CAD

Specifications

Item		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 (no freezing)				
Port size		Rc 1/4	Rc 3/8		Rc 1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (to 360), $^{+1.4}_{0}$ (to 800)				
Working piston speed mm/s		50 to 1000 (Use within the allowable absorbed energy.)				
Cushion		Air cushion				
Effective air cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required				
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, this product cannot absorb large energy generated by an external load. We recommend using an external shock absorber.				

*1: The specifications above are for double acting/ single rod. Each item differs depending on variation. For details, refer to Pneumatic Cylinders I (CB-029SA).

Stroke

● Variation: blank, G, G2, G3

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 *3	
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. Refer to Pneumatic Cylinders I (CB- 029SA).
*3:The max. stroke length available for ø63 to ø100 bore size models with bellows is 2000 mm.

● Variation: P, R

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

*1: The custom stroke length is available in 1 mm increments.

● Variation: W

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min.Stroke (mm)
ø40	25/50/75/100/150/200/250/300 /350/400/450/500	600	2 (Total Stroke length)
ø50			
ø63			
ø80		700	
ø100		800	

*1: The custom stroke length is available in 1 mm increments.

● Variation: D

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	800	1
ø50				
ø63				
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. Refer to Pneumatic Cylinders I (CB-029SA) .

● Variation: K

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			1900	
ø63				
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. Refer to Pneumatic Cylinders I (CB-029SA) .

● Variation: B

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min.Stroke (mm)
ø40	25/50/75/100/150/200/250/3 00/350/400/450/500	600	1 (Cylinder 1, and cylinder 2)
ø50			
ø63			
ø80		700	
ø100		800	

*1: The custom stroke length is available in 1 mm increments.

How to order (Variation: blank, D, K, G, G2, G3)

Without switch

SCA2 - D - LB - 40 ○ B - 100 ——— S FP1 I

With switch

SCA2 - D - LB - 40 ○ B - 100 — T0H - R - S FP1 I

Ⓑ Mounting *1, *2
Ⓖ Switch Model No. *5
Ⓕ Stroke *3 *4
Ⓔ Cushion
Ⓒ Tube Bore size
Ⓓ Port thread
Ⓗ Switch Quantity *7
Ⓘ Option *9 *10
Ⓙ Accessory *11

Code	Description
Ⓐ Variation	
Blank	Double acting/single rod
D	Double acting/double rod
K	Double acting/steel tube
G	Double acting/heavy duty scraper
G2	Double acting/coolant proof (packing NBR)
G3	Double acting/coolant proof (packing FKM)
Ⓑ 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 is Selection not possible)
TD	Rod side hole trunnion(ø40 is Selection not possible)
TE	Head side hole trunnion(ø40 is Selection not possible)
Ⓒ Bore size (mm)	
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
Ⓓ Port thread	
Blank	Rc thread
N	NPT thread (Made to order)
G	G thread (Made to order)
Ⓔ Cushion	
B	Both sides cushioned
R	Rod side cushioned
H	Head side cushioned
N	Without cushion
Ⓕ Stroke length (mm)	
Refer to the stroke length table on page 49.	
Ⓖ Switch model No.	
Refer to the switch model No. table on page 53.	
Ⓗ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3
Ⓘ Option	

		Max. ambient temp	Instantaneous max. temp
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
M	Piston rod material (stainless steel)		
Blank	Cushion needle position R (standard)		
S	Cushion needle position S		
T	Cushion needle position T		

Code	Description
Ⓙ 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: CA and CB are unavailable for the D variation.
*2: Mounting bracket will be shipped with the product. (Trunnion types are assembled at shipment.)
*3: Refer to Pneumatic Cylinders I (CB-029SA) when max. stroke length is exceeded.
*4: The max. stroke length available for the ø63 to ø100 bore size models with bellows is 2000mm.
*5: Switches are shipped with the product.
*6: Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
*7: 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.
*8: For the variation K, no switch can be built-in.
*9: The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
*10: When selecting TA, TB or TD or TE mounting form, the cushion needle position cannot be changed. (With blank, the cushion needle position will be "S".)
*11: "I" and "Y" cannot be selected together.
*12: Refer to Pneumatic Cylinders I (CB-029SA) for custom specifications of rod end form.
*13: Refer to Pneumatic Cylinders I (CB-029SA) for combinations of variations and options.

[Example of model No.]

SCA2-D-LB-40B-100-T0H-R-SFP1I

Model:Selex cylinder Food-grade grease specifications

Ⓐ Variation : Double acting/double rod
Ⓑ Mounting : Axial foot
Ⓒ Bore size : ø40 mm
Ⓓ Port thread : Rc thread
Ⓔ Cushion : Both sides cushioned
Ⓕ Stroke : 100 mm
Ⓖ Switch Model No. : Reed T0H switch, lead wire length 1m
Ⓗ Switch quantity : 1 on rod side
Ⓘ Option : Cushion needle position S
Ⓙ Accessory : Rod eye

How to order(Variation: P, R)

Without switch

SCA2 - P - LB - 40 B - 100 - 25 —— S FP1 I

With switch

SCA2 - P - LB - 40 B - 100 - 25 - T0H - R - S FP1 I

Ⓐ Variation
Ⓑ Mounting *1
Ⓒ Bore size
Ⓓ Port thread
Ⓔ Cushion
Ⓕ Stroke length *2
Ⓖ Stroke Adjusting range
Ⓗ Switch model No. *4
Ⓘ Switch quantity *5
Ⓙ Option *6 *7
Ⓚ Accessory *8

Code	Description
Ⓐ Variation	
P	Double acting/adjustable stroke (push)
R	Double acting/adjustable stroke (pull)
Ⓑ Mounting	
00	Basic
LB	Axial foot
FA	Rod side flange
FB	Head side flange
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	Rc thread
N	NPT thread (made to order)
G	G thread (made-to-order product)
Ⓔ Cushion	
B	Both sides cushioned
R	Rod side cushioned
H	Head side cushioned
N	Without cushion
Ⓕ Stroke length (mm)	
Refer to the stroke length table on page 49.	
Ⓖ Adjustable stroke range (mm)	
25, 50, 75, 100	
Ⓗ Switch model No.	
Refer to the switch model No. on page 53.	
Ⓘ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

Ⓙ Option

		Max. ambient temp	Instantaneous max. temp
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
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)
B4	Trunnion No. 2 bracket (2 pcs./set)

⚠ Precautions for model No. selection

*1: Mounting bracket will be shipped with the product. (The axial foot type, head side flange type and trunnion type are assembled at shipment.)
*2: Refer to Pneumatic Cylinders I (CB-029SA) when max. stroke length is exceeded.
*3: Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
*4: Switches are shipped with the product.
*5: MountingWhen selecting TA or TB format, the switch quantity is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.
*6: Instantaneous max. temperature is the temperature when sparks or cutting chips, etc., instantaneously contact the bellows.
*7: When selecting TA, TB or TD or TE mounting form, the cushion needle position cannot be changed. (With blank, the cushion needle position will be "S".)
*8: "I" and "Y" cannot be selected together.
*9: Refer to Pneumatic Cylinders I (CB-029SA) for custom specifications of rod end form.
*10: Refer to Pneumatic Cylinders I (CB-029SA) for combinations of variations and options.

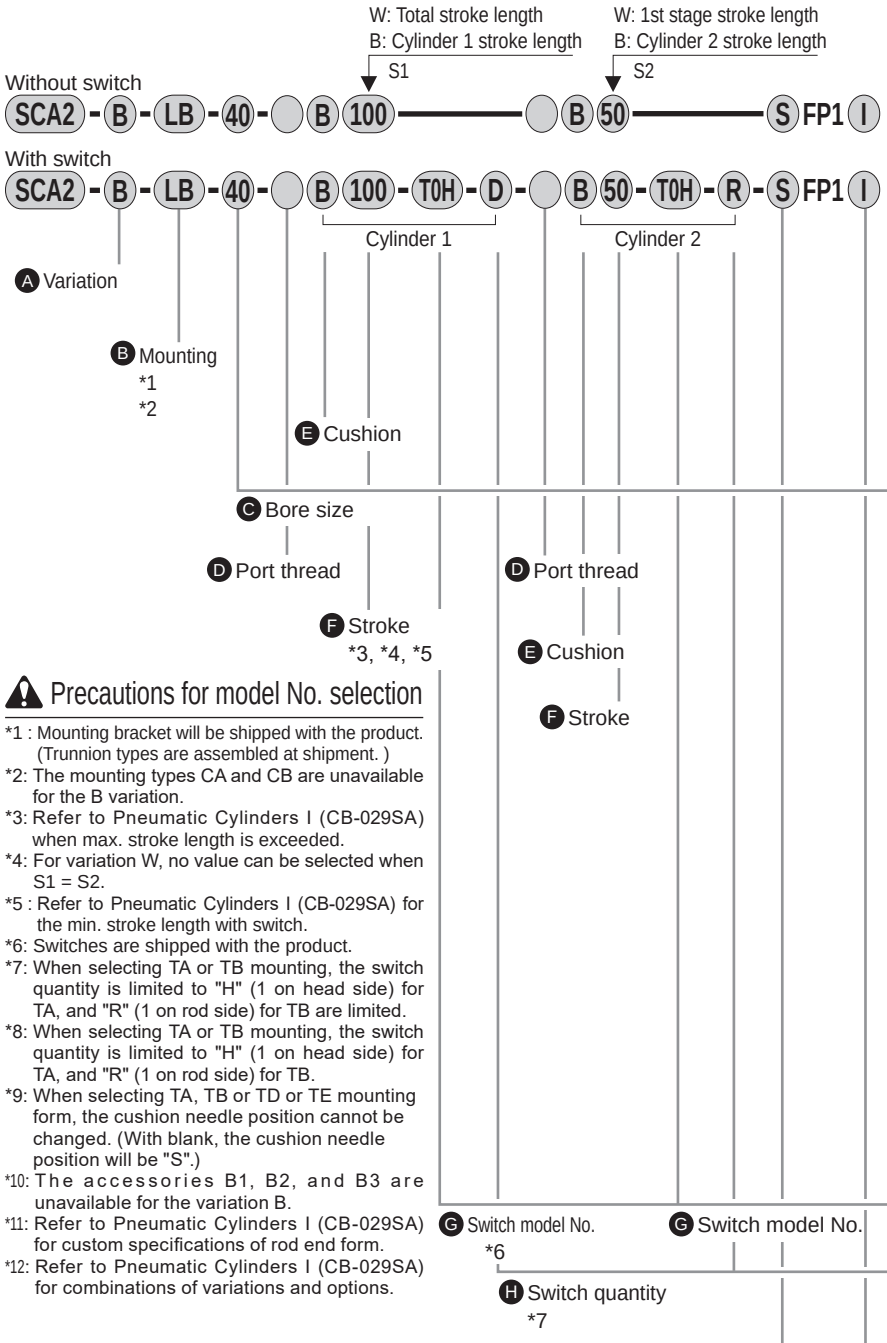
[Model No. example]

SCA2-P-LB-40B-100-25-T0H-R-SFP1I

Model:Selex cylinder Food-grade grease specifications

Ⓐ Variation	: Double acting/stroke adjustable (push)
Ⓑ Mounting	:Axial foot
Ⓒ Bore size	:ø40 mm
Ⓓ Port thread	:Rc thread
Ⓔ Cushion	:Both sides cushioned
Ⓕ Stroke length	:100 mm
Ⓖ Adjustable stroke range	:25 mm
Ⓗ Switch model No.	:Reed T0H switch, lead wire length 1 m
Ⓘ Switch quantity	:1 on rod side
Ⓙ Option	:Cushion needle position S
Ⓚ Accessory	:Rod eye

How to order(Variation: B, W)



Precautions for model No. selection

*1 : Mounting bracket will be shipped with the product. (Trunnion types are assembled at shipment.)
*2: The mounting types CA and CB are unavailable for the B variation.
*3: Refer to Pneumatic Cylinders I (CB-029SA) when max. stroke length is exceeded.
*4: For variation W, no value can be selected when S1 = S2.
*5 : Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
*6: Switches are shipped with the product.
*7: 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 are limited.
*8: 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.
*9: When selecting TA, TB or TD or TE mounting form, the cushion needle position cannot be changed. (With blank, the cushion needle position will be "S".)
*10: The accessories B1, B2, and B3 are unavailable for the variation B.
*11: Refer to Pneumatic Cylinders I (CB-029SA) for custom specifications of rod end form.
*12: Refer to Pneumatic Cylinders I (CB-029SA) for combinations of variations and options.

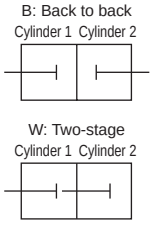
[Example of model No.]

SCA2-B-LB-40-B100-T0H-D-B50-T0H-R-SFP1I

Model: Medium bore size cylinder Food-grade grease specifications

- A Variation :Double acting/back to back
- B Mounting : Axial foot
- C Bore size : ø40 mm
- D Port thread : Rc thread
- E Cushion : Both sides cushioned
- F Stroke length S1 : 100 mm
- G Switch model No.: Reed T0H switch, Lead wire 1 m
- H Switch quantity : 2 pcs. included
- D Port thread : Rc thread
- E Cushion : Both sides cushioned
- F Stroke length S2 :50mm
- G Switch model No. : Reed T0H switch, Lead wire 1 m
- H Switch quantity : 1 on rod side
- I Option : Cushion needle position S
- J Accessory : Rod eye

Cylinder 1 / Cylinder 2



Code	Description
A Variation	
B	Double acting/back to back
W	Double acting/two-stage
B 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)
TA	Rod side trunnion
TB	Head side trunnion
TD	Rod side hole trunnion (ø40 cannot be selected)
TE	Head side hole trunnion (ø40 cannot be selected)
C Bore size (mm)	
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
D Port thread	
Blank	Rc thread
N	NPT thread (made to order)
G	G thread (made-to-order product)
E Cushion	
B	Both sides cushioned
R	Rod side cushioned
H	Head side cushioned
N	Without cushion

F Stroke length (mm)

Bore size	B		W (*3)	
	S1	S2	S1	S2
ø40	1 to 600	1 to 600	2 to 600	1 to 200
ø50				
ø63				
ø80	1 to 700	1 to 700		
ø100	1 to 800	1 to 800		

G Switch model No.
Refer to the switch model numbers on the following page.

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

I Option			
		Max. ambient temp	Instantaneous max. temp
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
M	Piston rod material (stainless steel)		
Blank	Cushion needle position R (standard)		
S	Cushion needle position S		
T	Cushion needle position T		

J 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)

Switch model No.

● Variation: blank, D, G, P, R, B, W

Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*	Proximity	●		1-color display	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●		3-wire
T2WH*	T2WV*			●	2-color display	2-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*			●		3-wire
T3YH*	T3YV*			●		
T3PH*	T3PV*			●	1-color display (Made to order)	3-wire
T2YD*	-			●	2-color display AC magnetic field	2-wire
T2YDT*	-			●		
T2JH*	T2JV*			●	1-color display off-delay	2-wire

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

● Variation: G2, G3

Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T2YLH*	T2YLV*	Proximity		●	2-color display	2-wire
T3YLH*	T3YLV*			●		3-wire

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

How to order mounting brackets

Bore size (mm) / Mounting bracket	ø40	ø50	ø63	ø80	ø100
Foot (LB) *2	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA/FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Eye bracket (CA)	S1-CA-40-FP1	S1-CA-50-FP1	S1-CA-63-FP1	S1-CA-80-FP1	S1-CA-100-FP1
Clevis bracket (CB)	S1-CB-40-FP1	S1-CB-50-FP1	S1-CB-63-FP1	S1-CB-80-FP1	S1-CB-100-FP1

*1: For materials of the mounting bracket, refer to Pneumatic Cylinders I (CB-029SA).
*2: The foot mounting bracket is provided as 2 pcs./set.
*3: All mounting brackets have mounting bolts attached.
*4: The dimensions of the eye bracket (CA) and clevis bracket (CB) are the same as the standard products.

For dimensions, refer to the SCA2 Series in "Pneumatic Cylinders I (CB-029SA)".

MEMO



Pneumatic Cylinders I
Catalog No. CB-029SA

Cylinder

SCS2- $^{N}_{LN}$ -FP1 Series

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

Specifications

Item		SCS2- $^{N}_{LN}$					
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 required					
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.					

*1: The specifications on the left are for double acting/single rod. Each item differs depending on variation. For details, refer to Pneumatic Cylinders I (CB-029SA).

Stroke

● Variation: blank, G

Bore size (mm)	Standard stroke (mm)	Max. stroke length(mm)	Available stroke length (mm)	Min.Stroke length (mm)	Trunnion Min. stroke (mm)
ø125	50/75/100 150/200 250/300	800	2000	1	23
ø140					25
ø160					27
ø180		900			28
ø200		1,000			28
ø250		1,200			28

*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.

● Variation: D

Bore size (mm)	Standard stroke (mm)	Max. stroke length(mm)	Min.Stroke length (mm)	Trunnion Min. stroke (mm)
ø125	50/75/100 150/200 250/300	800	1	23
ø140				25
ø160				27
ø180		900		28
ø200		1,000		28
ø250		1,200		28

*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.

For dimensions, refer to the SCS2 Series in "Pneumatic Cylinders I (CB-029SA)".

How to order

No-lubrication without switch

SCS2-N G - LB - 125 B - 50 ——— J FP1 Y

No-lubrication with switch

SCS2-LN G - LB - 125 B - 50 - T0H - R - J FP1 Y

Model No. | A Variation | B Mounting *1, *2 | C Bore size | D Port thread | E Cushion | F Stroke | G Switch model No. | H Switch quantity *4 | I Option *5 | J Accessory *7

Code	Description
A Variation	
Blank	Double acting/single rod
D	Double acting/double rod
G	Double acting/heavy duty scraper
B 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
TF	Intermediate hole trunnion (Made-to-order product)
TD	Rod side hole trunnion (Made-to-order product)
TE	Head side hole trunnion (Made-to-order product)
C Bore size (mm)	
125	ø125
140	ø140
160	ø160
180	ø180
200	ø200
250	ø250
D Port thread	
Blank	Rc thread
N	NPT thread (made to order)
G	G thread (made-to-order product)
E Cushion	
B	Both sides cushioned
R	Rod side cushioned
H	Head side cushioned
N	Without cushion
F Stroke length (mm)	
Refer to the stroke length table on page 55.	

G Switch model No.

Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*	Reed	●	●	Without indicator lamp	2-wire
T8H*	T8V*	Reed	●	●	1-color display	2-wire
T1H*	T1V*	Proximity	●		1-color display	2-wire
T2H*	T2V*	Proximity		●	1-color display	2-wire
T3H*	T3V*	Proximity		●	1-color display	3-wire
T3PH*	T3PV*	Proximity		●	1-color display (PNP output) (made to order)	3-wire
T2WH*	T2WV*	Proximity		●	2-color display	2-wire
T2YH*	T2YV*	Proximity		●	2-color display	2-wire
T3WH*	T3WV*	Proximity		●	2-color display	3-wire
T3YH*	T3YV*	Proximity		●	2-color display	3-wire
T2YD*	-	Proximity		●	2-color display	2-wire
T2YDT*	-	Proximity		●	AC magnetic field	2-wire
T2JH*	T2JV*	Proximity		●	1-color display off-delay	2-wire

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

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

I Option			
C2	With cushion section check valve		
		Max. ambient temp	Instantaneous max. temp
J	Bellows	60°C	100°C
K	Bellows	100°C	200°C
L	Bellows	250°C	400°C
M	Piston rod material (Stainless steel)		
Blank	Cushion needle position (standard)	Standard	
R	Cushion needle position R		
S	Cushion needle position S		
T	Cushion needle position T		

*6

J 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 : Hole type trunnion is available as made to order for ø125 to ø160 only. Contact CKD for details about dimensions.
*2 : The mounting types CA and CB are unavailable for the D variation.
*3 : Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
*4: 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.
*5 : Instantaneous max. temperature is the temperature when sparks or cutting chips, etc., instantaneously contact the bellows.
*6 : Check below for the cushion needle position indication.
*7 : "I" and "Y" cannot be selected together.

[Example of model No.]

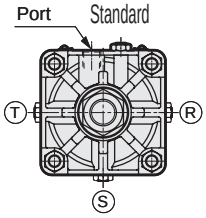
SCS2-LNG-LB-125B-50-T0H-R-JFP1Y

Model: Medium bore size cylinder, double acting/No-lubrication/ Food-grade grease specifications with switch

- A Variation : Double acting/heavy duty scraper
- B Mounting : Axial foot
- C Bore size : ø125 mm
- D Port thread : Rc thread
- E Cushion : Both sides cushioned
- F Stroke : 50 mm
- G Switch model No. : Reed T0H switch,LeadLine1m
- H Switch quantity : 1 on rod side
- I Option : Bellows, max. ambient temperature 60°C, instantaneous max. temperature 100°C
- J Accessory : Rod clevis

Cushion needle position

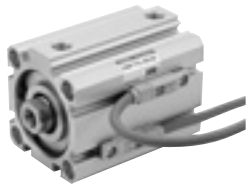
(Needle position with the port on the top when viewed from the rod end)



Certification of second class pressure vessel

Stroke length

Bore size	Stroke
ø160	1948 and over
ø180	1526 and over
ø200	946 and over
ø250	752 and over



Pneumatic Cylinders I
Catalog No. CB-029S

Compact cylinder

SSD2-FP1 Series

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

Specifications

Item		SSD2									
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 required									
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 5 mm stroke length of the ø32 without switch has a port size of M5.
*2: The specifications above are for double acting/single rod.
Each item differs depending on variation. For details, refer to Pneumatic Cylinders I (CB-029SA).

Stroke

● Variation: blank, L, K, KL

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: When using the type with a switch, refer to the table of the min. stroke length with switch in Pneumatic Cylinders I (CB-029SA).
*2: When max. stroke length is exceeded, refer to the Long stroke length in Pneumatic Cylinders I (CB-029SA).

● Variation: X, XL, Y, YL

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø12	5, 10	10	5
ø16			
ø20			
ø25			
ø32			
ø40			
ø50	10, 20	20	10

*: When using the type with switch, refer to the table on the right.

● Variation: G, GL, G5, G5L

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø20	5/10/15/20/25 30/35/40/45/50	50	1
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: When using the type with a switch, refer to the table of the min. stroke length with switch in Pneumatic Cylinders I (CB-029SA).

● Variation: D, DL

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø12	5/10/15/20 25/30	30	5
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		10
ø63			
ø80			
ø100			

● Variation: M, ML

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	5/10/15/20/25/30/ 35/40/45/50/75/100		
ø63			

*1:When using the type with a switch, refer to the table of the min. stroke length with switch in Pneumatic Cylinders I (CB-029SA).

● Variation: G2, G2L, G3, G3L

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø16	5/10/15/20/25/30	30	1 (10) The value in ( ) is for types with one or two switches.
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	100	
ø63			
ø80			
ø100			

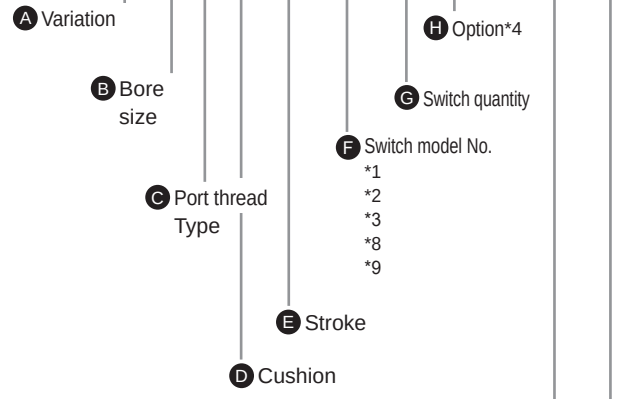
How to order

Without switch

SSD2 - K - 12 ○ ○ - 5 ——— N FP1 - LB - I

With switch

SSD2 - KL - 12 ○ ○ - 10 - T0H - R - N FP1 - LB - I



Precautions for model No. selection

1: ø12, T2YD switches cannot be built-in on ø16.
2: T8 switch cannot be built-in with ø12 to ø32.
*3: The F type switch can be used only on the piping port surface of built-in bore size ø20, 25.
*4: Piston rod 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. DimensionsPneumatic Cylinders I (CB-029SA). 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 stroke lengths of 15 mm or under.
*9: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.
*10: Refer to Pneumatic Cylinders I (CB- 029SA) for combinations of variations and options.

[Example of model No.]

SSD2-KL-12-10-T0H-R-NFP1-LB-I

Model: Compact cylinder
Food-grade (NSF H1) lubricants are used.

- A Variation : Double acting/high load/with switch
- B Bore size : ø12 mm
- C Port thread : Rc thread
- D Cushion : No cushion
- E Stroke : 10 mm
- F Switch model No. : Reed switch T0H, lead wire length 1 m
- G Switch qty. : 1 on rod side
- H Option : Rod end male thread
- I Mounting bracket : Axial foot
- J Accessory : Rod eye

Code	Description	Bore size									
A Variation		12	16	20	25	32	40	50	63	80	100
Blank	Double acting/single rod	●	●	●	●	●	●	●	●	●	●
L	Double acting/single rod/with switch	●	●	●	●	●	●	●	●	●	●
K	Double acting/high load	●	●	●	●	●	●	●	●	●	●
KL	Double acting/high load/with switch	●	●	●	●	●	●	●	●	●	●
X	Double acting/push	●	●	●	●	●	●	●			
XL	Double acting/push/with switch	●	●	●	●	●	●	●			
Y	Double acting/pull	●	●	●	●	●	●	●			
YL	Double acting/pull/with switch	●	●	●	●	●	●	●			
D	Double acting/double rod	●	●	●	●	●	●	●	●	●	●
DL	Double acting/double rod/with switch	●	●	●	●	●	●	●	●	●	●
M	Double acting/rotation-stop	●	●	●	●	●	●	●	●		
ML	Double acting/rotation-stop/with switch	●	●	●	●	●	●	●	●		
G	Double acting/heavy duty scraper			●	●	●	●	●	●	●	●
GL	Double acting/heavy duty scraper/with switch			●	●	●	●	●	●	●	●
G2	Double acting/coolant proof scraper (packing NBR)		●	●	●	●	●	●	●	●	●
G2L	Double acting/coolant proof scraper (packing NBR)/with switch		●	●	●	●	●	●	●	●	●
G3	Double acting/coolant proof scraper (packing FKM)		●	●	●	●	●	●	●	●	●
G3L	Double acting/coolant proof scraper (packing FKM)/with switch		●	●	●	●	●	●	●	●	●
G5	Double acting/environmentally-resistant scraper			●	●	●	●	●	●	●	●
G5L	Double acting/environmentally-resistant scraper/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 Port thread	
Blank	Rc thread
NN	NPT thread (ø32 and over) (made to order)
GN	G thread (ø32 and over) (made to order)

D Cushion	
Blank	Without cushion
D	With rubber cushion

E Stroke length (mm)

Refer to the stroke length table on page 57.

F Switch model No.

Refer to the switch model numbers on the following page.

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

H 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)		●	●	●	●	●	●	●	●	●	●
S	Dedicated unit for custom stroke length		●	●	●	●	●	●	●	●	●	●

I Mounting bracket	
Blank	Without mounting bracket
LB	Axial foot
CB	Clevis bracket (pin and snap ring attached)
FA	Rod side flange
FB	Head side flange

J Accessory (available when rod end male thread "N" is selected)	
I	Rod eye
Y	Rod clevis (pin and snap ring attached)

I Mounting bracket *5 *6

J Accessory *7

Switch model No.

● Variation:L, KL, XL, YL, DL, ML, GL, G5L

Switch model No.																	
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire	Bore size 12	16	20	25	32	40	50	63	80	100
F2S*		Proximity		●	1-color display	2-wire			●	●						
F3S*				●		3-wire			●	●						
F2H*	F2V*			●		2-wire			●	●						
F3H*	F3V*			●		3-wire			●	●						
F3PH*	F3PV*			●	1-color display (PNP output) (made to order)	3-wire			●	●						
F2YH*	F2YV*			●	2-color display	2-wire			●	●						
F3YH*	F3YV*			●		3-wire			●	●						
T0H*	T0V*	Reed	●	●	1-color display	2-wire	●	●	●	●	●	●	●	●	●	●
T5H*	T5V*		●	●	Without indicator lamp		●	●	●	●	●	●	●	●	●	●
T8H*	T8V*		●	●	1-color display							●	●	●	●	●
T1H*	T1V*	Proximity	●		1-color display	2-wire			●	●	●	●	●	●	●	●
T2H*	T2V*			●			●	●	●	●	●	●	●	●	●	●
T3H*	T3V*			●		3-wire	●	●	●	●	●	●	●	●	●	●
T3PH*	T3PV*			●	1-color display (PNP output) (made to order)		●	●	●	●	●	●	●	●	●	●
T2WH*	T2WV*			●	2-color display	2-wire	●	●	●	●	●	●	●	●	●	●
T2YH*	T2YV*			●					●	●	●	●	●	●	●	●
T3WH*	T3WV*			●		3-wire	●	●	●	●	●	●	●	●	●	●
T3YH*	T3YV*			●					●	●	●	●	●	●	●	●
T2YD*	-			●	2-color display AC magnetic field	2-wire			●	●	●	●	●	●	●	●
T2YDT*	-			●					●	●	●	●	●	●	●	●
T2JH*	T2JV*			●	1-color display off-delay	2-wire			●	●	●	●	●	●	●	●

* Lead wire length	
Blank	1m (standard)
3	3 m (option)
5	5 m (option)

Note: 5 m lead wire for the F switch is made to order..

● Variation: G2L, G3L

Switch model No.					
Lead wire Straight	Lead wire L-shaped	Contact	Voltage	Display	Lead wire
T2YLH*	T2YLV*	Proximity	DC	2-color display	2-wire
T3YLH*	T3YLV*				3-wire

* Lead wire length	
Blank	1m (standard)
3	3 m (option)
5	5 m (option)

For dimensions, refer to the SSD2 Series in "Pneumatic Cylinders I (CB-029SA)".

MEMO



Pneumatic Cylinders I
Catalog No. CB-029SA

Compact cylinder (large bore size)

SSD2-FP1 Series

● Bore size: ø125/ø140/ø160/ø180/ø200

Specifications

Item		SSD2 (large bore size)				
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 required				
Allowable absorbed Energy J	With rubber cushion	6.52	6.52	7.78	12.4	
	Without cushion	-				

*1: The specifications above are for double acting/single rod. Each item differs depending on variation. For details, refer to Pneumatic Cylinders I (CB-029SA).

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			

*1: For the type with switch, refer to the table of switch mounting quantity and minimum stroke length.

How to order

Without switch

SSD2 - ○ - 200 - ○○ - 100 —— N FP1

With switch

SSD2 - L - 200 - ○○ - 100 - T0H - R - N FP1

Ⓐ Variation
Ⓑ Bore size
Ⓒ Port thread
Ⓓ Stroke
Ⓔ Switch model No. *1
Ⓕ Switch quantity
Ⓖ Option

Code	Description
Ⓐ Variation	
Blank	Double acting/single rod
L	Double acting/single rod/with switch
D	Double acting/double rod
DL	Double acting/double rod/with switch
Ⓑ Bore size (mm)	
125	ø125
140	ø140
160	ø160
180	ø180
200	ø200
Ⓒ Port thread	
Blank	Rc thread
NN	NPT thread (ø125 to ø160) (made to order)
GN	G thread (ø125 to ø160) (made to order)
Ⓓ Stroke length (mm)	
Refer to the stroke length table on page 61.	

Ⓔ Switch model No.

Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead Line
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***		●	●	Without indicator lamp	
T8H*	**T8V***		●	●	1-color display	
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***			●		
T3H*	**T3V***			●		3-wire
T3PH*	**T3PV***			●	1-color display (made to order)	
T2WH*	**T2WV***			●	2-color display	2-wire
T2YH*	**T2YV***			●		
T3WH*	**T3WV***			●		3-wire
T3YH*	**T3YV***			●		
T2JH*	**T2JV***			●	1-color display off-delay	2-wire
T2YD*	**-**			●	2-color display AC magnetic field	2-wire
T2YDT*	**-**			●		

*** 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
Ⓖ Option	
Blank	Rod end female thread
N	Rod end male thread

⚠ Precautions for model No. selection

*1: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.
2: Less than 5 mm for 1-color display and 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 (CB-029SA) for the switch quantity and the min. stroke length.
*3: Total length dimension with custom stroke length is handled as the custom stroke dedicated length.

[Example of model No.]

SSD2-L-200-100-T0H-R-NFP1

Model: Compact cylinder (large bore size)
Food-grade grease specifications

Ⓐ Variation :Double acting/single rod/with switch
Ⓑ Bore size : 200 mm
Ⓒ Port thread : Rc thread
Ⓓ Stroke length : 100 mm
Ⓔ Switch model No. : Reed T0H switch
・Lead wire length 1 m
Ⓕ Switch quantity : 1 on rod side
Ⓖ Option : Rod end male thread

For dimensions, refer to the SSD2 Series in "Pneumatic Cylinders I (CB-029SA)".



Pneumatic Cylinders II
Catalog No. CB-030SA

Guided cylinder

STG-$^{M}_{B}$-FP1 Series

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

JISCode 

RoHS CAD

Specifications

Item	STG-$^{M}_{B}$-FP1									
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	
Stroke tolerance mm	+2.0 0									
Working piston speed mm/s	50 to 500							50 to 300		
Cushion	With rubber cushion									
Lubrication	Not required									
Allowable absorbed energy J	0.056	0.088	0.157	0.157	0.401	0.627	0.980	1.560	2.510	3.92

*1: The specifications above are for double acting/single rod. Each item differs depending on variation. For details, refer to Pneumatic Cylinders I (CB-029SA).

Stroke

● Variation: blank

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

*1: The custom stroke length is available in 5 mm increments. However, the total dimensions are the same as the longer standard stroke length. A dedicated body with dimensions matched to the stroke length 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.

● With rubber-air cushion (*C)

Bore size	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke with switch (mm)
ø32	25, 50, 75, 100	400	5	5(10) *2
ø40	125, 150, 175			
ø50	200, 250, 300			
ø63	350, 400		10	10

*1: The custom stroke length is available in 5 mm increments. However, the total dimensions are the same as the longer standard stroke length.
*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.

● Variation: C

Bore size	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)	Min. stroke with switch (mm)
ø16	25, 50, 75, 100, 125, 150, 175, 200, 250	250	15 *2	15
ø20	25, 50, 75, 100	400		
ø25	125, 150, 175			
ø32	200, 250, 300			
ø40	350, 400			
ø50				
ø63				

*1: The custom stroke length is available in 1 mm increments. However, the total dimensions are the same as the longer standard stroke. (Made to order)
*2: For min. stroke length and below, select the basic type since there is no cushion effect.

● Variation: G

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

*1: The custom stroke length is available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.
*2: For types with one or two switches. The value in ( ) is the min. stroke length for switches of the 2-color display and AC magnetic field proof.

● Variation: G2, G3

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

*1: The custom stroke length is available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke length.
*2: For types with one or two switches.

● Variation: G5

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

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

How to order(Variation: blank, C, G, G2, G3, G5)

Without switch

STG - M C - 32 ○ - 25 ——— FP1

With switch

STG - M C - 32 ○ - 25 - T2H - R - FP1

Model No.

Ⓐ Bearing

Ⓑ Variation

Ⓒ Bore size

Ⓓ Port thread

Ⓔ Stroke

Ⓕ Switch model No.

Ⓖ Switch quantity

Code	Description	STG-M	STG-B
Ⓐ Bearing			
M	Metal bush bearing		
B	Ball bearing		
Ⓑ Variation		**STG-M**	**STG-B**
Blank	Double acting/single rod	●	●
C	Double acting/air cushioned	●	●
G	Double acting/heavy duty scraper	●	●
G2	Double acting/coolant proof (packing NBR)	●	
G3	Double acting/coolant proof (packing FKM)	●	
G5	Double acting/environmentally-resistant scraper	●	
Ⓒ Bore size (mm)			
12	ø12		
16	ø16		
20	ø20		
25	ø25		
32	ø32		
40	ø40		
50	ø50		
63	ø63		
80	ø80		
100	ø100		
Ⓓ Port thread			
Blank	M5 (ø12 to ø16)		
	Rc thread (ø20 to ø100)		
NN	NPT thread (ø20 or more) (made to order)		
GN	G thread (ø20 or more) (made to order)		
Ⓔ Stroke length (mm)			
Refer to the stroke length table on page 63			
Ⓕ Switch model No.			
Refer to the switch model No. on page 66			
Ⓖ Switch quantity			
R	1 on rod side		
H	1 on head side		
D	2		
T	3		

[Model No. example]

STG-MC-40-75-T0H-D-FP1

Model: Guided cylinder Food-grade grease specifications

Ⓐ Bearing :Metal bushBearing
Ⓑ Variation :With air cushion
Ⓒ Bore size :ø40 mm
Ⓓ Port thread :Rc thread
Ⓔ Stroke :75 mm
Ⓕ Switch model No. :Reed T0H switch, lead wire length 1m
Ⓖ Switch quantity :2

How to order(Variation: *C)

Without switch

STG - M - 32 ( ) C - 25 ——— FP1

With switch

STG - M - 32 ( ) C - 25 - T2H - R - FP1

Model No.

Ⓐ Bearing

Ⓑ Bore size

Ⓒ Port thread

Rubber air-cushioned

Ⓓ Stroke

Ⓔ Switch model No. *1, *2

Ⓕ Switch quantity

Code	Description
Ⓐ Bearing	
M	Metal bush bearing
B	Ball bearing
Ⓑ Bore size (mm)	
32	ø32
40	ø40
50	ø50
63	ø63
Ⓒ Port thread	
Blank	Rc thread
N	NPT thread (made to order)
G	G thread (made to order)
Ⓓ Stroke length (mm)	
	Refer to the stroke length table on page 63.

Ⓔ Switch model No.

Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	**T0V***	Reed	●	●	1-color display	2-wire
T5H*	**T5V***		●	●	Without indicator lamp	
T8H*	**T8V***		●	●	1-color display	
T1H*	**T1V***	Proximity	●		1-color display	2-wire
T2H*	**T2V***			●		
T3H*	**T3V***			●		3-wire
T3PH*	**T3PV***			●	1-color display (made to order)	3-wire
T2WH*	**T2WV***			●	2-color display	2-wire
T2YH*	**T2YV***			●		
T3WH*	**T3WV***			●		3-wire
T3YH*	**T3YV***			●		
T2JH*	**T2JV***			●	1-color display off-delay	2-wire
T2YD*	**-**			●	2-color display for AC magnetic field	2-wire
T2YDT*	**-**			●		

*** 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 other than Ⓔ Switch model No. are also available. (Made-to-order product) For details, refer to Pneumatic Cylinders I (CB-029SA)

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

[Example of model No.]

STG-M-32C-50-T0H-R-FP1

Model:Guided cylinder/rubber-air cushioned Food-grade grease specifications

Ⓐ Bearing : Metal bush bearing
Ⓑ Bore size : ø32 mm
Ⓒ Port thread : Rc thread
Ⓓ Stroke length : 50mm
Ⓔ Switch model No. : Reed T0H switch, lead wire length 1 m
Ⓕ Switch quantity : 1 on rod side

Switch model No.

● Variation: blank, C, G, G5

Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*	Proximity	●		1-color display	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●		3-wire
T2WH*	T2WV*			●	2-color display	2-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*			●		3-wire
T3YH*	T3YV*			●		
T3PH*	T3PV*			●	1-color display (Made to order)	3-wire
T2YD*	-			●	2-color display AC magnetic field	2-wire
T2YDT*	-			●		

* Lead wire length	
Blank	1m (standard)
3	3 m (option)
5	5 m (option)

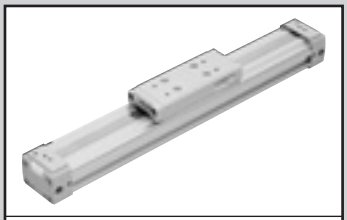
Note: Switches are shipped with the product. Contact CKD if assembling before shipment is necessary.

● Variation: G2, G3

Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T2YLH*	T2YLV*	Proximity		●	2-color display	2-wire
T3YLH*	T3YLV*			●		3-wire

* Lead wire length	
Blank	1m (standard)
3	3m (option)
5	5m (option)

For dimensions, refer to the STG Series in "Pneumatic Cylinders II (CB-030SA)".



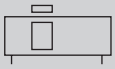
Pneumatic Cylinders I
Catalog No. CB-029SA

Rodless cylinder

SRL3-FP1 Series

● Bore size: ø12, ø16, ø20, ø25, ø32
ø40, ø50, ø63, ø80, ø100 or equiv.

JISCode



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 (0.25) *2			0.1 (0.15) *2				0.05 (0.1) *2		
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	$^{+2.0}_{0}$ (to 1000), $^{+2.5}_{0}$ (to 3000), $^{+3.0}_{0}$ (to 5000)									
Working piston speed mm/s	50 to 2000 (Standard port piping)(*1)									
Cushion	Air cushion									
Lubrication	Not required									

*1: For common port piping, working piston speeds vary depending on stroke length. Contact CKD.
*2: Values in ( ) are for the resin guide.
*3: The specifications above are for double acting basic.
Each item differs depending on variation. For details, refer to Pneumatic Cylinders I (CB-029SA).

Allowable absorbed energy

Bore size (mm)	Cushioned		Without cushion	Shock absorber with(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 length is available in 1 mm increments.

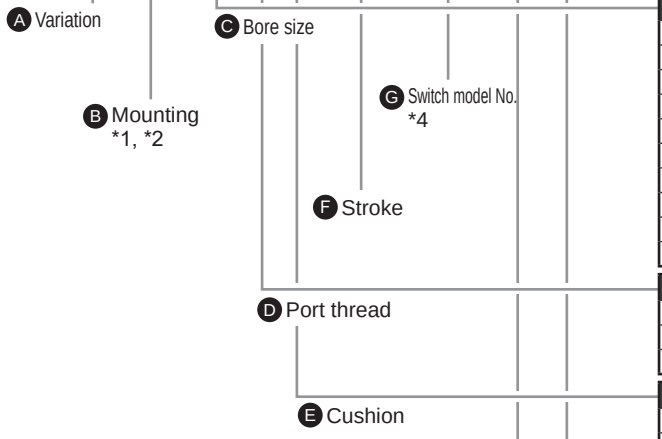
How to order

Without switch

SRL3 - G - 00 - 12 B - 200 ——— B FP1

With switch

SRL3 - G - 00 - 12 B - 200 - M0H - R - B FP1



Code	Description
A Variation	
Blank	Double acting
G	Resin guide
B Mounting	
00	Basic
LB	Axial foot
LB1	Axial foot (ø12 to ø32 only)
C Bore size (mm)	
12	ø12
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
D Port thread	
Blank	Rc thread
N	NPT thread (ø20 or more) (made-to-order product)
G	G thread (ø20 or more) (made-to-order product)
E Cushion	
B	Both sides cushioned
R	R side cushioned
L	L side cushioned
N	Without cushion

F Stroke length (mm)

Bore size	Stroke length *3	Custom stroke length
ø12 to ø100	1 to 5000	In 1 mm increments

G Switch model No.

Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display lamp	Lead Line
M0H*	M0V*	Reed	●	●	1-color display	2-wire
M5H*	M5V*	Reed	●	●	Without indicator lamp	
M2H*	M2V*	Proximity		●	1-color display	
-	M2WV*	Proximity		●	2-color display	2-wire
M3H*	M3V*	Proximity		●	1-color display	
-	M3WV*	Proximity		●	2-color display	3-wire
M3PH*	M3PV*	Proximity		●	1-color display (made to order)	3-wire
T2WH*	T2WV*	Proximity		●	2-color display	2-wire
T2YH*	T2YV*	Proximity		●		
T3WH*	T3WV*	Proximity		●		3-wire
T3YH*	T3YV*	Proximity		●		
T2YD*	-	Proximity		●	2-color display AC magnetic field	2-wire
T2YDT*	-	Proximity		●		

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

H 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.)

I Option

		Bore size (ø)	12	16	20	25	32	40	50	63	80	100
A		Both-side full stroke adjustable,With shock absorber	●	●	●	●	●	●	●	●	●	●
A1		R-side full stroke adjustable, with shock absorber.	●	●	●	●	●	●	●	●	●	●
A2		L-side full stroke adjustable, 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									●	●

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 is "00" or "LB1". (Piping with "LB" is not possible for option codes "R" and "T".)
*3: Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
4: The asterisk 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
*5: For the port and cushion needle position codes, refer to Pneumatic Cylinders I (CB-029SA) Dimensions.
*6: In the case of the standard type 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.
*7: In "H", the thread size of ø12 to ø16 will be "M4" and that of ø 20 will be "M5".
*8: Check the option combinations in "Option selection table" on the next page.
*9: Copper and PTFE free as standard. (Except for type with shock absorber)
*10: The working oil contained in the shock absorber is not for food grade.
*11: For the variation G, the option Y and Y1 are unavailable.

[Model No. example]

SRL3-G-00-12B-200-M0H-R-BFP1

Model:Rodless cylinder Food-grade grease specifications

A Variation :With resin guide
B Mounting :Basic
C Bore size :ø12mm
D Port thread :Rc thread
E Cushion :Both sides cushioned
F Stroke :200 mm
G Switch model No.:Reed switch M0H, lead wire 1 m
H Switch quantity :1 on R side
I Option :Port position F, cushion needle position B

Option selection table

●: Available ■: Not available

Option	Code	Option																	
		Both-side full stroke adjustable, with shock absorber	Full stroke length adjustable R With shock absorber on side	Full stroke length adjustable L With shock absorber on side	Full stroke adjustable with retrofitting adjusting bracket	Floating fitting	Thin floating fitting	Intermediate support bracket (00,LB)	Intermediate support bracket (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)
	Code	A	A1	A2	A3	Y	Y1	L*	N*	H	U	Blank	R	B	T	D	S	X
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 ❶ Option in "How to order" on the previous page.
*2: LB1 with port position D is not possible. (ø25, ø32)

For dimensions, refer to the SRL3 Series in "Pneumatic Cylinders I (CB-029SA)".

MEMO



Pneumatic Cylinders II
Catalog No. CB-029SA

Floating fitting

FJ-FP1 Series

● Compatible cylinder diameter: ø20 to ø200

RoHS CAD

Specifications

Item / Model No.	Nominal port size of thread x pitch	Max. working tension and compression (kN) *1			Allowable eccentricity (mm)	Oscillating angle	Ambient temperature
		Basic	Flange	Foot			
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.

How to order

FJ - 0 - 3 - FP1

Ⓐ Mounting

Ⓑ Nominal port size of thread x pitch

Code	Description
Ⓐ Mounting	
0	Basic
L	Foot
F	Flange

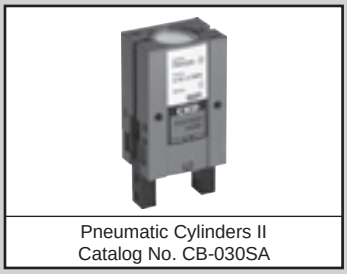
Ⓑ Nominal port size of thread x pitch				
	Mounting	**O**	**L**	**F**
3	M 3 x 0.5	●		
4	M 4 x 0.7	●		
5	M 5 x 0.8	●		
6	M 6 x 1.0	●		
8	M 8 x 1.0	●	●	●
8-1.25	M 8 x 1.25	●	●	●
10	M 10 x 1.25	●	●	●
12-1.25	M 12 x 1.25	●	●	●
12	M 12 x 1.5	●	●	●
14	M 14 x 1.5	●	●	●
16	M 16 x 1.5	●	●	●
18	M 18 x 1.5	●	●	●
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	●	●	●

[Model No. example]

FJ-0-3-FP1

Model: Floating fitting Food-grade grease specifications
ⒶMounting : Basic
ⒷNominal thread diameter × pitch : M3×0.5

For dimensions, refer to the FJ Series in "Pneumatic Cylinders II (CB-030SA)".



Pneumatic Cylinders II
Catalog No. CB-030SA

Feather hand (mini-parallel hand) Double acting/single acting

FH100-FP1 Series

● Operational stroke length: 8, 11, 14, 18, 20mm

Double acting



Single acting (normally open)



RoHS CAD

Specifications

Item		FH100									
		FH110-D	FH112-D	FH116-D	FH120-D	FH125-D	FH110-0	FH112-0	FH116-0	FH120-0	FH125-0
Actuation		Double acting					Single acting				
Working fluid		Compressed air									
Max. working pressure	MPa	0.7									
Min. working pressure	MPa	0.15					0.25				
Proof pressure	MPa	1.05									
Ambient temperature	°C	5 to 60									
Port size		M 3 x 0.5		M 5 x 0.8			M 3 x 0.5		M 5 x 0.8		
Operating stroke length	mm	8	11	15	18	20	8	11	15	18	20
Body weight	g	51	71	124	176	284	51	71	124	177	286
Repeatability (initial value)	mm	±0.03									
Max. operating frequency	cycles/second	3									
Cushion		Open side rubber cushion									
Lubrication		Not required									
Option		Proximity switch (2-wire/3-wire) * Closed side speed controller									

* Integrated speed controller is available only for double acting.

How to order

Without switch

FH1 10 - D Y1 ——— B FP1

With switch

FH1 10 - D Y1 - T2H - R - B FP1

Ⓐ Bore size

Ⓑ Option

Ⓒ Attachment *1

Ⓓ Switch model No. *2

* indicates the lead wire length.

Ⓔ Switch quantity

Ⓕ End mount *3

Code	Description
Ⓐ Bore size	
10	ø10
12	ø12
16	ø16
20	ø20
25	ø25
Ⓑ Option	
D	Standard (double acting)
O	Single acting (normally open)
Z	Double acting integrated speed controller
Ⓒ Attachment	
Blank	Without attachmentand
Y1	With attachment (S50C)
Y2	With attachment (MC nylon)

Ⓓ Switch model No.

Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T2H*	**T2V***	Proximity		•	1-color display	2-wire
T3H*	**T3V***			•		3-wire

*** Lead wire length**	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)
Ⓔ Switch quantity	
R	1 on right (port) side open position
D	2
Ⓕ End mount	
Blank	Without end mount
B	With end mount

Precautions for model No. selection

*1: Refer to Pneumatic Cylinders II (CB-030SA) for the dimensions and compatible model of the attachment. When ordered as an option, two are attached at shipment.

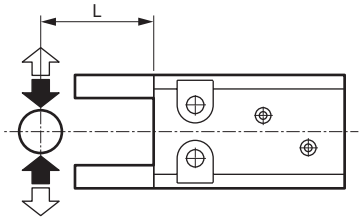
*2: Switches other than Ⓓ Switch model No. are also available. (Made to order) For details, refer to Pneumatic Cylinders II (CB-030SA).

*3: For the type with end mount (model No. B), select the radial lead wire type (model No. T*V) for switch. The end mount is attached at delivery.

Gripping power performance data

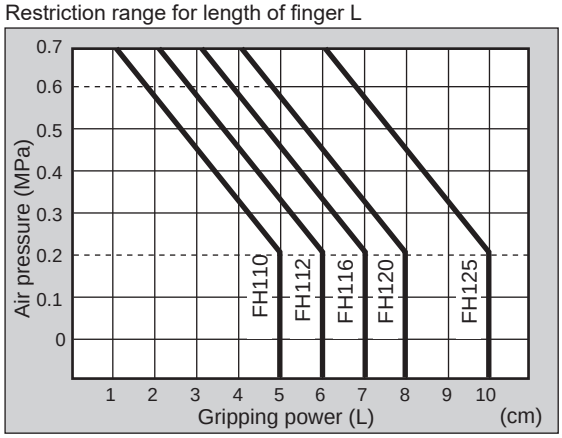
At supply pressure of 0.15 to 0.7MPa Open/close direction with jaw length L of vertical handthe gripping power working in the direction.

- Open direction(⇦)·····(Broken line)
- Closed direction(➡)——(shown with continuous line)

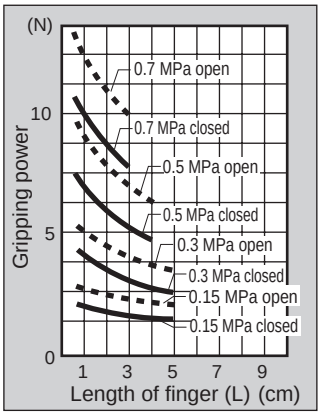


(Note) Single acting closed side gripping power is decreased by 25 to 30% compared to the double acting type.

Restriction range for length of finger L

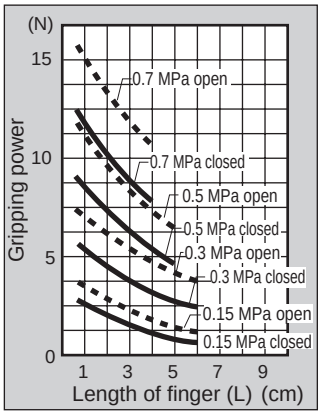


● FH110

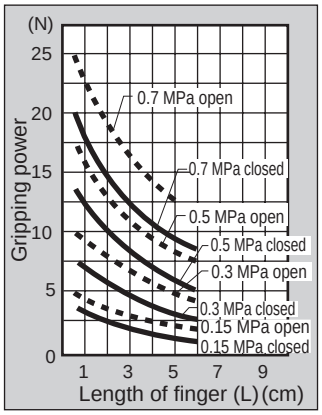


When making a selection, read the precautions for design and selection in Pneumatic Cylinders II (CB-030SA) .

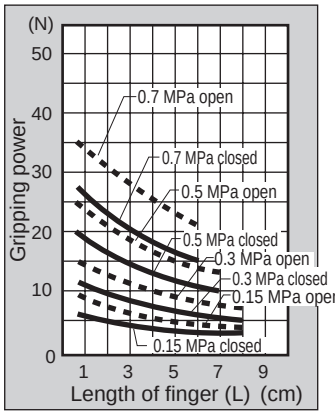
● FH112



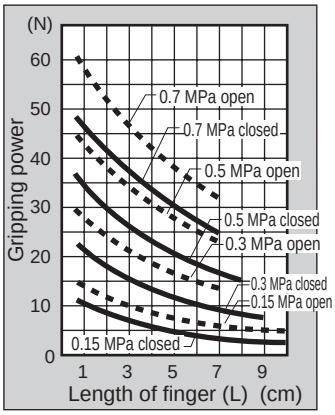
● FH116



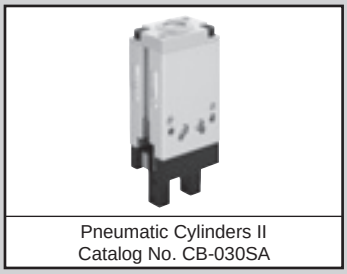
● FH120



● FH125



Refer to the FH100 Series in "Pneumatic Cylinders II (CB-030SA)" for dimensions.



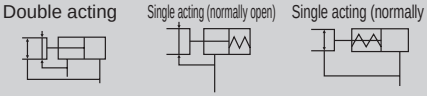
Pneumatic Cylinders II
Catalog No. CB-030SA

Compact cross roller parallel hand Double acting/single acting

BHA-FP1 Series

● Operating stroke length: 5, 9, 11, 15 mm

Double acting | Single acting (normally open) | Single acting (normally closed)



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 length	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 required			

How to order

Without switch

BHA - 01CS1 - O ——— FP1

With switch

BHA - 01CS1 - O - T2H - R - FP1

Ⓐ Size

Ⓑ Option *1

Ⓒ Switch model No.
* indicates the lead wire length.

Ⓓ 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.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***			●		3-wire

*** Lead wire length**	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

⚠ Precautions for model No. selection

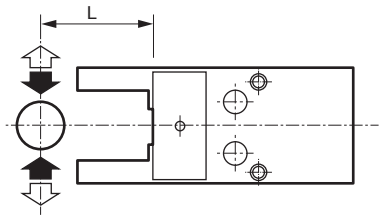
*1: For attachment of option Y1 and Y2, two are attached on delivery.
*2: Refer to Pneumatic Cylinders II (CB-030SA) for switches other than those listed here.

Gripping power performance data

The gripping power 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.

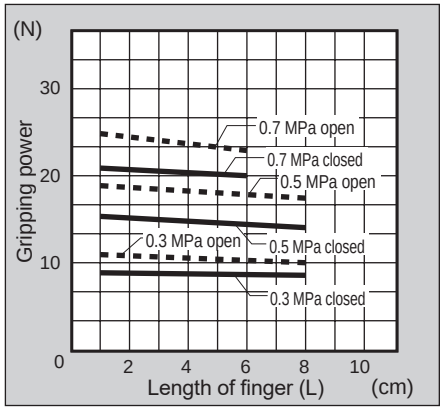
● Open direction(⇦)·····(Broken line)

● Closed direction(➡)——(shown with continuous line)

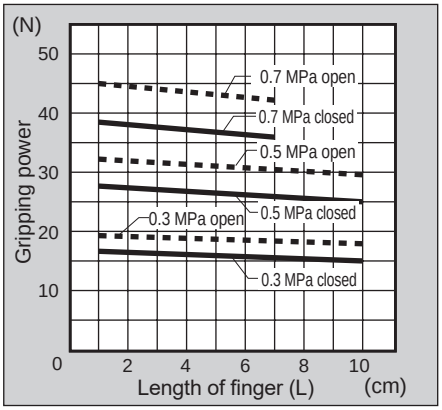


(Note) O type gripping power decreases approximately 20 to 30% in the closing direction compared to double acting. C type gripping power decreases approximately 10 to 20% in the opening direction compared to the double acting type. When making a selection, read the precautions for design and selection in Pneumatic Cylinders II (CB-030SA).

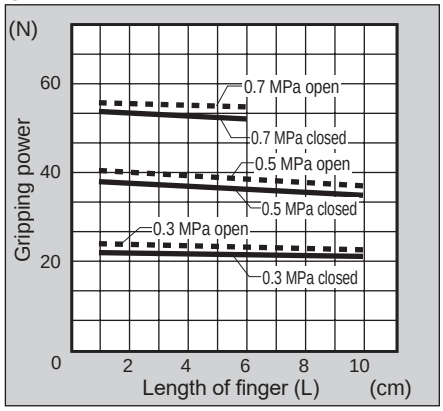
● BHA-01CS1



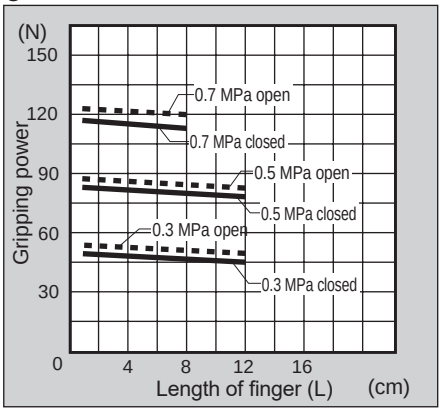
● BHA-03CS1



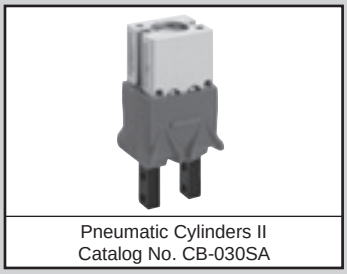
● BHA-04CS1



● BHA-05CS1



For dimensions, refer to the BHA Series in "Pneumatic Cylinders II (CB-030SA)".



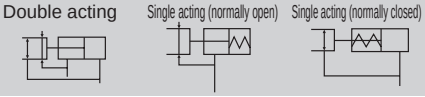
Pneumatic Cylinders II
Catalog No. CB-030SA

Compact cross roller parallel hand with rubber cover Double acting/single acting

BHG-FP1 Series

● Operating stroke length: 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 length		mm	5	9	11	15
Rod diameter		mm	ø6	ø8	ø10	ø12
Volumetric capacity (reciprocating)		cm^3	0.32	1.58	2.89	6.32
Repeatability		mm	±0.01			
Weight		kg	0.118	0.165	0.238	0.455
Lubrication			Not required			
Rubber cover			Food Sanitation Act compliant materials (silicone rubber) blue			

How to order

Without switch (built-in magnet for switch)

BHG - 01CS - O - FP1

With switch (built-in magnet for switch)

BHG - 01CS - O - T2H - R - FP1

Ⓐ 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.

Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***			●		3-wire

*** Lead wire length 3-wire**	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

⚠ Precautions for model No. selection

*1: For attachment of option Y1 and Y2, two are attached on delivery.
*2: Refer to Pneumatic Cylinders II (CB-030SA) for switches other than those listed here.

Rubber cover part model No.

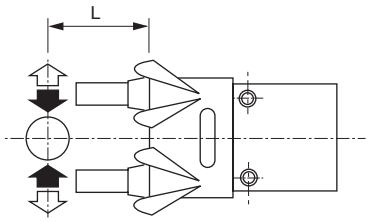
Size	Part model No.
01CS	BHG-01K-FP1
03CS	BHG-03K-FP1
04CS	BHG-04K-FP1
05CS	BHG-05K-FP1

Gripping power performance data

The gripping power 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.

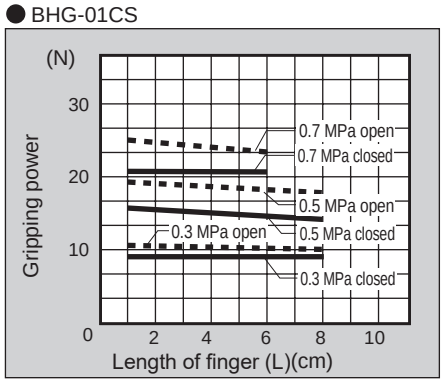
● Open direction(⇦)------(Broken line)

● Closed direction(⇨)——(shown with continuous line)

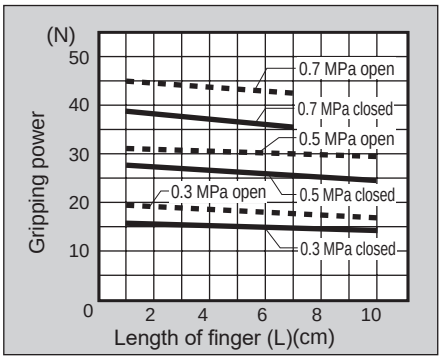


(Note) O type gripping power decreases approximately 20 to 30% in the closing direction compared to double acting. C type gripping power decreases approximately 10 to 20% in the opening direction compared to the double acting type. When making a selection, read the precautions for design and selection in Pneumatic Cylinders II (CB-030SA).

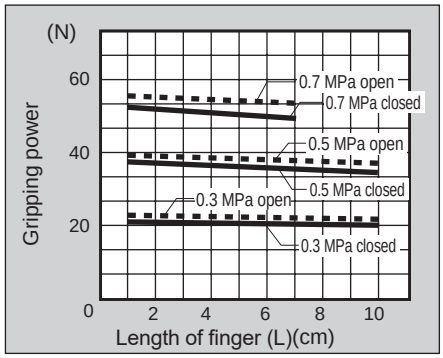
● BHG-01CS



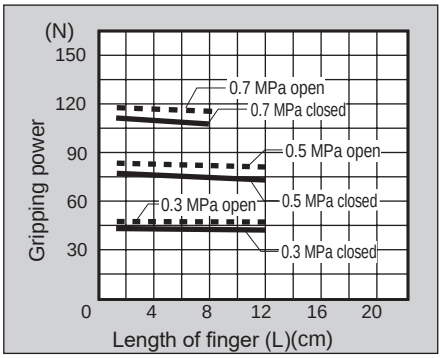
● BHG-03CS



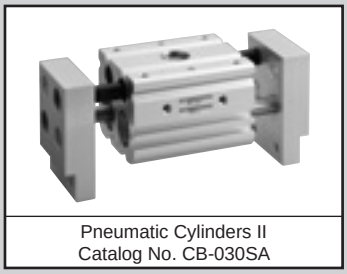
● BHG-04CS



● BHG-05CS



For dimensions, refer to the BHG Series in "Pneumatic Cylinders II (CB-030SA)".



Pneumatic Cylinders II
Catalog No. CB-030SA

Compact wide parallel hand (standard/long stroke)

HMF-FP1 Series

● Operating stroke length: Standard 30, 40, 50, 70, 100mm
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 length 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 required															

How to order

HMF - 32CS - L1 - T2H - R - FP1

Ⓐ 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.

Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***			●		3-wire

*** Lead wire length**	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

*2: Refer to Pneumatic Cylinders II (CB-030SA) for switches other than those listed here.

⚠ Precautions for model No. selection

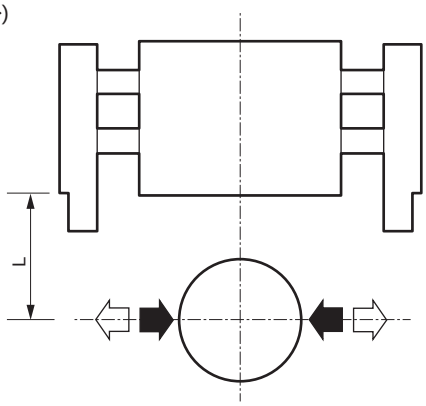
*1:12CS is not available for long stroke "L1"“L2".

Gripping power performance data

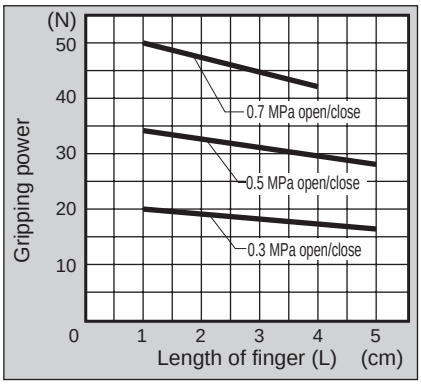
The gripping power with finger length L of hand and a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

● Both open direction (⇦) and close direction (➡)
——— (shown with continuous line)

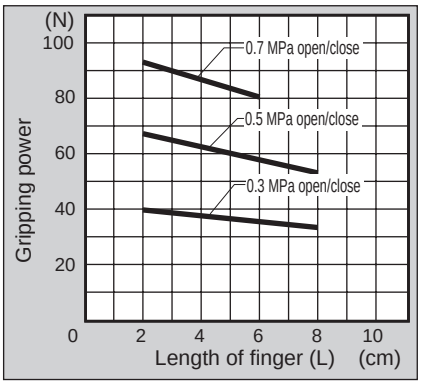
(Note) When making a selection, read the precautions for design and selection in Pneumatic Cylinders II (CB-030SA) .



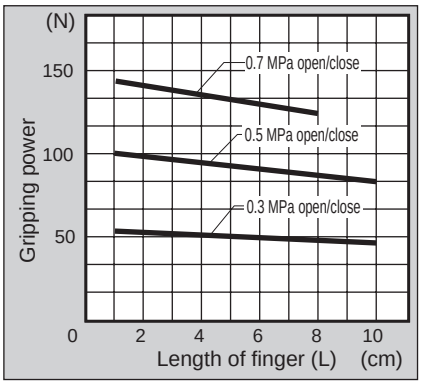
● HMF-12CS



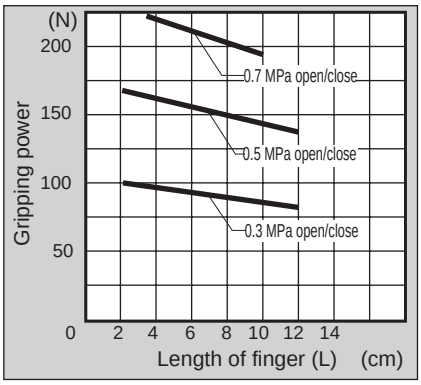
● HMF-16CS



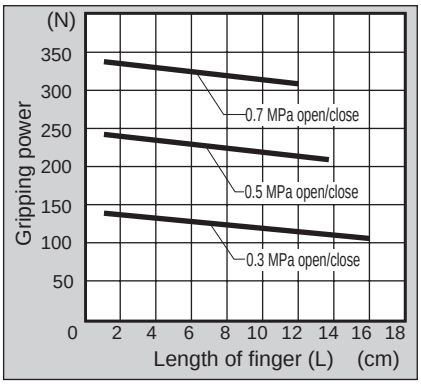
● HMF-20CS



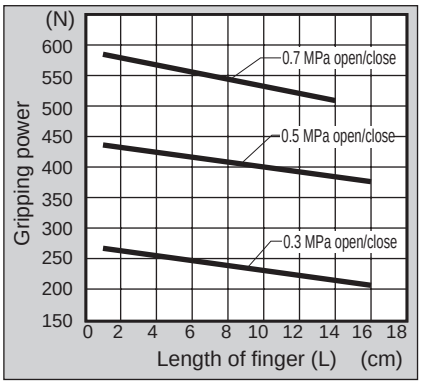
● HMF-25CS



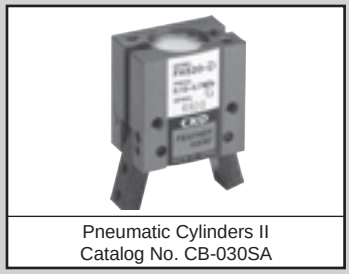
● HMF-32CS



● HMF-40CS



For dimensions, refer to the HMF Series in "Pneumatic Cylinders II (CB-030SA)".



Pneumatic Cylinders II
Catalog No. CB-030SA

Feather hand (mini-fulcrum hand) Double acting/single acting

FH500-FP1 Series

● Open angle: 20° / Closed angle: -5°

Double acting



Single acting (Normally Open)



RoHS CAD

Specifications

Item		FH500							
		FH510-D	FH512-D	FH516-D	FH520-D	FH510-O	FH512-O	FH516-O	FH520-O
Actuation		Double acting				Single acting			
Working fluid		Compressed air							
Max. working pressure	MPa	0.7							
Min. working pressure	MPa	0.15				0.25			
Proof pressure	MPa	1.05							
Ambient temperature	°C	5 to 60							
Port size		M3		M5		M3		M5	
Open/close degree	°	20° at open, −5° at closed							
Body weight	g	43	53	92	135	43	53	92	136
Repeatability (initial value)	mm	±0.03							
Max. operating frequency	cycles/second	3							
Cushion		Open side rubber cushion							
Lubrication		Not required							
Option		Proximity switch (2-wire/3-wire) * Closed side speed controller/end mount							

* Integrated speed controller is available only for double acting.

How to order

Without switch

FH5 10 - D Y1 ——— B FP1

With switch

FH5 10 - D Y1 - T2V - R - B FP1

Ⓑ Option

Ⓐ Bore size

Ⓒ Attachment
*1

Ⓓ Switch model No.
*2
* indicates the lead wire length.

Ⓔ Switch quantity

Ⓕ End mount
*3

Code	Description
Ⓐ Bore size	
10	ø10
12	ø12
16	ø16
20	ø20
Ⓑ Option	
D	Double acting
O	Single acting (normally open)
Z	Double acting integrated speed controller
Ⓒ Attachment	
Blank	Without attachment
Y1	With attachment (S50C)
Y2	With attachment (MC nylon)

Ⓓ Switch model No.						
Lead wire Straight	**Lead wire** L-shaped	**Contact**	**Voltage** AC	**Voltage** DC	**Display**	**Lead wire**
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***			●		3-wire

*** Lead wire length**	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)
Ⓔ Switch quantity	
R	1 on open side
H	1 on closed side
D	2
Ⓕ End mount	
Blank	Without end mount
B	With end mount

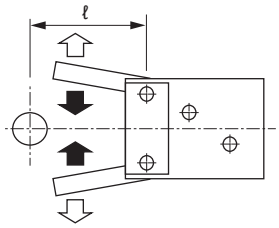
⚠ Precautions for model No. selection

*1: For the Dimensions and compatible model of the attachmentPneumatic Cylinders II (CB-030SA). When ordered as an option, two are attached at shipment.
*2: ⒹSwitches other than Switch model No. are also available. (Made to order) For details,Pneumatic Cylinders II (CB-030SA).
*3: For the type with end mount (model No. B), select the radial lead wire type (model No. T*V) for switch. The end mount is attached at delivery.

Gripping power performance data

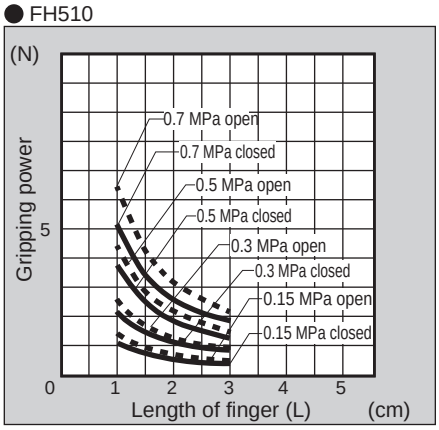
Gripping power in the opening/closing directions with finger length ℓ of hand with a supply pressure of 0.15 to 0.7MPa.

● Open direction (⇦) - - - - - (shown with broken line)
● Closed direction (⇨) ——— (shown with continuous line)

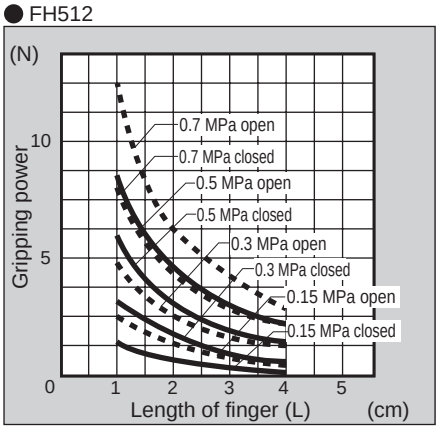


(Note) Single acting closed side gripping power is decreased by 25 to 30% compared to the double acting type. When making a selection, read the precautions for design and selection in Pneumatic Cylinders II (CB-030SA) .

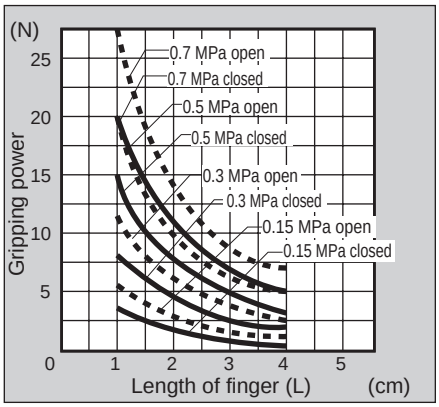
● FH510



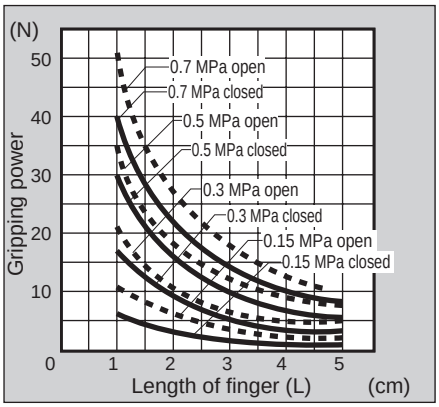
● FH512



● FH516



● FH520



Refer to the FH500 Series in "Pneumatic Cylinders II (CB-030SA)" for dimensions.



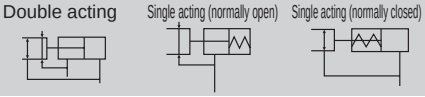
Pneumatic Cylinders II
Catalog No. CB-030SA

3-way jaw bearing chuck Double acting/single acting

CKG-FP1 Series

● Operating stroke length: 6, 8, 11, 16 mm

Double acting | Single acting (normally open) | Single acting (normally closed)



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 length	mm	6		8	11	16
Rod diameter	mm	ø9	ø10	ø14	ø18	ø20
Volumetric capacity (reciprocating)	cm^3	1.0	2.2	5.1	10.1	36.1
Repeatability	mm	±0.01				
Weight	kg	0.24	0.47	0.80	1.4	2.3
Lubrication		Not required				
Rubber cover		Food Sanitation Act compliant materials (silicone rubber) blue				

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 (built-in magnet for switch)

CKG - 16CS - O - FP1

With switch (built-in magnet for switch)

CKG - 16CS - O - T2H - R - FP1

Ⓐ Size

Ⓑ Option
*1, *2

*1 Silicone rubber cover available as an option Ⓑ and select G.

Ⓒ 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	**Rubber cover (silicone-based)** *1
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) 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.

Lead wire Straight Type	Lead wire Radial Type	Contact	Voltage AC	Voltage DC	Display	Lead wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***			●		3-wire

*** Lead wire length**	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

⚠ Precautions for model No. selection

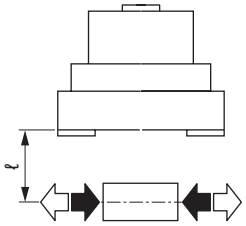
*1: CK G-16CS is Y11,Y21,CK G-25CS to 40CS is Y11, Y12, Y21, Y22, CKG-50CS can be ordered as Y11 or Y21.

*2: Refer to Pneumatic Cylinders II (CB-030SA) for the dimensions and compatible model of the attachment. When ordered as an option, three are attached at shipment.

Gripping power performance data

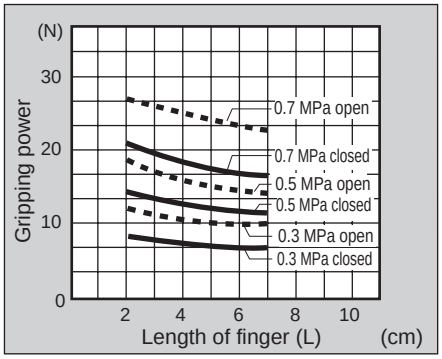
Supply pressure 0.3, 0.5, 0.7MPa Opening direction with hand jaw length ℓ the gripping power in the closing direction is shown.

● Open direction (⇦) - - - - - (shown with broken line)
● Closed direction (➡) ——— (shown with continuous line)

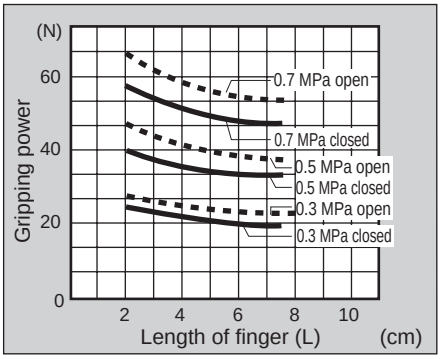


(Note) O type gripping power decreases approximately 20 to 30% in the closing direction compared to double acting. C type gripping power decreases approximately 10 to 20% in the opening direction compared to the double acting type. When making a selection, read the precautions for design and selection in Pneumatic Cylinders II (CB-030SA).

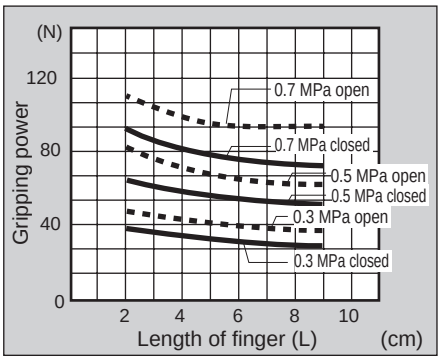
● CKG-16CS



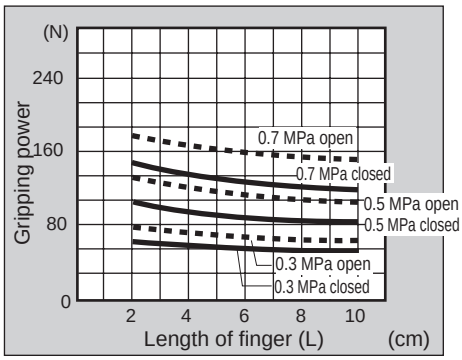
● CKG-25CS



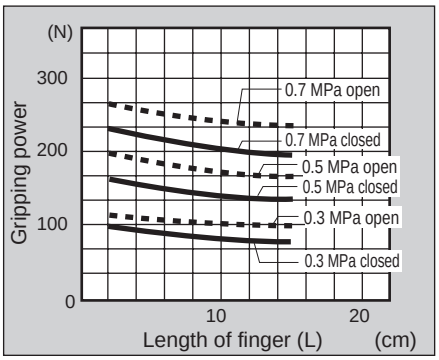
● CKG-32CS



● CKG-40CS



● CKG-50CS



For dimensions, refer to the CKG Series in "Pneumatic Cylinders II (CB-030SA)".



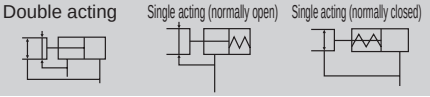
Pneumatic Cylinders II
Catalog No. CB-030SA

Powerful chuck

CKL2-FP1 Series

● Operational stroke length: 5, 6, 8, 10, 12, 16, 20, 23mm

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 length mm	5	6	8	10	12	16	20	23
Rod diameter mm	ø6	ø8	ø10	ø12	ø14	ø16		ø20
Volumetric capacity (reciprocating) cm^3	1.8	3.3	7.7	15.6	28.3	60.3	118.2	215.5
Repeatability mm	±0.01							
Weight kg	0.12	0.19	0.26	0.38	0.59	1.02	2.02	3.45
Lubrication	Not required							

How to order

Without switch (built-in magnet for switch)

CKL2 - 20CS - O - FP1

With switch (built-in magnet for switch)

CKL2 - 20CS - O - T2H - R - FP1

Ⓐ 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.

Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***			●		3-wire

*** Lead wire length**	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

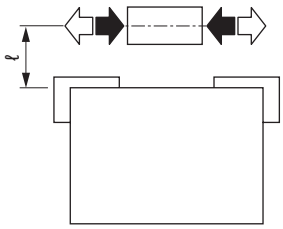
⚠ Precautions for model No. selection

*1: Attachment is commonly used for internal and external chuck.
*2: Refer to Pneumatic Cylinders II (CB-030SA) for the dimensions and compatible model of the attachment. When ordered as an option, three are attached at shipment.

Gripping power performance data

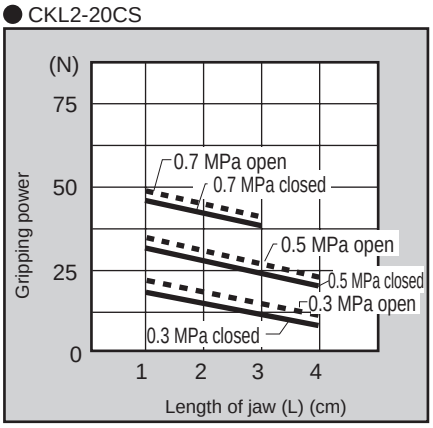
The gripping power in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

- Open direction (⇦) – – – – – (shown with broken line)
- Close direction (➡) ——— (shown with continuous line)

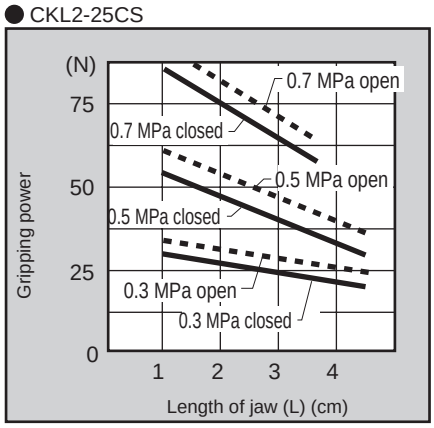


(Note) O type gripping power decreases approximately 20 to 30% in the closing direction compared to double acting. C type gripping power decreases approximately 10 to 20% in the opening direction compared to the double acting type. When making a selection, read the precautions for design and selection in Pneumatic Cylinders II (CB-030SA).

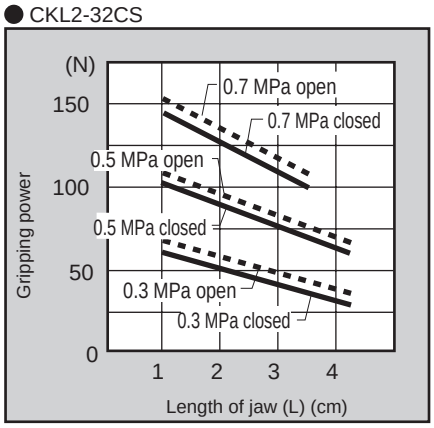
● CKL2-20CS



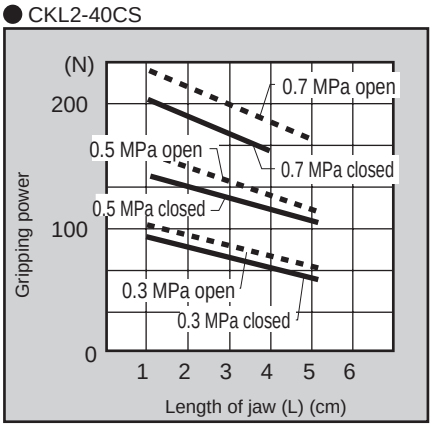
● CKL2-25CS



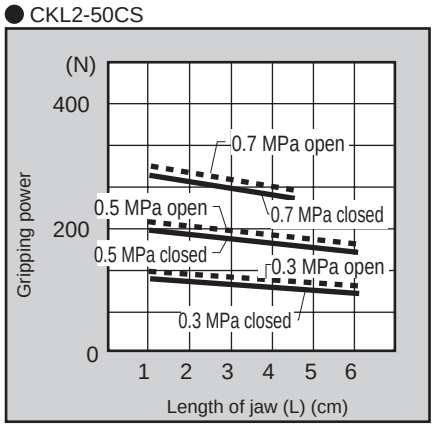
● CKL2-32CS



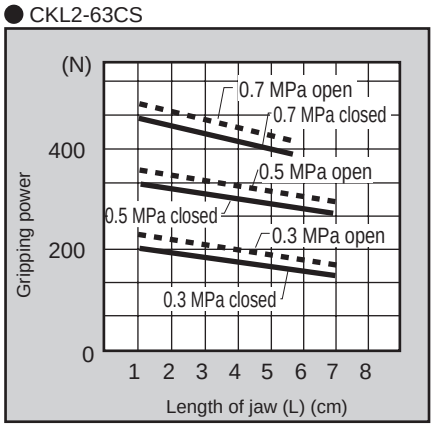
● CKL2-40CS



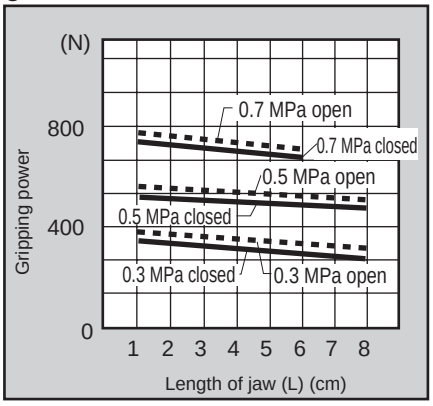
● CKL2-50CS



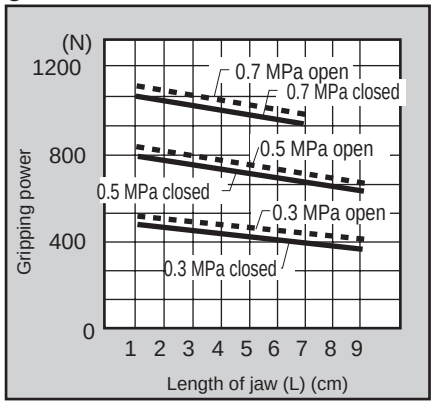
● CKL2-63CS



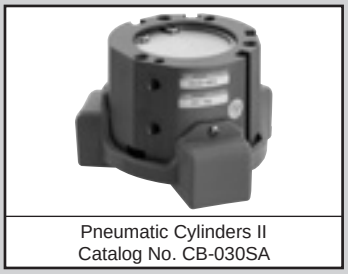
● CKL2-80CS



● CKL2-100CS



Refer to the CKL2 Series in "Pneumatic Cylinders II (CB-030SA)" for dimensions.



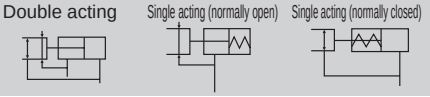
Pneumatic Cylinders II
Catalog No. CB-030SA

Powerful chuck with rubber cover

CKLG2-FP1 Series

● Operational stroke length: 5, 6, 8, 10, 12, 16, 20, 23mm

Double acting | Single acting (normally open) | Single acting (normally closed)



RoHS CAD

Specifications

Item	CKLG2							
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 length mm	5	6	8	10	12	16	20	23
Rod diameter mm	ø6	ø8	ø10	ø12	ø14	ø16		ø20
Volumetric capacity (reciprocating) cm^3	1.8	3.3	7.7	15.6	28.3	60.3	118.2	215.5
Repeatability mm	±0.01							
Weight (*1) kg	0.14 (0.17)	0.21 (0.25)	0.27 (0.33)	0.40 (0.52)	0.60 (0.71)	1.13 (1.30)	2.02 (2.59)	3.38 (4.00)
Lubrication	Not required							

How to order

Without switch (built-in magnet for switch)

CKLG2 - 20CS - O - FP1

With switch (built-in magnet for switch)

CKLG2 - 20CS - O - T2H - R - FP1

Ⓐ Size

Ⓑ Option
*2, *3

Ⓒ 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.

Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T2H*	**T2V***	Proximity		●	1-color display	2-wire
T3H*	**T3V***			●		3-wire

*** Lead wire length**	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

Ⓓ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

⚠ Precautions for model No. selection

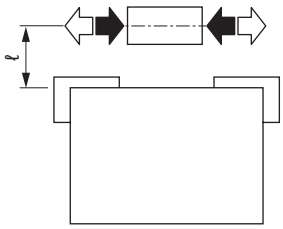
*1 : ( ) is the weight of single acting.
*2 : Attachment is commonly used for internal and external diameter chuck.
*3 : Refer to CKL2 in Pneumatic Cylinders II (CB-030SA) for the dimensions and compatible model of the attachment. When ordered as an option, three are attached at shipment.

Refer to the CKLG2 Series in "Pneumatic Cylinders II (CB-030SA)" for dimensions.

Gripping power performance data

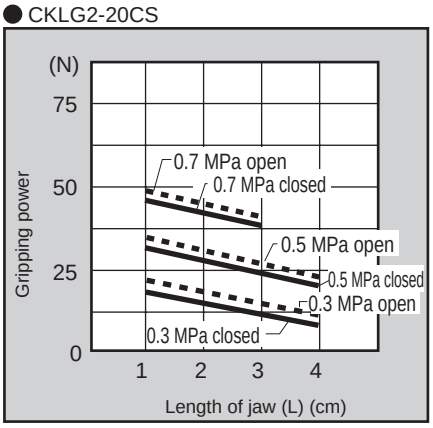
The gripping power in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

- Open direction (⇦) – – – – – (shown with broken line)
- Close direction (➡) ——— (shown with continuous line)

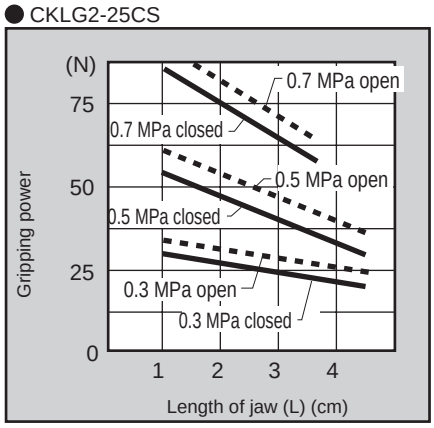


(Note) O type gripping power decreases approximately 20 to 30% in the closing direction compared to double acting. C type gripping power decreases approximately 10 to 20% in the opening direction compared to the double acting type. When making a selection, read the precautions for design and selection in Pneumatic Cylinders II (CB-030SA).

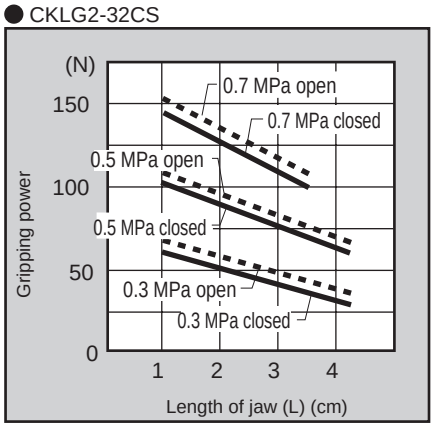
● CKLG2-20CS



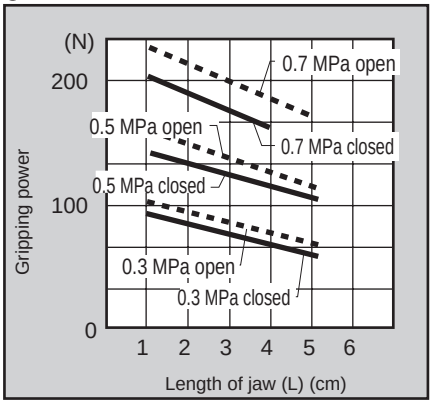
● CKLG2-25CS



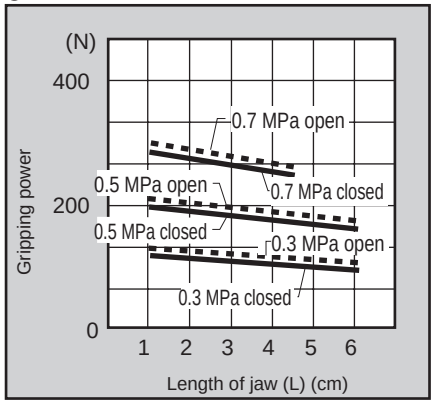
● CKLG2-32CS



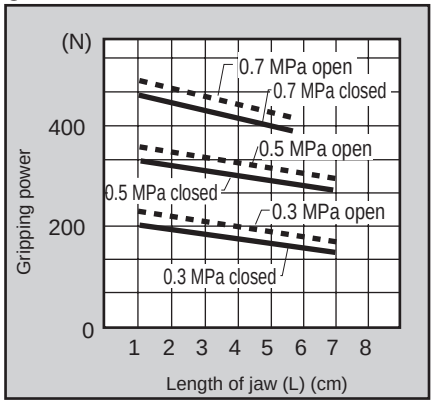
● CKLG2-40CS



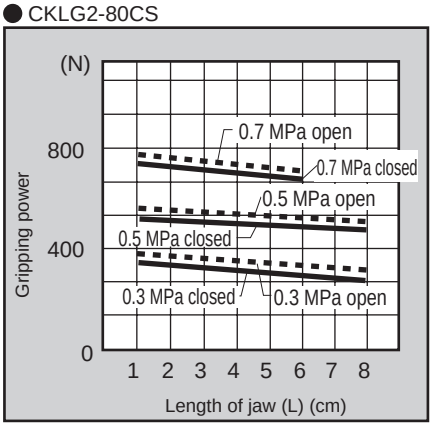
● CKLG2-50CS



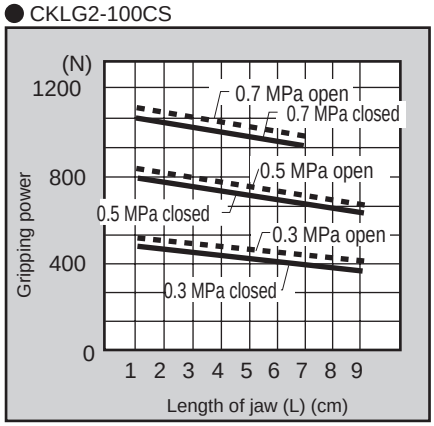
● CKLG2-63CS



● CKLG2-80CS



● CKLG2-100CS





Cylinder grease for food manufacturing processes

NSF H1

GRS-FP1 Series

RoHS

Specifications

Base oil	Thickener	Color
Composite hydrocarbon oil	Aluminum complex soap	Beige

How to order

GRS - 015 - FP1

Size	
015	15g
080	80g
120	120g
220	220g
500	500g

Standard amount of required grease

Unit: g

Stroke [mm] \ Bore size [mm]	ø6	ø10	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100	ø125	ø140	ø160	ø180	ø200	ø250	Stroke [mm]
100	1	1	1	1	1	1	2	3	4	4	5	7	8	8	10	10	11	15	100
200		1	1	1	1	1	2	3	4	5	6	8	10	10	12	13	14	18	200
300			1	1	1	2	2	4	5	5	7	9	11	12	14	15	16	22	300
400					2	2	3	4	5	6	7	10	13	14	16	18	19	25	400
500					2	2	3	5	6	6	8	11	15	16	18	20	22	29	500
600					2	3	3	5	6	7	9	12	16	18	21	23	25	32	600
700					2	3	4	5	7	8	10	13	18	20	23	25	27	36	700
800					3	3	4	6	7	8	11	14	20	21	25	28	30	39	800
900					3	3	4	6	8	9	11	15	21	23	27	30	33	43	900
1000					3	4	5	7	8	9	12	16	23	25	29	33	36	46	1000
1100								7	9	10	13	17	25	27	32	35	39	50	1100
1200								7	9	11	14	18	26	29	34	38	41	53	1200
1300								8	10	11	14	19	28	31	36	40	44	57	1300
1400								8	10	12	15	20	30	33	38	43	47	60	1400
1500								9	11	12	16	21	31	35	40	45	50	64	1500
1600								9	11	13	17	22	33	36	43	48	52	67	1600
1700									12	14	17	23	35	38	45	50	55	71	1700
1800									12	14	18	24	36	40	47	53	58	74	1800
1900									13	15	19	25	38	42	49	55	61	78	1900
2000									13	15	20	26	39	44	51	57	63	81	2000

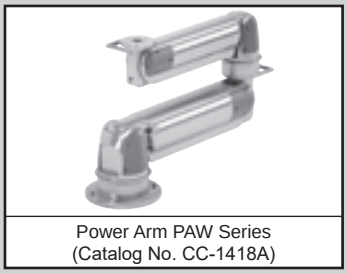
Note:The amount of grease required varies greatly depending on the operator, coating method, etc. Consider this a guide.

■ Use the standard packing set for maintenance. (Pneumatic Cylinders I/II Catalog No.; CB-029SA/CB-030SA)

⚠ Safety precautions

■ This grease is for use in the maintenance of CKD food manufacturing process cylinders (FP1 specifications). Do not use for different applications.
■ The shelf life of this grease is three months after delivery. Use up as much grease as possible in a single maintenance. However, if properly stored, grease may be usable even after the expiration date.
■ Store indoors in an ordinary environment (room temperature about 10 to 40°C, humidity 80% or less, atmosphere that does not impair human living and behavior) not exposed to direct sunlight. After opening, confirm that no foreign matter (water, dust, other oils, etc.) has entered before closing the lid and storing.

MEMO



Power Arm PAW Series
(Catalog No. CC-1418A)

PowerArm

PAW-FP1 Series

● Bore size: ø80/ø100/ø125

Specifications

Item		PAW		
Bore size	mm	ø80	ø100	ø125
Working fluid		Compressed air		
Max. working pressure	MPa	0.7		
Min. working pressure	MPa	0.25 (when option L (with rotation lock) is selected: 0.35)		
Proof pressure	MPa	1.05		
Ambient temperature	°C	5 to 60		
Cushion		Rubber cushion		
Lubrication		Not available		
Load capacity (0.5 MPa pressurized)	kg	30	50	80
Air consumption	L/min (ANR)	8	14	25

Note: Values are at air consumption 1 cycle/min. and working pressure 0.7 MPa.

Movable range

• With single-axis

Model No.	Movable range Top and bottom(mm)
PAW-S-8 (ø80)	520
PAW-S-X (ø100)	580
PAW-S-Z (ø125)	650

• With multi-axis

Model No.	Movable range	
	Top and bottom(mm)	Horizontal(mm)
PAW-M-8S	520	1200
PAW-M-XS	580	1400
PAW-M-ZS	650	1600
PAW-M-8X	1100	1300
PAW-M-XZ	1230	1500
PAW-M-8XS	1100	2000
PAW-M-XZS	1230	2300
PAW-M-8XZ	1750	2100

Note: Horizontal movable range is the maximum value at the descending edge of the vertical movable range. See the external dimensions for more information on the movable range.

Weight

Model No.	Weight (kg)	Optional additional weight (kg)		
		L(Rotation lock mechanism)	R(Tip rotation mechanism)	LR
PAW-M-8	27	0.5	4	5
PAW-M-X	38	0.5	5.5	6.5
PAW-M-Z	71	0.5	7.5	8.5
PAW-M-8S	46	1.0	4	5.5
PAW-M-XS	77	1.0	5.5	7
PAW-M-ZS	123	1.0	7.5	9
PAW-M-8X	58	1.0	4	5.5
PAW-M-XZ	102	1.0	5.5	7
PAW-M-8XS	96	1.5	4	6
PAW-M-XZS	154	1.5	5.5	7.5
PAW-M-8XZ	121	1.5	4	6

Refer to "PowerArm PAW Series (CC-1418A)" for dimensions.

How to order

PAW - M - 8X - R - FP1

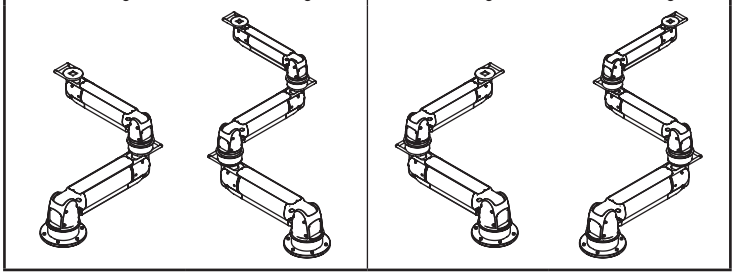
- M: Ⓐ Number of sections
- 8X: Ⓑ Combination contents
- R: Ⓒ Option

Code	Description	Ⓐ Number of sections: Single Shaft S	Ⓐ Number of sections: Multi Quantity Shaft M
Ⓑ Combination contents			
8	ø80 single-axis	●	
X	ø100 single-axis	●	
Z	ø125 single-axis	●	
8S	ø80 + SCARA arm		●
XS	ø100 + SCARA arm		●
ZS	ø125 + SCARA arm		●
8X	ø80+ø100		●
XZ	ø100+ø125		●
8XS	ø80 + ø100 + SCARA arm		●
XZS	ø100 + ø125 + SCARA arm		●
8XZ	ø80+ø100+ø125		●
Ⓒ Option			
L	Rotation lock mechanism *1	●	●
R	Tip rotation mechanism	●	●
C	Bending direction (Refer to the figure at left)		●
U	Piping leadout direction (Refer to the figure at left)	●	●

*1 A mechanism designed to hold the force applied in rotational directions. It is not designed to stop the dynamic rotational force.
*2 Contact CKD Sales if the attachments are compatible with FP1.
*3 Cannot be applied to transport of food not packed.

ⒸOption: Bending direction

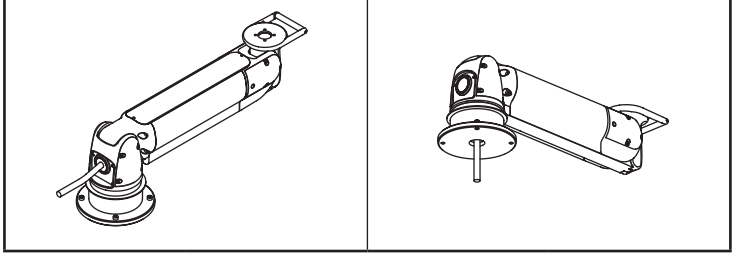
Blank		C	
For 2-axis configuration	For 3-axis configuration	For 2-axis configuration	For 3-axis configuration



* C is not available for single axis (PAW-S).

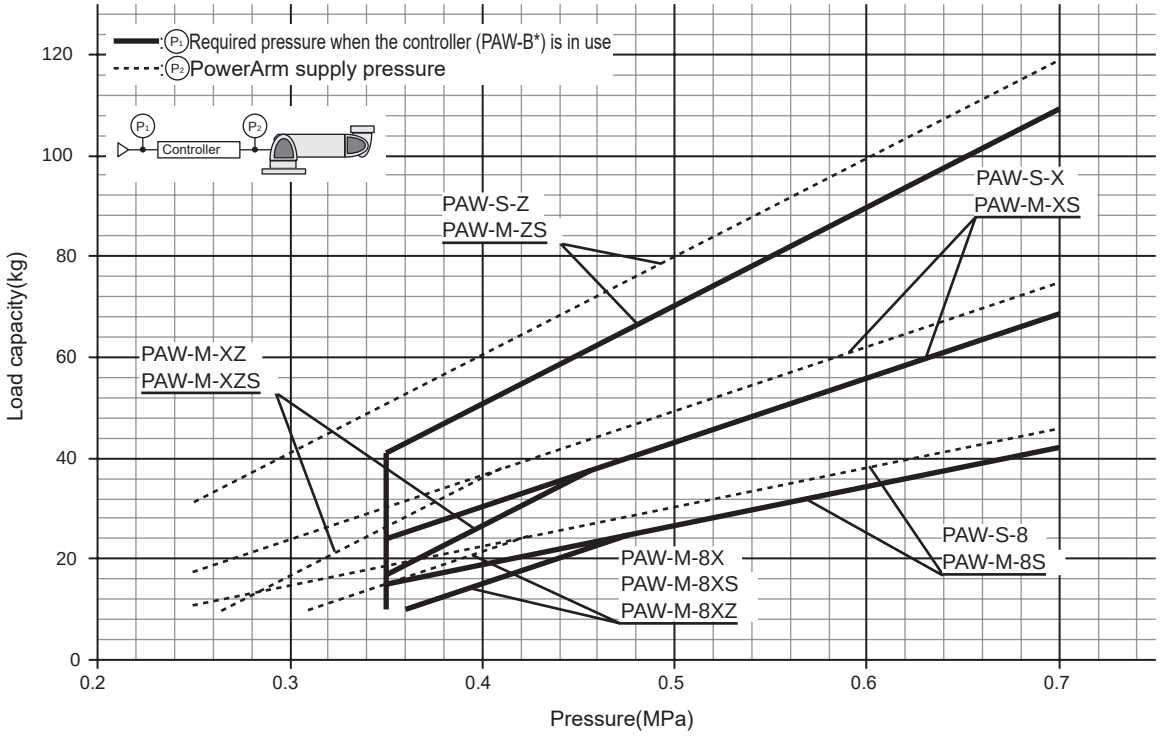
ⒸOption: Piping leadout direction

Blank	U

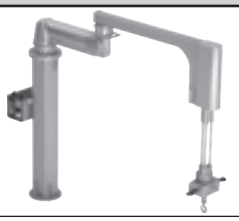


* Piping holes at the mounting surface center are required for U.

Load capacity with respect to pressure



*1: Indicates the load capacity with the optional tip rotation mechanism mounted.
*2: Pressure supplied to the controller should be increased, depending on the operating frequency and speed.
*3: Attachment weight is not included.
*4: While the load capacity properties are such that it alters slightly according to the arm rise angle, this graph shows the lower limit values.



Power Arm PAW Series
(Catalog No. CC-1418A)

Palletizing specifications

PAW-A*-FP1 Series

RoHS

Specifications

Item		PAW-AS-45	PAW-AS-45-S	PAW-AZ-110	PAW-AZ-110-S
Working fluid		Compressed air			
Max. working pressure	MPa	0.7			
Min. working pressure	MPa	0.25 (when option L (with rotation lock) is selected: 0.35)			
Proof pressure	MPa	1.05			
Ambient temperature	°C	5 to 60			
Lubrication		Not available			
Load capacity (0.5 MPa pressurized)	kg	53	53	43	47
When controller (PAW-B*) is used		47	47	32	36
Air consumption (*1)	L/min (ANR)	11		35	
Product weight (*2)	kg	164	161	183	180
Vertical movable range of transport section	mm	450		1100	
Max. movable radius of transport section	mm	2000	1600	2100	1700

*1: Air consumption represents a value with 1 return/min and 0.7 MPa working pressure.
*2: When Option L (with a rotation lock) is selected, an additional 2 kg is added respectively.
*3: Refer to "PowerArm PAW Series (No.CC-1418A)" for the load capacity when an offset is used.

How to order

PAW - AS-45 - LC - FP1

Ⓐ Vertical operating range / max. rotational radius

Ⓑ Option

Code	Description	
Ⓐ **Vertical operation range/Max. rotation radius *1**		
	Vertical operation range	Max. rotation radius
AS-45	450 mm	2,000 mm
AS-45-S	450 mm	1,600 mm
AZ-110	1,100 mm	2,100 mm
AZ-110-S	1,100 mm	1,700 mm

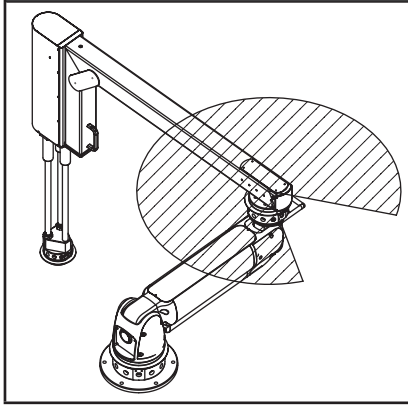
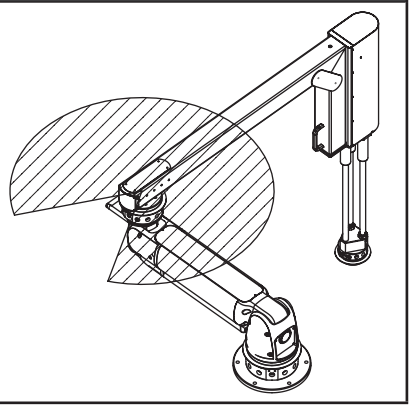
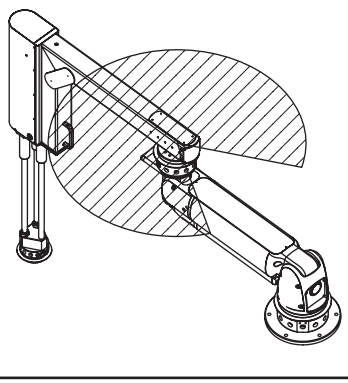
Ⓑ Option	
L	Rotation lock mechanism *2
C	Bending direction (refer to diag. below)

*1 If the vertical operating range / max. rotational radius are exceeded, consult with CKD.
*2 A mechanism designed to hold the force applied in rotational directions. It is not designed to stop dynamic rotation.
*3 Contact CKD if the attachments are compatible with FP1. Contact CKD for details.
*4 Cannot be applied to transport of food not packed.

ⒷOption: Bending direction

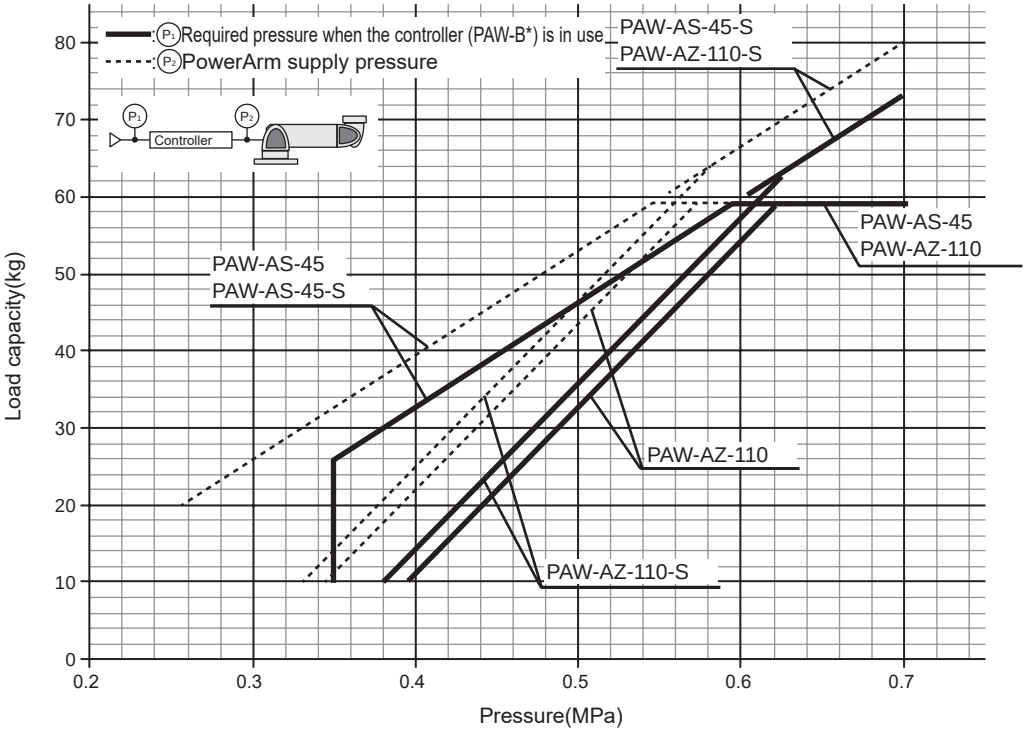
Only PAW-AS-45 and PAW-AZ-110 can be selected

*Bending direction of PAW-AS-45-S, PAW-AZ-110-S

Blank	C	Blank (C cannot be selected)
		

Refer to "PowerArm PAW Series (CC-1418A)" for dimensions.

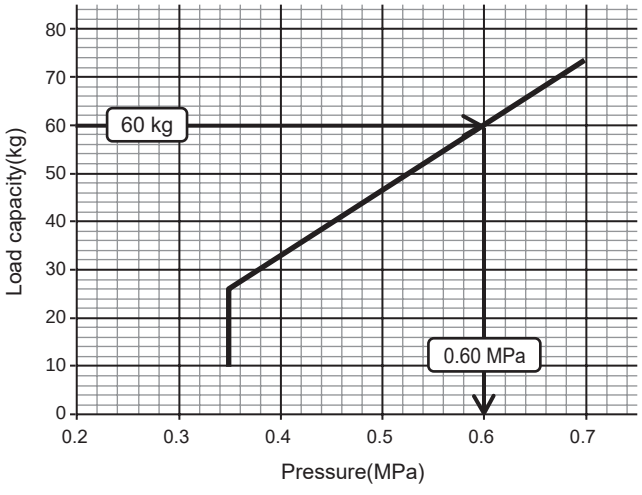
Load capacity with respect to pressure



*1: Pressure supplied to the controller should be increased, depending on the operating frequency and speed.
*2: Load capacity is the sum of weights of the “workpiece, attachment, and operation box”.

[Selection example 1]

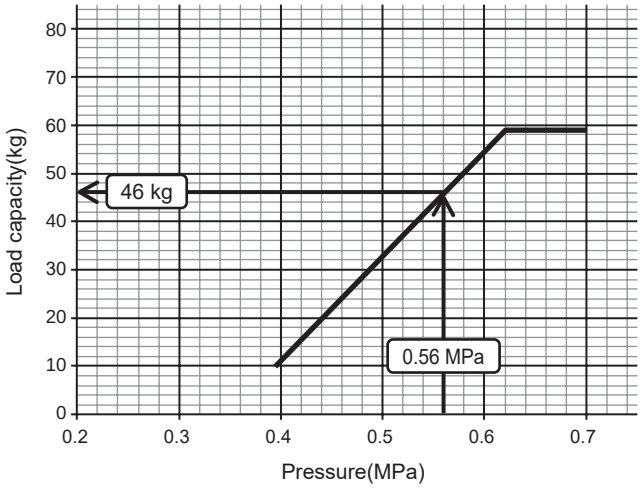
Model: PAW-AS-45-S Controller: PAW-BH1
Workpiece weight: 40kg, Operation Box weight: 9 kg,
Cardboard box suction attachment weight: 11kg For total 60kg



Pressure supplied to the controller will need to be 0.60 MPa.

[Selection example 2]

Model: PAW-AZ-110 Controller: PAW-BS2
Operation box weight: 9 kg, hook attachment weight: 2 kg
When pressure supplied to the controller is 0.56 MPa

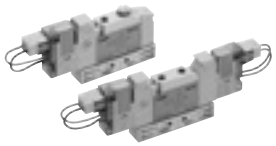
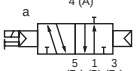
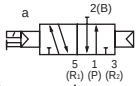
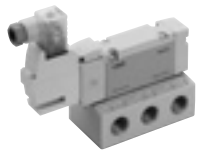
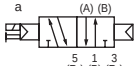
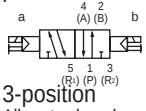
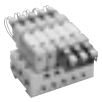
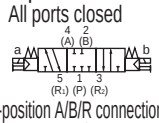
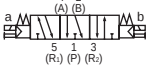
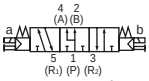
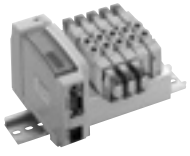
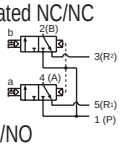
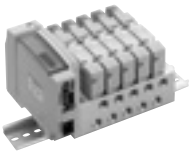
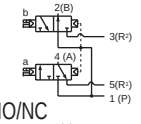
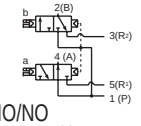
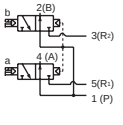


The weight of Operation Box (46 kg) and Hook Attachment (9 kg) subtracted from the Load Capacity (2 kg) leaves 35 kg, which is the maximum workpiece weight that can be transported.

Series variation

4GA1 to 3 / 4GB1 to 3-FP1 series

* Refer to page 179 for master valve.

Series external appearance				Model No.	Position Number of solenoid valves JIS symbol	Valve performance: Flow characteristics C ($dm^3/(s \cdot bar)$) (*1)	Valve performance: Applicable Cylinder diameter (ø)	Voltage (v)
Single unit	3GA110R-E* 4GA120R-E* 	Body piping	3-port	3GA1	● 3-port valve 2-position single NC 	0.66 to 0.70	20 to 40	100 VAC 200 VAC DC24 DC12 (*2)
				3GA2		2.2 to 2.7	40 to 80	
				3GA3		3.9	63 to 100	
			5-port	4GA1		0.66 to 0.70	20 to 40	
				4GA2		2.4 to 2.7	40 to 80	
				4GA3	2-position single NO 	3.2 to 4.0	63 to 100	
	4GB310R-B 	Base piping	3-port	3GB1		1.0	20 to 40	
				3GB2		2.1	40 to 80	
			5-port	4GB1		1.1 to 1.3	20 to 40	
				4GB2	● 5-port valve 2 position single 	2.2 to 2.5	40 to 80	
				4GB3		3.2 to 4.2	63 to 100	
Individual wiring manifold	M4GA280R-E*D 	Body piping	Direct mount DIN rail mount (-D)	M4GA1		0.66 to 1.0	20 to 40	100 VAC 200 VAC DC24 DC12 (*2)
				M4GA2		1.7 to 2.5	40 to 80	
				M4GA3	2-position double 	2.5 to 3.3	63 to 100	
	M4GB280R-E* 	Base piping	Direct mount DIN rail mount (-D)	M4GB1		0.67 to 1.0	20 to 40	
				M4GB2		1.6 to 2.4	40 to 80	
				M4GB3	3-position All ports closed 	2.6 to 3.3	63 to 100	
Reduced wiring manifolds	M4GA280R-T10 	Body piping	Mount type Direct: Terminal block (-T1□) Connector (-T30, -T5□)	M4GA1	3-position A/B/R connection 	0.66 to 1.0	20 to 40	DC24 DC12
				M4GA2		1.7 to 2.5	40 to 80	
				M4GA3		2.5 to 3.3	63 to 100	
			Mount type Direct: Serial transmission (-T8□)	M4GA1	3-position P/A/B connection 	0.66 to 1.0	20 to 40	DC24
				M4GA2		1.7 to 2.5	40 to 80	
				M4GA3		2.5 to 3.3	63 to 100	
	M4GA280R-T8D 		Mount type DIN rail: Terminal block (-T1□D) Connector (-T30D, -T5□D)	M4GA1	● Two 3-port valves integrated NC/NC 	0.66 to 1.0	20 to 40	DC24 DC12
				M4GA2		1.7 to 2.5	40 to 80	
				M4GA3		2.5 to 3.3	63 to 100	
			Mount type DIN rail: Serial transmission (-T6□D) (-T8□D)	M4GA1		0.66 to 1.0	20 to 40	DC24
				M4GA2		1.7 to 2.5	40 to 80	
				M4GA3		2.5 to 3.3	63 to 100	
	M4GB210R-T8D 	Base piping	Mount type Direct: Terminal block (-T1□) Connector (-T30, -T5□)	M4GB1	NC/NC 	0.67 to 1.0	20 to 40	DC24 DC12
				M4GB2		1.6 to 2.4	40 to 80	
				M4GB3		2.6 to 3.3	63 to 100	
			Mount type Direct: Serial transmission (-T8□)	M4GB1	NO/NC 	0.66 to 1.0	20 to 40	DC24
				M4GB2		1.7 to 2.5	40 to 80	
				M4GB3		2.5 to 3.3	63 to 100	
			Mount type DIN rail: Terminal block (-T1□D) Connector (-T30D, -T5□D)	M4GB1		0.67 to 1.0	20 to 40	DC24 DC12
				M4GB2	NO/NO 	1.6 to 2.4	40 to 80	
				M4GB3		2.6 to 3.3	63 to 100	
			Mount type DIN rail: Serial transmission (-T6□D) (-T8□D)	M4GB1		0.67 to 1.0	20 to 40	DC24
				M4GB2		1.6 to 2.4	40 to 80	
				M4GB3		2.6 to 3.3	63 to 100	

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 X C.
*2: The grommet lead wire specifications are for DC voltages only.
*3: The two 3-port valves integrated type is compatible with 3GA1/2 and 3GB1/2.
*4: P/R piping port is either M5 or Rc thread.
*5: Specification for reduced wiring manifold built-in. Only 12/24 VDC is supported.
*6: "○" indicates made to order.

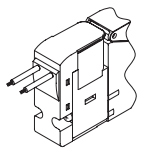
Switching position									A/B piping port (*4)								Electrical connections													Page
2-position				3-position			3 Port valve 2 Individual integrated (*3)	Mix	Push-in fitting				Female thread				Single unit, individual wiring				Reduced wiring									
Normally closed	Normally open	Single	Double	All ports closed	ABR connection	PAB connection			ø4	ø6	ø8	ø10	M 5	Rc 1/8	Rc 1/4	Rc 3 /8	Grommet lead(*2)	E type connector	EJ type connector	DIN terminal box	A-connector (*5)	Common terminal block	D-sub-connector	Flat cable with power supply terminal	Flat cable without power supply terminal	Serial transmission	Serial transmission	
									C4	C6	C8	C10	M5	06	08	10	Blank	E□	E□J	B□	A2N	T1□	T30	T50	T5□	T6□	T8□	
●	●						○		●	●			●				●	●	●									
●	●						○			●	●			●			●	●	●	●								99
●	●										●	●			●		●	●	●	●								
		●	●	●	●	●			●	●			●				●	●	●									
		●	●	●	●	●				●	●			●			●	●	●	●								99
		●	●	●	●	●					●	●			●		●	●	●	●								
							○							●			●	●	●									
							○								●		●	●	●	●								103
		●	●	●	●	●								●			●	●	●									
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Electrical connections

Discrete valve/individual wiring manifold

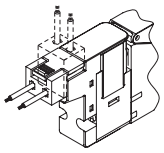
Blank Grommet lead wire Ⓐ

● **Lead wire length**
300 mm

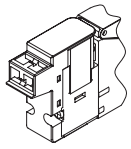


E0 E-connector Ⓐ

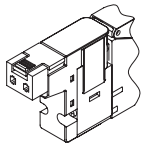
● **Lead wire length**
300 mm
500 mm
1000 mm
2000 mm
3000 mm



E0N E-connector without socket

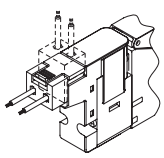


E1 E type connector socket terminalIncluded

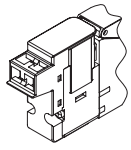


E2 E-connector ⒶⒷⒸ

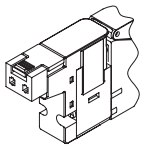
● **Lead wire length**
300 mm
500 mm
1000 mm
2000 mm
3000 mm



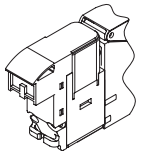
E2N E-connector Without socket ⒷⒸ



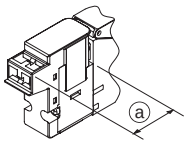
E3 E-connector with socket/ terminalⒷⒸ



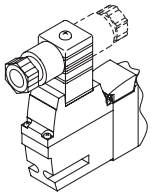
A2N A-connector downward without socket



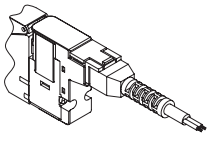
● For AC voltages, the ⓐ dimension is 3.5mm longer than for DC voltages.



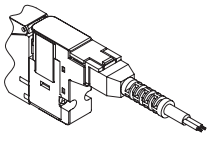
B BN DIN terminal box (BN: Without terminal box)



E0*J EJ typeConnector Ⓐ

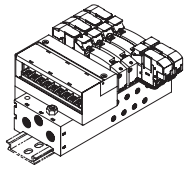


E2*J EJ-connector ⒶⒷⒸ

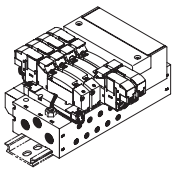


Reduced wiring manifolds

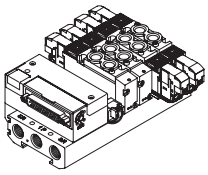
T10 T11 Common terminal block (left side) M3 thread specifications/ clamping specifications



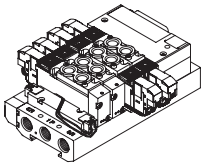
T10R T11R Common terminal block (right-side) M3 thread specifications/clamping specifications



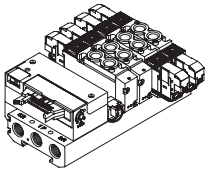
T30 D-sub-connector (left)



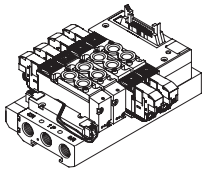
T30R D SBush connector(Right)



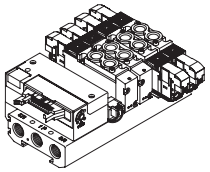
T50 Flat cable with power supply terminal (left side)



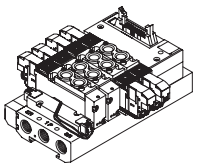
T50R Flat cable with power supply terminal (right side)



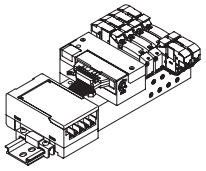
T51 T52 T53 Flat cable without power supply terminal (left side)



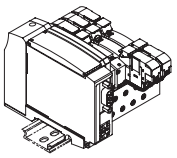
T51R T52R T53R Flat cable without power supply terminal (right side)



T6* Serial transmission



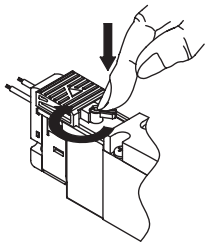
T8* Serial transmission Type (thin)



Manual override

Blank Non-locking/locking common

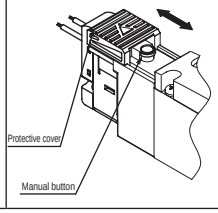
(Standard equipment)



For non-lockingPush to turn ON, release to turn OFF

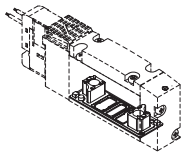
PUSH for locking and turn 90° clockwiseto hold the ON state. Turn counterclockwise to unlockOFF

M Non-locking



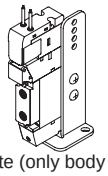
Other options

H With exhaust check valve



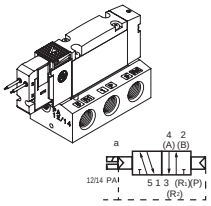
Standard for pilot exhaust

P Mounting plate

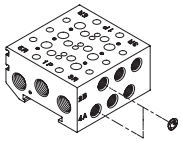


Discrete (only body piping)

K External pilot

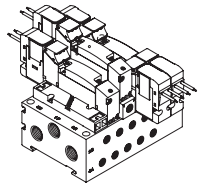
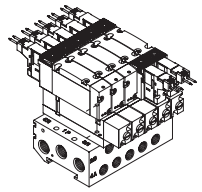
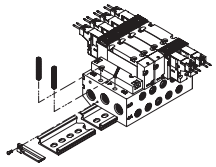
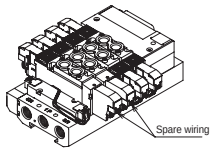


F Port A/B filter integrated

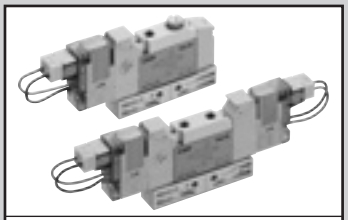


Ⓐ: With lead wire
Ⓑ: With indicator lamp
Ⓒ: With surge suppressor

Electrical connection circuit diagram

Other options	
Z1 Z3	Air supply spacer Exhaust spacer
	
Z2	In-stop valve spacer
	
D	DIN rail mount
	
W1	Double wiring (With single spare wiring)
	

	Electrical connections		Without lead wire	With lead wire	With indicator lamp	With surge suppressor	Without socket	Circuit diagram
	Blank	Grommet lead wire		●				DC (±) (∓)
	E0	E-connector		●				DC (±) (∓)
	E0*J	EJ-connector		●				
	E0N	E-connector					●	AC 100V (~) (~)
	E1	E-connector	●					
	E2	E-connector		●	●	●		DC (±) (∓)
	E2*J	EJ-connector		●	●	●		
	E2N	E-connector			●	●	●	AC 100V (~) (~)
	E3	E-connector	●		●	●		
	A2N	A-connector			●	●	●	DC (±) (∓)
	B	DIN terminal box	●		●	●		DC (±) (∓)
	BN	DIN terminal box (without terminal box)	●			●		AC 100V (~) (~) AC 200V (~) (~)
Option S	E2	E-connector		●	●	●		DC (±) (∓)
Option S	E2*J	EJ-connector		●	●	●		
Option S	E2N	E-connector			●	●	●	
Option E	E2	E-connector		●	●	●		DC (±) (∓) Control circuit
Option E	E2*J	EJ-connector		●	●	●		
Option E	E2N	E-connector			●	●	●	



Pneumatic Valves
Catalog No. CB-023SA

Discrete valve
Body piping

3GA1, 2, 3 /4GA1, 2, 3-FP1 Series

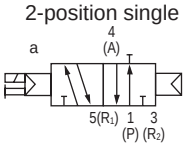
● Applicable cylinder bore size: ø20 to ø100

RoHS CAD

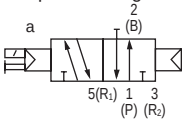
JIS symbol

● 3-port valve

2-position single NC

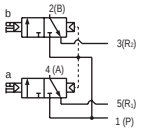


2-position single NO

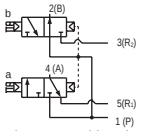


● Two 3-port valves integrated

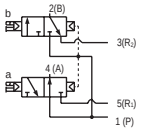
(A side valve: NC, B side valve: NC)



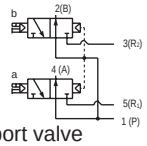
(A side valve:NC, B side valve:NO)



(A side valve: NO, B side valve: NC)

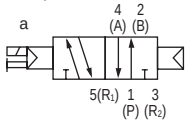


(A side valve: NO, B side valve: NO)

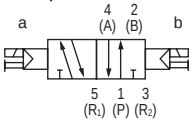


● 5-port valve

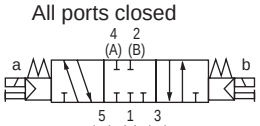
2 position single



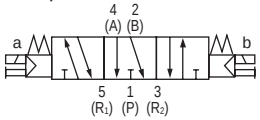
2-position double



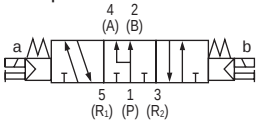
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



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
Degree of protection*1	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: 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		DC24	DC12	AC100	AC200
Voltage fluctuation range		±10%			
Holding current (A) (*2)	Standard	0.015 (0.017)	0.030 (0.034)	0.009 (0.009)	0.006 (0.006)
	With low exoergic/ energy circuit	0.005	0.010	-	
Power consumption W (*2)	Standard	0.35(0.40)		-	
	With low exoergic/ energy circuit	0.1		-	
Apparent power VA (*2) (*3)	Standard	-		0.93 (0.98)	1.40
Thermal class		B			
Surge suppressor		Option			
Indicator		Lamp (option)			

*2: Values in ( ) apply when lamp is included. In addition, the type with low exoergic/energy circuit is only available with lamp.
*3: 200 VAC is the value of DIN terminal box (with lamp).

Individual specifications

Port size		3GA1, 4GA1	3GA2, 4GA2	3GA3, 4GA3
Rc thread, M5	Port A/B	Push-in fitting ø4, ø6 M5	Push-in fitting ø4, ø6, ø8 Rc1/8	Push-in fitting ø6, ø8, ø10 Rc1/4
	Port P/R1/R2	M5	Rc1/8	Rc1/4

Item			3GA1		3GA2		3GA3		4GA1		4GA2		4GA3	
			ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFAt F	ON	OFF
Response time ms	Two 3-port valves integrated		9	12	12	29	-	-	-	-	-	-	-	-
	2-position	Single	15	15	19	19	25	28	15	15	19	19	25	28
		Double	-	-	-	-	-	-	9	-	18	-	24	-
	3-position	ABR 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. They depend on the pressure.

Item				3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
Weight g	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
		ABR connection	1.1	0.33	0.72	0.34
		PAB 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
		ABR connection	2.3	0.26	2.8	0.27
		PAB 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
		ABR connection	3.1	0.33	4.1	0.20
		PAB 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.

3GA1, 2, 3/4GA1, 2, 3-FP1 Series

Discrete valve; Body piping

How to order

4GA1 1 0 R - M5 - E2 [ ] - 1 - FP1

3GA1 1 0 R - M5 - E2 [ ] - 1 - FP1

Discrete valve for integrated base

4GA1 1 9 R - M5 - E2 H - 3 - FP1

Discrete 3-port valve for base mounting

3GA1 1 9 R - M5 - E2 H - 3 - FP1

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

Ⓓ Electrical connections

Refer to page 98 for the circuit diagram with surge suppressor/lamp.

Ⓔ Option

Ⓕ Voltage

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	A side valve: Normally closed B side valve: Normally closed	○	○				
67	Two 3-port valves integrated	A side valve: Normally closed B side valve: Normally open	○	○				
76	Two 3-port valves integrated	A side valve: Normally open B side valve: Normally closed	○	○				
77	Two 3-port valves integrated	A side valve: Normally open B side valve: Normally open	○	○				

Ⓒ Port size		Port P/R1/R2 (5) = M5, (1/8) = Rc1/8, (1/4) = Rc1/4					
Port	4(A)/2(B)Port						
C4	ø4 push-in fitting	(1)			(1)		
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.

Ⓔ Option							
Blank	Non-locking/Locking common manual override	●	●	●	●	●	●
M	Manual override of non-locking	○	○	○	○	○	○
H	With exhaust check valve (*2)	●	●	●	●	●	●
P	With mounting plate	●	●	●	●	●	●
S	Surgeless (*3)	●	●	●	●	●	●
E	Low exoergic/energy saving circuit(*3), (*4)	●	●	●	●	●	●
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.

○ : indicates made to order.

⚠ 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 3-position all ports closed and PAB connection are not provided with the exhaust check valve.

3: E2 and E2*J connectors and 12, 24 VDC are only supported. In addition, surgeless "S" and low exoergic/ energy circuit "E" cannot be selected together.

*4: Surgeless specifications.

*5: A filter is built into port P as standard.

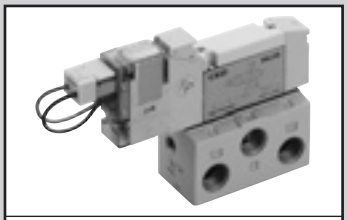
*6: Only the DIN terminal box is supported.

Refer to the 4GA1 to 3 Series in "Pneumatic Valves (CB-023SA)" for dimensions.

[Electrical connections list]

Ⓓ Electrical connections		Ⓐ Model No. 3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
Blank	Grommet leadLine(300mm) (*7)	●	●	●	●	●	●
B	DIN terminal box (Pg7) with surge suppressor and indicator 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	No lead wire(Without socket)	●	●	●	●	●	●
E1	No 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	No lead wire(without socket) with surge suppressor/lamp	●	●	●	●	●	●
E3	No 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 is a EN175301-803TypeC (former DIN43650-C) compliant product.



Pneumatic Valves
Catalog No. CB-023SA

Discrete valve
Base piping

3GB1, 2/4GB1, 2, 3-FP1 Series

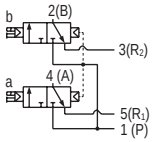
● Applicable cylinder bore size: ø20 to ø100

RoHS CAD

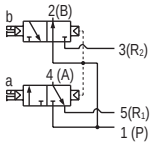
JIS symbol

● Two 3-port valves integrated

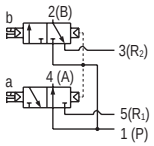
(A side valve: NC, B side valve: NC)



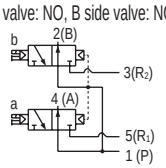
(A side valve: NC, B side valve: NO)



(A side valve: NO, B side valve: NC)

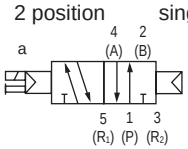


(A side valve: NO, B side valve: NO)

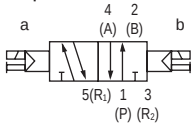


● 5-port valve

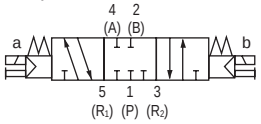
2 position single



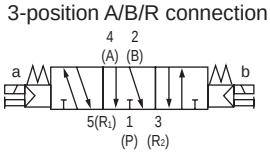
2-position double



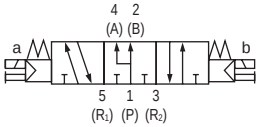
3-position
All ports closed



3-position A/B/R connection



3-position P/A/B connection



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 (*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
	External pilot	Main valve/pilot valve individual exhaust
Degree of protection*1		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: Avoid water drops 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.

*2: 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		DC24	DC12	AC100	AC200
Voltage fluctuation range		±10%			
Holding current (A) (*3)	Standard	0.015 (0.017)	0.030 (0.034)	0.009 (0.009)	0.006 (0.006)
	With low exoergic/energy circuit	0.005	0.010	-	
Power consumption W (*3)	Standard	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)			

Note3 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		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

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	15	15	19	19	25	28
		Double	9	-	18	-	24	-
	3-position	ABR 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.They depend on the pressure.

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
		ABR connection	1.1	0.31	1.3	0.29
		PAB 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
		ABR connection	2.2	0.23	2.6	0.16
		PAB 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
		ABR connection	3.3	0.36	4.2	0.18
		PAB 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.

3GB1, 2/4GB1, 2, 3-FP1 Series

Discrete valve; Base piping

How to order

4GB1 1 0 R - 06 - E2 ○ - 3 - FP1

3GB1 66 0 R - 06 - E2 ○ - 3 - FP1

Discrete valve for integrated base

4GB1 1 9 R - 00 - E2 H - 3 - FP1

3-port discrete valve for integrated base

3GB1 66 9 R - 00 - E2 H - 3 - FP1

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

Ⓓ Electrical connections

Refer to page 98 for the circuit diagram with surge suppressor/lamp.

Ⓔ Option

Ⓕ Voltage

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 (1/8) = Rc1/8		(1/4) = Rc1/4	(3/8) = 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) (*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 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) (*9)		●	●	●	●	●
E02J	Lead wire (2000 mm) (*9)		●	●	●	●	●
E03J	Lead wire (3000 mm) (*9)		●	●	●	●	●
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	Manual override of non-locking		○	○	○	○	○
H	With exhaust check valve (*2)		●	●	●	●	●
K	External pilot				●	●	●
S	Surgeless (*3)		●	●	●	●	●
E	Low exoergic/energy saving circuit(*3), (*4)		●	●	●	●	●
F	Port A/B filter built in (*5)		●	●	●	●	●
Ⓕ Voltage							
1	100 VAC (rectifier integrated)		●	●	●	●	●
2	200 VAC (rectifier integrated) (*6)			●		●	●
3	24 VDC		●	●	●	●	●
4	12 VDC		●	●	●	●	●

is not available.

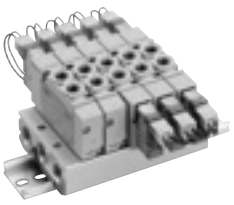
○ indicates made to order.

⚠ Precautions for model No. selection

*1: Not compatible when combined with external pilot (K).
*2 3-position all ports closed and PAB connection are not provided with the exhaust check valve.
3: E2 and E2*J connectors and 12, 24 VDC only are supported. Surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.
*4: Surgeless specifications.
*5: A filter is built into port P as standard.
*6: Only the DIN terminal box is supported.
*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 is a EN175301-803TypeC (former DIN43650-C) compliant product.

Refer to the 4GB1 to 3 Series in "Pneumatic Valves (CB-023SA)" for dimensions.

MEMO



Pneumatic Valves
Catalog No. CB-023S

Individual wiring manifold
Body piping
Direct mount/DIN rail mount

M3GA1, 2, 3 -(D) /M4GA1, 2, 3 -(D)-FP1 Series

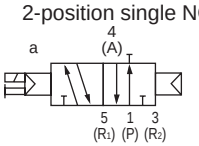
● Applicable cylinder bore size: ø20 to ø100

RoHS CAD

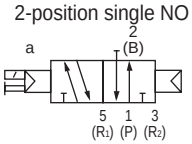
JIS symbol

● 3-port valve

2-position single NC

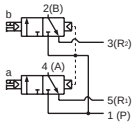


2-position single NO

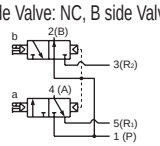


● Two 3-port valves integrated

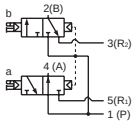
(A side Valve: NC, B side Valve: NC)



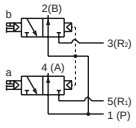
(A side Valve: NC, B side Valve: NO)



(A side Valve: NO Type, B side Valve:NC Model)

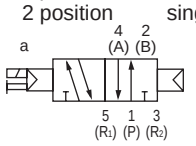


(A side Valve: NO Type, B side Valve: NO Model)

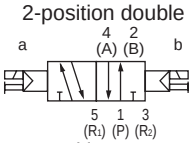


● 5-port valve

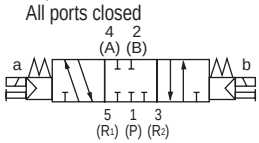
2 position single



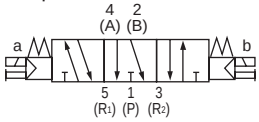
2-position double



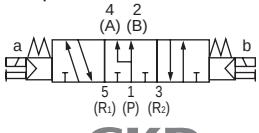
3-position
All ports closed



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(*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)
Degree of protection (*1)		Dust-proof
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: Avoid water drops 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.

*2: 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 Item		Content			
Rated voltage V		DC24	DC12	AC100	AC200
Voltage fluctuation range		±10%			
Holding current A (*3)	Standard	0.015 (0.017)	0.030 (0.034)	0.009 (0.009)	0.006 (0.006)
	Low exoergic/energy saving circuit	0.005	0.010	-	
Power consumption W (*3)	Standard	0.35 (0.40)		-	
	Low exoergic/energy saving circuit	0.1		-	
Apparent power VA (*3)(*4)	Standard	-		0.93 (0.98)	1.40
Resistance 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

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	M5		Rc1/8		Rc1/4	
		Port P/R1/R2	Rc1/8		Rc1/4		Rc3/8	
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

For 10 or more manifold station No. (5 stations for 4G3), use ports on both sides for air supply and exhaust.

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.

M4GA1, 2, 3-FP1 Series

Individual wiring manifold; Body piping

How to order

Manifold model No.

M 4GA1 1 0R - M5 - E2 H D - ○ - 3 - FP1

3-port manifold model No.

M 3GA1 1 0R - M5 - E2 H D - ○ - 3 - FP1

● Single valve for mounting base

4GA1 1 9R - M5 - E2 H — 3 - FP1

● 3-port discrete valve for mounting base

3GA1 1 9R - M5 - E2 H — 3 - FP1

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

Ⓓ Electrical connections

Ⓔ Option

Ⓕ Mount type

Ⓖ Station No.

Ⓗ Voltage

* "Manifold specifications sheet" (Pages 126 to 128).

Code	Content Volume		Ⓐ 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	Port P/R1/R2 (1/8) = Rc1/8 (1/4) = Rc1/4 (3/8) = Rc3/8					
C4	ø4 push-in fitting	②			②		
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 *3	②	③	④	②	③	④
M5	M5	②			②		
06	Rc1/8		③			③	
08	Rc1/4			④			④

⚠ Precautions for model No. selection

*1: M4GA*80R when using a mixture of 3, 5-port valves. Further, select M3GA*80R when mixing with masking plate.

*2: Not compatible when combined with external pilot (K).

*3: The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.

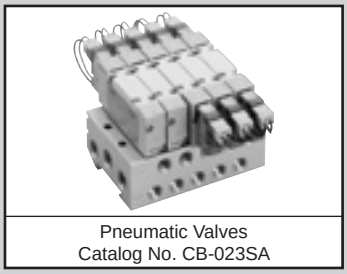
Refer to the M4GA1 to 3 Series in "Pneumatic Valves (CB-023SA)" for dimensions.

		Ⓐ Model No.					
		3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
Ⓓ Electrical connections							
Blank	Grommet Lead wire(300 mm) *12	●	●	●	●	●	●
B	DIN terminal box(Pg7) With surge suppressor/lamp *13, *15		●	●		●	●
BN	DIN terminal box(Pg7)(without terminal box)With surge suppressor *13,*15		●	●		●	●
E-connector (upward/lateral common)							
E0	Lead wire(300 mm) *14	●	●	●	●	●	●
E00	Lead wire(500 mm) *14	●	●	●	●	●	●
E01	Lead wire(1000 mm) *14	●	●	●	●	●	●
E02	Lead wire(2000 mm) *14	●	●	●	●	●	●
E03	Lead wire(3000 mm) *14	●	●	●	●	●	●
E0N	Without lead wire(Without socket) *14	●	●	●	●	●	●
E1	Without lead wire(socket/terminal attached) *14	●	●	●	●	●	●
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) *14	●	●	●	●	●	●
E02J	Lead wire(2000 mm) *14	●	●	●	●	●	●
E03J	Lead wire(3000 mm) *14	●	●	●	●	●	●
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	Manual override of non-locking	○	○	○	○	○	○
H	With exhaust check valve *4	●	●	●	●	●	●
K	External pilot *5	●	●	●	●	●	●
S	Surgeless *6	●	●	●	●	●	●
E	Low exoergic/energy saving circuit *6,*7	●	●	●	●	●	●
F	Port A/B filter built in *8	●	●	●	●	●	●
Z1	Air supply spacer *9	●	●	●	●	●	●
Z2	In-stop valve spacer *9,*10	●	●	●	●	●	●
Z3	Exhaust spacer *9	●	●	●	●	●	●
Ⓕ Mount type							
Blank	Direct mount	●	●	●	●	●	●
D	DIN rail mount	●	●	●	●	●	●
Ⓖ Station No.							
2	2 stations	●	●	●	●	●	●
to	to						
20	Refer to page 107 for the max. station number per model.						
Ⓗ Voltage							
1	100 VAC(rectifier integrated)	●	●	●	●	●	●
2	200 VAC(rectifier integrated) *11		●	●		●	●
3	24 VDC	●	●	●	●	●	●
4	12 VDC	●	●	●	●	●	●

is not available.

○ indicates made to order.

*4: The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H).
*5: Consult with CKD when using a vacuum with the external pilot (K).
6: 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.
*7: Surgeless specifications.
*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. Refer to page 123 for details.
*10: Not compatible with combination with external pilot (K).
*11: DIN terminal box only is supported.
*12: The grommet lead wire specifications are compatible with DC voltage only.
*13: A lamp comes with the terminal box.
*14: AC voltage is with a rectifier circuit.
*15: The terminal box is a EN175301-803TypeC (former DIN43650-C) compliant product.



Pneumatic Valves
Catalog No. CB-023SA

Individual wiring manifold
Base piping
Direct mount/DIN rail mount

M3GB1, 2/M4GB1, 2, 3-(D)-FP1 Series

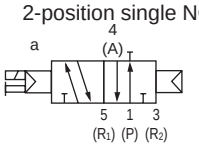
● Applicable cylinder bore size: ø20 to ø100

RoHS CAD

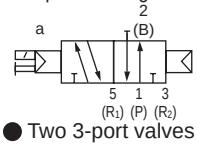
JIS symbol

● 3-port valve

2-position single NC

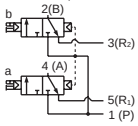


2-position single NO

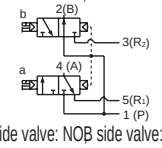


● Two 3-port valves integrated

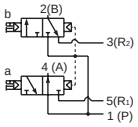
(A side valve: NCB side valve: NC)



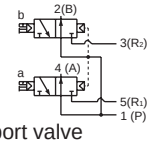
(A side valve: NCB side valve: NO)



(A side valve: NOB side valve: NC)

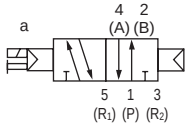


(A side valve: NOB side valve: NO)

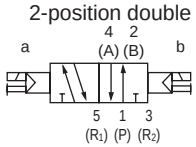


● 5-port valve

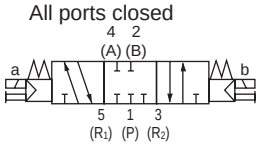
2 position single



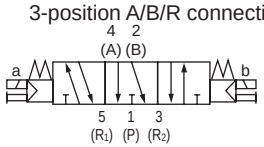
2-position double



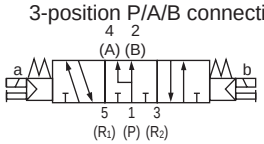
3-position
All ports closed



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 (*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)
Degree of protection (*1)		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: Avoid water drops 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.

*2: 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 Item		Content Volume			
Rated voltage V		24 DC	12 DC	100 AC	200 AC
Voltage fluctuation range		±10%			
Holding current A (*3)	Standard	0.015 (0.017)	0.030 (0.034)	0.009 (0.009)	0.006 (0.006)
	Low exoergic/energy saving circuit	0.005	0.010	-	
Power consumption W (*3)	Standard	0.35 (0.40)		-	
	Low exoergic/energy saving circuit	0.1		-	
Apparent power VA (*3)(*4)	Standard	-		0.93 (0.98)	1.40
Resistancethermal 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

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	M5		Rc1/8		Rc1/4	
		Port P/R1/R2	Rc1/8		Rc1/4		Rc3/8	
Manifold base Weight calculationExpression(n: Station No.) g		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

For 10 or more manifold station No. (5 stations for 4G3), use ports on both sides for air supply and exhaust.

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 -
		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.

M4GB1, 2, 3-FP1 Series

Individual wiring manifold; Base piping

How to order

Manifold model No.

M 4GB1 1 0R - M5 - E2 H D - ○ - 3 - FP1

3-port manifold model No.

M 3GB1 66 0R - M5 - E2 H D - ○ - 3 - FP1

● Single valve for mounting base

4GB1 1 9R - 00 - E2 H — 3 - FP1

● 3-port discrete valve for mounting base

3GB1 66 9R - 00 - E2 H — 3 - FP1

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

Ⓓ Electrical connections

Ⓔ Option

Ⓕ Mount type

Ⓖ Station No.

Ⓗ Voltage

* Be sure to fill in the "Manifold specifications sheet" (pages 126 to 128).

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	3-port valve Two valves integrated *1, *2 — A valve side: Normally closed B valve side: Normally open	○	○			
76	3-port valve Two valves integrated *1, *2 — A valve side: Normally open B valve side: Normally closed	○	○			
77	3-port valve Two valves integrated *1, *2 — 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	Port P/R1/R2 (1/8) = Rc1/8 (1/4) = Rc1/4 (3/8) =Rc3/8				
C4	ø4 push-in fitting	②		②		
C6	ø6 push-in fitting	②	③	②	③	
C8	ø8 push-in fitting *3, *4		③		③	④
C10	ø10 push-in fitting *3, *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
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).
*3: 4G1 C8 and 4G2 C10 do not support push-in fitting mixing.
*4: Made to order.

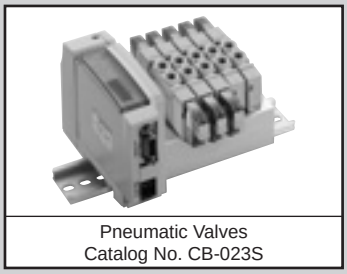
Refer to the M4GB1 to 3 Series in "Pneumatic Valves (CB-023SA)" for dimensions.

			Ⓐ Model No.				
			3GB1	3GB2	4GB1	4GB2	4GB3
Ⓓ Electrical connections							
Blank	Grommet lead wire (300 mm)	*14	●	●	●	●	●
B	DIN terminal box (Pg7)	With surge suppressor/lamp *15, *17		●		●	●
BN	DIN terminal box (Pg7) (without terminal box)	With surge suppressor *15, *17		●		●	●
E-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)	Surge suppressor / Lamp	●	●	●	●	●
E20	Lead wire (500 mm)	Surge suppressor / Lamp	●	●	●	●	●
E21	Lead wire (1000 mm)	Surge suppressor / Lamp	●	●	●	●	●
E22	Lead wire (2000 mm)	Surge suppressor / Lamp	●	●	●	●	●
E23	Lead wire (3000 mm)	Surge suppressor / Lamp	●	●	●	●	●
E2N	Without lead wire (without socket)	Surge suppressor / Lamp	●	●	●	●	●
E3	Without lead wire (socket / Terminal attached)	Surge suppressor / 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)	Surge suppressor / Lamp	●	●	●	●	●
E22J	Lead wire (2000 mm)	Surge suppressor / Lamp	●	●	●	●	●
E23J	Lead wire (3000 mm)	Surge suppressor / Lamp	●	●	●	●	●
Ⓔ Option							
Blank	Manual override of non-locking/locking common		●	●	●	●	●
M	Manual override of non-locking		○	○	○	○	○
H	With exhaust check valve	*5	●	●	●	●	●
K	External pilot	*6	●	●	●	●	●
S	Surgeless	*7	●	●	●	●	●
E	Low exoergic/energy circuit	*7, *8	●	●	●	●	●
F	Port A/B filter integrated	*9	●	●	●	●	●
Z1	Air supply spacer	*10	●	●	●	●	●
Z2	In-stop valve spacer	*10, *11	●	●	●	●	●
Z3	Exhaust spacer	*10	●	●	●	●	●
Ⓕ Mount type							
Blank	Direct mount	*12	●	●	●	●	●
D	DIN rail mount		●	●	●	●	●
Ⓖ Station No.							
2	2 stations		●	●	●	●	●
to	to						
20	The max. station number per model is 111 refer to page.						
Ⓗ 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.

*5: The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H).
*6: Consult with CKD when using a vacuum with the external pilot (K).
7: E2 and E2*J connectors support 12/24 VDC only. In addition, surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.
*8: Surgeless specifications.
*9: A filter is built into port P as standard.
*10: 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 page 123 for details.
*11: Not compatible with combination with external pilot (K).
*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: A lamp comes with the terminal box.
*16: AC voltage is with a rectifier circuit.
*17: The terminal box is a EN175301-803TypeC (former DIN43650-C) compliant product.



Pneumatic Valves
Catalog No. CB-023S

Reduced wiring manifolds
Body piping
Direct mount/DIN rail mount

M3GA1, 2, 3-T*(D)-FP1 Series
M4GA1, 2, 3-T*(D)-FP1 Series

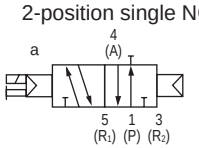
● Cylinder bore size:ø20 to ø100

RoHS CAD

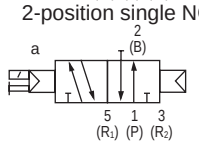
JIS symbol

● 3-port valve

2-position single NC

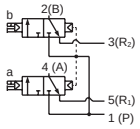


2-position single NO

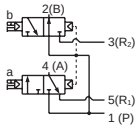


● Two 3-port valves integrated

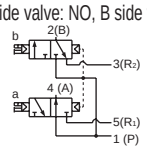
(A side valve: NC, B side valve: NC)



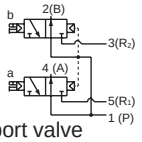
(A side valve: NC, B side valve: NO)



(A side valve: NO, B side valve: NC)

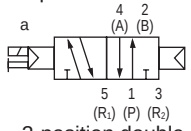


(A side valve: NO, B side valve: NO)

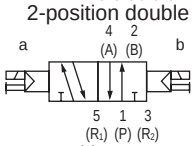


● 5-port valve

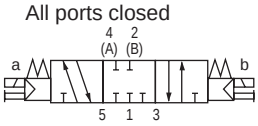
2 position single



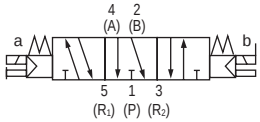
2-position double



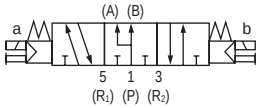
3-position
All ports closed



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 pressure MPa		0.7
Min. working pressure MPa		0.2 (*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)
Degree of protection (*1)		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: Avoid water drops or oil, etc., during use.
*2: 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 Item		Content		
		T1□, T30□, T5□		T6□, T8□
Rated voltage	V	DC24	DC12	DC24
Voltage fluctuation range	(*3)	±10%		+10%, -5%
Holding current A	Standard	0.017	0.034	0.017
	Low exoergic/energy saving circuit	0.005	0.010	0.005
Power consumptionr W	Standard	0.4		
	Low exoergic/energy saving circuit	0.1		
Resistancethermal class		B		
Surge suppressor	(*4)	Zener diode		
Indicator		LED		

*3: T6□ and T8□ (serial transmission) may experience voltage drops due to internal circuitry, so care should be taken when regulating voltages.
*4: 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	Port A/B	Push-in fitting ø4, ø6 M5	Push-in fitting ø4, ø6, ø8 Rc1/8	Push-in fitting ø6, ø8, ø10 Rc1/4
	Port P/R1/R2	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

T6 □

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

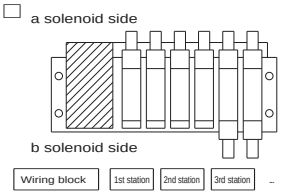
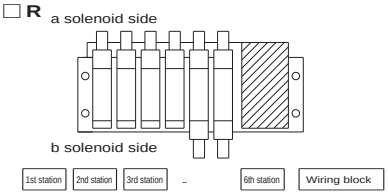
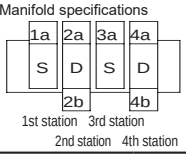
Note that the maximum number of stations in the manifold is also limited by the maximum number of solenoid points per wiring specification as shown on the right.

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 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
Wiring block position Blank: Left side R: Right side	**Left side: T □** 			**Right side: T □ R** 			
Array method Blank: Standard sequential W: Double wiring	**(Ex.) In the case of 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
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	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)

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	T8EF1 T8EF2	T8EFP1 T8EFP2	T8EP1 T8EP2	T8EPP1 T8EPP2	T8KC1 T8KC2	T8KCP1 T8KCP2
Communication protocol		CC-Link ver. 1.10		PROFIBUS-DP(V0)		Ether CAT		Ether Net/IP		Device Net		CC-Link IEF Basic		CC-Link IE Field		PROFINET		IO-Link	
Power supply voltage	Unit side	24 VDC±10% (DC11 to 25V for T8D* only)																	
	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)		140 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)		50 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	NPN output	PNP output	NPN output	PNP output

M 3/4 GA1, 2, 3-T*(D)-FP1 Series

Reduced wiring manifolds; Body piping

How to order

Manifold model No.

M 4GA1 1 0R - M5 - T30 W H D - ○ - 3 - FP1

3-port manifold model No.

M 3GA1 1 0R - M5 - T30 W H D - ○ - 3 - FP1

● Single valve for mounting base

4GA1 1 9R - M5 - A2N ○ H — 3 - FP1

● 3-port discrete valve for mounting base

3GA1 1 9R - M5 - A2N ○ H — 3 - FP1

B Solenoid position

A Model No.

A2N indicates the A-connector (downward), with lamp/surge suppressor and no lead wire.

C Port size

D Reduced wiring connection
Zener diode is used as a surge suppressor.

E Terminal/Connector pin Array method

F Option

G Mount Type

H Station No.

I Voltage

* Be sure to fill in the "Manifold specifications sheet" (pages 129 to 140).

Code	Description		A Model No. 3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
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 *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	○	○				
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	4(A)/2(B)Port	Port P/R1/R2 (1/8) = Rc1/8 (1/4) = Rc1/4 (3/8) =Rc3/8					
C4	ø4 push-in fitting	②			②		
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 *3	②	③	④	②	③	④
M5	M5	②			②		
06	Rc1/8		③			③	
08	Rc1/4			④			④

D Reduced wiring (lamp and surge suppressor provided as standard)

Refer to the next page for electrical connections.

E Terminal/connector pin array							
Blank	Standard wiring *3	●	●	●	●	●	●
W	Double wiring *3	●	●	●	●	●	●
W1	Double wiring(With single spare wiring) *3, *14	●	●	●	●	●	●

F Option							
Blank	Manual override of non-locking/locking common	●	●	●	●	●	●
M	Manual override of non-locking	○	○	○	○	○	○
H	With exhaust check valve *5	●	●	●	●	●	●
K	External pilot *6	●	●	●	●	●	●
S	Surgeless *7	●	●	●	●	●	●
E	Low exoergic/energy saving circuit *7, *18	●	●	●	●	●	●
F	Port A/B filter built in *9	●	●	●	●	●	●
Z1	Air supply spacer *10	●	●	●	●	●	●
Z2	In-stop valve spacer *10, *11	●	●	●	●	●	●
Z3	Exhaust spacer *10	●	●	●	●	●	●

G Mount type							
Blank	Direct mount	●	●	●	●	●	●
D	DIN rail mount	●	●	●	●	●	●

H Station No.							
2	2 stations	●	●	●	●	●	●
to	to						
20	Refer to page 115 for the max. station number per model.						

I Voltage							
3	24 VDC	●	●	●	●	●	●
4	12 VDC	●	●	●	●	●	●

is not available.

○ indicates made to order.

Precautions for model No. selection

*1: M4GA*80R when using a mixture of 3, 5-port valves. Further, select M3GA*80R when mixing with masking plate.

*2: Not compatible with combination with external pilot (K).

*3: Blank...The wiring will be based on the type of valve mounted.
W* ...built-in is all wired as double solenoid regardless of the type of valve used.

*4: 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).

*5: The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H).

*6: Consult with CKD when using a vacuum with the external pilot (K).

*7: In addition, surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.

*8: Surgeless specifications.

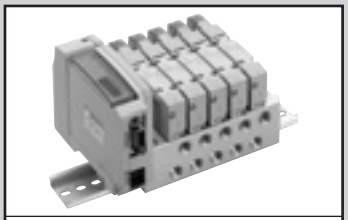
*9: A filter is built into port P as standard.

*10: 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 page 123 for details.

*11: Not compatible with combination with external pilot (K).

			Ⓐ Model No.					
			3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
Ⓓ Reduced wiring (lamp and surge suppressor provided as standard) DC12/24V								
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	●	●	●	●	●	●
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	●	●	●	●	●	●
T8EF1	CC-Link IE Field	NPN 16 points	●	●	●	●	●	●
T8EF2		NPN 32 points	●	●	●	●	●	●
T8EFP1		PNP 16 points	●	●	●	●	●	●
T8EFP2		PNP 32 points	●	●	●	●	●	●
T8EP1	PROFINET	NPN 16 points	●	●	●	●	●	●
T8EP2		NPN 32 points	●	●	●	●	●	●
T8EPP1		PNP 16 points	●	●	●	●	●	●
T8EPP2		PNP 32 points	●	●	●	●	●	●
T8KC1	IO-Link	NPN 16 points	●	●	●	●	●	●
T8KC2		NPN 32 points	●	●	●	●	●	●
T8KCP1		PNP 16 points	●	●	●	●	●	●
T8KCP2		PNP 32 points	●	●	●	●	●	●
A2N	Without lead wire (without socket)	with surge suppressor, lamp	●	●	●	●	●	●

Refer to the M4GA1 to 3-T Series in "Pneumatic Valves (CB-023SA)" for dimensions.



Pneumatic Valves
Catalog No. CB-023S

Reduced wiring manifolds
Base piping
Direct mount/DIN rail mount

M3GB1, 2-T*(D)-FP1 Series
M4GB1, 2, 3-T*(D)-FP1 Series

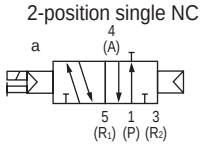
● Applicable cylinder bore size: ø20 to ø100

RoHS CAD

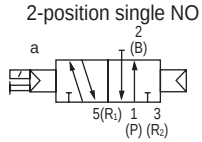
JIS symbol

● 3-port valve

2-position single NC

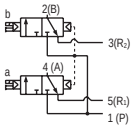


2-position single NO

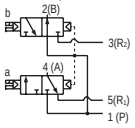


● Two 3-port valves integrated

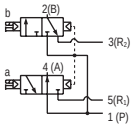
(A side valve: NC, B side valve: NC)



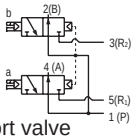
(A side valve: NC, B side valve: NO)



(A side valve: NO, B side valve: NC)

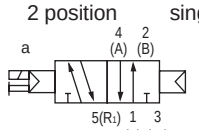


(A side valve: NO, B side valve: NO)

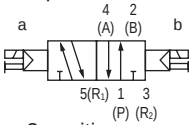


● 5-port valve

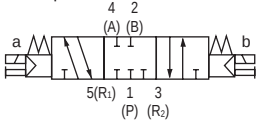
2 position single



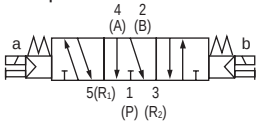
2-position double



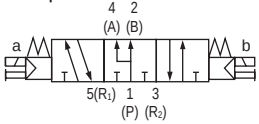
3-position
All ports closed



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		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 (*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)
Degree of protection (*1)		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□		T6□, T8□
		DC24	DC12	DC24
Voltage fluctuation range (*3)		±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		
Thermal class		B		
Surge suppressor (*4)		Zener diode		
Indicator		LED		

*1: Avoid water drops or oil, etc., during use.
*2: The working pressure range is 0 to 0.7 MPa when the external pilot (option code: K) is selected. Set the external pilot pressure to 0.2 to 0.7MPa.
*3: T6□ and T8□ (serial transmission) may experience voltage drops due to internal circuitry, so care should be taken when regulating voltages.
*4: 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 ø6, ø8, ø10 Rc1/4
	Port P/R1/R2	Rc1/8	Rc1/4	Rc3/8

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 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

T6 □

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 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
Weight calculation formula (n: station No.) g	External pilot	48n+312	51n+339	91n+336	94n+368	146n+417	150n+449

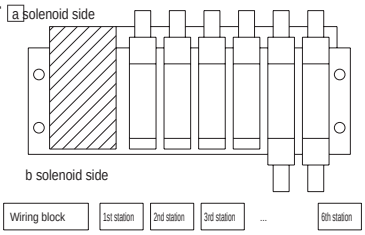
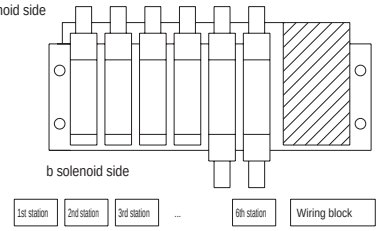
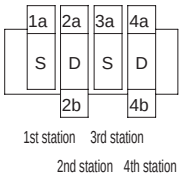
Note that the maximum number of stations in the manifold is also limited by the maximum number of solenoid points per wiring specification as shown on the right.

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B → R1/R2	
			C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b
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	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 26Pin
Max. number of solenoids	16 points	24 points	24 points	16 points	18 points	8 points	24 points
Wiring block position Blank: Left side R: Right side	**Left side: T** □		**Right side: T** □ **R**				
Array method Blank: Standard sequential W: Double wiring	**(Ex.) In the case of 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
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)

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	T8EF1 T8EF2	T8EFP1 T8EFP2	T8EP1 T8EP2	T8EPP1 T8EPP2	T8KC1 T8KC2	T8KCP1 T8KCP2
Communication protocol		CC-Link ver. 1.10		PROFIBUS-DP (V0)		EtherCAT		EtherNet/IP		DeviceNet		CC-Link IEF Basic		CC-Link IE Field		PROFINET		IO-Link	
Power supply voltage	Unit side	24 VDC±10% (DC11 to 25V for T8D* only)																	
	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)		140 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)		50 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	NPN output	PNP output	NPN output	PNP output

M4GB1, 2, 3-T*(D)-FP1 Series

Reduced wiring manifolds; Base piping

How to order

Manifold model No.

M 4GB1 1 0R - M5 - T30 W H D - ○ - 3 - FP1

3-port manifold model No.

M 3GB1 66 0R - M5 - T30 W H D - ○ - 3 - FP1

● Single valve for mounting base

4GB1 1 9R - 00 - A2N ○ H —— 3 - FP1

● 3-port discrete valve for mounting base

3GB1 66 9R - 00 - A2N ○ H —— 3 - FP1

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

Ⓓ Reduced wiring connection

Ⓔ Terminal/connector pin array

Ⓕ Option

Ⓖ Mount type

Ⓗ Station No.

Ⓘ Voltage

Ⓐ 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 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	4(A), 2(B) port	Port P/R1/R2 ①=Rc1/8 ②=Rc1/4 ③=Rc3/8				
C4	ø4 push-in fitting	②		②		
C6	ø6 push-in fitting	②	③	②	③	
C8	ø8 push-in fitting *3		③		③	④
C10	ø10 push-in fitting *3					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 connection

Refer to the next page for electrical connections.

Ⓔ Terminal/connector pin array

Blank	Standard wiring *4	●	●	●	●	●
W	Double wiring *4	●	●	●	●	●
W1	Double wiring (with single spare wiring) *4, *5	●	●	●	●	●

Ⓕ Option

Blank	Manual override of non-locking/locking common	●	●	●	●	●
M	Manual override of non-locking	○	○	○	○	○
H	With exhaust check valve *6	●	●	●	●	●
K	External pilot *7	●	●	●	●	●
S	Surgeless *8	●	●	●	●	●
E	Low exoergic/energy saving circuit *8, *9	●	●	●	●	●
F	Port A/B filter built in *10	●	●	●	●	●
Z1	Air supply spacer *11	●	●	●	●	●
Z2	In-stop valve spacer *11, *12	●	●	●	●	●
Z3	Exhaust spacer *11	●	●	●	●	●

Ⓖ Mount type

Blank	Direct mount	●	●	●	●	●
D	DIN rail mount	●	●	●	●	●

Ⓗ Station No.

2	2 stations	●	●	●	●	●
to	to					
20	Refer to page 119 for the max. station number per model.					

Ⓘ Voltage

3	24 VDC	●	●	●	●	●
4	12 VDC	●	●	●	●	●

is not available.

○ indicates made to order.

⚠ 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).

*3: 4G1 C8 and 4G2 C10 are available as made to order. In addition, these do not support push-in fitting mixing.

*4: Blank...The wiring will be based on the type of valve mounted.
W*...built-in is all wired as double solenoid regardless of the type of valve used.

*5: 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).

*6: The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H).

*7: Consult with CKD when using a vacuum with the external pilot (K).

8: E2 type and E2*J type connectors only support 12/24 VDC. 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 page 123 for details.

*12: Not compatible with combination with external pilot (K).

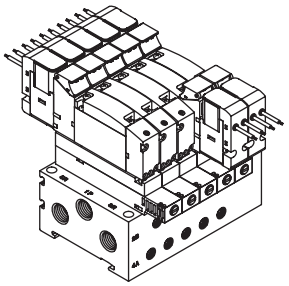
			Ⓐ Model No.				
			3GB1	3GB2	4GB1	4GB2	4GB3
Ⓓ Reduced wiring (lamp and surge suppressor provided as standard) 12, 24 VDC							
T10	Common terminal block (M3 thread)	Left-sided specifications	●	●	●	●	●
T10R		Right-sided specifications	●	●	●	●	●
T11	Common terminal block (clamping)	Left-sided specifications	●	●	●	●	●
T11R		Right-sided specifications	●	●	●	●	●
T30	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	●	●	●	●	●
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	●	●	●	●	●
T8EF1	CC-Link IEF Basic	NPN 16 points	●	●	●	●	●
T8EF2		NPN 32 points	●	●	●	●	●
T8EFP1		PNP 16 points	●	●	●	●	●
T8EFP2		PNP 32 points	●	●	●	●	●
T8EB1	CC-Link IE Field	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	●	●	●	●	●
T8KC1	IO-Link	NPN 16 points	●	●	●	●	●
T8KC2		NPN 32 points	●	●	●	●	●
T8KCP1		PNP 16 points	●	●	●	●	●
T8KCP2		PNP 32 points	●	●	●	●	●
A2N	Without lead wire (without socket)	with surge suppressor and indicator lamp	●	●	●	●	●

Refer to the M4GB1 to 3-T Series in "Pneumatic Valves (CB-023SA)" for dimensions.

M4G$^{A}_{B}$1, 2, 3-T6D/T8*-FP1 Series

Reduced wiring manifolds; Base piping

● In-stop valve spacer



Specifications

Model No.	P → A/B		A/B→R		Weight g
	C(dm³/(s·bar))	b	C(dm³/(s·bar))	b	
4G1	0.54	0.03	0.82	0.27	17
4G2	1.5	0.17	1.6	0.20	63
4G3	1.9	0.09	2.8	0.16	80

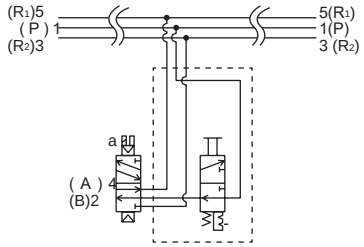
*1: Values with base piping and 2-position valve built-in.
*2: The effective cross-sectional area when discharging residual pressure is 1.0mm² (reference value).
*3: EffectiveFormula to calculate sonic conductance C from cross-sectional area S is S≈5.0×C. Accessories: PR check valve 2, body gasket 1 (for 4G*2 and 4G*3)

How to order discrete units

4G1R - IS - FP1
4G2R - IS - FP1
4G3R - IS - FP1

In-stop valve spacer

JIS symbol



⚠ Precautions for model No. selection

*1: Specify the spacer mounting position and quantity in manifold specifications sheet.
*2: The in-stop valve spacer cannot be used with the external pilot (K).
*3: When retrofitting to the reduced wiring manifold, the existing electric wire may be too short. Contact CKD for details.

Related products

● Manifold related parts

Gasket with exhaust check valve

Model	Part model No.
3G1/4G1	4G1R-CHECK-VALVE-FP1
3G2/4G2	4G2R-CHECK-VALVE-FP1
3G3/4G3	4G3R-CHECK-VALVE-FP1

M4GA1 to 3/M4GB1 to 3-FP1 Series

How to fill out metal base M4G Series manifold specifications sheet

● Manifold model No. (example)

M 4 G A/B 1 8 0R- M5 - T30 [ ] - 9 - 3 - FP1

Solenoid valves | Solenoid position | Port size | Electrical connections | Terminal connector pin array | Station No. | Voltage

How to use base piping M4GB*10 as a 3-port valve

Indicate the required number of plugs in the "Thread plug" area at the end.

Solenoid valve model No.	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 B 1 1 9R- M5	○	○	○	○																					4
4G B 1 2 9R- M5					○	○																			2
4G B 1 5 9R- M5							○	○																	2
4G 1 9R-																									
3G A 1 9R-																									
3G A 1 9R-																									
Masking plate 4G1R-MP(S)																									
Masking plate 4G1R-MP(D)									○																1

Mounting Rail: L= [ ] *Write an integer multiple of 12.5.

Included Part:

Blanking plug				Threaded plug		Silencer			
GWP 4-B		GWP 6-B		4G1R-M5P		SLW-6S		SLW-6A	
GWP 8-B									
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) isnot required, place a check.

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 126), M4G A/B 2(Page 127), M4G A/B 3(Page 128)

● Reduced wiring

- Common terminal block (T1*), D-sub-connector (T30): M4G A/B 1(Page 129), M4G A/B 2(Page 130), M4G A/B 3(Page 131)
- Flat cable connector (T5*): M4G A/B 1(Page 132), M4G A/B 2(Page 133), M4G A/B 3(Page 134)
- Serial transmission (T6*): M4G A/B 1(Page 135), M4G A/B 2(Page 136), M4G A/B 3(Page 137)
- Serial transmission (T8*): M4G A/B 1(Page 138), M4G A/B 2(Page 139), M4G A/B 3(Page 140)

*1: Select the silencer mounting after confirming the dimensions. Pneumatic, Vacuum and Auxiliary components (Catalog No.CB-024SA)

*2:Use SLW-8S for the M4GA2 DIN rail mount. Interference occurs if SLW-8A is used.

M4GA1 to 3 /M4GB1 to 3-FP1 Series

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						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																	
23	20 +(COM) Power supply																	
11																		
24																		
12																		
25																		
13 (COM)																		

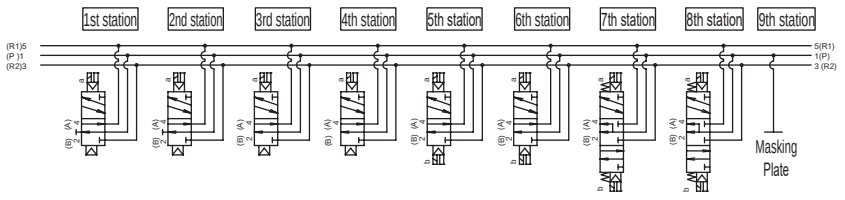
Spare cable wiring Precautions①

* 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.
* The standard wiring is a sequential wiring from the connector pin No.1. Contact CKD when ordering special wiring.

Precautions regarding spare wiring

① Spare wires are provided on the masking plate for the reduced wiring manifold...
The number of wires for spare wiring can be specified by selecting the masking plate within the specifications.
4G *R -MP(S)...1 Book
4G *R -MP(D)...2 Book
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.



* The manifold station numbers are set in order from the left with the piping port facing forward.

M4G$^{A}_{B}$1-FP1 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- ☐ - ☐ ☐ ☐ - ☐ - ☐ -FP1

Solenoid valves / Solenoid position / Port size / Electrical connections / Other options / Mount type / Station No. / Voltage

Solenoid valve model No.	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 4G1R-P- ☐																									
In-stop valve spacer 4G1R-IS																									
Exhaust spacer 4G1R-R- ☐																									

Mounting rail	Included Part	Blanking plug				Threaded plug		Silencer			
L_2= ☐ *Write an integer multiple of 12.5.		GWP 4-B	☐	GWP 6-B	☐	4G1R-M5P	☐	SLW-6S	☐	SLW-6A	☐
		GWP 8-B	☐		☐						
		Push-in fitting tube remover(Included as Standard) ☐ Not required (check)									

* M4GB1 C8 does not have a tube removal tool attached.

M4G$^{A}_{B}$2-FP1 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- ☐ - ☐ ☐ ☐ - ☐ - ☐ -FP1

Solenoid valves / Solenoid position / Port size / Electrical connections / Other options / Mount type / Station No. / Voltage

Solenoid valve model No.	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- ☐																									
Air supply spacer 4G2R-P- ☐																									
In-stop valve spacer 4G2R-IS																									
Exhaust spacer 4G2R-R- ☐																									

Mounting Rail	L_2= ☐ *Write an integer multiple of 12.5.	Included Part	Blanking plug				Threaded plug		Silencer			
			GWP 4-B	☐	GWP 6-B	☐	4G2R-06P	☐	SLW-8S	☐	SLW-8A	☐
			GWP 8-B	☐	GWP 10-B	☐						

* Can only be selected for B types.

M4G$^{A}_{B}$3-FP1 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- ☐ - ☐ ☐ ☐ - ☐ - ☐ -FP1

Solenoid valves | Solenoid position | Port size | Electrical connections | Other options | Mount type | Station No. | Voltage

Solenoid valve model No.	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- ☐																									
In-stop valve spacer 4G3R-IS																									
Exhaust spacer 4G3R-R- ☐																									

Mounting Rail	L_2 = ☐ *Write an integer multiple of 12.5.	Included Part	Blanking plug						Threaded plug		Silencer			
			GWP 6-B		GWP 8-B		GWP 10-B		4G3R-08P		SLW-10A		SLW-10L	

M4G $^{A}_{B}$1-T1, 3-FP1 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- □ - □ □ □ □ - □ - □ -FP1

Solenoid valves | Solenoid position | Port size | Reduced wiring connection | Terminal connector pin Array method | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	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 4G1R-P- □																									
In-stop valve spacer 4G1R-IS																									
Exhaust spacer 4G1R-R- □																									

Mounting rail: L_2= □ *Write an integer multiple of 12.5.

Included parts:

Blanking plug				Threaded plug		Silencer			
GWP 4-B		GWP 6-B		4G1R-M5P		SLW-6S		SLW-6A	
GWP 8-B									
Cable with D-sub-connector	4GR-CABLE-D0 □-□			Push-in fitting tube remover(Included as Standard) □ Not required (check)					

*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. 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}$2-T1, 3-FP1 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- [ ] - [ ] [ ] [ ] [ ] - [ ] - [ ] -FP1

Solenoid valves | Solenoid position | Port size | Reduced wiring connection | Terminal connector pin Array method | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	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/unit
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- [ ]																									
In-stop valve spacer 4G2R-IS																									
Exhaust spacer 4G2R-R- [ ]																									

Mounting rail: L_2= [ ] *Write an integer multiple of 12.5.

Included parts:

Blanking plug				Threaded plug		Silencer			
GWP 4-B		GWP 6-B		4G2R-06P		SLW-8S		SLW-8A	
GWP 8-B		GWP 10-B							
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-FP1 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- □ - □ □ □ □ - □ - □ -FP1

Solenoid valves / Solenoid position / Port size / Reduced wiring connection / Terminal connector pin Array method / Option / Mount type / Station No. / Voltage

Solenoid valve model No.	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-** □																									
In-stop valve spacer **4G3R-IS**																									
Exhaust spacer **4G3R-R-** □																									

Mounting rail: L_2= □ *Write an integer multiple of 12.5.

Included parts:

Blanking plug						Threaded plug		Silencer			
GWP 6-B	□	**GWP 8-B**	□	**GWP 10-B**	□	**4G3R-08P**	□	**SLW-10A**	□	**SLW-10L**	□
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$^{A}_{B}$1-T5-FP1 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- - -FP1

Solenoid valves | Solenoid position | Port size | Reduced wiring connection | Terminal connector pin Array method | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	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 4G1R-P-																									
In-stop valve spacer 4G1R-IS																									
Exhaust spacer 4G1R-R-																									

Mounting Rail: L_2= *Write an integer multiple of 12.5.

Included Part:

Blanking plug				Threaded plug		Silencer			
GWP 4-B		GWP 6-B		4G1R-M5P		SLW-6S		SLW-6A	
GWP 8-B									

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. 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	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	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.

M4G2 reduced wiring

M4G$^{A}_{B}$2-T5-FP1 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- ☐ - ☐ ☐ ☐ ☐ - ☐ - ☐ -FP1

Solenoid valves | Solenoid position | Port size | Reduced wiring connection | Terminal connector pin Array method | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	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-** ☐																									
In-stop valve spacer **4G2R-IS**																									
Exhaust spacer **4G2R-R-** ☐																									

Mounting Rail	L_2= ☐ *Write an integer multiple of 12.5.	Included Part	Blanking plug				Threaded plug		Silencer			
			GWP 4-B	☐	GWP 6-B	☐	4G2R-06P	☐	SLW-8S	☐	SLW-8A	☐
			GWP 8-B	☐	GWP 10-B	☐						

* 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. 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	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	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}$3-T5-FP1 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- ☐ - ☐ ☐ ☐ ☐ - ☐ - ☐ -FP1

Solenoid valves | Solenoid position | Port size | Reduced wiring connection | Terminal connector pin Array method | Option | Mount type | Station No. | Voltage

Solenoid valve model No.	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 ☐ 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- ☐																									
In-stop valve spacer 4G3R-IS																									
Exhaust spacer 4G3R-R- ☐																									

Mounting Rail	L_2 = ☐ *Write an integer multiple of 12.5.	Included Part	Blanking plug						Threaded plug		Silencer			
			GWP 6-B		GWP 8-B		GWP 10-B		4G3R-08P		SLW-10A		SLW-10L	

● 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	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	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.

M4G1 Serial transmission

M4G$^{A}_{B}$1-T6D-FP1 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- ☐ - ☐ ☐ ☐ D- ☐ - 3 -FP1

Solenoid valves · Solenoid position · Port size · Serial transmission · Terminal/connector pin array · Option · Station No. · Voltage

Solenoid valve model No.	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	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 4G1R-P- ☐																	
In-stop valve spacer 4G1R-IS																	
Exhaust spacer 4G1R-R- ☐																	

Mounting Rail: L_2= ☐ *Write an integer multiple of 12.5.

Included Part:

Blanking plug				Threaded plug		Silencer			
GWP 4-B	☐	GWP 6-B	☐	4G1R-M5P	☐	SLW-6S	☐	SLW-6A	☐
GWP 8-B	☐		☐						

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. T6*		Installation position 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																

M4G2 Serial transmission

M4G$^{A}_{B}$2-T6D-FP1 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- ☐ - ☐ ☐ ☐ D- ☐ - 3 -FP1

Solenoid valves | Solenoid position | Port size | Serial transmission | Terminal/connector pin array | Option | Station No. | Voltage

Solenoid valve model No.	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-** ☐																	
In-stop valve spacer **4G2R-IS**																	
Exhaust spacer **4G2R-R-** ☐																	

Mounting Rail: L_2= ☐ *Write an integer multiple of 12.5.

Included Part:

Blanking plug				Threaded plug		Silencer			
GWP 4-B	☐	**GWP 6-B**	☐	**4G2R-06P**	☐	**SLW-8S**	☐	**SLW-8A**	☐
GWP 8-B	☐	**GWP 10-B**	☐						

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T6*		Installation position 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}$3-T6D-FP1 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- ☐ - ☐ ☐ ☐ D- ☐ - 3 -FP1

Solenoid valves / Solenoid position / Port size / Serial transmission / Terminal/connector pin array / Option / Station No. / Voltage

Solenoid valve model No.	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- ☐																	
In-stop valve spacer 4G3R-IS																	
Exhaust spacer 4G3R-R- ☐																	

Mounting Rail	Included Part	Blanking plug						Threaded plug		Silencer			
L_2= ☐ *Write an integer multiple of 12.5.		GWP 6-B		GWP 8-B		GWP 10-B		4G3R-08P		SLW-10A		SLW-10L	

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T6*		Installation position 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-FP1Manifold 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 -FP1

Solenoid valves / Solenoid position / Port size / Serial transmission / Terminal/connector pin array / Option / Mount type / Station No. / Voltage

Solenoid valve model No.	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 **4G1R-P-**																					
In-stop valve spacer **4G1R-IS**																					
Exhaust spacer **4G1R-R-**																					

Mounting Rail: L_2= *Write an integer multiple of 12.5.

Included Part:

Blanking plug				Threaded plug		Silencer			
GWP 4-B		GWP 6-B		4G1R-M5P		SLW-6S		SLW-6A	
GWP 8-B									

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. 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																			
T8EF1	CC-Link IE Field	NPN	16 points	25																			
T8EF2			32 points	26																			
T8EFP1		PNP	16 points	27																			
T8EFP2			32 points	28																			
T8EP1	PROFINET	NPN	16 points	29																			
T8EP2			32 points	30																			
T8EPP1		PNP	16 points	31																			
T8EPP2			32 points	32																			
T8KC1	IO-Link	NPN	16 points																				
T8KC2			32 points																				
T8KCP1		PNP	16 points																				
T8KCP2			32 points																				

M4G2 Serial transmissionThinType

M4G$^{A}_{B}$2-T8-FP1Manifold 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 -FP1

Solenoid valves / Solenoid position / Port size / Serial transmission / Terminal/connector pin array / Option / Mount Type / Station No. / Voltage

Solenoid valve model No.	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-** ☐																					
In-stop valve spacer **4G2R-IS**																					
Exhaust spacer **4G2R-R-** ☐																					

Mounting Rail	L_2= ☐ *Write an integer multiple of 12.5.	Included Part	Blanking plug				Threaded plug		Silencer			
			GWP 4-B		GWP 6-B		4G2R-06P		SLW-8S		SLW-8A	
			GWP 8-B		GWP 10-B							

● 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																				
T8EF1	CC-Link IE Field	NPN	16 points	25																				
T8EF2			32 points	26																				
T8EFP1		PNP	16 points	27																				
T8EFP2			32 points	28																				
T8EP1	PROFINET	NPN	16 points	29																				
T8EP2			32 points	30																				
T8EPP1		PNP	16 points	31																				
T8EPP2			32 points	32																				
T8KC1	IO-Link	NPN	16 points																					
T8KC2			32 points																					
T8KCP1		PNP	16 points																					
T8KCP2			32 points																					

M4G$^{A}_{B}$3-T8-FP1Manifold 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 -FP1

Solenoid valves / Solenoid position / Port size / Serial transmission / Terminal/connector pin Array method / Option / Mount Type / Station No. / Voltage

Solenoid valve model No.	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-** □																	
In-stop valve spacer **4G3R-IS**																	
Exhaust spacer **4G3R-R-** □																	

Mounting Rail	L_2= □ *Write an integer multiple of 12.5.	Included Part	Blanking plug						Threaded plug		Silencer			
			GWP 6-B		GWP 8-B		GWP 10-B		4G3R-08P		SLW-10A		SLW-10L	

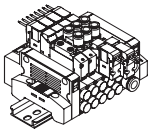
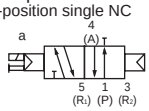
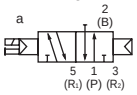
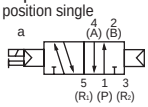
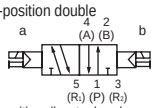
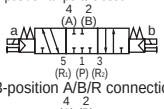
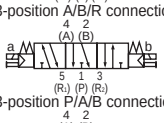
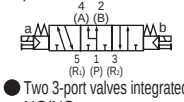
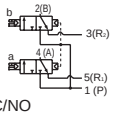
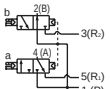
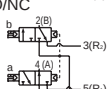
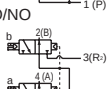
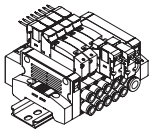
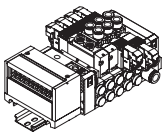
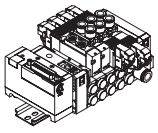
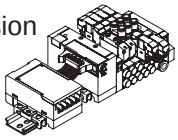
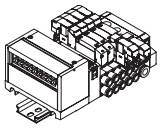
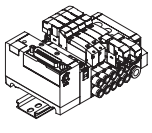
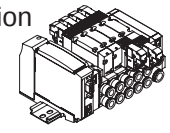
● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

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															
T8EF1	CC-Link IE Field	NPN	16 points	25															
T8EF2			32 points	26															
T8EFP1		PNP	16 points	27															
T8EFP2			32 points	28															
T8EP1	PROFINET	NPN	16 points	29															
T8EP2			32 points	30															
T8EPP1		PNP	16 points	31															
T8EPP2			32 points	32															
T8KC1	IO-Link	NPN	16 points																
T8KC2			32 points																
T8KCP1		PNP	16 points																
T8KCP2			32 points																

Series variation

MN4GA/4GB-FP1 Series

* For the metal base (integrated), refer to page 95.
* Refer to page 179 for master valve.

Appearance / Series			Model No.	Electrical connections	Position Number of solenoid valves JIS symbol	Valve performance: Flow characteristics C (dm^3/(sbar)) *1	Valve performance: Cylinder bore size	Voltage (V)	
Individual wiring manifold	Body piping	MN4GA180R 	MN4GA1	Blank -E □	● 3-port valve 2-position single NC  2-position single 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  ● Two 3-port valves integrated NC/NC  NC/NO  NO/NC  NO/NO 	1.0 to 1.2	ø20 to ø40	100 AC 200 AC 24 DC 12 DC (*2)	
			MN4GA2	Blank -E □ -B		2.2 to 2.5	ø40 to ø80		
	Base piping	MN4GB180R 	MN4GB1	Blank -E □		1.0 to 1.2	ø20 to ø40		
			MN4GB2	Blank -E □ -B		2.2 to 2.5	ø40 to ø80		
Reduced wiring manifolds	Body piping	Terminal block MN4GA280R 	MN4GA1 (N3GA1) (N4GA1)	-T10 -T11 (-A2N)		1.0 to 1.2	ø20 to ø40	24 DC 12 DC	
			MN4GA2 (N3GA2) (N4GA2)			2.2 to 2.5	ø40 to ø80		
		Connector MN4GA280R 	MN4GA1 (N3GA1) (N4GA1)	-T30 -T5 □ (-A2N)		1.0 to 1.2	ø20 to ø40	24 DC 12 DC	
			MN4GA2 (N3GA2) (N4GA2)			2.2 to 2.5	ø40 to ø80		
		Serial transmission MN4GA180R 	MN4GA1 (N3GA1) (N4GA1)	-T6 □ -T7 □ -T8 □ (-A2N)		1.0 to 1.2	ø20 to ø40	24 DC	
			MN4GA2 (N3GA2) (N4GA2)			2.2 to 2.5	ø40 to ø80		
	Base piping	Terminal block MN4GB180R 	MN4GB1 (N4GB1)	-T10 -T11 (-A2N)		1.0 to 1.2	ø20 to ø40	24 DC 12 DC	
			MN4GB2 (N4GB2)			2.2 to 2.5	ø40 to ø80		
		Connector MN4GB180R 	MN4GB1 (N4GB1)	-T30 -T5 □ (-A2N)		1.0 to 1.2	ø20 to ø40	24 DC 12 DC	
			MN4GB2 (N4GB2)			2.2 to 2.5	ø40 to ø80		
		Serial transmission MN4GB280R 	MN4GB1 (N4GB1)	-T6 □ -T7 □ -T8 □ (-A2N)		1.0 to 1.2	ø20 to ø40	24 DC	
			MN4GB2 (N4GB2)			2.2 to 2.5	ø40 to ø80		

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
*2: The grommet lead wire specifications are compatible with DC voltage only.
*3: Only compatible with base piping models.
*4: Specification for reduced wiring manifold equipped. Only 12/24 VDC is supported.

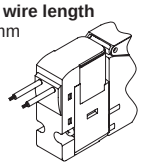
Switching position									A/B Piping port					Electrical connections													Page
														Single unit, individual wiring				Reduced wiring								
2-position				3-position			3-port valve	Two valves integrated	Push-in fitting			Female thread		Grommet lead (*2)	E type connector	EJ type connector	DIN terminal box	A type connector (*4)	Common terminal block	D-sub-connector	Flat cable with power supply terminal	Flat cable without power supply terminal	Serial transmission			
Normally closed	Normally open	Single	Double	All ports closed	ABR connection	PAB connection		Mix	ø4	ø6	ø8	M 5	Rc1/8													
									C4	C6	C8	M5	06	Blank	E□	E□J	B□	A2N	T1□	T30	T50	T5□	T6□	T7□	T8□	
●	●	●	●	●	●	●	○	●	●	●		●		●	●	●										145
●	●	●	●	●	●	●	○	●		●	●		●	●	●	●	●									
		●	●	●	●	●	○	●	●	●				●	●	●										149
		●	●	●	●	●	○	●		●	●			●	●	●	●									
●	●	●	●	●	●	●	○	●	●	●		●						●	●							153
●	●	●	●	●	●	●	○	●		●	●		●													
●	●	●	●	●	●	●	○	●	●	●		●								●	●	●				
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●	●	●	●	●	●	●	○	●		●	●		●													
		●	●	●	●	●	○	●	●	●								●	●							157
		●	●	●	●	●	○	●		●	●															
		●	●	●	●	●	○	●	●	●										●	●	●				
		●	●	●	●	●	○	●		●	●															
		●	●	●	●	●	○	●	●	●																
		●	●	●	●	●	○	●		●	●															

Electrical connections

Discrete valve/individual wiring manifold

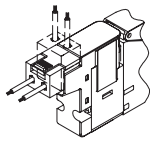
Blank Grommet lead wire Ⓐ

● **Lead wire length**
300mm

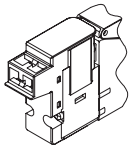


EO E-connector Ⓐ

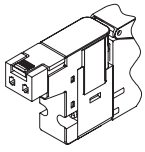
● **Lead wire length**
300mm
500mm
1m
2m
3 m



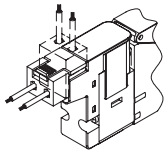
E0N E-connector without socket



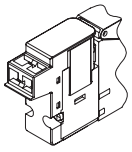
E1 E-connector with socket/terminal



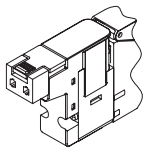
E2 E-connector ⒶⒷⒸ



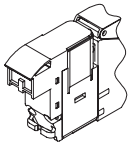
E2N E-connector Without socketⒷⒸ



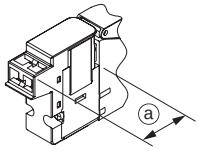
E3 E-connector with socket/terminalⒷⒸ



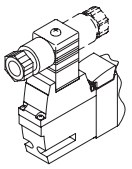
A2N A-connector downward without socket



● For AC voltage,
(a) dimension is 3.5 mm longer
ⓐThe dimension is 3.5mm longer.

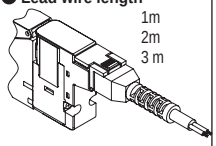


B BN DIN terminal box (BN:without terminal box)

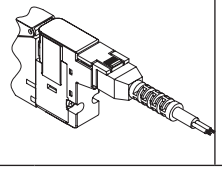


EO*J EJ-connector Ⓐ

● **Lead wire length**
1m
2m
3 m

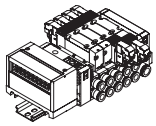


E2*J EJ-connector ⒶⒷⒸ

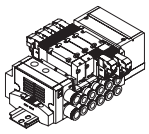


Reduced wiring manifolds

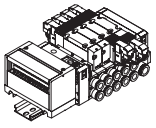
T10 Common terminal block M3 thread specifications (left side)



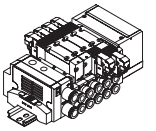
T10R Common terminal block M3 thread specifications (right side)



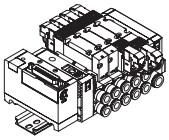
T11 Common terminal block clamping specifications (left side)



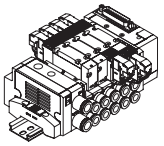
T11R Common terminal block clamping specifications (right side)



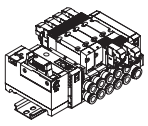
T30 D-sub-connector(left side)



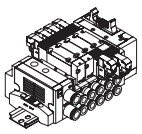
T30R D-sub-connector (right side)



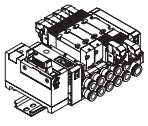
T50 Flat cable with power supply terminal (left side)



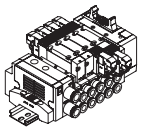
T50R Flat cable with power supply terminal (right side)



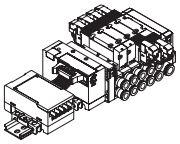
T5 1/2/3 Flat cable without power supply terminal (left side)



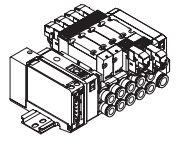
T5 1/2/3 R Flat cable without power supply terminal (right side)



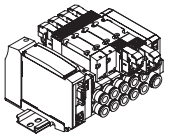
T6*0 T6*1 Serial transmission



T7*0 T7*1 Serial transmission Thin slot type



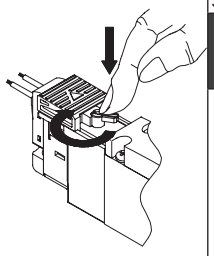
T8*1 T8*2 Serial transmission Thin slot type



Manual override

Blank Non-locking/locking common

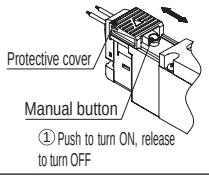
(Standard equipment)



①For non-locking, push to turn ON and release to turn OFF

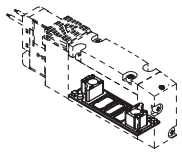
②For locking, PUSH and turn 90° clockwise to hold the on state.
Turn anti-clockwise to unlock OFF

M Non-locking



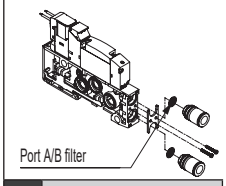
Other options

H Exhaust malfunction With prevention valve

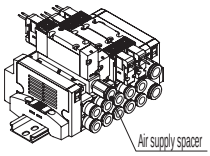


Standard for pilot exhaust

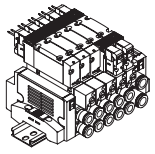
F Port A/B filter integrated



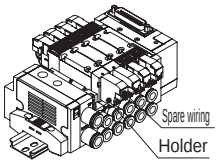
Z1 Z3 Air supply spacer Exhaust spacer



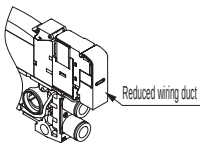
Z2 In-stop valve spacer



W 1 Single spare wiring

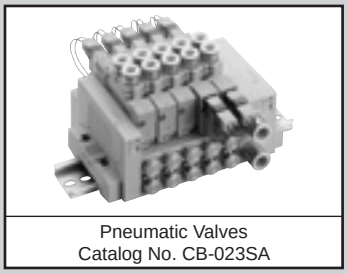


Q Reduced wiring duct



Electrical connection circuit diagram

Electrical connections		Without lead wire	With lead wire	With indicator lamp	With surge suppressor	Without socket	Circuit diagram
Blank	Grommet lead wire		●				(±) DC (∓)
E0	E-connector		●				(±) DC (∓) (~) 100 VAC (~)
E0*J	EJ-connector		●				
E0N	E-connector					●	
E1	E-connector	●					
E2	E-connector		●	●	●		(±) DC (∓) (~) 100 VAC (~)
E2*J	EJ-connector		●	●	●		
E2N	E-connector			●	●	●	
E3	E-connector	●		●	●		
A2N	A-connector			●	●	●	(±) DC (∓)
B	DIN terminal box	●		●	●		(±) DC (∓) (~) 100 VAC (~)
BN	DIN terminal box (without terminal box)						(~) 200 VAC (~)
Option S E2	E-connector		●	●	●		(±) DC (∓)
Option S E2*J	EJ-connector		●	●	●		
Option S E2N	E-connector			●	●	●	
Option S A2N	A-connector			●	●	●	
Option E E2	E-connector		●	●	●		(±) DC (∓) Control circuit
Option E E2*J	EJ-connector		●	●	●		
Option E E2N	E-connector			●	●	●	
Option E A2N	A-connector			●	●	●	



Pneumatic Valves
Catalog No. CB-023SA

Individual wiring block manifold
Body piping

MN4GA1/2-FP1 Series

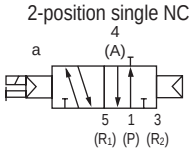
● Cylinder bore size: ø20 to ø80

RoHS CAD

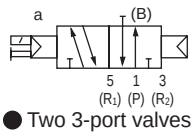
JIS symbol

● 3-port valve

2-position single NC

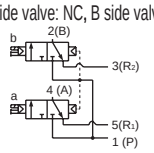


2-position single NO

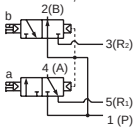


● Two 3-port valves integrated

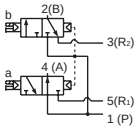
(A side valve: NC, B side valve: NC)



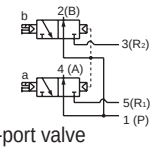
(A side valve: NC, B side valve: NO)



(A side valve: NO, B side valve: NC)

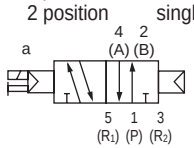


(A side valve: NO, B side valve: NO)

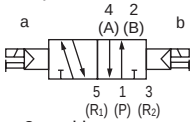


● 5-port valve

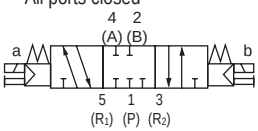
2 position single



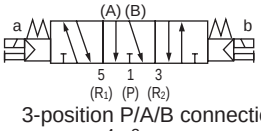
2-position double



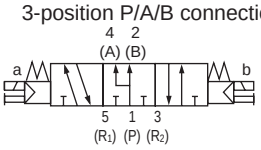
3-position
All ports closed



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 (*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)
Degree of protection (*1)	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 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.

*2 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	100 AC	200 AC
Voltage fluctuation range		±10%			
Holding current A (*3)	Standard	0.015 (0.017)	0.030 (0.034)	0.009 (0.009)	0.006 (0.006)
	With low exoergic/energy circuit	0.005	0.010	-	
Power consumption W (*3)	Standard	0.35(0.40)		-	
	With low exoergic/energy circuit	0.1		-	
Apparent power VA (*3)	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.

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

Item			MN3GA1/MN4GA1		MN3GA2/MN4GA2	
			ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		9	12	12	29
	2-position	Single	15	15	19	19
		Double	9	-	18	-
	3-position	ABR 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 -
		ABR connection	0.92	0.29	1.1 (0.69)	0.13 (0.22)
		PAB 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)
		PAB 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.

MN4GA1/2-FP1 Series

Individual wiring block manifold; Body piping

How to order

Manifold model No.

MN4GA1 1 0 R - C6 - E2 H - 10 - 3 - FP1

3-port manifold model No.

MN3GA1 1 0 R - C6 - E2 H - 10 - 3 - FP1

Discrete valve block with solenoid valve

N4GA1 1 0 R - C6 - E2 H — 3 - FP1

Discrete 3-port valve block with solenoid valve

N3GA1 1 0 R - C6 - E2 H — 3 - FP1

Single solenoid valve

4GA1 1 9 R - C6 - E2 H — 3 - FP1

Discrete 3-port solenoid valve

3GA1 1 9 R - C6 - E2 H — 3 - FP1

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Port size *1

Ⓓ Electrical connections

Ⓔ Option

Ⓕ Station No.

Ⓖ Voltage

Code	Description		Ⓐ Model No.							
			Manifold				Valve with a solenoid valve			
			3-port valve		5-port valve		Discrete block, Single solenoid valve			
			MN3GA1	MN3GA2	MN4GA1	MN4GA2	(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	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									
C4	ø4 push-in fitting		●		●		●		●	
C6	ø6 push-in fitting		●	●	●	●	●	●	●	●
C8	ø8 push-in fitting			●		●		●		●
CX	Push-in fitting mix *3		●	●	●	●				
M5	M5		●		●		●		●	
06	Rc1/8			●		●		●		●
Ⓓ Electrical connections										
Refer to the following page for electrical connections										
Ⓔ Option										
Blank	Manual override of non-locking/locking common		●	●	●	●	●	●	●	●
M	Manual override of non-locking		○	○	○	○	○	○	○	○
H	With exhaust check valve *4		●	●	●	●	●	●	●	●
S	Surgeless *5		●	●	●	●	●	●	●	●
E	Low exoergic/energy saving circuit *5, 6		●	●	●	●	●	●	●	●
F	Port A/B filter built in *7		●	●	●	●	●	●	●	●
Z1	Air supply spacer *8		●	●	●	●				
Z2	In-stop valve spacer *8, 9		●	●	●	●				
Z3	Exhaust spacer *8		●	●	●	●				
Ⓕ Station No.										
1	1 stations		●	●	●	●				
to	to									
24	24 stations (Max. station number for MN3GA2/MN4GA2 is 20.)									
Ⓖ Voltage										
1	100 VAC (rectifier integrated)		●	●	●	●	●	●	●	●
2	200 VAC (rectifier integrated) *9			●		●		●		●
3	24 VDC		●	●	●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●	●	●

is not available.
○ indicates made to order.

⚠ 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*80 when using a mixture of 4, 5-port valves. Further, select MN3GA*80 when mixing with masking plate.
*3: The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.
*4: The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H).
*5: Surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.
*6: Surgeless specifications.
*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 167 to 168 for details.
*9: Only the DIN terminal box is supported.

[Electrical connection list]

Ⓓ Electrical connections			Ⓐ Model No.							
			Manifold				Valve with a solenoid valve Discrete block/ Single solenoid valve			
			3-port valve		5-port valve					
			MN3GA1	MN3GA2	MN4GA1	MN4GA2	(N)3GA1	(N)3GA2	(N)4GA1	(N)4GA2
Blank	Grommet lead wire (300 mm)	*10	●	●	●	●	●	●	●	●
B	DIN terminal box (Pg7) With surge suppressor/lamp	* 11, * 13		●		●		●		●
BN	DIN terminal box (Pg7) (without terminal box) With surge suppressor/lamp	*11, *13		●		●		●		●
E-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)	*12	●	●	●	●	●	●	●	●
E1	Without lead wire(socket/terminal attached)	*14	●	●	●	●	●	●	●	●
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)	*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		●	●	●	●	●	●	●	●

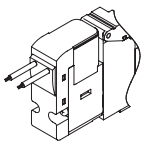
*10: The grommet lead wire specifications are compatible with DC voltage only.
*11: A lamp comes with the terminal box.
*12: AC voltage is with a rectifier circuit.
*13: The terminal box is a product of EN175301-803TypeC (former DIN43650-C) compliant.

Electrical connections

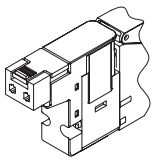
Discrete valve/individual wiring manifold

Blank Grommet lead wire

● **Lead wire length**
300mm

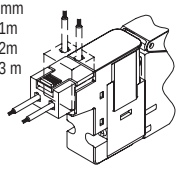


E1 E3 E-connector with socket/terminal

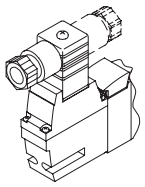


E0 E2 E-connector

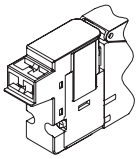
● **Lead wire length**
300mm
500mm
1m
2m
3 m



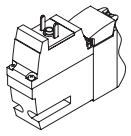
B DIN terminal box



E0N E2N E-connector Without socket

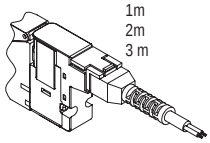


BN DIN terminal box Without terminal box

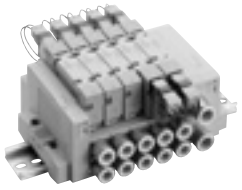


E0*J E2*J EJ-connector

● **Lead wire length**
1m
2m
3 m



Refer to the MN4GA1, 2 Series in "Pneumatic Valves (CB-023SA)" for dimensions.



Pneumatic Valves
Catalog No. CB-023SA

Individual wiring block manifold
Base piping

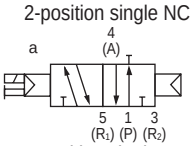
MN4GB1/2-FP1 Series

● Cylinder bore size: ø20 to ø80

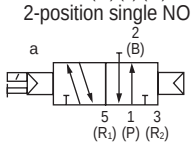
JIS symbol

● 3-port valve

2-position single NC

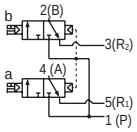


2-position single NO

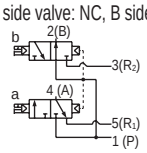


● Two 3-port valves integrated

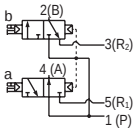
(A side valve: NC, B side valve: NC)



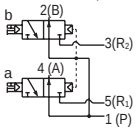
(A side valve: NC, B side valve: NO)



(A side valve: NO, B side valve: NC)

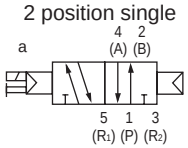


(A side valve: NO, B side valve: NO)

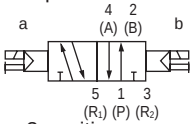


● 5-port valve

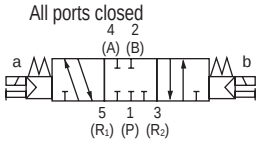
2 position single



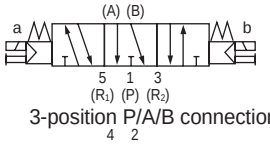
2-position double



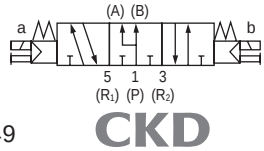
3-position
All ports closed



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 (*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)
Degree of protection (*1)	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: 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.

*2: 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		24 DC	12 DC	100 AC	200 AC
Voltage fluctuation range		±10%			
Holding current A (*3)	Standard	0.015 (0.017)	0.030 (0.034)	0.009 (0.009)	0.006 (0.006)
	With low exoergic/energy circuit	0.005	0.010	-	
Power consumption W (*3)	Standard	0.35 (0.40)		-	
	With low exoergic/energy circuit	0.1		-	
Apparent power VA (*3)	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.

Individual specifications

Item			M3GB1/M4GB1	M3GB2/M4GB2
Max. station No.			24 Stations	20 Stations
Port size	Metric fitting	Port A/B	Push-in fitting ø4,ø6	Push-in fitting ø6,ø8
		P/R Port	Push-in fitting ø6,ø8	Push-in fitting ø8,ø10

Item			MN3GB1/MN4GB1		MN3GB2/MN4GB2	
			ONHour	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		9	12	12	29
	2-position	Single	15	15	19	19
		Double	9	-	18	-
	3-position	ABR 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 -
		ABR connection	0.96	0.29	1.2 (0.71)	0.11 (0.30)
		PAB 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)
		PAB 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.

MN4GB1/2-FP1 Series

Individual wiring block manifold; Base piping

How to order

Manifold model No.

MN4GB1 1 0 R - C6 - E2 H - 10 - 3 - FP1

3-port manifold model No.

MN3GB1 66 0 R - C6 - E2 H - 10 - 3 - FP1

Discrete valve block with solenoid valve

N4GB1 1 0 R - C6 - E2 H — 3 - FP1

Discrete 3-port valve block with solenoid valve

N3GB1 66 0 R - C6 - E2 H — 3 - FP1

Single solenoid valve

4GB1 1 9 R - 00 - E2 H — 3 - FP1

Discrete 3-port solenoid valve

3GB1 66 9 R - 00 - E2 H — 3 - FP1

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Port size *1, *2 *3
Ⓓ Electrical connections
Ⓔ Option
Ⓕ Station No.
Ⓖ Voltage

Code	Description		Ⓐ Model No. Manifold: 3-port valve Two valves integrated MN3GB1	MN3GB2	Manifold: 5-port valve MN4GB1	MN4GB2	Valve with a solenoid valve Discrete block/ Single solenoid valve (N)3GB1	(N)3GB2	(N)4GB1	(N)4GB2
Ⓑ 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	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**									
C4	ø4 push-in fitting		●		●		●		●	
C6	ø6 push-in fitting		●	●	●	●	●	●	●	●
C8	ø8 push-in fitting			●		●		●		●
CX	Push-in fitting mix *4		●	●	●	●				
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				●				●
00	Discrete valve for integrated base						●	●	●	●
Ⓓ Station No.										
Refer to the next page for electrical connections.										
Ⓔ Option										
Blank	Manual override of non-locking/locking common		●	●	●	●	●	●	●	●
M	Manual override of non-locking		○	○	○	○	○	○	○	○
H	With exhaust check valve *5		●	●	●	●	●	●	●	●
S	Surgeless *6		●	●	●	●	●	●	●	●
E	Low exoergic/energy saving circuit *6, 7		●	●	●	●	●	●	●	●
F	Port A/B filter built in *8		●	●	●	●	●	●	●	●
Z1	Air supply spacer *9		●	●	●	●				
Z2	In-stop valve spacer *9		●	●	●	●				
Z3	Exhaust spacer *9		●	●	●	●				
Ⓕ Station No.										
1	1 stations		●	●	●	●				
to	to									
24	24 stations (Max. station number for MN4GB2 is 20)									
Ⓖ Voltage										
1	100 VAC (rectifier integrated)		●	●	●	●	●	●	●	●
2	200 VAC (rectifier integrated) *10			●		●		●		●
3	24 VDC		●	●	●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●	●	●

is not available. ○ indicates made to order.

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: MN4GB*80R when using a mixture of 4, 5-port valves. Further, select MN3GB*80R when mixing with masking plate.
*4: The push-in fitting cannot be mixed with the single valve's 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).
*6: Surgeless "S" and low exoergic/energy saving circuit "E" cannot be selected together.
*7: Surgeless specifications.
*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. Refer to pages 167 to 168 for details.
*10: DIN terminal box only is supported.

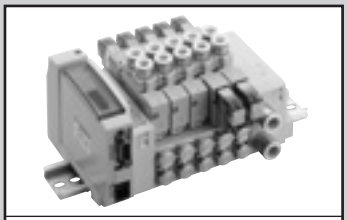
[Electrical connection list]

Code	Description	Model No.							
		Manifold				Discrete valve block with solenoid valve/ discrete solenoid valve			
		3-port valve Two valves integrated		5-port valve					
		MN3GB1	MN3GB2	MN4GB1	MN4GB2	(N)3GB1	(N)3GB2	(N)4GB1	(N)4GB2
Ⓓ Electrical connections									
Blank	Grommet lead wire (300 mm) *11	●	●	●	●	●	●	●	●
B	DIN terminal box (Pg7) With surge suppressor/lamp *12, *14		●		●		●		●
BN	DIN terminal box (Pg7) (without terminal box) With surge suppressor/lamp *12, *14		●		●		●		●
E-connector (upward/lateral direction common)									
E0	Lead wire (300 mm) *13	●	●	●	●	●	●	●	●
E00	Lead wire (500 mm) *13	●	●	●	●	●	●	●	●
E01	Lead wire (1000 mm) *13	●	●	●	●	●	●	●	●
E02	Lead wire (2000 mm) *13	●	●	●	●	●	●	●	●
E03	Lead wire (3000 mm) *13	●	●	●	●	●	●	●	●
E0N	Without lead wire (without socket) *13	●	●	●	●	●	●	●	●
E1	Without lead wire (with socket/terminal) *13	●	●	●	●	●	●	●	●
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) *13	●	●	●	●	●	●	●	●
E02J	Lead wire (2000 mm) *13	●	●	●	●	●	●	●	●
E03J	Lead wire (3000 mm) *13	●	●	●	●	●	●	●	●
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	●	●	●	●	●	●	●	●

is not available.

*11 The grommet lead wire specifications are compatible with DC voltage only.
*12 A lamp comes with the terminal box.
*13 AC voltage is with a rectifier circuit.
*14 The terminal box is a EN175301-803 TypeC (former DIN43650-C) compliant product.

Refer to the MN4GB1, 2 Series in "Pneumatic Valves (CB-023SA)" for dimensions.



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring block manifold
Body piping

MN4GA1/2-T*-FP1 Series

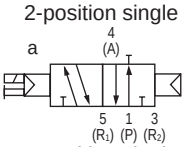
● Cylinder bore size: ø20 to ø80

RoHS CAD

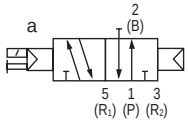
JIS symbol

● 3-port valve

2-position single NC

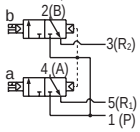


2-position single NO

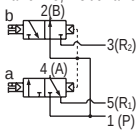


● Two 3-port valves integrated

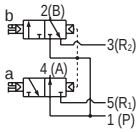
(A side valve: NC, B side valve: NC)



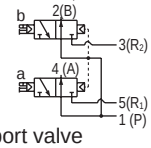
(A side valve: NC, B side valve: NO)



(A side valve: NO, B side valve: NC)

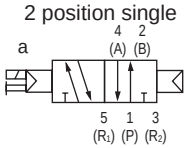


(A side valve: NO, B side valve: NO)

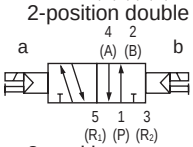


● 5-port valve

2 position single

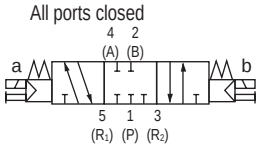


2-position double

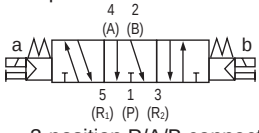


3-position

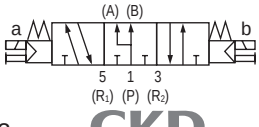
All ports closed



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 (*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)
Degree of protection (*1)	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□		T6□, T7□, T8□
		DC24	DC12	DC24
Voltage fluctuation range (*3)		±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 (*4)		Zener diode		
Indicator		LED		

*3: Since voltage drops depending on the internal circuit of T6, T7, and T8 (serial transmission), pay attention to the voltage fluctuation range.

*4: If low exoergic/energy circuit or surgeless types are selected then there will be a diode.

*1: Dust-proof degree of protection. Not drip-proof. Avoid dripping water or oil, etc., during use.

*2: 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.

Individual specifications

Item			MN3GA1/MN4GA1									
			T10	T11	T30	T50	T51	T52	T53	T6*0/1	T7*0/1	T8*1/2
Max. station No.	Standard wiring		16 stations	24 stations	24 stations	16 stations	18 stations	8 stations	24 stations	8/16 stations	8/16 stations	16/24 stations
	Double wiring		8 stations	12 stations	12 stations	8 stations	9 stations	4 stations	12 stations	4/8 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	8/16 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	T6*0/1	T7*0/1	T8*1/2
Max. station No.	Standard wiring		16 stations	20 stations	20 stations	16 stations	18 stations	8 stations	20 stations	8/16 stations	8/16 stations	16/20 stations
	Double wiring		8 stations	12 stations	12 stations	8 stations	9 stations	4 stations	12 stations	4/8 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	8/16 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									

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 -
		ABR connection	0.92	0.29	1.1 (0.69)	0.13 (0.22)
		PAB 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)
		PAB 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	T8EF1 / T8EF2	T8EFP1 / T8EFP2	T8EP1 / T8EP2	T8EPP1 / T8EPP2	T8KC1 / T8KC2	T8KCP1 / T8KCP2
Communication protocol		CC-Link ver. 1.10		PROFIBUS-DP (V0)		EtherCAT		EtherNet/IP		DeviceNet		CC-Link IEF Basic		CC-Link IE Field		PROFINET		IO-Link	
Power supply voltage	Unit side	24 VDC±10% (11 to 25 VDC for T8D* only)																	
	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)		140 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)		50 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	NPN output	PNP output	NPN output	PNP output

MN4GA1/2-T*-FP1 Series

Reduced wiring block manifold; Body piping

How to order

Manifold model No.

MN4GA1 (A) 1 (B) 0 R - C6 (C) - T30 (D) W (E) H (F) - 10 (G) - 3 (H) - FP1

3-port manifold model No.

MN3GA1 (A) 1 (B) 0 R - C6 (C) - T30 (D) W (E) H (F) - 10 (G) - 3 (H) - FP1

Discrete valve block with solenoid valve

N4GA1 (A) 1 (B) 0 R - C6 (C) - A2N *1 (D) (E) H (F) — 3 (H) - FP1

Discrete 3-port valve block with solenoid valve

N3GA1 (A) 1 (B) 0 R - C6 (C) - A2N *1 (D) (E) H (F) — 3 (H) - FP1

* If a cable is required, refer to page 165 and specify the cable length of "*1". When not required, leave the space blank.

Single solenoid valve

4GA1 (A) 1 (B) 9 R - C6 (C) - A2N (D) (E) H (F) — 3 (H) - FP1

Discrete 3-port solenoid valve

3GA1 (A) 1 (B) 9 R - C6 (C) - A2N (D) (E) H (F) — 3 (H) - FP1

(A) Model No.

(B) Solenoid position

(C) Port size *1

(D) Reduced wiring connection, serial transmission

(E) Terminal/connector pin array

(F) Option

(G) Station No.

(H) Voltage

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: The push-in fitting cannot be mixed with the discrete valve's 4(A) or 2(B) port.

4: 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.

*5: 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).

*6: 3-position all ports closed and PAB connection are not provided with the exhaust check valve (H).

*7: In addition, surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.

*8: Surgeless specifications.

*9: A filter is built into port P as standard.

*10: 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, refer to pages 167 and 168

(A) Model No.

Code	Description		Manifold: 3-port valve MN3GA1	Manifold: 3-port valve MN3GA2	Manifold: 5-port valve MN4GA1	Manifold: 5-port valve MN4GA2	Valve with a solenoid valve Discrete block/ Single solenoid valve: (N)3GA1	(N)3GA2	(N)4GA1	(N)4GA2
(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	3-port valve Two valves integrated *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)		●	●	●	●	●	●	●	●

(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 *3		●	●	●	●			
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 *4		●	●	●	●	●	●	●	●
W	Double wiring *4		●	●	●	●	●	●	●	●
W 1	Double wiring (with single spare wiring) *4, 5		●	●	●	●	●	●	●	●

(F) Option

Blank	Manual override of non-locking/locking common		●	●	●	●	●	●	●	●
M	Manual override of non-locking		○	○	○	○	○	○	○	○
H	With exhaust check valve *6		●	●	●	●	●	●	●	●
S	Surgeless *7		●	●	●	●	●	●	●	●
E	Low exoergic/energy saving circuit *7, 8		●	●	●	●	●	●	●	●
Q	Reduced wiring duct		●	●	●	●	●	●	●	●
F	Port A/B filter built in *9		●	●	●	●	●	●	●	●
Z1	Air supply spacer *10		●	●	●	●				
Z2	In-stop valve spacer *10		●	●	●	●				
Z3	Exhaust spacer *10		●	●	●	●				

(G) Station No.

1	1 stations									
to	to		●	●	●	●				
24	24 stations (Refer to page 153 for the max. station number per model)									

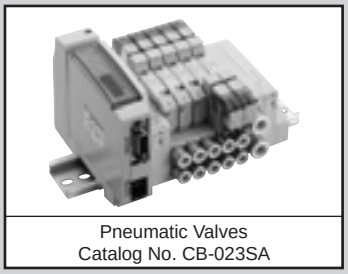
(H) Voltage

3	24 VDC		●	●	●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●	●	●

is not available. ○ indicates made to order.

Refer to the MN4GA1/2-T* Series in "Pneumatic Valves (CB-023SA)" for dimensions.

			Ⓐ 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
Ⓓ 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	●	●	●	●				
T8EF1	CC-Link IE Field	NPN 16 points	●	●	●	●				
T8EF2		NPN 32 points	●	●	●	●				
T8EFP1		PNP 16 points	●	●	●	●				
T8EFP2		PNP 32 points	●	●	●	●				
T8EP1	PROFINET	NPN 16 points	●	●	●	●				
T8EP2		NPN 32 points	●	●	●	●				
T8EPP1		PNP 16 points	●	●	●	●				
T8EPP2		PNP 32 points	●	●	●	●				
T8KC1	IO-Link	NPN 16 points	●	●	●	●				
T8KC2		NPN 32 points	●	●	●	●				
T8KCP1		PNP 16 points	●	●	●	●				
T8KCP2		PNP 32 points	●	●	●	●				
A2N	Without lead wire (without socket)	with surge suppressor, lamp					●	●	●	●



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring block manifold
Base piping

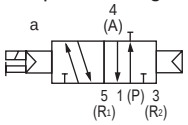
MN4GB1, 2-T*-FP1 Series

● Cylinder bore size: ø20 to ø80

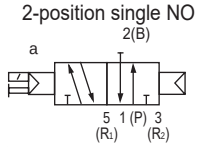
JIS symbol

● 3-port valve

2-position single NC

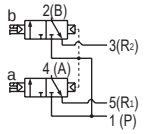


2-position single NO

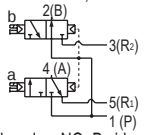


● Two 3-port valves integrated

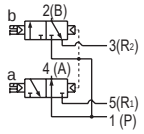
(A side valve: NC, B side valve: NC)



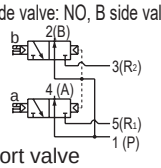
(A side valve: NC, B side valve: NO)



(A side valve: NO, B side valve: NC)

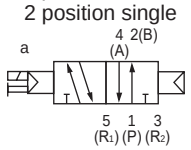


(A side valve: NO, B side valve: NO)

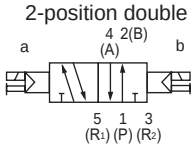


● 5-port valve

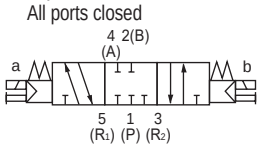
2 position single



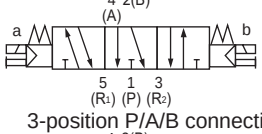
2-position double



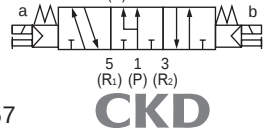
3-position
All ports closed



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 (*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)
Degree of protection (*1)	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□		T6□, T7□, T8□
		24 DC	12 DC	24 DC
Voltage fluctuation range (*3)		±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 (*4)		Zener diode		
Indicator		LED		

*1: Dust-proof degree of protection. Not drip-proof. Avoid dripping water or oil, etc., during use.
*2: 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.
*3: T6□, T7□ and T8□ (serial transmission) may experience voltage drops due to internal circuitry, so care should be taken when regulating voltages.
*4: If low exoergic/energy circuit or surgeless types are selected then there will be a diode.

Individual specifications

Item			MN3GB/MN4GB1									
			T10	T11	T30	T50	T51	T52	T53	T60/1	T70/1	T81/2
Max. station No.		Standard wiring	16 stations	24 stations	24 stations	16 stations	18 stations	8 stations	24 stations	8/16 stations	8/16 stations	16/24 stations
		Double wiring	8 stations	12 stations	12 stations	8 stations	9 stations	4 stations	12 stations	4/8 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	8/16 points	8/16 points	16/32 points
Port size	Metric fitting	Port A/B	Push-in fitting ø4, ø6									
		P/R Port	Push-in fittingø6,ø8									

Item			MN3GB2/MN4GB2									
			T10	T11	T30	T50	T51	T52	T53	T60/1	T70/1	T81/2
Max. station No.		Standard wiring	16 stations	20 stations	20 stations	16 stations	18 stations	8 stations	20 stations	8/16 stations	8/16 stations	16/20 stations
		Double wiring	8 stations	12 stations	12 stations	8 stations	9 stations	4 stations	12 stations	4/8 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	8/16 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									

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
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 -
		ABR connection	0.96	0.29	1.2 (0.71)	0.11 (0.30)
		PAB 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)
		PAB 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 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 compliantPressure welding socket 20-pin	MIL-C-83503 standard compliantPressure welding socket 10-pin	MIL-C-83503 standard compliantPressure 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 / T8ECP1 / T8EC2 / T8ECP2	T8EN1 / T8ENP1 / T8EN2 / T8ENP2	T8D1 / T8D2	T8DP1 / T8DP2	T8EB1 / T8EB2	T8EBP1 / T8EBP2	T8EF1 / T8EF2	T8EFP1 / T8EFP2	T8EP1 / T8EP2	T8EPP1 / T8EPP2	T8EP1 / T8EP2	T8KCP1 / T8KCP2
Communication protocol		CC-Link ver. 1.10		PROFIBUS-DP (V0)		EtherCAT	EtherNet/IP	DeviceNet		CC-Link IEF Basic		CC-Link IE Field		PROFINET		IO-Link	
Power supply voltage	Unit side	24 VDC±10% (11 to 25 VDC for T8D* only)															
	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)		120 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)		140 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)		50 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	NPN output	PNP output

*1 Transmission bit rate of 128 bits and half-duplex transmission method are supported. Contact CKD for other specifications.
*2 Compatible with DeviceNet compliant networks (DLNK, etc.) as well.
*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*-FP1 Series

Reduced wiring block manifold; Base piping

How to order

● Manifold model No.

MN4GB1 **1** **0 R** - **C6** - **T30** **W** **H** - **10** - **3** - **FP1**

● 3-port manifold model No.

MN3GB1 **66** **0 R** - **C6** - **T30** **W** **H** - **10** - **3** - **FP1**

● Discrete valve block with solenoid valve

N4GB1 **1** **0 R** - **C6** - A2N *1 **H** — **3** - **FP1**

● Discrete 3-port valve block with solenoid valve

N3GB1 **66** **0 R** - **C6** - A2N *1 **H** — **3** - **FP1**

* If a cable is required, refer to page 165 and specify the cable length of *1. When not required, leave the space blank.

● Single solenoid valve

4GB1 **1** **9 R** - **00** - **A2N** **H** — **3** - **FP1**

● Discrete 3-port solenoid valve

3GB1 **66** **9 R** - **00** - **A2N** **H** — **3** - **FP1**

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Port size *1 *2 *3
Ⓓ Reduced wiring connection
Ⓔ Terminal/connector pin array
Ⓕ Option
Ⓖ Station No.
Ⓗ Voltage

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: Ports A and B are the same size for radial push-in fitting mix (CX).
*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: 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).
*8: The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H).
*9: 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/quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 167 to 168 for details.

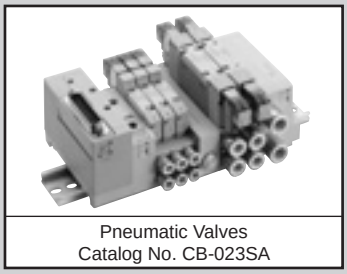
Code	Description		Ⓐ Model No. Manifold: 3-port valve Two valves integrated: MN3GB1	MN3GB2	5-port valve: MN4GB1	MN4GB2	Discrete valve block with solenoid valve / Single solenoid valve: (N)3GB1	(N)3GB2	(N)4GB1	(N)4GB2
Ⓑ Solenoid position										
1	2 position single				●	●			●	●
2	2-position double				●	●			●	●
3	3-position all ports closed				●	●			●	●
4	3-position ABR connection				●	●			●	●
5	3-position PAB connection				●	●			●	●
66	3-port valve Two valves integrated *4	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**									
C4	ø4 push-in fitting		●		●		●		●	
C6	ø6 push-in fitting		●	●	●	●	●	●	●	●
C8	ø8 push-in fitting			●		●		●		●
CX	Push-in fitting mix *5		●	●	●	●				
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				●				●
00	Discrete valve for integrated base						●	●	●	●
Ⓓ Terminal/connector pin array										
Refer to the next page for electrical connections.										
Ⓔ 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	Manual override of non-locking		○	○	○	○	○	○	○	○
H	With exhaust check valve *8		●	●	●	●	●	●	●	●
S	Surgeless *9		●	●	●	●	●	●	●	●
E	Low exoergic/energy saving circuit *9, *10		●	●	●	●	●	●	●	●
Q	Reduced wiring duct		●	●	●	●	●	●	●	●
F	Port A/B filter built in *11		●	●	●	●	●	●	●	●
Z1	Air supply spacer *12		●	●	●	●				
Z2	In-stop valve spacer *12		●	●	●	●				
Z3	Exhaust spacer *12		●	●	●	●				
Ⓖ Station No.										
1	1 stations		●	●	●	●				
to	to									
24	24 stations (Max. station number for MN4GB2 is 20.)									
Ⓗ Voltage										
3	24 VDC		●	●	●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●	●	●

is not available.
○ indicates made to order.

[Wiring method list]

Code	Description		Ⓐ Model No. Manifold: Two 3-port valves integrated: MN3GB1	MN3GB2	5-port valve: MN4GB1	MN4GB2	PValve 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	●	●	●	●				
T8EF1	CC-Link IE Field	NPN 16 points	●	●	●	●				
T8EF2		NPN 32 points	●	●	●	●				
T8EFP1		PNP 16 points	●	●	●	●				
T8EFP2		PNP 32 points	●	●	●	●				
T8EP1	PROFINET	NPN 16 points	●	●	●	●				
T8EP2		NPN 32 points	●	●	●	●				
T8EPP1		PNP 16 points	●	●	●	●				
T8EPP2		PNP 32 points	●	●	●	●				
T8KC1	IO-Link	NPN 16 points	●	●	●	●				
T8KC2		NPN 32 points	●	●	●	●				
T8KCP1		PNP 16 points	●	●	●	●				
T8KCP2		PNP 32 points	●	●	●	●				
A2N	Without lead wire (without socket)	with surge suppressor, lamp					●	●	●	●

Refer to the MN4GB1, 2-T* Series in "Pneumatic Valves (CB-023SA)" for dimensions.



Pneumatic Valves
Catalog No. CB-023SA

4G1/2 mix manifold

MN3GAX12,MN4GAX12 MN4GBX12-FP1 Series

● Cylinder bore size: ø20 to ø80

RoHS CAD

Specifications

Common with all series.

For individual wiring, refer to page 145 (body piping) or page 149 (base piping), and for reduced wiring, refer to page 153 (body piping) or page 157 (base piping).

How to order

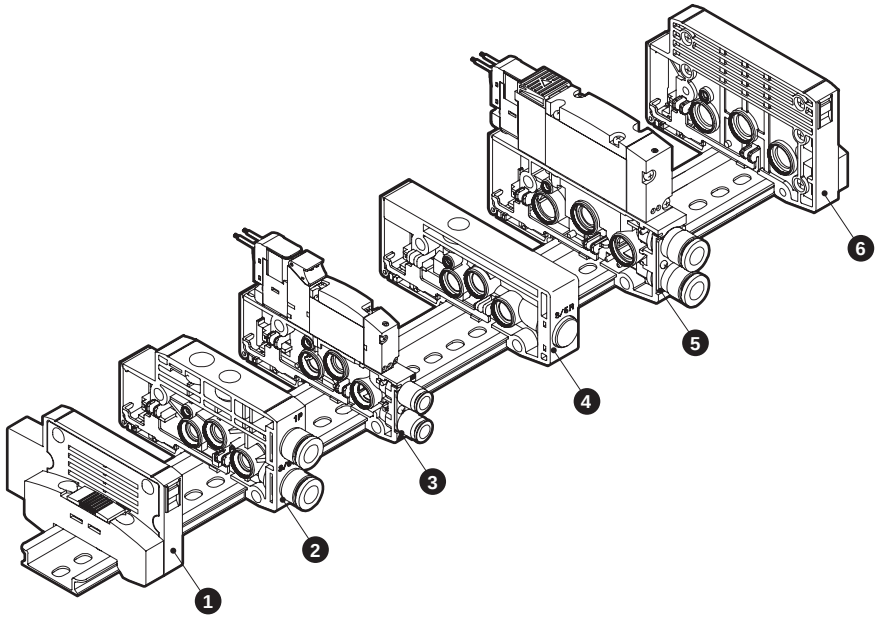
MN3G$^{A}_{B}$X12R - ○ **-** ○ ○ ○ **-** ○ **-** ○ **- FP1**

MN4G$^{A}_{B}$X12R - ○ **-** ○ ○ ○ **-** ○ **-** ○ **- FP1**

Ⓐ Model No. Ⓑ Port size Ⓒ Electrical connections (Reduced wiring connection) Ⓓ Terminal/connector pin array Ⓔ Option Ⓕ Station No. Ⓖ Voltage

* Model No. is "MN□G□X12R-". Other items are common with the example of model No. for each series. For individual wiring, refer to page 147 (body piping) or page 151 (base piping), and for reduced wiring, refer to page 155 (body piping) or page 159 (base piping).

Manifold configuration explanation and parts list



* Notes on 4G1/2 mix manifolds
With the fitting at the front, the left side of the mixed block is the 4G1 Series and the right side the 4G2 Series.
(Note that these position settings cannot be reversed.)

Main configuration parts list (Refer to pages 163 to 168 for details)

Part number	Configuration parts name	Model No. (example)
1	End block L	N4G1R-EL-FP1
2	Supply and exhaust block	N4G1R-Q-8-FP1
3	Discrete valve block with solenoid valve	N4GB110R-C6-H-3-FP1
4	Mixed block	N4G12R-MIX-FP1
5	Discrete valve block with solenoid valve	N4GB210R-C8-H-3-FP1
6	End block R	N4G2R-ER-FP1

Weight

N4G12R-MIX: 49g

Refer to the specifications of each series for other components.

MEMO

MN4GA/4GB-FP1 Series

Block manifold: piping section

Piping

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 147, base piping individual wiring:Page 151, Body piping reduced wiring:Page 155,
Base piping reduced wiring:Page 159

B. Discrete valve block with masking plate

Block assembled from masking plate and valve block (split resin base).

N4GA1 R - MP ——— 3 —— FP1

N4GB1 R - MPD - C4 - 3 F - FP1

Ⓐ Model No.

Ⓑ Type

Ⓒ Bore size

Ⓓ Cable length *1

Ⓔ Option

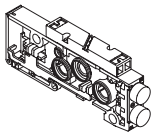
*1: A socket assembly is attached with purchases for reduced wiring station expansion, so select "2 to 10". Select a cable length from page 165 and fill it into the Ⓓ cable length field. If ordering with the manifold specifications sheet, the cable length can be omitted.

Ⓐ Model No.				
Code	Description	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 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 *4					
Blank	For individual wiring		●	●	●	●
2 to 10	Select the length from page 165 .		●	●	●	●
Ⓔ Option					
Blank	No option				●	●
L	With pipe adaptor				●	●
F	Port A/B filter built in				●	●

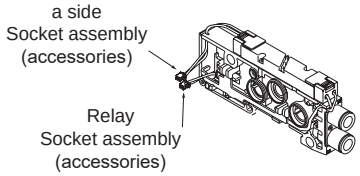
is not available.

○ indicates made to order.

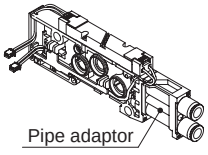
N4GA1R-MP-FP1



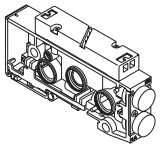
N4GB1R-MPD-C4-3-FP1



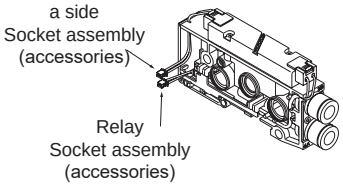
N4GB1R-MPD-C4-3L-FP1



N4GA2R-MP-FP1



N4GB2R-MPD-C6-5-FP1



Piping

C. Discrete valve block (separate item only)

Discrete valve block (split resin base).

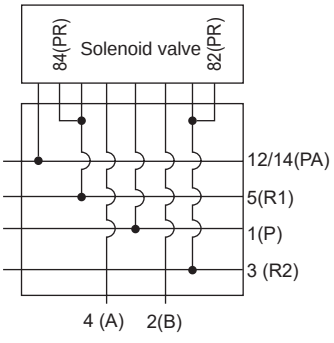
N4GA1 R - V1 —— 3 —— FP1
N4GB1 R - V2 - C4 - 3 F - FP1

Ⓐ Model No.
Ⓑ Type
Ⓒ Bore size
Ⓓ Cable length *1
Ⓔ Option

Code	Description	Ⓐ Model No. N4GA1	N4GA2	N4GB1	N4GB2
Ⓑ Type					
V1	For individual wiring For reduced wiring single	●	●	●	●
V2	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 specifications	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				●
Ⓓ Cable length *4					
Blank	For individual wiring	●	●	●	●
2 to 10	Select the length from page 165 .	●	●	●	●
Ⓔ Option					
Blank	No option			●	●
L	With pipe adaptor			●	●
F	Port A/B filter built in			●	●

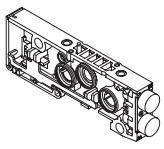
is not available.
○ indicates made to order.

*1: A socket assembly is attached with purchases for reduced wiring station expansion, so select "2 to 10". Select a cable length from page 165 and fill it into the Ⓓ cable length field. If ordering with the manifold specifications sheet, the cable length can be omitted.

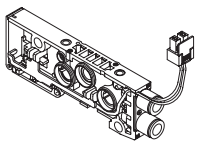


Discrete valve block circuit diagram

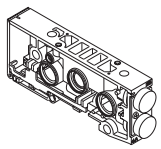
N4GA1R-V1-FP1



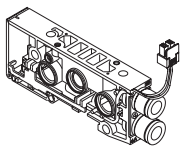
N4GB1R-V2-C4-FP1



N4GA2R-V1-FP1



N4GB2R-V2-C6-FP1



Piping

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), and select an appropriate cable 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.

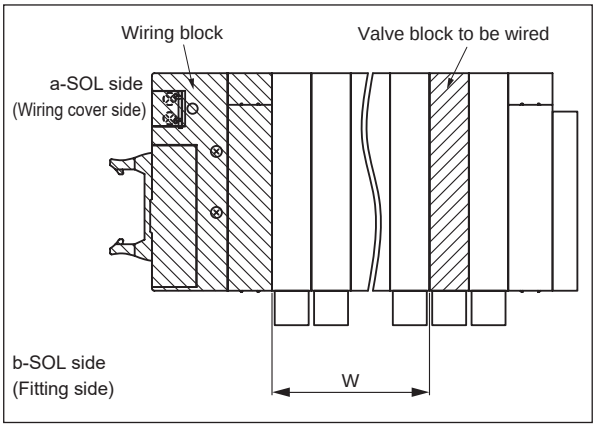
Calculation of W

- 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.

N4G1 R - Q - 8 X - FP1

Model No. — Ⓐ Bore size — Ⓑ Exhaust

Ⓐ Bore size		Ⓑ Exhaust	
6	ø6 push-in fitting	Blank	Common exhaust
8	ø8 push-in fitting	X *1	Atmospheric release

*1 : Select atmosphere release (EX) for the end block for X.

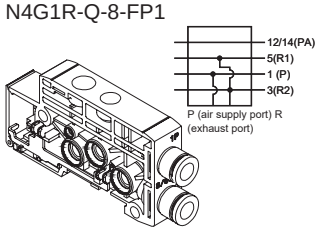
N4G2 R - Q - 10 X - FP1

Model No. — Ⓐ Bore size — Ⓑ Exhaust

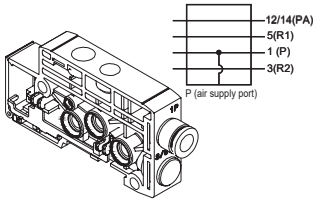
Ⓐ Bore size		Ⓑ Exhaust	
8	ø8 push-in fitting	Blank	Common exhaust
10	ø10 push-in fitting	X *1	Atmospheric release

*2: Select 6*M or 8*M when using a silencer with inch fitting specification types.
*3: For X, select atmosphere release (EX) for the end block.

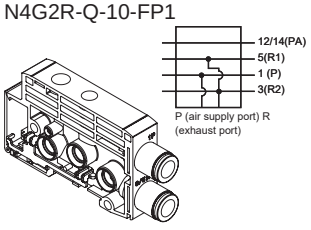
N4G1R-Q-8-FP1



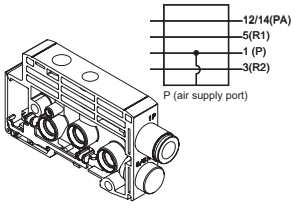
N4G1R-Q-8X-FP1



N4G2R-Q-10-FP1



N4G2R-Q-10X-FP1



Piping

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.

N4G1 R - E R - FP1

Model No. Ⓐ Type Ⓑ Installation position

Common exhaust: 12/14(PA), 5(R1), 1 (P), 3(R2)
Atmosphere release: 12/14(PA), 5(R1), 1 (P), 3(R2)

N4G2 R - EX L - FP1

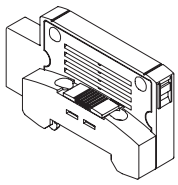
Model No. Ⓐ Type Ⓑ Installation position

Common exhaust: 12/14(PA), 5(R1), 1 (P), 3(R2)
Atmosphere release: 12/14(PA), 5(R1), 1 (P), 3(R2)

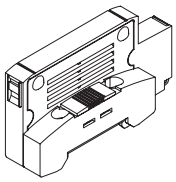
Ⓐ Type		Ⓑ Installation position	
E	Common exhaust	L	For left side
EX	Atmospheric release	R	For right side

Ⓐ Type		Ⓑ Installation position	
E	Common exhaust	L	For left side
EX	Atmospheric release	R	For right side

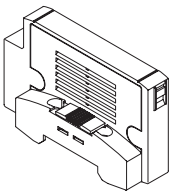
N4G1R-EL-FP1



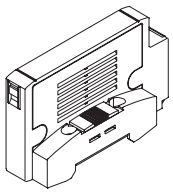
N4G1R-ER-FP1



N4G2R-EL-FP1



N4G2R-ER-FP1



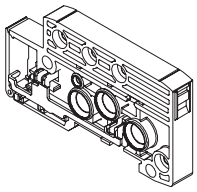
F. Partition block

Multi-pressure mixing and measures for back pressure increase prevention can be achieved by combining partition blocks and supply and exhaust blocks.

N4G1 R - S - FP1

Model No. Ⓐ Type

N4G1-S

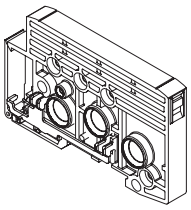


Ⓐ Type	
SA	P/R/PA blocked
S	P/R blocked PA through
SP	P blocked R/PA through
SE	R blocked P/PA through

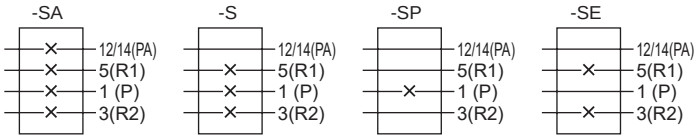
N4G2 R - SA - FP1

Model No. Ⓐ Type

N4G2-S



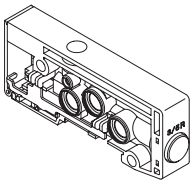
Ⓐ Type	
SA	P/R/PA blocked
S	P/R blocked PA through
SP	P blocked R/PA through
SE	R blocked P/PA through

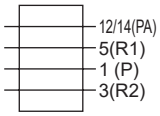


G. Mixed block

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.

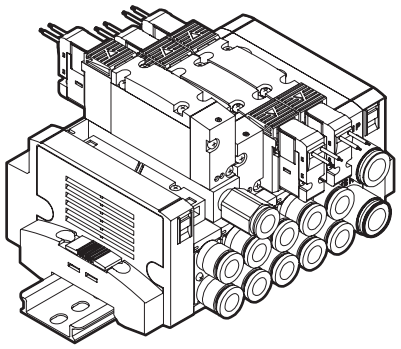
N4G12 R - MIX - FP1





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

*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 − FP1

Ⓐ Air supply spacer model No.
Ⓑ Port size *1, *2

Code	Description	Model No. 4GA1	4GB1	4GA2	4GB2
Ⓐ Air supply spacer model No.					
1	For 4G1	●			
2	For 4G2			●	
Ⓑ Port size					
Blank	M5 thread (4G1), Rc thread (4G2)	①		②	
GWS4	ø4 fitting	●			
GWS6	ø6 fitting	●		●	
GWS8	ø8 fitting			●	

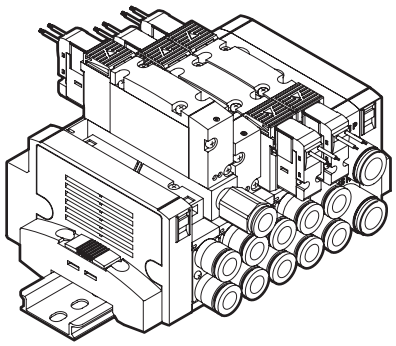
is not available.

Accessories: 4G1 2 mounting screws, 1 specially designed gasket 4G2 2 mounting screws, 2 PR check valves, 1 body gasket

Precautions for model selection

*1 Blank ①M5, ②Rc1/8.
*2 Blank indicates the FP1 specifications or equivalent as standard, and thus does not require "FP1" at the end of the model number.
*3 Air supply spacer built-in position /Specify the quantity in the manifold specifications sheet.
*4 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 − FP1

Ⓐ Exhaust spacer model No.
Ⓑ Port size *1, *2

Code	Description	Model No. 4GA1	4GB1	4GA2	4GB2
Ⓐ Exhaust spacer model No.					
1	For 4G1	●			
2	For 4G2			●	
Ⓑ Port size					
Blank	M5 thread (4G1), Rc thread (4G2)	①		②	
GWS4	ø4 fitting	●			
GWS6	ø6 fitting	●		●	
GWS8	ø8 fitting			●	

is not available.

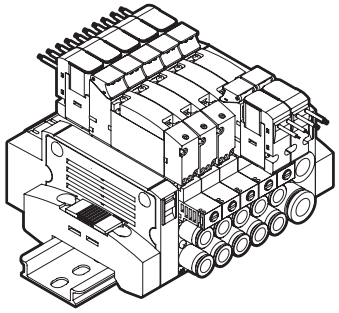
Accessories: 4G1 2 mounting screws, 1 specially designed gasket
4G2 2 mounting screws, 2 PR check valves, 1 body gasket

Precautions for model selection

*1 Blank①M5, ②Rc1/8.
*2 Blank indicates the FP1 specifications or equivalent as standard, and thus does not require "FP1" at the end of the model number.
*3 Air supply spacer built-in position /Specify the quantity in the manifold specifications sheet.
*4 Combination with the masking plate is not supported.

Related products

● In-stop valve spacer



Specifications

Model No.	P → A/B		A/B → R		Weight g
	C(dm³/(s·bar))	b	C(dm³/(s·bar))	b	
4G1	0.54	0.03	0.82	0.27	17
4G2	1.5	0.17	1.6	0.20	63

*1: Values with base piping and 2-position valve built-in.
*2: The effective cross-sectional area when discharging residual pressure1.0 mm²is a reference value.
*3: EffectiveFormula to calculate sonic conductance C from cross-sectional area S is S≈5.0×C.
Attachments: PR check valve 2, body gasket 1

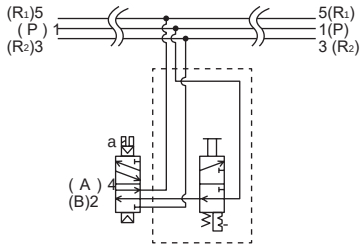
How to order discrete units

4G1 R - IS - FP1

4G2 R - IS - FP1

In-stop valve spacer

JIS symbol

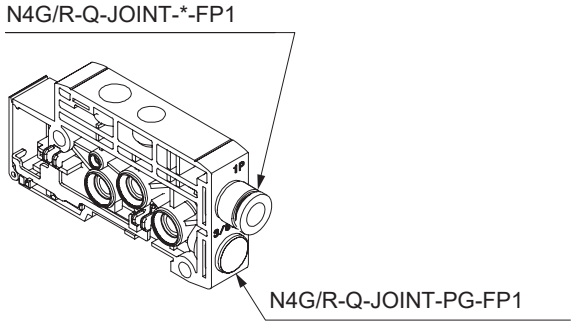


Precautions for model No. selection

*1: Specify the built-in position and quantity of spacersSpecify on the hold specifications sheet.
*2: When retrofitting to the reduced wiring manifold, the existing electric wire may be too short. Contact CKD for details.

Related parts

1. MN4G cartridge push-in fitting for supply and exhaust block



1.1 MN4G1 supply and exhaust block, fitting for 1(P), 3/5(R)

Bore size	Part model No.
ø6 straight	N4G1R-Q-JOINT-6-FP1
ø8 straight	N4G1R-Q-JOINT-8-FP1
Plug cartridge	N4G1R-Q-JOINT-PG-FP1

1.2 MN4G2 supply and exhaust block, fitting for 1(P), 3/5 (R)

Bore size	Part model No.
ø8 straight	N4G2R-Q-JOINT-8-FP1
ø10 straight	N4G2R-Q-JOINT-10-FP1
Plug cartridge	N4G2R-Q-JOINT-PG-FP1

MN4GA/4GB-FP1 Series

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 - FP1

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/Connector pin Array method (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

When filling in this field, select the model No. from "Block configurations" (pages 163 to 168).

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	N4GA1 1 0R- C4		○	○																												2
	N4GA1 2 0R- C6					○																										1
Valve block(Page 163)	N4GA1 3 0R- C4				○																											1
	N4GA1 0R-																															
	N4GA1 0R-																															
	N4GA1 0R-																															
	N3GA1 1 0R- C4									○	○	○																				3
	N3GA1 0R-																															
Valve block with masking plate (Page 163)	N4GA1R-MP																															
	N4GA1R-MPS																															
	N4GA1R-MPD						○																									1
Supply and exhaust block(Page 165)	N4G1R-Q - 8L							○					○																			2
	N4G1R-Q -																															
	N4G1R-Q -																															
Partition block(Page 166)	N4G1R-S A								○																							1
	N4G1R-S																															
	N4G1R-S																															
End block (Page 166)	N4G1R-E R													○																		1
	N4G1R-E																															

Mounting rail	L_2= (How to calculate length on next page)	Blanking plug						Silencer				Tag plate (included)		Included parts
		GWP 4-B		GWP 6-B		GWP 8-B		SLW-H6		SLW-H8		A	○	
		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.

* 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.
(Write the block model Nos. and positions you determined referring to the block configurations (pages 163 to 168).)
● 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.
- MN4GA1: Page 172
- MN4GB1: Page 172
- MN4GA2: Page 173
- MN4GB2: Page 173
- MN4GA×1, 2 (mix manifold): Page 174
- MN4GB×1, 2 (mix manifold): Page 174

MN4GA/4GB-FP1 Series

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 (Wiring block, Mixed block)

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)

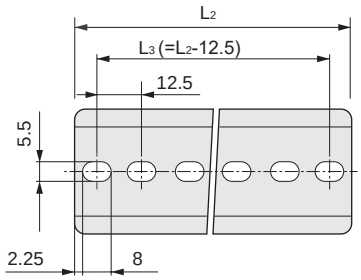
			MN4GA/B1	MN4GA/B2	MN4G1/2MIX	
					MN4GA/B1	MN4GA/B2
A	Valve block		10.5	16	10.5	16
B	Supply and exhaust block		16	18	16	18
C	Partition block		10.5	10.5	10.5	10.5
D	Individual wiring		41	46	44.5	
	For reduced wiring Wiring block	T10/T11	83.8	86.3	86.3	
		T10R/T11R	83.8	86.3	83.8	
		T30/T5*	69.3	71.8	71.8	
		T30R/T5*R	69.3	71.8	69.3	
		T6*	143.5	146	146	
		T7*	64.3	66.8	66.8	
		T8*	64.3	66.8	66.8	
E	Mixed block				16	

* The end block is included in the wiring block.

● DIN 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.



MN4GA/4GB-FP1 Series

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.

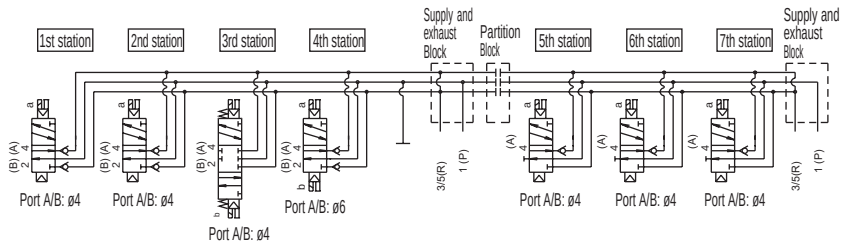
Connector pin No.				Valve No.																							
T50/T50R	**T51/T51R**	**T52/T52R**	**T53/T53R**	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1	**a**																							
2	2	2	2		**a**																						
3	3	3	3				**a**																				
4	4	4	4				**b**																				
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																								

* Note that when the wiring method is T50/T50R, the COM polarity will be + (positive).

● 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*/T6*/T7*/T8*), fill out the form upon reviewing the notes for each.
④Wiring (socket assembly) is included with valve blocks with masking plates. A side only for "-MPS". Both A and B sides for "-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 expansion of stations. For the procedure for station expansion, refer to "Pneumatic Valves (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 the model No. from the block configurations (pages 163 to 168) and the page for each specification model No.
* With piping port facing front, arrangement positions are set in order from the left.

MN4GA/B1-FP1 Block manifold specifications sheet

● Contact ● Quantity set(s) ● delivery date

Slip No.	Order No.

Date issued / /

Company

Contact

Order No.

● Manifold model No.

MN □ G □ 1 □ 0R- □ - □ □ □ - □ - □ -FP1

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/Connector pin Ⓕ Option Ⓖ Station No. Ⓗ Voltage

When filling in this field, select the model No. from "Block configurations" (pages 163 to 168). Array method(Note: Fill in for reduced wiring.)

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 ValveLock(Page 163)	N4G □ 1 □ 0R- □																															
	N4G □ 1 □ 0R- □																															
	N4G □ 1 □ 0R- □																															
	N4G □ 1 □ 0R- □																															
	N4G □ 1 □ 0R- □																															
	N4G □ 1 □ 0R- □																															
	N3G □ 1 □ 0R- □																															
	N3G □ 1 □ 0R- □																															
With masking plate Valve block (Page 163)	N4G □ 1R-MP																															
	N4G □ 1R-MPS																															
	N4G □ 1R-MPD																															
Air supply spacer(Page 167)	4G1R-P- □																															
	4G1R-P- □																															
Exhaust spacer (167Page)	4G1R-R- □																															
In-stop valve spacer(Page 168)	4G1R-IS																															
Supply and exhaust block (Page 165)	N4G1R-Q □ - □																															
	N4G1R-Q □ - □																															
	N4G1R-Q □ - □																															
Partition block (Page 166)	N4G1R-S □																															
	N4G1R-S □																															
	N4G1R-S □																															
End block (Page 166)	N4G1R-E □																															
	N4G1R-E □																															

Mounting rail	L_2= □ * Write an integer multiple of 12.5. (How to determine the length: page 170)	Blanking plug						Silencer				Tag plate (included)		Included parts
		GWP 4-B	□	GWP 6-B	□	GWP 8-B	□	SLW-H6	□	SLW-H8	□	A	□	
		Cable with D sub-connector		4GR-CABLE-D0 □ - □				Push-in fitting tube remover (attached as standard) Not required (check the box) □						

MN4GA/B2-FP1 Block manifold specifications sheet

● Contact ● Quantity set(s) ● delivery date

Slip No.	Order No.

Date issued / /

Company

Contact

Order No.

● Manifold model No.

MN ☐ G ☐ 2 ☐ 0R- ☐ - ☐ ☐ ☐ - ☐ - ☐ -FP1

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/Connector pin Array method (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

When filling in this field, select the model No. from "Block configurations" (pages 163 to 168).

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 163)	N4G ☐ 2 ☐ 0R- ☐																															
	N4G ☐ 2 ☐ 0R- ☐																															
	N4G ☐ 2 ☐ 0R- ☐																															
	N4G ☐ 2 ☐ 0R- ☐																															
	N4G ☐ 2 ☐ 0R- ☐																															
	N4G ☐ 2 ☐ 0R- ☐																															
	N3G ☐ 2 ☐ 0R- ☐																															
	N3G ☐ 2 ☐ 0R- ☐																															
With masking plate Valve block (Page 163)	N4G ☐ 2R-MP																															
	N4G ☐ 2R-MPS																															
	N4G ☐ 2R-MPD																															
Air supply spacer (Page 167)	4G2R-P- ☐																															
	4G2R-P- ☐																															
Exhaust spacer (Page 167)	4G2R-R- ☐																															
In-stop valve spacer Spacer (Page 168)	4G2R-IS																															
Supply and exhaust block (Page 165)	N4G2R-Q ☐ - ☐																															
	N4G2R-Q ☐ - ☐																															
	N4G2R-Q ☐ - ☐																															
Partition block (Page 166)	N4G2R-S ☐																															
	N4G2R-S ☐																															
	N4G2R-S ☐																															
End block (Page 166)	N4G2R-E ☐																															
	N4G2R-E ☐																															

Mounting rail	L_2= ☐ * Write an integer multiple of 12.5. (How to determine the length page 170)	Blanking plug				Silencer		Tag plate (included)		Included parts
		GWP 4-B		GWP 8-B		SLW-H8		A		
		GWP 6-B		GWP 10-B		SLW-H10				
		Cable with D sub-connector		4GR-CABLE-D0 ☐ - ☐						

MN4GA/B1 / 2-FP1 Mix manifold specifications sheet

● Contact ● Quantity set(s) ● delivery date

Slip No.	Order No.

Date issued / /

Company

Contact

Order No.

● Manifold model No.

MN ☐ G ☐ X12R- ☐ - ☐ ☐ ☐ - ☐ - ☐ -FP1

Ⓐ Model No. Ⓒ Port size Ⓓ Electrical connections (Reduced wiring connection) Ⓔ Terminal/Connector pin Array method (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

When filling in this field, select the model No. from "Block configurations" (pages 163 to 168).

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(Page 163)	N4G ☐ ☐ 0R- ☐																															
	N4G ☐ ☐ 0R- ☐																															
	N4G ☐ ☐ 0R- ☐																															
	N4G ☐ ☐ 0R- ☐																															
	N4G ☐ ☐ 0R- ☐																															
	N4G ☐ ☐ 0R- ☐																															
	N3G ☐ ☐ 0R- ☐																															
	N3G ☐ ☐ 0R- ☐																															
With masking plate Valve block(Page 163)	N4G ☐ R-MP																															
	N4G ☐ R-MPS																															
	N4G ☐ R-MPD																															
Air supply spacer (Page 167)	4G1R-P- ☐																															
	4G2R-P- ☐																															
Exhaust spacer (Page 167)	4G1R-R- ☐																															
	4G2R-R- ☐																															
In-stop valve spacer (Page 168)	4G1R-1S																															
	4G2R-1S																															
Mixed block (Page 166)	N4G12R-MIX																															
Supply and exhaust block (Page 165)	N4G ☐ R-Q- ☐ ☐																															
	N4G ☐ R-Q- ☐ ☐																															
	N4G ☐ R-Q- ☐ ☐																															
Partition block (Page 166)	N4G ☐ R-S ☐																															
	N4G ☐ R-S ☐																															
	N4G ☐ R-S ☐																															
End block (Page 166)	N4G ☐ R-E ☐																															
	N4G ☐ R-E ☐																															

Mounting rail	Blanking plug	Silencer	Included parts
L_2= ☐ * Write an integer multiple of 12.5. (How to determine the length page 170)	GWP ☐ -B ☐ GWP ☐ -B ☐ GWP ☐ -B ☐ GWP ☐ -B ☐	SLW-H ☐ ☐ SLW-H ☐	
	Cable with D sub-connector 4GR-CABLE-D0 ☐ - ☐	Push-in fitting tube remover (attached as standard) Not required (check the box) ☐	

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 (T6*/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.															
	T6*	**T7***	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Connector type	1	1																
T6G1:CC-Link 16 points	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	13	13																
T7C0:CompoBus/S 8Point	14	14																
T7C1:CompoBus/S 16 points	15	15																
T7D1:DeviceNet 16 points	16	16																
T7E0:S-LINK 8 points	17	17																
T7E1:S-LINK 16 points	18	18																
T7G1:CC-Link 16 points	19	19																
T7 L1:SAVE NET 16 points	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.

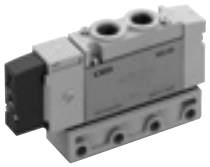
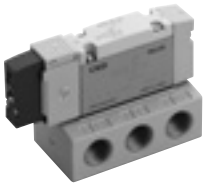
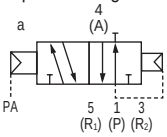
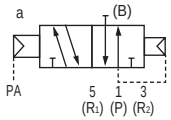
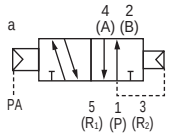
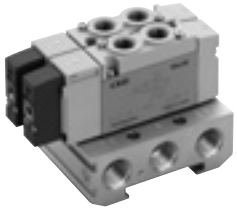
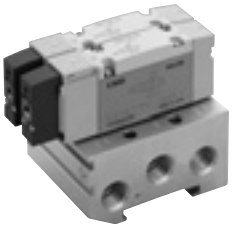
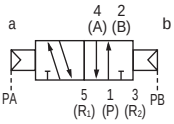
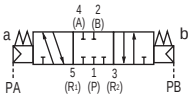
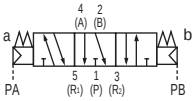
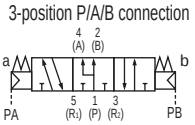
Serial transmission			
T8G1	CC-Link	NPN	16 points
T8G2			32 points
T8GP1		PNP	16 points
T8GP2			32 points
T8P1	PROFIBUS-DP	NPN	16 points
T8P2			32 points
T8PP1		PNP	16 points
T8PP2			32 points
T8EC1	EtherCAT	NPN	16 points
T8EC2			32 points
T8ECP1		PNP	16 points
T8ECP2			32 points
T8EN1	EtherNet/IP	NPN	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
T8EF1	CC-Link IE Field	NPN	16 points
T8EF2			32 points
T8EFP1		PNP	16 points
T8EFP2			32 points
T8EP1	PROFINET	NPN	16 points
T8EP2			32 points
T8EPP1		PNP	16 points
T8EPP2			32 points
T8KC1	IO-Link	NPN	16 points
T8KC2			32 points
T8KCP1		PNP	16 points
T8KCP2			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																								
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MEMO

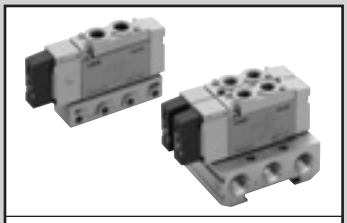
Master valve
4GA/4GB-FP1 Series

NSF H1

Series / Appearance				Model No.	Position Number of pilot portsJIS symbol	Valve performance: Flow rate Properties C ($dm^3/(s{\cdot}bar)$)	Valve performance: Applicable Cylinder diameter (ø)
Single unit	4GA  4GB 	Body piping	3-port	3GA1	● 3-port valve 2-position single NC 	0.70	20 to 40
				3GA2		2.7	40 to 80
				3GA3		3.9	63 to 100
			5-port	4GA1	2-position single NO 	0.66 to 0.70	20 to 40
				4GA2		2.4 to 2.7	40 to 80
				4GA3		3.2 to 4.0	63 to 100
		Base piping	5-port	4GB1	● 5-port valve 2 position single 	1.1 to 1.3	20 to 40
				4GB2		2.2 to 2.5	40 to 80
				4GB3		3.2 to 4.2	63 to 100
Manifold (metal base)	M4GA  M4GB 	Body piping	Direct mount	M4GA1	2-position double 	0.7 to 1.0	20 to 40
				M4GA2		1.7 to 2.5	40 to 80
				M4GA3		2.5 to 3.3	63 to 100
			DIN rail Mount type (-D)	M4GA1	3-position All ports closed 	0.7 to 1.0	20 to 40
				M4GA2		1.7 to 2.5	40 to 80
				M4GA3		2.5 to 3.3	63 to 100
		Base piping	Direct mount	M4GB1	3-position A/B/R connection 	0.68 to 1.0	20 to 40
				M4GB2		1.7 to 2.4	40 to 80
				M4GB3		2.6 to 3.3	63 to 100
			DIN rail Mount type (-D)	M4GB1	3-position P/A/B connection 	0.68 to 1.0	20 to 40
				M4GB2		1.7 to 2.4	40 to 80
				M4GB3		2.6 to 3.3	63 to 100

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

Switching position								Port A/B connection port								Page
3-port		Single	Double	All ports closed	ABR connection	PAB connection	Mix	Push-in fitting				Female thread				
Normally closed	Normally open							ø4	ø6	ø8	ø10	M 5	Rc 1/8	Rc 1/4	Rc 3/8	
								C4	C6	C8	C10	M5	06	08	10	
●	●							●	●			●				181
●	●								●	●			●			
●	●									●	●			●		
		●	●	●	●	●		●	●			●				
		●	●	●	●	●		●	●	●			●			
		●	●	●	●	●			●	●	●			●		
		●	●	●	●	●							●			183
		●	●	●	●	●								●		
		●	●	●	●	●								●	●	
●	●	●	●	●	●	●	●	●	●			●				181
									●	●			●			
										●	●			●		
●	●	●	●	●	●	●	●	●	●			●				
									●	●			●			
										●	●			●		
		●	●	●	●	●	●	●	●			●				183
									●	●			●			
										●	●			●		



Pneumatic Valves
Catalog No. CB-023SA

Master valve single unit/manifold (metal base)
Body piping

(M)3GA1, 2, 3/(M)4GA1, 2, 3-FP1 Series

● Cylinder bore size: ø20 to ø100

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 (*1) MPa	Refer to main pressure section in the table below
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 (manual operation)	Main valve/pilot valve common exhaust
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 When operating manually, supply pressure to port P as shown in the table below is required.
2-position 0.1 MPa and over
3-position 0.2 MPa and over
*2 Avoid water drops or oil, etc., during use.

Individual specifications

Body piping (discrete/manifold)

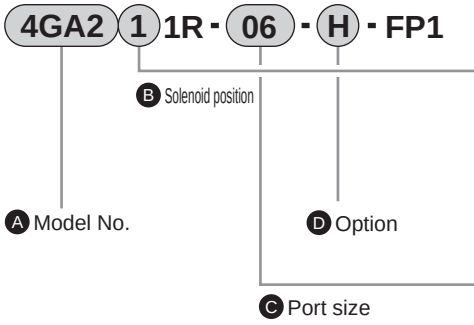
No. of Ports	Model No.		Solenoid position	Pilot portPA/ PB	Main pressure	Pilot signal pressure MPa	Other specifications Description page *
	Single unit	Manifold					
3-port	3GA1**1R	M3GA1**1R	2-position single NC/NO	M5	0.2 to 0.7	(0.6 × main pressure + 0.06) to 0.7	Single unit: Page 99 Manifold:Page 107
	3GA2**1R	M3GA2**1R					
	3GA3**1R	M3GA3**1R					
5-port	4GA111R	M4GA111R	2 position single	M5	0.2 to 0.7	(0.6 × main pressure + 0.06) to 0.7	
	4GA121R	M4GA121R	2-position double		0 to 0.7	0.2 to 0.7	
	4GA1$\frac{3}{5}$1R	M4GA1$\frac{3}{5}$1R	3-position				
	4GA211R	M4GA211R	2 position single	M5	0.2 to 0.7	(0.6 × main pressure + 0.06) to 0.7	
	4GA221R	M4GA221R	2-position double		0 to 0.7	0.2 to 0.7	
	4GA2$\frac{3}{5}$1R	M4GA2$\frac{3}{5}$1R	3-position				
	4GA311R	M4GA311R	2 position single	M5	0.2 to 0.7	(0.6 × main pressure + 0.06) to 0.7	
	4GA321R	M4GA321R	2-position double		0 to 0.7	0.2 to 0.7	
	4GA3$\frac{3}{5}$1R	M4GA3$\frac{3}{5}$1R	3-position				

Note Other specifications are the same as those of 4G-FP1 Series. Refer to pages for each specification.

For dimensions, refer to (M)4GA master valve in "Pneumatic Valves (CB-023SA)".

How to order

Single master valve



Code	Description	A Model No. 3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
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 *1	●	●	●			
11	2-position single: Normally open *1	●	●	●			
C Port size							
Port	A, BPort	P, R1, Port R2 ①=M5 ②= Rc1/8 ③=Rc1/4					
C4	ø4 push-in fitting	①			①		
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
D Option							
Blank	No	●	●	●	●	●	●
H	With exhaust check valve *2	●	●	●	●	●	●
P	With mounting plate *3	●	●	●	●	●	●
F	Port A/B filter built in *4	●	●	●	●	●	●

is not available.

Precautions for model No. selection

*1:For the 3G A 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: 3-position all ports closed and P A B connection are not provided with the exhaust check valve specifications (H).

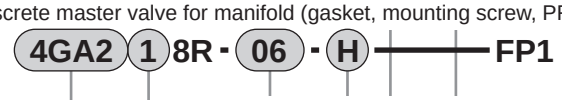
*3: For option code P, products other than single cannot be normally mounted because of the pilot port direction.

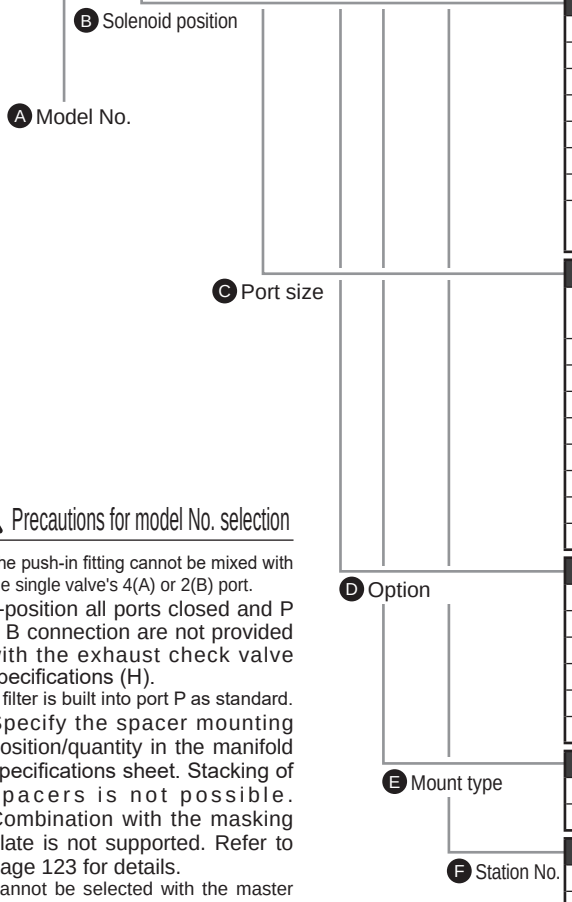
*4: A filter is built into port P as standard.

Manifold



Discrete master valve for manifold (gasket, mounting screw, PR check valve attached)





Code	Description	A Model No. M3GA1	M3GA2	M3GA3	M4GA1	M4GA2	M4GA3
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	●	●	●			
11	2-position single normally open	●	●	●			
8	Mix manifold (when there are multiple solenoid positions)	●	●	●	●	●	●
C Port size							
Port	Port A/B	P, R1, Port R2 ②= Rc1/8 ③=Rc1/4 ④=Rc3/8					
C4	ø4 push-in fitting	②			②		
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 *1	②	③	④	②	③	④
M5	M5	②			②		
06	Rc1/8		③			③	
08	Rc1/4			④			④
D Option							
Blank	No	●	●	●	●	●	●
H	With exhaust check valve *2	●	●	●	●	●	●
F	Port A/B filter built in *3	●	●	●	●	●	●
Z1	Air supply spacer *4, *5	●	●	●	●	●	●
Z2	In-stop valve spacer *4, *5	●	●	●	●	●	●
Z3	Exhaust spacer *4, *5	●	●	●	●	●	●
E Mount type							
Blank	Direct mount	●	●	●	●	●	●
D	DIN rail mount	●	●	●	●	●	●
F Station No.							
2	2 stations	●	●	●	●	●	●
to	to						
20	Refer to page 107 for the max. station number per model.						

is not available.

Precautions for model No. selection

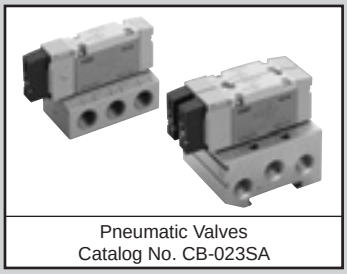
*1 The push-in fitting cannot be mixed with the single valve's 4(A) or 2(B) port.

*2 3-position all ports closed and P A B connection are not provided with the exhaust check valve specifications (H).

*3 A filter is built into port P as standard.

*4 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 page 123 for details.

*5 Cannot be selected with the master valve discrete for manifold.



Pneumatic Valves
Catalog No. CB-023SA

Master valve single unit/manifold (metal base)
Base piping

(M)4GB1, 2, 3-FP1 Series

● Applicable cylinder bore size: ø20 to ø100

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 (*1)	MPa	Refer to main pressure section in the table below
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 (manual operation)		Main valve/pilot valve common exhaust
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 When operating manually, supply pressure to port P as shown in the table below is required.
2-position 0.1 MPa and over
3-position 0.2 MPa and over
*2 Avoid water drops or oil, etc., during use.

Individual specifications

Base piping (Discrete/Manifold)

No. of Ports	Model No. Single unit	Model No. Manifold	Solenoid position	Pilot port PA/PB	Main pressure	Pilot signal pressure MPa	Other specifications pages *
5-port	4GB111R	M4GB111R	2 position single	M5	0.2 to 0.7	(0.6 × main pressure +0.06) to 0.7	Single unit: Page 103 Manifold: Page 111
	4GB121R	M4GB121R	2-position double		0 to 0.7	0.2 to 0.7	
	4GB1$^{3}_{5}$1R	M4GB1$^{3}_{5}$1R	3-position				
	4GB211R	M4GB211R	2 position single	M5	0.2 to 0.7	(0.6 × main pressure +0.06) to 0.7	
	4GB221R	M4GB221R	2-position double		0 to 0.7	0.2 to 0.7	
	4GB2$^{3}_{5}$1R	M4GB2$^{3}_{5}$1R	3-position				
	4GB311R	M4GB311R	2 position single	M5	0.2 to 0.7	(0.6 × main pressure +0.06) to 0.7	
	4GB321R	M4GB321R	2-position double		0 to 0.7	0.2 to 0.7	
	4GB3$^{3}_{5}$1R	M4GB3$^{3}_{5}$1R	3-position				

Note Other specifications are the same as those of 4G-FP1 Series. Refer to pages for each specification.

For dimensions, refer to (M)4GB master valve in "Pneumatic Valves (CB-023SA)".

How to order

Single master valve

4GB2 1 1R - 08 - H - FP1

- B Solenoid position
- A Model No.
- D Option
- C Port size

Code	Description	A Model No. 4GB1	4GB2	4GB3
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	●	●	●
C Port size				
Port	Port A/B	Port P/R1/R2 ②= Rc1/8 ③=Rc1/4 ④=Rc3/8		
06	Rc1/8	②		
08	Rc1/4		③	③
10	Rc3/8			④
D Option				
Blank	No	●	●	●
H	With exhaust check valve *1	●	●	●
F	Port A/B filter built in *2	●	●	●

is not available.

Precautions for model No. selection

*1 The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H).
*2: A filter is built into port P as standard.

Manifold

M 4GB2 1 1R - 06 - H D - 8 - FP1

Discrete master valve for manifold (gasket, mounting screw, PR check valve attached)

4GB2 1 8R - 00 - H —— FP1

- B Solenoid position
- A Model No.
- C Port size
- D Option
- E Mount type
- F Station No.

Code	Description	A Model No. M4GB1	M4GB2	M4GB3
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	●	●	●
8	Mix manifold (when there are multiple solenoid positions)	●	●	●
C Port size				
Port	Port A/B	Port P/R1/R2 ②= Rc1/8 ③=Rc1/4 ④=Rc3/8		
C4	ø4 push-in fitting	②		
C6	ø6 push-in fitting	②	③	
C8	ø8 push-in fitting		③	④
C10	ø10 push-in fitting			④
CX	Push-in fitting mix	②	③	④
M5	M5	②		
06	Rc1/8		③	
08	Rc1/4			④
D Option				
Blank	No	●	●	●
H	With exhaust check valve *1	●	●	●
F	Port A/B filter built in *2	●	●	●
Z1	Air supply spacer *3, *4	●	●	
Z2	In-stop valve spacer *3, *4		●	●
Z3	Exhaust spacer *3, *4	●	●	●
E Mount type				
Blank	Direct mount	●	●	●
D	DIN rail mount	●	●	●
F Station No.				
2 to 20	2 stations to Refer to page 111 for the max. station number per model.	●	●	●

is not available.

Precautions for model No. selection

*1 The 3-position all ports closed and PAB connection are not provided with the exhaust check valve specifications (H).
*2 A filter is built into port P as standard.
*3 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 page 123 for details.
*4 Cannot be selected with the master valve discrete for manifold.

M4GA/M4GB-FP1 Series

How to fill out master valve M4G Series manifold specifications sheet

● Manifold model No. (example)

M 4 G (A/B) 1 8 1R- [ ] - 9 - FP1

Valve type — Solenoid position — Port size — Station No.

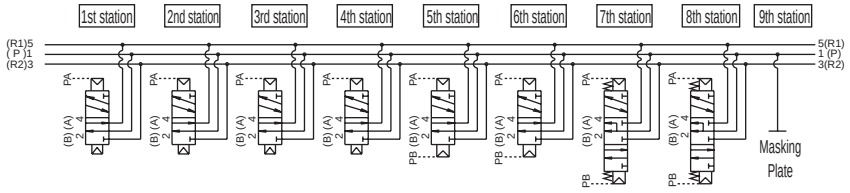
How to use base piping M4GB*11R as a 3-port valve

Indicate the required number of plugs in the "Thread plug" area at the end.

Valve model No.	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(A/B)118R-M5	○	○	○	○																					4
4G(A/B)128R-M5					○	○																			
4G(A/B)158R-M5							○	○																	2
4G 1 8R-																									2
3GA1 8R-																									
3GA1 8R-																									
4G1R-MP									○																
																									1

Mounting rail	Included parts	Blanking plug	Blanking plug	Threaded plug	Silencer	Silencer
L2= [ ] *Integer multiple of 12.5value.		GWP 4-B	GWP 6-B	4G1R-M5P	SLW-6S	SLW-6A
		Push-in fitting tube remover (included as standard) option selection not required ✓☑				

Reference circuit diagram For manifold configuration as shown above (base piping) [simplified circuit diagram]



* The manifold station numbers are set in order from the left with the piping port facing forward.

Preparing manifold specifications sheet

● From the manifold specifications for each model, select and fill out the appropriate form.

M4G(A/B)1 ····· Page 186
M4G(A/B)2 ····· Page 187
M4G(A/B)3 ····· Page 188

*1: Select the silencer mounting after confirming the dimensions. Pneumatic, Vacuum and Auxiliary components (Catalog No.CB-024SA)

*2: Use SLW-8S for the M4GA2 DIN rail mount. Interference occurs if SLW-8A is used.

M4G$^{A}_{B}$1-FP1 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 □ 1R- □ - □ □ - □ - FP1

Valve type / Solenoid position / Port size / Other options / Mount type / Station No.

Valve model No.	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 □ 8R- □																									
4G □ 1 □ 8R- □																									
4G □ 1 □ 8R- □																									
4G □ 1 □ 8R- □																									
4G □ 1 □ 8R- □																									
3GA1 □ 8R- □																									
3GA1 □ 8R- □																									
Masking plate 4G1R-MP-																									
Air supply spacer 4G1R-P- □																									
In-stop valve spacer 4G1R-IS																									
Exhaust spacer 4G1R-R- □																									

Mounting rail	Included Part	Blanking plug	Blanking plug	Threaded plug	Silencer	Silencer
L_2= □ * Write an integer multiple of 12.5.		GWP 4-B	GWP 6-B	4G1R-M5P	SLW-6S	SLW-6A
		Push-in fitting tube remover (included as standard) option selection not required □				

Master valve

M4G$^{A}_{B}$2-FP1 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 ☐ 1R- ☐ - ☐ ☐ - ☐ - FP1

Valve type | Solenoid position | Port size | Other options | Mount type | Station No.

Valve model No.	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 ☐ 8R- ☐																									
4G ☐ 2 ☐ 8R- ☐																									
4G ☐ 2 ☐ 8R- ☐																									
4G ☐ 2 ☐ 8R- ☐																									
4G ☐ 2 ☐ 8R- ☐																									
3GA2 ☐ 8R- ☐																									
3GA2 ☐ 8R- ☐																									
Masking plate 4G2R-MP- ☐																									
Air supply spacer 4G2R-P- ☐																									
In-stop valve spacer 4G2R-IS																									
Exhaust spacer 4G2R-R- ☐																									

Mounting rail	Included part	Blanking plug						Threaded plug		Silencer			
L_2= ☐ * Write an integer multiple of 12.5.		GWP 4-B	☐	GWP 6-B	☐	GWP 8-B	☐	4G2R-06P	☐	SLW-8S	☐	SLW-8A	☐

M4G$^{A}_{B}$3-FP1 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** [ ] **1R-** [ ] **-** [ ] [ ] **-** [ ] **- FP1**

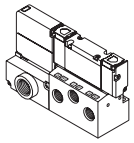
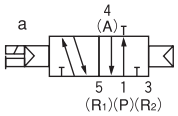
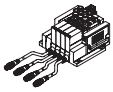
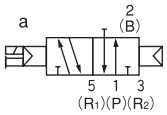
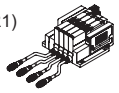
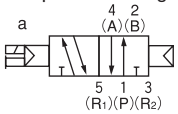
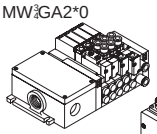
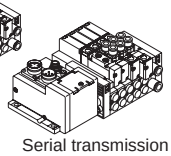
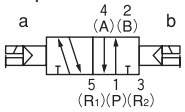
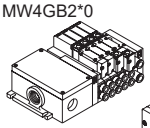
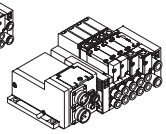
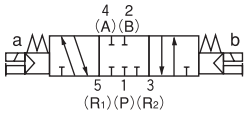
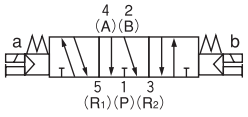
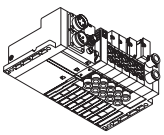
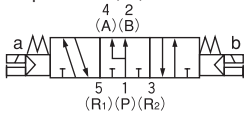
Valve type | Solenoid position | Port size | Other options | Mount type | Station No.

Valve model No.	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 [ ] 3 [ ] 8R- [ ]																									
4G [ ] 3 [ ] 8R- [ ]																									
4G [ ] 3 [ ] 8R- [ ]																									
4G [ ] 3 [ ] 8R- [ ]																									
4G [ ] 3 [ ] 8R- [ ]																									
3GA3 [ ] 8R- [ ]																									
3GA3 [ ] 8R- [ ]																									
Masking plate 4G3R-MP- [ ]																									
Air supply spacer 4G3R-P- [ ]																									
In-stop valve spacer 4G3R-IS																									
Exhaust spacer 4G3R-R- [ ]																									

Mounting rail	Included part	Blanking plug						Threaded plug		Silencer			
L_2= [ ] * Write an integer multiple of 12.5.		GWP 6-B		GWP 8-B		GWP 10-B		4G3R-08P		SLW-10A		SLW-10L	

Series variation

W4G2-FP1 Series

Series variation/Appearance			Model No.		Position Number of solenoid valves JIS symbol	Valve performance Flow characteristics C [dm³/(sbar)] *1	Valve performance Cylinder bore size	Voltage 100 VAC 1	Voltage 24 VDC 3	Voltage 12 VDC 4	Degree of protection	
Single unit	Base piping	W4GB2*0 	**W4GB2**		● 3-port valve 2-position single NC 	**2.1 to 2.5**	**ø20 to ø80**	●	●	●	IP65	
Individual wiring manifold	Body piping	MW□GA2*0  MW4GB2*0 I/OCoreConnector (R1)	**MW3GA2 MW4GA2 (NW3GA2) (NW4GA2)**	Individual wiring (-R1)	2-position single NO 	**1.7 to 2.3**	**ø20 to ø80**		●	●	IP 65 or equiv.	
	Base side piping		**MW4GB2 (NW4GB2)**		● 5-port valve 2 position single 				●	●	IP 65 or equiv.	
	Base bottom piping	MW4GZ2*0  I/O Connector (R1) I/OCoreConnector (R1)	**MW4GZ2 (NW4GZ2)**						●	●	IP 65 or equiv.	
Reduced wiring manifolds	Body piping	MW□GA2*0  Common terminal block (T10)  Serial transmission (T7,T8*)	**MW3GA2 MW4GA2 (NW3GA2) (NW4GA2)**	Common terminal block (-T10)	2-position double 	**1.7 to 2.3**	**ø20 to ø80**	●	●	●	IP65	
				Serial transmission (-T7,T8*)					●		IP65	
	Base side piping	MW4GB2*0  Common terminal block (T10)  Serial transmission (T7,T8*)	**MW4GB2 (NW4GB2)**	Common terminal block (-T10)	3-position all ports closed 	**1.7 to 2.3**	**ø20 to ø80**	●	●	●	IP65	
				Serial transmission (-T7,T8*)	3-position A, B, R connection 				●		IP65	
	Base bottom piping	MW4GZ2*0  Common terminal block (T10)  Serial transmission (T7,T8*)	**MW4GZ2 (NW4GZ2)**	Common terminal block (-T10)	3-position P, A, B connection 	**1.7 to 2.3**	**ø20 to ø80**	●	●	●	IP65	
				Serial transmission (-T7,T8*)					●		IP65	

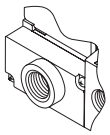
*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Switching position								A/B piping connection port				Electrical connections				Page
2-position				3-position			Mix	Push-in fitting		Female thread		Terminal block	IO connector	Common terminal block	Serial transmission	
Normally Closed	Normally Open	Single	Double	All ports closed	ABR Connection	PAB Connection		ø6	ø8	Rc 1/8	Rc 1/4					
								C6	C8	06	08	Blank	R1	T10	T7□T8□	
		●	●	●	●	●					●	●	●			193
●	●	●	●	●	●	●	●	●	●	●			●			195
		●	●	●	●	●	●	●	●				●			197
		●	●	●	●	●	●	●	●				●			197
●	●	●	●	●	●	●	●	●	●	●				●		199
●	●	●	●	●	●	●	●	●	●	●					●	
		●	●	●	●	●	●	●	●					●		205
		●	●	●	●	●	●	●	●						●	
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		●	●	●	●	●	●	●	●						●	

Electrical connections

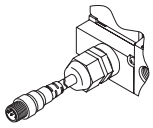
Single unit

Blank Terminal block



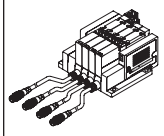
R1 I/O connector

●**Lead wire length**
500 mm



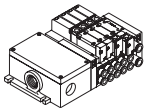
Individual wiring manifold

R1 I/O connector (M12)

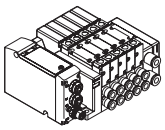


Reduced wiring manifolds

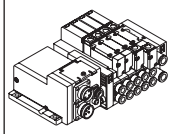
T10 Common terminal block



T7 □ Serial transmission

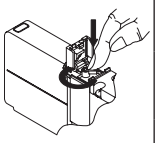


T8 □ Serial transmission



Manual override

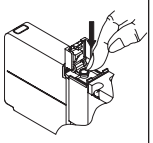
Blank Non-locking Locking common (Standard equipment)



(1)For non-locking, push to turn ON and release to turn OFF

(2)For locking, PUSH and turn 90° clockwise to hold the ON state. Turn counterclockwise to unlock OFF

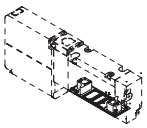
M Non-locking Manual override



(1) Push to turn ON and release to turn OFF

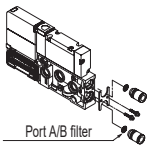
Other options

H With check valve

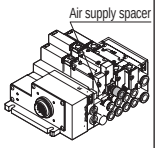


Standard for pilot exhaust

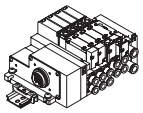
F Port A/B filter integrated



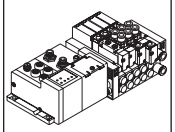
Z1 Air supply spacer



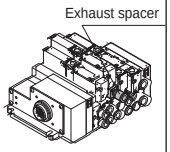
D DIN rail Mount



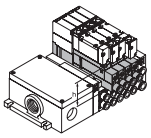
Y* I/O block



Z3 Exhaust spacer

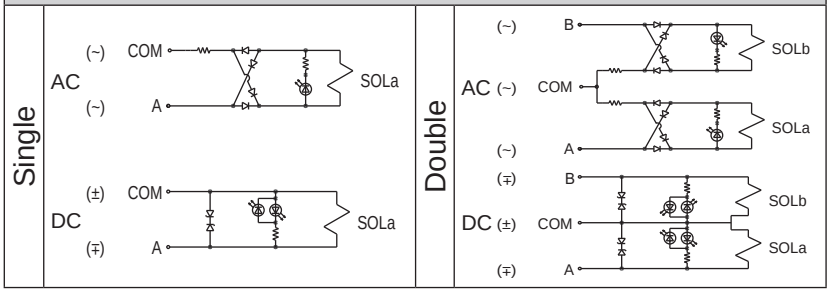


Z8 Individual air supply compatible spacer with in-stop valve spacer



Electrical connection circuit diagram(inside solenoid valve)

With lamp/surge suppressor (standard)



Zener diode is used as a surge suppressor.

MEMO



Pneumatic Valves
Catalog No. CB-023SA

Single unit
Base piping

W4GB2-FP1 Series

● Cylinder bore size: ø 20 to ø 80

RoHS CAD

Common specifications

Item	W4GB2
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)
Degree of protection (Note1)	Dust proof/water jet proof (IP65)
Vibration resistance m/s^2	49 or less
Shock resistance m/s^2	294 or less
Atmosphere	Cannot be used in corrosive gas environments

*1:IP65 (IEC60529[IEC529:1989-11]) standards are applied to the test.

Electrical specifications

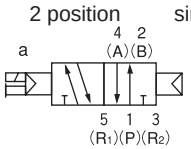
Item		W4GB2
Rated voltage V	DC	12, 24
	AC	100
Voltage fluctuation range		±10%
Holding current A	24 VDC	0.025
	12 VDC	0.050
	100 VAC	0.012
Power consumption W *2	24 VDC	0.6
	12 VDC	0.6
Apparent power VA	100 VAC	1.2
Thermal class		B

*2: Surge suppressor and indicator are equipped as standard.

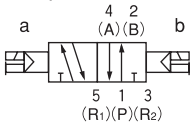
JIS symbol

● 5-port valve

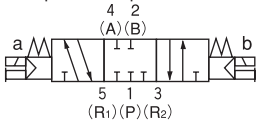
2 position single



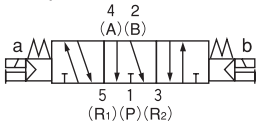
2-position double



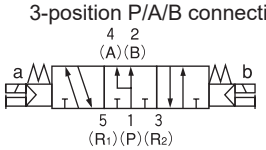
3-position all ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

Item		W4GB2
Port size	Port A/B	Rc1/4
	P/R Port	Rc1/4

Item			ON	OFF
Response time ms	2-position	Single	22	24
		Double	26	-
	3-position		25	35

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.

Item			Terminal block	I/O connector
Weight g	2-position	Single	351	409
		Double	367	424
	3-position		374	431

Flow characteristics

Model No.	Solenoid position		P → A/B		A/B → R	
			C[dm^3/(s·bar)]	b	C[dm^3/(s·bar)]	b
W4GB2	2-position		2.5	0.27	2.5	0.20
	3-position	All ports closed	2.3	0.32	2.1	0.21
		ABR connection	2.3	0.30	2.2	0.22
		PAB connection	2.4	0.02	2.3	0.19

Note: Formula to calculate sonic conductance C from effective cross-sectional area S is S ≈ 5.0 x C.

How to order

● Single unit

W4GB2 1 0 - 08 - R1 H - 3 - FP1

● Single sub-plate only

W4GB2 - SP - 08 - R1 F —— FP1

● Single solenoid valve | Sub-plate

W4GB2 1 9 - 00 —— H - 3 - FP1

Ⓐ Switching position Category

Ⓑ Port size

Ⓒ Electrical connections
For circuit diagrams (inside the solenoid valve), refer to page 191.

Ⓓ Option

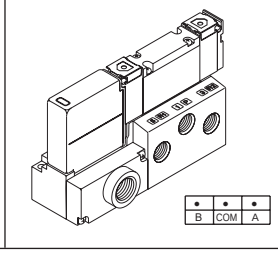
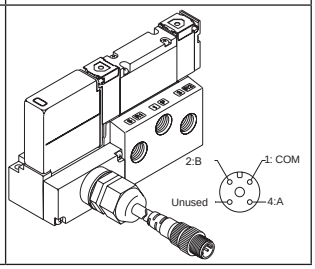
Ⓔ Voltage

Code	Description	Single unit	Single sub-plate only	Single solenoid valve
				W4GB2
Ⓐ 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				
08	Rc1/4	●	●	
Ⓒ Electrical connections (lamp and surge suppressor)Standard equipment)				
Blank	Terminal block (with cable clamp)	●	●	●
R1	I/O connector (500 mm) (made to order)	●	●	
Ⓓ Option				
Blank	No option	●	●	●
M	Manual override of non-locking	●		●
H	With check valve *1	●		●
F	Port P/A/B filter integrated	●	●	
Ⓔ Voltage				
1	100 VAC (rectifier integrated)(Made to order) * Electrical connections: Only when Blank is selected	●		
3	24 VDC	●		●
4	12 VDC(Made to order)	●		●

⚠ Precautions for model selection

*1: 3-position all ports closed and PAB connection are not provided with the check valve specifications (H).

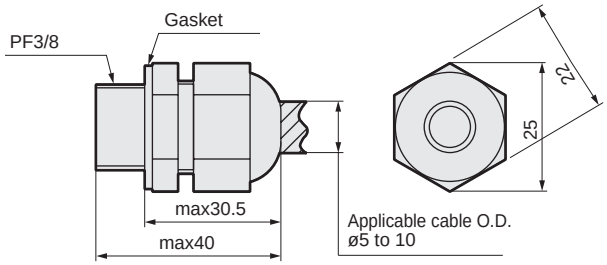
Electrical connections

Name	Terminal block	I/O connector
Code	Blank	R1
Shape Terminal layout		

Parts kit No. for terminal block

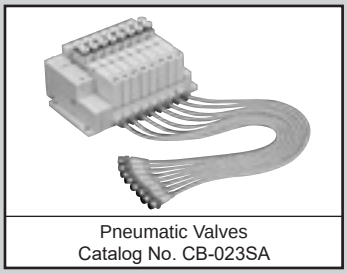
● Cable clamp (with gasket)

Model No.	Description
W4G-BMS-038GP	Used to protect cables from dust and jetting water.



(reference value)
Body tightening torque 2.0 to 2.5 N·m
Cable clamp tightening torque 1.5 to 2.0 N·m

Refer to the W4GB2 Series in "Pneumatic Valves (CB-023SA)" for dimensions.



Pneumatic Valves
Catalog No. CB-023SA

Individual wiring manifold
Body piping

MW$^{3}_{4}$GA2-R1-FP1 Series

● Cylinder bore size: ø20 to ø80

RoHS

Manifold common specifications

Item			MW3GA2/MW4GA2
Manifold			Block manifolds
Air supply and exhaust method			Common supply/common exhaust (with check valve built-in)
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
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)
Degree of protection (*1)			Dust proof/water jet proof (IP65 or equivalent)
Vibration resistance m/s^2			49 or less
Shock resistance m/s^2			294 or less
Atmosphere			Cannot be used in corrosive gas environments

*1:IP65 (IEC60529[IEC529:1989-11]) standards are applied to the test.

Electrical specifications

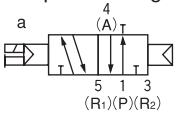
Item		MW3GA2/MW4GA2
Rated voltage V	DC	12, 24
Voltage fluctuation range		±10%
Holding current A	24 VDC	0.025
	12 VDC	0.050
Power consumption W(*2)	24 VDC	0.6
	12 VDC	0.6
Thermal class		B

*2: Surge suppressor and indicator are equipped as standard.

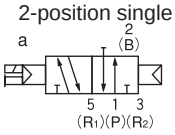
JIS symbol

● 3-port valve

2-position single NC

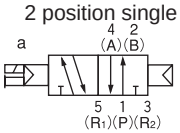


2-position single NO

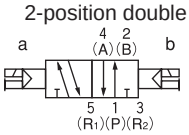


● 5-port valve

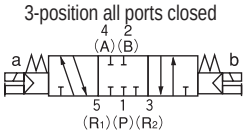
2 position single



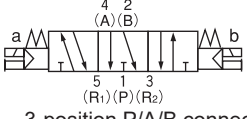
2-position double



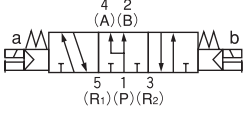
3-position all ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

Item		MW3GA2/MW4GA2
Max. station No.		16
Port size	Port A/B	Push-in fitting ø6, ø8, Rc1/8
	P/R Port	Push-in fitting ø8, ø10

Item			MW3GA2/MW4GA2	
			ON	OFF
Response time ms	2-position	Single	22	24
		Double	26	-
	3-position		25	35

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[dm^3/(s·bar)]	b	C[dm^3/(s·bar)]	b
MW3GA2 MW4GA2	2-position		2.2	0.35	1.7	0.25
	3-position	All ports closed	2.0	0.36	2.2	0.21
		ABR connection	2.1	0.34	1.7	0.26
		PAB connection	2.3	0.35	2.3	0.27

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
*2: Values of the 2-position type and ABR connection type are those with integrated check valve.

How to order

Individual wiring I/O connector

● Manifold model No.

MW4GA2 1 0 - C8 — R1 H D - 5 - 3 - FP1

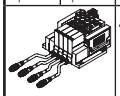
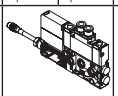
● Discrete valve block with solenoid valve

NW4GA2 1 0 - C8 — R1 H — 3 - FP1

● Single solenoid valve for manifold

W4GA2 1 9 - C8 — H — 3 - FP1

A Model No. | B Solenoid position | H Voltage

A Model No.	Manifold		Discrete valve block with solenoid valve		Single solenoid valve	
	3-port valve	5-port valve	3-port valve	5-port valve	3-port valve	5-port valve
						
Code / Description	MW3GA2	MW4GA2	NW3GA2	NW4GA2	W3GA2	W4GA2
B OffReplacement 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	●		●		●	
11 — 2-position single normally open	●		●		●	
8 — Mix manifold (when there are multiple solenoid positions)	●	●				
C Port size (port A/B)						
C6 — ø6 push-in fitting	●	●	●	●	●	●
C8 — ø8 push-in fitting	●	●	●	●	●	●
CX — Push-in fitting mix	●	●				
06 — Rc1/8	●	●	●	●	●	●
D Wiring method (including standard lamp and surge suppressor)						
R 1 — I/O connector (M12) (500 mm)	●	●	●	●		
E Option						
Blank — No option	●	●	●	●	●	●
M — Manual override of non-locking	●	●	●	●	●	●
H — With check valve *2	●	●	●	●	●	●
F — Port A/B filter built in *3	●	●	●	●	●	●
Z1 — Air supply spacer *4	●	●				
Z3 — Exhaust spacer *4	●	●				
Z8 — Individual air supply compatible spacer with in-stop valve spacer	●	●				
F Mount type						
Blank — Direct mount	●	●				
D — DIN rail mount	●	●				
G Station No.						
2 to 16 — 2 stations to 16 stations	●	●				
H Voltage						
3 — 24 VDC	●	●	●	●	●	●
4 — 12 VDC (Made to order)	●	●	●	●	●	●

C Port size *1

D Wiring method
For circuit diagrams (inside the solenoid valve), refer to page 191.

E Option

F Mount type

G Station No.

indicates not available.

⚠ Precautions for model selection

Be sure to fill in the "Manifold specifications sheet".

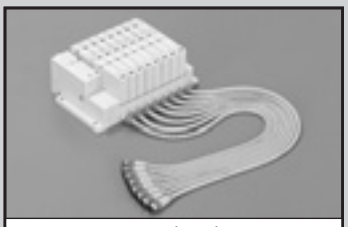
*1: Specify the size of port P/R in the supply and exhaust block section.

*2: Check valve (H) is not available for 3-position all ports closed and 3-position PAB connection.

*3: A filter is built into port P.

*4: 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 218 to 219 for details.

Refer to the MW4GA2 Series in "Pneumatic Valves (CB-023SA)" for dimensions.



Pneumatic Valves
Catalog No. CB-023SA

Individual wiring manifold
Base side piping/base bottom piping

MW4G$^{B}_{Z}$2-R1-FP1 Series

● Cylinder bore size: ø20 to ø80

RoHS

Manifold common specifications

Item	MW4GB2		MW4GZ2
Manifold	Block manifolds		
Air supply and exhaust method	Common supply/common exhaust (with check valve built-in)		
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		Downward from 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 (standard)		
Degree of protection (*1)	Dust proof/water jet proof (IP65 or equivalent)		
Vibration resistance m/s^2	49 or less		
Shock resistance m/s^2	294 or less		
Atmosphere	Cannot be used in corrosive gas environments		

Note1:IP65 (IEC60529[IEC529:1989-11]) standards are applied to the test.

Electrical specifications

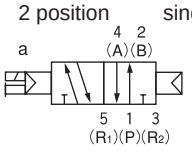
Item		M4GB2
Rated voltage V	DC	12, 24
Voltage fluctuation range		±10%
Holding current A	24 VDC	0.025
	12 VDC	0.050
Power consumption W(*2)	24 VDC	0.6
	12 VDC	0.6
Thermal class		B

*2: Surge suppressor and indicator are equipped as standard.

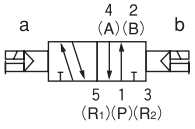
JIS symbol

● 5-port valve

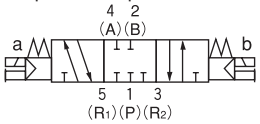
2 position single



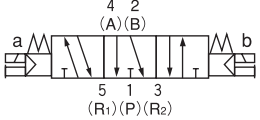
2-position double



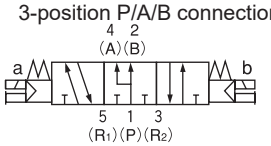
3-position all ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

Item		MW4GB2/MW4GZ2
Max. station No.		16
Port size	Port A/B	Push-in fitting ø6, ø8
	P/R Port	Push-in fitting ø8, ø10

Item			MW4GB2/MW4GZ2	
			OWhen N	OFF
Response time ms	2-position	Single	22	24
		Double	26	-
	3-position		25	35

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[dm^3/(s·bar)]	b	C[dm^3/(s·bar)]	b
MW4GB2 MW4GZ2	2-position		2.4	0.36	1.7	0.25
	3-position	All ports closed	2.1	0.37	2.2	0.22
		ABR connection	2.2	0.35	1.7	0.25
		PAB connection	2.3	0.32	2.3	0.24

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
*2: Values of the 2-position type and ABR connection type are those with integrated check valve.

How to order

Individual wiring I/O connector

● Manifold model No.

MW4GB2 1 0 - C8 – R1 H D - 5 - 3 - FP1
MW4GZ2 1 0 - C8 – R1 H — 5 - 3 - FP1

● Discrete valve block with solenoid valve

NW4GB2 1 0 - C8 – R1 H — 3 - FP1
NW4GZ2 1 0 - C8 – R1 H — 3 - FP1

● Discrete solenoid valve for manifold built-in (common for NW4GB2/NW4GZ2 *1)

W4GB2 1 9 - 00 — H — 3 - FP1

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Port size *2
Ⓓ Wiring method
For circuit diagrams (inside the solenoid valve), refer to page 191.
Ⓔ Option
Ⓕ Mount Type
Ⓖ Station No.
Ⓗ Voltage

Code	Description	Ⓐ Model No. Manifold MW4GB2	Manifold MW4GZ2	Discrete valve block with solenoid valve NW4GB2	Discrete valve block with solenoid valve NW4GZ2	Single solenoid valve W4GB2
Ⓑ 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 (port A/B)						
C6	ø6 push-in fitting	●	●	●	●	
C8	ø8 push-in fitting	●	●	●	●	
CX	Push-in fitting mix	●	●			
Single side plug	Port A / Port B					
C6NC	ø6 push-in fitting / Plug	●	●	●	●	
C8NC	ø8 push-in fitting / Plug	●	●	●	●	
C6NO	Plug / ø6 push-in fitting	●	●	●	●	
C8NO	Plug / ø8 push-in fitting	●	●	●	●	
Ⓓ Wiring method (including standard lamp and surge suppressor)						
R1	I/O connector (M12) (500 mm)	●	●	●	●	
Ⓔ Option						
Blank	No option	●	●	●	●	●
M	Manual override of non-locking	●	●	●	●	●
H	With check valve *4	●	●	●	●	●
F	Port A/B filter built in *5	●	●	●	●	
Z1	Air supply spacer *3	●	●			
Z3	Exhaust spacer *3	●	●			
Z8	Individual air supply compatible spacer with in-stop valve spacer *3	●	●			
Ⓕ Mount type						
Blank	Direct mount	●	●			
D	DIN rail mount	●				
Ⓖ Station No.						
2 to 16	2 stations to 16 stations	●	●			
Ⓗ Voltage						
3	24 VDC	●	●	●	●	●
4	12 VDC(Made to order)	●	●	●	●	●

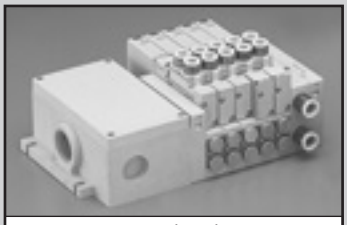
indicates not available.

Precautions for model selection

Be sure to fill in the "Manifold specifications sheet".

*1: The discrete solenoid valve used for the valve block with solenoid valve NW4GZ2 is the same as W4GB2*9.
*2: Ports A and B plug specifications (*NC/*NO) are available for 2-position single only. Specify the port P/R bore size in the supply and exhaust block section.
*3: 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, refer to pages 218 to 219details.
*4: Check valve (H) is not available for 3-position all ports closed and PAB connection.
*5: A filter is built into port P.

Refer to the MW4G$^{B}_{Z}$2 Series in "Pneumatic Valves (CB-023SA)" for dimensions.



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring manifolds
Body piping

MW 3/4 GA2-T1, 7, 8-FP1 Series

● Cylinder bore size: ø20 to ø80

RoHS CAD

Manifold common specifications

Item		MW3GA2/MW4GA2
Manifold		Block manifolds
Air supply and exhaust method		Common supply/common exhaust (with check valve built-in)
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
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)
Degree of protection (*1)		Dust proof/water jet proof (IP65)
Resistance Vibration m/s^2		49 or less
Resistance Impact m/s^2		294 or less
Atmosphere		Cannot be used in corrosive gas environments

*1: Tested according to the test method for IP65 (IEC60529[IEC529:1989-11]) standards.

Electrical specifications

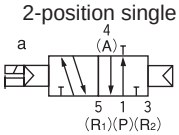
Item		MW3GA2/MW4GA2
Rated voltage V	DC	12, 24
	AC	100
Voltage fluctuation range		±10%
Holding current A	24 VDC	0.025
	12 VDC	0.050
	100 VAC	0.012
Power consumption W(*2)	24 VDC	0.6
	12 VDC	0.6
Apparent power VA(*3)	100 VAC	1.2
Thermal class		B

*2: Surge suppressor and indicator are equipped as standard.
*3: 100 VAC and 12 VDC settings are not available for serial transmission connection specifications.

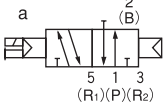
JIS symbol

● 3-port valve

2-position single NC

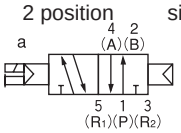


2-position single NO

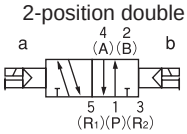


● 5-port valve

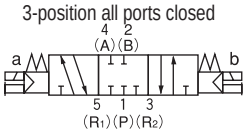
2 position single



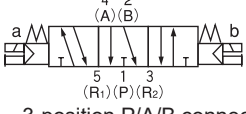
2-position double



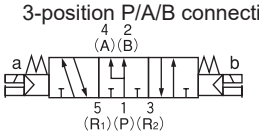
3-position all ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

Item		MW3GA2/MW4GA2									
		T10	T7EC□1	T7EC□2	T7EC□7	T7EN□1	T7EN□2	T7EN□7	T8G1 T8D1	T8G2 T8D2	T8G7 T8D7
Max. station No.	Standard wiring	18	16	18	16	16	18	16	16	18	16
	Double wiring	9	8	16	8	8	16	8	8	16	8
Max. number of solenoids		18	16	32	16	16	32	16	16	32	16
Port size	Port A/B	Push-in fitting ø6, ø8, Rc1/8									
	P/R Port	Push-in fitting ø8, ø10									

Item			MW3GA2/MW4GA2	
			OWhen N	OFF
Response time ms	2-position	Single	22	24
		Double	26	-
	3-position		25	35

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[dm^3/(s·bar)]	b	C[dm^3/(s·bar)]	b
MW3GA2 MW4GA2	2-position		2.2	0.35	1.7	0.25
	3-position	All ports closed	2.0	0.36	2.2	0.21
		ABR connection	2.1	0.34	1.7	0.26
		PAB connection	2.3	0.35	2.3	0.27

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
*2: Values of the 2-position type and ABR connection type are those with integrated check valve.

Reduced wiring specifications

Item	T10
Type	Common terminal block M3 thread
Connector	-

Serial transmission slave unit specifications

Download the communication setting file from the CKD website (https://www.ckd.co.jp/en/).

Item		Slave unit dedicated for valves (without I/O block)				Slave unit with I/O block	
		T7EC1	T7EC2	T7ECP1	T7ECP2	T7ECB7	T7ECPB7
Network name		EtherCAT				EtherCAT	
Power supply voltage	Unit side	24 VDC ±10%				24 VDC ±10%	
	Valve side	24 VDC +10%, 5%				24 VDC +10%, 5%	
Current consumption	Unit side	110 mA or less				110 mA or less (excluding input block current)	
	Valve side	15 mA or less (excluding load current)				15 mA or less (excluding load current)	
Valve output		NPN		PNP		NPN	PNP
Input/output point count		0/16	0/32	0/16	0/32	16/16	
Operation display		Power supply/communication status/valve power supply					
Degree of protection		IP65					

Item		Slave unit dedicated for valves (without I/O block)				Slave unit with I/O block	
		T7EN1	T7EN2 *1	T7ENP1	T7ENP2 *1	T7ENB7	T7ENPB7
Network name		EtherNet/IP					
Power supply voltage	Unit side	24 VDC ±10%					
	Valve side	24 VDC +10%, 5%					
Current consumption	Unit side	130 mA or less				130 mA or less (*2: excluding input block current)	
	Valve side	15 mA or less (excluding load current)					
Valve output		NPN output		PNP output		NPN output	PNP output
No. of I/O points		16 point output	32 point output	16 point output	32 point output	16 point input/16 point output	16 point input/16 point output
LED display	Power	2 points: Unit power supply/valve power supply					
	Communication	4 points: MS, NS, L/A IN, L/A OUT					
Degree of protection		IP65					

Item		Slave unit dedicated for valves (without I/O block)				Slave unit with I/O block	
		T7EB1	T7EB2 *1	T7EBP1	T7EBP2 *1	T7EBB7	T7EBPB7
Network name		CC-Link IEF Basic					
Power supply voltage	Unit side	24 VDC ±10%					
	Valve side	24 VDC +10%, 5%					
Current consumption	Unit side	130 mA or less				130 mA or less (*2: excluding input block current)	
	Valve side	15 mA or less (excluding load current)					
Valve output		NPN output		PNP output		NPN output	PNP output
No. of I/O points		16 point output	32 point output	16 point output	32 point output	16 point input/16 point output	16 point input/16 point output
LED display	Power	2 positions: PW, PW (V)					
	Communication	4 positions: RUN, ERR, L/A IN, L/A OUT, INFO					
Degree of protection		IP65					

Item		Slave unit dedicated for valves (without I/O block)				Slave unit with I/O block	
		T7EP1	T7EP2 *1	T7EPP1	T7EPP2 *1	T7EPB7	T7EPPB7
Network name		PROFINET					
Power supply voltage	Unit side	24 VDC ±10%					
	Valve side	24 VDC +10%, 5%					
Current consumption	Unit side	130 mA or less				130 mA or less (*2: excluding input block current)	
	Valve side	15 mA or less (excluding load current)					
Valve output		NPN output		PNP output		NPN output	PNP output
No. of I/O points		16 point output	32 point output	16 point output	32 point output	16 point input/16 point output	16 point input/16 point output
LED display	Power	2 positions: PW, PW (V)					
	Communication	4 positions: RUN, ERR, L/A IN, L/A OUT, INFO					
Degree of protection		IP65					

Item		Slave unit dedicated for valves (without I/O block)				Slave unit with I/O block	
		T7D1	T7D2	T7DP1	T7DP2	T7DB7	T7DPB7
Network name		DeviceNet					
Power supply voltage	Communicationside	11 to 25 VDC					
	Valve side	24 VDC +10%, 5%					
Current consumption	Communicationside	40 mA or less	50 mA or less	40 mA or less	50 mA or less	40 mA or less (*2: excluding input block current)	
	Valve side	15 mA or less (excluding load current)				15 mA or less (excluding load current)	
Valve output		NPN output		PNP output		NPN output	PNP output
No. of I/O points		16 point output	32 point output	16 point output	32 point output	16 point input/16 point output	16 point input/16 point output
LED display	Power	2 areas: Communication power supply (PW), valve power supply (PW (V))					
	Communication	2 areas: MS, NS					
Degree of protection		IP65					

Serial transmission slave unit specifications

Item		Slave unit dedicated for valves (without I/O block)				Slave unit with I/O block	
		T7G1	T7G2 *1	T7GP1	T7GP2	T7GB7	T7GPB7
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	40 mA or less	50 mA or less	40 mA or less	50 mA or less	50 mA or less (*2: excluding input block current)	
	Valve side	15 mA or less (excluding load current)					
Valve output		NPN output		PNP output		NPN output	PNP output
No. of I/O points		16 point output	32 point output	16 point output	32 point output	16 point input/16 point output	16 point input/16 point output
LED display	Power	2 points: Unit power supply (PW)/valve power supply (PW(V))					
	Communication	2 points: L RUN, L ERR					
Degree of protection		IP65					

Serial transmission slave unit specifications

Download the communication setting file from the CKD website (https://www.ckd.co.jp/en/).

Item \ Network name / Slave unit model No.		CC-Link(Ver1.10)			DeviceNet *1		
		T8G1	T8G2	T8G7	T8D1	T8D2	T8D7
Communication speed		156K/625K/2.5M/5M/10Mbps			125K/250K/500Kbps		
Power supply voltage	Unit side	24 VDC ±10%					
	Valve side	24 VDC+10%, -5%					
	Communication side	-			11 to 25 VDC		
Current consumption	Unit side	60 mA or less	100 mA or less	75 mA or less (*2)	70 mA or less	90 mA or less	80 mA or less (*2)
	Valve side	15 mA or less (when all points are OFF)					
	Communication side	-			50 mA or less		
Valve output		NPN					
Input/output point count		0/16	0/32	16/16	0/16	0/32	16/16
Occupied number		1 station			2 bytes	4 bytes	4 bytes
Operation display		Power supply/communication status/valve power supply			Communication status/valve power supply		

*1: Compatible with DeviceNet compliant networks (DLNK, etc.) as well.

*2: If the feed power supply of the input blocks also serves as the unit power supply, use the formula below for calculation.

(Unit side current consumption) = * + (35mA × number of input blocks) + (total internal current consumption of sensors connected)

* ...T8G7:60mA, T8D7:80mA

Note that for T8G7 and T8D7 unit side current consumption, select the sensor so that the current consumption is 600mA or less.

I/O block specifications

● Input block

Model No. / Item	NW4GA2-IN-N-K	NW4GA2-IN-N-B	NW4GA2 -IN-P-K	NW4GA2-IN-P-B
No. of inputs	4 points			
Rated input voltage	24 VDC			
Rated input current	7mA			
ON voltage	15 VDC or more (between input terminals and V)		15 VDC or more (between input terminals and G)	
OFF voltage/OFF current	5 VDC or less (between input terminal and V)/1.5 mA or less		5 VDC or less (between input terminal and G)/1.5 mA or less	
Input	Sink		Source type	
Supply power	Common with unit power supply	Externally supplied power	Common with unit power supply	Externally supplied power
Operation display	Power supply/input status			

Refer to page 217 for model No.

● Output block

Model No. / Item	NW4GA2-ONT-N-B	NW4GA2-OUT-P-B
No. of output points	4 points	
Rated voltage	24 VDC	
Max. load current	1A/1 point (3A/common)	
Residual voltage	1.5 V or less	
Output	Sink	Source type
Protection circuit	Overcurrent protection/reverse connection protection	
Fuse	Power supply for external load: 24 VDC and 5 A (can be replaced)	
Operation display	Power supply/output status	

Refer to page 217 for model No.

How to order

Common terminal block

● Manifold model No.

MW4GA2 1 0 - C8 — T10 W H D - 5 - 3 - FP1

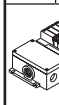
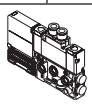
● Discrete valve block with solenoid valve

NW4GA2 1 0 - C8 - ○ W H — 3 - FP1

● Discrete solenoid valve for manifold

W4GA2 1 9 - C8 — H — 3 - FP1

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Port size *1
Ⓓ Electrical connections *2
Ⓔ Reduced wiring connection
For circuit diagrams (inside the solenoid valve), refer to page 191.
Ⓕ Terminal/connector pin Array method
Ⓖ Option
Ⓗ Mount type
Ⓘ Station No.
Ⓙ Voltage

Code	Description	Ⓐ Model No.					
		Manifold		Valve with a solenoid valve Discrete block		Single solenoid valve	
		3-port valve	5-port valve	3-port valve	5-port valve	3-port valve	5-port valve
							
		MW3GA2	MW4GA2	NW3GA2	NW4GA2	W3GA2	W4GA2
Ⓑ 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	●		●		●	
11	2-position single normally open	●		●		●	
8	Mix manifold (when there are multiple solenoid positions)	●	●				
Ⓒ Port size (port A/B)							
C6	ø6 push-in fitting	●	●	●	●	●	●
C8	ø8 push-in fitting	●	●	●	●	●	●
CX	Push-in fitting mix	●	●				
06	Rc1/8	●	●	●	●	●	●
Ⓓ Electrical connections							
Blank	DC connector relay board specifications			●	●		
2 to 8	*AC cable length Page 212 for vacuum piping.			●	●		
Ⓔ Reduced wiring (lamp and surge suppressor provided as standard)							
T10	Common terminal block (M3 screw) Left-sided spec.	●	●				
Ⓕ Terminal/connector pin array							
Blank	Standard wiring *4	●	●	●	●		
W	Double wiring *4	●	●	●	●		
Ⓖ Option							
Blank	No option	●	●	●	●	●	●
M	Manual override of non-locking	●	●	●	●	●	●
H	With check valve *5	●	●	●	●	●	●
F	Port A/B filter built in *6	●	●	●	●	●	●
Z1	Air supply spacer *3	●	●				
Z3	Exhaust spacer *3	●	●				
Z8	Individual air supply compatible spacer with in-stop valve spacer *3	●	●				
Ⓗ Mount type							
Blank	Direct mount	●	●				
D	DIN rail mount	●	●				
Ⓘ Station No.							
2 to 18	2 stations to 18 stations	●	●				
Ⓙ Voltage							
1	100 VAC (rectifier integrated)(Made to order)	●	●	●	●	●	●
3	24 VDC	●	●	●	●	●	●
4	12 VDC (Made to order)	●	●	●	●	●	●

indicates not available.

⚠ Precautions for model selection

Be sure to fill in the "Manifold specifications sheet".

*1: Specify the size of port P/R in the supply and exhaust block section.
*2: If a change of specifications is expected for AC, select a valve block with masking plate as a spare block.
*3: 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 218 to 219 for details.
*4: Blank.....built-in will be based on the type of valve used.
W.....All wired as double solenoid regardless of the type of valve used. It is not necessary to select W if no single solenoid is used. Double wiring will automatically be applied to AC voltage even if W is not specified, since they are only for double wiring.
*5: Check valve (H) is not available for 3-position all ports closed and 3-position PAB connection.
*6: A filter is built into port P.

MW$^{3}_{4}$GA2-T7, T8-FP1 Series

Reduced wiring manifold; body piping

How to order

Serial transmission

● Manifold model No.

MW4GA2 1 0 - C8 — T8G1 W H D - 5 - 3 - FP1

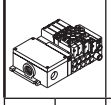
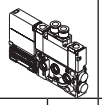
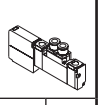
● Discrete valve block with solenoid valve

NW4GA2 1 0 - C8 - ○ W H — 3 - FP1

● Discrete solenoid valve for manifold

W4GA2 1 9 - C8 — H — 3 - FP1

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Port size *1
Ⓓ Electrical connections
Ⓔ Reduced wiring connection
For circuit diagrams (inside the solenoid valve), refer to page 191.
Ⓕ Terminal/connector pin Array method
Ⓖ Option
Ⓗ Mount type
Ⓘ Station No.
Ⓙ Voltage

Ⓐ Model No.	Manifold		Valve with a solenoid valve Discrete block		Single solenoid valve	
	3-port valve	5-port valve	3-port valve	5-port valve	3-port valve	5-port valve
						
	MW3GA2	MW4GA2	NW3GA2	NW4GA2	W3GA2	W4GA2

Code	Description	MW3GA2	MW4GA2	NW3GA2	NW4GA2	W3GA2	W4GA2
Ⓑ 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	●		●		●	
11	2-position single normally open	●		●		●	
8	Mix manifold (when there are multiple solenoid positions)	●	●				
Ⓒ Port size (port A/B)							
C6	ø6 push-in fitting	●	●	●	●	●	●
C8	ø8 push-in fitting	●	●	●	●	●	●
CX	Push-in fitting mix	●	●				
06	Rc1/8	●	●	●	●	●	●
Ⓓ Electrical connections							
Blank	DC connector relay board specifications			●	●		
Ⓔ Reduced wiring (lamp and surge suppressor provided as standard)							
Refer to the next page for reduced wiring.							
Ⓕ Terminal/connector pin array							
Blank	Standard wiring *3	●	●	●	●		
W	Double wiring *3	●	●	●	●		
Ⓖ Option							
Blank	No option	●	●	●	●	●	●
M	Manual override of non-locking	●	●	●	●	●	●
H	With check valve *4	●	●	●	●	●	●
F	Port A/B filter built in *5	●	●	●	●	●	●
Y**	I/O block *6 (In **, enter the number of the desired I/O block combination from Table 1 on the next page [I/O block combination table].)	●	●				
Z1	Air supply spacer *2	●	●				
Z3	Exhaust spacer *2	●	●				
Z8	Individual air supply compatible spacer with in-stop valve spacer *2	●	●				
Ⓗ Mount type							
Blank	Direct mount	●	●				
D	DIN rail mount	●	●				
Ⓘ Station No.							
2 to 16	2 stations to 16 stations (Differs depending on the reduced wiring specifications. Individual specifications(Page 199).)	●	●				
Ⓙ Voltage							
3	24 VDC *7	●	●	●	●	●	●

indicates not available.

⚠ Precautions for model selection

Be sure to fill in the "Manifold specifications sheet".

*1: Specify the size of port P/R in the supply and exhaust block section.

*2: 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 218 to 219 for details.

*3: Blank.....built-in will be based on the type of valve used.
W.....All wired as double solenoid regardless of the type of valve used. It is not necessary to select W if no single solenoid is used.

*4: Check valve (H) is not available for 3-position all ports closed and 3-position PAB connection.

*5: A filter is built into port P.

*6: Specify the I/O type (sink/source) of I/O block and the power supply (shared with slave unit/external) in the manifold specifications sheet (Page 224).

*7: 100 VAC and 12 VDC settings are not available for serial transmission connection specifications.

[Reduced wiring list]

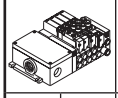
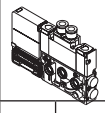
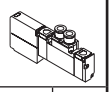
Ⓔ Reduced wiring (lamp and surge suppressor provided as standard)			Ⓐ Model No.					
			Manifold		Discrete valve block with solenoid valve		Single solenoid valve	
			3-port valve	5-port valve	3-port valve	5-port valve	3-port valve	5-port valve
								
			MW3GA2	MW4GA2	NW3GA2	NW4GA2	W3GA2	W4GA2
T7EC1	Thin EtherCAT	16-point output (NPN valve output)	●	●				
T7ECP1		16-point output (PNP valve output)	●	●				
T7EC2		32-point output (NPN valve output)	●	●				
T7ECP2		32-point output (PNP valve output)	●	●				
T7ECB7		16/16-point I/O (NPN valve output)	●	●				
T7ECPB7		16/16-point I/O (PNP valve output)	●	●				
T7EN1	Thin EtherNet/IP	16-point output (NPN Valve Output)	●	●				
T7ENP1		16-point output (PNP Valve Output)	●	●				
T7EN2		32-point output (NPN Valve Output)	●	●				
T7ENP2		32-point output (PNP Valve Output)	●	●				
T7ENB7		16/16 I/O point (NPN Valve Output)	●	●				
T7ENBP7		16/16 I/O point (PNP Valve Output)	●	●				
T7EB1	Thin CC-Link IEF Basic	16-point output (NPN Valve Output)	●	●				
T7EBP1		16-point output (PNP Valve Output)	●	●				
T7EB2		32-point output (NPN Valve Output)	●	●				
T7EBP2		32-point output (PNP Valve Output)	●	●				
T7EBB7		16/16 I/O point (NPN Valve Output)	●	●				
T7EBPB7		16/16 I/O point (PNP Valve Output)	●	●				
T7EP1	Thin PROFINET	16-point output (NPN Valve Output)	●	●				
T7EPP1		16-point output (PNP Valve Output)	●	●				
T7EP2		32-point output (NPN Valve Output)	●	●				
T7EPP2		32-point output (PNP Valve Output)	●	●				
T7EPB7		16/16 I/O point (NPN Valve Output)	●	●				
T7EPPB7		16/16 I/O point (PNP Valve Output)	●	●				
T7G1	Thin CC-Link	16-point output (NPN valve output)	●	●				
T7GP1		16-point output (PNP valve output)	●	●				
T7G2		32-point output (NPN valve output)	●	●				
T7GP2		32-point output (PNP valve output)	●	●				
T7GB7		16/16-point I/O (NPN valve output)	●	●				
T7GPB7		16/16-point I/O (PNP valve output)	●	●				
T7D1	Thin DeviceNet	16-point output (NPN valve output)	●	●				
T7DP1		16-point output (PNP valve output)	●	●				
T7D2		32-point output (NPN valve output)	●	●				
T7DP2		32-point output (PNP valve output)	●	●				
T7DB7		16/16-point I/O (NPN valve output)	●	●				
T7DPB7		16/16-point I/O (PNP valve output)	●	●				
T8G1	CC-Link	16 point output	●	●				
T8G2		32 point output	●	●				
T8G7		16 point input/16 point output	●	●				
T8D1	DeviceNet	16 point output	●	●				
T8D2		32 point output	●	●				
T8D7		16 point input/16 point output	●	●				

Table 1 [I/O block combination table]

T7

Code	Layout of I/O blocks and station No.						
Y10						IN	WiringBlock side
Y20					IN	IN	
Y30				IN	IN	IN	
Y40			IN	IN	IN	IN	
Y11					OUT	IN	
Y21				OUT	IN	IN	
Y31			OUT	IN	IN	IN	
Y41		OUT	IN	IN	IN	IN	
Y12				OUT	OUT	IN	
Y22			OUT	OUT	IN	IN	
Y32		OUT	OUT	IN	IN	IN	
Y42	OUT	OUT	IN	IN	IN	IN	

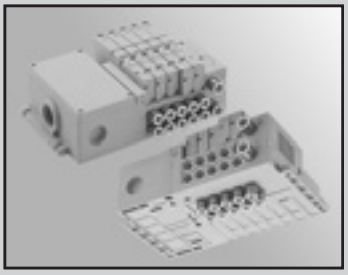
T8

Code	Layout of I/O blocks and station No.						
Y10						IN	WiringBlock side
Y20					IN	IN	
Y30				IN	IN	IN	
Y40			IN	IN	IN	IN	
Y01						OUT	
Y02					OUT	OUT	
Y03				OUT	OUT	OUT	
Y04			OUT	OUT	OUT	OUT	
Y11					OUT	IN	
Y21				OUT	IN	IN	
Y31			OUT	IN	IN	IN	
Y41		OUT	IN	IN	IN	IN	
Y12				OUT	OUT	IN	
Y22			OUT	OUT	IN	IN	
Y32		OUT	OUT	IN	IN	IN	
Y42	OUT	OUT	IN	IN	IN	IN	

*1: How to read the table
Example) Y11 is a combination of one input block (4 points) and one output block (4 points).

2: For details, refer to "Pneumatic Valves (CB-023SA)" and "I/O point number corresponding to wiring method T8 I/O No."

Refer to the MW4GA2-T* Series in "Pneumatic Valves (CB-023SA)" for dimensions.



Reduced wiring manifolds
Base side piping/base bottom piping

MW4G$^{B}_{Z}$2-T1, 7, 8-FP1 Series

● Cylinder bore size: ø20 to ø80

Manifold common specifications

Item		MW4GB2	MW4GZ2
Manifold		Block manifolds	
Air supply and exhaust method		Common supply/common exhaust (with check valve built-in)	
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	Downward from 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 (standard)	
Degree of protection (*1)		Dust proof/water jet proof (IP65)	
Vibration resistance m/s^2		49 or less	
Shock resistance m/s^2		294 or less	
Atmosphere		Cannot be used in corrosive gas environments	

*1:IP65 (IEC60529[IEC529:1989-11]) standards are applied to the test.

Electrical specifications

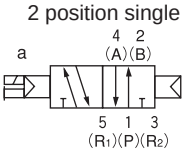
Item		W4GB2
Rated voltage V	DC	12, 24
	AC	100
Voltage fluctuation range		±10%
Holding current A	24 VDC	0.025
	12 VDC	0.050
	100 VAC	0.012
Power consumption W(*2)	24 VDC	0.6
	12 VDC	0.6
Apparent power VA(*3)	100 VAC	1.2
Thermal class		B

*2: Surge suppressor and indicator are equipped as standard.
*3: 100 VAC and 12 VDC settings are not available for serial transmission connection specifications.

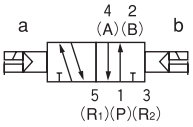
JIS symbol

● 5-port valve

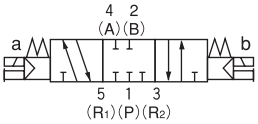
2 position single



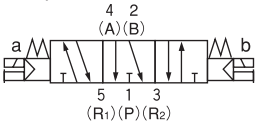
2-position double



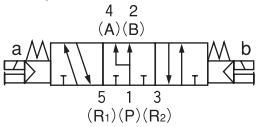
3-position all ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

Item		MW4GB2/MW4GZ2									
		T10	T7EC □1	T7EC □2	T7EC □7	T7EN □1	T7EN □2	T7EN □7	T8G1 T8D1	T8G2 T8D2	T8G7 T8D7
Max. station No.	Standard wiring	18	16	18	16	16	18	16	16	18	16
	Double wiring	9	8	16	8	8	16	8	8	16	8
Max. number of solenoids		18	16	32	16	16	32	16	16	32	16
Port size	Port A/B	Push-in fitting ø6, ø8, Rc1/8									
	P/R Port	Push-in fitting ø8, ø10									

Item			MW4GB2/MW4GZ2	
			OWhen N	OFF
Response timems	2-position	Single	22	24
		Double	26	-
	3-position		25	35

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[dm^3/(s·bar)]	b	C[dm^3/(s·bar)]	b
MW4GB2 MW4GZ2	2-position		2.4	0.36	1.7	0.25
	3-position	All ports closed	2.1	0.37	2.2	0.22
		ABR connection	2.2	0.35	1.7	0.25
		PAB connection	2.3	0.32	2.3	0.24

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.
*2: Values of the 2-position type and ABR connection type are those with integrated check valve.

Reduced wiring specifications

Item	T10
Type	Common terminal block M3 thread
Connector	-

Serial transmission slave unit specifications

Download the communication setting file from the CKD website (https://www.ckd.co.jp/en/).

Item		Slave unit dedicated for valves (without I/O block)				Slave unit with I/O block	
		T7EC1	T7EC2	T7ECP1	T7ECP2	T7ECB7	T7ECPB7
Network name		EtherCAT				EtherCAT	
Power supply voltage	Unit side	24 VDC ±10%				24 VDC ±10%	
	Valve side	24 VDC +10%, 5%				24 VDC +10%, 5%	
Current consumption	Unit side	110 mA or less				110 mA or less (excluding input block current)	
	Valve side	15 mA or less (excluding load current)				15 mA or less (excluding load current)	
Valve output		NPN		PNP		NPN	PNP
Input/output point count		0/16	0/32	0/16	0/32	16/16	
Operation display		Power supply/communication status/valve power supply					
Degree of protection		IP65					

Item		Slave unit dedicated for valves (without I/O block)				Slave unit with I/O block	
		T7EN1	T7EN2 *1	T7ENP1	T7ENP2 *1	T7ENB7	T7ENPB7
Network name		EtherNet/IP					
Power supply voltage	Unit side	24 VDC ±10%					
	Valve side	24 VDC +10%, 5%					
Current consumption	Unit side	130 mA or less				130 mA or less (*2: excluding input block current)	
	Valve side	15 mA or less (excluding load current)					
Valve output		NPN output		PNP output		NPN output	PNP output
No. of I/O points		16 point output	32 point output	16 point output	32 point output	16 point input/16 point output	16 point input/16 point output
LED display	Power	2 points: Unit power supply/valve power supply					
	Communication	4 points: MS, NS, L/A IN, L/A OUT					
Degree of protection		IP65					

Item		Slave unit dedicated for valves (without I/O block)				Slave unit with I/O block	
		T7EB1	T7EB2 *1	T7EBP1	T7EBP2 *1	T7EBB7	T7EBPB7
Network name		CC-Link IEF Basic					
Power supply voltage	Unit side	24 VDC ±10%					
	Valve side	24 VDC +10%, 5%					
Current consumption	Unit side	130 mA or less				130 mA or less (*2: excluding input block current)	
	Valve side	15 mA or less (excluding load current)					
Valve output		NPN output		PNP output		NPN output	PNP output
No. of I/O points		16 point output	32 point output	16 point output	32 point output	16 point input/16 point output	16 point input/16 point output
LED display	Power	2 positions: PW, PW (V)					
	Communication	4 positions: RUN, ERR, L/A IN, L/A OUT, INFO					
Degree of protection		IP65					

Item		Slave unit dedicated for valves (without I/O block)				Slave unit with I/O block	
		T7EP1	T7EP2 *1	T7EPP1	T7EPP2 *1	T7EPB7	T7EPPB7
Network name		PROFINET					
Power supply voltage	Unit side	24 VDC ±10%					
	Valve side	24 VDC +10%, 5%					
Current consumption	Unit side	130 mA or less				130 mA or less (*2: excluding input block current)	
	Valve side	15 mA or less (excluding load current)					
Valve output		NPN output		PNP output		NPN output	PNP output
No. of I/O points		16 point output	32 point output	16 point output	32 point output	16 point input/16 point output	16 point input/16 point output
LED display	Power	2 positions: PW, PW (V)					
	Communication	4 positions: RUN, ERR, L/A IN, L/A OUT, INFO					
Degree of protection		IP65					

Item		Slave unit dedicated for valves (without I/O block)				Slave unit with I/O block	
		T7D1	T7D2 *1	T7DP1	T7DP2 *1	T7DB7	T7DPB7
Network name		DeviceNet					
Power supply voltage	Communicationside	11 to 25 VDC					
	Valve side	24 VDC +10%, 5%					
Current consumption	Communicationside	40 mA or less	50 mA or less	40 mA or less	50 mA or less	40 mA or less (*2: excluding input block current)	
	Valve side	15 mA or less (excluding load current)				15 mA or less (excluding load current)	
Valve output		NPN output		PNP output		NPN output	PNP output
No. of I/O points		16 point output	32 point output	16 point output	32 point output	16 point input/16 point output	16 point input/16 point output
LED display	Power	2 areas: Communication power supply (PW), valve power supply (PW (V))					
	Communication	2 areas: MS, NS					
Degree of protection		IP65					

Serial transmission slave unit specifications

Item		Slave unit dedicated for valves (without I/O block)				Slave unit with I/O block	
		T7G1	T7G2	T7GP1	T7GP2	T7GB7	T7GPB7
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	40 mA or less	50 mA or less	40 mA or less	50 mA or less	50 mA or less (*2: excluding input block current)	
	Valve side	15 mA or less (excluding load current)					
Valve output		NPN output		PNP output		NPN output	PNP output
No. of I/O points		16 point output	32 point output	16 point output	32 point output	16 point input/16 point output	16 point input/16 point output
LED display	Power	2 points: Unit power supply (PW)/valve power supply (PW(V))					
	Communication	2 points: L RUN, L ERR					
Degree of protection		IP65					

Serial transmission slave unit specifications

Download the communication setting file from the CKD website (https://www.ckd.co.jp/en/).

Item \ Network name		CC-Link(Ver1.10)			DeviceNet *1		
Item \ Slave unit model No.		T8G1	T8G2	T8G7	T8D1	T8D2	T8D7
Communication speed		156K/625K/2.5M/5M/10Mbps			125K/250K/500Kbps		
Power supply voltage	Unit side	24 VDC ±10%					
	Valve side	24 VDC+10%, -5%					
	Communication side	-			11 to 25 VDC		
Current consumption	Unit side	60 mA or less	100 mA or less	75 mA or less (*2)	70 mA or less	90 mA or less	80 mA or less (*2)
	Valve side	15 mA or less (when all points are OFF)					
	Communication side	-			50 mA or less		
Valve output		NPN					
Input/output point count		0/16	0/32	16/16	0/16	0/32	16/16
Occupied number		1 station			2 bytes	4 bytes	4 bytes
Operation display		Power supply/communication status/valve power supply			Communication status/valve power supply		

*1: Compatible with DeviceNet compliant networks (DLNK, etc.) as well.

*2: If the feed power supply of the input blocks also serves as the unit power supply, use the formula below for calculation.

(Unit side current consumption) = * + (35mA × number of input blocks) + (total internal current consumption of sensors connected)

* ...T8G7:60mA, T8D7:80mA

Note that for T8G7 and T8D7 unit side current consumption, select the sensor so that the current consumption is 600mA or less.

I/O block specifications

● Input block

Model No. / Item	NW4GB2-IN-N-K	NW4GB2-IN-N-B	NW4GB2 -IN-P-K	NW4GB2-IN-P-B
No. of inputs	4 points			
Rated input voltage	24 VDC			
Rated input current	7mA			
ON voltage	15 VDC or more (between input terminals and V)		15 VDC or more (between input terminals and G)	
OFF voltage/OFF current	5 VDC or less (between input terminal and V)/1.5 mA or less		5 VDC or less (between input terminal and G)/1.5 mA or less	
Input	Sink		Source type	
Supply power	Common with unit power supply	Externally supplied power	Common with unit power supply	Externally supplied power
Operation display	Power supply/input status			

*1: Refer to page 217 for model No.

● Output block

Model No. / Item	NW4GB2-OUT-N-B	NW4GB2-OUT-P-B
No. of output points	4 points	
Rated voltage	24 VDC	
Max. load current	1A/1 point (3A/common)	
Residual voltage	1.5 V or less	
Output	Sink	Source type
Protection circuit	Overcurrent protection/reverse connection protection	
Fuse	Power supply for external load: 24 VDC and 5 A (can be replaced)	
Operation display	Power supply/output status	

*1: Refer to page 217 for model No.

How to order

Common terminal block

● Manifold model No.

MW4GB2 1 0 - C8 – T10 W H D - 5 - 3 - FP1
MW4GZ2 1 0 - C8 – T10 W H — 5 - 3 - FP1

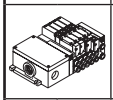
● Discrete valve block with solenoid valve

NW4GB2 1 0 - C8 - ○ W H — 3 - FP1
NW4GZ2 1 0 - C8 - ○ W H — 3 - FP1

● Single solenoid valve(NW4GB2/NW4GZ2 common *1)

W4GB2 1 9 - 00 — H — 3 - FP1

A Model No.
B Solenoid position
C Port size *2
D Electrical connections *3
E Reduced wiring connection
For circuit diagrams (inside the solenoid valve), refer to page 191.
F Terminal/connector pin Array method
G Option
H Mount Type
I Station No.
J Voltage

A Model No.	Manifold	Discrete valve block with solenoid valve		Single solenoid valve
				
	MW4GB2	MW4GZ2	NW4GB2	NW4GZ2	W4GB2

Code	Description	MW4GB2	MW4GZ2	NW4GB2	NW4GZ2	W4GB2
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	●	●	●	●	●
8	Mix manifold (when there are multiple solenoid positions)	●	●			
C Port size (port A/B)						
C6	ø6 push-in fitting	●	●	●	●	
C8	ø8 push-in fitting	●	●	●	●	
CX	Push-in fitting mix	●	●			
Single side plug	Port A	Port B				
C6NC	ø6 push-in fitting	Plug	●	●	●	●
C8NC	ø8 push-in fitting		●	●	●	●
C6NO	Plug	ø6 push-in fitting	●	●	●	●
C8NO		ø8 push-in fitting	●	●	●	●
D Electrical connections						
Blank	DC connector relay board specifications				●	●
2 to 8	Select the AC cable length on page 212				●	●
E Reduced wiring (lamp and surge suppressor provided as standard)						
T10	Common terminal block (M3 screw) Left-sided spec.	●	●			
F Terminal/connector pin array						
Blank	Standard wiring *5	●	●	●	●	
W	Double wiring *5	●	●	●	●	
G Option						
Blank	No option	●	●	●	●	●
M	Manual override of non-locking	●	●	●	●	●
H	With check valve *6	●	●	●	●	●
F	Port A/B filter built in *7	●	●	●	●	
Z1	Air supply spacer *4	●	●			
Z3	Exhaust spacer *4	●	●			
Z8	Individual air supply compatible spacer with in-stop valve spacer *4	●	●			
H Mount type						
Blank	Direct mount	●	●			
D	DIN rail mount	●				
I Station No.						
2 to 18	2 stations to 18 stations	●	●			
J Voltage						
1	100 VAC (rectifier integrated)(Made to order)	●	●	●	●	●
3	24 VDC	●	●	●	●	●
4	12 VDC(Made to order)	●	●	●	●	●

indicates not available.

⚠ Precautions for model selection

Be sure to fill in the "Manifold specifications sheet".

*1: The W4GB2*9 discrete solenoid valve is used for the NW4GZ2 discrete valve block with solenoid valve.
*2: Ports A and B plug specifications (*NC/*NO) are available for 2-position single only. Specify the port P/R bore size in the supply and exhaust block section.
*3: With AC, when a change of specifications is expected, select a valve block with masking plate as a spare block.
*4: 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 218 to 219 for details.
*5: Blank.....built-in will be based on the type of valve used.
W.....All wired as double solenoid regardless of the type of valve used. It is not necessary to select W if no single solenoid is used. Double wiring will automatically be applied to AC voltage even if W is not specified, since they are only for double wiring.
*6: Check valve (H) is not available for 3-position all ports closed and PAB connection.
*7: A filter is built into port P.

MW4GB/Z2-T7/T8-FP1 Series

Reduced wiring manifolds; Base side piping/base bottom piping

How to order

Serial transmission

● Manifold model No.

MW4GB2 1 0- C8 – T8G1 W H D - 5 - 3 - FP1

MW4GZ2 1 0- C8 – T8G1 W H — 5 - 3 - FP1

● Discrete valve block with solenoid valve

NW4GB2 1 0- C8 - ○ W H — 3 - FP1

NW4GZ2 1 0- C8 - ○ W H — 3 - FP1

● Single solenoid valve(NW4GB2/NW4GZ2 common *1)

W4GB2 1 9- 00 — H — 3 - FP1

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Port size *2
Ⓓ Electrical connections
Ⓔ Reduced wiring connection
For circuit diagrams (inside the solenoid valve), refer to page 191.
Ⓕ Terminal/connector pin Array method
Ⓖ Option
Ⓗ Mount Type
Ⓘ Station No.
Ⓙ Voltage

Code	Description	Ⓐ Model No.				
		Manifold		Discrete valve block with solenoid valve		Single solenoid valve
		MW4GB2	MW4GZ2	NW4GB2	NW4GZ2	W4GB2
Ⓑ 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 (port A/B)						
C6	ø6 push-in fitting	●	●	●	●	
C8	ø8 push-in fitting	●	●	●	●	
CX	Push-in fitting mix	●	●			
Single side plug	Port A / Port B					
C6NC	ø6 push-in fitting / Plug	●	●	●	●	
C8NC	ø8 push-in fitting / Plug	●	●	●	●	
C6NO	Plug / ø6 push-in fitting	●	●	●	●	
C8NO	Plug / ø8 push-in fitting	●	●	●	●	
Ⓓ Electrical connections						
Blank	DC connector relay board specifications			●	●	
Ⓔ Reduced wiring (lamp and surge suppressor provided as standard)						
Refer to the next page for reduced wiring.						
Ⓕ Terminal/connector pin array						
Blank	Standard wiring *3	●	●	●	●	
W	Double wiring *3	●	●	●	●	
Ⓖ Option						
Blank	No option	●	●	●	●	●
M	Manual override of non-locking	●	●	●	●	●
H	With check valve *4	●	●	●	●	●
F	Port A/B filter built in *5	●	●	●	●	
Y**	I/O block *6 (In **, enter the number of the desired I/O block combination from Table 1 [I/O block combination table].)	●	●			
Z1	Air supply spacer *7	●	●			
Z3	Exhaust spacer *7	●	●			
Z8	Individual air supply compatible spacer with in-stop valve spacer *7	●	●			
Ⓗ Mount type						
Blank	Direct mount	●	●			
D	DIN rail mount	●				
Ⓘ Station No.						
2 to 16	2 stations to 16 stations (Differs depending on the reduced wiring specifications. Individual specifications(Page 205).)	●	●			
Ⓙ Voltage						
3	24 VDC *8	●	●	●	●	●

indicates not available.

Precautions for model selection

Be sure to fill in the "Manifold specifications sheet".

*1: The single solenoid valve used for the valve block with solenoid valve NW4GZ2 is the same as W4GB2*9.

*2: Ports A and B plug specifications (*NC/*NO) are available for 2-position single only. Specify the port P/R bore size in the supply and exhaust block section.

*3: Blank.....built-in will be based on the type of valve used.
W.....All wired as double solenoid regardless of the type of valve used. It is not necessary to select W if no single solenoid is used.

*4: Check valve (H) is not available for 3-position all ports closed and PAB connection.

*5: A filter is built into port P.

*6: Select the I/O type (sink/source) of I/O block and the power supply (shared with slave unit/external) in the manifold specifications sheet on pages 225 to 226.

*7: 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 218 to 219 for details.

*8: Serial transmission is not available with 100 VAC and 12 VDC.

[Reduced wiring list]

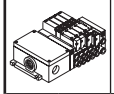
Ⓔ Reduced wiring (lamp and surge suppressor provided as standard)			Ⓐ Model No.				
			Manifold		Discrete valve block with solenoid valve		Single solenoid valve
							
			MW4GB2	MW4GZ2	NW4GB2	NW4GZ2	W4GB2
T7EC1	Thin EtherCAT	16 point output(NPN valve output)	●	●			
T7ECP1		16 point output(PNP valve output)	●	●			
T7EC2		32 point output(NPN valve output)	●	●			
T7ECP2		32 point output(PNP valve output)	●	●			
T7ECB7		16/16-point I/O(NPN Valve output)	●	●			
T7ECPB7		16/16-point I/O(PNP Valve output)	●	●			
T7EN1	Thin EtherNet/IP	16-point output (NPN Valve Output)	●	●			
T7ENP1		16-point output (PNP Valve Output)	●	●			
T7EN2		32-point output (NPN Valve Output)	●	●			
T7ENP2		32-point output (PNP Valve Output)	●	●			
T7ENB7		16/16 I/O point (NPN Valve Output)	●	●			
T7ENBP7		16/16 I/O point (PNP Valve Output)	●	●			
T7EB1	Thin CC-Link IEF Basic	16-point output (NPN Valve Output)	●	●			
T7EBP1		16-point output (PNP Valve Output)	●	●			
T7EB2		32-point output (NPN Valve Output)	●	●			
T7EBP2		32-point output (PNP Valve Output)	●	●			
T7EBB7		16/16 I/O point (NPN Valve Output)	●	●			
T7EBPB7		16/16 I/O point (PNP Valve Output)	●	●			
T7EP1	Thin PROFINET	16-point output (NPN ValveOutput)	●	●			
T7EPP1		16-point output (PNP ValveOutput)	●	●			
T7EP2		32-point output (NPN ValveOutput)	●	●			
T7EPP2		32-point output (PNP Valve Output)	●	●			
T7EPB7		16/16 I/O point (NPN Valve Output)	●	●			
T7EPPB7		16/16 I/O point (PNP Valve Output)	●	●			
T7G1	Thin CC-Link	16 point output(NPN valve output)	●	●			
T7GP1		16 point output(PNP valve output)	●	●			
T7G2		32 point output(NPN valve output)	●	●			
T7GP2		32 point output(PNP valve output)	●	●			
T7GB7		16/16-point I/O(NPN Valve output)	●	●			
T7GPB7		16/16-point I/O(PNP Valve output)	●	●			
T7D1	Thin DeviceNet	16 point output(NPN valve output)	●	●			
T7DP1		16 point output(PNP valve output)	●	●			
T7D2		32 point output(NPN valve output)	●	●			
T7DP2		32 point output(PNP valve output)	●	●			
T7DB7		16/16-point I/O(NPN Valve output)	●	●			
T7DPB7		16/16-point I/O(PNP Valve output)	●	●			
T8G1	CC-Link	16 point output	●	●			
T8G2		32 point output	●	●			
T8G7		16 point input/16 point output	●	●			
T8D1	DeviceNet	16 point output	●	●			
T8D2		32 point output	●	●			
T8D7		16 point input/16 point output	●	●			

Table 1 [I/O block combination table]

T7

Code	Layout of I/O blocks and station No.						
Y10						IN	Wiring Block side
Y20					IN	IN	
Y30				IN	IN	IN	
Y40			IN	IN	IN	IN	
Y11					OUT	IN	
Y21				OUT	IN	IN	
Y31			OUT	IN	IN	IN	
Y41		OUT	IN	IN	IN	IN	
Y12				OUT	OUT	IN	
Y22			OUT	OUT	IN	IN	
Y32		OUT	OUT	IN	IN	IN	
Y42	OUT	OUT	IN	IN	IN	IN	

T8

Code	Layout of I/O blocks and station No.						
Y10						IN	Wiring Block side
Y20					IN	IN	
Y30				IN	IN	IN	
Y40			IN	IN	IN	IN	
Y01						OUT	
Y02					OUT	OUT	
Y03				OUT	OUT	OUT	
Y04			OUT	OUT	OUT	OUT	
Y11					OUT	IN	
Y21				OUT	IN	IN	
Y31			OUT	IN	IN	IN	
Y41		OUT	IN	IN	IN	IN	
Y12				OUT	OUT	IN	
Y22			OUT	OUT	IN	IN	
Y32		OUT	OUT	IN	IN	IN	
Y42	OUT	OUT	IN	IN	IN	IN	

*1: How to read the table
Example) Y11 is a combination of one input block (4 points) and one output block (4 points).
2: For details,Pneumatic Valves (CB-023SA) Refer to "I/O point number corresponding to wiring method T8 I/O No."

Refer to the MW4GB2-T* Series in "Pneumatic Valves (CB-023SA)" for dimensions.

Piping

A. Discrete valve block with solenoid valve
* When placing an order for station expansion, tie rods (2 pcs) are attached.

Block assembled from solenoid valve body and valve block (split resin base).
For selection guide, refer to pages 196, 198, 202 to 204 and 208 to 210.

B. Discrete valve block with masking plate
* When placing an order for station expansion, tie rods (2 pcs) are attached.

NW4GA2 - MP ——— R 1 — FP1
NW4GB2 - MPS - C8 - F - FP1
NW4GZ2 - MPD - C8 - F - FP1

Model No. Ⓐ Type Ⓑ Connection Bore size Ⓒ Electrical connections Ⓓ Option

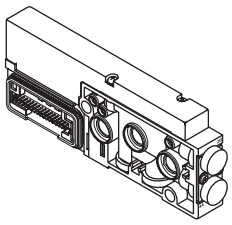
Ⓐ Type (*1)		Ⓑ Port size (*2)		Ⓒ Electrical connections (*3)		Ⓓ Option	
MP	Individual wiring	**C6**	ø6 push-in fitting	**Blank**	DC connector relay board specifications	**Blank**	No option
MPS	For standard wiring (single)	**C8**	ø8 push-in fitting	**R 1**	I/O connector (M12) (500 mm)	**F**	Port A/B filter built in
MPD	For double wiring (single)/ for double/3-position	**C6NC**	Port A/ø6 push-in fitting, port B/plug	**2 to 8**	Select the AC cable length on page 212		
		C6NO	Port A/plug, port B/ø6 push-in fitting				
		C8NC	Port A/ø8 push-in fitting, port B/plug				
		C8NO	Port A/plug, port B/ø8 push-in fitting				

*1: Select MPD for AC voltage since the socket assembly is wired as double solenoid.

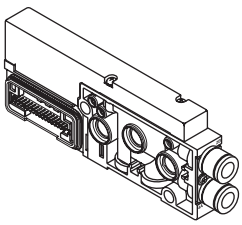
*3: Keep the code blank for DC and specify the cable length of socket assembly for AC. If specified in the manifold specifications sheet, the cable length can be omitted. The socket assembly for AC is wired as double solenoid.

[For DC]

NW4GA2-MPS-FP1

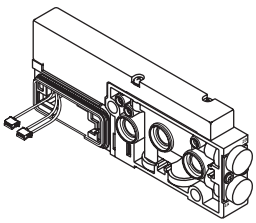


NW4GB2-MPS-C8-FP1

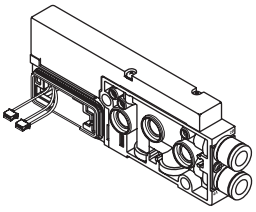


[For AC]

NW4GA2-MPD-2-FP1



NW4GB2-MPD-C8-2-FP1



Piping

C. Discrete valve block (separate item only) * When placing an order for station expansion, tie rods (2 pcs) are attached.

NW4GA2 - V ——— R1 — FP1
NW4GB2 - V1 - C8 - F - FP1
NW4GZ2 - V2 - C8 - F - FP1

Model No. / A Type / B Connection Bore size / C Electrical connections / D Option

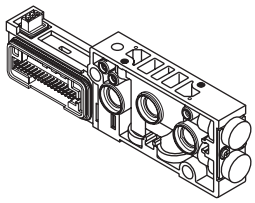
A Type (*1)		B Port size (*2)		C Electrical connections (*3)		D Option	
V	Individual wiring	C6	ø6 push-in fitting	Blank	DC connector relay board specifications	Blank	No option
V1	For standard wiring (single)	C8	ø8 push-in fitting	R 1	I/O connector (M12) (500 mm)	F	Port A/B filter built in
V2	For double wiring (single)/ for double/3-position	C6NC	Port A/ø6 push-in fitting, port B/plug	2 to 8	Select the AC cable length in the table below .		
		C6NO	Port A/plug, port B/ø6 push-in fitting				
		C8NC	Port A/ø8 push-in fitting, port B/plug				
		C8NO	Port A/plug, port B/ø8 push-in fitting				

*1: Select V2 for AC voltage, since the socket assembly is wired as double solenoid.

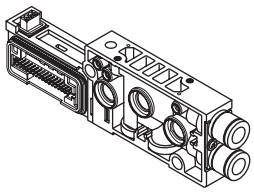
*3: Keep the code blank for DC and specify the cable length of socket assembly for AC. The socket assembly for AC is wired as double solenoid.

[For DC]

NW4GA2-V1-FP1

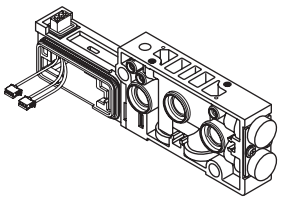


NW4GB2-V2-C8-FP1

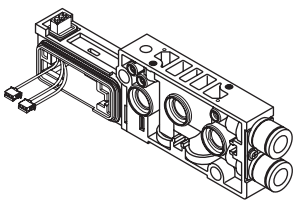


[For AC]

NW4GA2-V2-2-FP1



NW4GB2-V2-C8-2-FP1



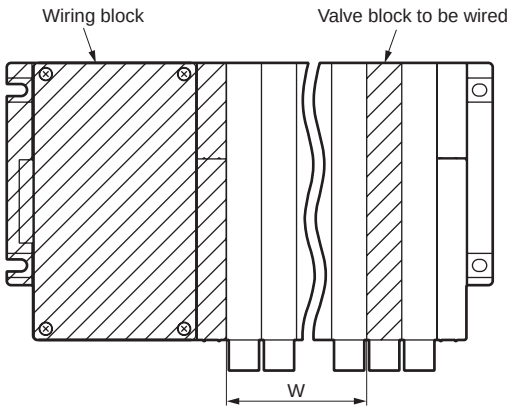
AC valve block cable length

When the total width of supply and exhaust blocks and partition blocks between the valve block to be connected and the wiring block is 63 mm and over (e.g., two supply and exhaust blocks + two partition blocks), calculate the width (W) and select the longer lead wire length closest to the width value.
W=(23.5×n)+(18×m)+(13.5×l)+230
n/m/l: No. of valve blocks/supply and exhaust blocks/partition blocks

Consult with CKD if W exceeds 610 mm.

Selection No.	Cable length
2	1- to 2-station socket assembly (290 mm cable), AC
3	3- to 4-station socket assembly (330 mm cable), AC
4	5- to 6-station socket assembly (380 mm cable), AC
5	7- to 8-station socket assembly (430 mm cable), AC
6	9- to 10-station socket assembly (480 mm cable), AC
7	11- to 14-station socket assembly (530 mm cable), AC
8	15- to 18-station socket assembly (610 mm cable), AC

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 * When placing an order for station expansion, tie rods (2 pcs) are attached.

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 to increase the flow rate for supply and exhaust.
In order to prevent foreign matter from entering, port P is equipped with a filter.

NW4G2 - Q - 8 X - SA - ○ - FP1

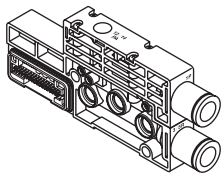
Model No. Ⓐ Type Ⓑ Port size Ⓒ Exhaust Method Ⓓ Option (partition) Ⓔ Voltage

Ⓐ Type (*1)		Ⓑ Port size (port P/R) (*2)		Ⓒ Exhaust method (*3)		Ⓓ Option (partition type) (*4)		Ⓔ Voltage	
Q	Internal pilot	8	ø8 push-in fitting	Blank	Common exhaust	Blank	Without partition	Blank	DC connector relay board specifications
QZ	Multi-pressure circuit	10	ø10 push-in fitting	X	Atmospheric release	SA	P/R/PA/PR blocked	AC	Without AC connector relay board
						S	P/R blocked, PA/PR through		

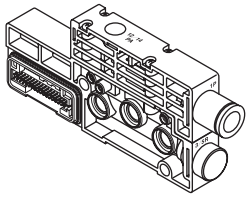
*1: QZ cannot be used independently. Be sure to use with another type (Q).
*2: In order to prevent foreign matter from entering, port P is equipped with a filter.
*3: The atmosphere release (X) discharges exhaust from the end block. Select the atmosphere release type end block (EX) for X.
*4: Specify when integrating partition into the supply and exhaust block. Width of the manifold with multi-pressure can be reduced. In the manifold specifications sheet, specify the mounting position so that the partition is on the left and the supply and exhaust block is on the right.
*5 Select "AC" for individual wiring manifold since it does not need a DC connector relay PCB. Blank is also allowed.

[For DC]

NW4G2-Q-10-FP1



NW4G2-Q-10X-FP1



* Refer to page 191 for circuit diagrams.

E. End block

An exhaust muffler is built into the atmosphere release type.

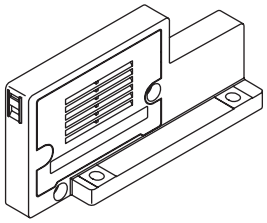
NW4G2 - ER - FP1

Model No. Ⓐ Type

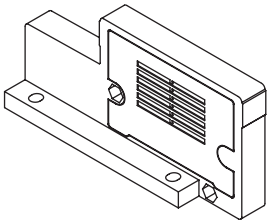
Ⓐ Type (*1)	
EL	Common exhaust Left
ER	Common exhaust Right
EXL	Atmospheric pressure release Left
EXR	Atmospheric pressure release Right

*1: An exhaust muffler is built into the atmosphere release type (EX).

NW4G2-ER-FP1



NW4G2-EL-FP1



F. Partition block * When placing an order for station expansion, tie rods (2 pcs) are attached.

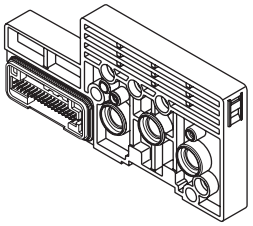
NW4G2 - SA - ○ - FP1

Model No. Ⓐ Type Ⓑ Voltage

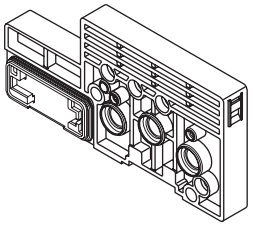
Ⓐ Type (*1)		Ⓑ Voltage	
SA	P/R/PA/PR blocked	Blank	DC connector relay board specifications
S	P/R blocked, PA/PR through	AC	Without AC connector relay board

*1 For blocks other than SA, the PA, PR path of the pilot pressure is not sealed. Take note when configuring the system.
*2 Select "AC" for individual wiring manifold since it does not need a DC connector relay PCB. Blank is also allowed.

[For DC]
NW4G2-S-FP1

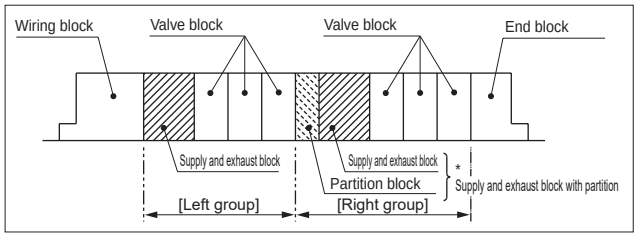


[For AC]
NW4G2-S-AC-FP1



Piping

● Notes on configuring manifold



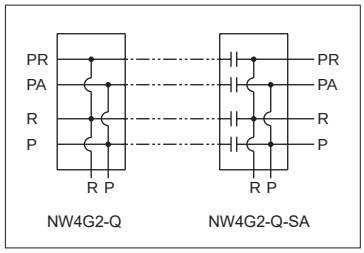
- The selected supply and exhaust block determines internal or external pilot operated. Valve block is the same for both types.
- Multi-pressure type can be included when a partition block is combined with the supply and exhaust block.
- Using a supply and exhaust block with partition that combines the supply and exhaust function and partition in a single block can reduce the manifold width.
- Mount the supply and exhaust block with partition so that the partition is on the left and the supply and exhaust part is on the right with the piping port being on the near side.

● System configurations by block combination

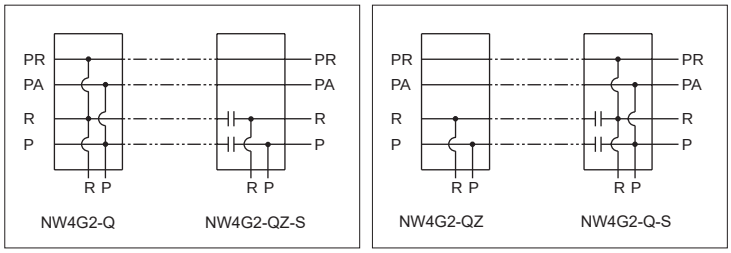
· Combine the partition block and supply and exhaust block or use the supply and exhaust block with partition to configure the desired pneumatic system. As some combinations may cause malfunction depending on the configuration, check the function of each block before actual implementation.
· Use the configuration examples below as a guide. (Supply and exhaust block with partition is used in the examples.)

Configuration for internal pilot (circuit code)

①Two supply pressures within the working pressure (0.2 to 0.7 MPa)

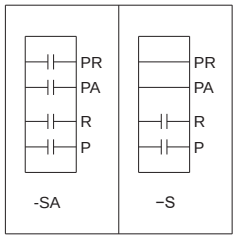


②Supply pressure within the working pressure (0.2 to 0.7 MPa) and supply pressure of low pressure (0.2MPa or less) or low vacuum



* QZ side is the low pressure or low vacuum circuit side.
* In the low vacuum circuit, port R is the vacuum side and port P is open to atmosphere or pressurized.

● Partition specifications (partition block)



Piping

G. Manifold base

Manifold base alone may be ordered. However, specifications are limited.
(The manifold specifications sheet is not necessary when ordering only the manifold base.)

Body piping: **MW4GA2 — 10 ○ U - R 1 ○ ○ - 5 - 3 - FP1**

Base side piping: **MW4GB2 - C8 - 10 ○ U - T10 W ○ - 5 - 3 - FP1**

Base bottom piping: **MW4GZ2 - C8 - 10 ○ U - T10 W ○ - 5 - 3 - FP1**

Model No. Ⓐ Port A/B Port size
Ⓑ Port P/R Port size
Ⓒ Exhaust Method
Ⓓ Port P/R Supply and exhaust position
Ⓔ Wiring Connection Type
Ⓕ Terminal Connector pin Array method
Ⓖ Option
Ⓗ Station No.
Ⓘ Voltage

Ⓐ Port A/B Port size		Ⓑ P/R Port Port size		Ⓒ Exhaust method		Ⓓ P/R Port Supply and exhaust position	
C6	ø6 push-in fitting	8	ø8 push-in fitting	Blank	Common exhaust	D	Left
C8	ø8 push-in fitting	10	ø10 push-in fitting	X	Atmospheric release	U	Right

*1 In the case of X, the end block is an atmosphere release (EX).

Ⓔ Wiring method Note2 (including standard lamp and surge suppressor)			Ⓕ Terminal connector pin Array method	
R 1	Individual wiring I/O cable outlet		W	Double wiring
T10	Common terminal block (M3 screw) Left-sided spec.			
T7EC1	Serial transmission Thin EtherCAT	16-point output (NPN)		
T7ECP1		16 point output(PNP)		
T7EC2		32 point output (NPN)		
T7ECP2		32 point output (PNP)		
T7EN1	Serial transmission Thin EtherNet/IP	16-point output (NPN)		
T7ENP1		16 point output(PNP)		
T7EN2		32 point output (NPN)		
T7ENP2		32 point output (PNP)		
T7EB1	Serial transmission Thin CC-Link IEF Basic	16-point output (NPN)		
T7EBP1		16-point output (PNP)		
T7EB2		32-point output (NPN)		
T7EBP2		32-point output (PNP)		
T7EP1	Serial transmission thin PROFINET	16-point output (NPN)		
T7EPP1		16-point output (PNP)		
T7EP2		32-point output (NPN)		
T7EPP2		32-point output (PNP)		
T7G1	Serial transmission Thin CC-Link	16-point output (NPN)		
T7GP1		16 point output(PNP)		
T7G2		32 point output (NPN)		
T7GP2		32 point output (PNP)		
T7D1	Serial transmission Thin DeviceNet	16-point output (NPN)		
T7DP1		16 point output(PNP)		
T7D2		32 point output (NPN)		
T7DP2		32 point output (PNP)		
T8G1	Serial transmission CC-Link	16 point output		
T8G2		32 point output		
T8D1	Serial transmission DeviceNet	16 point output		
T8D2		32 point output		

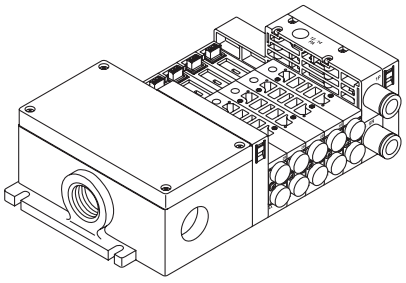
*2 100 VAC is only for common terminal block specifications. Serial transmission is not available with 100 VAC and 12 VDC.

Ⓖ Option *3		Ⓗ Station No. *5		Ⓘ Voltage	
Blank	No option	2	2 stations	1	100 VAC (rectifier integrated) (Made to order)
F	Port A/B filter integrated *4	to	to	3	24 VDC
		16	16 stations	4	12 VDC (Made to order)

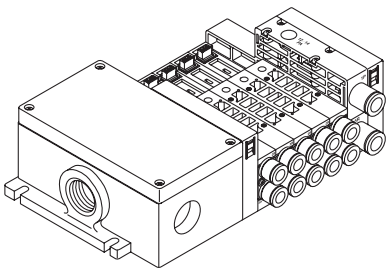
*3: I/O block cannot be selected.
*4: A filter is built into port P.

*5: Differs depending on the reduced wiring specifications. Note that double wiring is applied to those other than the R1 wiring method. Refer to (pages 195, 197, 199 and 205).

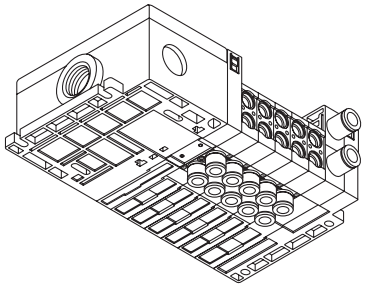
MW4GA2 (Body piping)



MW4GB2 (Base side piping)



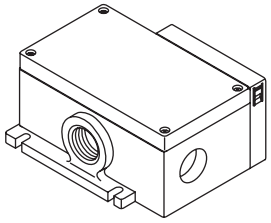
MW4GZ2 (Base bottom piping)



Wiring (Wiring block) * Wiring block cannot be ordered as a separate item.

H. Common terminal box (T10)

NW4G2-T10*-FP1



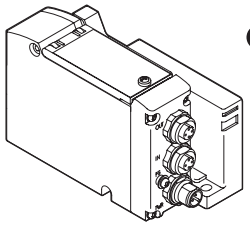
L. Serial transmission block

(When ordered as manifold component and combined with I/O block, an end block is mounted on the left of the I/O block as standard.)

● EtherCAT(T7EC*)

NW4G2 - T7EC1 - FP1

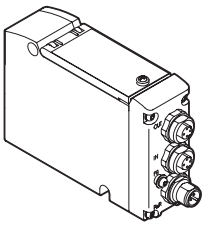
Ⓐ Type



Ⓐ Type	
T7EC1	16 point output (NPN valve output)
T7ECP1	16-point output (PNP valve output)
T7EC2	32 point output (NPN valve output)
T7ECP2	32 point output (PNP valve output)
T7ECB7	16-point I/O (NPN valve output)
T7ECPB7	16-point I/O (PNP valve output)
T7EN1	16 point output(NPN valve output)
T7ENP1	16-point output (PNP valve output)
T7EN2	32 point output (NPN valve output)
T7ENP2	32 point output (PNP valve output)
T7ENB7	16-point I/O (NPN valve output)
T7ENPB7	16-point I/O (PNP valve output)
T7EB1	16-point output (NPN valve output)
T7EBP1	16-point output (PNP valve output)
T7EB2	32-point output (NPN valve output)
T7EBP2	32-point output (PNP valve output)
T7EBB7	16-point I/O (NPN valve output)
T7EBPB7	16-point I/O (PNP valve output)
T7EP1	16-point output (NPN valve output)
T7EPP1	16-point output (PNP valve output)
T7EP2	32-point output (NPN valve output)
T7EPP2	32-point output (PNP valve output)
T7EPB7	16-point I/O (NPN valve output)
T7EPPB7	16-point I/O (PNP valve output)
T7G1	16 point output(NPN valve output)
T7GP1	16-point output (PNP valve output)
T7G2	32 point output (NPN valve output)
T7GP2	32 point output (PNP valve output)
T7GB7	16-point I/O(NPN valve output)
T7GPB7	16-point I/O (PNP valve output)
T7D1	16 point output(NPN valve output)
T7DP1	16-point output (PNP valve output)
T7D2	32 point output (NPN valve output)
T7DP2	32 point output (PNP valve output)
T7DB7	16-point I/O(NPN valve output)
T7DPB7	16-point I/O (PNP valve output)

W4G - OPP8 - 1EC - FP1

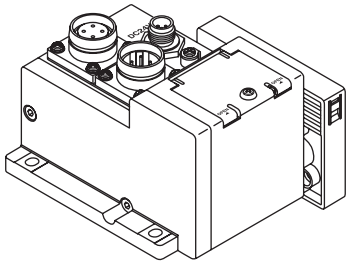
Ⓐ Type



Ⓐ Type		
1EC	T7EC1	16 point output(NPN valve output)
1EC-P	T7ECP1	16-point output (PNP valve output)
2EC	T7EC2	32 point output (NPN valve output)
2EC-P	T7ECP2	32 point output (PNP valve output)
7EC-B	T7ECB7	16-point I/O(NPN valve output)
7EC-PB	T7ECPB7	16-point I/O (PNP valve output)
1EN	T7EN1	16 point output(NPN valve output)
1EN-P	T7ENP1	16-point output (PNP valve output)
2EN	T7EN2	32 point output (NPN valve output)
2EN-P	T7ENP2	32 point output (PNP valve output)
7EN-B	T7ENB7	16-point I/O(NPN valve output)
7EN-PB	T7ENPB7	16-point I/O (PNP valve output)
1EB	T7EB1	16-point output (NPN valve output)
1EB-P	T7EBP1	16-point output (PNP valve output)
2EB	T7EB2	32-point output (NPN valve output)
2EB-P	T7EBP2	32-point output (PNP valve output)
7EB-B	T7EBB7	16-point I/O (NPN valve output)
7EB-PB	T7EBPB7	16-point I/O (PNP valve output)
1EP	T7EP1	16-point output (NPN valve output)
1EP-P	T7EPP1	16-point output (PNP valve output)
2EP	T7EP2	32-point output (NPN valve output)
2EP-P	T7EPP2	32-point output (PNP valve output)
7EP-B	T7EPB7	16-point I/O (NPN valve output)
7EP-PB	T7EPPB7	16-point I/O (PNP valve output)
1G	T7G1	16 point output(NPN valve output)
1G-P	T7GP1	16-point output (PNP valve output)
2G	T7G2	32 point output (NPN valve output)
2G-P	T7GP2	32 point output (PNP valve output)
7G-B	T7GB7	16-point I/O (NPN valve output)
7G-PB	T7GPB7	16-point I/O (PNP valve output)
1D	T7D1	16 point output(NPN valve output)
1D-P	T7DP1	16-point output (PNP valve output)
2D	T7D2	32 point output (NPN valve output)
2D-P	T7DP2	32 point output (PNP valve output)
7D-B	T7DB7	16-point I/O (NPN valve output)
7D-PB	T7DPB7	16-point I/O (PNP valve output)

● CC-Link(T8G*)

NW4GA2-T8G*-FP1

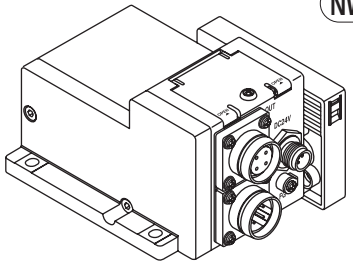


NW4GA2 - T8G1 - FP1

Ⓐ Type

Ⓐ Type	
T8G1	16 point output
T8G2	32 point output
T8G7	16 point input/16 point output

NW4GB2-T8G*-FP1



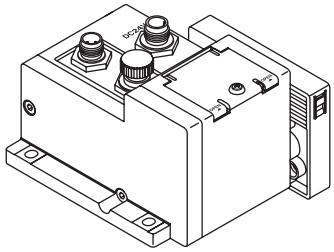
NW4GB2 - T8G1 - FP1

Ⓐ Type

Ⓐ Type	
T8G1	16 point output
T8G2	32 point output
T8G7	16 point input/16 point output

● Device Net (T8D*)

NW4GA2-T8D*-FP1

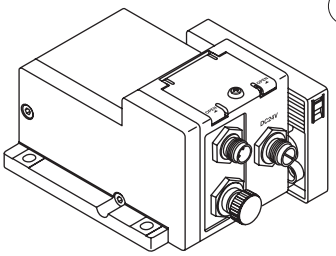


NW4GA2 - T8D1 - FP1

A Type

A Type	
T8D1	16 point output
T8D2	32 point output
T8D7	16 point input/16 point output

NW4GB2-T8D*-FP1



NW4GB2 - T8D1 - FP1

A Type

A Type	
T8D1	16 point output
T8D2	32 point output
T8D7	16 point input/16 point output

M. I/O block

* When placing an order for station expansion, tie rods (2 pcs) are attached.

Top wiring: NW4GA2 - IN - N - K - FP1

Side wiring: NW4GB2 - OUT - N - B - FP1

A I/O

B I/O type

C Power supply

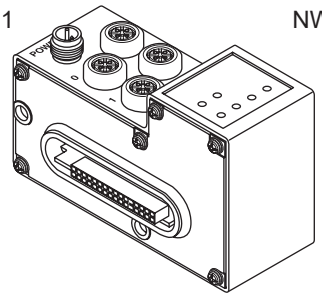
A I/O		B I/O type		C Power supply	
IN	Input	N	Sink	K	Syria(k) Common with transmission slave unit*1, *2
OUT	Output	P	Source	B	External power supply

*1 Output block can be used with external power supply (B) only.

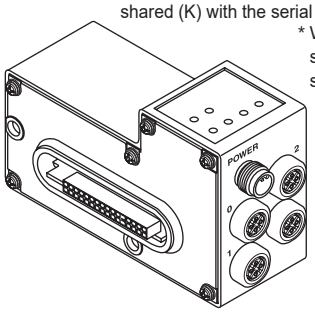
*2 A waterproof cap is attached as standard to the power supply connector of the power supply shared (K) with the serial transmission slave unit.

* When serial transmission slave unit is T7, all are side wiring.

NW4GA2- IN/OUT - N/P - K/B -FP1

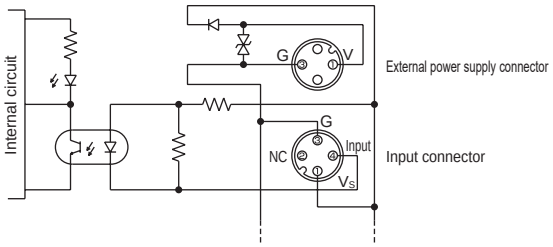
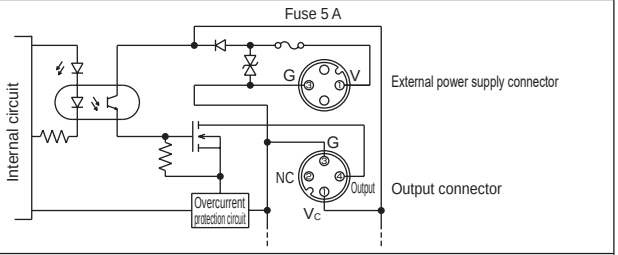
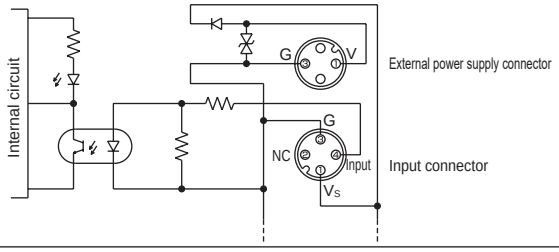
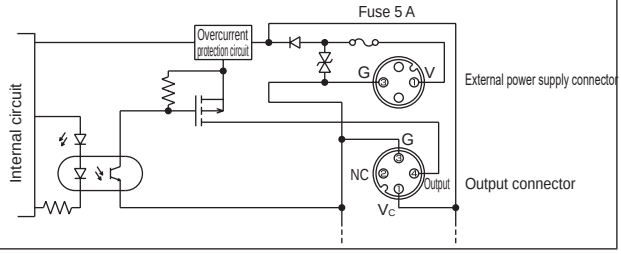


NW4GB2- IN/OUT - N/P - K/B -FP1



* When ordered as manifold component and combined with I/O block, an end block is mounted on the left as standard.

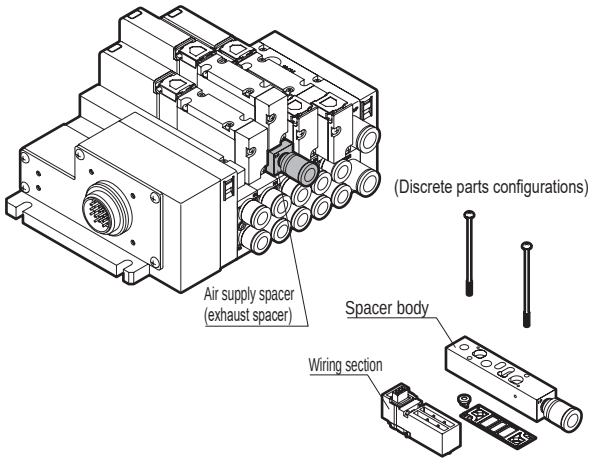
I/O type [Simplified circuit]

	Input block	Output block
Sink		
Source type		

* For the wiring method, refer to "Pneumatic Valves (CB-023SA)".

Related products

● Air supply spacer/exhaust spacer



Specifications

● Air supply spacer

Model No.	P → A/B		A/B → R		Weight
	C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b	g
W4G2-P-*-*-FP1	1.8	0.20	1.6	0.15	60

Note: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

● Exhaust spacer

Model No.	P → A/B		A/B → R		Weight
	C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b	g
W4G2-R-*-*-FP1	1.9	0.20	1.5	0.21	60

Note: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

● Discrete air supply spacer model No.

W4G2 - P ○ - GWS6 - FP1

Ⓐ Type

Ⓑ Port size

Code	Description
Ⓐ Type	
Blank	Internal pilot

Ⓑ Port size		
	Bore size	Description
Blank	Rc1/8	
GWS6	ø6	With GWS6-6-S-FP1
GWS8	ø8	With GWS8-6-S-FP1

● Discrete exhaust spacer model No.

W4G2 - R - GWS6 - FP1

Ⓐ Port size

Ⓐ Port size		
	Bore size	Description
Blank	Rc1/8	
GWS6	ø6	With GWS6-6-S-FP1
GWS8	ø8	With GWS8-6-S-FP1
SLW	With silencer (SLW-6S)	

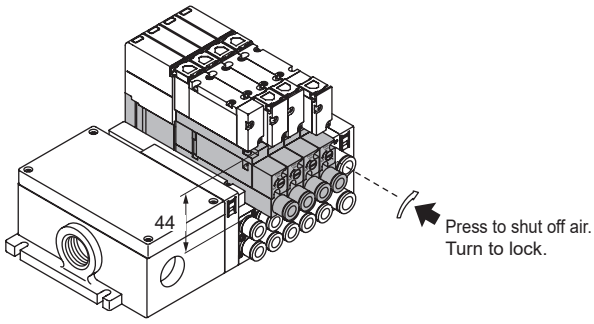
⚠ Precautions for model No. selection

*1: Specify the spacer built-in positions and quantity for manifolds in the manifold specifications sheet (Pages 223 to 226).
*2: Stacking of spacers is not possible.
*3 : A spacer cannot be combined with a masking plate.

NW4G-FP1 Series

Block manifold; Related products

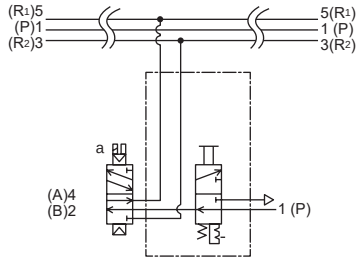
● Individual air supply compatible spacer with in-stop valve spacer



Specifications

Item		W4G2-PIS
Working fluid		Compressed air
Max. working pressure	MPa	0.7
Min. working pressure	MPa	0.2
Proof pressure	MPa	1.05
Flow characteristics C	$dm^3/(s \cdot bar)$	1.1
Ambient temperature	°C	−5 to 55 (no freezing)
Working fluid temperature	°C	5 to 55
Lubrication		Not required
Atmosphere		Cannot be used in corrosive gas environment.
Weight	g	115.4

JIS symbol



How to order discrete units

W4G2 - PIS - GWS6 - FP1

- W4G2: Model No.
- PIS: With in-stop valve spacer — Individual air supply spacer
- GWS6: Ⓐ Port size

Code	Description
Ⓐ Port size	
GWS6	ø6 fitting
GWS8	ø8 fitting

⚠ 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.

Related products Tie rod, silencer, blanking plug, masking plate kit, DIN rail and DIN rail mounting bracket kit

● Tie rod



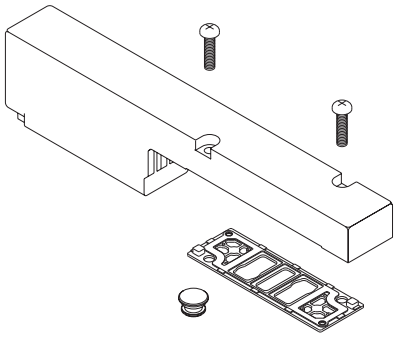
W4G2 - TR - V1 - FP1

- W4G2: Model No.
- V1: Ⓐ Type

Ⓐ Type	
V1	For 1-station valve block (2)
Q	For supply and exhaust block (2)
S	For partition block (2)
M	For I/O block (2)

● Masking plate kit

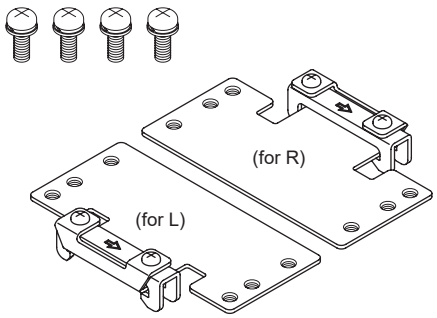
W4G2-MP-FP1



* Kit includes a masking plate, gasket, PR plug and two mounting screws

● DIN rail mounting bracket kit

W4G2-D-FP1



* One DIN rail mounting bracket kit set is for one manifold.
(A kit includes two mounting brackets and four mounting screws.)

MEMO

MW4G2-FP1 Series

How to fill out manifold specifications sheet

● Manifold model No. (example)

Solenoid position 2 types or more
Port size 2 types or more
Serial transmission (CC-Link) (16 point input/16 point output)

MW 4 GA2 8 0- CX - T8G7 W HY11 D - 6 - 3 - FP1

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓔ Reduced wiring connection Ⓕ Terminal/connector pin array Ⓖ Option Ⓗ Mount type Ⓘ Station No. Ⓙ Voltage

Manifold station No. Not the manifold station 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
I/O block (P.217)	NW4GA2-IN-[N]-[K]-FP1	○ at 2	1
	NW4GA2-OUT-[N]-B-FP1	○ at 1	1
Wiring block(P.216)	NW4GA2-T[8G7]-FP1	○ at 3	1
With solenoid valve Valve block (P.202 to 204)	NW4GA2[2]0-[C6]-FP1	○ at 4	1
	NW4GA2[3]0 -[C4]-FP1	○ at 6	1
	NW4GA2[ ]0 -[ ]-FP1	○ at 5	
	NW4GA2[ ]0 -[ ]-FP1		
	NW4GA2[ ]0 -[ ]-FP1		
With masking plate Valve block(P.211)	NW4G2-MPS-FP1		
	NW4G2-MPD-FP1	○ at 12	1
Supply and exhaust block (P.213)	NW4G2-Q[ ]-[8]-[ ]-FP1	○ at 7, ○ at 9	2
	NW4G2-Q[ ]-[ ]-[ ]-FP1		
	NW4G2-Q[ ]-[ ]-[ ]-FP1		
	NW4G2-Q[ ]-[ ]-[ ]-FP1		
Partition block (P.213)	NW4G2-[SA]-FP1	○ at 8	1
	NW4G2-[ ]-FP1		
	NW4G2-[ ]-FP1		
End block R(P.213)	NW4G2-[E]R-FP1	○ at 13	1

When installing both the input and output blocks, Output block is on left side. (with the fitting facing forward)

Manifold station No. : 1st station

Manifold station No. : 6th station

Be sure to fill in at far right.

Mark a circle if necessary.

When the reduced wiring connection is T10
Mark a circle if necessary.
(Select with applicable cable O.D.)

DIN rail	L_7 = [ ] (How to calculate lengthare as listed below)	Blanking plug	Silencer	Tag plate	Cable clamp	Waterproof plug	Included Part
		GWP 4-B / GWP 6-B / GWP 8-B / GWP 10-B	SLW-H8 / SLW-H10	A	W4G-SCL-18A Applicable cable O.D. ø14.5 to 16.5 / W4G-SCL-18B Applicable cable O.D. ø16.5 to 18.5	W4G-XSZ-12	
		Cable with D-sub-connector: N4T-CABLE-DO - [ ] [ ]	Cable with multi-connector: W4G-RMC- [ ]			Multi-connector only: W4G2-RM21WTP- [ ]	

When a blanking plug or silencer is necessary List the quantity in the field for the required size.

For I/O block When necessary, list quantity.

Preparing manifold specifications sheet

- Complete from the left end, with the piping port facing forward, regardless of the wiring block method. (Block components(Pages 211 to 219) and layout instructions.)
- Write the total number of blocks specified in the required 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.

MW4GA/B/Z2 (individual wiring body piping, base side piping, base bottom piping).....Page 223
MW4GA2 (reduced wiring body piping).....Page 224
MW4GB2 (reduced wiring base side piping).....Page 225
MW4GZ2 (reduced wiring base bottom piping).....Page 226

* DIN rail length (L_7)

(1)Determine the rail length using the calculation method shown below. The obtained length is standard.
(2)For standard length, specify the length on the specifications sheet (L_7) is not required. Indicate the length when using a non-standard length.

● How to calculate length of DIN rail

Manifold length (L_6) = (16× Valve Block Quantity) + (18× Supply and exhaust Block Quantity) + (13.5 × Partition Block Quantity) + Wiring block (including end block) + (45× I/O Block Quantity)

Select from the table at right.

DIN rail length (L_7)= L_7' x 12.5

$$L_7' : \frac{L_6+40}{12.5} \rightarrow \text{round up to integer}$$

Rail mounting pitch (L_8)= L_7 −12.5

Wiring block dimensions table

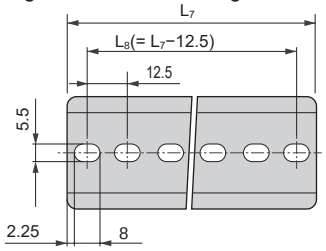
Model No.		Dimensions(mm)
For reduced wiring Wiring block	T10	175.5
	T20	110
	T30/5*	106
	T8*	148.5

* The end block is included in the wiring block.

● DIN rail length quick reference table

L_6 ·· Manifold length	135 or less	135 Over to 147.5 or less	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	360 to 372.5	372.5 to 385	385 to 397.5	397.5 to 410	410 to 422.5	422.5 to 435	435 to 447.5	447.5 to 460	460 to 472.5	472.5 to 485
L_7 · Rail length	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	412.5	425	437.5	450	462.5	475	487.5	500	512.5	525
Pitch L_8	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	412.5	425	437.5	450	462.5	475	487.5	500	512.5

*1: L_6When exceeds this table range, calculate according to "How to calculate DIN rail length".



How to fill out the wiring specifications sheet (AC specifications only)

* This is not required with standard wiring/double wiring.
(With DC specifications, only standard wiring and double wiring will be supported)

● Wiring specifications sheet (example)

*The following example has been filled out in accordance with the manifold specifications sheet on page 221.

Connector pin No.	Valve No.																							
T10	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	a																							
2																								
3			a																					
4			b																					
5		a																						
6		b																						
7				a																				
8																								
9					a																			
10																								
11						a																		
12						b																		
13																								
14																								
15																								
16																								
17																								
18																								
COM																								
COM																								

● Notes on wiring specifications

(1) Fill 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 made to order in this case.

(2) The valve No. is determined by only counting the valve blocks in order from the left with the ports facing forward.
Note that this differs from the installation position numbers.

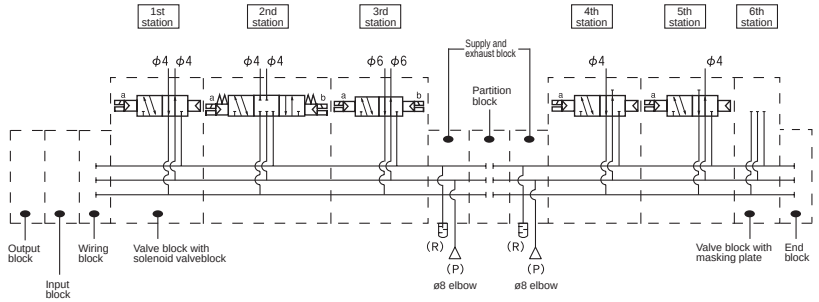
(3) The valve block with masking plate is wired in advance.
"-MPS" will be wired on only the a side while "-MPD" will be wired on the a and b sides.

(4) Double solenoids or 3-position solenoid valves cannot be assembled to "-MPS".
Order valve block with solenoid valve and carry out expansion.
For the procedure for station expansion, refer to "Pneumatic Valves (CB-023SA)".

(5) It is not possible to install spare wires for station expansion only in advance. Install a valve block with a masking plate.

Reference circuit diagram

The circuit diagram of the manifold model No. (example) on the previous page is as shown below.



- [ ] indicates each block configuration.
- The manifold station numbers are set in order from the left with the piping port facing forward.
(* I/O block, 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 block configurations (pages 211 to 219) and individual wiring manifolds (pages 196 and 198), and reduced wiring manifolds (pages 202, 203, 208 and 209).
- With piping port facing front, arrangement positions are set in order from the left.
- When the input block and output block are both being installed, the output block will be on the left side with the piping port facing forward.

MW4GA/B/Z2-FP1 (individual wiring) block manifold specifications sheet

● Contact ● Quantity/set(s) ● Delivery date /

Slip No.	Order No.

Date issued / /
Company
Contact
Order No.

● Manifold model No.

MW ☐ G ☐ 2 ☐ 0- ☐ - R1 ☐ ☐ - ☐ - ☐ - FP1

Ⓐ Model No. Ⓑ Switching position Category Ⓒ Port size Ⓓ Wiring connection Type Ⓔ Option Ⓕ Mount Type Ⓖ Station No. Ⓗ Voltage

When filling in this field, select the model No. from the block configurations (pages 211 to 219), and pages 196, 198

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
With solenoid valve Valve block (P.196, P198)	NW4G☐2☐0-☐-FP1																															
	NW4G☐2☐1-☐-FP1																															
	NW4G☐2☐2-☐-FP1																															
	NW4G☐2☐0-☐-FP1																															
	NW4G☐2☐0-☐-FP1																															
	NW4G☐2☐0-☐-FP1																															
	NW3G☐2☐0-☐-FP1																															
	NW3G☐2☐0-☐-FP1																															
With masking plate Valve block (P.211)	NW4G☐2-MP-☐-R1-FP1																															
	NW4G☐2-MP-☐-R1-FP1																															
	NW4G☐2-MP-☐-R1-FP1																															
Supply and exhaust block (P.213)	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
Various spacers (P.218, P.219)	Air supply spacer W4G2-P☐-☐-FP1																															
	Exhaust spacer W4G2-R-☐-FP1																															
	Individual air supply compatible spacer with in-stop valve spacer W4G2-PIS-☐-FP1																															
Partition block (P.213)	NW4G2-S☐-FP1																															
	NW4G2-S☐-FP1																															
End block (P.213)	NW4G2-E☐L-FP1																															
	NW4G2-E☐R-FP1																															

DIN rail	L_7=☐ (How to calculate length P.221)	Blanking plug						Silencer				Tag plate (included)		Included Part
		GWP 6-B		GWP 8-B		GWP 10-B		SLW-H8		SLW-H10		A or B		

MW4GA2-FP1 (reduced wiring) block manifold specifications sheet

● Contact ● Quantity/set(s) ● Delivery date /

Slip No.	Order No.

Date issued / /

Company

Contact

Order No.

● Manifold model No.

MW□GA2□0-□-□□□□-□-□-□-FP1

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓔ Reduced wiring connection Ⓕ Wiring method Ⓖ Option Ⓗ Mount type Ⓘ Station No. Ⓙ Voltage

When filling in this field, select the model No. from Block configurations (pages 211 to 219), and pages 202 to 204.

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
I/O block (P.217)	NW4G□2-IN-□-□-FP1																															
(*2)	NW4G□2-OUT-□-B-FP1																															
Wiring block (P.216)	NW4G□2-T□-FP1(*1)																															
With solenoid valve Valve block (P.202 to 204)	NW4GA2□0-□-FP1																															
	NW4GA2□0-□-FP1																															
	NW4GA2□0-□-FP1																															
	NW4GA2□0-□-FP1																															
	NW4GA2□0-□-FP1																															
	NW4GA2□0-□-FP1																															
	NW4GA2□0-□-FP1																															
	NW4GA2□0-□-FP1																															
With masking plate Valve block (P.211)	NW4GA2-MPS-FP1																															
	NW4GA2-MPD-FP1																															
Supply and exhaust block (P.213)	NW4G2-Q□-□-□-FP1																															
	NW4G2-Q□-□-□-FP1																															
	NW4G2-Q□-□-□-FP1																															
	NW4G2-Q□-□-□-FP1																															
Various spacers (P.218, P.219)	Air supply spacer W4G2-P□-□-FP1																															
	Exhaust spacer W4G2-R-□-FP1																															
	Individual air supply compatible spacer with in-stop valve spacer W4G2-PIS-□-FP1																															
Partition block (P.213)	NW4G2-□-FP1																															
	NW4G2-□-FP1																															
End block (P.213)	NW4G2-□R-FP1																															

DIN rail (*3)	L_7 = □ (How to calculate length P.221)	Blanking plug				Silencer		Tag plate		Cable clamp				Waterproof plug		Individual parts
		GWP 6-B		GWP 8-B		SLW-H8		A		W4G-SCL-18A		W4G-SCL-18B		W4G-XSZ-12		
		GWP 10-B				SLW-H10				Applicable cable O.D. ø14.5 to 16.5		Applicable cable O.D. ø16.5 to 18.5				
		Cable with D-sub-connector				Cable with multi-connector				Multi-connector only						
		N4T-CABLE-DO□-□				W4G-RMC-□				W4G2-RM21WTP-□						

*1: Specify the model No. for the wiring block in the following manner.

NW4G□2-T□-FP1

Type of wiring block (Refer to page 216)

Blank: T10/T7*Hour
A: when T8*

2: Wiring blockIf is reduced wiring T7, the I/O block will be side wiring and MW4GB2-$^{IN}_{OUT}$ will be selected.

3: T7 is not DIN rail mount.

MW4GB2-FP1(Reduced wiring) block manifold specifications sheet

● Contact ● Quantity/set(s) ● Delivery date /

Slip No.	Order No.

Date issued / /
Company
Contact
Order No.

● Manifold model No.

MW4GB2 ☐ 0- ☐ - ☐ ☐ ☐ ☐ - ☐ - ☐ - FP1

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓔ Reduced wiring connection Ⓕ Terminal/ connector pin array Ⓖ Option Ⓗ Mount type Ⓘ Station No. Ⓙ Voltage

When filling in this field, select the model No. from Block configurations (pages 211 to 219), and pages 208 to 210.

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
I/O block (P.217)	NW4GB2-IN-☐-☐-FP1																															
	NW4GB2-OUT-☐-B-FP1																															
Wiring block (P.216)	NW4G☐2-T☐-FP1(*1)																															
With solenoid valve Valve block (P.208 to 210)	NW4GB2☐0-☐-FP1																															
	NW4GB2☐0-☐-FP1																															
	NW4GB2☐0-☐-FP1																															
	NW4GB2☐0-☐-FP1																															
	NW4GB2☐0-☐-FP1																															
	NW4GB2☐0-☐-FP1																															
	NW4GB2☐0-☐-FP1																															
	NW4GB2☐0-☐-FP1																															
With masking plate Valve block (P.211)	NW4GB2-MPS-☐-FP1																															
	NW4GB2-MPD-☐-FP1																															
Supply and exhaust block (P.213)	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
Various spacers (P.218, P.219)	Air supply spacer W4G2-P☐-☐-FP1																															
	Exhaust spacer W4G2-R-☐-FP1																															
	Individual air supply compatible spacer with in-stop valve spacer W4G2-PIS-☐-FP1																															
Partition block (P.213)	NW4G2-☐-FP1																															
	NW4G2-☐-FP1																															
End block (P.213)	NW4G2-☐R-FP1																															

DIN rail (Note2)	L_{7} = ☐ (How to calculate lengthP.221)	Blanking plug				Silencer		Tag plate		Cable clamp				Waterproof plug		Included parts
		GWP 6-B		GWP 8-B		SLW-H8		B		W4G-SCL-18A		W4G-SCL-18B		W4G-XSZ-12		
		GWP 10-B				SLW-H10				Applicable cable O.D. ø14.5 to 16.5		Applicable cable O.D. ø16.5 to 18.5				
		Cable with D-sub-connector				Cable with multi-connector				Multi-connector only						
		N4T-CABLE-DO☐-☐				W4G-RMC-☐				W4G2-RM21WTP-☐						

*1: Specify the model No. for the wiring block in the following manner. *2:T7* is not DIN rail mount.

NW4G☐2-T☐-FP1

Type of wiring block (Refer to page 216)

Blank: when T10/T7*
B: when T8*

MW4GZ2-FP1(Reduced wiring) block manifold specifications sheet

● Contact ● Quantity/set(s) ● Delivery date /

Slip No.	Order No.

Date issued / /

Company

Contact

Order No.

● Manifold model No.

MW4GZ2 ☐ 0- ☐ - ☐ ☐ ☐ - ☐ - ☐ - FP1

Ⓐ Model No. Ⓑ Solenoid position Ⓒ Port size Ⓔ Reduced wiring connection Ⓕ Terminal/ connector pin array Ⓖ Option Ⓘ Station No. Ⓙ Voltage

When filling in this field, select the model No. from Block configurations (pages 211 to 219), and pages 208 to 210.

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
I/O block (P.217)	NW4GB2-IN-☐-☐-FP1																															
	NW4GB2-OUT-☐-B-FP1																															
Wiring block (P.216)	NW4G☐2-T☐-FP1(*1)																															
With solenoid valve Valve block (P.208 to 210)	NW4GZ2☐0-☐-FP1																															

Common terminal block (T10)-FP1 wiring specifications sheet (AC specifications only)

* Fill in and attach to the manifold specifications sheet for anything other than double wiring. (Available as made to order)
* Not required with double wiring. (With DC specifications, only standard wiring and double wiring will be supported)

Connector pin No.	Valve No.																							
T10	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																								
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COM																								
COM																								

MEMO



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

F.R. combination

C1020/C2020/C2520 C3020/C4020/C6020/C8020-W-FP1 Series

Integrated filter and regulator

● Port size: Rc1/8 to Rc1

JIS symbol 

RoHS CAD

Specifications

Item		C1020-W	C2020-W	C2520-W	C3020-W	C4020-W	C6020-W	C8020-W
Appearance								
System components	Filter	F1000-W	F2000-W	F3000-W	F3000-W	F4000-W	F6000-W	F8000-W
	Regulator	R1000-W	R2000-W	R2000-W	R3000-W	R4000-W	R6000-W	R8000-W
Working fluid		Compressed air						
Max. working pressure MPa		1.0 *2						
Proof pressure MPa		1.5						
Ambient/fluid temperatures °C		5 to 60						*1
Degree of filtration μm		5						
Set pressure MPa		0.05 to 0.85 *2	0.05 to 0.85					
Pressure relief		With relief mechanism						
Drain capacity cm^3		12	25	45	45	80	80	80 (*3)
Port size	Rc *7	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 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	0.28	0.64	0.65	0.79	1.25	2.07	2.93
Standard accessories		Pressure gauge, bracket, bowl guard						

*1: The ambient/fluid temperature of the digital pressure sensor with PPX attached "R2" is 5 to 50°C.
*2: When using C1020 Series "F1" with auto-drain, the min. working pressure is 0.2MPa and max. working pressure is 0.7MPa. Refer to the max. working flow rate table (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for F1000-F1 auto-drain for the max. working flow rate. Set the working flow rate to less than or equal to the max. working flow rate.
*3: The max. capacity of the manual drain cock is $170cm^3$.
*4: In the case of "F" with auto-drain, the min. working pressure of auto-drain is 0.1MPa. Air is purged with initial drainage until pressure reaches 0.1 MPa.
*5: In the case of "F1" with auto-drain, the min. working pressure of auto-drain is 0.15MPa.
*6: C2020-W Series with "F1" (with auto-drain) must be used at equal to or less than the max. working flow rate. (Refer to the F2000-W section (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for max. flow rate.)
*7: NPT and G threads can be manufactured with CKD Sales.

Option weight

* Add to the weight of the standard accessories.

Unit:kg

Code	Drain discharge		Bowl material		Pressure gauge		Pipe adaptor set						
	F	F1	M	M1	T*	RN/RP	A6W	A8W	A10W	A15W	A20W	A25W	A32W
C1020		0.007			0	0.04	0.09	0.09	0.09				
C2020		0.02		0.1	0	0.04		0.16	0.16	0.16			
C2520		0.02	0.1	0.1	0	0.04		0.16	0.16	0.16			
C3020	0.02	0.02	0.1	0.1	0	0.04		0.16	0.16	0.16			
C4020	0.02	0.02	0.1	0.1	0	0.04		0.16	0.16	0.16	0.16		
C6020	0.02	0.02	0.1	0.1	0	0.04					0.53	0.53	0.53
C8020	0.02	0.02	0.1	0.1	0	0.04					0.53	0.53	0.53

Code	Pressure gauge					
	G45P	G49P	G59P	G40P	G52P	R2
C1020	0.074	0.086	0.115	0.085	0.15	0.04
C2020	0.074	0.086		0.085	0.15	0.04
C2520	0.074	0.086	0.115	0.085	0.15	0.04
C3020	0.074	0.086	0.115	0.085	0.15	0.04
C4020	0.074	0.086	0.115	0.085	0.15	0.04
C6020	0.074	0.086	0.115	0.085	0.15	0.04
C8020	0.074	0.086	0.115	0.085	0.15	0.04

How to order

C1020 - 6 - W - L - FP1 - A6W

- C1020 — Ⓐ Model No.
- 6 — Ⓑ Port size
- W — Ⓒ Option
- L — Ⓒ Option
- FP1 — Ⓓ Pipe adaptor set (attachments)
- A6W — Ⓓ Pipe adaptor set (attachments)
- (blank) — Ⓔ Pressure gauge option (included)

* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.

Code	Description	Ⓐ Model No. C1020	C2020	C2520	C3020	C4020	C6020	C8020
Ⓑ Port size								
6	Rc1/8	●						
8	Rc1/4	●	●	●	●	●		
10	Rc3/8		●	●	●	●		
15	Rc1/2					●		
20	Rc3/4					●*1	●	●
25	Rc1						●	●
Ⓒ Option								*2
Drain discharge *3 — **Blank**	Filter with manual drain cock	●	●	●	●	●	●	●
F	Filter/auto-drain with manual override (NO: Exhaust when not pressurized)			●	●	●	●	●
F1	Filter/auto-drain with manual override (NC: No exhaust when not pressurized)	●	●	●	●	●	●	●
Bowl material — **Blank**	Polycarbonate bowl	●	●	●	●	●	●	●
Z	Nylon bowl	●	●	●	●	●	●	●
M	Metal bowl			●	●	●	●	●
M1	Metal bowl with manual drain cock		●	●	●	●	●	●
Element — **Blank**	5 µm	●	●	●	●	●	●	●
Differential pressure detection — **Blank**	Without differential pressure detection port	●	●	●	●	●	●	●
Q	With differential pressure detection port (Rc1/4)						●	●
Pressure Range — **Blank**	0.05 to 0.85 MPa	●	●	●	●	●	●	●
L	0.05 to 0.35 MPa *4	●	●	●	●	●	●	●
Pressure relief — **Blank**	With relief mechanism	●	●	●	●	●	●	●
N	Non-relief	●	●	●	●	●	●	●
Pressure gauge — **Blank**	With standard pressure gage (G401-W)	●	●	●	●	●	●	●
T	No pressure gauge (gauge port (1/4) is assembled sealed)	●	●	●	●	●	●	●
T8	Pressure gauge ready (gauge port (1/4) is left open)	●	●	●	●	●	●	●
T6	Digital pressure sensor PPX attachment option*5	●	●	●	●	●	●	●
Flow direction — **Blank**	Standard flow (left → right)	●	●	●	●	●	●	●
X1	IN/OUT reverse flow (right to left)	●	●	●	●	●	●	●
Ⓓ Pipe adaptor set (attachments)								*6 Refer to CB-024SA
Blank	Not included	●	●	●	●	●	●	●
A6W	Rc1/8 pipe adaptor set	●						
A8W	Rc1/4 pipe adaptor set	●	●	●	●	●		
A10W	Rc3/8 pipe adaptor set	●	●	●	●	●		
A15W	Rc1/2 pipe adaptor set		●	●	●	●		
A20W	Rc3/4 pipe adaptor set					●	●	●
A25W	Rc1 pipe adapter set						●	●
A32W	Rc1 1/4 pipe adapter set						●	●
Ⓔ Pressure gauge option (attachment)								Refer to CB-024SA
Blank	Not included	●	●	●	●	●	●	●
G45P	G45D-8-P10 (L: G45D-8-P04)	●	●	●	●	●	●	●
G49P	G49D-8-P10(L:G49D-8-P04)	●	●	●	●	●	●	●
G59P	G59D-8-P10(L:G59D-8-P04)	●		●	●	●	●	●
G40P	G40D-8-P10(L:G40D-8-P04)	●	●	●	●	●	●	●
G52P	G52D-8-P10(L:G52D-8-P10)	●	●	●	●	●	●	●
R2 *5	Digital pressure sensor: PPX-R10N-6M	●	●	●	●	●	●	●

⚠ Precautions for model No. selection

*1: Pipe adapters (A400-20-W) are assembled on both ends of the C4020-20-W model. "A20W" does not need to be selected for the pipe adapter set.
*2: Select options for the drainage, bowl material, element, differential pressure detection and regulator. When selecting options for several items, list options in order from the top.
*3: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for the auto-drain use conditions.
*4: The pressure gauge's indication range is 0 to 0.4MPa for option "L".
*5: When option "T6" is selected, only "Blank" or "R2" can be selected for Ⓗ pressure gage (included). The digital pressure sensor PPX mounting port (Rc1/8) is assembled open.
*6: The joiner set is attached with the pipe adapter set.

For dimensions, refer to the F.R. combination in "Pneumatic, Vacuum and Auxiliary components (CB-024SA)".



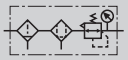
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

F.M.R. combination

C1030/C2030/C2530 C3030/C4030/C6030/C8030-W-FP1 Series

Integrated filter, oil mist filter and regulator

● Port size: Rc1/8 to Rc1

JIS symbol 

RoHS CAD

Specifications

Item		C1030-W	C2030-W	C2530-W	C3030-W	C4030-W	C6030-W	C8030-W
Appearance								
System components	Filter	F1000-W	F2000-W	F3000-W	F3000-W	F4000-W	F6000-W	F8000-W
	Oil mist filter	M1000-W	M2000-W	M3000-W	M3000-W	M4000-W	M6000-W	M8000-W
	Regulator	R1000-W	R2000-W	R2000-W	R3000-W	R4000-W	R6000-W	R8000-W
Working fluid		Compressed air						
Max. working pressure MPa		1.0 *3						
Proof pressure MPa		1.5						
Ambient/fluid temperatures °C		5 to 60						*2
Set pressure MPa		0.05 to 0.85 *3	0.05 to 0.85					
Pressure relief		With relief mechanism						
Port size	Rc *7	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 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 (11/4uses an adaptor)
Weight	kg	0.40	0.98	1.02	1.10	1.86	3.19	4.45
Secondary oil concentration (Oil mist filter outlet side)		0.01mg/m^3 Less than or equal to (0.1mg/m after oil saturation^3 or less)						
Max. flow rate (*1)	m^3/min	0.15	0.25	0.36	0.36	0.825	1.27	2.6

*1:The max. flow is for a primary pressure of 0.7MPa.
*2: The ambient/fluid temperature of the digital pressure sensor with PPX attached "R2" is 5 to 50°C.
*3: When using C1030-W Series "F1" with auto-drain, the NC auto-drain is provided with both the filter and oil mist filter. Min. working pressure is 0.2MPa and max. working pressure is 0.7MPa. Refer to the max. working flow rate table (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for M1000-W-F1 auto-drain for the max. working flow rate.
*4: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for details on other oil mist filters.
*5: In the case of "F" with auto-drain, the supply air pressure is 0.15 MPa or more. For the air filter auto-drain, air is purged with the initial drainage until pressure reaches 0.1 MPa.
*6: When "F1" with an auto-drain is selected, the filter, oil mist filter, and NC auto-drain are assembled, but the supply air pressure must be 0.15 MPa and over.
*7: NPT and G threads can be manufactured with CKD Sales.

Option weight

* Add to the weight of the standard accessories.

Unit:kg

Code	Drain discharge		Bowl material		Pressure gauge		Pipe adaptor set						
	F	F1	M	M1	T*	RN/RP	A6W	A8W	A10W	A15W	A20W	A25W	A32W
C1030		0.014			0	0.04	0.09	0.09	0.09				
C2030		0.04		0.2	0	0.04		0.16	0.16	0.16			
C2530		0.04	0.2	0.2	0	0.04		0.16	0.16	0.16			
C3030	0.04	0.04	0.2	0.2	0	0.04		0.16	0.16	0.16			
C4030	0.04	0.04	0.2	0.2	0	0.04		0.16	0.16	0.16	0.16		
C6030	0.04	0.04	0.2	0.2	0	0.04					0.53	0.53	0.53
C8030	0.04	0.04	0.2	0.2	0	0.04					0.53	0.53	0.53

Code	Pressure gauge					
	G45P	G49P	G59P	G40P	G52P	R2
C1030	0.074	0.086	0.115	0.085	0.15	0.04
C2030	0.074	0.086		0.085	0.15	0.04
C2530	0.074	0.086	0.115	0.085	0.15	0.04
C3030	0.074	0.086	0.115	0.085	0.15	0.04
C4030	0.074	0.086	0.115	0.085	0.15	0.04
C6030	0.074	0.086	0.115	0.085	0.15	0.04
C8030	0.074	0.086	0.115	0.085	0.15	0.04

How to order

C1030 - 6 - W - L - FP1 - A6W

- Ⓐ Model No.
- Ⓑ Port size
- Ⓒ Option
- Ⓓ Pipe adaptor set (attachments)
- Ⓔ Pressure gauge option (included)

* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.

Code		Description	Ⓐ Model No. C1030	C2030	C2530	C3030	C4030	C6030	C8030
Ⓑ Port size									
6		Rc1/8	●						
8		Rc1/4	●	●	●	●	●		
10		Rc3/8		●	●	●	●		
15		Rc1/2					●		
20		Rc3/4					●*1	●	●
25		Rc1						●	●
Ⓒ Option									*2
Drain discharge *3, *4	**Blank**	With manual drain cock	●	●	●	●	●	●	●
	F	Auto-drain with manual override (NO: Exhaust when not pressurized)			●	●	●	●	●
	F1	Auto-drain with manual override (NC: No exhaust when not pressurized)	●	●	●	●	●	●	●
Bowl material	**Blank**	Polycarbonate bowl	●	●	●	●	●	●	●
	Z	Nylon bowl	●	●	●	●	●	●	●
	M	Metal bowl			●	●	●	●	●
	M1	Metal bowl with manual drain cock		●	●	●	●	●	●
Element	**Blank**	5 µm	●	●	●	●	●	●	●
Differential pressure detection	**Blank**	Without differential pressure detection port	●	●	●	●	●	●	●
	Q	With differential pressure detection port (Rc1/4)						●	●
Pressure Range	**Blank**	0.05 to 0.85 MPa	●	●	●	●	●	●	●
	L	0.05 to 0.35 MPa *5	●	●	●	●	●	●	●
Pressure relief	**Blank**	With relief mechanism	●	●	●	●	●	●	●
	N	Non-relief	●	●	●	●	●	●	●
Pressure gauge	**Blank**	With standard pressure gage (G401-W)	●	●	●	●	●	●	●
	T	No pressure gauge (gauge port (1/4) is assembled sealed)	●	●	●	●	●	●	●
	T8	Pressure gauge ready (gauge port (1/4) is left open)	●	●	●	●	●	●	●
	T6	Digital pressure sensor PPX attachment option *6	●	●	●	●	●	●	●
Flow Direction	**Blank**	Standard flow (left → right)	●	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●	●
Ⓓ Pipe adaptor set (attachments)									*6 Refer to CB-024SA
Blank		Not included	●	●	●	●	●	●	●
A6W		Rc1/8 pipe adaptor set	●						
A8W		Rc1/4 pipe adaptor set	●	●	●	●	●		
A10W		Rc3/8 pipe adaptor set	●	●	●	●	●		
A15W		Rc1/2 pipe adaptor set		●	●	●	●		
A20W		Rc3/4 pipe adaptor set					●	●	●
A25W		Rc1 pipe adaptor set						●	●
A32W		Rc1 1/4 pipe adaptor set						●	●
Ⓔ Pressure gauge option (attachment)									Refer to CB-024SA
Blank		Not included	●	●	●	●	●	●	●
G45P		G45D-8-P10 (L: G45D-8-P04)	●	●	●	●	●	●	●
G49P		G49D-8-P10(L:G49D-8-P04)	●	●	●	●	●	●	●
G59P		G59D-8-P10(L:G59D-8-P04)	●		●	●	●	●	●
G40P		G40D-8-P10(L:G40D-8-P04)	●	●	●	●	●	●	●
G52P		G52D-8-P10(L:G52D-8-P10)	●	●	●	●	●	●	●
R2 *6		Digital pressure sensor: PPX-R10N-6M	●	●	●	●	●	●	●

⚠ Precautions for model No. selection

*1: Pipe adapters (A400-20-W) are assembled on both ends of the C4030-20-W model. "A20W" does not need to be selected for the pipe adapter set.
*2: Select options for the drainage, bowl material, element, differential pressure detection and regulator. When selecting options for several items, list options in order from the top.
*3: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for the auto-drain use conditions.
*4: When option code "F" is selected, the NO auto-drain is attached for the air filter and the NC auto-drain is attached for the oil mist filter. For "FF" and "FF1", only the filter has a large discharge rate. The oil mist filter is normal NC auto-drain.
*5: The pressure gauge's indication range is 0 to 0.4MPa for option "L".
*6: When option "T6" is selected, only ", Blank" or "R2" can be selected for Ⓗ Pressure gage (attachment). The digital pressure sensor PPX mounting port (Rc1/8) is assembled open.
*7: The joiner set is attached with the pipe adapter set.

For dimensions, refer to the F.M.R combination in "Pneumatic, Vacuum and Auxiliary components (CB-024SA)".



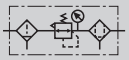
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

W.M. combination Standard White Series

C1040/C2040/C3040/C4040/C8040-W-FP1 Series

Filter/regulator and oil mist filter integrated.

● Port size: Rc1/8 to Rc1

JISCode 

RoHS CAD

Specifications

Item		C1040-W	C2040-W	C3040-W	C4040-W	C8040-W
Appearance						
System components	Filter regulator	W1000-W	W2000-W	W3000-W	W4000-W	W8000-W
	Oil mist filter	M1000-W	M2000-W	M3000-W	M4000-W	M8000-W
Working fluid		Compressed air				
Max. working pressure MPa		1.0 *3				
Proof pressure MPa		1.5				
Ambient/fluid temperatures °C		5 to 60				*2
Set pressure MPa		0.1 to 0.85 *3	0.1 to 0.85 *5, *6			
Pressure relief		With relief mechanism				
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 1/4uses an adaptor)
Weight	kg	0.31	0.74	0.97	1.52	3.52
Secondary oil concentration		0.01mg/m^{3}Less than or equal to (0.1mg/m after oil saturation^{3}or less)				
Max. flow rate (*1)	m^3/min	0.15	0.25	0.36	0.825	2.6

*1: Max. flow rate is for the regulator set pressure 0.7MPa.
*2: The ambient/fluid temperatures for "RN""RP" (pressure switch with display PPR is mounted) and "R2" (digital pressure sensor PPX is attached) are 5 to 50°C.
*3: When using C1040-W Series "F1" with auto-drain, the min. working pressure is 0.2MPa and max. working pressure is 0.7MPa. Refer to the max. working flow rate table (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for F1000-W-F1 auto-drain for the max.
*4: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for details on other oil mist filters.
*5: In the case of "F" with auto-drain, the supply air pressure is 0.2 MPa or more. The minimum set pressure is 0.15 MPa. The supply air pressure of the auto-drain of the filter regulator is 0.1 MPa. Air is purged with initial drain until pressure reaches 0.1 MPa.
*6: In the case of "F1" with auto-drain, the supply air pressure is 0.2 MPa or more. The minimum set pressure is 0.15 MPa.

Option weight

* Add to the weight of the standard accessories.

Unit:kg

Code	Drain discharge				Bowl material		Pressure gauge		Pipe adaptor set						
	F	F1	FF	FF1	M	M1	T*	RN/RP	A6*W	A8*W	A10*W	A15*W	A20*W	A25*W	A32*W
C1040		0.014					0	0.04	0.09	0.09	0.09				
C2040		0.04				0.2	0	0.04		0.16	0.16	0.16			
C3040	0.04	0.04			0.2	0.2	0	0.04		0.16	0.16	0.16			
C4040	0.04	0.04			0.2	0.2	0	0.04		0.16	0.16	0.16	0.16		
C8040	0.04	0.04	0.04	0.04	0.2	0.2	0	0.04					0.53	0.53	0.53

Code	Assembled components				Pressure gauge					
	S	P	V	K	G45P	G49P	G59P	G40P	G52P	R2
C1040	0.15		0.18		0.074	0.086	0.115	0.085	0.15	0.04
C2040	0.23	0.54	0.29	0.34	0.074	0.086		0.085	0.15	0.04
C3040	0.23	0.54	0.29	0.34	0.074	0.086	0.115	0.085	0.15	0.04
C4040	0.23	0.54	0.29	0.34	0.074	0.086	0.115	0.085	0.15	0.04
C8040	0.51			0.34	0.074	0.086	0.115	0.085	0.15	0.04

How to order

C1040 - 6 - W - F1 - FP1 - A6W

- Ⓐ Model No.
- Ⓑ Port size
- Ⓔ Pressure gauge option (attachment)
- Ⓒ Option
- Ⓓ Pipe adaptor set (included)

* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.

Code		Description	Ⓐ Model No. C1040	C2040	C3040	C4040	C8040
Ⓑ Port size							
6		Rc1/8	●				
8		Rc1/4	●	●	●	●	
10		Rc3/8		●	●	●	
15		Rc1/2				●	
20		Rc3/4				●*1	●
25		Rc1					●
Ⓒ Option							*2
Drain discharge *3, *4	**Blank**	With manual drain cock	●	●	●	●	●
	F	Auto-drain with manual override (NO: Exhaust when not pressurized)			●	●	●
	F1	Auto-drain with manual override (NC: No exhaust when not pressurized)	●	●	●	●	●
	FF	Large auto-drain with manual override (NO: Exhaust when not pressurized)					●
	FF1	Large auto-drain with manual override (NC: No exhaust when not pressurized)					●
Bowl material	**Blank**	Polycarbonate bowl	●	●	●	●	●
	Z	Nylon bowl	●	●	●	●	●
	M	Metal bowl			●	●	●
	M1	Metal bowl with manual drain cock		●	●	●	●
Element	**Blank**	5 µm	●	●	●	●	●
Differential pressure detection	**Blank**	Without differential pressure detection port	●	●	●	●	●
	Q	With differential pressure detection port (Rc1/4)					●
Pressure Range	**Blank**	0.1 to 0.85 MPa	●	●	●	●	●
	L	0.1 to 0.35 MPa *5	●	●	●	●	●
Pressure relief	**Blank**	With relief mechanism	●	●	●	●	●
	N	Non-relief	●	●	●	●	●
Pressure gauge	**Blank**	With standard pressure gage (G401-W)	●	●	●	●	●
	T	No pressure gauge (gauge port (1/4) is assembled sealed)	●	●	●	●	●
	T8	Pressure gauge ready (gauge port (1/4) is left open)	●	●	●	●	●
	T6	Digital pressure sensor PPX attachment option *6	●	●	●	●	●
Flow Direction	**Blank**	Standard flow (left → right)	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●
Ⓓ Pipe adaptor set (attachments)			Refer to CB-024SA *7				
Blank		Not included	●	●	●	●	●
A6W		Rc1/8 pipe adaptor set	●				
A8W		Rc1/4 pipe adaptor set	●	●	●	●	
A10W		Rc3/8 pipe adaptor set	●	●	●	●	
A15W		Rc1/2 pipe adaptor set		●	●	●	
A20W		Rc3/4 pipe adaptor set				●	●
A25W		Rc1 pipe adapter set					●
A32W		Rc1 1/4 pipe adapter set					●
Ⓔ Pressure gauge option (attachment)			Refer to CB-024SA				
Blank		Not included	●	●	●	●	●
G45P		G45D-8-P10 (L: G45D-8-P04)	●	●	●	●	●
G49P		G49D-8-P10(L:G49D-8-P04)	●	●	●	●	●
G59P		G59D-8-P10(L:G59D-8-P04)	●		●	●	●
G40P		G40D-8-P10(L:G40D-8-P04)	●	●	●	●	●
G52P		G52D-8-P10(L:G52D-8-P10)	●	●	●	●	●
R2 *6		Digital pressure sensor: PPX-R10N-6M	●	●	●	●	●

⚠ Precautions for model No. selection

1: C4040-20-W has pipe adapters (A400-20-W) assembled on both ends. "A20W" does not need to be selected for the pipe adapter set.

*2: Select Items for the drainage, bowl material, element, differential pressure detection and regulator. When selecting options for several items, list options in order from the top.

*3: Refer to (Pneumatic, Vacuum, and Auxiliary components (CB-024SA)) for the auto-drain use conditions.

*4: When option code "F" is selected, the NO auto-drain is included with the filter/regulator and the NC auto-drain is included with the oil mist filter. When option code "F1" is selected, the NC auto-drain is included with the filter/regulator oil mist filter. For "FF" and "FF1", only the filter/regulator has a large discharge rate. The oil mist filter is normal NC auto-drain.

*5: The pressure gauge's indication range is 0 to 0.4MPa for option "L".

*6: When option "T6" is selected, only ", Blank" or "R2" can be selected for Ⓗ Pressure gage (attachment). The digital pressure sensor PPX mounting port (Rc1/8) is assembled open.

*7: The joiner set is attached with the pipe adapter set.

For dimensions, refer to the W.M. combination in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

R.M. combination Standard White Series

C1050/C2050/C2550 C3050/C4050/C6050/C8050-W-FP1 Series

Integrated regulator and oil mist filter

● Port size: Rc1/8 to Rc1

JISCode 

RoHS CAD

Specifications

Item		C1050-W	C2050-W	C2550-W	C3050-W	C4050-W	C6050-W	C8050-W
Appearance								
System components	Regulator	R1000-W	R2000-W	R2000-W	R3000-W	R4000-W	R6000-W	R8000-W
	Oil mist filter	M1000-W	M2000-W	M3000-W	M3000-W	M4000-W	M6000-W	M8000-W
Working fluid		Compressed air						
Max. working pressure MPa		1.0 *3						
Proof pressure MPa		1.5						
Ambient/fluid temperatures °C		5 to 60 *2						
Set pressure MPa		0.1 to 0.85 *3	0.1 to 0.85 *4					
Pressure relief		With relief mechanism						
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 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	0.29	0.65	0.66	0.82	1.32	2.12	3.12
Secondary oil concentration		0.01mg/m^3 Less than or equal to (0.1mg/m after oil saturation^3 or less)						
Max. flow rate (*1)	m^3/min	0.15	0.25	0.36	0.36	0.825	1.27	2.6

*1: Max. flow rate is for the regulator set pressure 0.7 MPa.
*2: Pressure switch with display PPR assembly "RN"The ambient/fluid temperature of "RP" and "R2" with digital pressure sensor PPX attached is 5 to 50°C.
*3: When using C1040-W Series "F1" with auto-drain, the min. working pressure is 0.2MPa and max. working pressure is 0.7MPa. Refer to the max. working flow rate table (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for F1000-W-F1 auto-drain for the max. working flow rate. Set the working flow rate to less than or equal to the max. working flow rate.
*4: The supply air pressure is 0.2 MPa and over with a min. set pressure of 0.15 MPa.
*5: In the case of "F1" with auto-drain, the supply air pressure is 0.2MPa or more. The minimum set pressure is 0.15 MPa.

Option weight

* Add to the weight of the standard accessories.

Unit:kg

Code	Drain discharge				Bowl material		Pressure gauge		Pipe adaptor set			
	F	F1	FF	FF1	M	M1	T*	RN/RP	A6*W	A8*W	A10*W	A15*W
C1050		0.007					0	0.04	0.09	0.09	0.09	
C2050		0.02				0.1	0	0.04		0.16	0.16	0.16
C2550		0.02			0.1	0.1	0	0.04		0.16	0.16	0.16
C3050	0.02	0.02			0.1	0.1	0	0.04		0.16	0.16	0.16
C4050	0.02	0.02			0.1	0.1	0	0.04		0.16	0.16	0.16
C6050	0.02	0.02			0.1	0.1	0	0.04				
C8050	0.02	0.02	0.02	0.02	0.1	0.1	0	0.04				

Code	Pipe adaptor set			Pressure gauge					
	A20*W	A25*W	A32*W	G45P	G49P	G59P	G40P	G52P	R2
C1020				0.074	0.086	0.115	0.085	0.15	0.04
C2020				0.074	0.086		0.085	0.15	0.04
C2520				0.074	0.086	0.115	0.085	0.15	0.04
C3020				0.074	0.086	0.115	0.085	0.15	0.04
C4020	0.16			0.074	0.086	0.115	0.085	0.15	0.04
C6020	0.53	0.53	0.53	0.074	0.086	0.115	0.085	0.15	0.04
C8020	0.53	0.53	0.53	0.074	0.086	0.115	0.085	0.15	0.04

How to order

C1050 - 6 - W - L - FP1 - A6W

- Ⓐ Model No.
- Ⓑ Port size
- Ⓒ Option
- Ⓓ Pipe adaptor set (attachments)
- Ⓔ Pressure gauge option (attachment)

* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.

Code		Description	Ⓐ Model No. C1050	C2050	C2550	C3050	C4050	C5050	C8050
Ⓑ Port size									
6		Rc1/8	●						
8		Rc1/4	●	●	●	●	●		
10		Rc3/8		●	●	●	●		
15		Rc1/2					●		
20		Rc3/4					●*1	●	●
25		Rc1						●	●
Ⓒ Option									*2
Drain discharge *3	**Blank**	Filter with manual drain cock	●	●	●	●	●	●	●
	F1	Auto-drain with manual override (NC: No exhaust when not pressurized)	●	●	●	●	●	●	●
Bowl material	**Blank**	Polycarbonate bowl	●	●	●	●	●	●	●
	Z	Nylon bowl	●	●	●	●	●	●	●
	M	Metal bowl			●	●	●	●	●
	M1	Metal bowl with manual drain cock		●	●	●	●	●	●
Differential pressure detection	**Blank**	Without differential pressure detection port	●	●	●	●	●	●	●
	Q	With differential pressure detection port (Rc1/4)						●	●
Pressure Range	**Blank**	0.1 to 0.85 MPa	●	●	●	●	●	●	●
	L	0.1 to 0.35 MPa *4	●	●	●	●	●	●	●
Pressure relief	**Blank**	With relief mechanism	●	●	●	●	●	●	●
	N	Non-relief	●	●	●	●	●	●	●
Pressure gauge	**Blank**	With standard pressure gage (G401-W)	●	●	●	●	●	●	●
	T	No pressure gauge (gauge port (1/4) is assembled sealed)	●	●	●	●	●	●	●
	T8	Pressure gauge ready (gauge port (1/4) is left open)	●	●	●	●	●	●	●
	T6	Digital pressure sensor PPX attachment option *5	●	●	●	●	●	●	●
Flow Direction	**Blank**	Standard flow (left → right)	●	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●	●
Ⓓ Pipe adaptor set (attachments)			Refer to CB-024SA						*6
Blank		Not included	●	●	●	●	●	●	●
A6W		Rc1/8 pipe adaptor set	●						
A8W		Rc1/4 pipe adaptor set	●	●	●	●	●		
A10W		Rc3/8 pipe adaptor set	●	●	●	●	●		
A15W		Rc1/2 pipe adaptor set		●	●	●	●		
A20W		Rc3/4 pipe adaptor set					●	●	●
A25W		Rc1 pipe adapter set						●	●
A32W		Rc1 1/4 pipe adapter set						●	●
Ⓔ Pressure gauge option (attachment)			Refer to CB-024SA						
Blank		Not included	●	●	●	●	●	●	●
G45P		G45D-8-P10 (L: G45D-8-P04)	●	●	●	●	●	●	●
G49P		G49D-8-P10(L:G49D-8-P04)	●	●	●	●	●	●	●
G59P		G59D-8-P10(L:G59D-8-P04)	●		●	●	●	●	●
G40P		G40D-8-P10(L:G40D-8-P04)	●	●	●	●	●	●	●
G52P		G52D-8-P10(L:G52D-8-P10)	●	●	●	●	●	●	●
R2 *5		Digital pressure sensor: PPX-R10N-6M	●	●	●	●	●	●	●

⚠ Precautions for model No. selection

1: C4050-20-W has pipe adapters (A400-20-W) assembled on both ends. "A20W" does not need to be selected for the pipe adapter set.
*2: Select Items for the drainage, bowl material, element, differential pressure detection and regulator. When selecting options for several items, list options in order from the top.
*3: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for the auto-drain use conditions.
*4: The pressure gauge's indication range is 0 to 0.4MPa for option "L".
*5: When option "T6" is selected, only ", Blank" or "R2" can be selected for Ⓗ Pressure gauge (attachment). The digital pressure sensor PPX mounting port (Rc1/8) is assembled open.
*6: The joiner set is included with the pipe adapter set.

For dimensions, refer to the R.M. combination in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

F.M. combination

C1060/C2060/C3060/ C4060/C6060/C8060-W-FP1 Series

Filter and oil mist filter integrated.

● Port size: Rc1/8 to Rc1

JISCode 

RoHS CAD

Specifications

Item		C1060-W	C2060-W	C3060-W	C4060-W	C6060-W	C8060-W
Appearance							
System components	Filter	F1000-W	F2000-W	F3000-W	F4000-W	F6000-W	F8000-W
	Oil mist filter	M1000-W	M2000-W	M3000-W	M4000-W	M6000-W	M8000-W
Working fluid		Compressed air					
Max. working pressure MPa		1.0 *2, 3, 4					
Proof pressure MPa		1.5 *2					
Ambient/fluid temperatures °C		5 to 60					
Port size	Rc *6	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 1/4uses an adaptor)
Weight	kg	0.22	0.58	0.62	1.06	2.02	2.68
Secondary oil concentration		0.01mg/m^3 Less than or equal to (0.1mg/m after oil saturation^3 or less)					
Max. flow rate (*1)	m^3/min	0.15 *2	0.25	0.36	0.825	1.27	2.6

*1: The max. flow is for a primary pressure of 0.7 MPa.

*2: When "F1" with auto-drain is selected, the NC auto-drain is provided with both the filter and oil mist filter. The min. working pressure is 0.2MPa, the max. working pressure is 0.7MPa and the proof pressure is 1.05MPa. For the max. working flow rate, refer to the max. working flow rate table of M1000-W-F1 with auto-drain (Pneumatic, Vacuum, and Auxiliary components (CB-024SA)). The working flow must be less than the max. working flow.

*3: In the case of "F" with auto-drain, the supply air pressure is 0.15MPa or more. For the air filter auto-drain, air is purged with the initial drainage until pressure reaches 0.1 MPa.

*4: In the case of "F1" with auto-drain, the required supply air pressure is 0.15MPa or more.

*5: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for details on other oil mist filters.

*6: Contact CKD for the NPT and G threads.

Option weight

* Add to the weight of the standard accessories.

Unit:kg

Code	Drain discharge		Bowl material		Pipe adaptor set						
	F	F1	M	M1	A6W	A8W	A10W	A15W	A20W	A25W	A32W
C1060		0.014			0.09	0.09	0.09				
C2060		0.04		0.2		0.16	0.16	0.16			
C3060	0.04	0.04	0.2	0.2		0.16	0.16	0.16			
C4060	0.04	0.04	0.2	0.2		0.16	0.16	0.16			
C6060	0.04	0.04	0.2	0.2					0.53	0.53	0.53
C8060	0.04	0.04	0.2	0.2					0.53	0.53	0.53

How to order

C1060 - 6 - W - Z - FP1 - A6W

- Ⓐ Model No.
- Ⓑ Port size
- Ⓒ Option
- Ⓓ Pipe adaptor set (attachments)

* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.

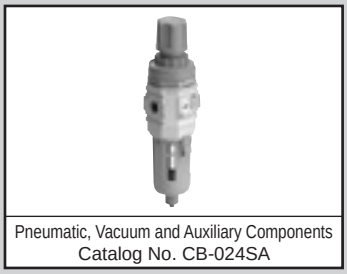
Code	Content/Volume	Ⓐ Model No. C1060	C2060	C3060	C4060	C9060	C8060
Ⓑ Port size							
6	Rc1/8	●					
8	Rc1/4	●	●	●	●		
10	Rc3/8		●	●	●		
15	Rc1/2				●		
20	Rc3/4				●*1	●	●
25	Rc1					●	●
Ⓒ Option							*2
Drain discharge *3, *4 **Blank**	With manual drain cock	●	●	●	●	●	●
Drain discharge *3, *4 **F**	Auto-drain with manual override (NO: Exhaust when not pressurized)			●	●	●	●
Drain discharge *3, *4 **F1**	Auto-drain with manual override (NC: No exhaust when not pressurized)	●	●	●	●	●	●
Bowl material **Blank**	Polycarbonate bowl	●	●	●	●	●	●
Bowl material **Z**	Nylon bowl	●	●	●	●	●	●
Bowl material **M**	Metal bowl			●	●	●	●
Bowl material **M1**	Metal bowl with manual drain cock		●	●	●	●	●
Element **Blank**	5 µm	●	●	●	●	●	●
Differential pressure detection **Blank**	Without differential pressure detection port	●	●	●	●	●	●
Differential pressure detection **Q**	With differential pressure detection port (Rc1/4)					●	●
Flow Direction **Blank**	Standard flow (left → right)	●	●	●	●	●	●
Flow Direction **X1**	Reverse flow (right → left)	●	●	●	●	●	●

Ⓓ Pipe adaptor set (attachments)		*5 Refer to CB-024SA					
Blank	Not included	●	●	●	●	●	●
A6W	Rc1/8 pipe adaptor set	●					
A8W	Rc1/4 pipe adaptor set	●	●	●	●		
A10W	Rc3/8 pipe adaptor set	●	●	●	●		
A15W	Rc1/2 pipe adaptor set		●	●	●		
A20W	Rc3/4 pipe adaptor set					●	●
A25W	Rc1 pipe adapter set					●	●
A32W	Rc1 1/4 pipe adapter set					●	●

⚠ Precautions for model No. selection

*1: C4060-20-W has pipe adapters (A400-20-W) assembled on both ends. "A20W" does not need to be selected for the pipe adapter set.
*2: Select Items for the drainage, bowl material, element and differential pressure detection. When selecting options for several items, list options in order from the top.
*3: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for the auto-drain use conditions.
*4: When option code "F" is selected, the NO auto-drain is supplied with the air filter and the NC auto-drain is supplied with the oil mist filter. When option code "F1" is selected, the NC auto-drain is included with the air filter and oil mist filter. For "FF" and "FF1", only the filter has a large discharge rate. The oil mist filter is normal NC auto-drain.
*5: The joiner set is attached with the pipe adapter set.

For dimensions, refer to the F.M. combination in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

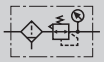
Filter/regulator

W 1000/W2000/W3000/W4000/W8000-W-FP1 Series

Dust removing 5 μm

● Port size: Rc1/8 to Rc1

JISCode



RoHS CAD

Specifications

Item	W1000-W	W2000-W	W3000-W	W4000-W	W8000-W
Appearance					
Working fluid	Compressed air				
Max. working pressure MPa	1.0 *1, 2, 3				
Proof pressure MPa	1.5 *1				
Ambient/fluid temperatures °C	5 to 60 *4				
Filtration rating μm	5		5 or 0.3		
Set pressure MPa	0.05 to 0.85 *1	0.05 to 0.85			
Pressure relief	With relief mechanism				
Drain capacity cm^3	12	25	45	80	80 (*5)
Port size Rc *7	1/8, 1/4 (3/8 uses an adaptor)	1/4, 3/8 (1/2 uses an adaptor)	1/4, 3/8,1/2	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	0.6	0.9	2.0
Standard accessories	Pressure gauge and bowl guard				

*1: When using W1000-W Series "F1" with auto-drain, the min. working pressure is 0.2MPa, the max. working pressure is 0.7MPa and the proof pressure is 1.05MPa. For the max. working flow rate, refer to the max. working flow rate table of F1000-W-F1 with auto-drain (Pneumatic, Vacuum, and Auxiliary components (CB-024SA)). Set the working flow rate to less than or equal to the max. working flow rate.

*2: In the case of "F" with auto-drain, the min. working pressure of auto-drain is 0.1 MPa.
Air is purged with initial drainage until pressure reaches 0.1 MPa.

*3: In the case of "F1" with auto-drain, the min. working pressure of auto-drain is 0.15 MPa.

*4: The ambient/fluid temperature of the digital pressure sensor with PPX attached "R2" is 5 to 50°C.

*5: The max. capacity of the manual drain cock is 170cm^3.

*6: W2000-W Series with "F1" (with auto-drain) must be used at equal to or less than the max. working flow rate. (Refer to Pneumatic, Vacuum, and Auxiliary Components (CB-024SA) for max. flow rate.)

*7: NPT and G threads can be manufactured with CKD Sales.

Option weight

* Add to the weight of the standard accessories.

Unit:kg

Code	Drain discharge		Bowl material		Pressure gauge	Pipe adaptor set			
	F	F1	M	M1	T*	A6W	A8W	A10W	A15W
W 1000		0.007			0	0.09	0.09	0.09	
W 2000		0.02		0.1	0		0.16	0.16	0.16
W 3000	0.02	0.02	0.1	0.1	0		0.16	0.16	0.16
W 4000	0.02	0.02	0.1	0.1	0		0.16	0.16	0.16
W 8000	0.02	0.02	0.1	0.1	0				

Code	Pipe adaptor set			Attachment							
	A20W	A25W	A32W	BW	B3W	G45P	G49P	G59P	G40P	G52P	R 2
W 1000				0.1	0.04	0.074	0.086	0.115	0.085	0.15	0.04
W 2000				0.15	0.06	0.074	0.086		0.085	0.15	0.04
W 3000				0.17	0.07	0.074	0.086	0.115	0.085	0.15	0.04
W 4000	0.16			0.21	0.11	0.074	0.086	0.115	0.085	0.15	0.04
W 8000	0.53	0.53	0.53	0.36		0.074	0.086	0.115	0.085	0.15	0.04

How to order

W1000 - 6 - W - Z - FP1 - A6W

- W1000 — Ⓐ Model No.
- 6 — Ⓑ Port size
- Z — Ⓒ Option
- A6W — Ⓓ Pipe adaptor setG (included)
- Ⓔ Other attachments

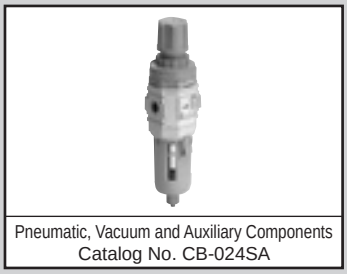
* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.

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 *2	Blank	Manual drain cock	●	●	●	●	●
	F	Auto-drain with manual override (NO: Exhaust when not pressurized)			●	●	●
	F1	Auto-drain with manual override (NC: No exhaust when not pressurized)	●	●	●	●	●
Bowl material	Blank	Polycarbonate bowl	●	●	●	●	●
	Z	Nylon bowl	●	●	●	●	●
	M	Metal bowl			●	●	●
	M1	Metal bowl with manual drain cock		●	●	●	●
Element	Blank	5 µm	●	●	●	●	●
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	Blank	With standard pressure gauge (G401-W)	●	●	●	●	●
	T	No pressure gauge (gauge port (1/4) is assembled sealed)	●	●	●	●	●
	T8	Pressure gauge ready (gauge port (1/4) is left open)	●	●	●	●	●
	T6	Digital pressure sensor PPX attachment option *4	●	●	●	●	●
Flow Direction	Blank	Standard flow (left → right)	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●
Ⓓ Pipe adaptor set (attachments)			*5, *6 Refer to CB-024SA				
Blank		Not included	●	●	●	●	●
A6W		Rc1/8 pipe adaptor set	●				
A8W		Rc1/4 pipe adaptor set	●	●	●	●	
A10W		Rc3/8 pipe adaptor set	●	●	●	●	
A15W		Rc1/2 pipe adaptor set		●	●	●	
A20W		Rc3/4 pipe adaptor set				●	●
A25W		Rc1 pipe adapter set					●
A32W		Rc1 1/4 pipe adapter set					●
Ⓔ Other attachments			*7 Refer to CB-024SA				
Blank		Not included	●	●	●	●	●
BW		C-bracket	●	●	●	●	●
B3W		L type bracket *8	●	●	●	●	
G45P		G45D-8-P10 (L: G45D-8-P04)	●	●	●	●	●
G49P		G49D-8-P10(L:G49D-8-P04)	●	●	●	●	●
G59P		G59D-8-P10(L:G59D-8-P04)	●		●	●	●
G40P		G40D-8-P10(L:G40D-8-P04)	●	●	●	●	●
G52P		G52D-8-P10(L:G52D-8-P10)	●	●	●	●	●
R2 *4		Digital pressure sensor: PPX-R10N-6M	●	●	●	●	●

⚠ Precautions for model No. selection

*1: Select options for the drainage, bowl material, element, and regulator. When selecting options for several items, list options in order from the top.
*2: Refer to (Pneumatic, Vacuum, and Auxiliary components (CB-024SA)) for the auto-drain use conditions.
*3: The pressure gauge's indication range is 0 to 0.4MPa for option "L".
*4: When option "T6" is selected, only ", Blank" or "R2" can be selected for Ⓗ Pressure gauge (attachment). The digital pressure sensor PPX mounting port (Rc1/8) is assembled open.
*5: The pipe adaptor set and C type bracket cannot be used together.
*6: The joiner set is attached with the pipe adapter set.
*7: An R thread pressure gauge is attached.
*8: For mounting an L type bracket, refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA).

For dimensions, refer to the filter/regulator in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Reverse filter/regulator

W 1100/W2100/W3100/W4100/W8100-W-FP1 Series

Introducing the 5 µm dust removing element and 0.3 µm tar removing element with reverse flow function to the lineup.

● Port size: Rc1/8 to Rc1

JISCode 

RoHS CAD

Specifications

Item	W1100-W	W2100-W	W3100-W	W4100-W	W8100-W
Appearance					
Working fluid	Compressed air				
Max. working pressure MPa	1.0 *1, 2, 3				
Proof pressure MPa	1.5 *3				
Ambient/fluid temperatures °C	5 to 60 *4				
Filtration rating µm	5		5 or 0.3		
Set pressure (*2) MPa	0.05 to 0.85 *1	0.05 to 0.85			
Pressure relief	With relief mechanism				
Drain capacity cm^3	12	25	45	80	80 (*5)
Port size Rc *9	1/8, 1/4 (3/8 uses an adaptor)	1/4, 3/8 (1/2 uses an adaptor)	1/4, 3/8,1/2	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	0.6	0.9	2.0
Standard accessories	Pressure gauge and bowl guard				

*1: In the case of "F" with auto-drain, the min. working pressure of auto-drain is 0.1 MPa. Air is purged with initial drainage until pressure reaches 0.1 MPa.
*2: In the case of "F1" with auto-drain, the min. working pressure of auto-drain is 0.15 MPa.
*3: When using W1100 Series "F1" with auto-drain, the min. working pressure is 0.2MPa, the max. working pressure is 0.7MPa and the proof pressure is 1.05MPa. For the max. working flow rate, refer to the max. working flow rate table of F1000-F1 with auto-drain (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)). Set the working flow rate to less than or equal to the max. working flow rate.
*4: The ambient/fluid temperature of the digital pressure sensor with PPX attached "R2" is 5 to 50°C.
*5: The max. capacity of the manual drain cock is 170cm^3.
*6: Check that the primary pressure is at least 0.05MPa or more than the secondary pressure.
*7: Refer to the set pressure range for the back pressure given in (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) when selecting the model.
*8: W2100-W Series with "F1" (with auto-drain) must be used at equal to or less than the max. working flow rate. (Refer to the F2000-W section in Pneumatic, Vacuum, and Auxiliary Components (CB-024SA) for max. flow rate.)
*9: NPT and G threads can be manufactured with CKD Sales.

Option weight

* Add to the weight of the standard accessories.

Unit:kg

Code	Drain discharge		Bowl material		Pressure gauge	Pipe adaptor set			
	F	F1	M	M1	T*	A6W	A8W	A10W	A15W
W1100		0.007			0	0.09	0.09	0.09	
W2100		0.02		0.1	0		0.16	0.16	0.16
W3100	0.02	0.02	0.1	0.1	0		0.16	0.16	0.16
W4100	0.02	0.02	0.1	0.1	0		0.16	0.16	0.16
W8100	0.02	0.02	0.1	0.1	0				

Code	Pipe adaptor set			Attachment							
	A20W	A25W	A32W	BW	B3W	G45P	G49P	G59P	G40P	G52P	R2
W1100				0.1	0.04	0.074	0.086	0.115	0.085	0.15	0.04
W2100				0.15	0.06	0.074	0.086		0.085	0.15	0.04
W3100				0.17	0.07	0.074	0.086	0.115	0.085	0.15	0.04
W4100	0.16			0.21	0.11	0.074	0.086	0.115	0.085	0.15	0.04
W8100	0.53	0.53	0.53	0.36		0.074	0.086	0.115	0.085	0.15	0.04

How to order

W1100 – 6 – W – Z – FP1 – A6W – (E)

- (A) Model No.
- (B) Port size
- (C) Option
- (D) Pipe adaptor set (attachments)
- (E) Other attachments

* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.

Code		Description	(A) Model No. W1100	W2100	W3100	W4100	W8100
(B) Port size							
6		Rc1/8	●				
8		Rc1/4	●	●	●	●	
10		Rc3/8		●	●	●	
15		Rc1/2			●	●	
20		Rc3/4					●
25		Rc1					●
(C) Option			Note1,Note2				
Drain discharge *3	Blank	Manual drain cock	●	●	●	●	●
	F	Auto-drain with manual override (NO: Exhaust when not pressurized)			●	●	●
	F1	Auto-drain with manual override (NC: No exhaust when not pressurized)	●	●	●	●	●
Bowl material	Blank	Polycarbonate bowl	●	●	●	●	●
	Z	Nylon bowl	●	●	●	●	●
	M	Metal bowl			●	●	●
	M1	Metal bowl with manual drain cock		●	●	●	●
Element	Blank	5 µm	●	●	●	●	●
Pressure Range	Blank	0.05 to 0.85 MPa	●	●	●	●	●
	L	0.05 to 0.35 MPa *4	●	●	●	●	●
Pressure relief	Blank	With relief mechanism	●	●	●	●	●
	N	Non-relief	●	●	●	●	●
Pressure gauge	Blank	With standard pressure gauge (G401-W)	●	●	●	●	●
	T	No pressure gauge (gauge port (1/4) is assembled sealed)	●	●	●	●	●
	T8	Pressure gauge ready (gauge port (1/4) is left open)	●	●	●	●	●
	T6	Digital pressure sensor PPX attachment option *5	●	●	●	●	●
Flow Direction	Blank	Standard flow (left → right)	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●
(D) Pipe adaptor set (attachments) *6, *7 Refer to CB-024SA							
Blank		Not included	●	●	●	●	●
A6W		Rc1/8 pipe adaptor set	●				
A8W		Rc1/4 pipe adaptor set	●	●	●	●	
A10W		Rc3/8 pipe adaptor set	●	●	●	●	
A15W		Rc1/2 pipe adaptor set		●	●	●	
A20W		Rc3/4 pipe adaptor set				●	●
A25W		Rc1 pipe adapter set					●
A32W		Rc1 1/4 pipe adapter set					●
(E) Other attachments *8 Refer to CB-024SA							
Blank		Not included	●	●	●	●	●
BW		C-bracket	●	●	●	●	●
B3W		L-bracket *9	●	●	●	●	
G45P		G45D-8-P10 (L: G45D-8-P04)	●	●	●	●	●
G49P		G49D-8-P10(L:G49D-8-P04)	●	●	●	●	●
G59P		G59D-8-P10(L:G59D-8-P04)	●		●	●	●
G40P		G40D-8-P10(L:G40D-8-P04)	●	●	●	●	●
G52P		G52D-8-P10(L:G52D-8-P10)	●	●	●	●	●
R2 *5		Digital pressure sensor: PPX-R10N-6M	●	●	●	●	●

⚠ Precautions for model No. selection

*1: Select options for the drainage, bowl material, element, and regulator. 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: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for the auto-drain use conditions.
*4: The pressure gauge's indication range is 0 to 0.4MPa for option "L".
*5: When option "T6" is selected, only ", Blank" or "R2" can be selected for (H) Pressure gauge (attachment). The digital pressure sensor PPX mounting port (Rc1/8) is assembled open.
*6: The pipe adaptor set and C type bracket cannot be used together.
*7: The joiner set is attached with the pipe adapter set.
*8: An R thread pressure gauge is attached.
*9: For mounting an L type bracket, refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA).

For dimensions, refer to the reverse filter/regulator in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Air filter

F1000/F2000/F3000 F4000/F6000/F8000-W-FP1 Series

5 µm element is used for dust removal.

● Port size: Rc1/8 to Rc1

JISCode

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 *1, 2, 3					
Proof pressure MPa	1.5 *1					
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 (*4)
Port size Rc *5	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					

*1: When using F1000-W Series "F1" with auto-drain, the min. working pressure is 0.2MPa, the max. working pressure is 0.7MPa and the proof pressure is 1.05MPa. For the max. flow rate, refer to the max. working flow rate table of F1000-W-F1 with auto-drain (table below). Set the working flow rate to less than or equal to the max. working flow rate. When using F-2000W Series "F1" with auto-drain, refer to the max. working flow rate (table below). The working flow rate must be less than the max. working flow rate.
*2: In the case of "F" with auto-drain, the min. working pressure of auto-drain is 0.1 MPa. Air is purged with initial drain until pressure reaches 0.1 MPa.
*3: In the case of "F1" with auto-drain, the min. working pressure of auto-drain is 0.15MPa.
*4: The max. capacity of the manual drain cock is $170cm^3$.
*5: NPT and G threads can be manufactured with CKD Sales.

● F1000-W-F1 with auto-drain Max. working flow rate

(m^3/min(ANR))

Primary pressure MPa / Port size	0.2	0.3	0.4	0.5	0.6	0.7
6	0.185	0.250	0.310	0.375	0.435	0.500
8	0.225	0.300	0.375	0.450	0.525	0.600

● F2000-W-F1 with auto-drain Max. working flow rate

(m^3/min(ANR))

Primary pressure MPa	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Flow rate	0.50	0.60	0.80	1.00	1.20	1.40	1.65	1.85	2.05	2.25

Option weight

* Add to the weight of the standard accessories.

Unit:kg

Code	Drain discharge		Bowl material		Pipe adaptor set							Bracket
	F	F1	M	M1	A6W	A8W	A10W	A15W	A20W	A25W	A32W	BW
F1000		0.007			0.09	0.09	0.09					0.1
F2000		0.02		0.1		0.16	0.16	0.16				0.15
F3000	0.02	0.02	0.1	0.1		0.16	0.16	0.16				0.17
F4000	0.02	0.02	0.1	0.1		0.16	0.16	0.16	0.16			0.21
F6000	0.02	0.02	0.1	0.1					0.53	0.53	0.53	0.34
F8000	0.02	0.02	0.1	0.1					0.53	0.53	0.53	0.36

How to order

F1000 - 6 - W - Z - FP1 - A6W

Ⓐ Model No. Ⓑ Port size Ⓒ Option Ⓓ Pipe adaptor set (attachments) Ⓔ Bracket (included)

* Refer to Pneumatic, Vacuum and Auxiliary Components (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 *1								
Drain discharge *2	**Blank**	With manual drain cock	●	●	●	●	●	●
	F	Auto-drain with manual override (NO: Exhaust when not pressurized)			●	●	●	●
	F1	Auto-drain with manual override (NC: No exhaust when not pressurized)	●	●	●	●	●	●
Bowl material	**Blank**	Polycarbonate bowl	●	●	●	●	●	●
	Z	Nylon bowl	●	●	●	●	●	●
	M	Metal bowl			●	●	●	●
	M1	Metal bowl with manual drain cock		●	●	●	●	●
Element	**Blank**	5 µm	●	●	●	●	●	●
Differential pressure detection	**Blank**	Without differential pressure detection port	●	●	●	●	●	●
	Q	Differential pressureWith detection port (Rc1/4)					●	●
Flow Direction	**Blank**	Standard flow (left → right)	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●
Ⓓ Pipe adaptor set (included) *3, *4 Refer to CB-024S								
Blank		Not included	●	●	●	●	●	●
A6W		Rc1/8 pipe adaptor set	●					
A8W		Rc1/4 pipe adaptor set	●	●	●	●		
A10W		Rc3/8 pipe adaptor set	●	●	●	●		
A15W		Rc1/2 pipe adaptor set		●	●	●		
A20W		Rc3/4 pipe adaptor set				●	●	●
A25W		Rc1 pipe adapter set					●	●
A32W		Rc1 1/4 pipe adapter set					●	●
Ⓔ Bracket (included)			**Refer to CB-024S**					
Blank		Not included	●	●	●	●	●	●
BW		C-bracket	●	●	●	●	●	●

⚠ Precautions for model No. selection

*1: Select Items for the drainage, bowl material, element and differential pressure detection. When selecting options for several items, list options in order from the top.
*2: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for the auto-drain use conditions.
*3: The pipe adaptor set and C type bracket cannot be used together.
*4: The joiner set is attached with the pipe adapter set.

For dimensions, refer to the air filter in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Oil mist filter

M1000/M2000/M3000 M4000/M6000/M8000-W-FP1 Series

Ideal for circuits which prohibit passage of oil

● Port size: Rc1/8 to Rc1

JISCode

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 *2, *3					
Proof pressure MPa	1.5 *2					
Drain capacity cm^3	3	25	45	80	80	80
Port size Rc *8	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 1/4 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 *2	150 *2	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) *4,*5	0.5 or less *4	0.003 or less *6
Mantle (element) change		1 year (6000 hours) or pressure drop 0.1 MPa		- *7

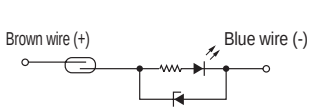
*1: Use within the max. processing flow rate. If the max. processing flow rate is exceeded temporarily, or if the filter is installed at a location with high levels of pulsation, the mantle could be damaged or oil or drainage, etc., could splatter to the secondary side and result in a terminal malfunction.
*2: With M1000-W-F1 auto-drain, the min. working pressure is 0.2MPa, the max. working pressure is 0.7MPa and the proof pressure is 1.05MPa. For the max. processing flow rate, refer to the max. processing flow rate graph (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)).
*3: In the case of "F1" with auto-drain, the min. working pressure is 0.15MPa.
*4: The secondary oil concentration is the value when the primary oil concentration is $30mg/m^3$ and inlet air temperature is 21°C.
*5: Install an oil mist filter (S type) as a pre-filter on the primary side to prevent early clogging.
*6: When an oil mist filter (M Series M type) is installed on the primary side.
*7: 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.
*8: NPT and G threads can be manufactured with CKD Sales.

Differential pressure switch/switch specifications

Differential pressure switch	Differential pressure switch option Q3/Q4	
Option name	Reed 2-wire	
Load voltage	12/24 VDC	110 VAC
Load current *1	5 to 50mA	7 to 20mA
Internal voltage drop	3 V or less	
Display lamp	Red LED (Lit when ON)	
Lead wire length	3 m (oil resistant vinyl cabtyre cable 2-conductor $0.2mm^2$)	
Shock resistance	$294m/s^2$	
Insulation resistance	500 MΩ and over with 20 VDC megger	
Withstand voltage	No failure after 1 minute of 1000 VAC application.	
Degree of protection	IEC Standard IP67, JIS C0920 (water-tight), oil resistance	
Contact protection circuit	None	

*1: Install the load resistance before use.

Switch internal circuit diagram



CE marking specifications

Compatible as standard.

How to order

M1000 - 6 - W - S - FP1 - A6W

- M1000 — Ⓐ Model No.
- 6 — Ⓑ Port size
- W — Ⓒ Option
- S — Ⓓ Pipe adaptor set (attachments)
- FP1 — Ⓒ Option
- A6W — Ⓓ Pipe adaptor set (attachments)
- (blank) — Ⓔ Bracket (included)

* For the explanation of the option,Pneumatic/Refer to Vacuum and Auxiliary Components (CB-024SA).

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								*1
Drain discharge *2, *3	Blank	With manual drain cock	●	●	●	●	●	●
	F1	Auto-drain with manual override (NC: No exhaust when not pressurized)	●	●	●	●	●	●
Bowl Material	Blank	Polycarbonate bowl	●	●	●	●	●	●
	Z	Nylon bowl	●	●	●	●	●	●
	M	Metal bowl			●	●	●	●
	M1	Metal bowl with manual drain cock		●	●	●	●	●
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 *6	X type (deodorization; Remaining oil 0.003mg/m^3)	●	●	●	●	●	●
Differential pressure detection	Blank	Without differential pressure detection port	●	●	●	●	●	●
	Q	With differential pressure detection port (Rc1/4)					●	●
Differential pressure indicator	Q2	With differential pressure indicator		●	●	●	●	
Differential pressure Switch	Q3	Differential pressure indicator + switch 1-point (SW2)		●	●	●	●	
	Q4	Differential pressure indicator + switch 2-point (SW1/SW 2)		●	●	●	●	
Flow direction	Blank	Standard flow (left → right)	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●
Ⓓ Pipe adaptor set (attachments)		*4, *5 Refer to CB-024SA						
Blank		Not included	●	●	●	●	●	●
A6W		Rc1/8 pipe adaptor set	●					
A8W		Rc1/4 pipe adaptor set	●	●	●	●		
A10W		Rc3/8 pipe adaptor set	●	●	●	●		
A15W		Rc1/2 pipe adaptor set		●	●	●		
A20W		Rc3/4 pipe adaptor set				●	●	●
A25W		Rc1 pipe adaptor set					●	●
A32W		Rc1 1/4 pipe adaptor set					●	●
Ⓔ Bracket (included)		Refer to CB-024SA						
Blank		Not included	●	●	●	●	●	●
BW		C-bracket	●	●	●	●	●	●

⚠ Precautions for model No. selection

*1: Select options for drainage, bowl material and differential pressure detection. When selecting options for several items, list options in order from the top.
*2: NO (Normally Open) auto-drain cannot be selected.
*3: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for the auto-drain use conditions.
*4: The pipe adaptor set and C type bracket cannot be used together.
*5: The joiner set is attached with the pipe adapter set.
*6: When the mantle is "X", combination with option F1 is not possible.

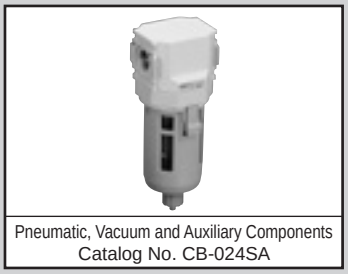
Option weight

* Add to the weight of the standard accessories.

Unit: kg

Code	Drain discharge	Bowl material		Differential pressure switch			Pipe adaptor set							Bracket
	F1	M	M1	Q2	Q3	Q4	A6W	A8W	A10W	A15W	A20W	A25W	A32W	BW
M1000	0.007						0.09	0.09	0.09					0.1
M2000	0.02		0.1	0.04	0.09	0.13		0.16	0.16	0.16				0.15
M3000	0.02	0.1	0.1	0.04	0.09	0.13		0.16	0.16	0.16				0.17
M4000	0.02	0.1	0.1	0.05	0.10	0.14		0.16	0.16	0.16	0.16			0.21
M6000	0.02	0.1	0.1	0.05	0.10	0.14					0.53	0.53	0.53	0.34
M8000	0.02	0.1	0.1								0.53	0.53	0.53	0.36

For dimensions, refer to the oil mist filter in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

NSF H1

High-performance oil mist filter

MX1000/MX3000/MX4000 MX6000/MX8000-W-FP1 Series

Secondary oil content 0.001mg/m^3

● Port size: Rc1/8 to Rc1

JISCode

RoHS CAD

Specifications

Item	MX1000-W	MX3000-W	MX4000-W	MX6000-W	MX8000-W
Appearance					
Working fluid	Compressed air				
Working pressure MPa	0.1 to 1.0 *2				
Proof pressure MPa	1.5				
Ambient/fluid temperatures°C	5 to 60				
Filtration rating μm	0.01 (nominal)				
Secondary side oil concentration mg/m^3	0.001 or less *3				
Max. processing flow rate L/min (ANR) *1	75	180	370	670	1480
Drain capacity cm^3	3	45	80	80	80
Port size Rc *5	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 1/4 uses an adaptor)
Weight kg	0.096	0.28	0.52	0.95	1.35
Mantle (element) change	1 year (6000 hours) or pressure drop 0.1 MPa				
Standard accessories	Bowl guard				

*1: Values when primary pressure is 0.7MPa and pressure drop is 0.01MPa. 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: In the case of "F1" with auto-drain, the min. working pressure is 0.15 MPa.
*3: The secondary oil concentration is the value when the primary oil concentration is 30mg/m^3 and inlet air temperature is 21°C.
*4: Install an oil mist filter (S type) as a pre-filter on the primary side to prevent early clogging.
*5: NPT and G threads can be manufactured with CKD Sales.

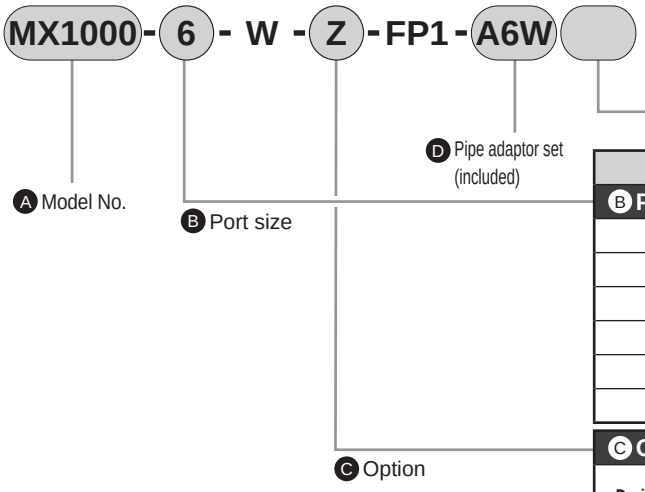
Option weight

* Add to the weight of the standard accessories.

Unit: kg

Code	Drain discharge	Bowl material		Pipe adaptor set							Bracket
	F1	M	M1	A6W	A8W	A10W	A15W	A20W	A25W	A32W	BW
MX1000	0.007			0.09	0.09	0.09					0.1
MX3000	0.02	0.1	0.1		0.16	0.16	0.16				0.17
MX4000	0.02	0.1	0.1		0.16	0.16	0.16	0.16			0.21
MX6000	0.02	0.1	0.1					0.53	0.53	0.53	0.34
MX8000	0.02	0.1	0.1					0.53	0.53	0.53	0.36

How to order



* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.

Code	Description	A Model No. MX1000	MX3000	MX4000	MX6000	MX8000
B Port size						
6	Rc1/8	●				
8	Rc1/4	●	●	●		
10	Rc3/8		●	●		
15	Rc1/2			●		
20	Rc3/4				●	●
25	Rc1				●	●
C Option						*1
Drain discharge **Blank**	With manual drain cock	●	●	●	●	●
Drain discharge **F1** *2, *3	Auto-drain manual override (NC: no exhaust when not pressurized)		●	●	●	●
Bowl material **Blank**	Polycarbonate bowl	●	●	●	●	●
Bowl material **Z**	Nylon bowl	●	●	●	●	●
Bowl material **M**	Metal bowl		●	●	●	●
Bowl material **M1**	Metal bowl with manual drain cock		●	●	●	●
Differential pressure detection **Blank**	Without differential pressure detection port	●	●	●	●	●
Differential pressure detection **Q**	With differential pressure detection port (Rc1/4)				●	●
Flow Direction **Blank**	Standard flow (left → right)	●	●	●	●	●
Flow Direction **X1**	Reverse flow (right → left)	●	●	●	●	●
D Pipe adaptor set (attachments)						*4 Refer to CB-024SA
Blank	Not included	●	●	●	●	●
A6W	Rc1/8 pipe adaptor set	●				
A8W	Rc1/4 pipe adaptor set	●	●	●		
A10W	Rc3/8 pipe adaptor set	●	●	●		
A15W	Rc1/2 pipe adaptor set		●	●		
A20W	Rc3/4 pipe adaptor set			●	●	●
A25W	Rc1 pipe adapter set				●	●
A32W	Rc1 1/4 pipe adapter set				●	●
E Bracket (included)						Refer to CB-024SA
Blank	Not included	●	●	●	●	●
BW	C-bracket	●	●	●	●	●

⚠Precautions for model No. selection

*1: Select options for drainage, bowl material and differential pressure detection. When selecting options for several items, list options in order from the top.
*2: NO (Normally Open) auto-drain cannot be selected.
*3: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for the auto-drain use conditions.
*4: The pipe adaptor set and C type bracket cannot be used together.
*5: The joiner set is attached with the pipe adapter set.

For dimensions, refer to the high performance oil mist filter in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Regulator

R1000/R 2000/R 3000
R 4000/R 6000/R8000-W-FP1 Series

Compact, pressure gauge embedded.

● Port size: Rc1/8 to Rc1

JIS symbol 

RoHS CAD

Specifications

Item	R1000-W	R2000-W	R3000-W	R4000-W	R6000-W	R8000-W
Appearance						
Working fluid	Compressed air					
Max. working pressure MPa	1.0					
Proof pressure MPa	1.5					
Ambient/fluid temperatures °C	5 to 60 *1					
Set pressure MPa	0.05 to 0.85					
Pressure relief	With relief mechanism					
Port size Rc *2	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	0.31	0.45	0.7	1.0	1.6
Standard accessories	Pressure gauge, nut for panel mount					Pressure gauge

*1: The ambient/fluid temperatures of the digital pressure sensor with PPX attached "R2" are 5 to 50°C.
*2: NPT and G threads can be manufactured with CKD Sales.

Option weight

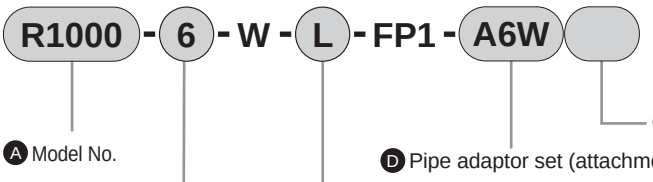
* Add to the weight of the standard accessories.

Unit: kg

Code	Pressure gauge	Pipe adaptor set							Attachment		
	T*	A6W	A8W	A10W	A15W	A20W	A25W	A32W	BW	B3W	B4W
R1000	0	0.09	0.09	0.09					0.1	0.04	
R2000	0		0.16	0.16	0.16				0.15	0.06	0.17
R3000	0		0.16	0.16	0.16				0.17	0.07	
R4000	0		0.16	0.16	0.16	0.16			0.21	0.11	
R6000	0					0.53	0.53	0.53	0.34	0.11	
R8000	0					0.53	0.53	0.53	0.36		

Code	Attachment					
	G45P	G49P	G59P	G40P	G52P	R 2
R1000	0.074	0.086	0.115	0.085	0.15	0.04
R2000	0.074	0.086	0.115	0.085	0.15	0.04
R3000	0.074	0.086	0.115	0.085	0.15	0.04
R4000	0.074	0.086	0.115	0.085	0.15	0.04
R6000	0.074	0.086	0.115	0.085	0.15	0.04
R8000	0.074	0.086	0.115	0.085	0.15	0.04

How to order



* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.

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 *2	●	●	●	●	●	●
Pressure relief	**Blank**	With relief mechanism	●	●	●	●	●	●
	N	Non-relief	●	●	●	●	●	●
Pressure gauge	**Blank**	With standard pressure gauge (G401-W)	●	●	●	●	●	●
	T	No pressure gauge (gauge port (1/4) is assembled sealed)	●	●	●	●	●	●
	T8	Pressure gauge ready (gauge port (1/4) is left open)	●	●	●	●	●	●
	T6	Digital pressure sensor PPX attachment option *3	●	●	●	●	●	●
Flow Direction	**Blank**	Standard flow (left → right)	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●
Ⓓ Pipe adaptor set (attachments)			***4, *5**	**Refer to CB-024SA**				
Blank		Not included	●	●	●	●	●	●
A6W		Rc1/8 pipe adaptor set	●					
A8W		Rc1/4 pipe adaptor set	●	●	●	●		
A10W		Rc3/8 pipe adaptor set	●	●	●	●		
A15W		Rc1/2 pipe adaptor set		●	●	●		
A20W		Rc3/4 pipe adaptor set				●	●	●
A25W		Rc1 pipe adapter set					●	●
A32W		Rc1 1/4 pipe adapter set					●	●
Ⓔ Other attachments			***6**	**Refer to CB-024SA**				
Blank		Not included	●	●	●	●	●	●
BW		C-bracket	●	●	●	●	●	●
B3W		L-bracket *7	●	●	●	●	●	
B4W		B-bracket		●				
G45P		G45D-8-P10 (L: G45D-8-P04)	●	●	●	●	●	●
G49P		G49D-8-P10(L:G49D-8-P04)	●	●	●	●	●	●
G59P		G59D-8-P10(L:G59D-8-P04)	●	●	●	●	●	●
G40P		G40D-8-P10(L:G40D-8-P04)	●	●	●	●	●	●
G52P		G52D-8-P10(L:G52D-8-P10)	●	●	●	●	●	●
R2 *3		Digital pressure sensor: PPX-R1ON-6M	●	●	●	●	●	●

⚠ Precautions for model No. selection

*1: When selecting options for several items, list options in order from the top.
*2: The pressure gauge's indication range is 0 to 0.4MPa for option "L".
*3: When option "T6" is selected, only "Blank" or "R2" can be selected for Ⓔ Other attachments (included). The digital pressure sensor PPX mounting port (Rc1/8) is assembled open.
*4: The pipe adaptor set and C type bracket cannot be used together.
*5: The joiner set is attached with the pipe adapter set.
*6: An R thread pressure gauge is attached.
*7: For mounting an L type bracket, refer to (Pneumatic, Vacuum and Auxiliary Components (CB-024SA)).

For dimensions, refer to the regulator in "Pneumatic, Vacuum and Auxiliary components (CB-024SA)".



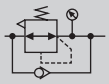
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Reverse regulator

R 1100/R 2100/R 3100
R 4100/R 6100/R 8100-W-FP1 Series

From secondary pressure to primary side with reverse flow function built in.

● Port size: Rc1/8 to Rc1

JISCode 

RoHS CAD

Specifications

Item	R1100-W	R2100-W	R3100-W	R4100-W	R6100-W	R8100-W
Appearance						
Working fluid	Compressed air					
Max. working pressure MPa	1.0					
Proof pressure MPa	1.5					
Ambient/fluid temperatures °C	5 to 60 *2					
Set pressure (*1) MPa	0.05 to 0.85					
Pressure relief	With relief mechanism					
Port size Rc *4	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	0.31	0.45	0.7	1.0	1.6
Standard accessories	Pressure gauge, nut for panel mount					Pressure gauge

*1: Refer to the set pressure range for the back pressure given in (Pneumatic, Vacuum and Auxiliary Components (CB-024SA)) when selecting the model.
*2: The ambient/fluid temperature of the digital pressure sensor with PPX attached "R2" is 5 to 50°C.
*3: Check that the primary pressure is at least 0.05MPa or more than the secondary pressure.
*4: NPT and G threads can be manufactured with CKD Sales.

Option weight

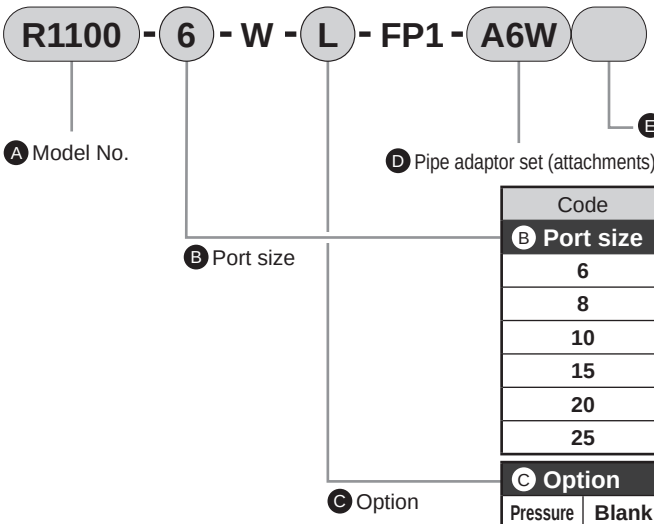
* Add to the weight of the standard accessories.

Unit: kg

Code	Pressure gauge	Pipe adaptor set							Attachment		
	T*	A6W	A8W	A10W	A15W	A20W	A25W	A32W	BW	B3W	B4W
R1100	0	0.09	0.09	0.09					0.1	0.04	
R2100	0		0.16	0.16	0.16				0.15	0.06	0.17
R3100	0		0.16	0.16	0.16				0.17	0.07	
R4100	0		0.16	0.16	0.16	0.16			0.21	0.11	
R6100	0					0.53	0.53	0.53	0.34	0.11	
R8100	0					0.53	0.53	0.53	0.36		

Code	Attachment					
	G45P	G49P	G59P	G40P	G52P	R 2
R1100	0.074	0.086	0.12	0.085	0.15	0.04
R2100	0.074	0.086	0.12	0.085	0.15	0.04
R3100	0.074	0.086	0.12	0.085	0.15	0.04
R4100	0.074	0.086	0.12	0.085	0.15	0.04
R6100	0.074	0.086	0.12	0.085	0.15	0.04
R8100	0.074	0.086	0.12	0.085	0.15	0.04

How to order



* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.

Code		Description	A Model No. R1100	R2100	R3100	R4100	R6100	R8100
B Port size								
6		Rc1/8	●					
8		Rc1/4	●	●	●	●		
10		Rc3/8		●	●	●		
15		Rc1/2				●		
20		Rc3/4					●	●
25		Rc1					●	●
C 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	**Blank**	With standard pressure gauge (G401-W)	●	●	●	●	●	●
	T	No pressure gauge (gauge port (1/4) is assembled sealed)	●	●	●	●	●	●
	T8	Pressure gauge ready (gauge port (1/4) is left open)	●	●	●	●	●	●
	T6	Digital pressure sensor PPX attachment option *4	●	●	●	●	●	●
Flow Direction	**Blank**	Standard flow (left → right)	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●
D Pipe adaptor set (attachments)							*5, *6 Refer to CB-024SA	
Blank		Not included	●	●	●	●	●	●
A6W		Rc1/8 pipe adaptor set	●					
A8W		Rc1/4 pipe adaptor set	●	●	●	●		
A10W		Rc3/8 pipe adaptor set	●	●	●	●		
A15W		Rc1/2 pipe adaptor set		●	●	●		
A20W		Rc3/4 pipe adaptor set				●	●	●
A25W		Rc1 pipe adapter set					●	●
A32W		Rc1 1/4 pipe adapter set					●	●
E Other attachments							*7 Refer to CB-024SA	
Blank		Not included	●	●	●	●	●	●
BW		C-bracket	●	●	●	●	●	●
B3W		L type bracket *8	●	●	●	●	●	
B4W		B-bracket		●				
G45P		G45D-8-P10 (L: G45D-8-P04)	●	●	●	●	●	●
G49P		G49D-8-P10(L:G49D-8-P04)	●	●	●	●	●	●
G59P		G59D-8-P10(L:G59D-8-P04)	●	●	●	●	●	●
G40P		G40D-8-P10(L:G40D-8-P04)	●	●	●	●	●	●
G52P		G52D-8-P10(L:G52D-8-P10)	●	●	●	●	●	●
R2 *4		Digital pressure sensor: PPX-R1ON-6M	●	●	●	●	●	●

⚠ 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 cannot be changed. If the IN and OUT directions must be reversed, indicate "X1" at the end of the option field.**

*3: The pressure gauge's indication range is 0 to 0.4MPa for option "L".

*4: When option "T6" is selected, only "Blank" or "R2" can be selected for E Other attachments (included). The digital pressure sensor PPX mounting port (Rc1/8) is assembled open.

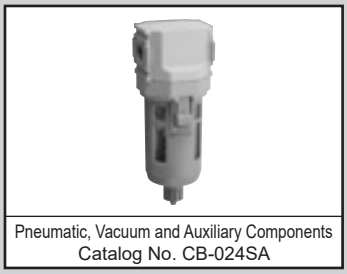
*5: The pipe adaptor set and C type bracket cannot be used together.

*6: The joiner set is attached with the pipe adapter set.

*7: An R thread pressure gauge is attached.

*8: For mounting an L type bracket, refer to (Pneumatic, Vacuum and Auxiliary components (CB-024SA)).

For dimensions, refer to the reverse regulator in "Pneumatic, Vacuum and Auxiliary cmponents (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Drain separator

FX-W-FP1 Series

Lightweight compact drain separator
Compatible compressor 0.75 kW to 37 kW
● Port size: Rc1/4 to Rc1

JISCode



RoHS CAD

Specifications

Item	FX1004	FX1011	FX1037
Working fluid	Compressed air		
Working pressure MPa	0.1 to 1.0 *3		
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, NPT, G	1/4, 3/8	1/4, 3/8, 1/2	3/4, 1
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)
*3: In the case of "F1" with auto-drain, the min. working pressure of auto-drain is 0.15MPa.

Option weight

* Add to the weight of the standard accessories.

Unit:kg

Code	Drain discharge		Bowl material		Pipe adaptor set						Bracket
	F	F1	M	M1	A8W	A10W	A15W	A20W	A25W	A32W	BW
FX1004	0.02	0.02	0.1	0.1	0.16	0.16	0.16				0.17
FX1011	0.02	0.02	0.1	0.1	0.16	0.16	0.16	0.16			0.21
FX1037	0.02	0.02	0.1	0.1				0.53	0.53	0.53	0.36

How to order

FX1004 - 8 ( ) - W - F - FP1 - BW

- Ⓐ Model No.
- Ⓑ Port size
- Ⓒ Port thread
- Ⓓ Option
- Ⓔ Attachment

Code		Description	Ⓐ Model No. FX1004	FX1011	FX1037
Ⓑ Port size					
8		1/4	●	●	
10		3/8	●	●	
15		1/2		●	
20		3/4			●
25		1			●
Ⓒ Port thread					
Blank		Rc thread	●	●	●
N		NPT thread	●	●	●
G		G thread	●	●	●
Ⓓ Option					***1, *2**
Drain discharge	**Blank**	With manual drain cock (1/8 internal thread only for the metal bowl)	●	●	●
	C	With manual cock (can only be selected for the metal bowl)	●	●	●
	F	Auto-drain with manual override (NO: Exhaust when not pressurized)	●	●	●
	F1	Auto-drain with manual override (NC: No exhaust when not pressurized)	●	●	●
Bowl material	**Blank**	Polycarbonate bowl	●	●	●
	Z	Nylon bowl	●	●	●
	M	Metal bowl	●	●	●
	M1	Metal bowl with manual drain cock	●	●	●
Flow Direction	**Blank**	Standard flow (left → right)	●	●	●
	X1	Reverse flow (right → left)	●	●	●
Ⓔ Other attachments					***3, *4**
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	●	●	●
*** Adaptor thread**					
Blank		Rc thread	●	●	●
N		NPT thread	●	●	●
G		G thread	●	●	●

⚠ Precautions for model No. selection

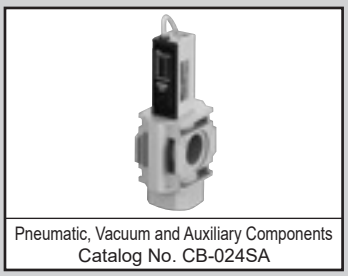
*1: Select options for the drainage, bowl material, and flow direction Items. When selecting options for several items, list options in order from the top. For port thread types "N" and "G", the combination of "Blank" for drain discharge and "M" for bowl material cannot be selected.

*2: For the auto-drain usage conditions, refer to (Pneumatic, Vacuum and Auxiliary components (CB-024SA)).

*3: The pipe adaptor set and C type bracket cannot be used together.

*4: The joiner set is attached with the pipe adapter set.

For dimensions, refer to the FX Series in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

NSF H1

Reed switch compact mechanical pressure switch

P1100-W/P4100-W/P8100-W-FP1 Series

Compatible with module connection to SELEX F.R.L.

JISCode 

RoHS CAD

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.

Wiring section specifications		
Load voltage	12/24 VDC	100 VAC
Load current	5 to 50mA	7 to 20mA
Internal voltage drop	3 V or less	
Lamp	LED (Lit when ON)	
Max. shock	294m/S^2	
Insulation resistance	500 MΩ and over at 20 VDC megger	
Withstand voltage	No failure after 1 minute of 1000 VAC application.	

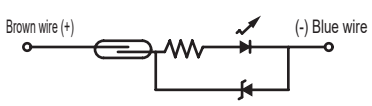
Option weight

* Add to the weight of the standard accessories.

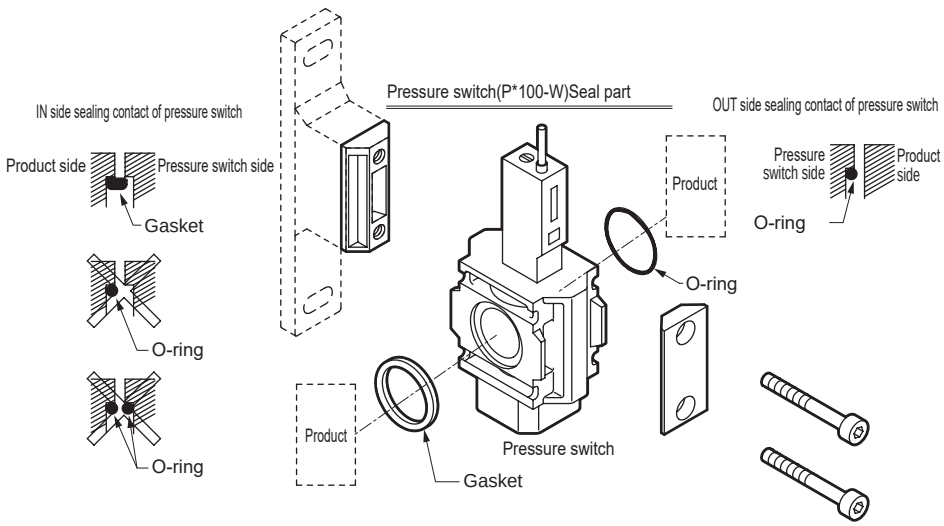
Unit: g

Code	Accessories					Lead wire length	
	Blank	B11W	B31W	B41W	B81W	3	5
P1100	11	24				30	60
P4100	36		86	94		30	60
P8100	94				170	30	60

Internal circuit diagram



How to assemble (P1100-W, P4100-W, P8100-W)



How to order (modular design)

P 1100 - 6 L - W - FP1 - B11W - 3

Ⓐ Series model No.
Ⓑ Port size
Ⓒ Branch direction
Ⓓ Accessories
Ⓔ Length of lead wire

Code	Description
Ⓐ 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

Ⓑ Port size

		1100	4100	8100
6	Rc1/8	●		
8	Rc1/4	●	●	
10	Rc3/8		●	
15	Rc1/2		●	
20	Rc3/4			●
25	Rc1			●

Ⓒ Branch direction *1

Blank *2	L	R
		

Ⓓ Accessories

		1100	4100	8100
Blank	Joiner set, gasket	●	●	●
B11W	T-bracket, gasket	●		
B31W	T-bracket, gasket		●	
B41W	T-bracket, gasket		●	
B81W	T-bracket, gasket			●

Ⓔ Length of lead wire

Blank	1m
3	3m
5	5m

⚠ 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: P□100-W Discrete piping requires a pipe adaptor or A□00-W. (The horizontal direction port does not have threads.)

For dimensions, refer to the P*100 Series in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

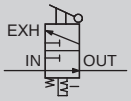
NSF H1

Residual pressure exhaust valve

V1000-W/V3000-W-FP1 Series

One action exhaust operation. Ideal for preventing accidents due to residual pressure in pneumatic lines.

● Port size: Rc1/8 to Rc1/2

JISCode 

RoHS CAD

Specifications

Item	V1000-W		V3000-W		
Appearance					
Item	**V1000-6-W**	**V1000-8-W**	**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	18		80		
Operating force — Torque N·m	0.5		2		
Valve section leakage cm^3/min (ANR)	10				
External leakage cm^3/min (ANR)	10				
Port size — IN/OUT	1/8	1/4	1/4	3/8	1/2
Port size — EXH	Rc1/8		Rc3/8		
Weight kg	0.17		0.25		
Effective cross-sectional area (mm^2) — IN/OUT	15	18	40	70	85
Effective cross-sectional area (mm^2) — OUT / EXH	5		40	50	50

Option weight

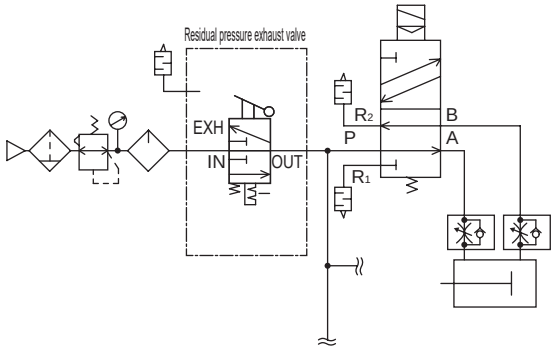
* Add to the weight of the standard accessories.

Unit: kg

Code	Attachment						
	A6W	A8W	A10W	A15W	A20W	BW	S
V1000	0.09	0.09	0.09			0.1	0.004
V3000		0.16	0.16	0.16	0.16	0.17	0.015

Applications

Comment: 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.



How to order

● F.R.L.1000 Series

V1000 - 6 - W - ○ - ○ - FP1 - A6W

F.R.L. 3000, 4000 Series

V3000 - 8 - W - ○ - ○ - FP1 - A6W

Ⓐ Model No.
Ⓑ Port size
Ⓒ Option
Ⓓ Display unit
Ⓔ Attachment

Code	Description	Ⓐ Model No. V1000	Ⓐ Model No. V3000
Ⓑ Port size			
6	Rc1/8	●	
8	Rc1/4	●	●
10	Rc3/8		●
15	Rc1/2		●
Ⓒ Option			
Blank	Standard flow (left → right)	●	●
X1	IN/OUT reverse flow (right → left)	●	●
Ⓓ Display unit			
Blank	MPa display, Rc thread	●	●
Ⓔ Other attachments			***1, *2**
Blank	Without accessories	●	●
A6W	Rc1/8 pipe adaptor set	●	
A8W	Rc1/4 pipe adaptor set	●	●
A10W	Rc3/8 pipe adaptor set	●	●
A15W	Rc1/2 pipe adaptor set		●
A20W	Rc3/4 pipe adaptor set		●
BW	C-bracket	●	●
S	Silencer	●	●

⚠ Precautions for model No. selection

*1: The pipe adaptor set and C type bracket cannot be used together.
*2: The joiner set is attached with the pipe adapter set.

⚠ Select the reverse regulator (R*100-W) or reverse filter regulator (W*100-W) when installing the V*000-W onto the primary side of the regulator or filter regulator.

For dimensions, refer to the V1000/V3000 Series in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

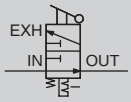
NSF H1

Residual pressure exhaust valve with locking hole (OSHA compliant)

V3010-W/V6010-W-FP1 Series

Ideal for preventing accidents due to residual pressure in pneumatic lines.

● Port size: Rc1/4 to Rc1

JISCode 

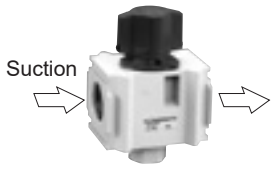
CAD RoHS

Specifications

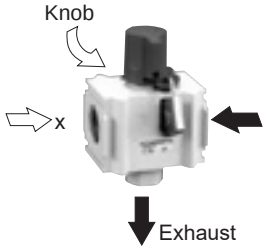
Item		V3010-8-W	V3010-10-W	V3010-15-W	V6010-20-W	V6010-25-W
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Proof pressure MPa		1.5				
Ambient/fluid temperatures °C		5 to 60				
Operation lever switching angle		90°				
Operating force	Pushing force N	80 or less				
	Torque N·m	2.5 or less				
Valve seat leakage Re cm³/min (ANR)		10 or less				
External leakage cm³/min (ANR)		10 or less				
Port size	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 (mm²)	IN→OUT	40	70	85	145	150
	OUT→EXH	40	50	50	105	110

How to use

● Regular use



● During maintenance
A lock is set where residual pressure is released.



OSHA (Occupational Safety and Health Administration)

OSHA establishes the US safety standards for employees.

[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 - ○ - FP1 - A8W

F.R.L. 6000, 8000 Series

V6010 - 20 - W - ○ - FP1 - A20W
(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	No	●	●
X1	IN/OUT reverse flow (right → left)	●	●
Ⓓ Other attachments			*1, *2
Blank	Without accessories	●	●
A8W	Rc1/4 pipe adaptor set	●	
A10W	Rc3/8 pipe adaptor set	●	
A15W	Rc1/2 pipe adaptor set	●	
A20W	Rc3/4 pipe adaptor set	●	●
A25W	Rc1 pipe adaptor set	●	●
A32W	Rc1 1/4 pipe adaptor set		●
BW	C-bracket	●	●
S	Silencer	●	●

Precautions for model No. selection

*1: The pipe adaptor set and C type bracket cannot be used together.
*2: The joiner set is attached 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.

Option weight

* Add to the weight of the standard accessories. Unit: kg

Code	Attachment							
	A8W	A10W	A15W	A20W	A25W	A32W	BW	S
V3010	0.16	0.16	0.16	0.16	0.16		0.17	0.015
V6010				0.53	0.53	0.53	0.34	0.02

For dimensions, refer to the V3010/V6010 Series in "Pneumatic, Vacuum and Auxiliary components (CB-024SA)".

MEMO

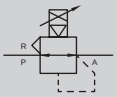


Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Digital electro pneumatic regulator

EVD-FP1 Series

JISCode



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	EVD-3500-*08□ EVD-3500-*10□ Analog output (*...0/1/2)	EVD-3500-P08□ EVD-3500-P10□ Parallel
Working fluid		Clean compressed air (JIS B 8392-1: 2012 (ISO 8573-1: 2010) [1:3:2] or equivalent)							
Max. working pressure		160 kPa		700 kPa		1000 kPa		700 kPa	
Min. working pressure		Control pressure 50 kPa		Control pressure 100 kPa					
Proof pressure	Inlet	240 kPa		1050 kPa		1500 kPa		1050 kPa	
	Output side	150 kPa		750 kPa		1350 kPa		750 kPa	
Pressure control range*1		0 to 100 kPa		0 to 500 kPa		0 to 900 kPa		0 to 500 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 to 10 VDC (6.7 kΩ) 0 to 5VDC (10 kΩ) 4 to 20mADC (250 Ω)	10bit	0 to 10 VDC (6.7 kΩ) 0 to 5 VDC(10 kΩ) 4 to 20mADC (250 Ω)	10bit	0 to 10 VDC (6.7 kΩ) 0 to 5VDC (10 kΩ) 4 to 20mADC (250 Ω)	10bit	0 to 10 VDC (6.7 kΩ) 0 to 5 VDC (10 kΩ) 4 to 20mADC (250 Ω)	10bit
Preset input		8 points	No	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 1 kPa/setting resolution 2 kPa)		5 to 500 kPa (Min. setting width 1 kPa/setting resolution 1 kPa)	
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		0 to 500 kPa	
	Display resolution	1 kPa		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				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	Rc1/4						Rc1/4, Rc3/8	
	EXH port	-						Rc3/8	
	Pilot air exhaust port	M5							
Mounting orientation		Free							
Weight		250 g						450g	
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-1100:1kPa,EVD-1500:5kPa,EVD-1900:9kPa,EVD-3500:5kPa)
*2: Select the analog output or switch output.
*3: The characteristics above are: 24±0.1VDC power supply voltage, 25±3°C ambient temperature, no load, and EVD-1100 working pressure. Max. control pressure +50kPa/EVD-1500, 1900, 3500; 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 - C1B1 - FP1

- Ⓐ Body
- Ⓑ Pressure control range
- Ⓒ Input signal
- Ⓓ Port size
- Ⓔ Output signal
- Ⓕ Option

Code	Description	EVD-1000	EVD-3000
Ⓐ Body			
1	EVD-1000 Series	●	
3	EVD-3000 Series		●
Ⓑ Pressure control range *1			
100	0 - 100 kPa	●	
500	0 - 500 kPa	●	●
900	0 - 900 kPa	●	
Ⓒ Input signal			
0	0 - 10 VDC	●	●
1	0 - 5VDC	●	●
2	4 to 20 mADC	●	●
P	Parallel 10 bit	●	●
Ⓓ Port size			
08	Rc1/4	●	●
10	Rc3/8		●
Ⓔ Output signal			
AN	1 to 5 V analog, error (NPN)	●	●
AP	1 to 5 V analog, error (PNP)	●	●
SN	Switch (NPN), error (NPN)	●	●
SP	Switch (PNP), error (PNP)	●	●
Ⓕ Option			
Cable option *2			
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 option attached			
Blank	No	●	●
B1	B-bracket, floor mounted	●	
L1	L-bracket, wall mounted	●	
B3	B-bracket, floor mounted		●
L3	L-bracket, wall mounted		●

● Discrete option (cable, bracket) model No.

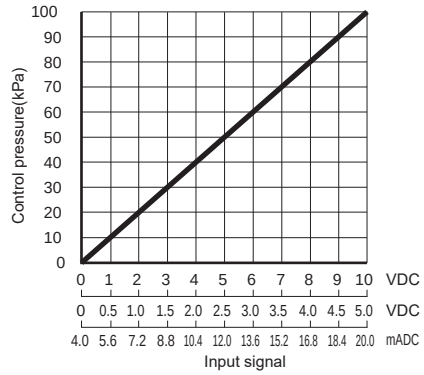
EVD- C1

- Ⓕ Option

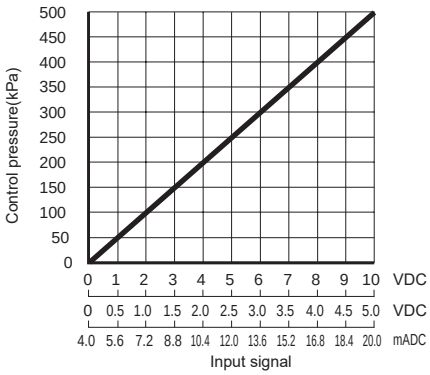
*1: There is 0% F.S. or less residual pressure when the input signal is 1%.
*2: When the input signal P is selected, select blank, P1 or P3.
*3: EVD-3000 Series is only available for 500kPa F.S.

I/O characteristics

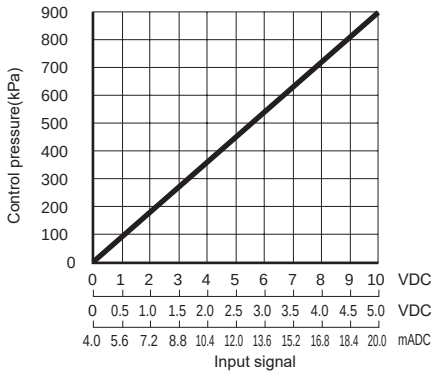
● EVD-1100



● EVD-1500
● EVD-3500

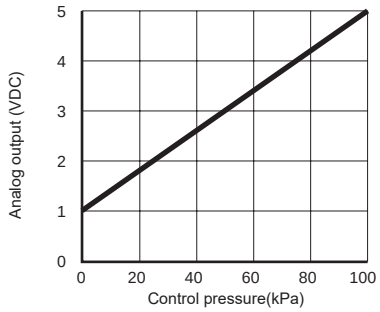


● EVD-1900

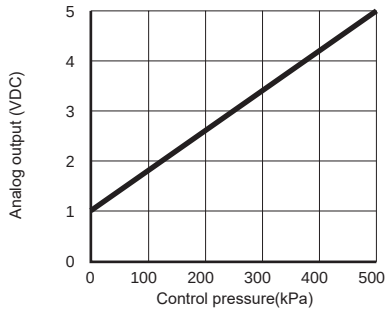


Analog output(Analog output only: model No. AN/AP)

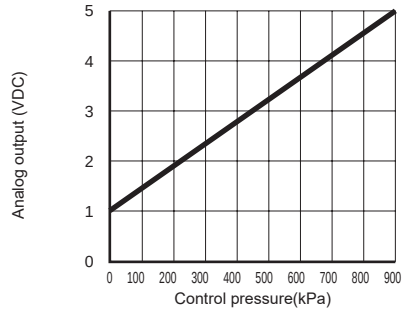
● EVD-1100



● EVD-1500
● EVD-3500



● EVD-1900

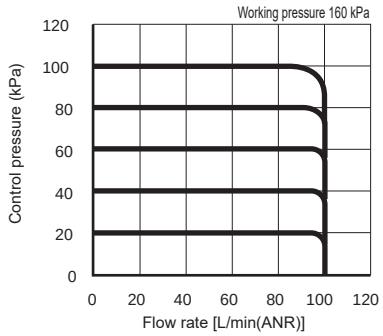


EVD-FP1 Series

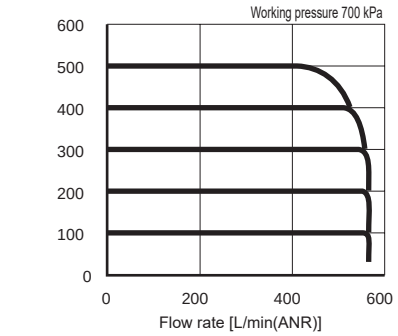
Flow characteristics/Relief flow characteristics

Flow characteristics

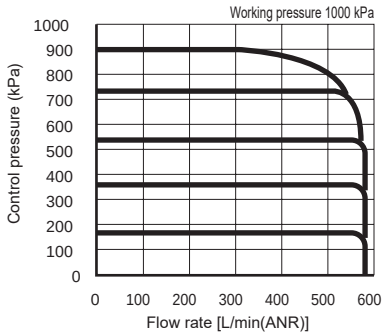
● EVD-1100



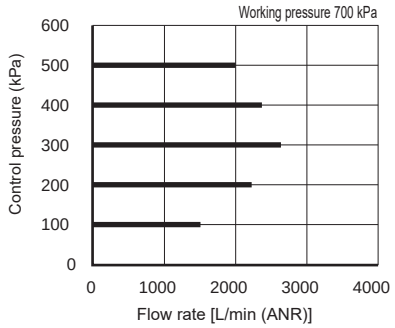
● EVD-1500



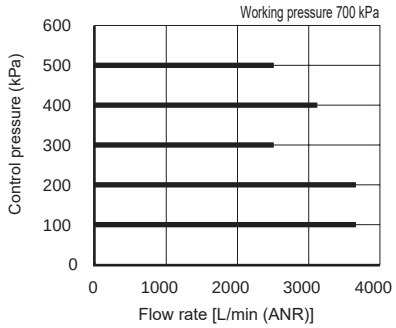
● EVD-1900



● EVD-3500-□ 08

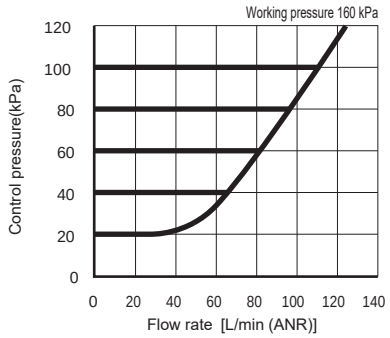


● EVD-3500-□10

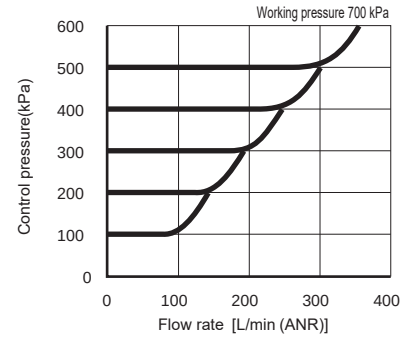


Relief characteristics

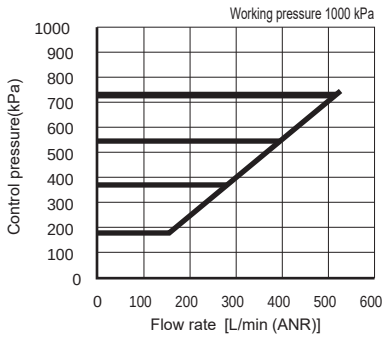
● EVD-1100



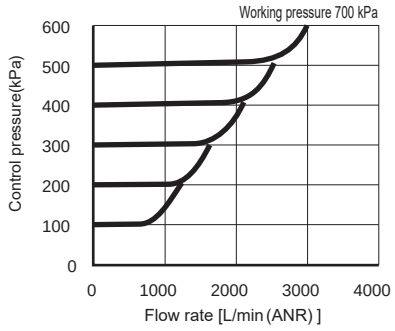
● EVD-1500



● EVD-1900

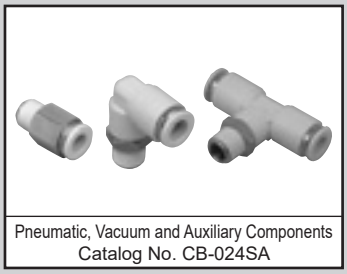


● EVD-3500



For dimensions, refer to the EVD Series in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".

MEMO



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Fitting

GW-FP1 Series

- Port size M5 to R1/2, ø4 to ø12
- Compatible tube ø4 to ø12

Specifications

Item	GW
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-95*,NU-*) *1

*1: Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for tube dimensions, ambient temperature and working pressure.
*2: Use a urethane tube (U-95**/NU-**) and an insert ring together for vacuum pressure.

How to order

* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for model combinations.

GW L 6 - 8 - 45 - FP1
(A) (B) (C) (D)

(A) Shape	
S	Straight
L	Elbow
T	Tee
TR	Tetrapod
Y	Y tee
FY	FY
WY	Double Y
CR	Cross
C	Cap
M	For tightening fitting
MF	Manifold

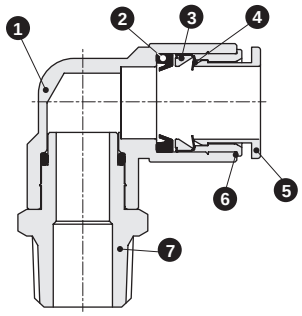
(B) Applicable tube bore	
4	ø4
6	ø6
8	ø8
10	ø10
12	ø12
16	ø16
44	ø4/ø4
46	ø4/ø6
48	ø4/ø8
64	ø6/ø4
66	ø6/ø6
68	ø6/ø8
610	ø6/ø10
86	ø8/ø6
88	ø8/ø8
810	ø8/ø10
812	ø8/ø12
108	ø10/ø8
1010	ø10/ø10
1012	ø10/ø12
1210	ø12/ø10
1212	ø12/ø12

(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
C	C-plug
L	L-plug
Y	Y-plug

(D) Other combinations	
L	Long
T	Turn
D	D type
X	Bulkhead
S	Round
M	Female
E	Bulkhead female
W	Double
2T	2-port turn
45	Single 45°

Note: Sales unit is 10 pcs./bag.

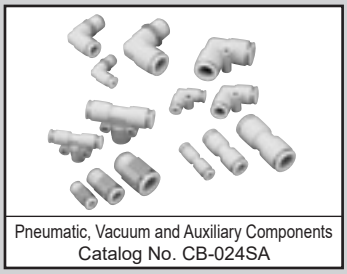
Internal structure and parts list



Part number	Part name	Material
1	Body *1	Copper alloy (electroless nickeling treatment)
		Polybutylene terephthalate(Flame-resistant resin *2)
2	Packing	Nitrile rubber
3	Chuck holder	Polyetherimide
4	Chuck	Stainless steel
5	Push ring	Polybutylene terephthalate (flame-resistant resin*2)
6	Outer ring	Copper alloy(electroless nickeling treatment)
7	Drive-in nipple	Copper alloy(electroless nickeling treatment)

*1: Single straight/single straight (round)/female straight/bulkhead/bulkhead female bulkhead/copper alloy (electroless nickeling treatment) body for tightening fitting.
*2: UL94 standard V0 equivalent

For dimensions, refer to the GW Series in "Pneumatic, Vacuum and Auxiliary components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Fitting

ZW-FP1 Series

- Port size M3 to R1/2, ø4 to ø12
- Compatible tubeø3.2 to ø12

RoHS CAD

Specifications

Item	ZW
Working fluid	Air
Max. working pressure MPa	1.0
Working vacuum pressure kPa	−100
Ambient temperature °C	0 to 60 (no freezing. *1)
Tube used	Soft nylon tube (F-15**)/urethane tube (U-92**, U-95**, NU-**)

*1: Freezing may occur due to adiabatic expansion depending on the air quality (dew point).
*2: Use an insert ring when using urethane tube (U-92**, U-95**, NU-**) under vacuum pressure.

How to order

* Refer to (Pneumatic, Vacuum and Auxiliary Components (CB-024SA)) for model combinations.

ZW - S 4 - 0 - X - FP1
(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

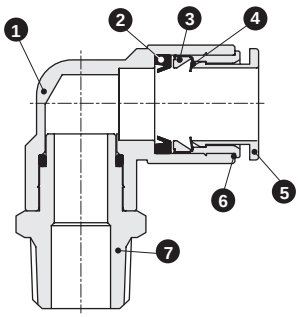
(B) Applicable tube bore	
4	ø4
6	ø6
8	ø8
10	ø10
12	ø12
44	ø4/ø4
46	ø4/ø6
48	ø4/ø8
64	ø6/ø4
66	ø6/ø6
68	ø6/ø8
610	ø6/ø10
86	ø8/ø6
88	ø8/ø8
810	ø8/ø10
108	ø10/ø8
1010	ø10/ø10
1012	ø10/ø12
1210	ø12/ø10
1212	ø12/ø12

(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.

Internal structure and main parts list



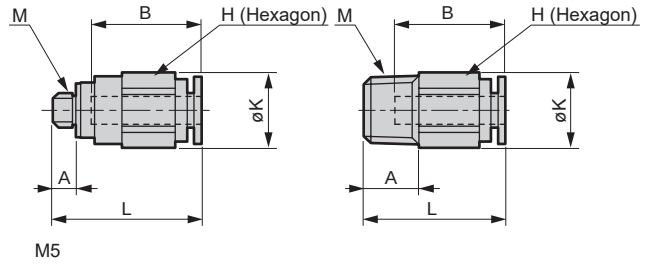
Part number	Part name	Material
1	Body *1	Stainless steel (SUS303)
		Polybutylene terephthalate (flame-resistant resin *2)
2	Packing	Nitrile rubber
3	Chuck holder	Polyacetal
4	Chuck	Stainless steel (SUS301)
5	Push ring *3	Polybutylene terephthalate (flame-resistant resin *2)
6	Outer ring	Stainless steel (SUS303)
7	Drive-in nipple	Stainless steel (SUS303)

*1: The single straight body is stainless steel (SUS303).
*2: Equivalent to UL94 standards V-0
*3: The push ring color is light blue.

Dimensions: Single straight/bulkhead/straight/different diameter straight

Single straight

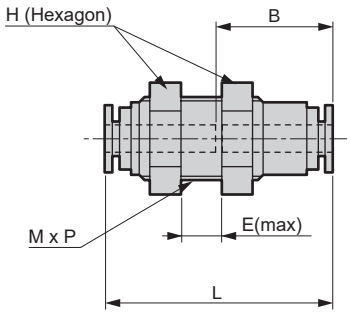
●ZW-S □ - □ -FP1



Model No.	Compatible tube O.D. ø	M	H	K	L	A	B	Min. bore size	Effective cross-sectional area mm²
ZW-S 4-M5-FP1	4	M 5 x 0.8	10	11	21.5	3.4	16	2.5	4
ZW-S 4- 6-FP1		R 1/8	10	11	20.5	8	16	2.5	4
ZW-S 4- 8-FP1		R 1/4	14	15.8	19.5	11	16	2.5	4
ZW-S 6-M5-FP1	6	M 5 x 0.8	12	13.5	23	3.4	17.5	2.5	4.4
ZW-S 6- 6-FP1		R 1/8	12	13.5	23	8	17.5	4	10.3
ZW-S 6- 8-FP1		R 1/4	14	15.8	23.5	11	17.5	4	10.3
ZW-S 6-10-FP1		R 3/8	17	19.1	21.5	12	17.5	4	10.3
ZW-S 8- 6-FP1	8	R 1/8	14	15.8	28	8	19	5	17.5
ZW-S 8- 8-FP1		R 1/4	14	15.8	27	11	19	6	22.4
ZW-S 8-10-FP1		R 3/8	17	19.1	22.5	12	19	6	22.4
ZW-S10- 6-FP1	10	R 1/8	17	19.1	31	8	21.5	5	17.5
ZW-S10- 8-FP1		R 1/4	17	19.1	32.5	11	21.5	8	30.5
ZW-S10-10-FP1		R 3/8	17	19.1	28.5	12	21.5	8	30.5
ZW-S10-15-FP1		R 1/2	22	24	26.5	15	21.5	8	30.5
ZW-S12- 8-FP1	12	R 1/4	19	21.4	35.5	11	23	8	35.5
ZW-S12-10-FP1		R 3/8	19	21.4	30.5	12	23	10	40
ZW-S12-15-FP1		R 1/2	22	24	29.5	15	23	10	40

Bulkhead

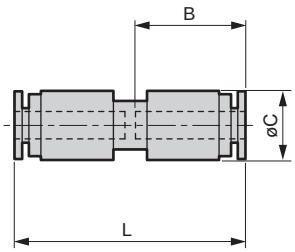
●ZW-S □ - □ -X-FP1



Model No.	Compatible tube O.D. ø	H	L	B	E	M x P	Mounting hole diameter	Min. bore size	Effective cross-sectional area mm²
ZW-S 4-0-X-FP1	4	14	33	16	7.5	M 12 x 1	13	2.5	4
ZW-S 6-0-X-FP1	6	17	36	17.5	9.5	M 14 x 1	15	4	10
ZW-S 8-0-X-FP1	8	19	39	19	12.5	M 16 x 1	17	6	22
ZW-S10-0-X-FP1	10	23	44.5	21.5	18	M 20 x 1	21	8	30
ZW-S12-0-X-FP1	12	26	47	23	20.5	M 22 x 1	23	9	35

Straight

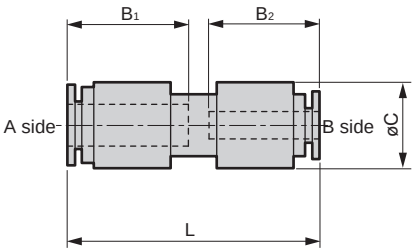
●ZW-S □ -0-FP1



Model No.	Compatible tube O.D. ø	L	B	C	Min. bore size	Effective cross-sectional area mm²
ZW-S 4-0-FP1	4	33.5	16	10	2.5	4
ZW-S 6-0-FP1	6	36.5	17.5	12.5	4	10
ZW-S 8-0-FP1	8	39.5	19	14.5	6	22
ZW-S10-0-FP1	10	45	21.5	17.5	8	30
ZW-S12-0-FP1	12	47.5	23	20	10	35

Different diameter straight

●ZW-S □ -0-FP1

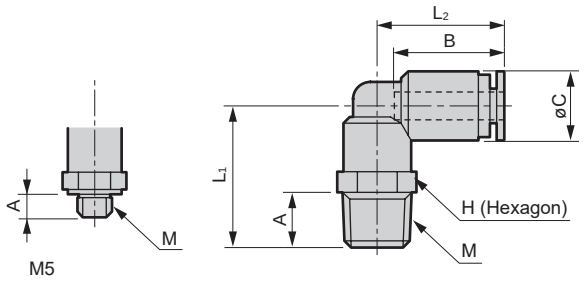


Model No.	Compatible tube O.D. Ø		L	B1	B2	C	Min. bore size	Effective cross-sectional area mm²
	A side	B side						
ZW-S 46-0-FP1	6	4	36.5	17.5	16	12.5	2.5	4
ZW-S 68-0-FP1	8	6	39.5	19	17.5	14.5	4	10
ZW-S 810-0-FP1	10	8	45	21.5	19	17.5	6	22
ZW-S1012-0-FP1	12	10	47.5	23	21.5	20	8	30

Dimensions: Single elbow/elbow/double tee/D type tee

Single straight

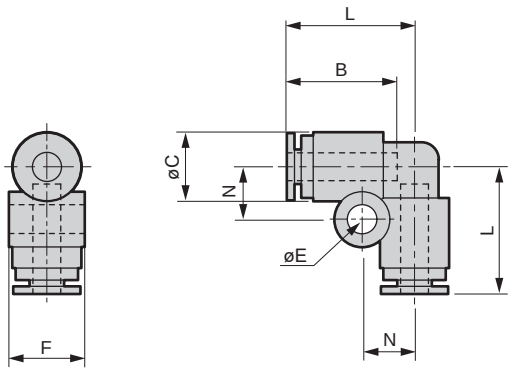
●ZW-S □ - □ -FP1



Model No.	Compatible tube O.D. ø	M	H	L_1	L_2	A	B	C	Min. bore size	Effective cross-sectional area mm²
ZW-L 4-M5-FP1	4	M5x0.8	8	15	18	3.4	16	10	2.5	3.2
ZW-L 4- 6-FP1		R 1/8	10	20.5	18.5	8	16	10	2.5	3.2
ZW-L 4- 8-FP1		R 1/4	14	24	18.5	11	16	10	2.5	3.2
ZW-L 6-M5-FP1	6	M5x0.8	10	15	20	3.4	17.5	12.5	2.5	4.2
ZW-L 6- 6-FP1		R 1/8	12	24	21	8	17.5	12.5	4	8
ZW-L 6- 8-FP1		R 1/4	14	27.5	21	11	17.5	12.5	4	8
ZW-L 6-10-FP1		R 3/8	17	29	21	12	17.5	12.5	4	8
ZW-L 8- 6-FP1	8	R 1/8	14	25.5	23.5	8	19	14.5	6	18
ZW-L 8- 8-FP1		R 1/4	14	28.5	23.5	11	19	14.5	6	18
ZW-L 8-10-FP1		R 3/8	17	30	23.5	12	19	14.5	6	18
ZW-L10- 6-FP1	10	R 1/8	17	28	27	8	21.5	17.5	6.5	24.3
ZW-L10- 8-FP1		R 1/4	17	31	27	11	21.5	17.5	8	27
ZW-L10-10-FP1		R 3/8	17	32.5	27	12	21.5	17.5	8	27
ZW-L10-15-FP1		R 1/2	22	35.5	27	15	21.5	17.5	8	27
ZW-L12- 8-FP1	12	R 1/4	19	33	29.5	11	23	20	8.5	33
ZW-L12-10-FP1		R 3/8	19	34.5	29.5	12	23	20	9	35
ZW-L12-15-FP1		R 1/2	22	37.5	29.5	15	23	20	9	35.5

Bulkhead

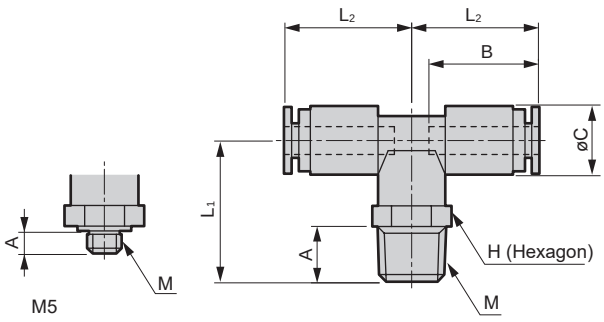
●ZW-S □ - □ -X-FP1



Model No.	Compatible tube O.D. ø	L	B	C	N	E	F	Min. bore size	Effective cross-sectional area mm²
ZW-L 4-0-FP1	4	18.5	16	10	7.5	4.2	11	2.5	3
ZW-L 6-0-FP1	6	21	17.5	12.5	8.5	4.2	13.5	4	7.5
ZW-L 8-0-FP1	8	23.5	19	14.5	9.5	4.2	15.5	6	17
ZW-L10-0-FP1	10	27	21.5	17.5	11	4.2	18.5	8	25.5
ZW-L12-0-FP1	12	29.5	23	20	12	4.2	21	10	34

Double tee

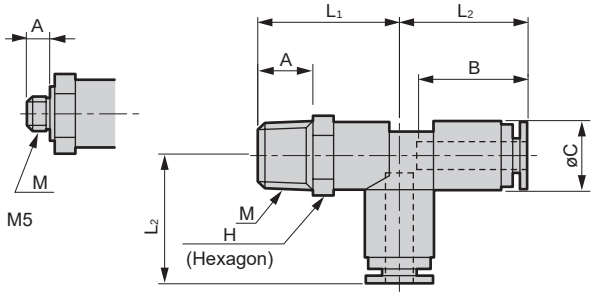
●ZW-T □ - □ -FP1



Model No.	Compatible tube O.D. ø	M	H	L_1	L_2	A	B	C	Min. bore size	Effective cross-sectional area mm²
ZW-T 4-M5-FP1	4	M5x0.8	10	16.5	18.5	3.4	16	10	2.5	4.3
ZW-T 4- 6-FP1		R 1/8	10	20.5	18.5	8	16	10	2.5	4.3
ZW-T 4- 8-FP1		R 1/4	14	24	18.5	11	16	10	2.5	4.3
ZW-T 6-M5-FP1	6	M5x0.8	12	20	21	3.4	17.5	12.5	2.5	4.3
ZW-T 6- 6-FP1		R 1/8	12	24	21	8	17.5	12.5	4	10.5
ZW-T 6- 8-FP1		R 1/4	14	27.5	21	11	17.5	12.5	4	10.5
ZW-T 6-10-FP1		R 3/8	17	29	21	12	17.5	12.5	4	10.5
ZW-T 8- 6-FP1	8	R 1/8	14	25.5	23.5	8	19	14.5	6	23.5
ZW-T 8- 8-FP1		R 1/4	14	28.5	23.5	11	19	14.5	6	23.5
ZW-T 8-10-FP1		R 3/8	17	30	23.5	12	19	14.5	6	23.5
ZW-T10- 8-FP1	10	R 1/8	17	31	27	11	21.5	17.5	8	33.5
ZW-T10-10-FP1		R 1/4	17	32.5	27	12	21.5	17.5	8	33.5
ZW-T10-15-FP1		R 3/8	22	35.5	27	15	21.5	17.5	8	33.5
ZW-T12- 8-FP1	12	R 1/2	19	33	29.5	11	23	20	8.5	37
ZW-T12-10-FP1		R 1/4	19	34.5	29.5	12	23	20	9	41
ZW-T12-15-FP1		R 3/8	22	37.5	29.5	15	23	20	9	41

D tee

●ZW-T □ - □ -D-FP1

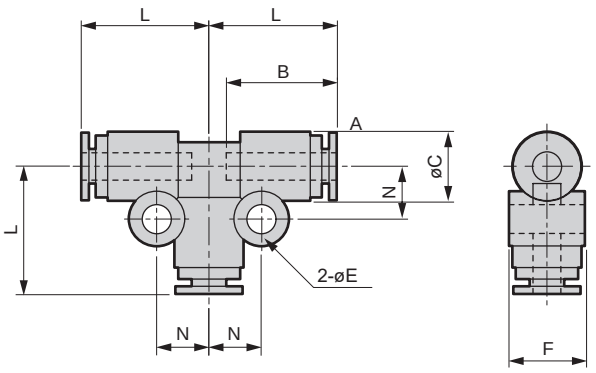


Model No.	Compatible tube O.D. ø	M	H	L_1	L_2	A	B	C	Min. bore size	Effective cross-sectional area mm²
ZW-T 4-M5-D-FP1	4	M5x0.8	10	16.5	18.5	3.4	16	10	2.5	4.3
ZW-T 4- 6-D-FP1		R 1/8	10	20.5	18.5	8	16	10	2.5	4.3
ZW-T 4- 8-D-FP1		R 1/4	14	24	18.5	11	16	10	2.5	4.3
ZW-T 6-M5-D-FP1	6	M5x0.8	12	19.5	21	3.4	17.5	12.5	2.5	4.3
ZW-T 6- 6-D-FP1		R 1/8	12	24	21	8	17.5	12.5	4	10.5
ZW-T 6- 8-D-FP1		R 1/4	14	27.5	21	11	17.5	12.5	4	10.5
ZW-T 6-10-D-FP1		R 3/8	17	29	21	12	17.5	12.5	4	10.5
ZW-T 8- 6-D-FP1	8	R 1/8	14	25.5	23.5	8	19	14.5	6	23.5
ZW-T 8- 8-D-FP1		R 1/4	14	28.5	23.5	11	19	14.5	6	23.5
ZW-T 8-10-D-FP1		R 3/8	17	30	23.5	12	19	14.5	6	23.5
ZW-T10- 8-D-FP1	10	R 1/8	17	31	27	11	21.5	17.5	8	33.5
ZW-T10-10-D-FP1		R 1/4	17	32.5	27	12	21.5	17.5	8	33.5
ZW-T10-15-D-FP1		R 3/8	22	35.5	27	15	21.5	17.5	8	33.5
ZW-T12- 8-D-FP1	12	R 1/2	19	33	29.5	11	23	20	8.5	37
ZW-T12-10-D-FP1		R 1/4	19	34.5	29.5	12	23	20	9	41
ZW-T12-15-D-FP1		R 3/8	22	37.5	29.5	15	23	20	9	41

Dimensions: Tee/different diameter tee/Y type tee/double Y tee

Tee

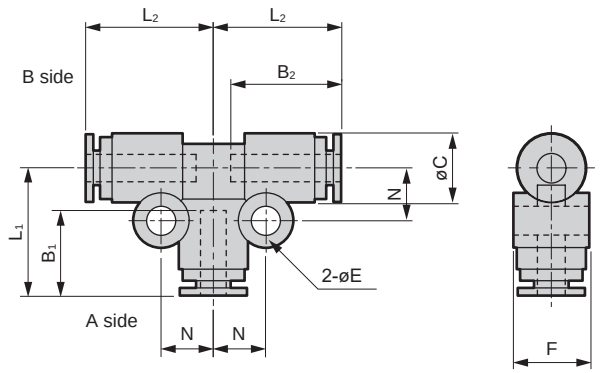
●ZW-T □ -0-FP1



Model No.	Compatible tube O.D. ø	L	B	C	E	F	N	Min. bore size	Effective cross-sectional area mm²
ZW-T 4-0-FP1	4	18.5	16	10	4.2	11	7.5	2.5	3.6
ZW-T 6-0-FP1	6	21	17.5	12.5	4.2	13.5	8.5	4	9.7
ZW-T 8-0-FP1	8	23.5	19	14.5	4.2	15.5	9.5	6	22
ZW-T10-0-FP1	10	27	21.5	17.5	4.2	18.5	11	8	30
ZW-T12-0-FP1	12	29.5	23	20	4.2	21	12	10	35.5

Different diameter tee

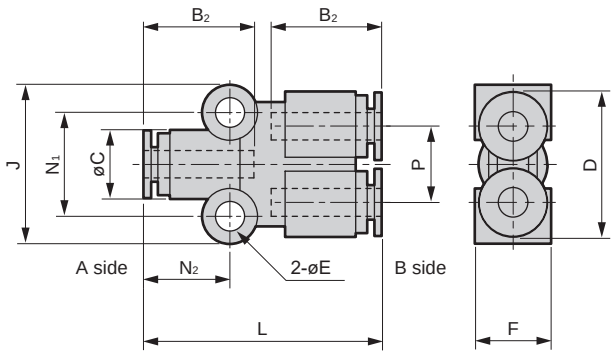
●ZW-T □ -0-FP1



Model No.	Compatible tube O.D. Ø		L1	L2	B1	B2	C	E	F	N	Min. bore size	Effective Cross-sectional area mm²
	A side	B side										
ZW-T 46-0-FP1	4	6	21	21	16	17.5	12.5	4.2	13.5	8.5	2.5	3.6
ZW-T 68-0-FP1	6	8	23.5	23.5	17.5	19	14.5	4.2	15.5	9.5	4	9.7
ZW-T 810-0-FP1	8	10	27.5	27	19	21.5	17.5	4.2	18.5	11	6	22
ZW-T1012-0-FP1	10	12	29.5	29.5	21.5	23	20	4.2	21	12	8	30

Y tee

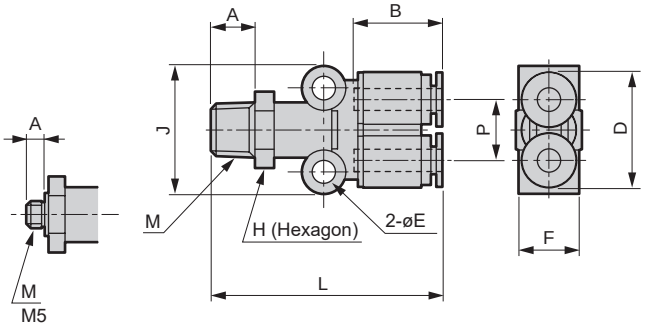
●ZW-Y □ -0-FP1



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-FP1	4	4	34.5	16	16	10	21	4.2	11	23	15	12.5	11	3.6
ZW-Y 66-0-FP1	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-FP1	8	8	40.5	19	19	14.5	30	4.2	15.5	27	19	15	15.5	23
ZW-Y1010-0-FP1	10	10	48	21.5	21.5	17.5	36	4.2	18.5	30	22	18	18.5	38
ZW-Y1212-0-FP1	12	12	53	23	23	20	41	4.2	21	32	24	19.5	21	50
ZW-Y 64-0-FP1	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-FP1	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-FP1	10	8	48	21.5	19	17.5	36	4.2	18.5	30	22	18	18.5	21.1
ZW-Y1210-0-FP1	12	10	53	23	21.5	20	41	4.2	21	32	24	19.5	21	35.5

Double Y tee

●ZW-Y □ - □ -FP1

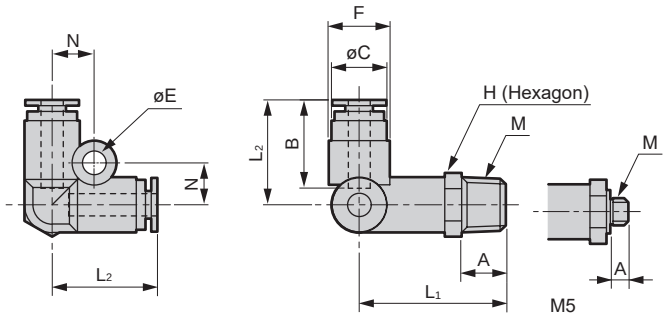


Model No.	Compatible tube O.D. ø	M	H	L	A	B	D	E	F	J	P	Effective Cross-sectional area mm²
ZW-Y 4-M5-FP1	4	M 5 x 0.8	12	38	3.4	16	21	4.2	11	23	11	4.5
ZW-Y 4- 6-FP1		R 1/8	12	42	8	16	21	4.2	11	23	11	5.5
ZW-Y 4- 8-FP1		R 1/4	14	45.5	11	16	21	4.2	11	23	11	5.5
ZW-Y 6-M5-FP1	6	M 5 x 0.8	14	41	3.4	17.5	26	4.2	13.5	25.5	13.5	4.5
ZW-Y 6- 6-FP1		R 1/8	14	46	8	17.5	26	4.2	13.5	25.5	13.5	17.5
ZW-Y 6- 8-FP1		R 1/4	14	49	11	17.5	26	4.2	13.5	25.5	13.5	17.5
ZW-Y 6-10-FP1		R 3/8	17	50.5	12	17.5	26	4.2	13.5	25.5	13.5	17.5
ZW-Y 8- 6-FP1	8	R 1/8	17	49	8	19	30	4.2	15.5	27	15.5	25.5
ZW-Y 8- 8-FP1		R 1/4	17	52	11	19	30	4.2	15.5	27	15.5	25.5
ZW-Y 8-10-FP1		R 3/8	17	53.5	12	19	30	4.2	15.5	27	15.5	25.5
ZW-Y10- 8-FP1	10	R 1/4	19	59.5	11	21.5	36	4.2	18.5	30	18.5	35
ZW-Y10-10-FP1		R 3/8	19	61	12	21.5	36	4.2	18.5	30	18.5	38.5
ZW-Y10-15-FP1		R 1/2	22	64	15	21.5	36	4.2	18.5	30	18.5	38
ZW-Y12- 8-FP1	12	R 1/4	22	64.5	11	23	41	4.2	21	32	21	37
ZW-Y12-10-FP1		R 3/8	22	66	12	23	41	4.2	21	32	21	37
ZW-Y12-15-FP1		R 1/2	22	69	15	23	41	4.2	21	32	21	40.5

Dimensions: Tetrapod (with R)/FY type (with R)/double Y type (with R)/tetrapod

Tetrapod (with R)

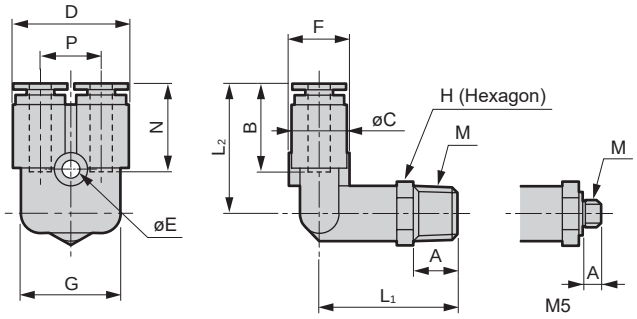
●ZW-TR □ - □ -FP1



Model No.	Compatible tube O.D. ø	M	H	L_1	L_2	A	B	C	E	F	N	Min. bore size	Effective cross-sectional area mm²
ZW-TR 4-M5-FP1	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-FP1		R 1/8	10	26.5	19	8	16	10	4.2	11	7.5	2.5	4.5
ZW-TR 4- 8-FP1		R 1/4	14	30	19	11	16	10	4.2	11	7.5	2.5	4.5
ZW-TR 6-M5-FP1	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-FP1		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-FP1		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-FP1		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-FP1	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-FP1		R 1/4	17	35.5	24	11	19	14.5	4.2	15.5	9.5	6	23.5
ZW-TR 8-10-FP1		R 3/8	17	37	24	12	19	14.5	4.2	15.5	9.5	6	23.5
ZW-TR10- 8-FP1	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-FP1		R 3/8	19	41	27.5	12	21.5	17.5	4.2	18.5	13	8	35.5
ZW-TR10-15-FP1		R 1/2	22	44	27.5	15	21.5	17.5	4.2	18.5	13	8	35.5
ZW-TR12- 8-FP1	12	R 1/4	22	41.5	30	11	23	20	4.2	21	14	8.5	37.5
ZW-TR12-10-FP1		R 3/8	22	43	30	12	23	20	4.2	21	14	8.5	37.5
ZW-TR12-15-FP1		R 1/2	22	46	30	15	23	20	4.2	21	14	8.5	37.5

FY (with R)

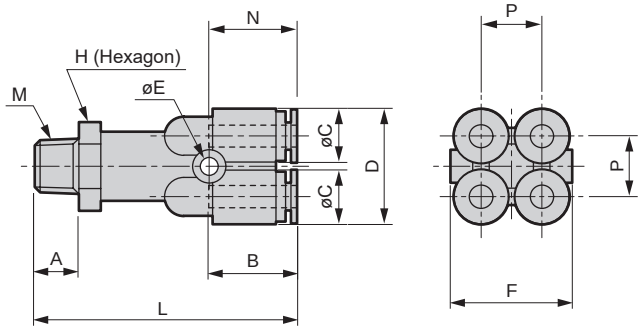
●ZW-FY □ - □ -FP1



Model No.	Compatible tube O.D. ø	M	H	L_1	L_2	A	B	C	D	E	F	G	N	P	Min. bore size	Effective cross-sectional area mm²
ZW-FY 4-M5-FP1	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-FP1		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-FP1		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-FP1	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-FP1		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-FP1		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-FP1		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-FP1	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-FP1		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-FP1		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-FP1	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-FP1		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-FP1		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-FP1	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-FP1		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-FP1		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)

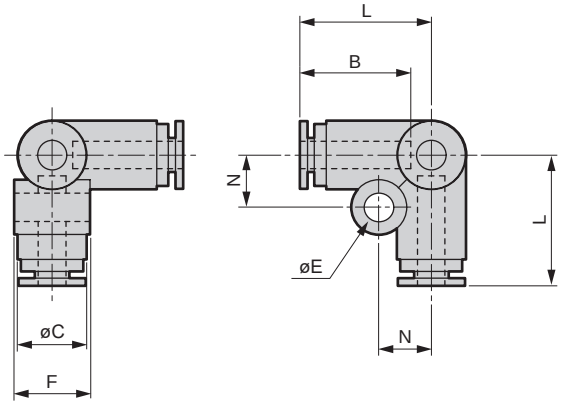
●ZW-WY □ - □ -FP1



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-FP1	4	R 1/8	14	47.5	8	16	10	21	3.2	22	15.5	11	9.7
ZW-WY4- 8-FP1		R 1/4	14	50.5	11	16	10	21	3.2	22	15.5	11	9.7
ZW-WY6- 6-FP1	6	R 1/8	17	51.5	8	17.5	12.5	26	3.2	27	17	13.5	23

Tetrapod

●ZW-TR □ -0-FP1

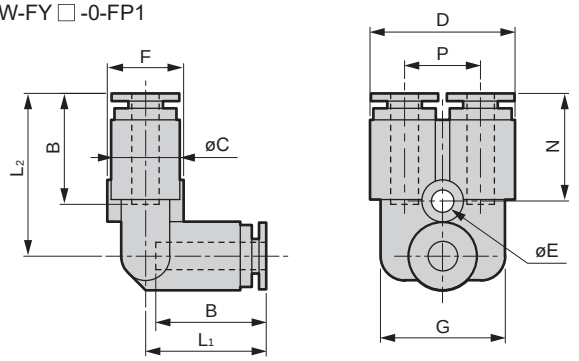


Model No.	Compatible tube O.D. ø	L	B	C	E	F	N	Min. bore size	Effective cross-sectional area mm²
ZW-TR 4-0-FP1	4	19	16	10	4.2	11	7.5	2.5	4
ZW-TR 6-0-FP1	6	21.5	17.5	12.5	4.2	13.5	8.5	4	9.5
ZW-TR 8-0-FP1	8	24	19	14.5	4.2	15.5	9.5	6	12.5
ZW-TR10-0-FP1	10	27.5	21.5	17.5	4.2	18.5	13	8	29.5
ZW-TR12-0-FP1	12	30	23	20	4.2	21	14	10	35.5

Dimensions: FY type/double Y type/cap/manifold (single/with R)

FY

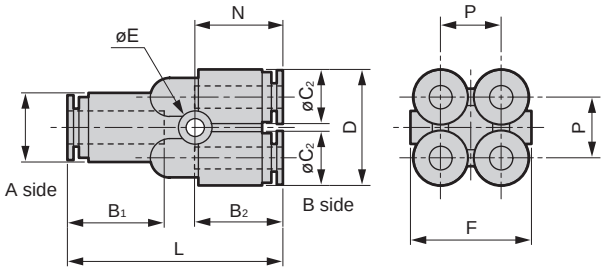
●ZW-FY □ -0-FP1



Model No.	Compatible tube O.D. ø	L1	L2	B	C	D	E	F	G	N	P	Min. bore size	Effective cross-sectional area mm²
ZW-FY 4-0-FP1	4	17.5	23.5	16	10	21	3.2	11	18	15.5	11	2.5	4
ZW-FY 6-0-FP1	6	19.5	27	17.5	12.5	26	4.2	13.5	22.5	17	13.5	4	10
ZW-FY 8-0-FP1	8	22	29	19	14.5	30	4.2	15.5	26.5	18	15.5	6	21
ZW-FY10-0-FP1	10	25.5	33	21.5	17.5	36	4.2	18.5	31.5	20	18.5	8	29
ZW-FY12-0-FP1	12	28	35.5	23	20	41	4.2	21	37	21.5	21	10	35.5

Double Y

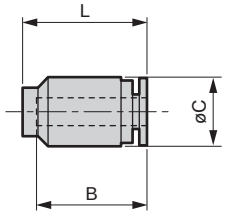
●ZW-WY □ -0-FP1



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-FP1	6	4	39	17.5	16	12.5	10	21	3.2	22	15.5	11	9
ZW-WY86-0-FP1	8	6	43	19	17.5	14.5	12.5	26	3.2	27	17	13.5	22

Cap

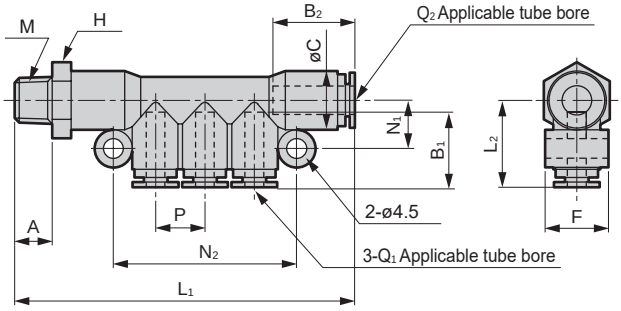
●ZW-C □ -FP1



Model No.	Compatible tube O.D. Ø	B	øC	L
ZW-C 4-FP1	4	16	10	18
ZW-C 6-FP1	6	17.5	12.5	19.5
ZW-C 8-FP1	8	19	14.5	21
ZW-C10-FP1	10	21.5	17.5	24
ZW-C12-FP1	12	23	20	26

Manifold (single/with R)

●ZW-MF □ - □ -FP1

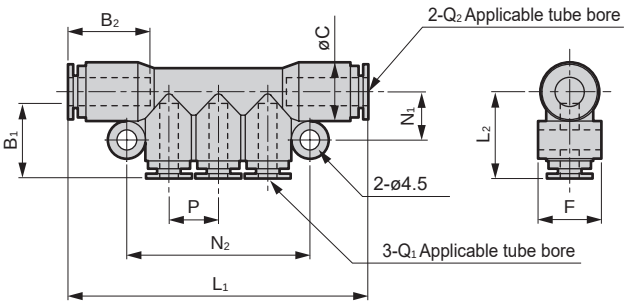


Model No.	Compatible tube O.D. Ø		M	H	L1	L2	A	B1	B2	C	F	N1	N2	P	Effective Cross-sectional area mm²
	Q1	Q2													
ZW-MF 46- 6-FP1	4	6	R 1/8	14	72.5	18.5	8	16	17.5	12.5	13.5	10.5	39	10.5	8.3
ZW-MF 48- 8-FP1	4	8	R 1/4	17	77.5	19.5	11	16	19	14.5	15.5	11.5	39	10.5	24.2
ZW-MF 68- 8-FP1	6	8	R 1/4	17	84.5	21	11	17.5	19	14.5	15.5	11.5	46.5	13	24.2
ZW-MF810-10-FP1	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)

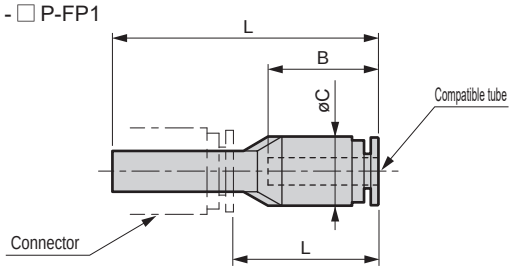
●ZW-MF □ -0-FP1



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-FP1	4	6	64	18.5	16	17.5	12.5	13.5	10.5	39	10.5	7.9
ZW-MF 48-0-FP1	4	8	66	19.5	16	19	14.5	15.5	11.5	39	10.5	22
ZW-MF 68-0-FP1	6	8	73	21	17.5	19	14.5	15.5	11.5	46.5	13	22
ZW-MF610-0-FP1	6	10	78.5	22	17.5	21.5	17.5	18.5	13	46.5	13	30
ZW-MF810-0-FP1	8	10	84.5	23.5	19	21.5	17.5	18.5	13	52.5	15	30

Plug reducer

●ZW-S □ - □ P-FP1



Model No.	Compatible tube O.D. ø	Connector Diameter ø	L	L*	B	C	Min. bore size	Effective cross-sectional area mm²
ZW-S 4- 6P-FP1	4	6	38.5	21	16	10	2.3	3.5
ZW-S 4- 8P-FP1		8	40.4	21.5	16	10	3	5.6
ZW-S 4-10P-FP1		10	42	20.5	16	12.5	3	5.6
ZW-S 6- 4P-FP1	6	4	42	26	17.5	12.5	2.3	3.5
ZW-S 6- 8P-FP1		8	41	22	17.5	12.5	4	10
ZW-S 6-10P-FP1		10	42	20	17.5	12.5	4	10
ZW-S 6-12P-FP1		12	44	21	17.5	14.5	4	10
ZW-S 8-10P-FP1	8	10	44.5	22.5	19	14.5	6	22
ZW-S 8-12P-FP1		12	44	21	19	14.5	6	22
ZW-S10-12P-FP1	10	12	48	25	21.5	17.5	8	30

* Dimensions for connecting fitting are for CKD (ZW-FP1 Series)



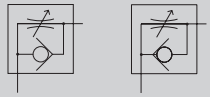
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Speed controller, elbow with push-in fitting

SC3W-FP1 Series

● Port size: M5, R1/8 to R1/2

JIS symbol



(Meter-out) (Meter-in)

RoHS CAD

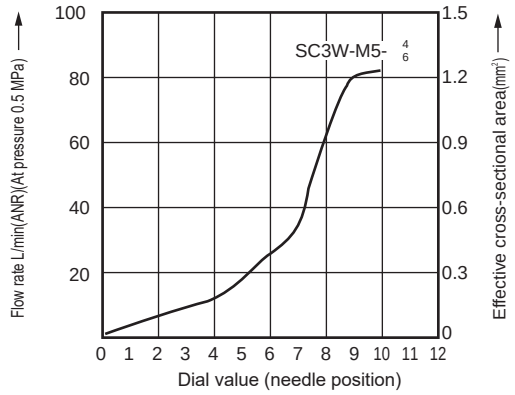
Specifications

Item		SC3W-M5		SC3W-6			SC3W-8			SC3W-10				SC3W-15	
Applicable tube bore mm		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. *2)													
Ambient temperature °C		0 to 60 (no freezing)													
Port size		M5		R 1/8			R 1/4			R 3/8				R 1/2	
Weight g		8.8	9.6	25	26	27	50	51	54	63.7	75	78	81	134	138
Dial value (needle position) (times)		10End		10 and over			13 and over			13 and over				14 and over	
Free flow	Flow rate L/min (ANR)	87		210	270	270	470	500	530	650	1000	1100		1500	1600
	Effective cross-sectional area mm²	1.3		3.2	4.0	4.0	7	7.5	8	10	15	16		22	24
Controlled flow	Flow rate L/min (ANR)	80		190	240	240	430	470	470	650	930	1000		1500	1600
	Effective cross-sectional area mm²	1.2		2.8	3.6	3.6	6.5	7	7.0	10	14	15		22	24

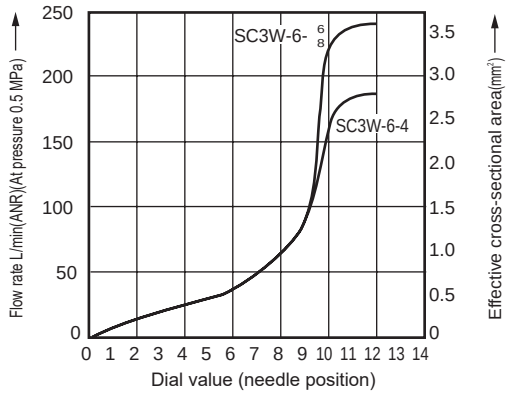
*1: Flow rate is the atmospheric pressure conversion value at pressure 0.5 MPa.
*2: Freezing may occur due to adiabatic expansion depending on the air quality (dew point).

Flow characteristics

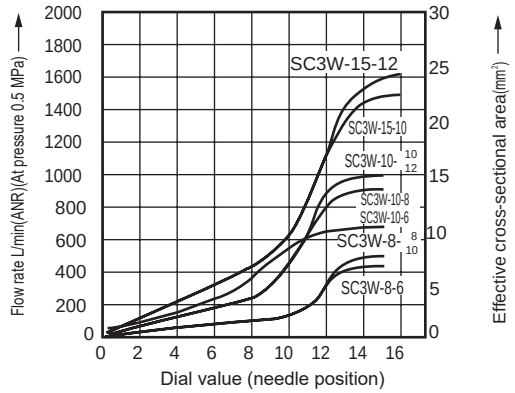
● Standard (port size M3, M5)



● Standard (port size 6)



● Standard (port size 8, 10, 15)



How to order

SC3W - M5 - 4 - I - FP1

- SC3W: Model No.
- M5: Ⓐ Port size
- 4: Ⓑ Applicable tube bore
- I: Ⓒ Option

Code	Description
Ⓐ Port size	
M5	M 5 x 0.8
6	R 1/8
8	R 1/4
10	R 3/8
15	R 1/2

Ⓑ Applicable tube bore

		Piping size				
		M5	6	8	10	15
4	ø4	●	●			
6	ø6	●	●	●	●	
8	ø8		●	●	●	
10	ø10			●	●	●
12	ø12				●	●

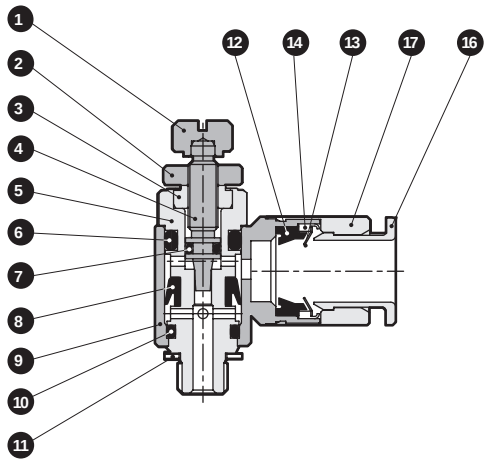
Ⓒ Option

Blank	Meter-out
I	Meter-in (Push ring color: black)

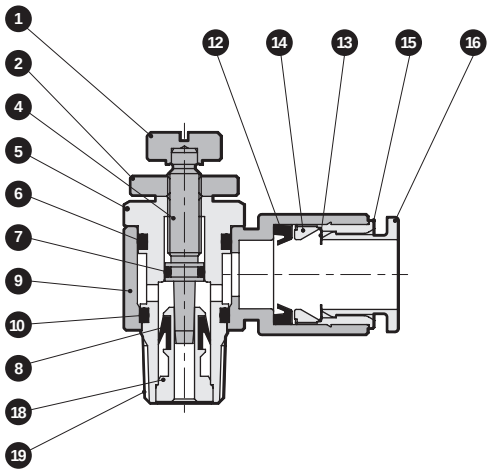
indicates not available.

Internal structure and parts list

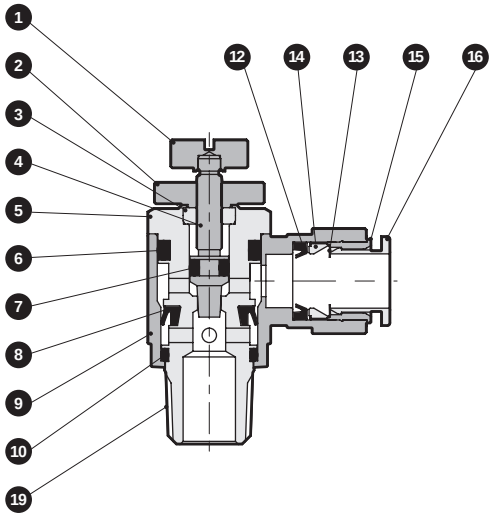
● Port size: M5



● Port size: 6, 10 (ø6 only)



● Port size: 8, 10, 15



Part No.	Part name	Material	
1	Knob	Copper alloy	
2	Lock nut	Copper alloy	
3	Gland nut	Copper alloy	
4	Needle	Stainless steel	
5	Rotary shaft	Copper alloy	
6	O-ring	Nitrile rubber	
7	O-ring	Nitrile rubber	
8	Packing	Hydrogenated nitrile rubber	
9	Rotor	Polybutylene terephthalate (flame-resistant resin *2)	
10	O-ring	Nitrile rubber	
11	Gasket	Steel + nitrile rubber (M5 only)	
12	Packing	Nitrile rubber	
13	Chuck	Stainless steel	
14	Chuck holder	M5	Copper alloy
		R1/8 to	Polyetherimide
15	Outer ring	Copper alloy	
16	Push ring	Polybutylene terephthalate (flame-resistant resin *2)	
17	Fitting body	Copper alloy	
18	Check part	Copper alloy	
19	Sealant	Fluorinated resin	

*1: All the copper alloy parts have electroless nickel plating.
* 2: UL94 Standards V-0 equivalent

For dimensions, refer to the SC3W Series in "Pneumatic, Vacuum and Auxiliary components (CB-024SA)".

NSF H1

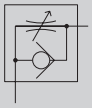
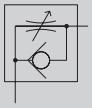


Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Speed controller with adjusting dial

DSC-FP1 Series

● Port size: R1/8 to R1/2

JISCode  (Meter-out)  (Meter-in)

RoHS CAD

Specifications

Item			DSC-6			DSC-8			DSC-10				DSC-15	
Applicable tube bore		mm	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 *2)											
Ambient temperature		°C	0 to 60 (no freezing)											
Port size			R 1/8			R 1/4			R 3/8				R 1/2	
Weight		g	33	34	35	45	46	48	60	61	64	65	95	97
Needle control range			1 to 10 rotations											
Free flow	Flow rate	L/min (ANR)	210	270	270	470	530	530	670	1000	1070	1070	1470	1600
	Effective cross-sectional area	mm^2	3.2	4	4	7	8	8	10	15	16	16	22	24
Controlled flow (Standard flow rate)	Flow rate	L/min (ANR)	160	200	200	320	400	400	400	700	800	800	1120	1200
	Effective cross-sectional area	mm^2	2.4	3	3	5	6	6	6	10.5	12	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 - 6 - 6 - I L - FP1

Ⓐ Port size
Ⓑ Applicable tube bore
Ⓒ Control method
Ⓓ Flow rate

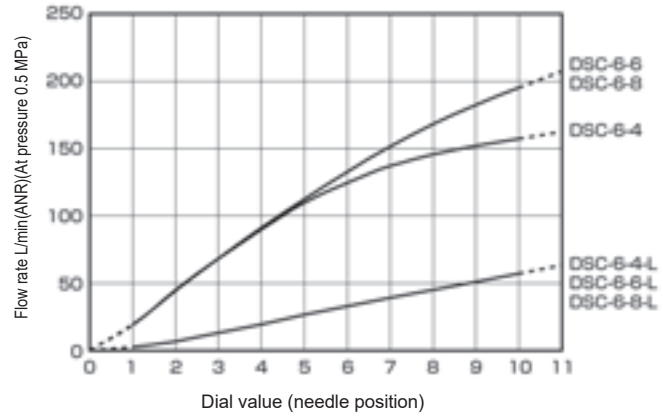
Code	Description
Ⓐ Port size	
6	R 1/8
8	R 1/4
10	R 3/8
15	R 1/2
Ⓑ Applicable tube bore	
4	ø4
6	ø6
8	ø8
10	ø10
12	ø12
Ⓒ Control method	
Blank	Meter-out
I	Meter-in (Push ring color: black)
Ⓓ Flow rate	
Blank	Standard flow rate
L	Low flow rate

Port size - compatible tube O.D. combination

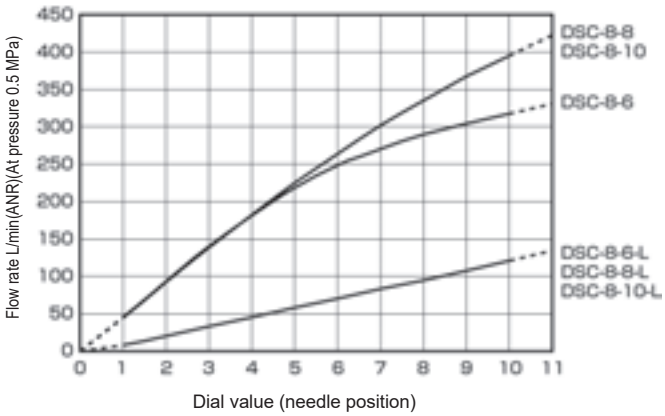
Tube \ Piping	R 1/8	R 1/4	R 3/8	R 1/2
ø4	●			
ø6	●	●	●	
ø8	●	●	●	
ø10		●	●	●
ø12			●	●

Flow characteristics

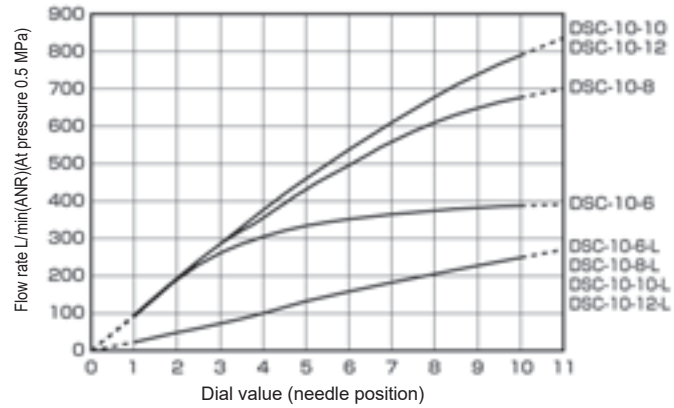
●DSC-6- *



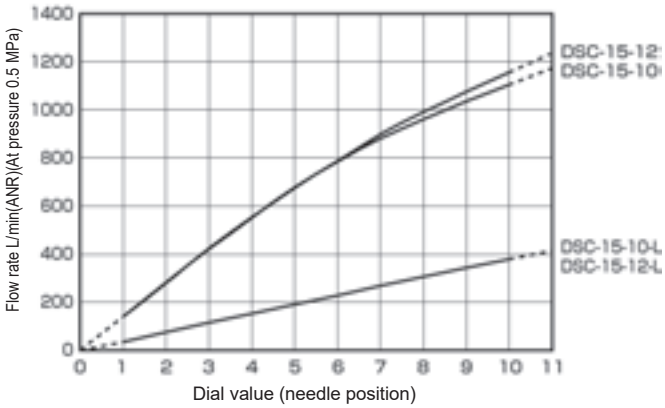
●DSC-8- *



●DSC-10- *

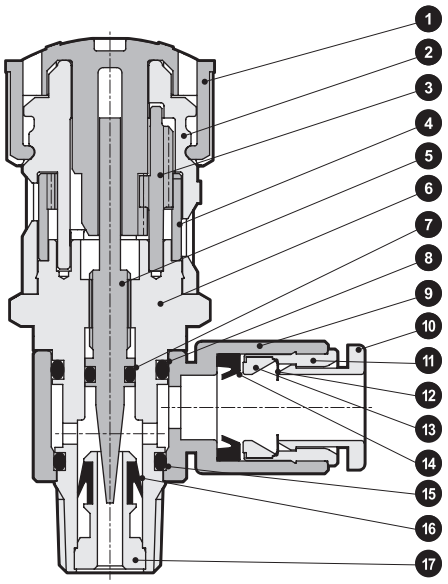


●DSC-15- *



Note: The flow characteristics may differ depending on the piping conditions around the unit and the temperature change.

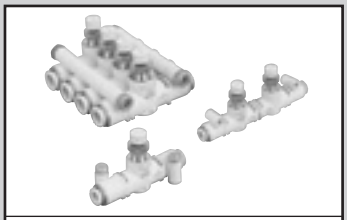
Internal structure and parts list



Part No.	Part name	Material
1	Knob	Polyacetal
2	Gear cover	Polybutylene terephthalate
3	Gear	Stainless steel
4	Indication ring	Polyacetal
5	Needle	Stainless steel
6	Rotary shaft	Copper alloy
7	O-ring	Nitrile rubber
8	O-ring	Nitrile rubber
9	Rotor	Polybutylene terephthalate
10	Push ring	Polybutylene terephthalate
11	Outer ring	Copper alloy
12	Chuck	Stainless steel
13	Chuck holder	Polyetherimide
14	Packing	Nitrile rubber
15	O-ring	Nitrile rubber
16	Packing	Hydrogenated nitrile rubber
17	Check part	Copper alloy

*1: All the copper alloy parts have electroless nickel plating.

For dimensions, refer to the DSC Series in "Pneumatic, Vacuum and Auxiliary cmponents (CB-024SA)".

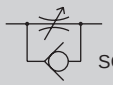


Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Speed controller Line type with push-in fitting

SCL2-FP1 Series

● Port size: ø4, ø6, ø8, ø10, ø12

JISCode  SCL2 Series

RoHS CAD

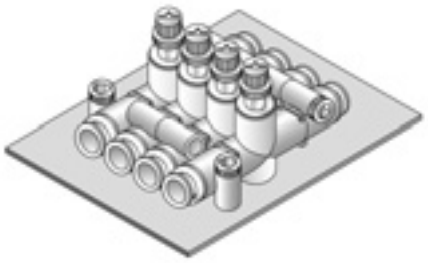
Overview

● The SCL2 Series is an inline speed controller useful for remote or centralized actuator control.

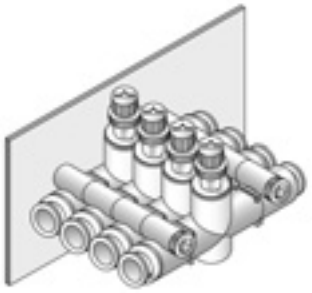
Features

Unrestricted mounting

The mounting area rotates by 360°, enabling mounting and installation method to be from base, side, or panel. Mounting brackets are not required.



Example of base mounting



Example of wall mounting



Example of panel mounting

Large flow rate with compact

The max. flow rate achieved even with a compact body extends the selection range for cylinder size and speed control.

Push-in connection

Push-in fittings simplify tubing connections.

Ozone-resistant materials as standard

Ozone-resistant materials are used as standard for check packing to prevent deterioration of product.

Flame-resistant resin as standard

(UL94 Standards V-0 equivalent)

Specifications

● Speed controller Line type SCL2

Model No.			SCL2-04	SCL2-06	SCL2-08		SCL2-10		
Applicable tube bore		mm	ø4	ø6	ø6	ø8	ø8	ø10	ø12
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 *2)						
Ambient temperature		°C	0 to 60 (no freezing)						
Weight		g	11.5	16	32	33	53	57	59
Dial value (needle position)			12 [15]						
Free flow	Flow rate	L/min (ANR)	130	300	400	550	900	1100	1200
	Effective cross-sectional area	mm²	1.9	4.5	6	8	13.5	16.5	18
Controlled flow	Flow rate	L/min (ANR)	130	300	400	550	900	1100	1200
	Effective cross-sectional area	mm²	1.9	4.5	6	8	13.5	16.5	18

*1: Flow rate is the atmospheric pressure conversion at 0.5MPa.
*2: Freezing may occur due to adiabatic expansion depending on the air quality (dew point).

⚠ Refer to (Pneumatic, Vacuum and Auxiliary components (CB-024SA)) for the safety precautions of the SCL2 Series.

How to order

● Speed controller Line type

SCL2 - 04 - H44 - FP1

Model No.

Ⓐ Body size

Ⓑ Applicable tube bore

Code	Description
Ⓐ Body size	
04	M5 thread equivalent
06	1/8 thread equivalent
08	1/4 thread equivalent
10	3/8 thread equivalent
Ⓑ Applicable tube bore	
H44	ø4
H66	ø6
H88	ø8
H1010	ø10
H1212	ø12

Refer to the table at right for body size, compatible tube O.D., and flow characteristic combinations.

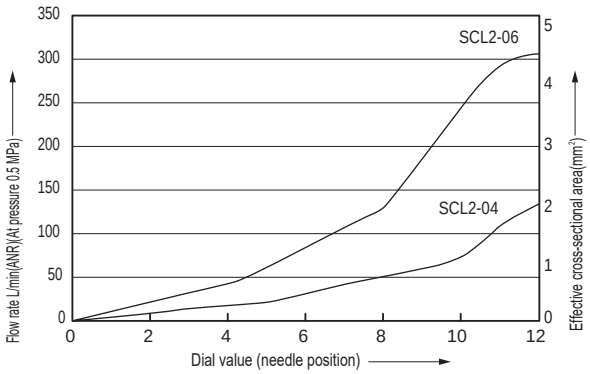
Combination of body size, compatible tube O.D., and flow characteristics

Ⓑ Applicable tube bore			Ⓐ Body size 04	06	08	10
	H44	ø4	●			
	H66	ø6		●	●	
	H88	ø8			●	●
	H1010	ø10				●
	H1212	ø12				●

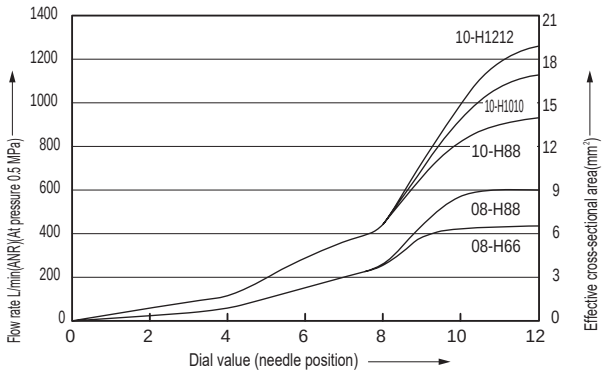
● Flow characteristics "standard"
Not available

Flow characteristics

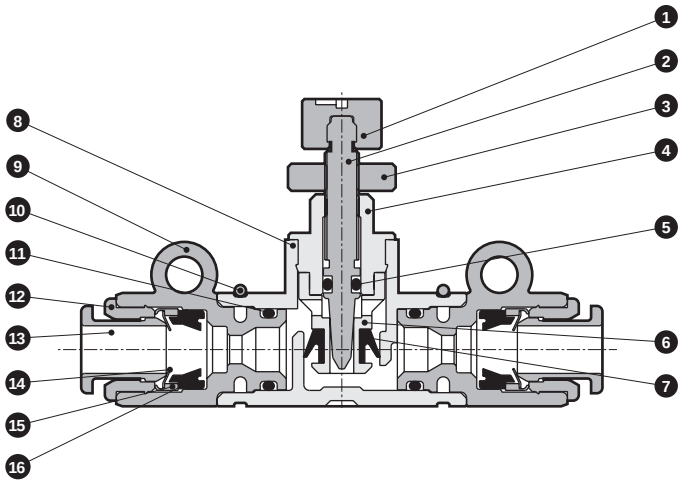
● Standard
SCL2-04, SCL2-06



● Standard
SCL2-08, SCL2-10



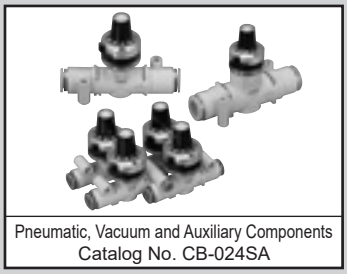
Internal structure and parts list



Part No.	Part name	Material
1	Knob	Polybutylene terephthalate
2	Needle	Copper alloy
3	Lock nut	Copper alloy
4	Guide ring	Copper alloy
5	O-ring	Nitrile rubber
6	Check bracket	Copper alloy
7	Check packing	Hydrogenated nitrile rubber
8	Body	Polybutylene terephthalate
9	Joint case	Polybutylene terephthalate
10	Stopper ring	Stainless steel
11	O-ring	Nitrile rubber
12	Outer ring	Copper alloy
13	Push ring	Polybutylene terephthalate
14	Chuck	Stainless steel
15	Holder	Copper alloy or polyetherimide
16	Packing	Nitrile rubber

*1 All the copper alloy parts have electroless nickel plating.
*2 All resin parts are flame-resistant. (UL94 Standards V-0 equivalent)

For dimensions, refer to the SCL2 Series in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Needle valve with adjusting dial, check valve

DVL-S-FP1 Series

● Port size: ø 4, ø 6, ø 8, ø 10, ø 12

JIS symbol



DVL-S

RoHS CAD

Specifications

● Needle valve with adjusting dial, check valve DVL-S

Item			DVL-S-06					DVL-S-08		DVL-S-10		
			020		080		160	240		400		
Applicable tube bore		mm	ø4	ø6	ø4	ø6	ø6	ø6	ø8	ø8	ø10	ø12
Working fluid			Compressed air									
Max. working pressure		MPa	1.0									
Min. working pressure		MPa	0.1 (*3)									
Proof pressure		MPa	1.5									
Fluid temperature		°C	5 to 60 (no freezing. *2)									
Ambient temperature		°C	0 to 60 (no freezing)									
Weight		g	54	48	54	48	48	60	61	82	86	88
Needle control range			1 to 12 rotations					1 to 13 rotations				
Free flow	Flow rate	L/min (ANR)	170	300	170	300	300	400	550	900	1100	1200
	Effective cross-sectional area	mm^2	2.5	4.5	2.5	4.5	4.5	6	8	13.5	16.5	18
Controlled flow	Flow rate	L/min (ANR)	18		80		160	240		440		
	Effective cross-sectional area	mm^2	0.15		1.2		2.4	3.6		6.6		

*1: Flow rate is the atmospheric pressure conversion at 0.5 MPa.
*2: Freezing may occur due to adiabatic expansion depending on the air quality (dew point).
*3: Evacuating up to -100 kPa is possible only in the direction of free flow. (Needle control is not available)

For dimensions, refer to the DVL Series in "Pneumatic, Vacuum and Auxiliary components (CB-024SA)".

How to order

DVL - S - 06 - H66 - 020 - FP1

Model No.

Ⓐ Control method

Ⓑ Body size

Ⓒ Applicable tube bore

Refer to the table below for the body size, compatible tube O.D. and flow rate combination.

Ⓓ Flow rate

Code	Description
Ⓐ Control method	
S	Check valve
Ⓑ Body size	
06	1/8 thread equivalent
08	1/4 thread equivalent
10	3/8 thread equivalent
Ⓒ Applicable tube bore	
H44	ø4
H66	ø6
H88	ø8
H1010	ø10
H1212	ø12
Ⓓ Flow rate	***1**
020	18 L/min (ANR)
080	80 L/min (ANR)
160	160 L/min (ANR)
240	240 L/min (ANR)
400	440 L/min (ANR)

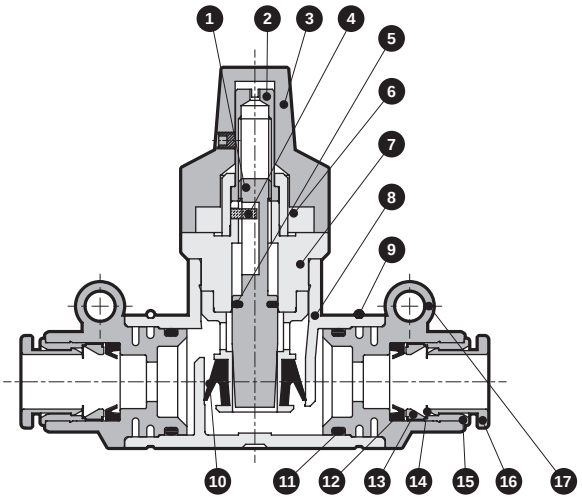
Precautions for model No. selection

*1: The flow rate is the guide value at 0.5 MPa.

Combination of body size, compatible tube O.D., and flow rate

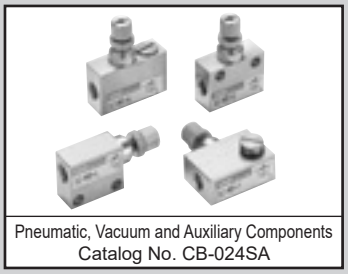
	Ⓑ Body size						
	06		08		10		
Ⓒ Applicable tube bore / Ⓓ Flow rate	H44	H66	H66	H88	H88	H1010	H1212
020	●	●					
080	●	●					
160		●					
240			●	●			
400					●	●	●

Internal structure and parts list



Part No.	Part name	Material
1	Needle	Copper alloy
2	Rotary shaft	Copper alloy
3	Dial	Aluminum alloy, polyamide, etc.
4	Parallel pin	Stainless steel
5	O-ring	Nitrile rubber
6	Guide bush	Copper alloy
7	Check bracket	Copper alloy
8	Body	Polybutylene terephthalate
9	Stopper ring	Stainless steel
10	Check packing	Hydrogenated nitrile rubber
11	O-ring	Nitrile rubber
12	Packing	Nitrile rubber
13	Holder	Copper alloy or polyetherimide
14	Chuck	Stainless steel
15	Outer ring	Copper alloy
16	Push ring	Polybutylene terephthalate or polyacetal
17	Joint case	Polybutylene terephthalate

*1: All the copper alloy parts have electroless nickel plating.
*2: Some structures differ depending on the type. (No material changed)



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Miniature speed controller

SC-M5-FP1 Series

Compact and lightweight enabling space-saving piping.

JIS symbol

SC-M5-S
SC-M5-F



SC-M5-L
SC-M5-A



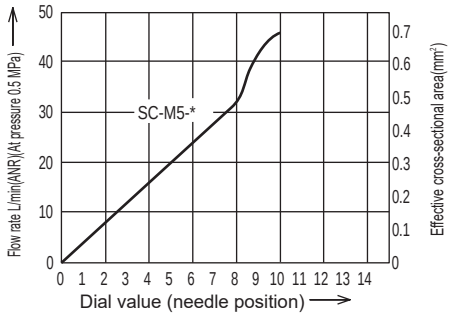
RoHS CAD

Specifications

Item		SC-M5-S	SC-M5-L	SC-M5-F	SC-M5-A
Working fluid		Compressed air			
Max. working pressure	MPa	0.7			
Min. working pressure	MPa	0.1			
Proof pressure	MPa	1.05			
Fluid temperature	°C	5 to 60 (no freezing) *1			
Ambient temperature	°C	0 to 60 (no freezing)			
Port size		M5			
Weight	g	5.6	4.8	7.9	8.5
Cylinder bore size	mm	ø6 to ø25			
Dial value (needle position)		10			
Free flow	Flow rate L/min (ANR)	53			
	Effective cross-sectional area mm^2	0.8			
Controlled flow	Flow rate L/min (ANR)	47			
	Effective cross-sectional area mm^2	0.7			

*1: Freezing may occur due to adiabatic expansion depending on the air quality (dew point).
*2: Flow rate is the atmospheric pressure conversion at 0.5MPa.

Flow characteristics



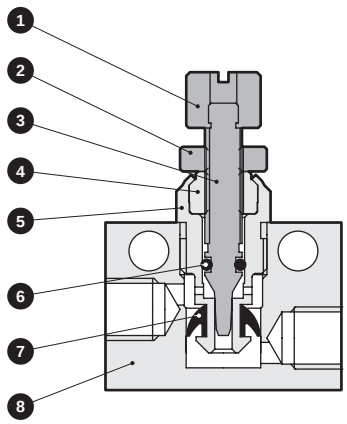
How to order

SC - M5 - A - FP1

Ⓐ Port size
Ⓑ Shape

Code	Description
Ⓐ Port size	
M5	M 5 x 0.8
Ⓑ Shape	
S	Straight
L	Elbow
F	Flat
A	Adjustable

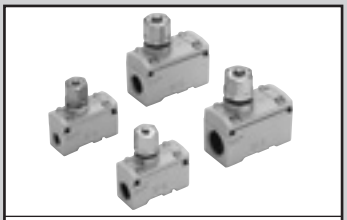
Internal structure and parts list



Part No.	Part name	Material
1	Knob	Aluminum alloy
2	Lock nut	Aluminum alloy
3	Needle	Stainless steel
4	Needle guide	Aluminum alloy
5	Check bracket	Aluminum alloy
6	O-ring	Nitrile rubber
7	Packing	Hydrogenated nitrile rubber
8	Body	Aluminum alloy

Note: The material of the fine speed needle guide is stainless steel.

For dimensions, refer to the SC Series in "Pneumatic, Vacuum and Auxiliary components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Speed controller Medium bore size

SC1-FP1 Series

● Port size: Rc1/8 to Rc1/2

JISCode 

RoHS CAD

Specifications

Item Item		SC1-6	SC1-8	SC1-10	SC1-15
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) (5°C to 120°C for heat-resistant/ozone-proof specifications)			
Ambient temperature °C		0 to 60 (no freezing) (5°C to 120°C for heat-resistant/ozone-proof specifications)			
Port size Rc		1/8	1/4	3/8	1/2
Weight g		100	95	205	195
Cylinder bore size mm		ø20 to ø50	ø32 to ø75	ø50 to ø140	ø80 to ø160
Dial value (needle position)		10	10	10	10
Free flow	Flow rate L/min (ANR)	730	930	2600	2900
	Effective cross-sectional area mm²	11	14	39	43
Controlled flow	Flow rate L/min (ANR)	530	870	1500	2400
	Effective cross-sectional area mm²	8	13	22	36

*1: Flow rate is the atmospheric pressure conversion at 0.5MPa.
*2: Freezing may occur due to adiabatic expansion depending on the air quality (dew point).

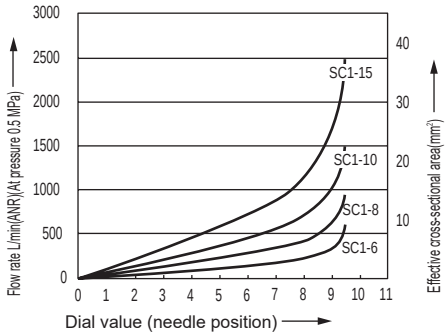
How to order

SC1 — 6 — FP1

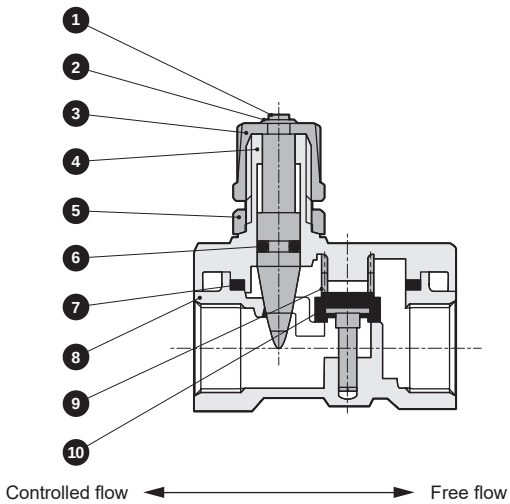
Ⓐ Port size

Code	Description
Ⓐ **Port size**	
6	Rc1/8
8	Rc1/4
10	Rc3/8
15	Rc1/2

Flow characteristics

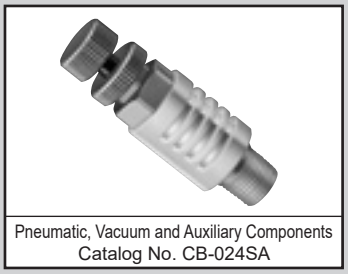


Internal structure and parts list



Part No.	Part name	Material
1	Needle	Copper alloy
2	E type snap ring	Steel
3	Knob	Zinc die-casting
4	Needle guide	Aluminum die-casting
5	Lock nut	Zinc die-casting
6	O-ring	Nitrile rubber
7	Gasket	Nitrile rubber
8	Body	Aluminum die-casting
9	Spring	Stainless steel
10	Valve seat	Copper alloy/nitrile rubber

For dimensions, refer to the SC1 Series in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".

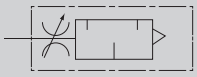


Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Metering valve with silencer

SMW-FP1 Series

● Port size: R3/8/R1/2

JISCode 

RoHS CAD

Specifications

Item	SMW-10A	SMW-15A
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 (no freezing. *3)	
Ambient temperature °C	−10 to 60 (no freezing)	
Port size R	3/8	1/2
Weight g	125	170
Cylinder bore size mm	ø50 to ø100	ø50 to ø100
Dial value (needle position)	19	19
Noise reduction effect*2 dB	20 and over	

Flow rate *1 L/min (ANR)	1700	2600
Effective cross-sectional area mm^2	25	39

*1: Flow rate is the atmospheric pressure conversion at 0.5MPa.
*2: Noise reduction effect at maximum flow rate is shown.
*3: Freezing may occur due to adiabatic expansion depending on the air quality (dew point).

How to order

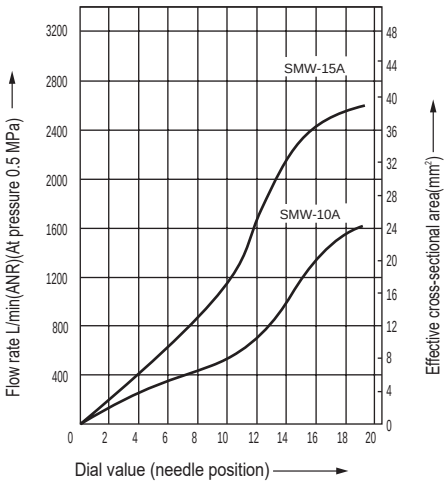
SMW – 10A – FP1

Ⓐ Port size

Code	Description
Ⓐ **Port size**	
10A	R 3/8
15A	R 1/2

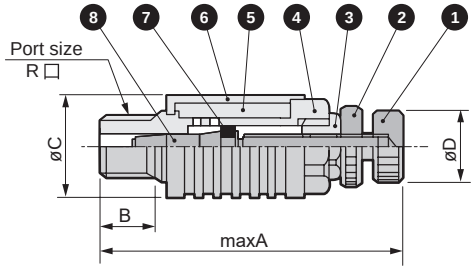
Flow characteristics

● SMW-10A/15A



Internal structure and parts list/Dimensions

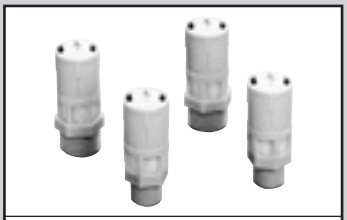
● SMW-10A/15A



Model No.	A	B	C	D	Port size
SMW-10A	85	12	25	16	R3/8
SMW-15A	98	15	28	16	R1/2

No.	Part name	Material	No.	Part name	Material
1	Knob	Copper alloy	5	Sound absorbent material	Felt
2	Lock nut	Copper alloy	6	Cover	Polyamide resin
3	Gland nut	Copper alloy	7	O-ring	Nitrile rubber
4	Shaft body	Copper alloy	8	Spindle	Copper alloy

For dimensions, refer to the SMW Series in "Pneumatic, Vacuum and Auxiliary components (CB-024SA)".



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Metering valve with silencer

SMW2-FP1 Series

● Port size: R1/8 to R1/4

JISCode 

RoHS CAD

Features

● Compact/lightweight/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 and over	28 and over
Flow rate (*1) L/min (ANR)	370	660
Effective cross-sectional area mm^2	5.6	9.9

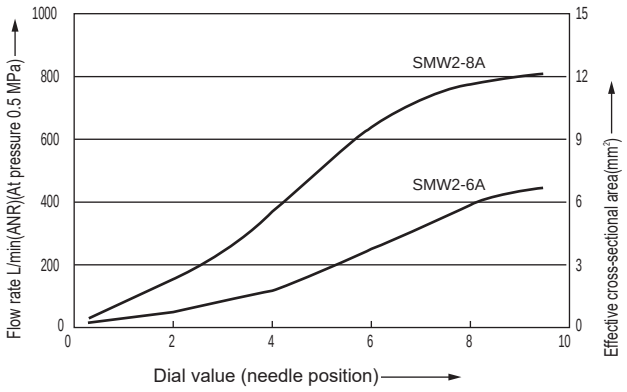
*1: Flow rate is the atmospheric pressure conversion at 0.5MPa.
*2: Noise reduction effect at maximum flow rate is shown.

How to order

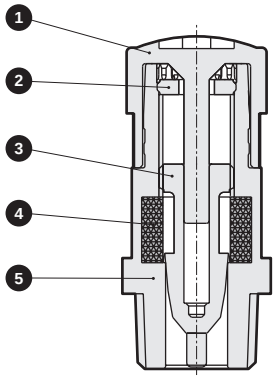
SMW2 - 6A - FP1

Code	Description
Ⓐ Port size	
6A	R 1/8
8A	R 1/4

Flow characteristics

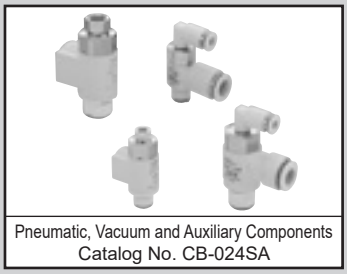


Internal structure and parts list



Part No.	Part name	Material
1	Knob	Polybutylene terephthalate
2	Guide ring	Polyamide
3	Needle	Polyamide
4	Element	PP sintered resin
5	Body	Polyamide

For dimensions, refer to the SMW2 Series in "Pneumatic, Vacuum and Auxiliary components (CB-024SA)".



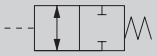
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Block valve

FPV-FP1 Series

● Port size: M5, R1/8 to 1/2

JIS symbol



RoHS CAD

Features

- Compact valve ideal for position locking dropping and for cylinder braking.
- Compact and lightweight
- Variety of bore sizes available
  Series variations from M5 to R1/2 bore sizes enable direct cylinder installation.

Specifications

Item	FPV-M5	FPV-6A		FPV-8A		FPV-10A		FPV-15A	
Port size	M5	R 1/8		R 1/4		R 3/8		R 1/2	
Main side compatible tube O.D.	ø6	ø6	ø8	ø6	ø8	ø8	ø10	ø10	ø12
Pilot side compatible tube O.D.	ø4			ø4		ø4		ø4	
Working fluid	Compressed air								
Max. working pressure MPa	1.0								
Min. working pressure MPa	0								
Proof pressure MPa	1.5								
Pilot pressure MPa	* Refer to the appendix (page 190).								
Fluid temperature °C	5 to 60								
Ambient temperature °C	0 to 60 (no freezing)								
Weight g	28	26		50	51	90	93	143	145
Effective cross-sectional area mm^2	1.3	5		10		17		27	

How to order

FPV - 6A - 06 - FP1

Ⓐ Port size

Ⓐ Port size	
M5	M5
6A	R 1/8
8A	R 1/4
10A	R 3/8
15A	R 1/2

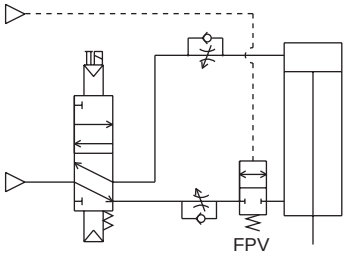
Ⓑ Applicable tube bore

Ⓑ Applicable tube bore		Ⓐ Piping port size				
		M5	**6 A**	**8 A**	**10 A**	**15 A**
06	ø6	●	●	●		
08	ø8		●	●	●	
10	ø10				●	●
12	ø12					●

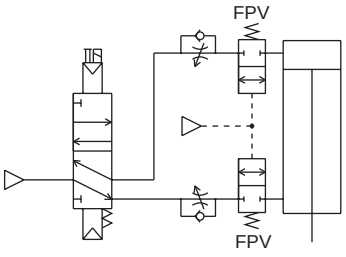
Not available

Applications

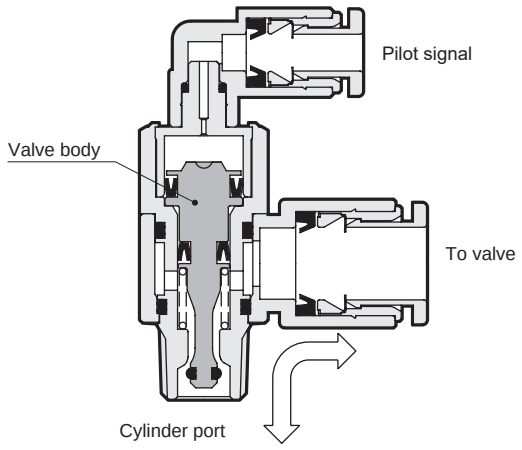
● Used for cylinder position locking circuit



● Used for cylinder braking circuit



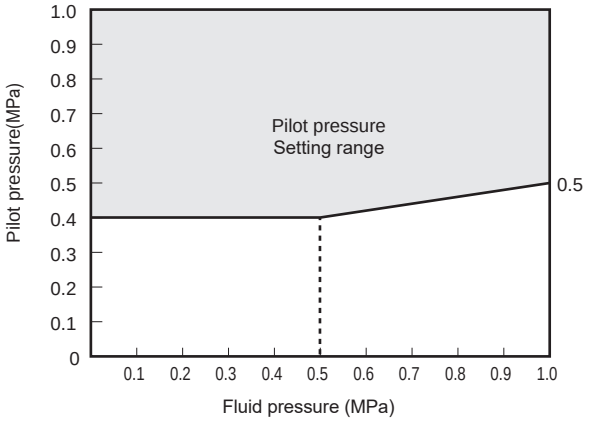
Operational principle



The valve opens if there is a pilot signal, but closes if the pilot signal is cut off.

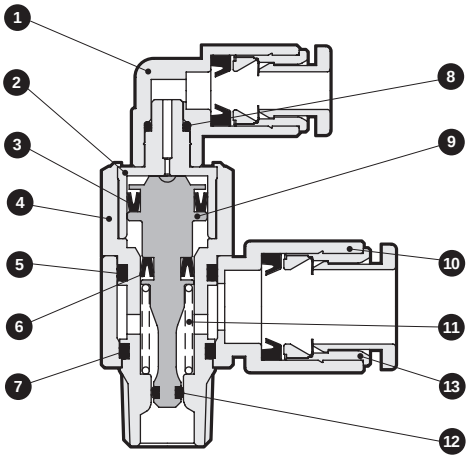
Pilot pressure

Set pilot air pressure within the specified range.



Note that the characteristics differ from the standard.

Internal structure and parts list



Part No.	Part name	Material
1	Fitting body	Polybutylene terephthalate (flame-resistant resin)
2	Rotary shaft A	Copper alloy (electroless nickeling)
3	Packing	Nitrile rubber
4	Rotary shaft B	Copper alloy (electroless nickeling)
5	O-ring	Nitrile rubber
6	Packing	Nitrile rubber
7	O-ring	Nitrile rubber
8	O-ring	Nitrile rubber
9	Valve body	Copper alloy (electroless nickeling)
10	Body	Polybutylene terephthalate (flame-resistant resin) *1
11	Spring	Stainless steel
12	O-ring	Nitrile rubber
13	Push-in fitting	

*1: Zinc alloy die-casting is applied for female thread.

For dimensions, refer to the FPV Series in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".



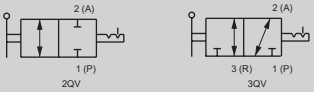
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Quick valve

2QV/3QV-FP1 Series

● Port size: Push-in fitting ø4, ø6, ø8, ø10, ø12

JISCode



RoHS CAD

Features

- Straight flow path and large effective sectional area.
- Flame-resistant resin has been adopted as a standard material. (UL94 Standards V-0 equivalent)
- Manifold enabled by optional bracket.
- 2-port valve,3-port valves are available.

Specifications

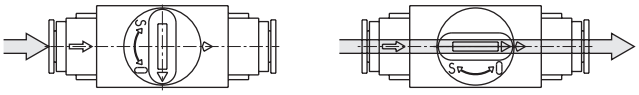
Item	2QV/3QV
Working fluid	Air
Max. working pressure MPa	1.0
Min. working pressure kPa	−100 (*1)
Proof pressure MPa	1.5
Fluid temperature °C	0 to 60
Ambient temperature °C	0 to 60
Switching angle °	90
Tube used	Soft nylon tube (tube F-15**) Urethane tube (tube U-95**, NU-**)
Mounting orientation	Arbitrary

*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.

Operational explanation

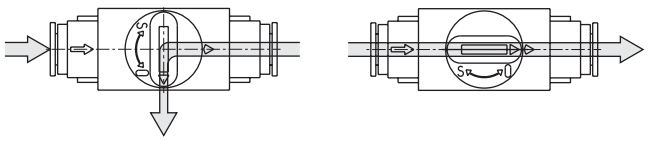
● 2-port valve (2QV Series)

[Closed state] [Open state]



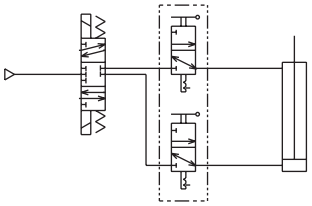
● 3-port valve (3QV Series)

[Closed state] [Open state]



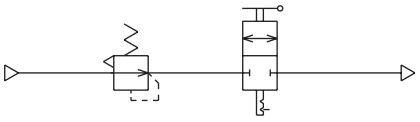
Applications

● Residual pressure exhaust valve in the air cylinder circuit



Quick valve (3QV)

● Stop valve in air blow circuit



Quick valve (2QV)

How to order

● Quick valve

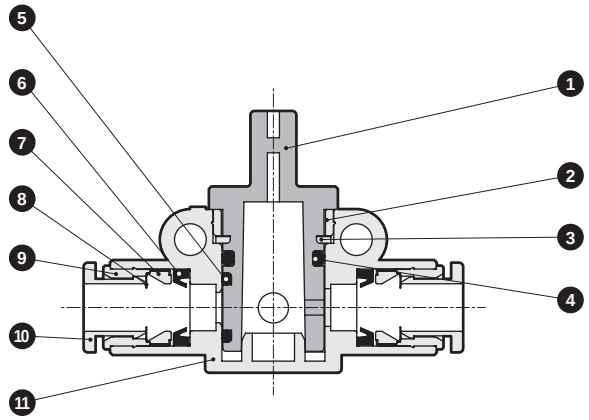
2 QV - 04-04 - FP1

Ⓐ Valve

Ⓑ Port size (PPo-)-(APo-)

Code	Description
Ⓐ Valve type	
2	2-way valve
3	3-way valve
Ⓑ Port size (PPo-)-(APo-)	
	IN side - OUT side
04−04	Push-in fitting ø4 - Push-in fitting ø4
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
10−10	Push-in fitting ø10 - Push-in fitting ø10
12−12	Push-in fitting ø12 - Push-in fitting ø12

Internal structure and parts list



Parts list

Part No.	Part name	Material
1	Rotary shaft	PBT (UL94 or V-0 equivalent)
2	Stopper	Copper alloy (electroless nickeling treatment) *1
		Stainless steel *2
3	Ring	Steel
4	O-ring	Nitrile rubber
5	O-ring	Nitrile rubber
6	Packing	Nitrile rubber
7	Chuck holder	Polyetherimide
8	Chuck	Stainless steel
9	Outer ring	Copper alloy (electroless nickeling treatment)
10	Push ring	PBT (UL94 or V-0 equivalent)
11	Body	PBT (UL94 or V-0 equivalent)

*1: Dimensions port sizes 04-04, 06-06, 08S-08S models are available.
*2: Dimensions port sizes 08-08, 10-10, 12-12 models are available.

For dimensions, refer to the 2QV/3QV Series in "Pneumatic, Vacuum and Auxiliary components (CB-024SA)".



Vacuum system equipment SELVACS
Catalog No. CC-796A

Single ejectors

VSH/VSC-FP1 Series

Nozzle diameter: ø0.5, ø0.7, ø1.0, ø1.2, ø1.5, ø2.0

RoHS

Common specifications

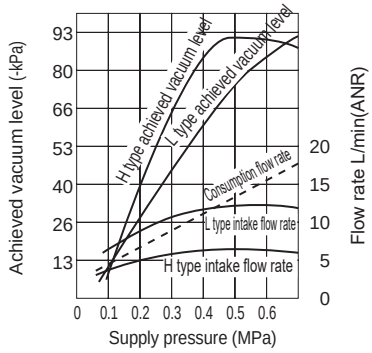
Item	Specifications
Working fluid	Air
Working pressure MPa	0.15 to 0.7
Operating ambient/fluid temperatures ℃	0 to 60

Vacuum characteristics, flow characteristics

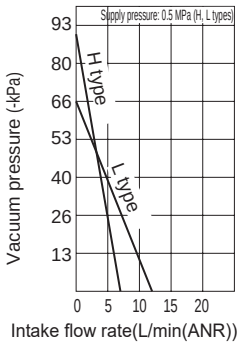
Supply pressure - achieved vacuum pressure, intake flow rate, air consumption rate

●VSH-$^{H}_{L}$05

Vacuum characteristics

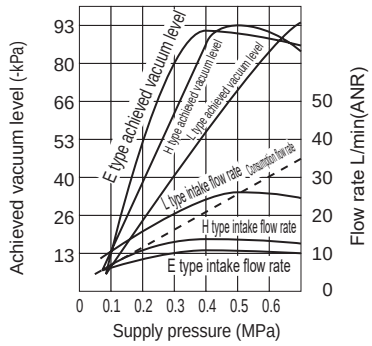


Flow characteristics

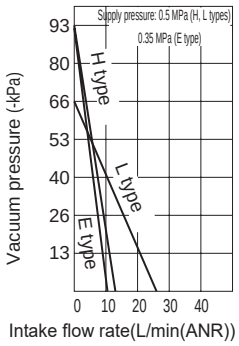


●VSH-*07, VSC-*07

Vacuum characteristics

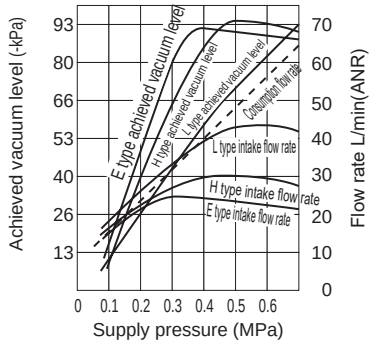


Flow characteristics

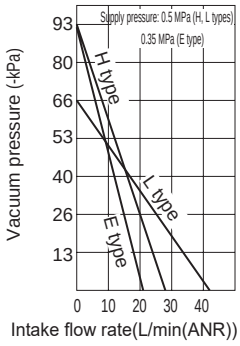


●VSH-*10, VSC-*10

Vacuum characteristics

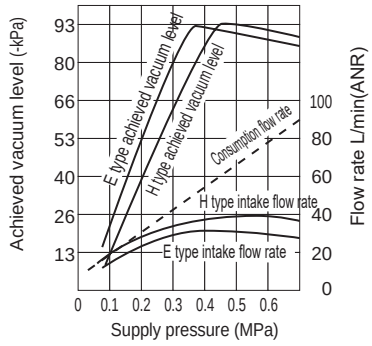


Flow characteristics

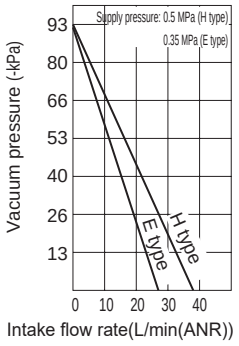


●VSH-*12, VSC-*12

Vacuum characteristics

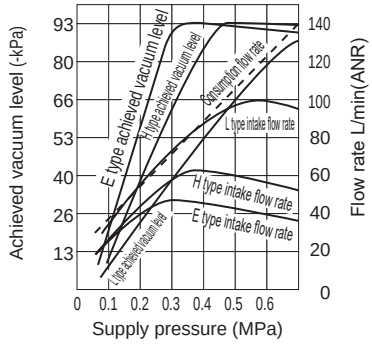


Flow characteristics

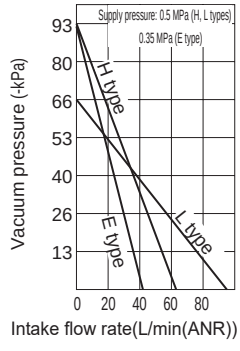


●VSH-*15, VSC-*15

Vacuum characteristics

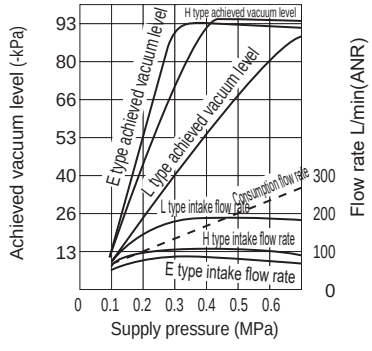


Flow characteristics

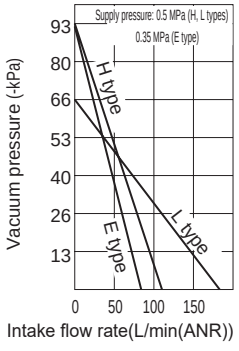


●VSH-*20, VSC-*20

Vacuum characteristics



Flow characteristics



How to order

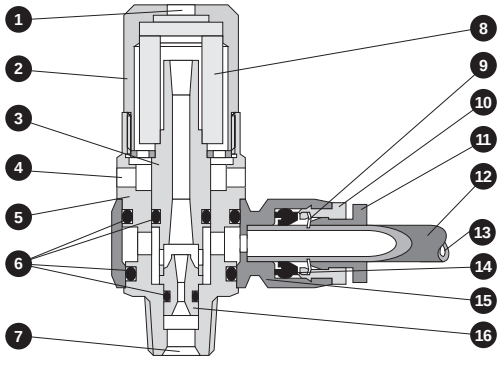
* Refer to vacuum system component SELVACS (CC-796A) for combinations of selectable model numbers.

VS H - H 07 - 10 8A J - FP1

Code	Description
A Shape	
H	Solenoid valve direct mounting
C	Pad direct mounting
B Vacuum characteristics	
H	High vacuum/medium flow rate
L	Medium vacuum/large flow rate
E	High vacuum/low flow rate
C Nozzle diameter	
05	ø0.5
07	ø0.7
10	ø1.0
12	ø1.2
15	ø1.5
20	ø2.0
D Vacuum port (V)	
4	ø4 Push-in fitting (VSH)
6	ø6 Push-in fitting (VSH)
8	ø8 Push-in fitting (VSH)
10	ø10. Push-in fitting (VSH)
12	ø12 Push-in fitting (VSH)
M5	M5×0.5 (VSC)
6A	R1/8 (VSC)
8A	R1/4 (VSC)
10A	R3/8 (VSC)
E Air supply port (P)	
4	ø4 Push-in fitting (VSC)
6	ø6 Push-in fitting (VSC)
8	ø8 Push-in fitting (VSC)
10	ø10 push-in fitting (VSC)
12	ø12 push-in fitting (VSC)
M5	M5×0.5 (VSH)
6A	R1/8 (VSH)
8A	R1/4 (VSH)
F Additional functions	
S	Atmospheric release with silencer
J	Common exhaust

Internal structure and parts list

● VSH Series



Part number	Part name	Material	Remarks
1	Exhaust port (EX)		
2	Cap	Aluminum	
3	Diffuser	Copper alloy	Electroless nickel plating
4	Exhaust port (EX)		
5	Metal body	Copper alloy	Electroless nickel plating
6	O-ring	Nitrile rubber	
7	Air supply port (P)		
8	Silencer element	Polyvinyl formal	
9	Lock claw	Stainless steel	
10	Guide ring	Copper alloy	Electroless nickel plating
11	Release ring	Polyacetal	
12	Tube		
13	Vacuum port (V)		
14	Elastic sleeve	Nitrile rubber	
15	Resin body	Polybutylene terephthalate	
16	Nozzle	Copper alloy	Electroless nickel plating

Refer to the VSH/VSC Series of "Vacuum system Component SELVACS (CC-796A)" for dimensions.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Super dryer combination Super dryer

SU300E/SU400E/SD300E/SD400E-W-FP1 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

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															
Range of working conditions: Inlet air pressure MPa	0.4 to 1.0															
Range of working conditions: Proof pressure MPa	1.5															
Range of working conditions: Inlet air temperature °C	5 to 50															
Range of working conditions: Ambient temperature °C	5 to 50															
Standard rating: Outlet air atmospheric dew point°C	-15															
Standard rating: Inlet air flow rate L/min (ANR)	75	150	300	450	75	150	300	450	75	150	300	450	75	150	300	450
Standard rating: Outlet air flow L/min (ANR)	67	135	270	405	67	135	270	405	67	135	270	405	67	135	270	405
Standard rating: Purge flow rate L/min (ANR)	8	15	30	45	8	15	30	45	8	15	30	45	8	15	30	45
Standard rating: Inlet air pressure dew point°C	25															
Standard rating: Inlet air pressure MPa	0.7															
Standard rating: Inlet air temperature °C	25															
Standard rating: 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				-			
Regulator: Relief pressure MPa	-								Setting pressure plus 0.05				-			
Standard accessories	Bracket				Differential pressure gauge/bracket				Pressure gauge/differential pressure gauge/bracket				-			

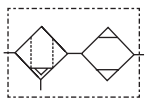
*1: An oil mist filter cannot be controlled with a differential pressure gauge for C1. Replace the oil mist filter mantle every year.
*2: Purge flow rate in standard rating section is also the same value at 0.5 MPa.

JIS symbol

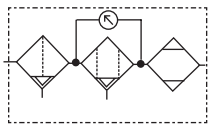
SD301E to 402E-*



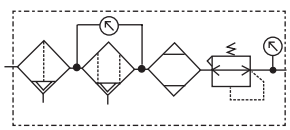
SU301E to 402E-*-C1



SU301E to 402E-*-C2



SU301E to 402E-*-C3

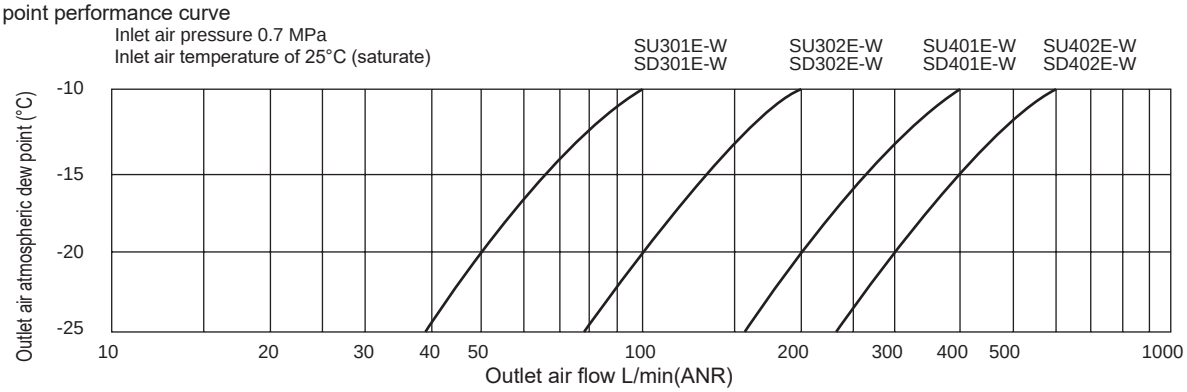


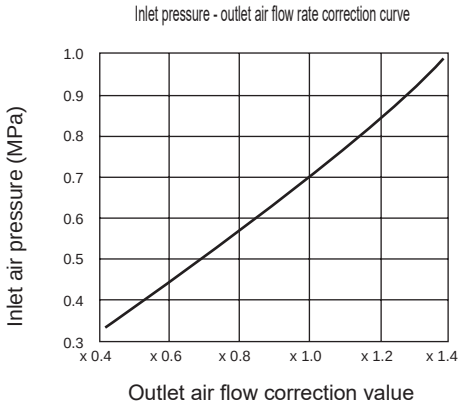
For dimensions, refer to the super dryer unit in "Pneumatic, Vacuum and Auxiliary Components (CB-024SA)".

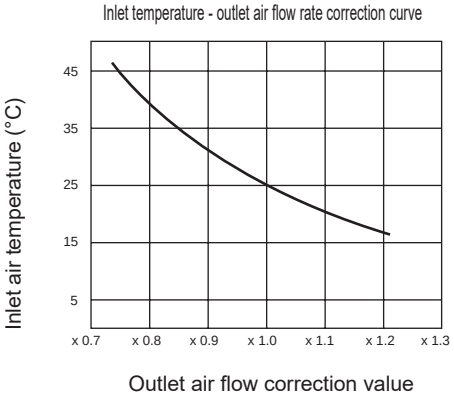
Dew point performance

Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for selection guide and compensation method.

● Dew point performance curve







How to order

● Super dryer combination

SU301E - 05 - W - C1 - X1 - FP1

- A Model No.
- B Inlet air pressure
- C Unit type
- D Option *5

Code	Description
A Model No.	
SU301E	
SU302E	
SU401E	
SU402E	
B Inlet air pressure	
05	0.5 MPa (*1)
07	0.7 MPa (*1)
C Unit type	
C1	
C2	
C3	
D Option	
Blank	No
E	Common exhaust (*4)
X1	Reversed inlet and outlet (*3)

● Super dryer (High polymer membrane air dryer)

SD402E - 05 - W - B - FP1

- A Model No.
- B Inlet air pressure
- C Option *5

Code	Description
A Model No.	
SD301E	
SD302E	
SD401E	
SD402E	
B Inlet air pressure	
05	0.5 MPa (*1)
07	0.7 MPa (*1)
C Option	
Blank	No
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; for 0.7 MPa and over, indicate 07.
*2: If fixed by C type 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: Purge air from standard products is released into the atmosphere. If "E" is indicated, common exhaust of purge air is enabled. The size of exhaust ports include the Rc1/8 for the 300 Series and the Rc1/4 for the 400 Series.
*5 : When ordering several options, indicate the required options in alphabetical order.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Super dryer combination Super dryer

SU300D/SU400D/SD300D/SD400D-W-FP1 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 750L/min(ANR)(0.7 MPaHourAtmospheric dew point-20°C)

RoHS CAD

Specifications

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	SD ± 301D -*-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.				 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															
Range of working conditions: Inlet air pressure MPa	0.4 to 1.0															
Range of working conditions: Proof pressure MPa	1.5															
Range of working conditions: Inlet air temperature °C	5 to 50															
Range of working conditions: Ambient temperature °C	5 to 50															
Standard rating: Outlet air atmospheric dew point°C	-20															
Standard rating: Inlet air flow rate L/min (ANR)	125	250	500	750	125	250	500	750	125	250	500	750	125	250	500	750
Standard rating: Outlet air flow L/min (ANR)	100	200	400	600	100	200	400	600	100	200	400	600	100	200	400	600
Standard rating: Purge flow rate L/min (ANR)	25	50	100	150	25	50	100	150	25	50	100	150	25	50	100	150
Standard rating: Inlet air pressure dew point °C	25															
Standard rating: Inlet air pressure MPa	0.7															
Standard rating: Inlet air temperature °C	25															
Standard rating: Ambient temperature °C	25															
Air filter: Degree of filtration µm	-				5								-			
Oil mist filter: Oil removal mg/m^3	0.1 [about 0.1 PPM] (inlet air at 30°C)												-			
Regulator: Set pressure range MPa	-								0.05 to 0.85				-			
Regulator: Relief pressure MPa	-								Setting pressure plus 0.05				-			
Standard accessories	Bracket				Differential pressure gauge/bracket				Pressure gauge/differential pressure gauge/bracket				-			

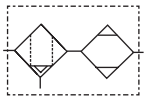
*1: An oil mist filter cannot be controlled with a differential pressure gauge for C1. Replace the oil mist filter mantle every year.
*2: Purge flow rate in standard rating section is also the same value at 0.5 MPa.

JIS symbol

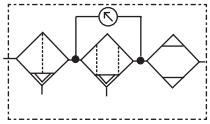
SD301D to 402D-*



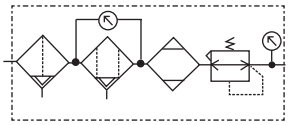
SU301D to 402D-*-C1



SU301D to 402D-*-C2



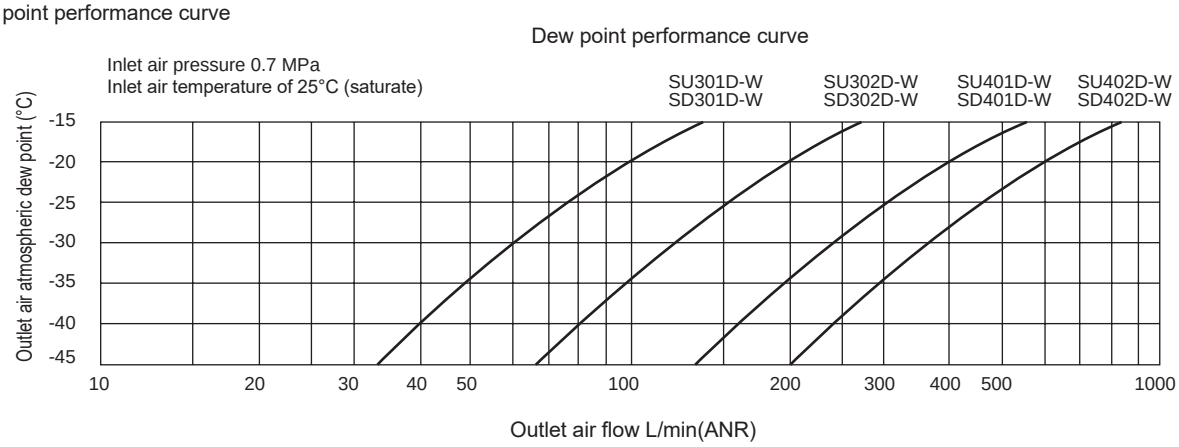
SU302D to 402D-*-C3

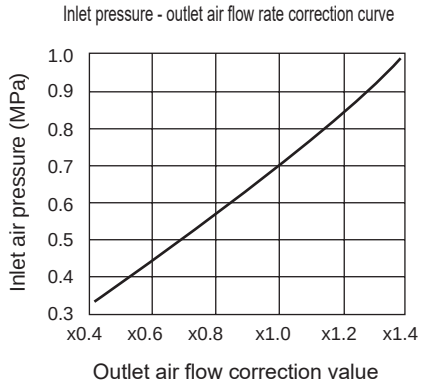


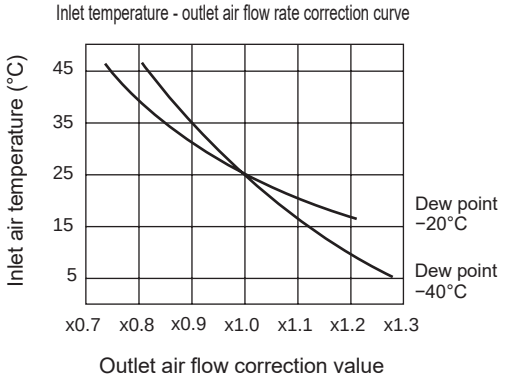
For dimensions, refer to the super dryer unit in "Pneumatic, Vacuum and Auxiliary components (CB-024SA)".

Dew point performance machine
Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for selection guide and compensation method.

● Dew point performance curve







How to order

● Super dryer combination

SU301D - 05 - W - C1 - X1 - FP1

Code	Description
A Model No.	
SU301D	
SU302D	
SU401D	
SU402D	
B Inlet air pressure	
05	0.5 MPa(*1)
07	0.7 MPa(*1)
C UnitG type	
C1	
C2	
C3	
D Option	
Blank	No
E	Common exhaust (*4)
X1	Reversed inlet and outlet (*3)

A Model No.
B Inlet air pressure
C Unit
D Option *5

● Super dryer (High polymer membrane air dryer)

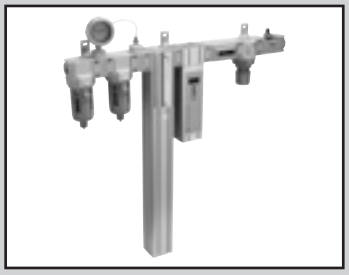
SD402D - 05 - W - B - FP1

Code	Description
A Model No.	
SD301D	
SD302D	
SD401D	
SD402D	
B Inlet air pressure	
05	0.5 MPa (*1)
07	0.7 MPa (*1)
C Option	
Blank	No
B	With C-bracket (*2)
E	Common exhaust (*4)
X1	Reversed inlet and outlet (*3)

A Model No.
B Inlet air pressure
C 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: Purge air from standard products is released into the atmosphere. If "E" is indicated, common exhaust of purge air is enabled. The size of exhaust ports include the Rc1/8 for the 300 Series and the Rc1/4 for the 400 Series.
*5: When ordering several options, indicate the required options in alphabetical order.



Nitrogen gas extraction unit system

NSU-FP1 Series

Easily and stably supplying nitrogen gas.

- Nitrogen gas is obtained just by piping to a pneumatic source.
- All-in-one design with superior installation performance.

Specifications

Item				NSU-3S	NSU-3L	NSU-4S	NSU-4F	NSU-4L	NSU-4G	NSU-4H
Range of working conditions	Working fluid			Compressed air						
	Inlet air pressure		MPa	0.4 to 1.0(*1)						
	Proof pressure		MPa	1.5						
	Inlet air temperature		°C	5 to 50						
	Relative humidity of inlet air		RH	50%						
	Ambient temperature		°C	5 to 50						
Rating	Inlet air pressure dew point		°C	10						
	Inlet air pressure		MPa	0.7						
	Inlet air temperature		°C	25						
	Ambient temperature		°C	25						
Rating Flow rate	Outlet nitrogen gas flow rate L/min(ANR) (*2)	Nitrogen concentration (%) or higher	99.9	1.9	5.6	11.0	20.9	30.6	31.9	49.0
			99	5.0	15.5	28.2	53.6	66.9	81.8	107.0
			97	8.9	28.7	49.9	94.8	118.1	159.7	189.0
			95	14.0	39.8	65.3	124.1	169.2	222.0	270.7
			90	27.0	78.1	137.3	260.9	313.5(*4)	(*5)	
	Inlet air flow rate L/min(ANR)		99.9	17.3	50.9	100.0	190.0	278.2	290.0	445.5
			99	20.9	64.6	117.5	223.3	278.8	340.8	445.8
			97	24.1	77.6	134.9	256.2	319.2	431.6	510.8
			95	31.2	88.5	145.2	275.8	376.0	493.3	601.6
			90	60.0	173.6	305.1	579.7	696.7(*4)	(*5)	
Air filter		Filtration rating	μm	5						
Oil mist filter		Oil removal	mg/m^3	0.01Less than or equal to (0.1 or less after oil saturation) * Primary oil content $30mg/m^3$ when , 21°C.						
Regulator		Set pressure range	MPa	0.05 to 0.85						
Oxygen monitor				Refer to page 329 for the specifications.						
Flow rate sensor				Refer to page 309 for the specifications.						
Needle valve		Flow characteristics		Refer to page 298.						
Standard accessories				Pressure gauge/differential pressure gauge/bracket						

*1: The inlet air pressure when NS-QFS-E is assembled is 0.4 to 0.75MPa.
*2: When the membrane unit size "H" is selected and the inlet temperature is 50 °C, use the outlet flow rate with a nitrogen gas concentration of 99.9% at 39 L / min or less. Contact CKD when working beyond the specified range.
*3: Refer to the outlet nitrogen gas flow rate and the needle valve flow characteristics to confirm that the value is within the working range. Contact CKD when working outside the specified range.
*4: When the "L" sized membrane unit is selected and the outlet nitrogen gas with a concentration of 90% is used, the inlet air temperature should be 40 °C or less. Please contact CKD if you intend to use the product above 40 °C.
*5: When the "G" and "H" membrane sized units are selected, please contact us if you want to use the outlet nitrogen gas with a concentration of 90%.

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
Outlet nitrogen gas flow rate [L/min (ANR)]
Outlet nitrogen gas pressure [MPa]
Inlet air pressure [MPa]
Inlet air temperature [°C]

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 **Find the appropriate body size and membrane unit size based on the rated outlet nitrogen gas flow rate of each model.**
Rated outlet nitrogen gas flow rate × (1) Temperature gas flow rate correction coefficient × (2) Pressure gas flow rate correction coefficient = Corrected purified nitrogen gas flow rate
Select the body size and membrane unit size in which the corrected purified nitrogen gas flow rate meets the required gas flow rate

STEP 5 Select the required needle valve according to the outlet nitrogen gas flow rate.
Using the outlet nitrogen gas flow rate and the outlet nitrogen gas pressure confirmed in STEP 1, select a needle valve based on the needle valve flow rate characteristics (Page 298)

STEP 6 **Select the model from STEP4 and STEP5.**

STEP 7 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 8 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 9 **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 STEP5 × (3) temperature air flow rate correction coefficient × (4) pressure air flow rate correction coefficient = corrected inlet air flow rate
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
Outlet nitrogen flow rate	50 [L/min(ANR)]	50 [L/min(ANR)]	-	-
Outlet nitrogen concentration	99 [%]	99 [%]	-	-
Outlet nitrogen pressure	0.2 [MPa]	0.2 [MPa]	-	-
Inlet air temperature	35 [°C]	40 [°C]	(1) 1.08	(3) 1.25
Inlet air pressure	0.6 to 0.7 [MPa]	0.6 [MPa]	(2) 0.75	(4) 0.91

Calculate the following and select according to the above conditions.
From the formula 50 (outlet nitrogen gas flow rate) ÷ 1.08 ÷ 0.75 = 61.7[L/min(ANR)], the specification field shows that NSU-4L has sufficient flow rate and is the proper size.
For needle size, select NS-QDVL-160 at 0.2 [MPa], which can be adjusted at 50 [L/min (ANR)].
This enables the selection of "NSU-4LC10AAK-N".
In this case, the inlet air flow rate is 278.8 × 1.25 × 0.91 = 317.1L/min (ANR).

How to order

NSU - 4 S A 10A NN - N T - FP1

- A Body size
- B Membrane unit size
- C Needle valve
- D Port size
- E Oxygen monitor/flow rate sensor
- F Option
- G Mounting direction

Code	Description
A Body size	
3	Body width 63
4	Body width 79
B Membrane unit size	***1**
S	Short
F	Short + Short
L	Long
G	Long + Short
H	Long + Long
C Needle valve	***2**
A	Max. flow rate 20 L/min
B	Max. flow rate 80L/min
C	Max. flow rate 160 L/min
D	Max. flow rate 240 L/min
E	Max. flow rate 400 L/min
D Port size	
10 A	Rc3/8
10 B	G3/8 *3
10C	NPT3/8 *4
E Oxygen monitor/flow rate sensor	***5**
NN	No
AK	With oxygen monitor
AM	With O_2 conc. monitor, traceability certif. with series variation diag. / company certif.
BA	With flow rate sensor (20 L/min specification)
BB	With flow rate sensor (50 L/min specification)
BC	With flow rate sensor (100 L/min specification)
BD	With flow rate sensor (200 L/min specification)
BE	With flow rate sensor (500 L/min specification)
CA	With oxygen monitor and flow rate sensor (20 L/min specification)
CB	With oxygen monitor and flow rate sensor (50 L/min specification)
CC	With oxygen monitor and flow rate sensor (100 L/min specification)
CD	With oxygen monitor and flow rate sensor (200 L/min specification)
CE	With oxygen monitor and flow rate sensor (500 L/min specification)
CF	With oxygen monitor (with traceability) and flow rate sensor (20 L/min specification)
CG	With oxygen monitor (with traceability) and flow rate sensor (50 L/min specification)
CH	With oxygen monitor (with traceability) and flow rate sensor (100 L/min specification)
CJ	With oxygen monitor (with traceability) and flow rate sensor (200 L/min specification)
CK	With oxygen monitor (with traceability) and flow rate sensor (500 L/min specification)
F Option	
N	No option
E	With exhaust port *6
K	Flow Rate Sensor Unit Switching Function (Overseas only)
P	Flow rate sensor Switch output: PNP output
X	Reverse flow *7
G Mounting direction	
Blank	Vertical mounting
T	Horizontal mounting (Select from NSU-4S and 4L models)

* Contact CKD for other combinations.

* The oxygen sensor does not include connector cables. Order the following connector cable discrete model No.

Connector cable discrete model No.

● DC cable

PNA-1D

Cable length	
1D	1000 mm
3D	3000 mm
5D	5000 mm

● AC adapter single unit

PNA-A

● AC adapter + conversion plug set

PNA-AG

Refer to page 16 for dimensions.

⚠ Precautions for model No. selection

*1: Only the body size "4" is available for the membrane unit sizes "F", "G" and "H".

*2: ⓒRefer to the table below for needle valve combinations. Select a flow rate sensor with a suitable range for the needle valve.

	Needle valve size NS-QDVL-***				
	20	**80**	**160**	**240**	**400**
NSU-3S	A	B			
NSU-3L	A	B	C		
NSU-4S/4F	A	B	C	D	
NSU-4L/4G/4H	A	B	C	D	E

*3: When selecting G3/8, the regulator pressure gauge units will be shown as bar.

*4: When selecting NPT3/8, the regulator pressure gauge units will be shown as psi.

*5: Switch output for the flow rate sensor is NPN. Specify the option "P" to obtain PNP output.

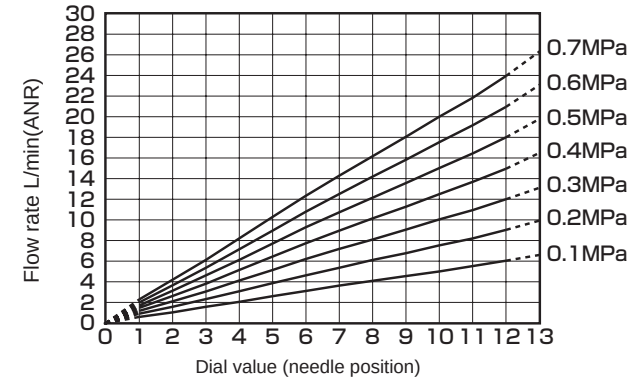
*6: Exhaust air (oxygen-enriched gas) from standard products is released into the atmosphere. For "E", piping connection for exhaust (oxygen-rich gas) is possible. Size of exhaust port is Rc1/2.

*7: Viewed from the front, standard products have an air inlet on the left port and a nitrogen gas outlet on the right port.

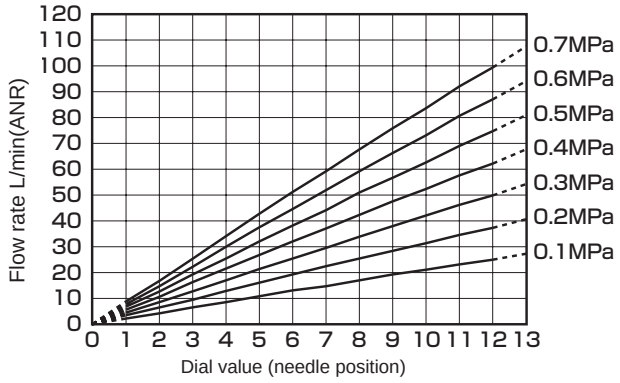
Needle valve flow characteristics

*The flow rate characteristics graph indicates reference values and does not guarantee the values.

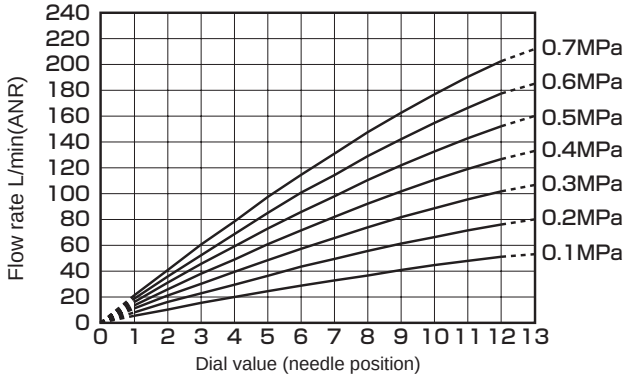
● NS-QDVL-020



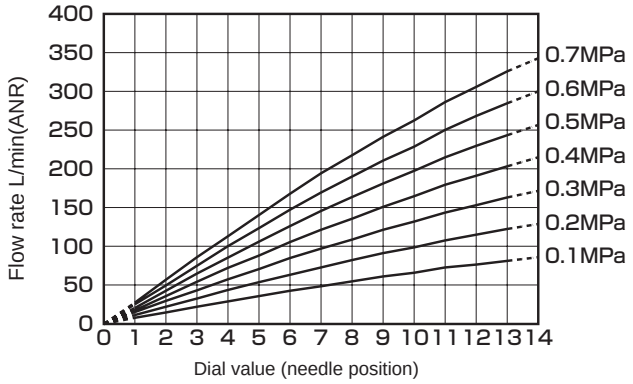
● NS-QDVL-080



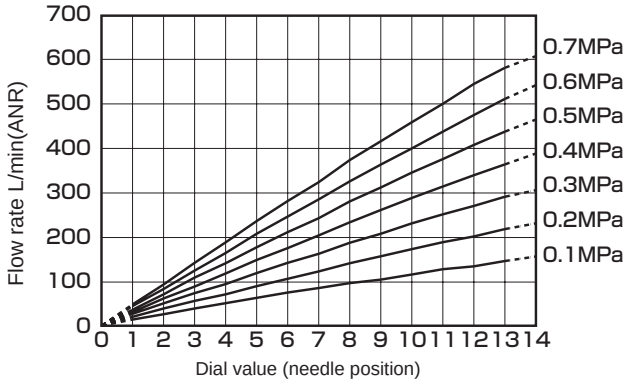
● NS-QDVL-160



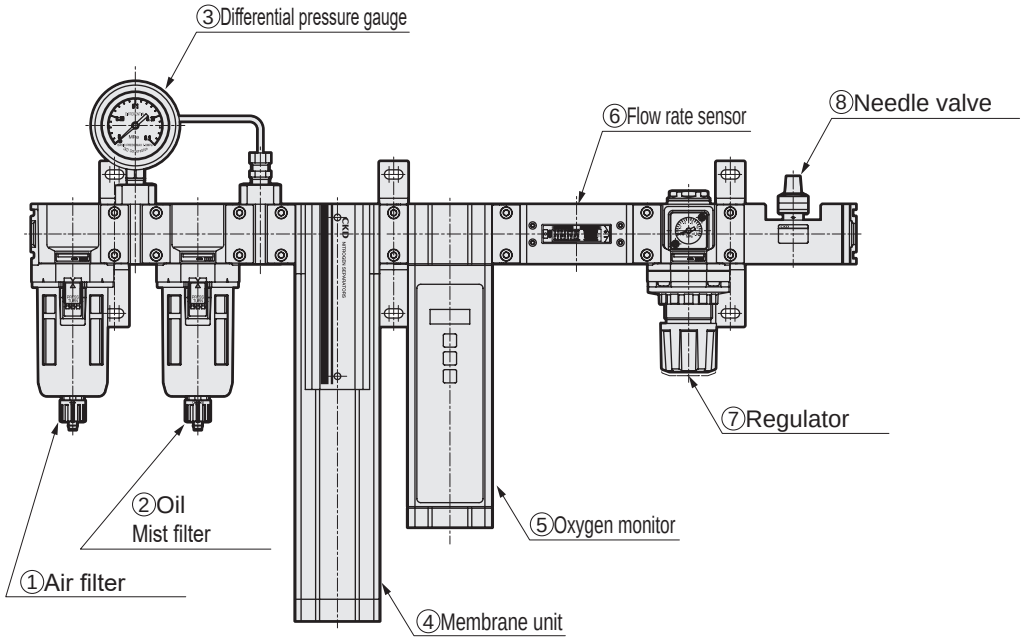
● NS-QDVL-240



● NS-QDVL-400



System components (vertical mount)

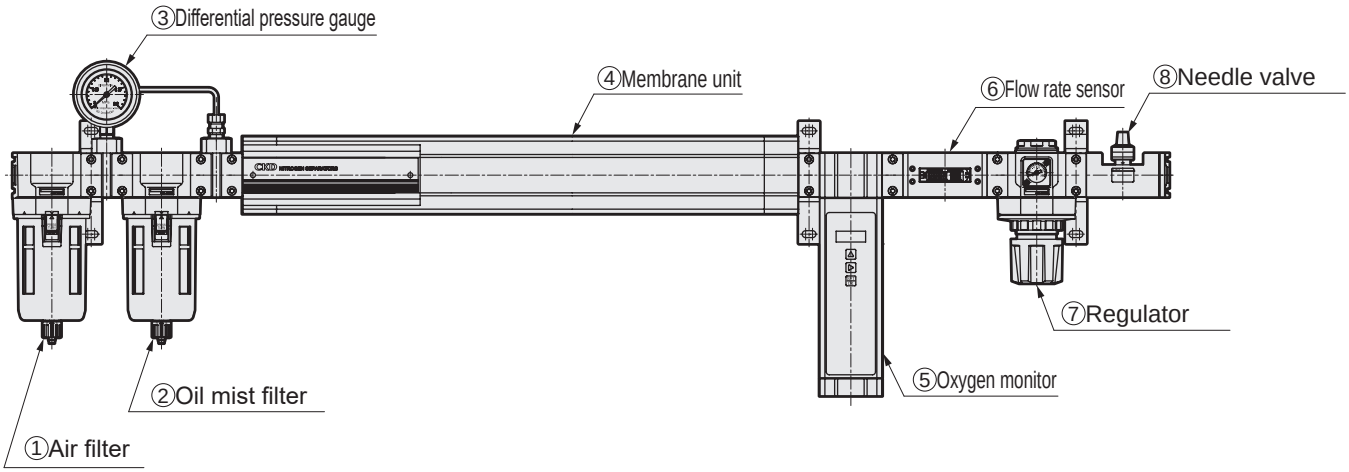


■ With port size Rc3/8

Unit model No.	NSU-3S□-FP1	NSU-3L□-FP1	NSU-4S□-FP1	NSU-4F□-FP1	NSU-4L□-FP1	NSU-4G□-FP1	NSU-4H□-FP1
(1) Air filter	F3000-10-W-F-FP1		F4000-10-W-F-FP1				
(2)Oil mist filter	M3000-10-W-F1-FP1		M4000-10-W-F1-FP1				
(3) Differential pressure gauge	GA400-8-P02						
(4) Membrane unit	NS-3S110A-□-FP2	NS-3L110A-□-FP2	NS-4S110A-□-FP2	NS-4S110A-□-FP2 NS-4S110A-□-FP2	NS-4L110A-□-FP2	NS-4L110A-□-FP2 NS-4S110A-□-FP2	NS-4L110A-□-FP2 NS-4L110A-□-FP2
(5) Oxygen monitor	PNA-10A-□-FP2						
(6) Flow rate sensor	NS-QFS-□						
(7)Regulator	NS-QR3-FP1		NS-QR4-FP1				
(8)Needle valve	NS-QDVL-020 NS-QDVL-080	NS-QDVL-020 NS-QDVL-080 NS-QDVL-160	NS-QDVL-020 NS-QDVL-080 NS-QDVL-160 NS-QDVL-240		NS-QDVL-020 NS-QDVL-080 NS-QDVL-160 NS-QDVL-240 NS-QDVL-400		

*Contact CKD regarding port size G3/8 and NPT3/8.

System components (horizontal mounting)



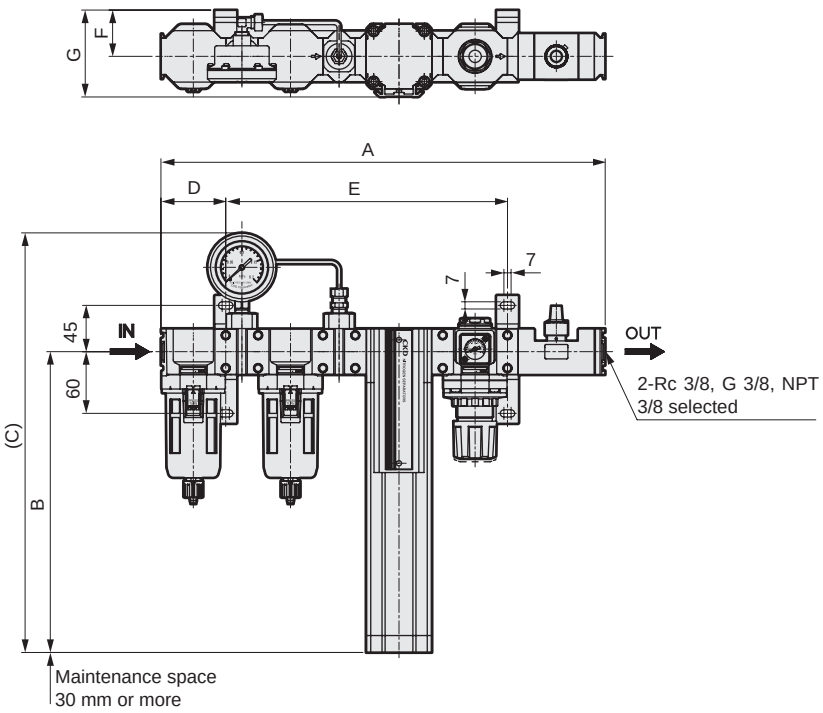
■ With port size Rc3/8

Unit model No.	NSU-4S□-□T-FP1	NSU-4L□-□T-FP1
(1) Air filter	F4000-10-W-F-FP1	
(2)Oil mist filter	M4000-10-W-F1-FP1	
(3) Differential pressure gauge	GA400-8-P02	
(4) Membrane unit	NS-4S110A- □ T-FP2	NS-4L110A- □ T-FP2
(5) Oxygen monitor	PNA-10A- □ -FP2	
(6) Flow rate sensor	NS-QFS- □	
(7)Regulator	NS-QR4-FP1	
(8)Needle valve	NS-QDVL-020 NS-QDVL-080 NS-QDVL-160 NS-QDVL-240	NS-QDVL-020 NS-QDVL-080 NS-QDVL-160 NS-QDVL-240 NS-QDVL-400

*Contact CKD regarding port size G3/8 and NPT3/8.

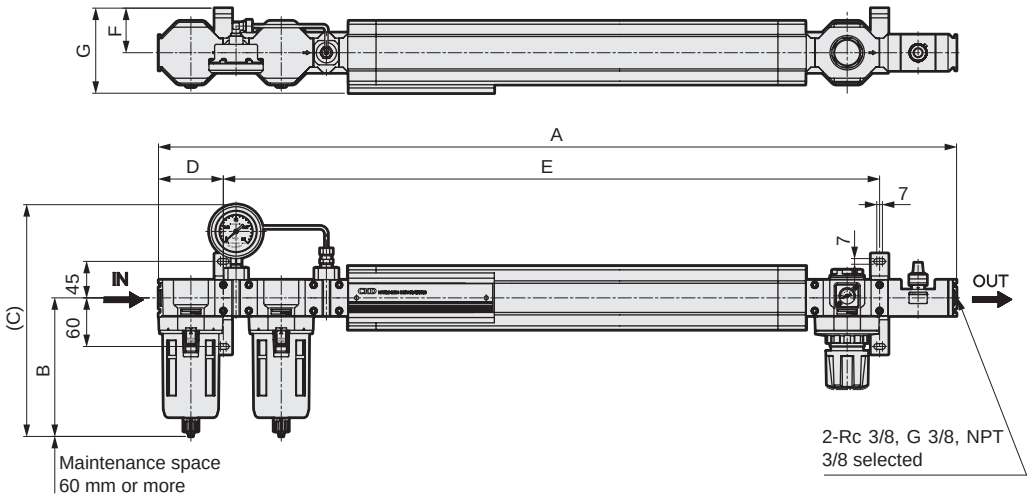
Dimensions(1-station type)

● Without oxygen monitor/without flow rate sensor (NSU-$^{3S}_{4L}$*10*NN-FP1)



Model No.	A	B	C	D	E	F	G	Weight(kg)
NSU-3S*10*NN	432	293	408	63	274	45	85	4.0
NSU-3L*10*NN	432	543	658	63	274	45	85	4.9
NSU-4S*10*NN	498	543	658	80	323	55	106	6.9
NSU-4L*10*NN	498	1043	1158	80	323	55	106	9.7

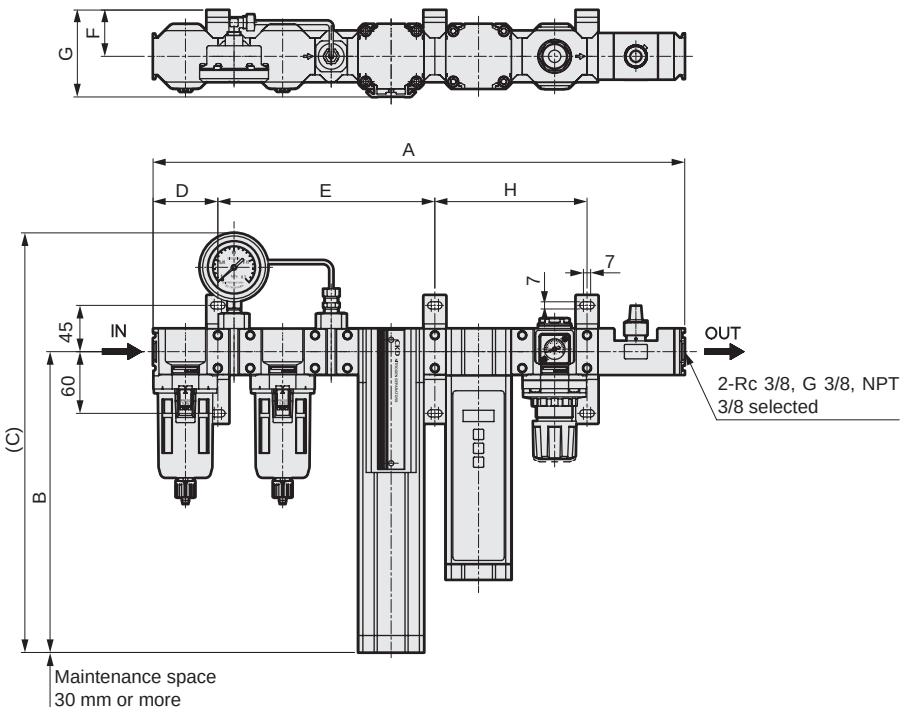
● Without oxygen monitor/without flow rate sensor (NSU-4$^{S}_{L}$* 10*NN-*T-FP1)



Model No.	A	B	C	D	E	F	G	Weight(kg)
NSU-4S*10*NN-*T	985	171	286	80	810	55	106	7.1
NSU-4L*10*NN-*T	1485	171	286	80	1310	55	106	9.9

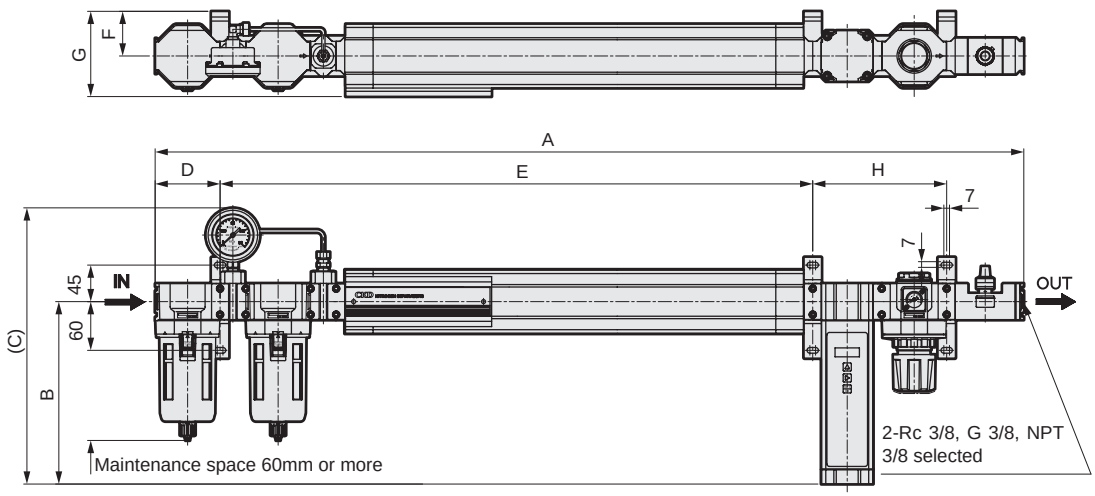
Dimensions

● With oxygen monitor/without flow rate sensor (NSU-$^{3S}_{4L}$*10*A*-FP1)



Model No.	A	B	C	D	E	F	G	H	Weight(kg)
NSU-3S*10*A*	517	293	408	63	211	45	85	148	5.6
NSU-3L*10*A*	517	543	658	63	211	45	85	148	6.5
NSU-4S*10*A*	583	543	658	80	243	55	106	165	8.5
NSU-4L*10*A*	583	1043	1158	80	243	55	106	165	11.3

● With oxygen monitor/without flow rate sensor (NSU-4$^{S}_{L}$* 10*A*-*T-FP1)

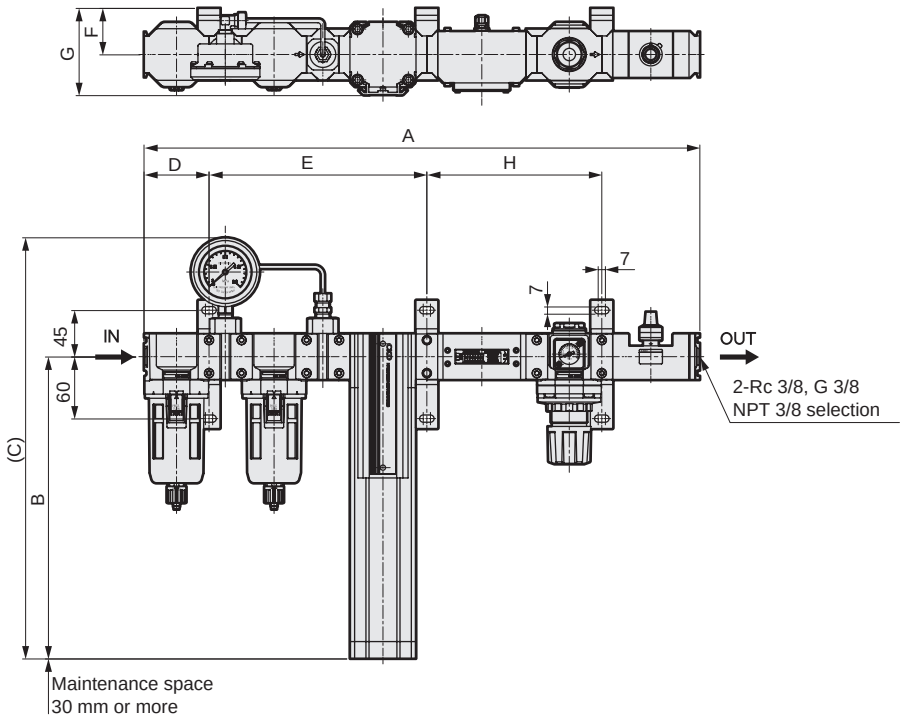


* Required wiring space of 60mm or more under the oxygen concentration monitor.

Model No.	A	B	C	D	E	F	G	H	Weight(kg)
NSU-4S*10*A*-*T	1070	225	340	80	730	55	106	165	8.7
NSU-4L*10*A*-*T	1570	225	340	80	1230	55	106	165	11.5

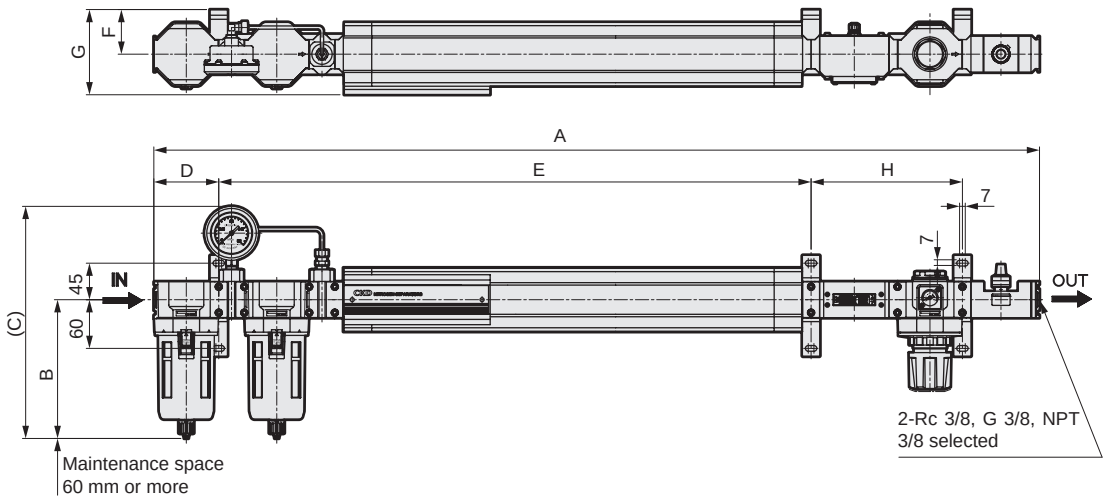
Dimensions (1 station)

● Without oxygen monitor/with flow rate sensor (NSU-$^{3S}_{4L}$*10*B*-FP1)



Model No.	A	B	C	D	E	F	G	H	Weight (kg)
NSU-3S*10*B*	538.5	293	408	63	211	45	85	169.5	4.8
NSU-3L*10*B*	538.5	543	658	63	211	45	85	169.5	5.7
NSU-4S*10*B*	604.5	543	658	80	243	55	106	186.5	7.7
NSU-4L*10*B*	604.5	1043	1158	80	243	55	106	186.5	10.5

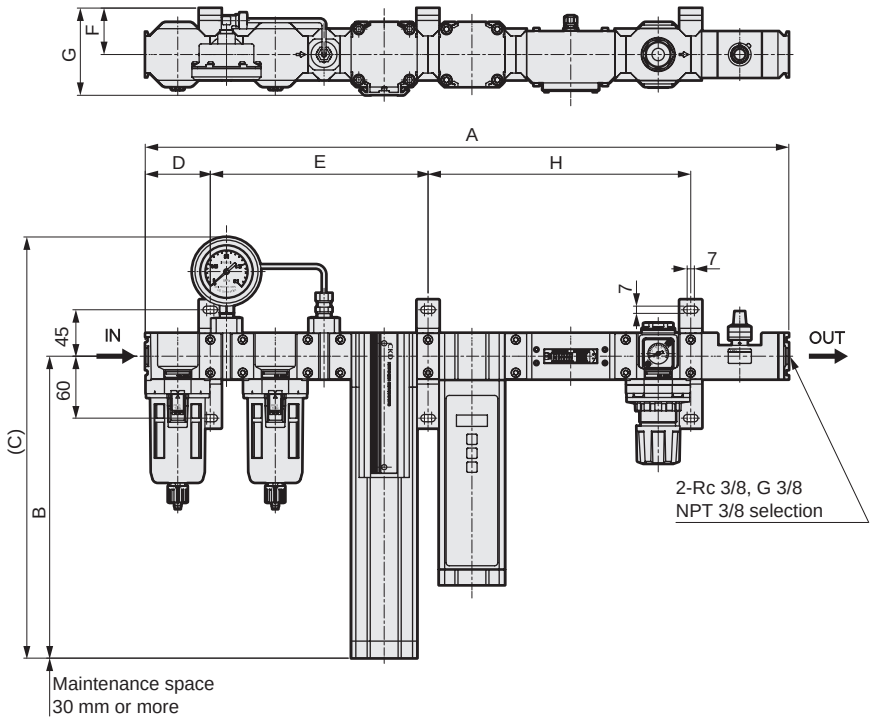
● Without oxygen monitor/with flow rate sensor (NSU-4$^{S}_{L}$* 10*B*-*T-FP1)



Model No.	A	B	C	D	E	F	G	H	Weight (kg)
NSU-4S*10*B*-*T	1091.5	171	286	80	730	55	106	186.5	7.9
NSU-4L*10*B*-*T	1591.5	171	286	80	1230	55	106	186.5	10.7

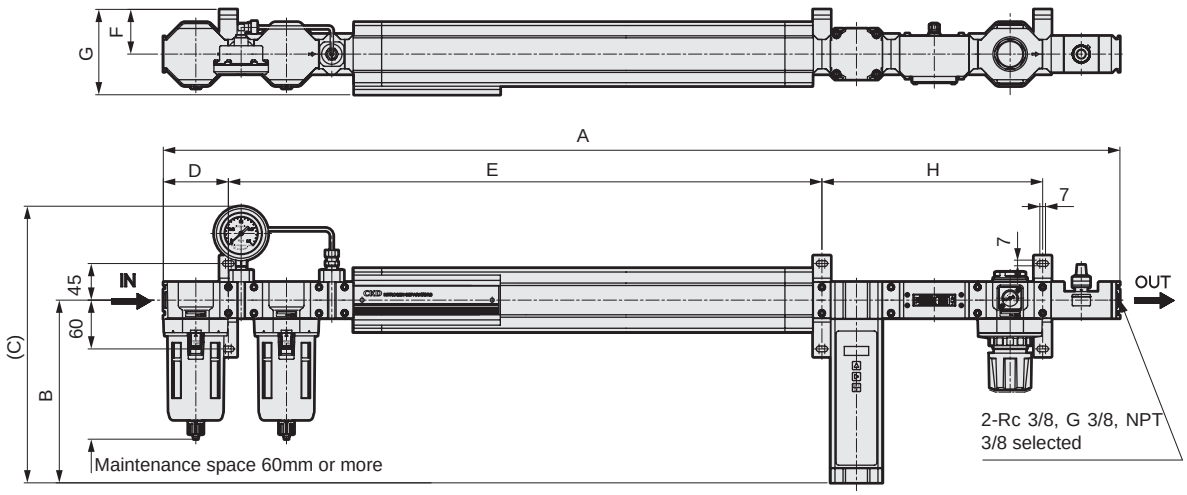
Dimensions (1 station)

● With oxygen monitor/flow rate sensor (NSU-$^{3S}_{4L}$*10*C*-FP1)



Model No.	A	B	C	D	E	F	G	H	Weight (kg)
NSU-3S*10*C*	623.5	293	408	63	211	45	85	254.5	6.4
NSU-3L*10*C*	623.5	543	658	63	211	45	85	254.5	7.3
NSU-4S*10*C*	689.5	543	658	80	243	55	106	271.5	9.3
NSU-4L*10*C*	689.5	1043	1158	80	243	55	106	271.5	12.1

● With oxygen monitor/with flow rate sensor (NSU-4$^{S}_{L}$* 10*C*-*T-FP1)

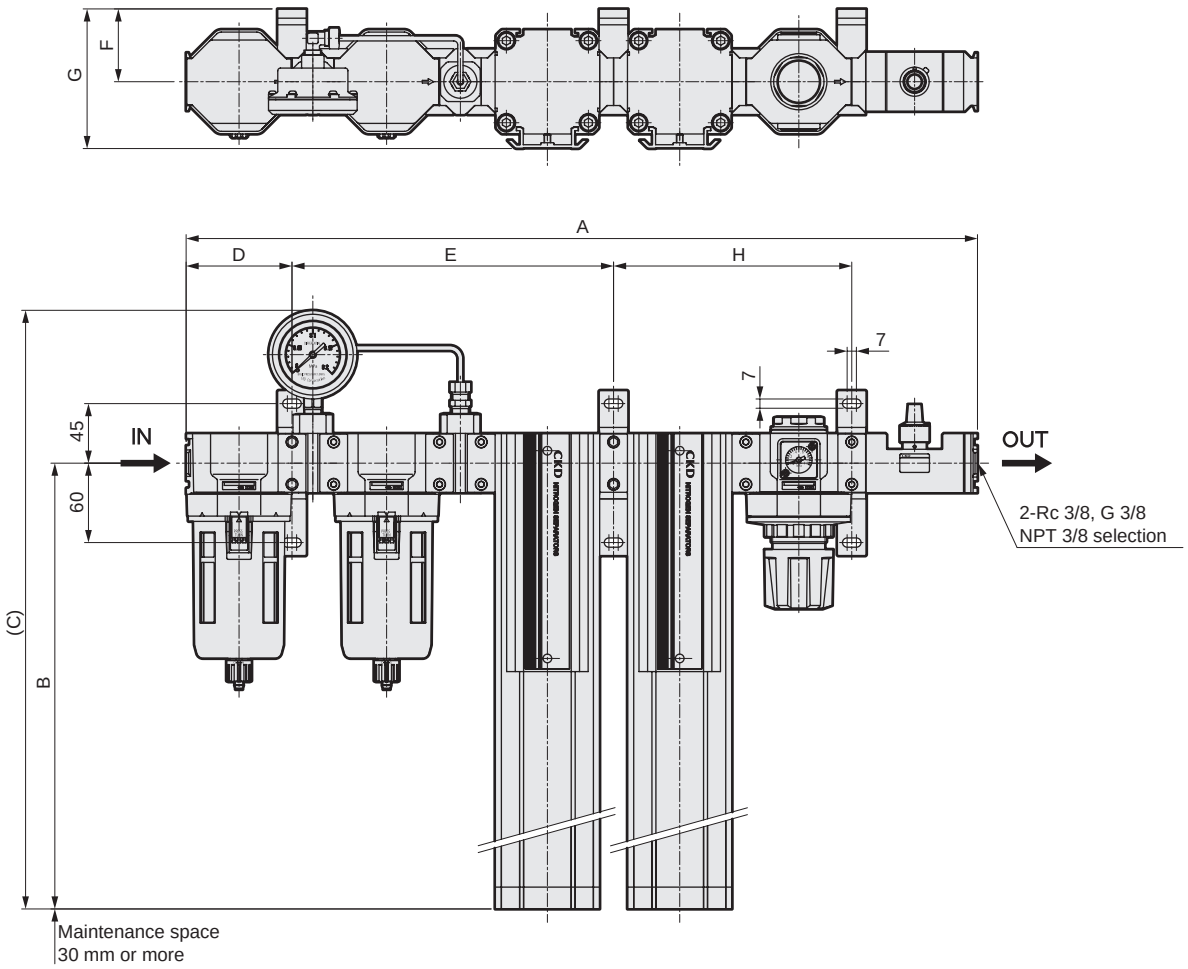


* 60mm or more wiring space is required under the oxygen concentration monitor.

Model No.	A	B	C	D	E	F	G	H	Weight (kg)
NSU-4S*10*C*-*T	1176.5	225	340	80	730	55	106	271.5	9.5
NSU-4L*10*C*-*T	1676.5	225	340	80	1230	55	106	271.5	12.3

Dimensions (2-station type)

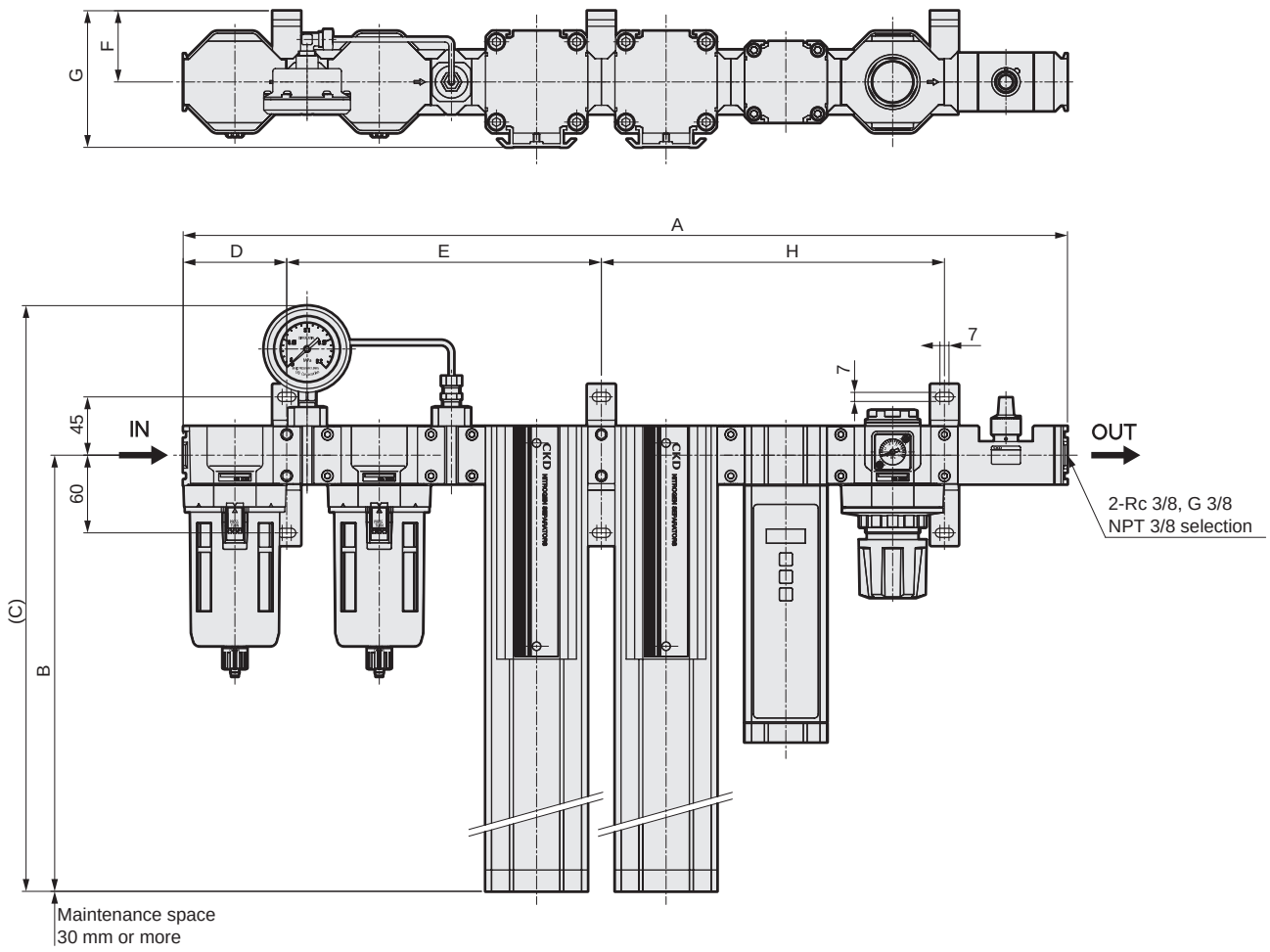
● Without oxygen monitor/without flow rate sensor (NSU-4F/G/H* 10*NN-FP1)



Model No.	A	B	C	D	E	F	G	H	Weight (kg)
NSU-4F*10*NN	598	543	658	80	243	55	106	180	10.9
NSU-4G*10*NN	598	1043	1158	80	243	55	106	180	13.7
NSU-4H*10*NN	598	1043	1158	80	243	55	106	180	16.5

Dimensions (2-station type)

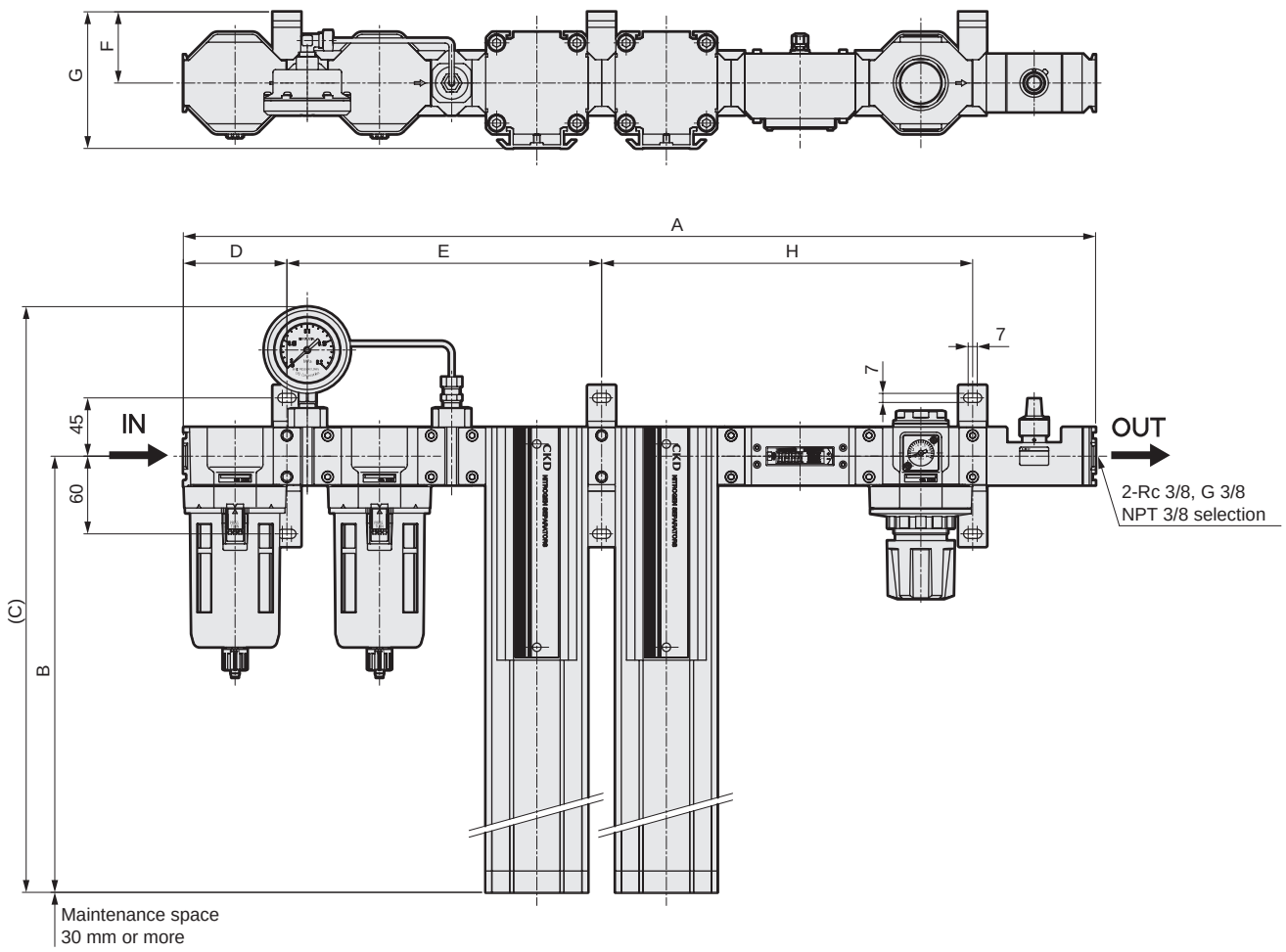
● With oxygen monitor/without flow rate sensor (NSU-4$^{F}_{G}$* 10*A*-FP1)



Model No.	A	B	C	D	E	F	G	H	Weight (kg)
NSU-4F*10*A*	683	543	658	80	243	55	106	265	12.5
NSU-4G*10*A*	683	1043	1158	80	243	55	106	265	15.3
NSU-4H*10*A*	683	1043	1158	80	243	55	106	265	18.1

Dimensions (2 stations)

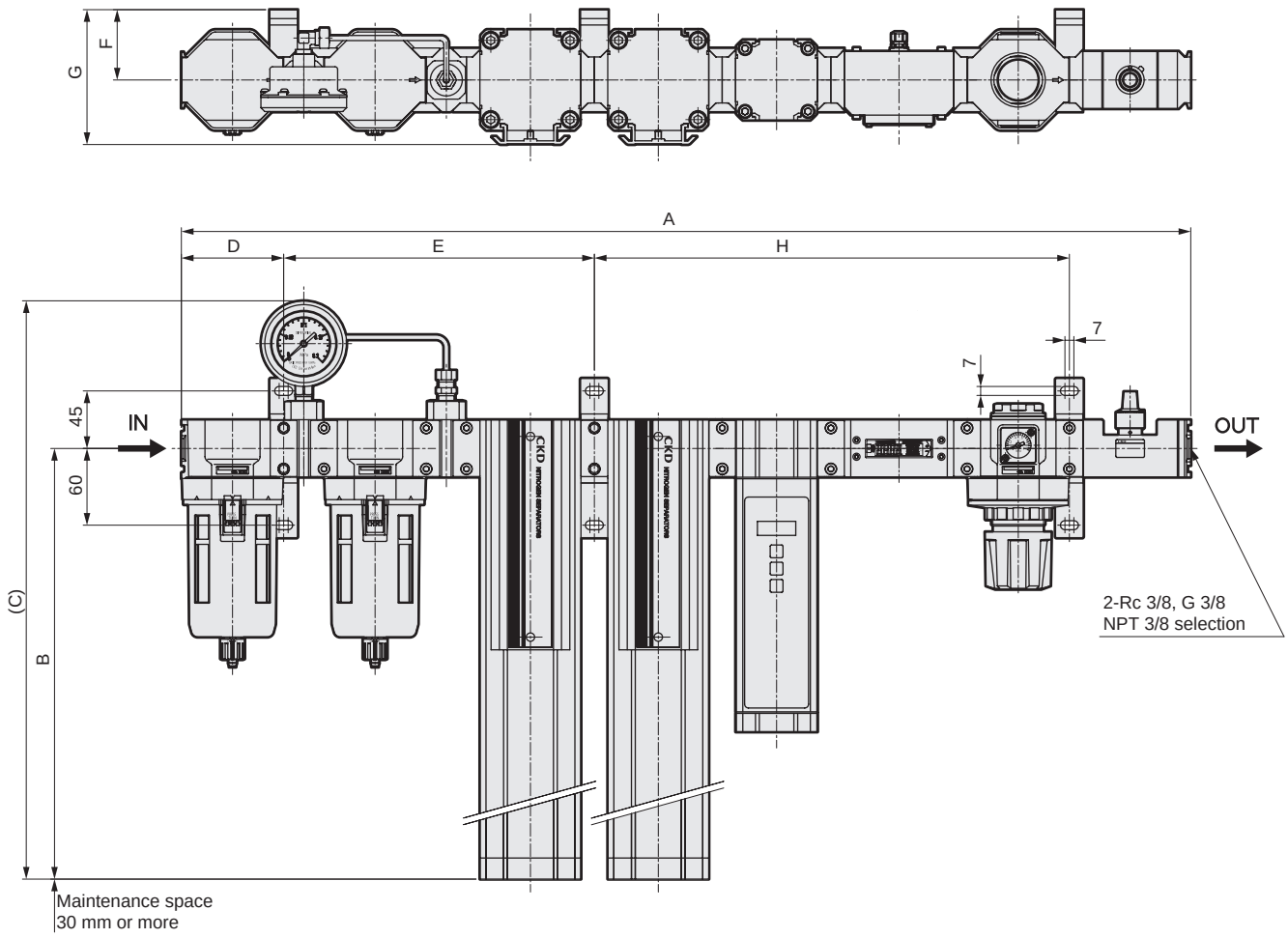
● Without oxygen monitor/with flow rate sensor (NSU-4F/G/H* 10*B*-FP1)



Model No.	A	B	C	D	E	F	G	H	Weight (kg)
NSU-4F*10*B*	704.5	543	658	80	243	55	106	286.5	11.7
NSU-4G*10*B*	704.5	1043	1158	80	243	55	106	286.5	14.5
NSU-4H*10*B*	704.5	1043	1158	80	243	55	106	286.5	17.3

Dimensions (2 stations)

● With oxygen monitor/with flow rate sensor (NSU-4$^{F}_{G}_{H}$* 10*C*-FP1)



Model No.	A	B	C	D	E	F	G	H	Weight (kg)
NSU-4F*10*C*	789.5	543	658	80	243	55	106	371.5	13.3
NSU-4G*10*C*	789.5	1043	1158	80	243	55	106	371.5	16.1
NSU-4H*10*C*	789.5	1043	1158	80	243	55	106	371.5	18.9



Flow sensor for nitrogen gas extraction unit

NS-QFS Series

Modular structure that can be connected to nitrogen gas extraction unit NS Series

●Flow rate range: 20L/min to 500L/min

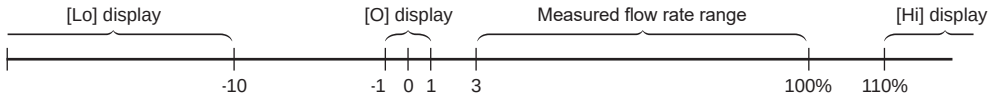
CE RoHS

NS-QFS specifications

Item				NS-QFS-A	NS-QFS-B	NS-QFS-C	NS-QFS-D	NS-QFS-E
Flow direction				Uni-direction				
Measurement flow rate range *1			(L/min)	0.6 to 20	1.5 to 50	3 to 100	6 to 200	15 to 500
Display				4 digit +4 digit 2 color LCD				
Flow rate display range *2			(L/min)	-1.9 to 21.9	-4.9 to 54.9	-9.9 to 109.9	-19 to 219	-49 to 549
Integration display (*3)	Display range		L	0.0 to ±999999.9L			0 to ±9999999L	
	Pulse output rate		L	0.2	0.5	1	2	5
Working conditions	Applicable fluid			Nitrogen gas				
	Temperature range		°C	5 to 50 (no condensation)				
	Pressure range		MPa	0 to 1.0				0 to 0.75
	Proof pressure		MPa	1.5				
Operating ambient temperature/humidity				5 to 50 °C, 90% RH or less				
Storage temperature			°C	-10 to 60				
Accuracy *4 (Fluid: in dry air)	Accuracy		*5	Within ±3%F.S. (Secondary side released to atmosphere) (The scope of warranty is in accordance with the "measured flow rate range.")				
	Repeatability		*6	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. (0.35MPa reference)				
Response time			*7	50 msec or less (setting response time OFF)				
Switch output	[B]	N		NPN open collector 1-point output (50mA or less, voltage drop 2.4V or less)				
		P		PNP open collector 1 point output (50mA or less, voltage drop 2.4V or less)				
Analog output				4 to 20 mA current output (connecting load impedance 0 to 300 Ω)				
Power supply voltage				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 or equivalent × 5-conductor, insulator outer diameter ø1.0, length 2.5m				
Functions				(1) Setting copy function, (2) Flow rate integration, (3) Peak hold, etc.				
Degree of protection				IP40 or equivalent (IEC standard)				
Protection circuit			*9	Power reverse connection protection, switch output reverse connection protection, switch output load short-circuit protection				
EMC Directive				EN55011, EN61000-6-2, EN61000-4-2/3/4/6/8				
Weight			kg	0.8				

*1: The value converted to volumetric flow rate at standard condition (20°C, 1 barometric pressure (101 kPa) relative humidity 65%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 (100 million times).(Changes to the settings are counted in number of accesses.)
Number of saves = Usage time / 5 minutes < 1 million times
When instantaneous flow rate is below 1% it is not counted as integrating flow.

*4: Compressed air is used for adjusting and inspecting this product.

*5: 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.

*6: Repeatability is calculated during a short period of time. Change over time is not included.

*7: 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.

*8: Current for when no load is applied. Please note that the current consumption changes depending on the load connection status.

*9: This product's protection function is effective only for specific misconnections and load short-circuits. It does not provide protection for all misconnections.

How to order

NS-QFS - A N 1

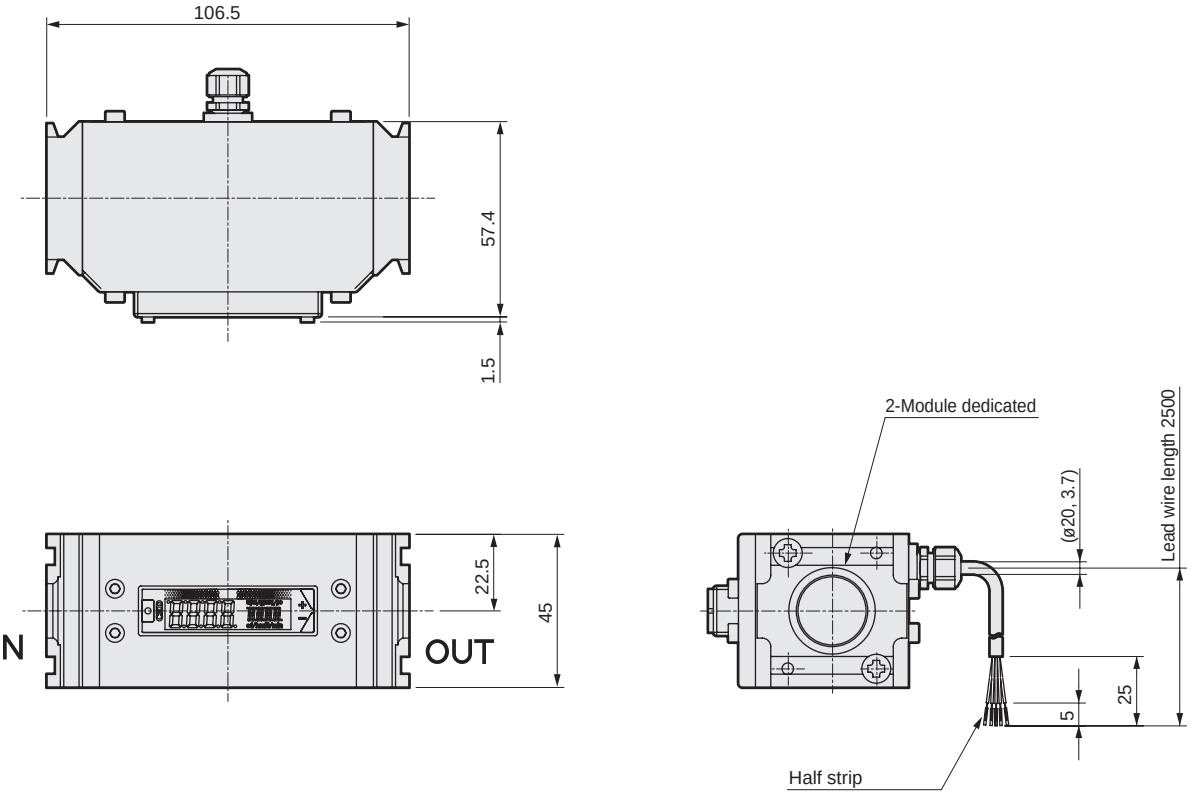
- A Flow rate range (full scale flow rate)
- B Switch output
- C Unit specifications

Code	Description
A Flow rate range (full scale flow rate)	
A	Flow rate range 20L/min
B	Flow rate range 50L/min
C	Flow rate range 100L/min
D	Flow rate range 200L/min
E	Flow rate range 500L/min
B Switch output	
N	NPN transistor open collector output 1 point
P	PNP transistor open collector output 1 point
C Unit specifications	
1	SI units only
2	With unit change function (only for overseas) *1

⚠ Precautions for model No. selection

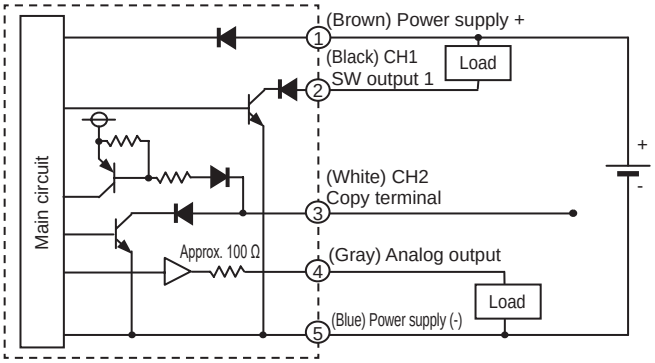
*1 : Models with unit switching cannot be sold in Japan.
*2 : When using with the NSU Series reverse flow option, reverse the display. Refer to page 22 for the display inversion settings.
*3 : The joiner set (joiner, bolt, O-ring) and one gasket are attached.

Dimensions

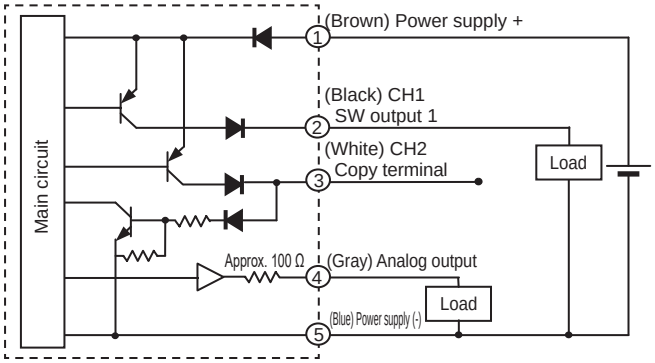


Example of internal circuit and load connection

●NPN output

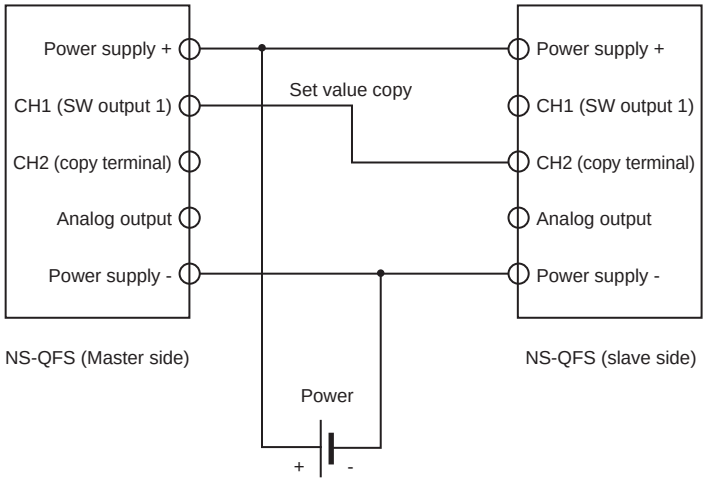


●PNP output



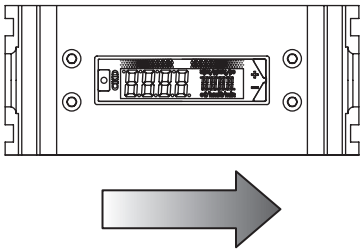
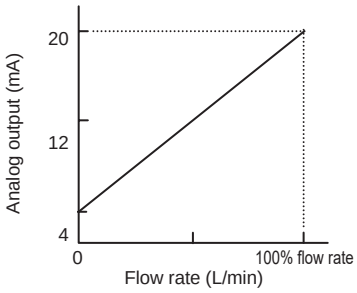
Terminal No.	Option lead wire color	Name
①	Brown	Power supply + (24 V)
②	Black	CH1 (Switch output 1: max. 50 mA)
③	White	CH2 (copy terminal)
④	Gray	Analog output Current output: 4 to 20 mA load impedance 300 Ω or less
⑤	Blue	Power supply - (GND)

<When using setting copy function>



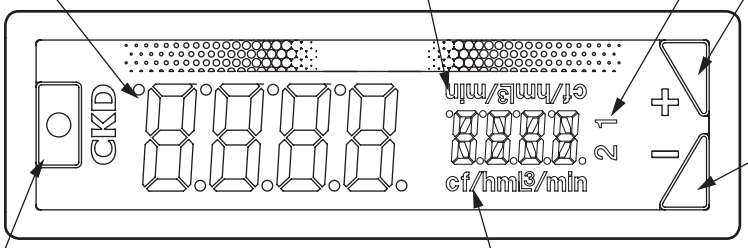
Connect CH1 (SW output 1) on the master side to CH2 (copy terminal) on the slave side and power ON the sensor to use the setting copy function (F93). Note that this connection can only be used when using the setting copy function. As shown in the load connection example above, if copying is performed with the load connected to CH1 or the switch is operated with CH1 and CH2 connected, the driver may operate unexpectedly or the driver and NS-QFS may breakdown. Never use the product while connected to the copy terminal.

Analog output characteristics

Flow direction	Current output
[Uni-directional] 	

Names and functions of display/operation section (LCD display)

● Display section name



Main display section (green/red)
- Displays the flow rate and output setting value.
- Display color can be changed.

Flow rate unit display
- Displays the flow rate unit.

Output (OUT1) display
- Lights when CH1 output is ON.
- The background and blinks together.

Key
- Starts reading peak hold and integrated flow.
- Successively moves to the next function selection screen.
- When setting each data, this key is used to count up the values, etc.

Key
- Stops reading peak hold and integrated flow.
- Successively moves to the next function selection screen.
- When setting each data, this key is used to count down the values, etc.

MODE key
- Sets when entering each setting mode.
- Used to return to flow rate display.

Sub-display section (green/red)
- Displays the flow direction/operation status, etc.
- Display color can be changed.

Names and functions of display/operation section

The function and various settings may be performed during normal flow rate display or after entering each mode.
The modes are also divided into Maintenance mode, SET mode, and Setting Monitor mode according to the frequency of use.

● Normal operation (RUN mode)

Item	Explanation	Default setting
Instantaneous flow rate display	Displays the instantaneous flow rate.	Display (measurement)
Peak hold function	Max. and min. values for the flow rate within a set interval are displayed.	Hidden (Stopped)
Accumulated flow display	The accumulated flow can be displayed. The switch output function includes a function to turn the switch ON/OFF at a level higher than the recommended cumulative value, and an integrated pulse function to output the pulse at a set cumulative value.	Non-display (measurement)

● SET mode

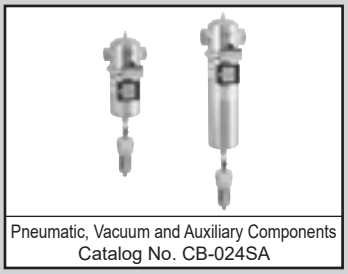
No.	Item	Explanation	Default setting
F.01	Selection of CH1 operation	Select the CH1 feature. Switch output operation and integrated pulse settings can be set.	No switch output
F.03	Integrating function settings	You can choose to acquire integrating flow values consecutively or at set times. You can also choose to keep the data or not.	Continuous acquisition: Data hold OFF
F.04	Sub-screen display setting	Set the sub-display section's display method. The display can be switched to Flow direction, Reference state, or Numbering display.	Flow direction
F.05	Display color setting	Set the display color. (red, green) The color for a normal display and for switch output ON can be set.	At normal: Green At switch ON: Red
F.07	Display inversion function	The LCD display can be vertically inverted.	Standard display
F.08	Reference state setting	Select from the standard state or reference state. Standard condition (ANR): Converted into volumetric flow rate at 20°C, 1 barometric pressure 65%RH Reference state (NOR): Converted into volumetric flow rate at 0°C, 1 barometric pressure 0%RH	ANR
F.09	Unit setting (For overseas only)	The units can be set. Can be selected from L/min, cf/h.	Domestic model: L/min Overseas model: L/min
F.10	Display cycle setting	The digital display refresh cycle can be set in three stages from 0.25sec to 1sec. If the display flickers, it may be improved by setting a longer display refresh cycle.	0.5 sec
F.11	Analog output Setting response time	Set the response time. The response can be set in seven steps from 0.05sec to 1.50sec. Chattering and mis-operation caused by sudden flow rate changes or noise are prevented.	0.05 sec
F.12	Numbering setting	You can set the numbering.	0000
F.14	Setting ECO mode	An ECO mode can be set. If the buttons are not operated for approx. one minute, the eco mode will activate and turn off the display's backlight. Current consumption can be reduced with this mode.	OFF
F.16	Lock setting	You can set the key lock method and the PIN code method. Use selectively depending on the working environment.	OFF
F.17	Peak hold setting	You can choose to acquire peak bottom values consecutively or at set times. You can also choose to keep the data or not.	Continuous acquisition: Data hold OFF

● Maintenance mode

No.	Item	Explanation	Default setting
F.91	Forced output function	Use this function to forcibly turn the switch output ON and confirm the wiring connection or initial operation of the input device.	-
F.92	Zero adjustment	The zero point deviation is compensated.	Adjust value: 0
F.93	Setting copy function	Set values can be copied if the model supports copying between two NS-QFS's. (Copying is only possible between products with the same model No.)	-
F.99	Reset function	Returns the settings to the default settings.	-

● Setting monitor mode

Item	Explanation	Default setting
Settings monitor function	SET mode setting details can be checked. (Setting details cannot be edited.)	-



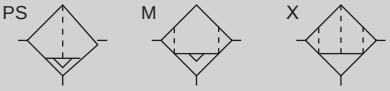
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Medium main line stainless steel filter

AF4000P/S/M/X-FP1 Series

Ideal for pre-filter, oil removal and deodorizing applications.

● Processing air flow rate: 3.7 to 18.8m³/min (ANR) (0.7MPa)

JISCode 

CAD

Specifications

Item	AF4004 □ -25	AF4007 □ -40	AF4010 □ -40	AF4013 □ -50	AF4020 □ -50
Processing air flow rate m³/min(ANR)	3.7	6.2	10	13	18.8
Working fluid	Compressed air				
Working pressure MPa	0.1 to 1.0				
Ambient temperature °C	5 to 60				
Proof pressure MPa	1.5				
Port size Rc	1	1 1/2		2	
Weight kg	3	3.3	3.7	4.3	6
Element life indicator	Standard only for M type				
Drain discharger	DT3000-15-W-FP1 (Excluding X type)				
Drain outlet bore size	Directly connecting bore size ø5.7 to ø6 nylon tube (Excluding X type)				

□ indicates series name.

Item			P type	S type	M type	X type
Performance	Processing air Conditions	Inlet air pressure MPa	0.7			
		Inlet air temperature °C	32			
		Inlet air dew point °C	-	-	No water infiltration or droplet generationand	Pressure dew point 10°C
		Inlet oil content mg/m³	-	-	3	0.01
	Degree of filtration µm		5	1	0.01	Suction by activated carbon fibers
	Secondary oil content mg/m³		-	-	0.01	0.003
	Water separation efficiency %		99	-	-	-
	Pressure drop	Initial MPa	0.005	0.005	0.01	0.009
	Element Replacement time	Pressure drop MPa	0.02	0.07	0.07	-
		Duration of use	8000 hours or 1 year			

*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 20°C.
*4: The drain discharger is NO. Air is purged with initial drainage until pressure reaches 0.1 MPa.
*5: The P/S/M type elements must be replaced when the pressure drops or the service life is reached, whichever comes first.
*6: Replace the X type element when the service life is reached or when the deodorizing effect is lost.
*7: P type is not available in AF4020.

How to order

AF4 | 004 | P | - | 25 | - | FP1 | - | GA

Model No.

Ⓐ Flow rate classification

Code	Description
Ⓐ Flow rate classification	
004	3.7m³/min(ANR)
007	6.2m³/min(ANR)
010	10m³/min(ANR)
013	13m³/min(ANR)
020	18.8m³/min (ANR) (S, M, or X only)

Ⓑ Element

Code	Description
Ⓑ Element	
P	PType (Solid/water removing filter)
S	SType (For solid removing filter)
M	MType (Oil mistFor removal filter)
X	XType (For deodorizing filter)

Ⓒ Bore size

Code	Description
Ⓒ Bore size	
25	Rc1
40	Rc1 1/2
50	Rc2

Ⓓ Accessories

Code	Description
Ⓓ Accessories	
GA	Differential pressure gauge (GA400-8-P02) included
EL	Element life indicator included

(An element life indicator is mounted on the M type as standard.)

Note on model No. selection

The required performance may not be attained if using at a level less than the selected pressure. Always select the model No. with the working pressure.

Flow rate compensation coefficient

Pressure (MPa)	Auxiliary coefficient
0.2	0.36
0.3	0.5
0.4	0.62
0.5	0.75
0.6	0.88
0.7	1.0
0.8	1.13
0.9	1.25
1.0	1.38

If the inlet pressure is not 0.7 MPa, multiply the coefficient above with the processing air flow rate.

For dimensions, refer to the AF4000 Series in "Pneumatic, Vacuum and Auxiliary components (CB-024SA)".

MEMO



General Purpose Valves
Catalog No. CB-03-1SA

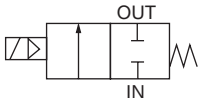
Pilot kick 2-port solenoid valve
(general purpose valve)

APK21-FP1 Series

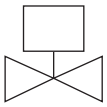
- NC (normally closed)
- Port size: Rc1¼ to Rc2, 32 to 50 flange
- Piston drive

RoHS CAD

JIS symbol



Mounting orientation



Common specifications

Item	Specifications
Working fluid	Steam
Working pressure differential MPa	0 to 0.7
Max. working pressure MPa	1
Proof pressure (water pressure) MPa	3.2
Fluid temperature °C	5 to 180
Ambient temperature °C	-10 to 60
Thermal class	Class 180 (H)
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Pilot kick poppet, piston drive
Valve seat leakage (*) cm^3/min (ANR)	800 or less (air)
Mounting orientation	Limited to vertical orientation with the coil on top

* Value at pneumatic pressure 0.05 to 0.7MPa. When used at a pressure less than 0.05 MPa, the sealant may be unstable. Contact CKD in this case.

Individual specifications

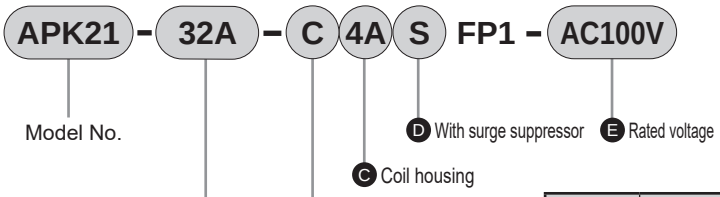
Item / Model No.	Port size	Orifice size (mm)	Min. working pressure differential (MPa)	Max. working pressure differential (MPa) Steam	Rated voltage	Apparent power (VA) When holding 50Hz	Apparent power (VA) When holding 60Hz	Apparent power (VA) When starting 50Hz	Apparent power (VA) When starting 60Hz	Power consumption (W) 50/60Hz	Weight (kg)
APK21-32A	Rc1¼	35	0	0.7	100 VAC 50/60Hz	64	69	274	289	44/48	4.5
APK21-32F	32 flange										8
APK21-40A	Rc1½	43									5.5
APK21-40F	40 flange										9
APK21-50A	Rc2	53			200 VAC 50/60Hz						7
APK21-50F	50 flange										11.5

*1: The model numbers above are for the basic port size. Refer to How to order for other combinations.
*2: The voltage fluctuation range must be within ±10% of the rated voltage.

Flow characteristics

Model No.	Port size	Orifice size (mm)	Cv	Effective cross-sectional area (mm^2)
APK21-32A	Rc1¼	35	25	460
APK21-32F	32 flange			
APK21-40A	Rc1½	43	34	625
APK21-40F	40 flange			
APK21-50A	Rc 2	53	53	975
APK21-50F	50 flange			

How to order



A Port size
*1

Code	Description
A Port size	
32A	Rc1¼
32F	32 flange
40A	Rc1½
40F	40 flange
50A	Rc2
50F	50 flange

B Body sealant Material combination

B Body/sealant combination

		Body	Valve seal	O-ring
C	Standard	Copper alloy	PTFE	Fluoro rubber
F	Option	Stainless steel		

C to E

Refer to the following table for details on the coil housing, other options, voltage, etc.

[Example of model No.]
APK21-32F-C4A-FP1-AC100V
Model: APK21
A Port size : 32 flange
B Body/sealant combination
: Body - copper alloy, valve seal - PTFE
O-ring - fluoro rubber
C Coil housing : Open frame lead wire
D : None
E Rated voltage : 100 VAC

Precautions for model No. selection

*1: The companion flange is JIS B2210 10K. (Flange is not attached with the product and must be purchased separately.)

For Items Ⓒ to Ⓔ, the combinations indicated with codes are available.
Note that if an option for Item Ⓓ is not required, this item should be left blank.

C Coil housing				D	E Rated voltage
Description				With surge suppressor	Description
4A	Standard	Open Frame type (Thermal class 180 (H))	Lead wire	**S**	100 VAC, 200 VAC
4M	Option		With HP terminal box (G1/2)		
4N			HP terminal box with lamp (G1/2)		

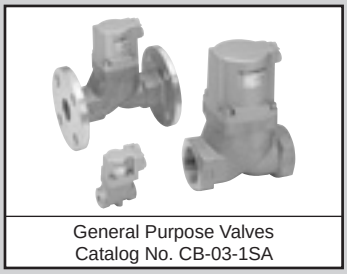
Ⓓ Refer to the following cautions for Item D.

Precautions for model No. selection

D Notes for Item

*2: A surge suppressor is attached, if applicable.

For dimensions, refer to the APK21 Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Air operated 2-port valve
(cylinder valve)

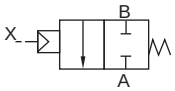
SAB*A-FP1 Series

- NC (normally closed), NO (normally open), double acting
- Port size: Rc1/4 to Rc2 32 to 50 flange
- Working fluid: Air

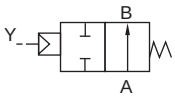
RoHS CAD

JIS symbol

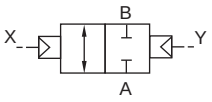
- NC (normally closed)



- NO (normally open)



- Double acting



Common specifications

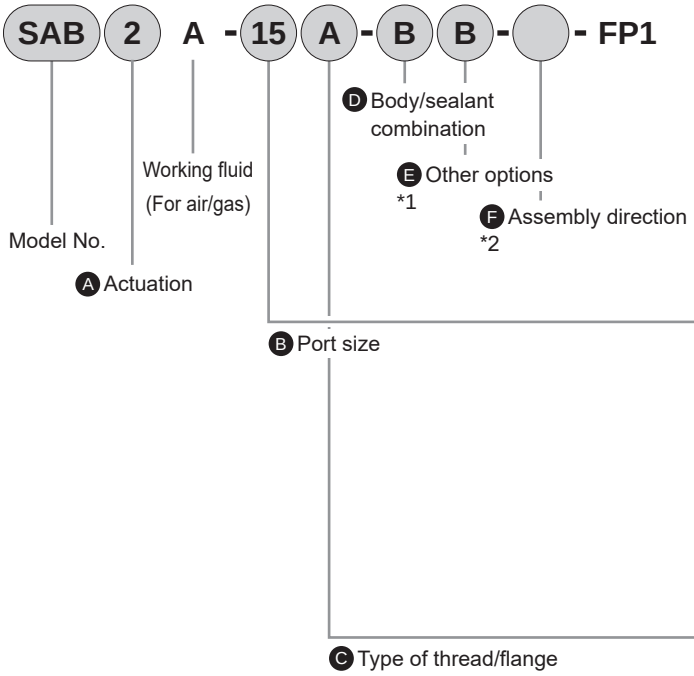
Item	SAB1A	SAB2A	SAB3A
Actuation	NC (normally closed)	NO (normally open)	Double acting
Working fluid	Air		
Working pressure MPa	0 to 0.9	0 to 1	
Proof pressure(water pressure)MPa	2.0		
Fluid temperature °C	-10 to 90 (no freezing)		
Ambient temperature °C	-10 to 60		
Valve seat leakage cm^3/min	0.12 or less (Pneumatic pressure)		
Mounting orientation	Unrestricted		
Pilot fluid	Air		
Pilot pressure MPa	0.35 to 0.7	Refer to General Purpose Valves (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 1¼	26	-	-	390			2.2
SAB1A-32F	32 flange	26	-	-	390			5.2
SAB1A-40A	Rc 1½	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 1¼	26	-	-	450	0.05		2.2
SAB2A-32F	32 flange	26	-	-	450			5.2
SAB2A-40A	Rc 1½	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 1¼	26	-	-	390 (450)			2.2
SAB3A-32F	32 flange	26	-	-	390 (450)			5.2
SAB3A-40A	Rc 1½	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: ( ) for C, b and S columns of double acting shows the flow rates when port A is pressurized.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

How to order



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**
B	Copper alloy	Fluoro rubber
E	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

Refer to the figure below for the layout drawing.

⚠ Precautions for model No. selection

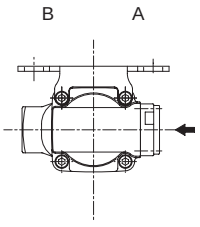
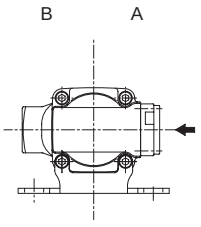
*1: The mounting plate (E Item B) can be attached to only the female thread of port sizes 8 to 32.
*2: Reversed mounting plate (F Item B-R) is available for port sizes 15 to 32.
*3: Clockwise when viewed from above with port A on the right.

[Example of model No.]

SAB2A-15A-BB-FP1

Model: SAB
A Actuation : NO (Normally Open)
B Port size : 1/2
C Type of thread/flange : Rc
D Body/sealant combination
: Body - copper alloy, sealant - fluoro rubber
E Other options : Mounting plate
F Assembly direction : No option

F Item Assembly direction

SAB [Air operated] *1/3		
Code	B (with mounting plate)	B-R *2
Direction	No rotation	Mounting plate reversed
Layout		

⬅ shows pilot port IN.

For dimensions, refer to the SAB*A Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

NSF H1

Air operated 3-port valve

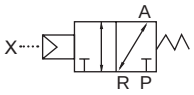
NAP11-FP1 Series

- 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
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.

Flow characteristics

Model No.	P → A				A → R			
	C[dm^3/(s·bar)]	b	Cv	S(mm^2)	C[dm^3/(s·bar)]	b	Cv	S(mm^2)
NAP11-10A	15	0.31	3.4	-	16	0.28	3.4	-
NAP11-15A	18	0.29	3.6	-	17	0.26	3.6	-
NAP11-20A	35	0.27	8.4	-	41	0.21	8.6	-
NAP11-25A	-	-	8.6	200	-	-	9.0	210
NAP11-32A	-	-	25.8	600	-	-	26.2	610
NAP11-40A	-	-	27.0	630	-	-	26.6	620
NAP11-50A	-	-	28.2	660	-	-	27.0	630

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 x C.

How to order

NAP1 1 - 15A - 1 - FP1

Model No.

Ⓐ Actuation

Ⓑ Port size

Ⓒ Body/sealant combination

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

[Model No. example]

NAP11-15A-1-FP1

Model: NAP

Ⓐ Actuation : Universal
Ⓑ Port size :Rc1/2
Ⓒ Body/sealant combination
: Body/aluminum, sealant/nitrile rubber

For dimensions, refer to the NAP11 Series in "General Purpose Valves (CB-03-1SA)".

Material compatible with the Food Sanitation Act



Nitrogen Gas Extraction Unit

NS-FP2 Series

Modular design for easy system expansion with peripheral components

■ Nitrogen gas is obtained just by supplying compressed air.

RoHS CAD

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 rate	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 cylinder

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 rate	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.
Working 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 - B T - FP2

Model No. Ⓐ Body size Ⓑ Membrane unit size Ⓒ Quantity Ⓓ Port size Ⓔ Option Ⓕ Mounting direction

Code	Description
Ⓐ Body size	
3	Body width 63
4	Body width 79
Ⓑ Membrane unit size	
S	Short
L	Long
Ⓒ Quantity	***1**
1	1 pc.
2	2 units (available with NS-4S, 4L)
3	3 units (available with NS-4S, 4L)
4	4 units (available with NS-4L)
6	6 units (available with NS-4S, 4L)
8	8 units (available with NS-4S, 4L)
A	10 units (available with NS-4S)
Ⓓ Port size	
10A	Rc 3/8 (NS-3S1, 3L1, 4S1, 4L1)
10B	G 3/8 (NS-3S1, 3L1, 4S1, 4L1)
10C	NPT 3/8 (NS-3S1, 3L1, 4S1, 4L1)
20A	Rc 3/4 (NS-4S2, 4S3, 4L2, 4L3, 4L4)
20B	G 3/4 (NS-4S2, 4S3, 4L2, 4L3, 4L4)
20C	NPT 3/4 (NS-4S2, 4S3, 4L2, 4L3, 4L4)
25A	Rc 1 (NS-4S6, 4S8, 4SA, 4L6, 4L8)
25B	G 1 (NS-4S6, 4S8, 4SA, 4L6, 4L8)
25C	NPT 1 (NS-4S6, 4S8, 4SA, 4L6, 4L8)
Ⓔ Option	***2**
N	No option
B	Bracket
C	Bracket + reverse flow
D	Bracket + exhaust port
F	Bracket + reverse flow + exhaust port
X	Reverse flow *3
E	With exhaust port
H	Reverse flow + With exhaust port *3
Ⓕ Mounting direction	
Blank	Vertical mounting
T	Horizontal mounting (available with NS-4S1, 4L1)

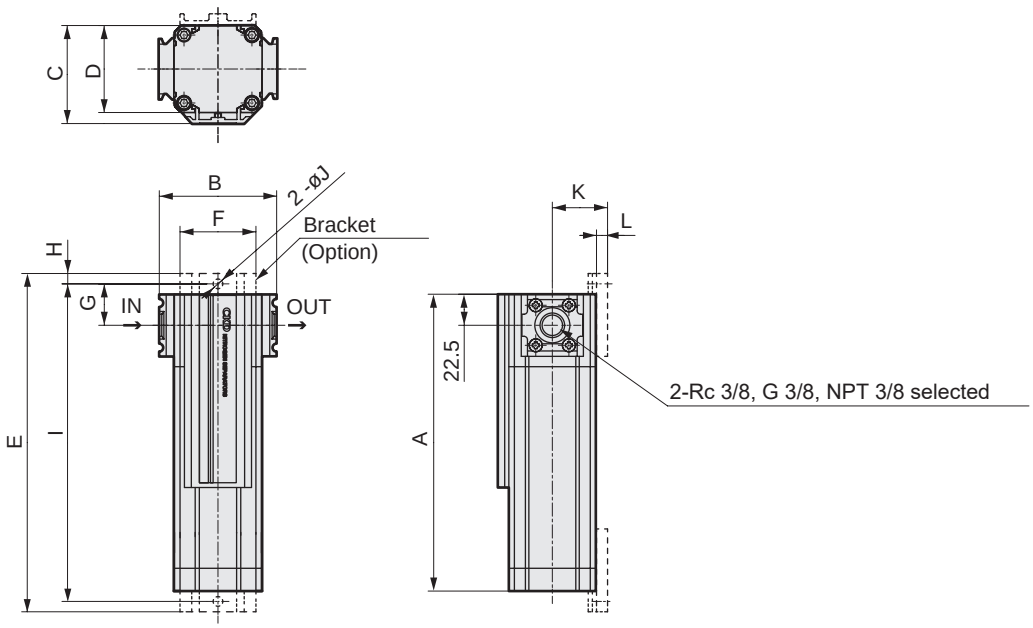
⚠ Precautions for model No. selection

*1 : The product will be floor-mounted without bracket for 6 units or more.

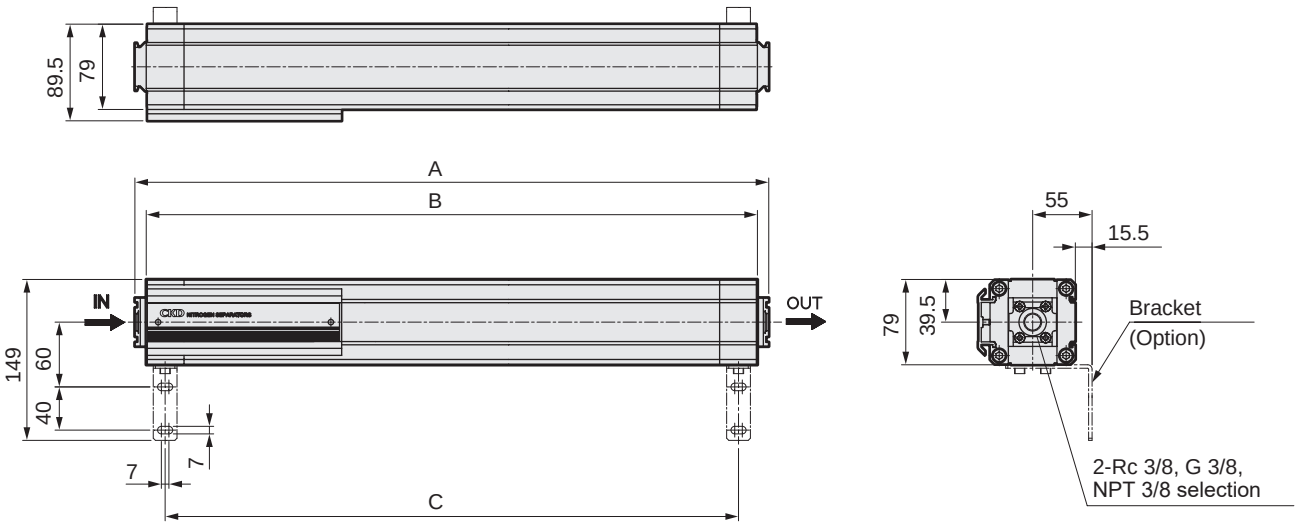
*2: Exhaust air (oxygen-enriched gas) from standard products is released into the atmosphere. For "E", piping connection for exhaust (oxygen-rich gas) is possible. Size of exhaust port is Rc1/2.

*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.

Dimensions



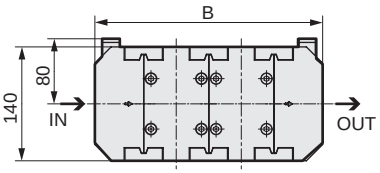
Model No.	A	B	C	D	Weight (kg)	Bracket relational dimensions							
						E	F	G	H	I	J	K	L
NS-3S1	315	85	71	63	1.8	345	55	30	7.5	330	7	40	8
NS-3L1	565	85	71	63	2.7	595	55	30	7.5	580	7	40	8
NS-4S1	565	100	90	79	4.0	605	70	32.5	10	585	9	50	10
NS-4L1	1065	100	90	79	6.8	1105	70	32.5	10	1085	9	50	10

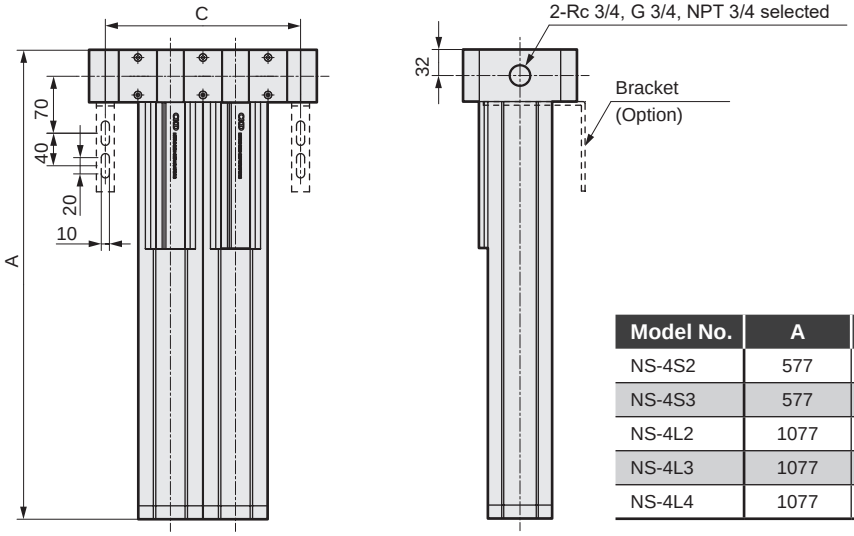


Model No.	A	B	C	Weight (kg)
NS-4S1*-*T	587	566	531	4.2
NS-4L1*-*T	1087	1066	1031	7.0

Dimensions

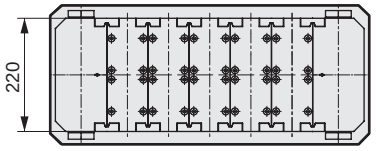
● Quantity: 2 / 3 / 4 units

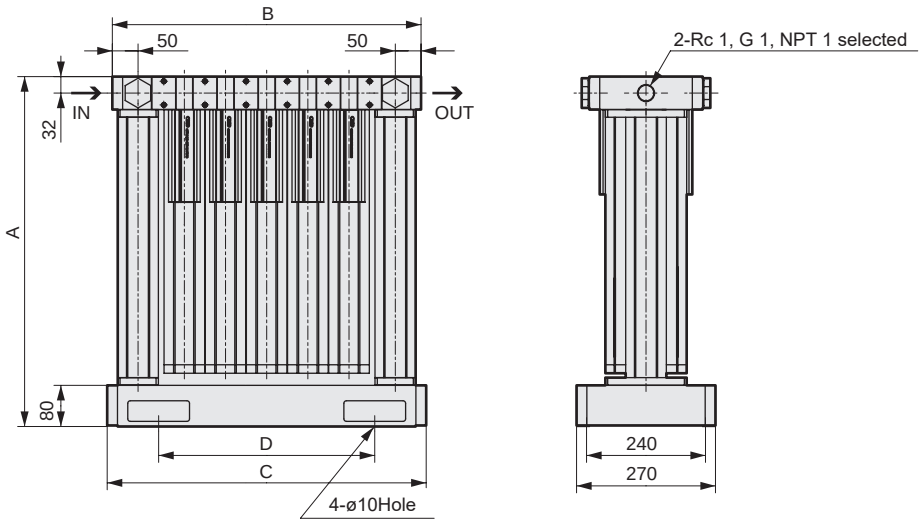




Model No.	A	B	C	Weight(kg)
NS-4S2	577	280	240	12
NS-4S3	577	360	320	17
NS-4L2	1077	280	240	18
NS-4L3	1077	360	320	25
NS-4L4	1077	440	400	32

● Qty.: 6, 8 or 10 units





Model No.	A	B	C	D	Weight (kg)
NS-4S6	680	440	460	260	41
NS-4S8	680	520	540	340	50
NS-4SA	680	600	620	420	59
NS-4L6	1180	440	460	260	63
NS-4L8	1180	520	540	340	78

MEMO



Inline oxygen monitor

PNA-FP2 Series

Purging not required due to the inline pressure resistant structure
A modular structure that can be connected to the Nitrogen Extraction Unit NS Series and F.R unit

Specifications

Item		Description	
Measuring method		Zirconia solid electrolyte method	
Sampling method		Natural diffusion	
Display		Can be switched between oxygen concentration display and nitrogen concentration display (100 - oxygen concentration)	
Working fluid		Nitrogen-rich compressed air	
Working pressure	MPa	0 to 1.0	
Proof pressure	MPa	1.5	
Ambient temperature, humidity		0 to 50°C, 80% RH or less (no condensation)	
Fluid temperature		0 to 50°C (no condensation)	
Storage ambient temperature, humidity		-10 to 60°C, 80% RH or less (no condensation)	
Max. flow rate	L/min (ANR)	500 (*1)	
Measured range	$\%O_2$	0.00 to 25.00	
Accuracy	(*2)	±0.05%O_2±1digit	(For 0.00 to 1.00%O_2)
		±0.10%O_2±1digit	(For 1.01 to 2.50%O_2)
		±0.5%O_2±1digit	(For 2.51 to 10.00%O_2)
		±1.0%O_2±1digit	(For 10.01 to 25.00%O_2)
Response time		90% response within 20 seconds (*3)	
Analog output		4 to 20mA current output (For 0.00 to 25.00%O_2)	
Load resistance of analog output		0 to 400 Ω	
Analog output accuracy		0.064mA/0.1%O_2	
Switch output		Set value and detection element abnormality: 1 (relay output)	
Switch output capacity		24 VDC, 1A	
Power supply voltage		24 VDC ±15% (when AC adapter is used: 100 to 240 VAC)	
Power consumption		10 W or less	
Degree of protection		IP 65 or equiv.	
EMC Directive		EN61326-1	
Weight	kg	1.6	
Warmup time		Approx. 5 minutes after power ON (*4)	

*1: If exceeding 500L/min (ANR), contact CKD.
*2: Value in dry gas composed of oxygen and nitrogen.
*3: The response time is a value at a flow rate of 5L/min (ANR) and over.
*4: Analog output and switch output are not output during warming-up.

How to order main body

PNA- 10A - N - FP2

Ⓐ Port size
Ⓑ Traceability

*Connector cable is not included.
Refer to page 330 for details.

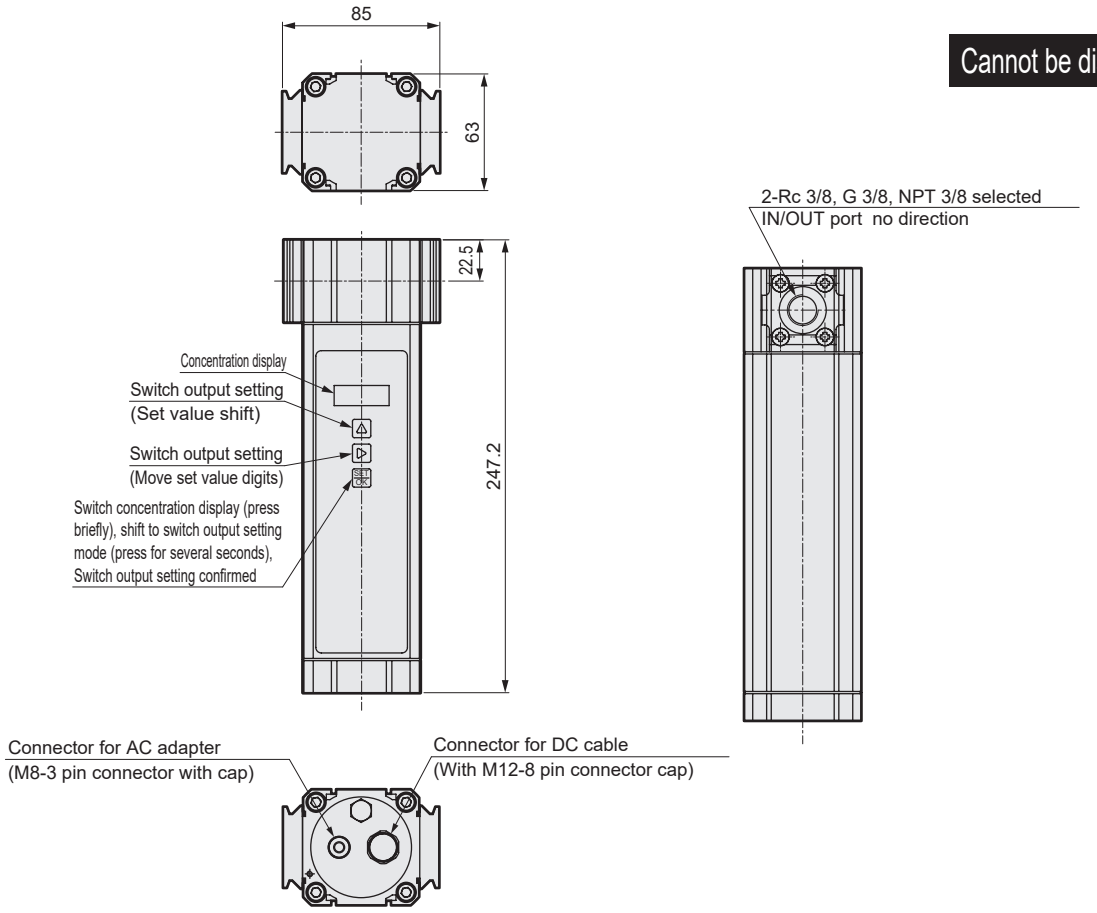
Code	Description
Ⓐ Port size	
10A	Rc3/8
10B	G3/8
10C	NPT3/8
Ⓑ Traceability	
N	No
M	Traceability certification with series variation diagram and company certification

[Example of model No.]

PNA-10A-M-FP2

Ⓐ Port size: Rc3/8
Ⓑ Traceability: With traceability certification with series variation diagram and company certification

Dimensions



Cannot be disassembled

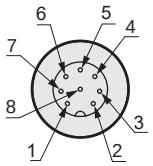
How to order connector cable and dimensions

*Connector cable is sold separately from the body.

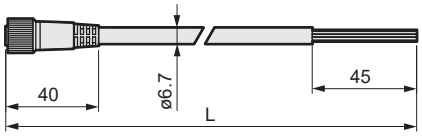
● DC cable

Use when driving with a DC power supply and when using analog output or switch output.

Model No.	Dimension L
PNA-1D	1000
PNA-3D	3000
PNA-5D	5000



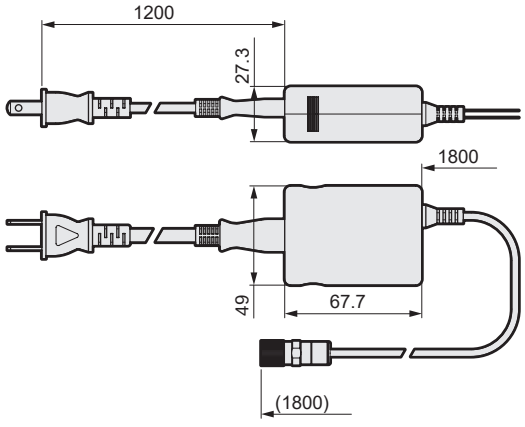
No.	Cable color	Description
1	White	Power supply +
2	Brown	Power supply -
3	Green	Analog output+
4	Yellow	Analog output -
5	Gray	Contact output (relay output)
6	Pink	
7	Blue	-
8	-	-



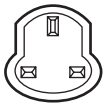
● AC adapter

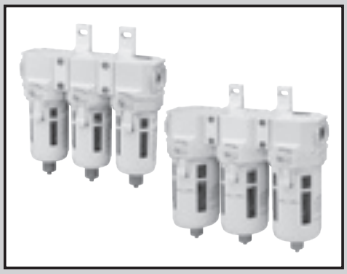
Use when driving with an AC power supply.

Model No.	Description
PNA-A	AC adapter single unit A
PNA-AG	AC adapter + conversion plug set *Global power supply conversion plugs B, C, O and BF included.



• Plug shape

B type	C type	O type	BF type
			



Material compatible with the Food Sanitation Act

FDA compliant materials

Anti-bacterial/bacteria-removing filter combination

SFC307/SFC407-FP2 Series

● Port size: 1/4 to 1/2

RoHS CAD

Specifications

Item			SFC307	SFC407
System components	(1)	Anti-bacterial pre-filter	SFC310	SFC410
	(2)	Anti-bacterial high performance filter	SFC320	SFC420
	(3)	Bacteria removing filter	SFC330	SFC430
Working fluid			Compressed air, nitrogen gas (N_2) and carbon dioxide (CO_2)	
Working pressure range MPa			0.1 to 1.0	
Proof pressure MPa			1.5	
Differential pressure-resistant MPa			0.5	
Ambient/fluid temperatures °C			5 to 45	
Filtration rating μm			0.01 (removal efficiency 99.99%)	
Max. processing flow rate *1 L/min (ANR)			300	500
Port size Rc, NPT, G			1/4, 3/8	1/4, 3/8, 1/2
Weight Kg			0.96	1.61
Standard accessories			Maintenance label (included)	
Element replacement			1 year (6000 hours) or pressure drop 0.1MPa	

*1: Use within the max. processing flow rate. This is the value when primary pressure is 0.7 MPa.

How to order

SFC307 - 10 ☐ - X1 - FP2

- Ⓐ Model No.
- Ⓑ Port size
- Ⓒ Port thread
- Ⓓ Flow direction

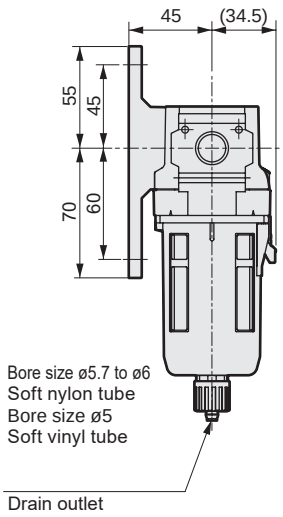
Code	Description	Ⓐ Model No. SFC307	Ⓐ Model No. SFC407
Ⓑ Port size			
8	1/4	●	●
10	3/8	●	●
15	1/2		●
Ⓒ Port thread			
Blank	Rc thread	●	●
N	NPT thread	●	●
G	G thread	●	●
Ⓓ Flow direction			
Blank	Standard flow (left → right)	●	●
X1	Reverse flow (right → left)	●	●

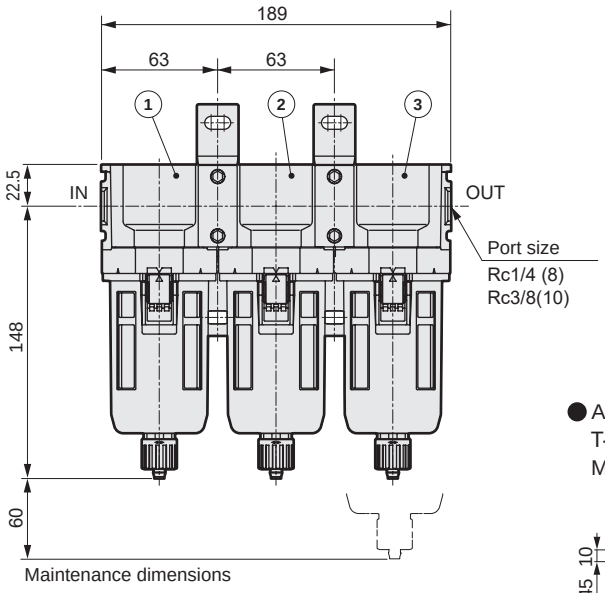
● Replacement model No. for single element unit

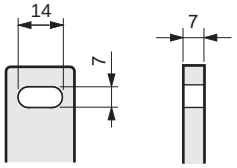
Element model No. / Model	Anti-bacterial pre-filter Element	Anti-bacterial high performance filter Element	Bacteria removing filter Element
SFC307	SFC310-ELEMENT	SFC320-ELEMENT	SFC330-ELEMENT
SFC407	SFC410-ELEMENT	SFC420-ELEMENT	SFC430-ELEMENT

Dimensions

● SFC307

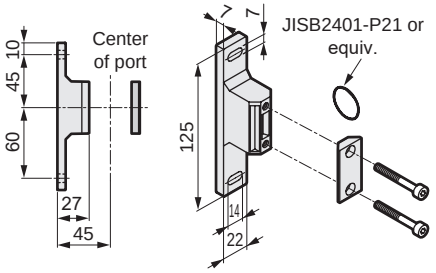






Enlarged view of bracket section

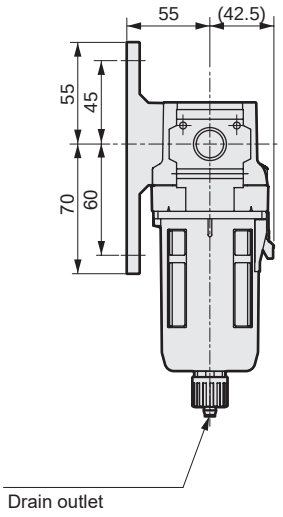
● Attachment
T-bracket
Model No.: SFB310-FP2

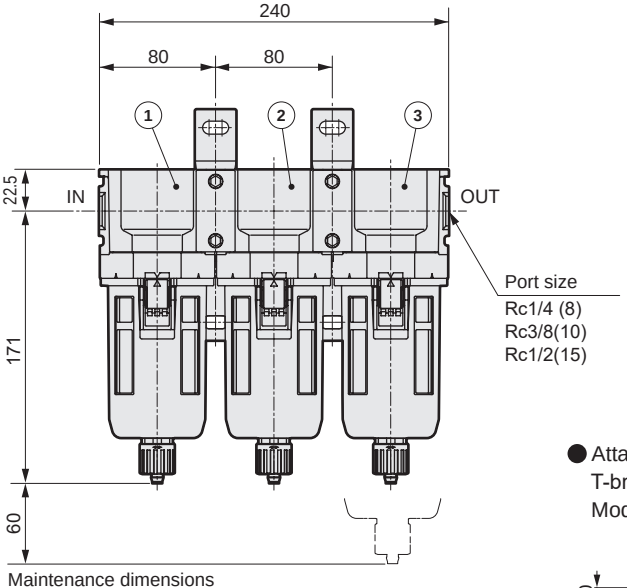


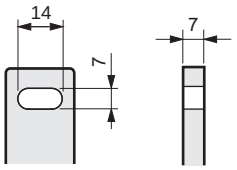
Material:Aluminum die-casting
Stainless steel mounting screws used

No.	Series
(1)	Anti-bacterial pre-filter
(2)	Anti-bacterial high performance filter
(3)	Bacteria removing filter

● SFC407

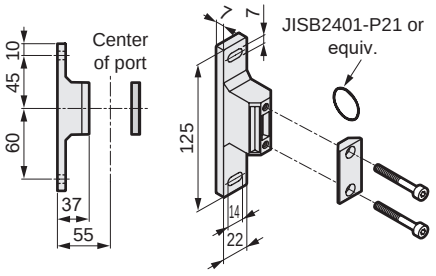






Enlarged view of bracket section

● Attachment
T-bracket
Model No.: SFB410-FP2



Material:Aluminum die-casting
Stainless steel mounting screws used

No.	Series
(1)	Anti-bacterial pre-filter
(2)	Anti-bacterial high performance filter
(3)	Bacteria removing filter



Material compatible with the Food Sanitation Act

FDA compliant materials

Anti-bacterial/bacteria-removing/odor removal filter combination

SFC309/SFC409-FP2 Series

● Port size: 1/4 to 1/2

RoHS CAD

Specifications

Item			SFC309	SFC409
System components	(1)	Anti-bacterial pre-filter	SFC310	SFC410
	(2)	Anti-bacterial high performance filter	SFC320	SFC420
	(3)	Odor removal filter	SFC340	SFC440
	(4)	Bacteria removing filter	SFC330	SFC430
Working fluid			Compressed air, nitrogen gas (N_2) and carbon dioxide (CO_2)	
Working pressure range MPa			0.1 to 1.0	
Proof pressure MPa			1.5	
Differential pressure-resistant MPa			0.5	
Ambient/fluid temperatures °C			5 to 45	
Filtration rating μm			0.01 (removal efficiency 99.99%)	
Secondary side oil concentration mg/m^3			0.003 or less *2	
Max. processing flow rate *1 L/min (ANR)			300	500
Port size Rc, NPT, G			1/4, 3/8	1/4, 3/8, 1/2
Weight Kg			1.24	2.13
Standard accessories			Maintenance label (included)	
Element replacement			1 year (6000 hours) or pressure drop 0.1MPa *3	

*1: Use within the max. processing flow rate. This is the value when primary pressure is 0.7 MPa.
*2: When an oil mist filter (M Series M type) is installed on the primary side. Be sure to install an air dryer and oil mist filter on the primary side.
*3: The replacement time is not a guaranteed value. The replacement time may be reduced depending on the product's working environment, usage conditions, etc.

How to order

SFC309 - 10 ( ) - X1 - FP2

- Ⓐ Model No.
- Ⓑ Port size
- Ⓒ Port thread
- Ⓓ Flow direction

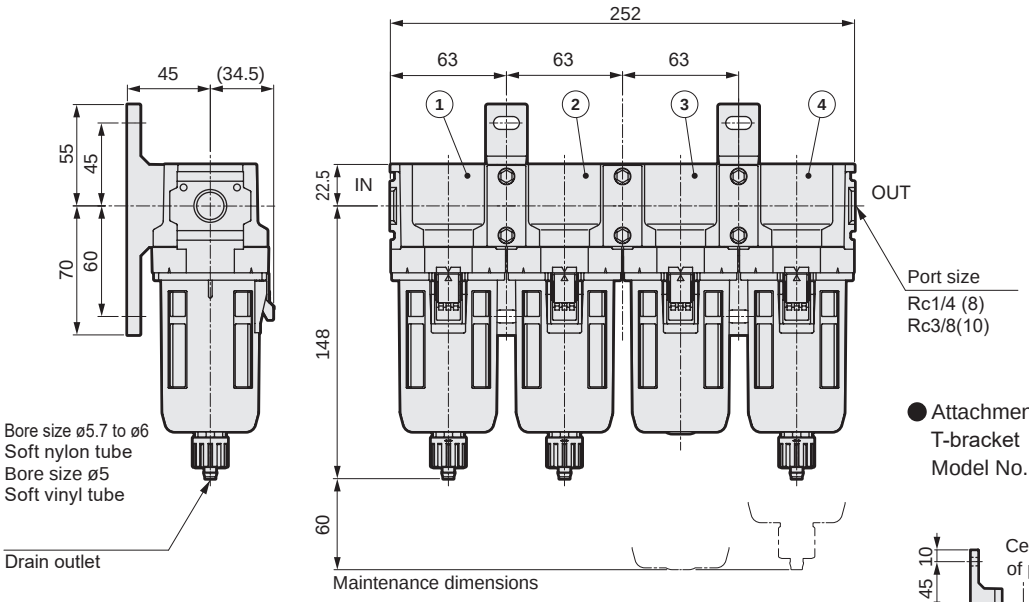
Code	Description	Ⓐ Model No. SFC309	Ⓐ Model No. SFC409
Ⓑ Port size			
8	1/4	●	●
10	3/8	●	●
15	1/2		●
Ⓒ Port thread			
Blank	Rc thread	●	●
N	NPT thread	●	●
G	G thread	●	●
Ⓓ Flow direction			
Blank	Standard flow (left → right)	●	●
X1	Reverse flow (right → left)	●	●

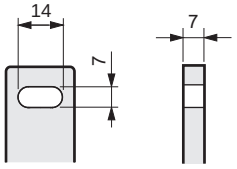
● Replacement model No. for single element unit

Element model No. / Model	Anti-bacterial pre-filter Element	Anti-bacterial high performance filter Element	Bacteria removing filter Element	Odor removal filter Element
SFC309	SFC310-ELEMENT	SFC320-ELEMENT	SFC330-ELEMENT	SFC340-ELEMENT
SFC409	SFC410-ELEMENT	SFC420-ELEMENT	SFC430-ELEMENT	SFC440-ELEMENT

Dimensions

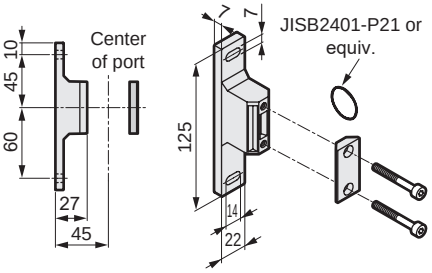
● SFC309





Enlarged view of bracket section

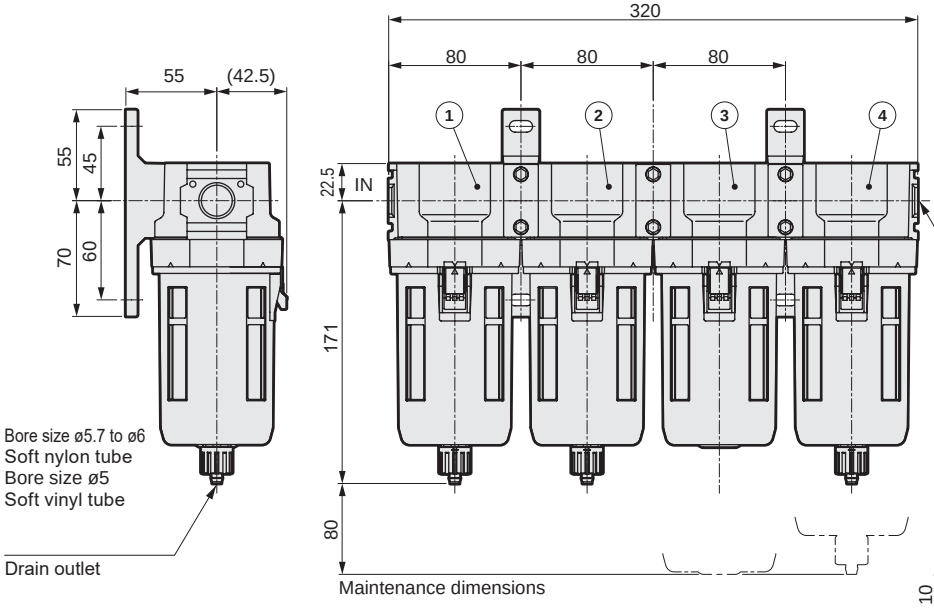
● Attachment
T-bracket
Model No.: SFB310-FP2

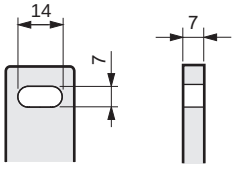


Material:Aluminum die-casting
Stainless steel mounting screws used

No.	Series
(1)	Anti-bacterial pre-filter
(2)	Anti-bacterial high performance filter
(3)	Odor removal filter
(4)	Bacteria removing filter

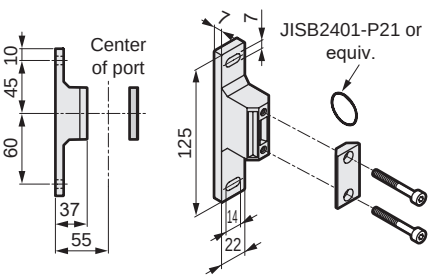
● SFC409





Enlarged view of bracket section

● Attachment
T-bracket
Model No.: SFB410-FP2



Material:Aluminum die-casting
Stainless steel mounting screws used

No.	Series
(1)	Anti-bacterial pre-filter
(2)	Anti-bacterial high performance filter
(3)	Odor removal filter
(4)	Bacteria removing filter



Anti-bacterial combination

SFC306/SFC406/SFC806-FP2 Series

● Port size: 1/4 to 1

RoHS CAD

Specifications

Item			SFC306	SFC406	SFC806
System components	(1)	Anti-bacterial pre-filter	SFC310	SFC410	SFC810
	(2)	Anti-bacterial high performance filter	SFC320	SFC420	SFC820
Working fluid			Compressed air, nitrogen gas (N_2) and carbon dioxide (CO_2)		
Working pressure range		MPa	0.1 to 1.0		
Proof pressure		MPa	1.5		
Ambient/fluid temperatures		°C	5 to 45		
Filtration rating		μm	0.1 (removal efficiency 99% and over)		
Max. processing flow rate *1		L/min (ANR)	360	700	2200
Port size		Rc, NPT, G	1/4, 3/8	1/4, 3/8, 1/2	3/4, 1
Weight		Kg	0.62	1.06	2.7
Standard accessories			Maintenance label (included)		
Element replacement			1 year (6000 hours) or pressure drop 0.1MPa		

*1: Use within the max. processing flow rate. This is the value when primary pressure is 0.7 MPa.

How to order

SFC306 - 10 ( ) - X1 - FP2

- SFC306 — Ⓐ Model No.
- 10 — Ⓑ Port size
- ( ) — Ⓒ Port thread
- X1 — Ⓓ Flow direction

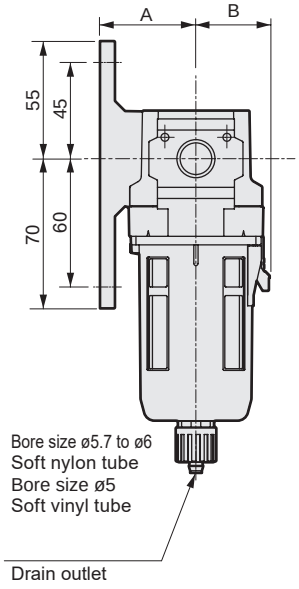
Code	Description	Ⓐ Model No. SFC306	SFC406	SFC806
Ⓑ Port size				
8	1/4	●	●	
10	3/8	●	●	
15	1/2		●	
20	3/4			●
25	1			●
Ⓒ Port thread				
Blank	Rc thread	●	●	●
N	NPT thread	●	●	●
G	G thread	●	●	●
Ⓓ Flow direction				
Blank	Standard flow (left → right)	●	●	●
X1	Reverse flow (right → left)	●	●	●

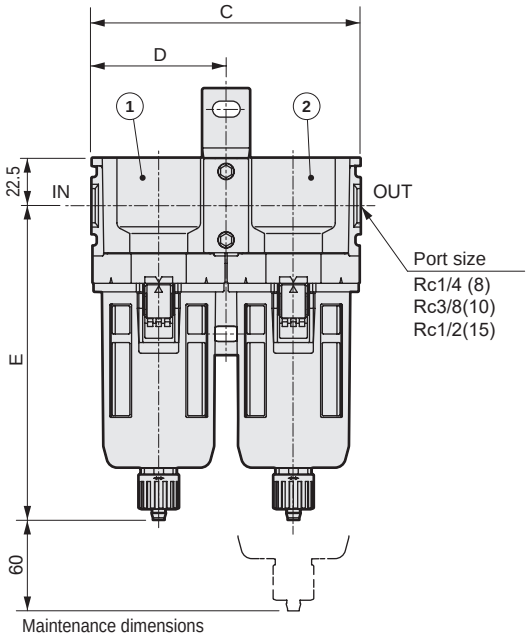
● Replacement model No. for single element unit

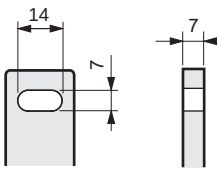
Element model No. / Model	Anti-bacterial pre-filter Element	Anti-bacterial high performance filter Element
SFC306	SFC310-ELEMENT	SFC320-ELEMENT
SFC406	SFC410-ELEMENT	SFC420-ELEMENT
SFC806	SFC810-ELEMENT	SFC820-ELEMENT

Dimensions

● SFC306/SFC406

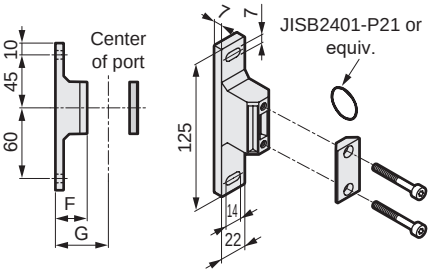






Enlarged view of bracket section

● Attachment
T-bracket
Model No.: SFB310-FP2
(Applicable models: SFC306)
SFB410-FP2
(Applicable models: SFC406)

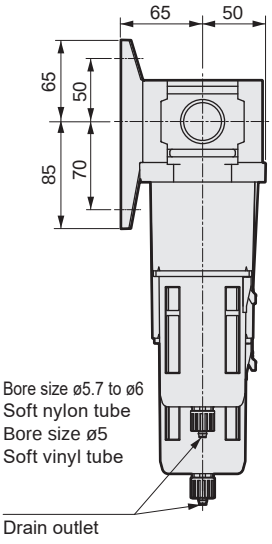


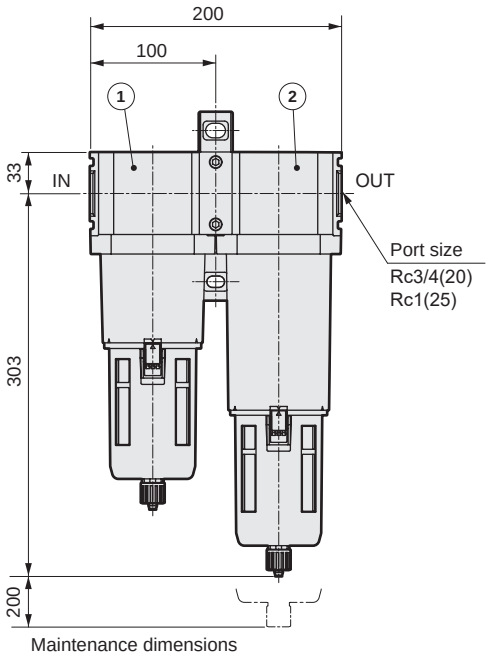
Material:Aluminum die-casting
Stainless steel mounting screws used

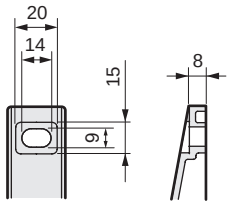
No.	Series
(1)	Anti-bacterial pre-filter
(2)	Anti-bacterial high performance filter

Model No.	A	B	C	D	E	F	G
SFC306	45	34.5	126	63	148	27	45
SFC406	55	42.5	160	80	171	37	55

● SFC806

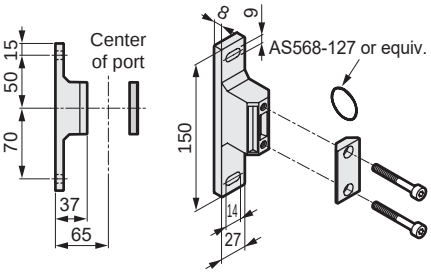






Enlarged view of bracket section

● Attachment
T-bracket
Model No.: SFB810-FP2



Material:Aluminum die-casting
Stainless steel mounting screws used

No.	Series
(1)	Anti-bacterial pre-filter
(2)	Anti-bacterial high performance filter

Material compatible with the Food Sanitation Act

FDA compliant materials



Anti-bacterial/odor removal filter combination

SFC308/SFC408/SFC808-FP2 Series

● Port size: 1/4 to 1

RoHS CAD

Specifications

Item			SFC308	SFC408	SFC808
System components	(1)	Anti-bacterial pre-filter	SFC310	SFC410	SFC810
	(2)	Anti-bacterial high performance filter	SFC320	SFC420	SFC820
	(3)	Odor removal filter	SFC340	SFC440	SFC840
Working fluid			Compressed air, nitrogen gas (N_2) and carbon dioxide (CO_2)		
Working pressure range		MPa	0.1 to 1.0		
Proof pressure		MPa	1.5		
Ambient/fluid temperatures		°C	5 to 45		
Filtration rating		μm	0.1 (removal efficiency 99% and over)		
Secondary side oil concentration		mg/m³	0.003 or less *2		
Max. processing flow rate *1 (ANR)		L/min	360	700	2200
Port size		Rc, NPT, G	1/4, 3/8	1/4, 3/8, 1/2	3/4, 1
Weight		Kg	0.96	1.61	4.2
Standard accessories			Maintenance label (included)		
Element replacement			1 year (6000 hours) or pressure drop 0.1MPa *3		

*1: Use within the max. processing flow rate. This is the value when primary pressure is 0.7 MPa.
*2: When an oil mist filter (M Series M type) is installed on the primary side. Be sure to install an air dryer and oil mist filter on the primary side.
*3: The replacement time is not a guaranteed value. The replacement time may be reduced depending on the product's working environment, usage conditions, etc.

How to order

SFC308 - 10 ( ) - X1 - FP2

- SFC308 → Ⓐ Model No.
- 10 → Ⓑ Port size
- ( ) → Ⓒ Port thread
- X1 → Ⓓ Flow direction

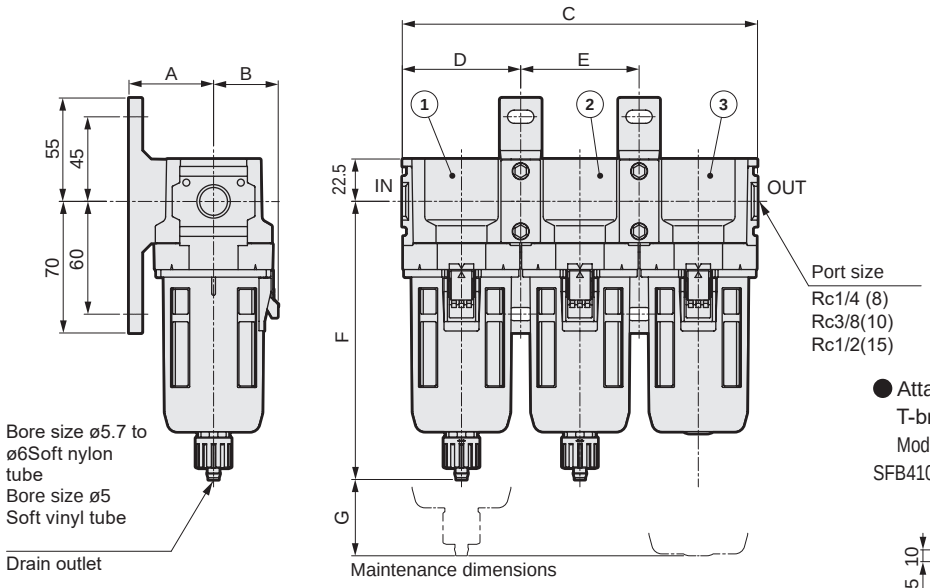
Code	Description	Ⓐ Model No. SFC308	SFC408	SFC808
Ⓑ Port size				
8	1/4	●	●	
10	3/8	●	●	
15	1/2		●	
20	3/4			●
25	1			●
Ⓒ Port thread				
Blank	Rc thread	●	●	●
N	NPT thread	●	●	●
G	G thread	●	●	●
Ⓓ Flow direction				
Blank	Standard flow (left → right)	●	●	●
X1	Reverse flow (right → left)	●	●	●

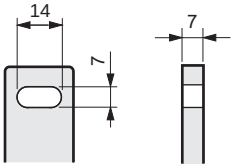
● Replacement model No. for single element unit

Element model No. / Model	Anti-bacterial pre-filter Element	Anti-bacterial high performance filter Element	Odor removal filter Element
SFC308	SFC310-ELEMENT	SFC320-ELEMENT	SFC340-ELEMENT
SFC408	SFC410-ELEMENT	SFC420-ELEMENT	SFC440-ELEMENT
SFC808	SFC810-ELEMENT	SFC820-ELEMENT	SFC840-ELEMENT

Dimensions

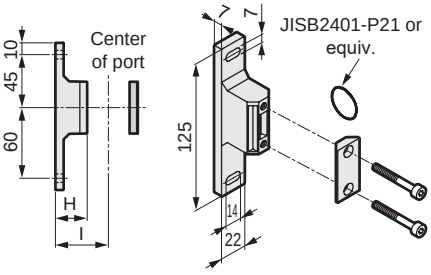
● SFC308/SFC408





Enlarged view of bracket section

● Attachment
T-bracket
Model No.: SFB310-FP2 (Applicable models: SFC308)
SFB410-FP2 (Applicable models: SFC408)

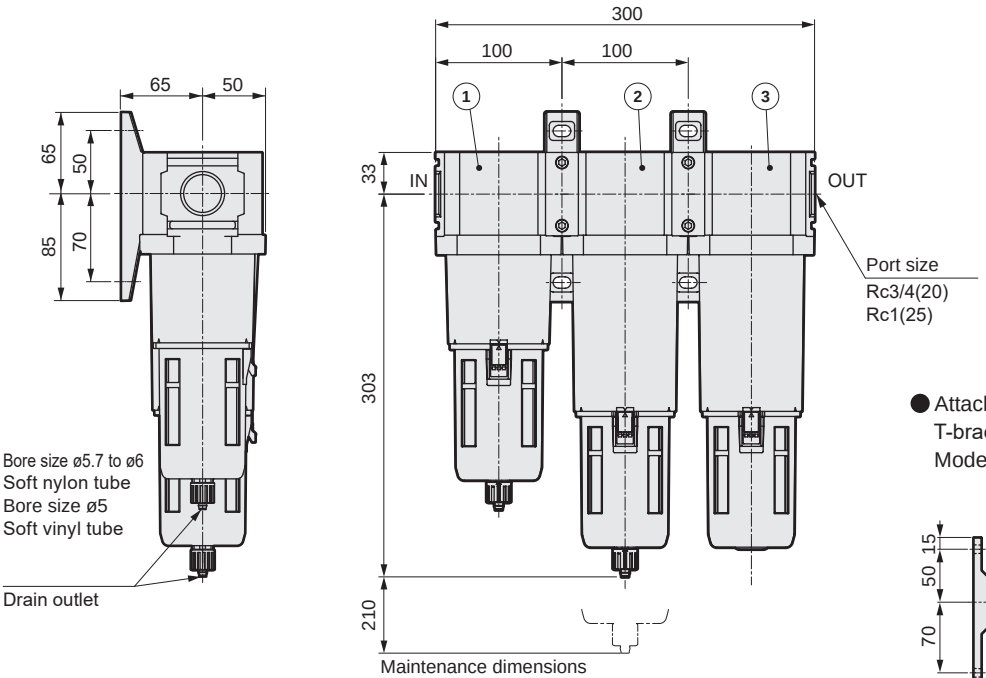


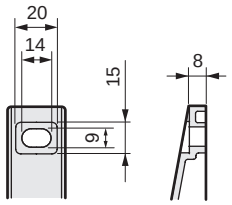
Material:Aluminum die-casting
Stainless steel mounting screws used

No.	Series
(1)	Anti-bacterial pre-filter
(2)	Anti-bacterial high performance filter
(3)	Odor removal filter

Model No.	A	B	C	D	E	F	G	H	I
SFC308	45	(34.5)	189	63	63	148	60	27	45
SFC408	55	(42.5)	240	80	80	171	80	37	55

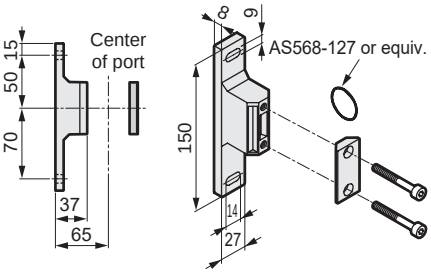
● SFC808





Enlarged view of bracket section

● Attachment
T-bracket
Model No.: SFB810-FP2



Material:Aluminum die-casting
Stainless steel mounting screws used

No.	Series
(1)	Anti-bacterial pre-filter
(2)	Anti-bacterial high performance filter
(3)	Odor removal filter



Material compatible with the Food Sanitation Act

FDA compliant materials

Anti-bacterial pre-filterFilter

SFC310/SFC410/SFC810-FP2 Series

● Port size: 1/4 to 1

RoHS CAD

Specifications

Item		SFC310	SFC410	SFC810
Working fluid		Compressed air, nitrogen gas (N_2) and carbon dioxide (CO_2)		
Working pressure range	MPa	0.1 to 1.0		
Proof pressure	MPa	1.5		
Ambient/fluid temperatures	°C	5 to 45		
Filtration rating	μm	5 (removal efficiency 90% and over)		
Max. processing flow rate *1	L/min (ANR)	360	700	2200
Port size	Rc, NPT, G	1/4, 3/8	1/4, 3/8, 1/2	3/4, 1
Weight	Kg	0.28	0.52	1.16
Standard accessories		Maintenance label (included)		
Element replacement		1 year (6000 hours) or pressure drop 0.1MPa		

*1: Use within the max. processing flow rate. This is the value when primary pressure is 0.7 MPa.

How to order

SFC310 - 10 ( ) - X1 - FP2

- Ⓐ Model No.
- Ⓑ Port size
- Ⓒ Port thread
- Ⓓ Flow direction

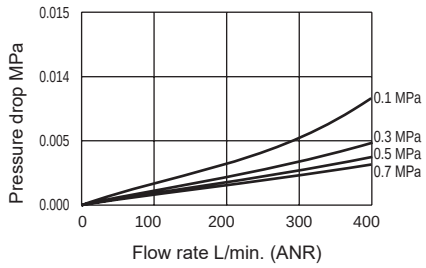
Code	Description	Ⓐ Model No. SFC310	SFC410	SFC810
Ⓑ Port size				
8	1/4	●	●	
10	3/8	●	●	
15	1/2		●	
20	3/4			●
25	1			●
Ⓒ Port thread				
Blank	Rc thread	●	●	●
N	NPT thread	●	●	●
G	G thread	●	●	●
Ⓓ Flow direction				
Blank	Standard flow (left → right)	●	●	●
X1	Reverse flow (right → left)	●	●	●

● Replacement model No. for single element unit

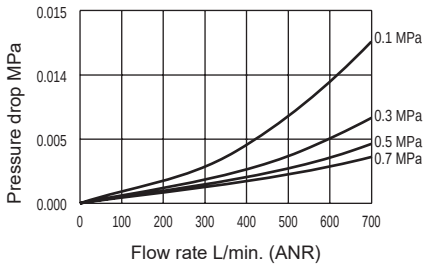
Element model No. / Model	Anti-bacterial pre-filter Element
SFC310	SFC310-ELEMENT
SFC410	SFC410-ELEMENT
SFC810	SFC810-ELEMENT

Flow characteristics

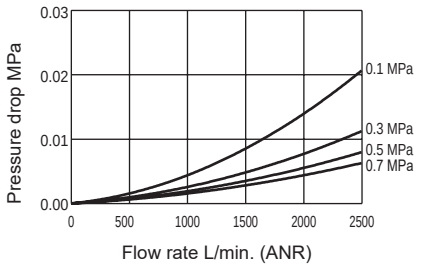
● SFC310



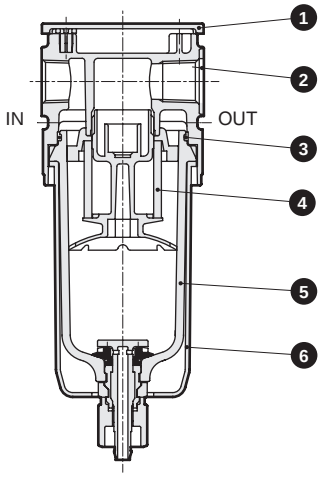
● SFC410



● SFC810



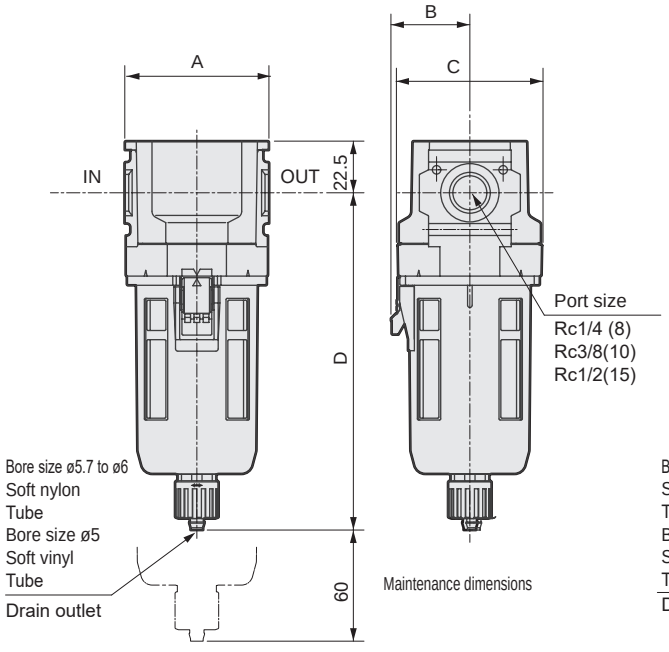
Internal structure and parts list



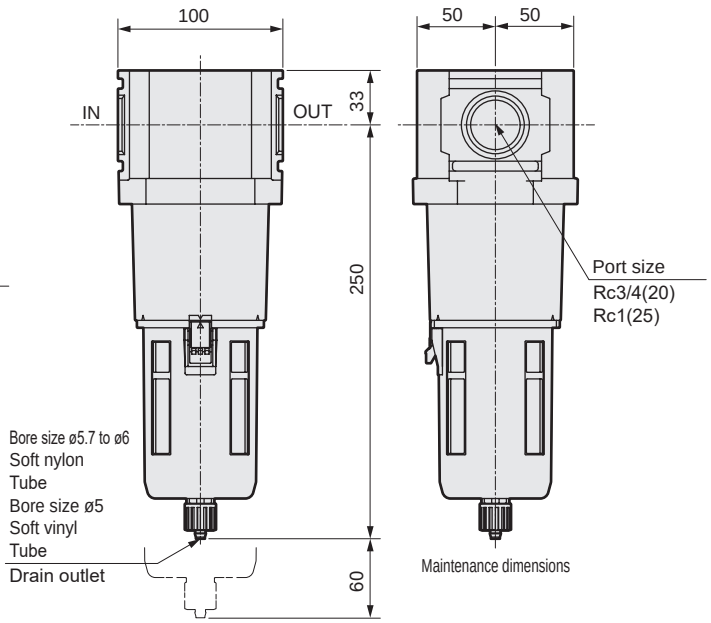
No.	Part name	Material		
		SFC310	SFC410	SFC810
1	Plate cover	ABS resin		
2	Body	Aluminum alloy die-casting		
3	O-ring	Fluoro rubber		
4	Element	Polyethylene, polypropylene, etc.		
5	Bowl	Polyamide resin		
6	Bowl guard	Polyamide resin		
7	Drain cock	Polyacetal resin		

Dimensions

● SFC310, SFC410



● SFC810



Model No.	A	B	C	D
SFC310	63	34.5	63	148
SFC410	80	42.5	79	171



Material compatible with the Food Sanitation Act

FDA compliant materials

Anti-bacterial high performance filter

SFC320/SFC420/SFC820-FP2 Series

● Port size: 1/4 to 1

RoHS CAD

Specifications

Item		SFC320	SFC420	SFC820
Working fluid		Compressed air, nitrogen gas (N_2) and carbon dioxide (CO_2)		
Working pressure range	MPa	0.1 to 1.0		
Proof pressure	MPa	1.5		
Ambient/fluid temperatures	°C	5 to 45		
Filtration rating	μm	0.1 (removal efficiency 99% and over)		
Max. processing flow rate *1	L/min (ANR)	360	700	2200
Port size	Rc, NPT, G	1/4, 3/8	1/4, 3/8, 1/2	3/4, 1
Weight	Kg	0.28	0.52	1.35
Standard accessories		Maintenance label (included)		
Element replacement		1 year (6000 hours) or pressure drop 0.1MPa		

*1: Use within the max. processing flow rate. This is the value when primary pressure is 0.7 MPa.

How to order

SFC320 - 10 ○ - X1 - FP2

- SFC320 → Ⓐ Model No.
- 10 → Ⓑ Port size
- ○ → Ⓒ Port thread
- X1 → Ⓓ Flow direction

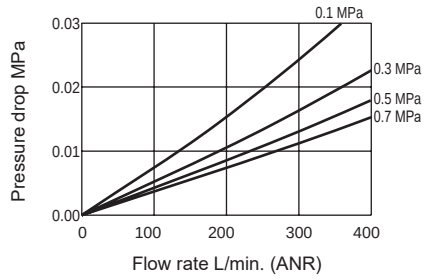
Code	Description	Ⓐ Model No. SFC320	SFC420	SFC820
Ⓑ Port size				
8	1/4	●	●	
10	3/8	●	●	
15	1/2		●	
20	3/4			●
25	1			●
Ⓒ Port thread				
Blank	Rc thread	●	●	●
N	NPT thread	●	●	●
G	G thread	●	●	●
Ⓓ Flow direction				
Blank	Standard flow (left → right)	●	●	●
X1	Reverse flow (right → left)	●	●	●

● Replacement model No. for single element unit

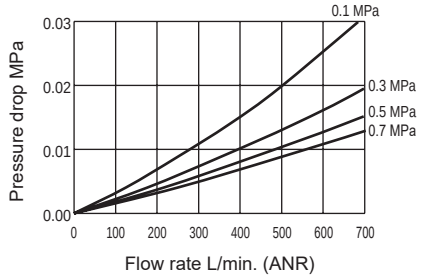
Element model No. / Model	Anti-bacterial high performance filter Element
SFC320	SFC320-ELEMENT
SFC420	SFC420-ELEMENT
SFC820	SFC820-ELEMENT

Flow characteristics

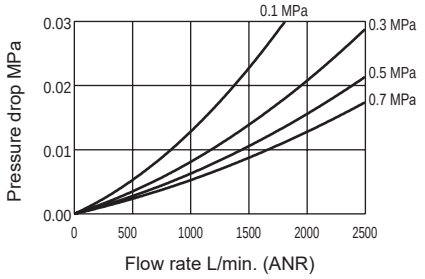
● SFC320



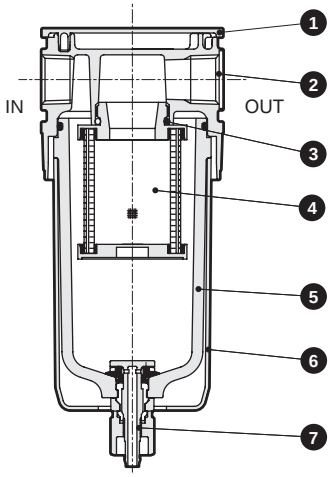
● SFC420



● SFC820



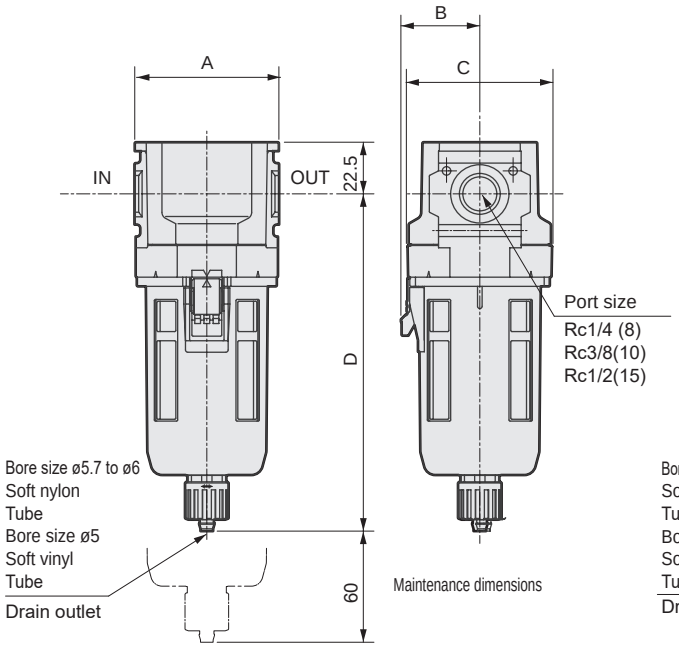
Internal structure and parts list



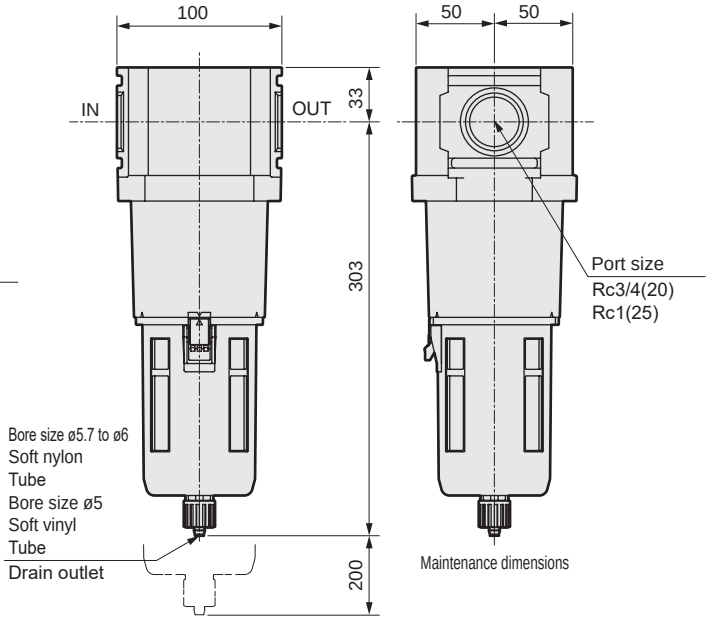
No.	Part name	Material		
		SFC320	SFC420	SFC820
1	Plate cover	ABS resin		
2	Body	Aluminum alloy die-casting		
3	O-ring	Fluoro rubber		
4	Element	Glass fiber, polypropylene		Glass fiber, PET, etc.
5	Bowl	Polyamide resin		
6	Bowl guard	Polyamide resin		
7	Drain cock	Polyacetal resin		

Dimensions

● SFC320, SFC420



● SFC820



Model No.	A	B	C	D
SFC320	63	34.5	63	148
SFC420	80	42.5	79	171



Material compatible with the Food Sanitation Act

FDA compliant materials

Bacteria removing filter

SFC330/SFC430-FP2 Series

● Port size: 1/4 to 1/2

RoHS CAD

Specifications

Item		SFC330	SFC430
Working fluid		Compressed air, nitrogen gas (N_2) and carbon dioxide (CO_2)	
Working pressure range	MPa	0.1 to 1.0	
Proof pressure	MPa	1.5	
Differential pressure-resistant	MPa	0.5	
Ambient/fluid temperatures	°C	5 to 45	
Filtration rating	μm	0.01 (removal efficiency 99.99%)	
Max. processing flow rate *1	L/min (ANR)	300	500
Port size	Rc, NPT, G	1/4, 3/8	1/4, 3/8, 1/2
Weight	Kg	0.28	0.52
Standard accessories		Maintenance label (included)	
Element replacement		1 year (6000 hours) or pressure drop 0.1MPa	

*1: Use within the max. processing flow rate. This is the value when primary pressure is 0.7 MPa.

How to order

SFC330 - 10 ○ - X1 - FP2

- Ⓐ Model No.
- Ⓑ Port size
- Ⓒ Port thread
- Ⓓ Flow direction

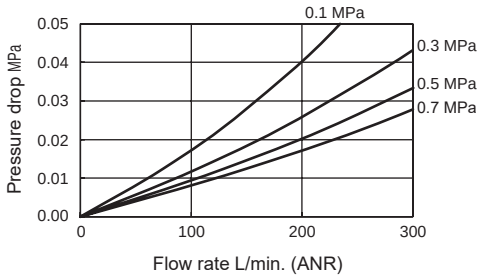
Code	Description	Ⓐ Model No. SFC330	Ⓐ Model No. SFC430
Ⓑ Port size			
8	Rc1/4	●	●
10	Rc3/8	●	●
15	Rc1/2		●
Ⓒ Port thread			
Blank	Rc thread	●	●
N	NPT thread	●	●
G	G thread	●	●
Ⓓ Flow direction			
Blank	Standard flow (left → right)	●	●
X1	Reverse flow (right → left)	●	●

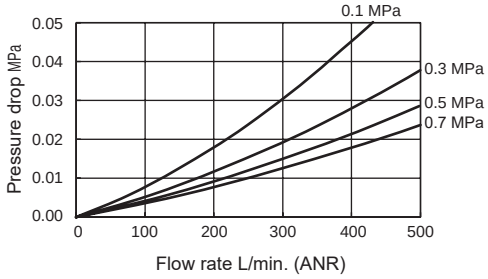
● Replacement model No. for single element unit

Model	Element model No. Bacteria removing filter Element
SFC330	SFC330-ELEMENT
SFC430	SFC430-ELEMENT

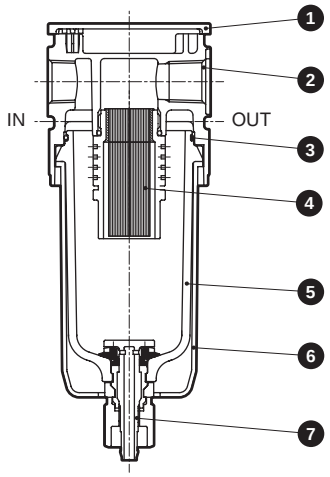
Flow characteristics

● SFC330 ● SFC430





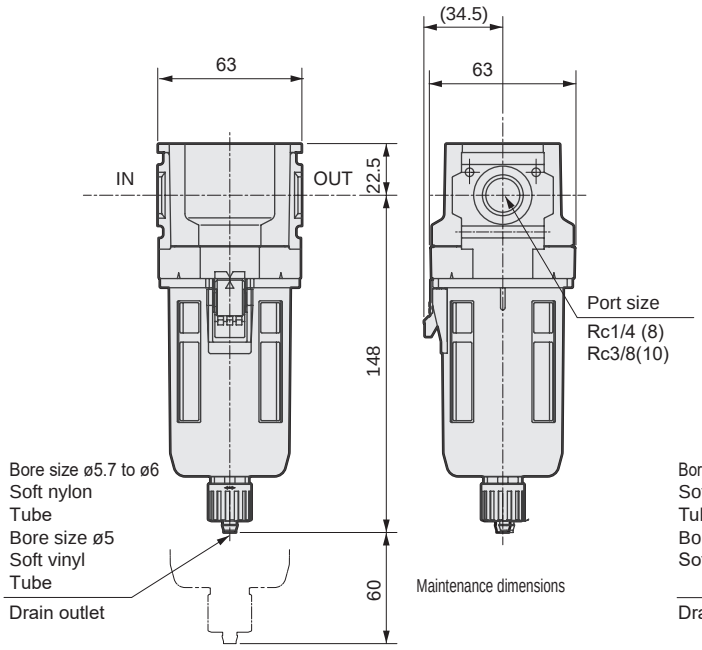
Internal structure and parts list

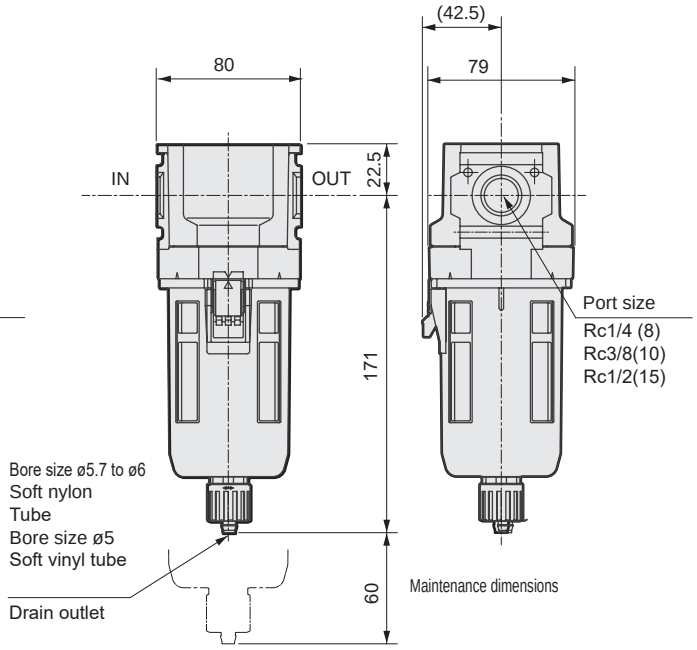


No.	Part name	Material	
		SFC330	SFC430
1	Plate cover	ABS resin	
2	Body	Aluminum alloy die-casting	
3	O-ring	Fluoro rubber	
4	Element	Polypropylene, urethane resin, Clear polyamide resin	
5	Bowl	Polyamide resin	
6	Bowl guard	Polyamide resin	
7	Drain cock	Polyacetal resin	

Dimensions

● SFC330 ● SFC430







Material compatible with the Food Sanitation Act

FDA compliant materials

DeodorizingFilter

SFC340/SFC440/SFC840-FP2 Series

● Port size: 1/4 to 1

RoHS CAD

Specifications

Item		SFC340	SFC440	SFC840
Working fluid		Compressed air, nitrogen gas (N_2) and carbon dioxide (CO_2)		
Working pressure range	MPa	0.1 to 1.0		
Proof pressure	MPa	1.5		
Ambient/fluid temperatures	°C	5 to 45		
Secondary side oil concentration	mg/m^3	0.003 or less *2		
Max. processing flow rate *1	L/min (ANR)	360	700	2200
Port size	Rc, NPT, G	1/4, 3/8	1/4, 3/8, 1/2	3/4, 1
Weight	Kg	0.28	0.52	1.35
Standard accessories		Maintenance label (included)		
Element replacement		1 year (6000 hours) or pressure drop 0.1MPa *3		

*1: Use within the max. processing flow rate. This is the value when primary pressure is 0.7 MPa.
*2: When an oil mist filter (M Series M type) is installed on the primary side. Be sure to install an air dryer and oil mist filter on the primary side.
*3: The replacement time is not a guaranteed value. The replacement time may be reduced depending on the product's working environment, usage conditions, etc.

How to order

SFC340 - 10 ( ) - X1 - FP2

- SFC340 → Ⓐ Model No.
- 10 → Ⓑ Port size
- ( ) → Ⓒ Port thread
- X1 → Ⓓ Flow direction

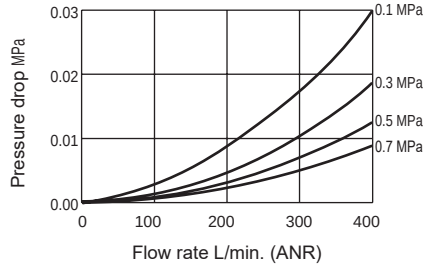
Code	Description	Ⓐ Model No. SFC340	SFC440	SFC840
Ⓑ Port size				
8	1/4	●	●	
10	3/8	●	●	
15	1/2		●	
20	3/4			●
25	1			●
Ⓒ Port thread				
Blank	Rc thread	●	●	●
N	NPT thread	●	●	●
G	G thread	●	●	●
Ⓓ Flow direction				
Blank	Standard flow (left → right)	●	●	●
X1	Reverse flow (right → left)	●	●	●

● Replacement model No. for single element unit

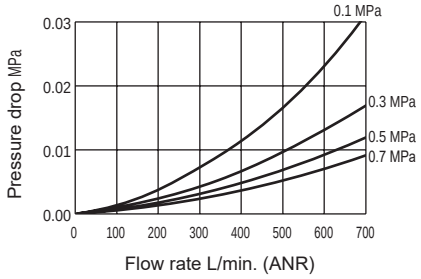
Element model No. / Model	Odor removal filter element
SFC340	SFC340-ELEMENT
SFC440	SFC440-ELEMENT
SFC840	SFC840-ELEMENT

Flow characteristics

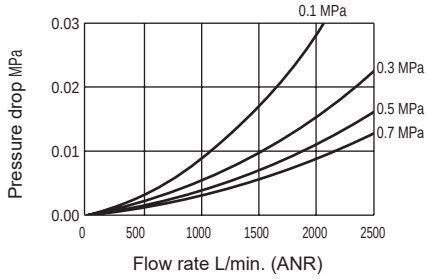
● SFC340



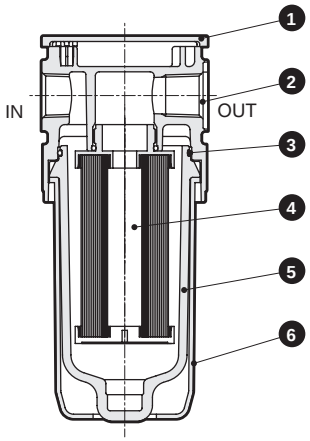
● SFC440



● SFC840



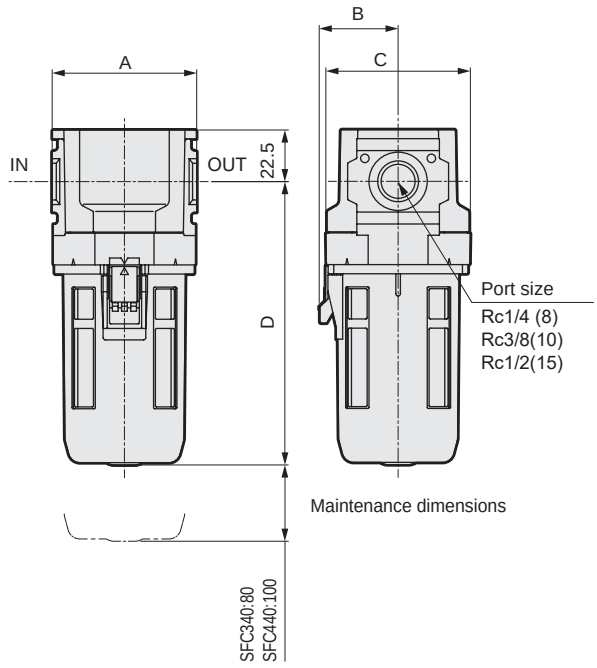
Internal structure and parts list



No.	Part name	Material		
		SFC340	SFC440	SFC840
1	Plate cover	ABS resin		
2	Body	Aluminum alloy die-casting		
3	O-ring	Fluoro rubber		
4	Element	Fiber activated carbon, PET		
5	Bowl	Polyamide resin		
6	Bowl guard	Polyamide resin		

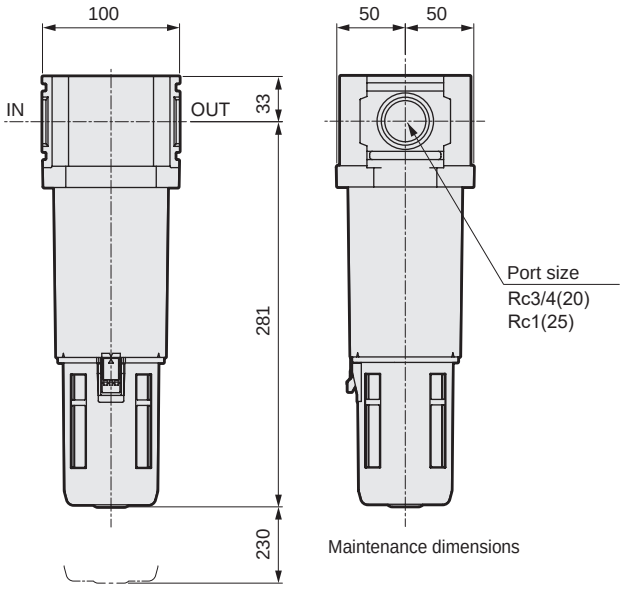
Dimensions

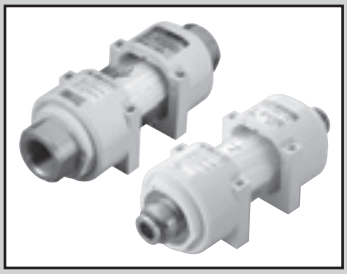
● SFC340, SFC440



Model No.	A	B	C	D
SFC340	63	34.5	63	123.5
SFC440	80	42.5	79	149

● SFC840





Bacteria removing filter/inline type

SFS10-FP2 Series

Material compatible with the Food Sanitation Act

FDA compliant materials

● Port size: Rc1/4, Rc3/8
Push-in fitting ø8, ø10, ø12

RoHS CAD

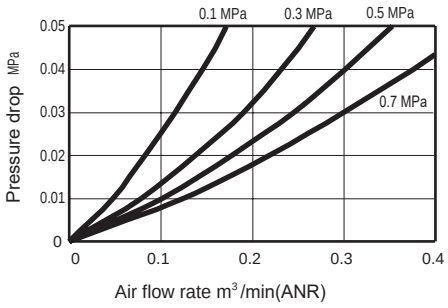
Specifications

Item	Resin		Stainless steel
	SFS10-(*1) (*2)		SFS10-(*1) (*2)-M
Working fluid	Compressed air, nitrogen gas (N_2) and carbon dioxide (CO_2)		
IN side bore size (*1) / OUT side bore size (*2)	Push-in fitting ø8, ø10, ø12, Select from Rc1/4 and Rc3/8		Select from Rc1/4 and Rc3/8
Proof pressure MPa	1.5		2.25 (compressed air), 1.5 (N_2, CO_2)
Differential pressure-resistant MPa	0.5		
Working pressure MPa	−0.095 to 0.99		-0.095 to 1.5 (compressed air), -0.095 to 0.99 (N_2, CO_2)
Ambient/fluid temperatures °C	5 to 45		
Filtration rating μm	0.01 (removal efficiency 99.99%)		
Processing flow rate L/min (ANR)	300 to 400 *1		
Weight kg	Push-in fitting	Thread	0.5
	0.15	0.11	
Assembling/inspection/packaging	Integrated production in cleanroom		
Cleaning	Degreasing		
Element replacement	1 year (6000 hours) or pressure drop 0.1MPa		

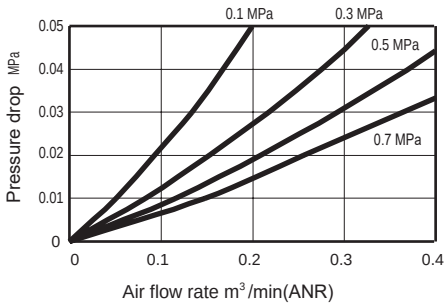
*1: Initial flow rate at primary pressure 0.7 MPa and pressure drop 0.03 MPa. (Differs according to port size.)

Flow characteristics

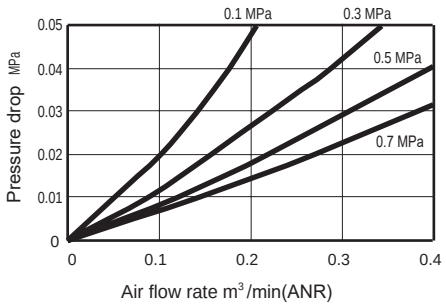
● SFS10-H8H8



● SFS10-H10H10
● SFS10-88



● SFS10-H12H12
● SFS10-1010



How to order

● Resin

SFS10 - H8 H8 - FP2

Model No.

Ⓐ IN side Port size

Ⓐ IN side port size	
H8	ø8
H10	ø10
H12	ø12
8	Rc1/4
10	Rc3/8

Ⓑ OUT side Port size

Ⓑ OUT side port size	
H8	ø8
H10	ø10
H12	ø12
8	Rc1/4
10	Rc3/8

● Stainless steel (made to order)

SFS10 - 8 8 - M - FP2

Model No.

Ⓐ IN side Port size

Ⓐ IN side port size	
8	Rc1/4
10	Rc3/8

Ⓑ OUT side Port size

Ⓑ OUT side port size	
8	Rc1/4
10	Rc3/8

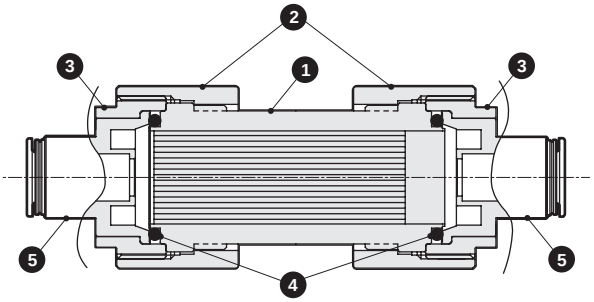
*1: Two mounting screws (M3×40), two plain washers, and two spring washers are included with the product

● Single unit model number for replacement element (1 element, 2 O-rings)

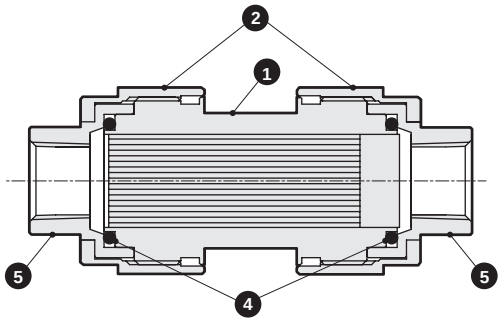
・For resin:**SFS10-E** ・Stainless steel:**SFS10-E-M**

Internal structure and parts list

● Resin



● Stainless steel

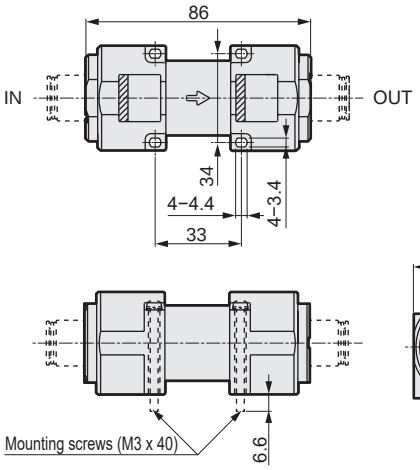


● Parts list

No.	Part name		Resin	Stainless steel
1	Element	Housing	Clear polyamide	Stainless steel
		Filter	Polypropylene	
		Filler material	Urethane rubber resin	
2	Body		Polyamide resin	Stainless steel
3	Plug		Polyamide resin	-
4	O-ring		Fluoro rubber	Fluoro rubber
5	Cartridge fitting (Port size ø8, ø10, ø12)		Copper alloy (nickeling) Fluoro rubber Push ring: stainless steel	-
	Adapter (Port size Rc1/4, Rc3/8)		Aluminum (Alumite treatment)	Stainless steel

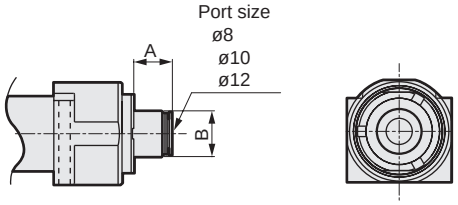
Dimensions

● Resin

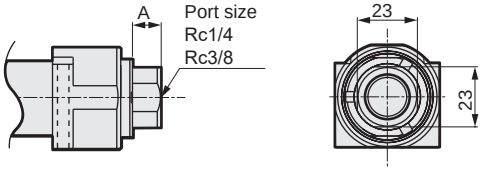


Connector No.	Port size	A	B
H8	ø8 push-in fitting	12	ø17.5
H10	ø10 push-in fitting	14.5	ø17.5
H12	ø12 push-in fitting	16	ø19.5
8	Rc1/4	11	-
10	Rc3/8	11	-

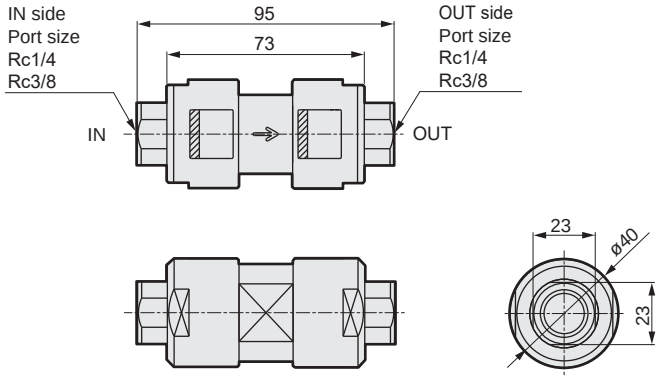
• Push-in fitting (ø8, ø10, ø12)



• Rc threads (Rc1/4, Rc3/8)

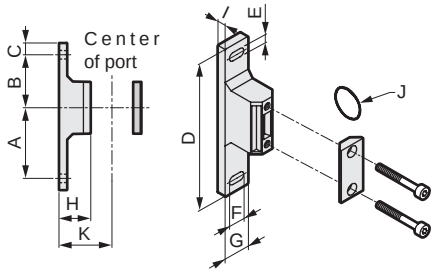


● Stainless steel



T-bracket set

● Model No.: SFB310-FP2/SFB410-FP2/SFB810-FP2

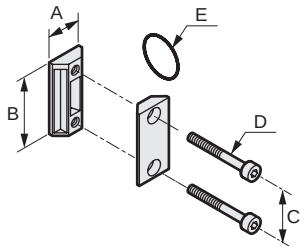


Model No.	Compatibility	A	B	C	D	E	F	G	H	I	J	K	Weight (kg)
SFB310-FP2	SFC3** Series	60	45	10	125	7	14	22	27	7	JISB2401-P21	45	0.086
SFB410-FP2	SFC4** Series	60	45	10	125	7	14	22	37	7	JISB2401-P21	55	0.094
SFB810-FP2	SFC8** Series	70	50	15	150	9	14	27	37	8	AS568-127	65	0.169

• Material: Aluminum alloy die-casting
Stainless steel mounting screws used

Joiner set

● Model No.: SFJ400-FP2
SFJ800-FP2



Model No.	Compatibility	A	B	C	D	E	Weight(kg)
SFJ400-FP2	SFC3** Series SFC4** Series	21	44	32	M5	JIS B2401-P21 or equiv.	0.036
SFJ800-FP2	SFC8** Series	26	65	50	M6	AS568-127 or equiv.	0.094

Material:Aluminum die-casting
Stainless steel mounting screws used

Distributor

How to order

SFD401 - 00 - 8 ( ) - B+31 - FP2

- Ⓐ Model No.
- Ⓑ Port size
- Ⓒ Port thread
- Ⓓ T-bracket

Code	Description
Ⓐ Model No.	
SFD401	For SFC3** Series For SFC4** Series
SFD801	For SFC8** Series

Ⓑ Port size	SFD401	SFD801
8	●	
10	●	
15	●	
20		●
25		●

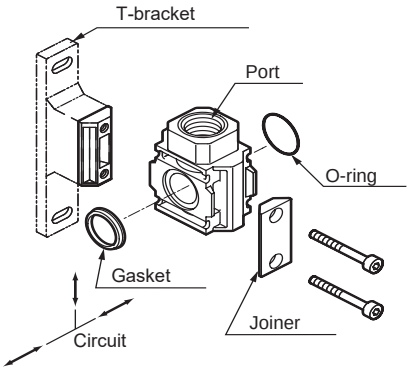
Ⓒ Port thread	
Blank	Rc thread
N	NPT thread
G	G thread

Ⓓ T-bracket	
Blank	No
B + 31	SFC3** Series
B + 41	SFC4** Series
B + 81	SFC8** Series

Precautions for model No. selection

*1: The joiner set (joiner, bolt, O-ring) and one gasket are attached as standard.
*2: Contact CKD regarding 2-way branch.

Assembly method

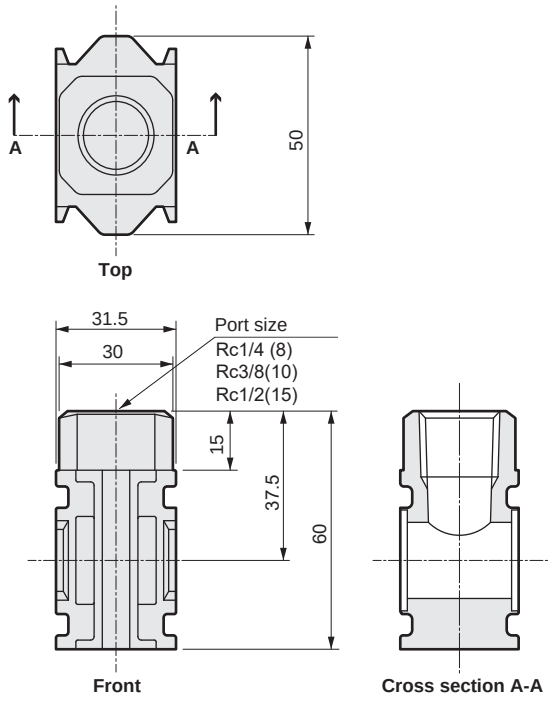


*1: Insert the O-ring when mounting on the primary side, and the gasket when mounting on the secondary side for the air flow.
*2: When inserting the O-ring and gasket during assembly, the O-ring and gasket must not be bent.

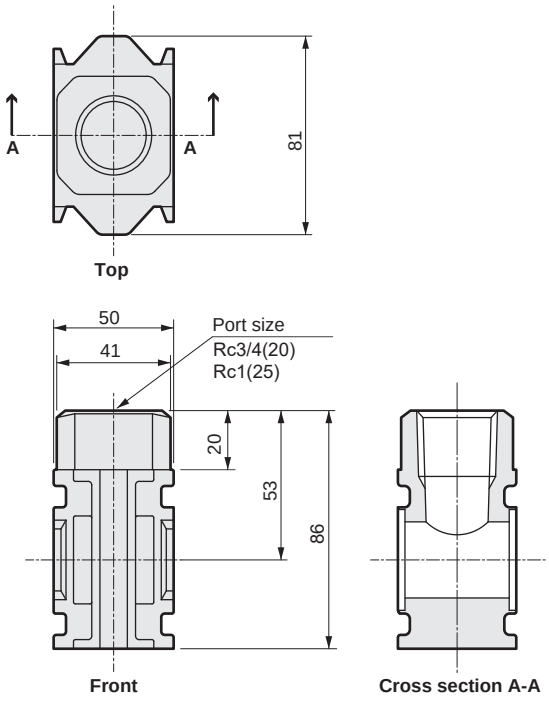
Material:Aluminum die-casting
Stainless steel mounting screws used

Dimensions

● SFD401-00-*-*-FP2



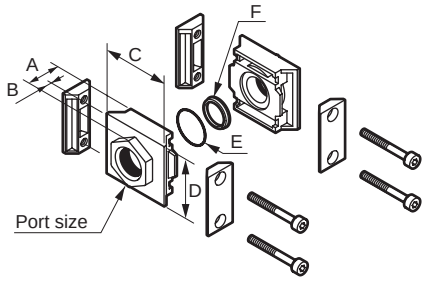
● SFD801-00-*-*-FP2



Dimensions and applications

Pipe adaptor set

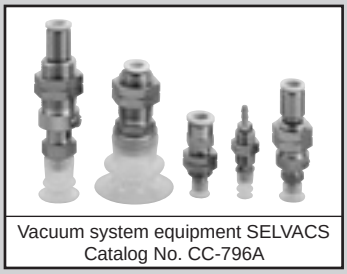
● Model No.: SFA400-*-FP2
SFA800-*-FP2



Material:Aluminum die-casting
Stainless steel mounting screws used

Model No.	Port size	A	B	C	D	E (O-ring)	F (gasket)	Weight (kg)
SFA400-8-FP2	1/4	20	6	50	45	JISB2401 P21 or equiv. 1 pc.	1 pc.	0.16
SFA400-10-FP2	3/8							
SFA400-15-FP2	1/2							
SFA800-20-FP2	3/4	35 (38)	15 (18)	81	66	AS568-127 or equiv. 1 pc.	1 pc.	0.53
SFA800-25-FP2	1							
SFA800-32-FP2	1 1/4							

Note: Numbers in ( ) are for $1^1/_4$



Vacuum system equipment SELVACS
Catalog No. CC-796A

Suction pad

VSP-FP2 Series

Pad diameter: ø1 to ø200

RoHS

Features

■We provide a diverse lineup of products enabling suction of any type of workpiece.

- Pad shape:9 types [Standard (standard, deep), sponge, bellows, multi-stage bellows, soft, soft bellows, thin, flat]
- Pad diameter:Standard (general) → 10 types (ø1 to ø200)
  Standard (deep) → 9 types (ø15 to ø100)
  Sponge → 4 types (ø35 to ø100)
  Bellows → 9 types (ø6 to ø100)
  Multi-stage bellows → 5 types (ø10 to ø50)
  Soft → 8 types (ø4 to ø40)
  Soft bellows → 5 types (ø6 to ø20)
  Thin → 4 types (ø8 to ø20)
  Flat type → 5 types (ø10 to ø30)
- Holder shape: 6 types [standard holder and compact holder with side piping/upward piping/direct mounting available]
- Pad material: Silicone rubber (material of compliant Sanitation Act)

Pad material characteristics

Item \ Pad material			silicone Rubber	silicone Sponge rubber
			S	S
Applications			Semiconductor Molded products Remove Thin workpieces Food-related	Workpieces with uneven surface Food-related
Pad color			Natural	Salmon pink
Characteristics	Pad Surface hardness by pad shape Hardness (Shore A)	Standard	50°	-
		Bellows	50°	-
		Multi-stage bellows	50°	-
		Soft	40°	-
		Soft bellows	40°	-
		Thin object type	40°	-
		Flat	40°	-
	High-temperature usage limits		180°C	
	Low-temperature usage limits		-40°C	
	Weather resistance		◎	
	Ozone resistance		◎	
	Acid resistance		○	
	Alkali resistance		◎	
	Oil resistance	(Gasoline/light oil)	△	
		(Benzene/toluene)	△	

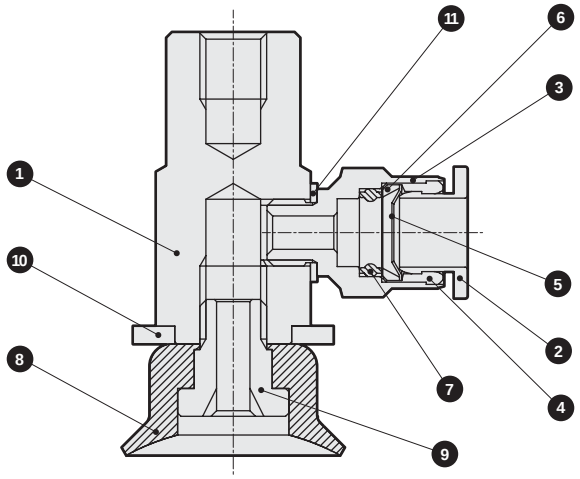
Reading the rating ➡ ◎: Ideal, ○: Suitable, △: Good, ×: Unsuitable

*1: Characteristics of general synthetic rubbers used for the pad material are indicated in the table of characteristics.

*2: The values for the high and low temperature usage limits are for very short periods of use. Therefore, careful consideration should be employed for usage extending for a constant period of time.

Internal structure and parts list

●VSP-B



Part number	Part name	Material	Remarks
1	Metal body	Copper alloy	Electroless nickel plating
2	Release ring	Polyacetal	-
3	Fitting body	Copper alloy	Electroless nickel plating
4	Guide ring	Copper alloy	Electroless nickel plating
5	Lock claw	Stainless steel	-
6	Lock ring	Copper alloy	Electroless nickel plating
7	Elastic sleeve	Nitrile rubber	-
8	Pad	Silicone rubber	-
9	Pad screws	Copper alloy	Electroless nickel plating
10	Flat washer	Copper alloy	Electroless nickel plating
11	Gasket	Nitrile rubber/steel	-

Safety precautions

* Use the equipment at your own discretion, after thoroughly checking the suitability of the constituent materials, structure, and operating conditions of each device.
* Wear powder, etc., may be generated when replacing the pad. Before use, clean the equipment with air blow, etc.

How to order

VSP - A 40 A S - 6T - FP2

- A Holder type
- B Pad diameter
- C Pad shape
- D Pad material
- E Port size

Code	Description
A Holder type	
MA	Compact Fixed, Vacuum outlet top
MB	Compact Fixed, Vacuum outlet side
ME	Compact, Direct mounting, Fixed
A	Fixed, Vacuum outlet top
B	Fixed, Vacuum outlet side
E	Direct mounting, Fixed
B Pad diameter	
Refer to "◆Pad diameter - pad shape combinations" in Appendix 1 for pad diameter.	
C Pad shape	
R	Standard, general
A	Standard, deep
S	Sponge
B	Bellows
W	Multi-stage bellows
L	Soft
LB	Soft bellows
P	Thin object type
D Pad material	
S	Silicone rubber
E Port size	
Blank	M5x 0.8
M5	M5x 0.8
2	ø1.8 push-in fitting
4	ø4 push-in fitting
4T	ø4 barbed fitting
6	ø6 push-in fitting
6T	ø6 barbed fitting
6A	Rp1/8
8A	Rp1/4

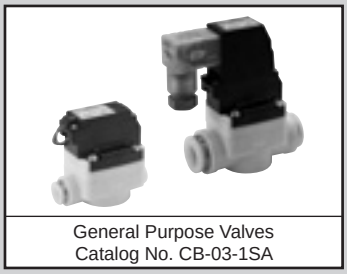
Appendix 1 ◆Pad diameter - pad shape combinations

Pad shape			R	A	S	B	W	L	LB	P	F
Pad diameter	1	ø1	●	-	-	-	-	-	-	-	-
	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	ø20, 150	●	-	-	-	-	-	-	-	-
	200	ø200	●	-	-	-	-	-	-	-	-

◆Pad shape - by pad diameter - holder shape - port size combination table

Pad Shape	Applicable Pad diameter	Selectable codes (holder shape/port size/shape)					
		A	B	E	MA	MB	ME
R	ø1 to ø4	4/4T	4/4T	Blank	x	x	x
	ø6, ø8	6/6T	6/6T	Blank	2/4T	2/4T	M5
	ø80, ø100	6 A	6 A	x	x	x	x
	ø150, ø200	8 A	8 A	x	x	x	x
A	ø15	6/6T	6/6T	x	4/4T	4/4T	x
	ø20 to ø30	6/6T	6/6T	x	4/4T/6T	4/4T/6T	x
	ø40 to ø60	6/6T	6/6T	x	x	x	x
	ø80, ø100	6 A	6 A	x	x	x	x
S	ø35, ø50	6/6T	6/6T	x	x	x	x
	ø60 to ø100	6 A	6 A	x	x	x	x
B	ø6, ø8	6/6T	6/6T	x	2/4T	2/4T	x
	ø10, ø15	6/6T	6/6T	x	4/4T	4/4T	x
	ø20 to ø30	6/6T	6/6T	x	4/4T/6T	4/4T/6T	x
	ø40, ø50	6/6T	6/6T	x	x	x	x
	ø60 to ø100	6 A	6 A	x	x	x	x
W	ø10	6/6T	6/6T	x	4/4T	4/4T	x
	ø20, ø30	6/6T	6/6T	x	4/4T/6T	4/4T/6T	x
	ø40, ø50	6/6T	6/6T	x	x	x	x
L	ø4 to ø15	6/6T	6/6T	x	4/4T	4/4T	x
	ø20, ø30	6/6T	6/6T	x	4/4T/6T	4/4T/6T	x
	ø40	6/6T	6/6T	x	x	x	x
LB	ø6 to ø15	6/6T	6/6T	x	4/4T	4/4T	x
	ø20	6/6T	6/6T	x	4/4T/6T	4/4T/6T	x
	ø30	6/6T	6/6T	x	x	x	x
P	All sizes	4/4T	4/4T	Blank	2/4T	2/4T	M5
F	ø10, ø15	6/6T	6/6T	x	4/4T	4/4T	x
	ø20 to ø30	6/6T	6/6T	x	4/4T/6T	4/4T/6T	x

Refer to the VSP Series of "Vacuum system Component SELVACS (CC-796A)" for dimensions.



General Purpose Valves
Catalog No. CB-03-1SA

Pilot operated 2-port solenoid valve for compressed air

Material compatible with the Food Sanitation Act

EXA-FP2 Series

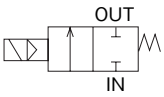
- NC(Normally Closed) type
- Port size: Push-in fitting ø6,ø8,ø10,ø12
- Diaphragm drive

CE RoHS CAD

For more information about CE, please check our website.

JIS symbol

● NC (open when energized)



Specifications

Item	EXA-C6	EXA-C8	EXA-C10	EXA-C12
Working fluid	Compressed air			
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	Push-in fitting ø6	Push-in fitting ø8	Push-in fitting ø10	Push-in fitting ø12
C[$dm^3/(s\cdot bar)$]	1.6	3.0	3.3	3.6
b	0.45	0.33	0.26	0.20
Weight *1 g	56	57	68	69
Electrical specifications				
Rated voltage	100 VAC(50/60Hz), 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 - C6 - H 2C B - 1 - FP2

Model No.

Ⓐ Connected tube outer diameter

Code	Description
Ⓐ Connected tube outer diameter	
C6	ø6
C8	ø8
C10	ø10
C12	ø12

Ⓑ Sealant

Code	Description
Ⓑ Sealant	
H	H-NBR, oil-prohibited specifications, internal exhaust specifications

Ⓒ Coil option

Code		Description
Ⓒ Coil option *1		
2C	**Standard**	Lead wire (without both lamp/surge suppressor)
2G	**Option**	DIN terminal box (Pg7), without lamp
2GS		DIN terminal box (Pg7), without lamp/with surge suppressor
2H		DIN terminal box (Pg7), with lamp (inside terminal box)
2HS		DIN terminal box (Pg7), with lamp (inside terminal box)/with surge suppressor

Ⓓ Other options

Code	Description
Ⓓ Other options	
Blank	No
B	With mounting plate

Ⓔ Voltage

Code	Description
Ⓔ Voltage *1	
1	100 VAC
3	24 VDC
4	12 VDC

*1: Refer to the table below for the available coil option and voltage combinations.

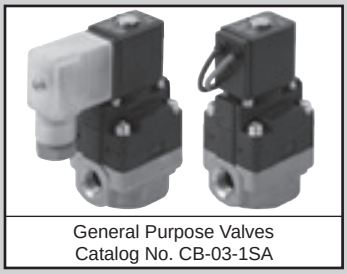
[Example of model No.]
EXA-C6-H2CB-1-FP2
Model: Compact air blow valve EXA

Ⓐ Connected tube outer diameter : ø20, 6
Ⓑ Sealant material : H-NBR
Ⓒ Coil option : Lead wire
Ⓓ Other options : Mounting plate
Ⓔ Voltage : 100 VAC

Coil option	Voltage 1	3	4
2C	●	●	●
2G	●		
2GS		●	●
2H	●		
2HS		●	●

Select from the combinations indicated with ● above.

For dimensions, refer to the EXA Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Material compatible with the Food Sanitation Act

Compact pilot operated solenoid valve for water

FWD-FP2 Series

- NC (Normally Closed)
- Port size: Rc1/4 to Rc1

CE RoHS CAD

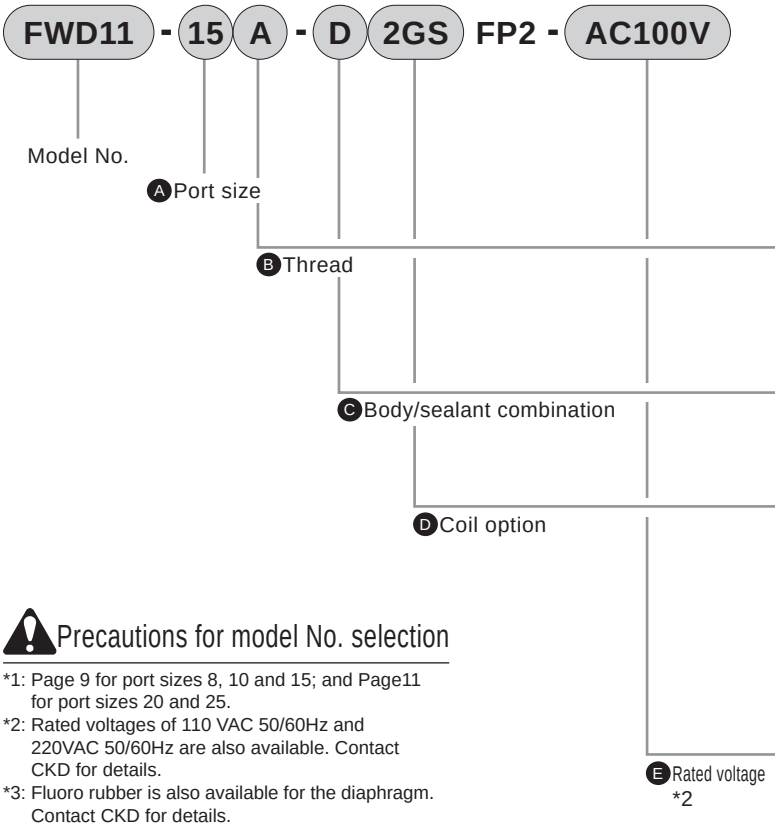
For more information about CE, please check our website.

Specifications

Item		FWD11-8A	FWD11-10A	FWD11-15A	FWD11-20A	FWD11-25A
Actuation		NC (open when energized)				
Working fluid		Water (excluding sewage, agricultural water, liquid manure and antifreeze liquid)				
Working pressure differential	MPa	0.02 to 0.7				
Max. working pressure	MPa	0.7				
Proof pressure (water pressure)	MPa	1.05				
Fluid temperature	°C	5 to 60 (no freezing)				
Ambient temperature	°C	-10 to 60 (no freezing)				
Atmosphere		Place free of corrosive gas and explosive gas				
Valve structure		Pilot operated poppet, diaphragm drive				
Valve seat leakage	cm^3/min	0 (water pressure) (*1)				
Mounting orientation		Unrestricted				
Degree of protection		IPX5				
Port size		Rc1/4	Rc3/8	Rc1/2	Rc3/4	Rc1
Orifice size	mm	15 (*2)			22 (*2)	
Cv		2.8	4.2	6.0	11.0	12.0
Weight	g	340	320	390	730	950
Rated voltage		100 VAC 50/60Hz, 200 VAC 50/60Hz, 24 VDC				
Voltage fluctuation range		Rated voltage 10%				
Apparent power	VA	When holding (50/60 Hz): 5/4, when starting (50/60 Hz): 9/8			When holding (50/60 Hz): 9.5/7, when starting (50/60 Hz): 23/20	
Power consumption	W	AC(50/60Hz):2.7/2, DC:4			AC(50/60Hz):4/3.2, DC:4	
Thermal class		Class 130 (B)				

*1: Valve seat leakage 0 cm^3/min means that no water drops come out of the chamber for one minute.
*2: Orifice size means the size of valve seat.

How to order



Code	Description
A Port size	
8	1/4
10	3/8
15	1/2
20	3/4
25	1

B Thread	
A	Rc thread
G	G thread
N	NPT thread

C Body/sealant combination		
	Body	Seal
D	Stainless steel/PPS	NBR

D Coil option	
2C	Grommet lead wire
2CS	Grommet lead wire with surge suppressor
2G	With DIN terminal box (*1)
2GS	With DIN terminal box/surge suppressor (*1)
2H	With DIN terminal box/lamp (*1)
2HS	DIN terminal box/with lamp/surge suppressor(*1)

E Rated voltage	
AC100V	100 VAC 50/60 Hz, 110 VAC 60 Hz
AC200V	200 VAC 50/60 Hz and 220 VAC 60 Hz
DC24V	24 VDC

Precautions for model No. selection

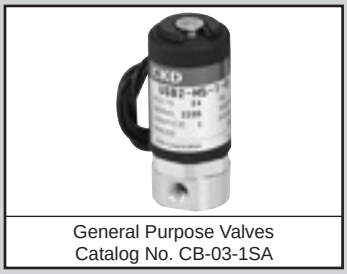
*1: Page 9 for port sizes 8, 10 and 15; and Page11 for port sizes 20 and 25.
*2: Rated voltages of 110 VAC 50/60Hz and 220VAC 50/60Hz are also available. Contact CKD for details.
*3: Fluoro rubber is also available for the diaphragm. Contact CKD for details.

[Example of model No.]

FWD11-15A-D2GSFP2-AC100V

Ⓐ Port size : 1/2
Ⓑ Thread : Rc thread
Ⓒ Body/sealant combination : Stainless steel/PPS, NBR
Ⓓ Coil option : DIN terminal box/with surge suppressor (Pg9)
Ⓔ Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

For dimensions, refer to the FWD Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Compact direct acting 2-port solenoid valve

Material compatible with the Food Sanitation Act

USB2-FP2 Series

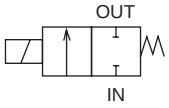
- NC (Normally Closed)
- Port size: M5

CE RoHS CAD

For CE details
Check our website.

JIS symbol

● NC (Normally Closed)



Specifications

Item		USB2-M5-1	USB2-M5-2
Working fluid		Air/water/dry air/low vacuum (1.33x10²Pa(abs))	
Max. working pressure MPa		0.7	0.3
Working pressure differential MPa		0 to 0.7	0 to 0.3
Proof pressure(water pressure) MPa		1.5	
Fluid temperature °C		-10 to 60(no freezing)	
Ambient temperature °C		-20 to 50	
Valve seat leakage cm³/min		0.2 or less (pneumatic pressure)	
Mounting orientation		Unrestricted	
Weight kg		0.07	
Port size		M5	M5
Orifice size mm		1	1.5
Cv		0.03	0.06
C[dm³/(s·bar)]		0.13	0.28
b		0.57	0.46
Electrical specifications			
Rated voltage		12 VDC, 24 VDC(Option: 100 VAC50/60Hz, 200 VAC50/60Hz)	
Voltage fluctuation range		±10%	
Power	DC	3	
consumption W	AC	4	
Thermal class		Class 130 (B)	

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
*2: When using at low vacuum, vacuum the OUT port side.

How to order

USB2 - M5 - 1 - M FP2 - DC24V

- USB2: Model No.
- M5: Port size M5
- 1: Ⓐ Orifice
- M: Ⓑ Body/sealant combination
- DC24V: Ⓒ Voltage

Code	Description
Ⓐ Orifice	
1	ø1.0
2	ø1.5

Ⓑ Body/sealant combination			
	Body	**Seal**	**Treatment**
M	Stainless steel	Fluoro rubber	Oil-prohibited

Ⓒ Voltage		
DC12V	Standard	12 VDC
DC24V		24 VDC
AC100V	Option	100 VAC50/60Hz
AC200V		200 VAC50/60Hz

For dimensions, refer to the USB2 Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Compact direct acting 2-port solenoid valve

Material compatible with the Food Sanitation Act

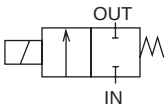
USB3-FP2 Series

- NC (Normally Closed)
- Port size: Rc1/8

For CE details
Check our website.

JIS symbol

● NC (Normally Closed)



Specifications

Item		USB3-6-1	USB3-6-2	USB3-6-3
Working fluid		Air, Water, Dry air, Low vacuum (1.33 x 10^2Pa(abs))		
Max. working pressure MPa		0.9	0.4	0.1
Working pressure differential MPa		0 to 0.9	0 to 0.4	0 to 0.1
Proof pressure (water pressure) MPa		2		
Fluid temperature °C		-10 to 60 (no freezing)		
Ambient temperature °C		-20 to 50		
Valve seat leakage cm^3/min		0.2 or less (pneumatic pressure)		
Mounting orientation		Unrestricted		
Weight kg		0.13		
Port size		Rc1/8	Rc1/8	Rc1/8
Orifice size mm		1.6	2.3	3.2
Cv		0.09	0.18	0.3
C[dm^3/(s·bar)]		0.34	0.64	1.2
b		0.56	0.51	0.48
Electrical specifications				
Rated voltage		12 VDC, 24 VDC (Option: 100 VAC50/60Hz, 200 VAC50/60Hz)		
Voltage fluctuation range		±10%		
Power consumption W	DC	4		
	AC	4		
Thermal class		Class 130 (B)		

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
*2: When using at low vacuum, vacuum the OUT port side.

How to order

USB3 - 6 - 1 - M FP2 - DC24V

- USB3: Model No.
- 6: Port size Rc1/8
- 1: Ⓐ Orifice size
- M: Ⓑ Body/sealant combination
- DC24V: Ⓒ Voltage

Code	Description
Ⓐ Orifice size	
1	ø1.6
2	ø2.3
3	ø3.2

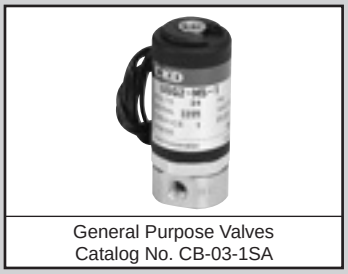
Ⓑ Body/sealant combination

	Body	Seal	Treatment
M	Stainless steel	Fluoro rubber	Oil-prohibited

Ⓒ Voltage

DC12V	Standard	12 VDC
DC24V		24 VDC
AC100V	Option	100 VAC50/60Hz
AC200V		200 VAC50/60Hz

For dimensions, refer to the USB3 Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Compact direct acting 3-port solenoid valve

Material compatible with the Food Sanitation Act

USG2-FP2 Series

- Universal
- Port size: M5

CE RoHS CAD

For CE details
Check our website.

JIS symbol

● Universal



Specifications

Item		USG2-M5-1	USG2-M5-2
Working fluid		Air/water/dry air/low vacuum (1.33 × 10^2Pa(abs))	
Max. working pressure MPa		0.7	0.3
Working pressure differential MPa		0 to 0.7 (0 to 0.3 when NO pressurized)	0 to 0.3 (0 to 0.1 when NO pressurized)
Proof pressure (water pressure) MPa		1.5	
Fluid temperature °C		-10 to 60 (no freezing)	
Ambient temperature °C		-20 to 50	
Valve seat leakage cm^3/min		0.2 or less (pneumatic pressure)	
Mounting orientation		Unrestricted	
Weight kg		0.07	
Port size		M5	M5
Orifice size mm		1	1.5
Cv		0.03	0.06
C[dm^3/(s·bar)]		0.13	0.28
b		0.57	0.46
Electrical specifications			
Rated voltage		12 VDC, 24 VDC (Option: 100 VAC 50/60 Hz, 200 VAC 50/60 Hz)	
Voltage fluctuation range		±10%	
Power consumption W	DC	3	
	AC	4	
Thermal class		Class 130 (B)	

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

How to order

USG2 - M5 - 1 - M FP2 - DC24V

- USG2: Model No.
- M5: Port size M5
- 1: Ⓐ Orifice size
- M: Ⓑ Body/sealant combination
- DC24V: Ⓒ Voltage

Code	Description		
Ⓐ Orifice size			
1	ø1.0		
2	ø1.5		
Ⓑ Body/sealant combination			
	Body	Seal	Treatment
M	Stainless steel	Fluoro rubber	Oil-prohibited
Ⓒ Voltage			
DC12V	Standard	12 VDC	
DC24V	Standard	24 VDC	
AC100V	Option	100 VAC50/60Hz	
AC200V	Option	200 VAC50/60Hz	

For dimensions, refer to the USG2 Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Compact direct acting 3-port solenoid valve

Material compatible with the Food Sanitation Act

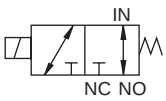
USG3-FP2 Series

- Universal
- Port size: Rc1/8

For more information about CE, please check our website.

JIS symbol

● Universal



Specifications

Item		USG3-6-1	USG3-6-2
Working fluid		Air/water/dry air/low vacuum (1.33 × 10^2Pa(abs))	
Max. working pressure MPa		0.7	0.3
Working pressure differential MPa		0 to 0.7 (0 to 0.3 when NO pressurized)	0 to 0.3 (0 to 0.1 when NO pressurized)
Proof pressure (water pressure) MPa		2	
Fluid temperature °C		-10 to 60 (no freezing)	
Ambient temperature °C		-20 to 50	
Valve seat leakage cm^3/min		0.2 or less (pneumatic pressure)	
Mounting orientation		Unrestricted	
Weight kg		0.14	
Port size		Rc1/8	Rc1/8
Orifice size mm		1.2	1.8
Cv		0.05	0.1
C[dm^3/(s·bar)]		0.19	0.42
b		0.57	0.5
Electrical specifications			
Rated voltage		12 VDC, 24 VDC (Option: 100 VAC 50/60 Hz, 200 VAC 50/60 Hz)	
Voltage fluctuation range		±10%	
Power consumption W	DC	4	
	AC	4	
Thermal class		Class 130 (B)	

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

How to order

USG3 - 6 - 1 - M FP2 - DC24V

- USG3: Model No.
- 6: Port size Rc1/8
- 1: Ⓐ Orifice size
- M: Ⓑ Body/sealant combination
- DC24V: Ⓒ Voltage

Code	Description		
Ⓐ Orifice size			
1	ø1.2		
2	ø1.8		
Ⓑ Body/sealant combination			
	Body	**Seal**	**Treatment**
M	Stainless steel	Fluoro rubber	Oil-prohibited
Ⓒ Voltage			
DC12V	Standard	12 VDC	
DC24V	Standard	24 VDC	
AC100V	Option	100 VAC50/60Hz	
AC200V	Option	200 VAC50/60Hz	

For dimensions, refer to the USG3 Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Compact direct acting 2, 3-port solenoid valve

Material compatible with the Food Sanitation Act

US(Resin body)-FP2 Series

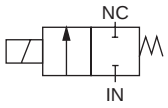
- NC, universal
- Port size: M6, barbed fitting (compatible tube size ø6 x ø4)

CE RoHS CAD

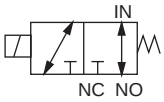
For CE details
Check our website.

JIS symbol

● USB (2-port valve)
:NC (open when energized)



● USG (3-port valve)
: Universal



Common specifications

Item	USB/USG
Working fluid	Refer to the working fluid in individual specifications.
Working pressure differential MPa	0 to 0.7 (refer to max. working pressure differential in individual specifications.)
Proof pressure MPa	1.5 (US*2), 2 (US*3) (water pressure)
Fluid temperature °C	0 to 60 (no freezing)
Ambient temperature °C	0 to 50
Thermal class	Class 130 (B)
Atmosphere	No explosive or corrosive atmospheres
Valve seat leakage cm^3/min	0.2 or less(in air)
Port size	M6/barbed fitting (compatible tube size ø6 x ø4)
Mounting orientation	Unrestricted
Rated voltage	12 VDC 24 VDC
Treatment	Oil-prohibited

Individual specifications

Item / Model No.	Working fluid	Orifice size [mm]	Cv	C[dm^3/(s·bar)]	b	Max. working pressure differential [MPa]	Power consumption [W]
2-port valve(ⒺItem Wetted metal material: 2 (equivalent to SUS316)							
USB2- * -1	Water/pure water (*1)	1	0.03	0.13	0.36	0.6	3
-2		1.5	0.06	0.27	0.28	0.3	3
USB3- * -1		1.6	0.08	0.32	0.30	0.7	4
-2		2.3	0.13	0.45	0.30	0.3	4
3-port valve(ⒺItem Wetted metal material: 2 (equivalent to SUS316)							
USG2- * -1	Water/pure water (*1)	1	0.03	0.13	0.36	0.6 (0.2 for NO pressurization)	3
-2		1.5	0.06	0.27	0.28	0.3 (when NO pressurized 0.1)	3
USG3- * -1		1.6	0.08	0.32	0.30	0.2 (0.08 for NO pressurization)	4
2-port valve(ⒺItem Wetted metal material: 1 (equivalent to SUS405)							
USB2- * -1	Air/water/ dry air/ low vacuum [1.33 x 10^2Pa(abs)) (*1)	1	0.03	0.13	0.36	0.7	3
-2		1.5	0.06	0.27	0.28	0.3	3
USB3- * -1		1.6	0.08	0.32	0.30	0.9	4
-2		2.3	0.13	0.45	0.30	0.3	4
3-port valve(ⒺItem Wetted metal material: 1 (equivalent to SUS405)							
USG2- * -1	Air/water/ dry air/ low vacuum [1.33 x 10^2Pa(abs)) (*1)	1	0.03	0.13	0.36	0.7 (0.3 for NO pressurization)	3
-2		1.5	0.06	0.27	0.28	0.3 (when NO pressurized 0.1)	3
USG3- * -1		1.6	0.08	0.32	0.30	0.3 (when NO pressurized 0.1)	4

*1: Check the compliant of the wetted part material and working fluid before using chemical liquid for washing.
*2: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
*3: When using a 2-port valve at low vacuum, vacuum the NC port side.

How to order

USB2 - **M6** - **1** - **S** **2** **FP2** - **DC24V**

Ⓐ Model No.
Ⓑ Port size
Ⓒ Orifice size
Ⓓ Body/sealant
Ⓔ Wetted metal material
Ⓕ Voltage

Code	Description	Body	Seal	Ⓐ Model No. 2-port valve USB2	2-port valve USB3	3-port valve USG2	3-port valve USG3
Ⓑ Port size							
M6	M6			●	●	●(*1)	●
T6	Barbed fitting			●	●	●	●
Ⓒ Orifice size							
1	Refer to text at right			ø1	ø1.6	ø1	ø1.6
2	Refer to text at right			ø1.5	ø2.3	ø1.5	
Ⓓ Body/sealant							
		Body	Seal				
S		PPS	FKM	●	●	●	●
Ⓔ Wetted metal material							
1		SUS405 or equiv.		●	●	●	●
2		SUS316 or equiv.		●	●	●	●
Ⓕ Voltage							
	12 VDC			●	●	●	●
	24 VDC			●	●	●	●

⚠ Precautions for model No. selection

*1: NO port of USG2 is M5.

For dimensions, refer to the US Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Material compatible with the Food Sanitation Act

Direct acting 2-port solenoid valve, single unit
(general purpose valve)

AB31-FP2/AB41-FP2 Series

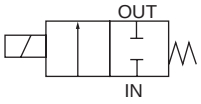
- NC (Normally Closed)
- Port size: Rc1/8 to Rc3/8

CE RoHS CAD

For CE details
Check our website.

JIS symbol

- NC (open when energized)



Common specifications

Item	Specifications		
Working fluid	Air/low vacuum (1.33 × 10^2Pa (abs)/water/oil (50mm^2/s or less)	Hot water	Steam
Working pressure differential MPa	0 to 5 (refer to max. working pressure differential in individual specifications.)		
Proof pressure(water pressure) MPa	25		
Fluid temperature °C	-10 to 60 (no freezing)	-10 to 90	-10 to 184
Ambient temperature °C	-20 to 60	-20 to 100 *1	
Thermal class	Class 130 (B)	Class 180 (H)	
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 (air)		300 or less (air)
Mounting orientation	Unrestricted		
Degree of protection	IP 65 or equiv.	IP00	
Sealant	Fluoro rubber		PTFE

*1: -20 to 80°C when coil housing is HP terminal box with lamp.

Individual specifications

Item / Model No.		Port size	Orifice size (mm)	Max. working pressure differential (MPa)							Max. Working pressure (MPa)	Rated voltage	Apparent power (VA)				Power consumption (W)		Weight (kg)
				Air		Water/hot water		Oil (50mm^2/s)		Steam			When holding		When starting		AC	DC	
				AC	DC	AC	DC	AC	DC	AC			50Hz	60Hz	50Hz	60Hz	50/60Hz		
NC (open when energized)																			
AB31-$^{01}_{02}$	-2	Rc1/8 Rc1/4	2.0	1.5	1.5	1.5	1.5	1.5	1.5	1.0	5 (Fluid: Steam For 1)	100 VAC 50/60Hz*6 200 VAC 50/60Hz*6 24 VDC	12	10	17	14	5.2/3.8	11	0.52
AB41-$^{02}_{03}$	-3	Rc1/4 Rc3/8	3.0	1.5	0.9	1.3	0.9	0.9	0.9	1.0			18	15	29	24	6.7/5.7	11	0.69
	-5		4.0	1.0	0.5	0.7	0.5	0.5	0.5	0.7									

*1: The model numbers above are for the basic port size (Rc) and orifice size. 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) and 03 for Rc3/8 (10A).
*3: Refer to DC column for the max. working pressure differential of coil with diode.
*4: The voltage fluctuation range must be within ±10% of the rated voltage.
*5: When using at low vacuum, vacuum the OUT port side.
*6: 100 VAC (50/60 Hz) can also be used with 110 VAC (60 Hz). 200 VAC(50/60Hz) can also be used with 220VAC (60Hz). However, this does not apply to coil housings 5A/5I/5J.

Flow characteristics

Model No.		Port size	Orifice size (mm)	Flow characteristics		
				C[dm^3/(s·bar)]	b	Cv
NC (open when energized)						
AB31-$^{01}_{02}$	-2	Rc1/8 Rc1/4	2.0	0.53	0.52	0.15
AB41-$^{02}_{03}$	-3	Rc1/4 Rc3/8	3.0	1.1	0.52	0.31
	-5		4.0	1.9	0.47	0.48

* Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

How to order

AB31 - **01** - **2** - **M** **3A** **FP2** - **AC100V**

AB41

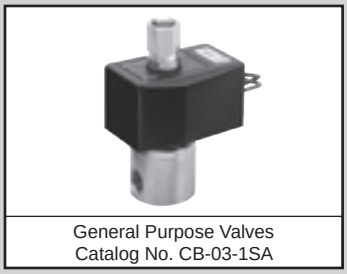
Ⓐ Model No.
Ⓑ Port size
Ⓒ Orifice size
Ⓓ Body/sealant combination
Ⓔ Coil housing
Ⓕ Rated voltage

Code	Description	Ⓐ Model No. AB31	Ⓐ Model No. AB41
Ⓑ Port size			
01	Rc1/8	●	
02	Rc1/4	●	●
03	Rc3/8		●
Ⓒ Orifice size			
2	ø2	●	
3	ø3		●
5	ø4		●
Ⓓ Body/sealant combination			
	Body / Seal		
M	Stainless steel / Fluoro rubber	●	●
N	Stainless steel / PTFE	●	●

Ⓔ Coil housing			
3A	Open Frame type	Lead wire	
3I		With HP terminal box	(G1/2)
3J		HP terminal box with lamp	(G1/2)
4A	Open Frame type (Thermal class 180 (H))	Lead wire	
4M		With HP terminal box	(G1/2)
4N		HP terminal box with lamp	(G1/2)
5A	Open Frame type (diode integrated)	Lead wire	
5I		With HP terminal box	(G1/2)
5J		HP terminal box with lamp	(G1/2)

Ⓕ Rated voltage	
3A	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3I	
3J	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
4A	100 VAC, 200 VAC
4M	
4N	
5A	100 VAC, 200 VAC
5I	
5J	

For dimensions, refer to the AB31/AB41 Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Material compatible with the Food Sanitation Act

Direct acting 3-port solenoid valve, single unit
(General purpose valves)

AG31-FP2/AG41-FP2 Series

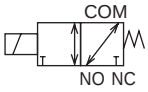
- Universal
- Port size: Rc1/8, Rc1/4, Rc3/8

CE RoHS CAD

For CE details
Check our website.

JIS symbol

● AG31・41: Universal



Common specifications

Item	Specifications		
Working fluid	Air/low vacuum (1.33 × 10^2Pa (abs)/water/oil (50mm^2/s or less)	Hot water	Steam
Working pressure differential MPa	0 to 1 (refer to max. working pressure differential in individual specifications.)		
Proof pressure(water pressure) MPa	25		
Fluid temperature(Note) °C	-10 to 60 (no freezing)	-10 to 90	-10 to 184
Ambient temperature °C	-20 to 60	-20 to 100 *1	
Thermal class	Class 130 (B)	Class 180 (H)	
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 (air)		300 or less (air)
Mounting orientation	Unrestricted		
Degree of protection	IP 65 or equiv.	IP00	
Sealant	Fluoro rubber		PTFE

*1: -20 to 80°C when coil housing is HP terminal box with lamp.

Individual specifications

Item / Model No.	Connection Bore size	Orifice size (mm) TOP	Orifice size (mm) BODY	Max. working pressure differential (MPa) Air AC	Air DC	Water/hot water AC	Water/hot water DC	Oil(50 mm^2/s) AC	Oil(50 mm^2/s) DC	Steam AC	Rated voltage	Apparent power(VA) When holding 50Hz	When holding 60Hz	When starting 50Hz	When starting 60Hz	Power consumption(W) AC 50/60Hz	Power consumption(W) DC	Weight (kg)
AG31-01-1	Rc1/8	1.5	1.5	0.7	0.7	0.7	0.7	0.6	0.6	0.7	100 VAC 50/60Hz *4	14	11	20	16	6/4.2	11	0.51
-01-2		2.0	2.0	0.4	0.4	0.4	0.4	0.25	0.2	0.4								
-02-1	Rc1/4	1.5	1.5	0.7	0.7	0.7	0.7	0.6	0.6	0.7								
-02-2		2.0	2.0	0.4	0.4	0.4	0.4	0.25	0.2	0.4								
AG41-02-1	Rc1/4	2.0	2.0	1.0	0.7	1.0	0.7	0.4	0.3	1.0	200 VAC 50/60Hz *4	22	17	35	27	8.3/6.2	11	0.65
-02-2		2.3	2.3	0.7	0.4	0.7	0.4	0.25	0.15	0.7								
-03-1	Rc3/8	2.0	2.0	1.0	0.7	1.0	0.7	0.4	0.3	1.0	24 VDC							0.70
-03-2		2.3	2.3	0.7	0.4	0.7	0.4	0.25	0.15	0.7								

*1: The model numbers above are for the basic port size (Rc))and orifice. Refer to How to order for other combinations.
*2: Refer to DC column for the max. working pressure differential of coil with diode.
*3: The voltage fluctuation range must be within ±10% of the rated voltage.
*4: The 100 VAC (50/60 Hz) type can be used with 110 VAC (60 Hz). The 200 VAC (50/60 Hz) type can be used with 220 VAC (60 Hz). However, this does not apply to coil housings 5A/5M/5N/5I/5J.
*5: NO port pressurization is not possible for PTFF seal.

Flow characteristics

Model No.	Port size	Orifice size(mm) TOP	Orifice size(mm) BODY	Flow characteristics C[dm^3/(s·bar)] TOP	C[dm^3/(s·bar)] BODY	b TOP	b BODY	Cv TOP	Cv BODY
AG31-01-1	Rc 1/8	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
-01-2		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
-02-1	Rc 1/4	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
-02-2		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
AG41-02-1	Rc 1/4	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
-02-2		2.3	2.3	0.74	0.74	0.66	0.53	0.19	0.19
-03-1	Rc 3/8	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
-03-2		2.3	2.3	0.74	0.74	0.66	0.53	0.19	0.19

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

How to order

AG31 - 02 - 2 - M 3A FP2 - AC100V

AG41

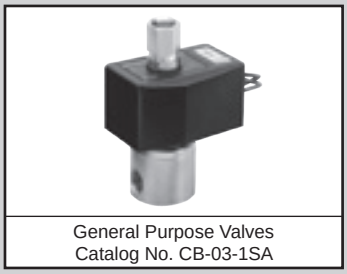
Model No.

- A Port size
- B Orifice size
- C Body sealant Material combination
- D Coil housing
- E Voltage

Code	Description	Model No. AG31	Model No. AG41
A Port size			
01	Rc1/8	●	
02	Rc1/4	●	●
03	Rc3/8		●
B Orifice size			
	AG31 TOP / AG31 BODY / AG41 TOP / AG41 BODY		
1	ø1.5 / ø1.5 / ø2.0 / ø2.0	●	●
2	ø2.0 / ø2.0 / ø2.3 / ø2.3	●	●
C Body/sealant combination			
	Body / Seal		
M	Stainless steel / Fluoro rubber	●	●
N	Stainless steel / PTFE	●	●
D Coil housing			
3A	Open Frame type	Lead wire	
3I		With HP terminal box	(G1/2)
3J		HP terminal box with lamp	(G1/2)
4A	Open Frame type (Thermal class 180 (H))	Lead wire	
4M		With HP terminal box	(G1/2)
4N		HP terminal box with lamp	(G1/2)
5A	Open Frame type (diode integrated)	Lead wire	
5I		With HP terminal box	(G1/2)
5J		HP terminal box with lamp	(G1/2)
E Rated voltage			
3A, 3I	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC		
3J	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC		
4A, 4M, 4N	100 VAC, 200 VAC		
5A, 5I, 5J	100 VAC, 200 VAC		

* When the sealant material is PTFE, the O-ring of the socket part is fluoro rubber.

For dimensions, refer to the AG31/AG41 Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Material compatible with the Food Sanitation Act

Direct acting 3-port solenoid valve, single unit
(general purpose valve)

AG33-FP2/AG43-FP2 Series

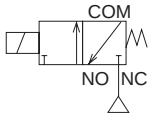
- NC pressurization
- Port size: Rc1/8, Rc1/4, Rc3/8

CE RoHS CAD

For CE details
Check our website.

JIS symbol

- AG33/43: NC pressurization



Common specifications

Item	Specifications		
Working fluid	Air/low vacuum (1.33 × 10^2Pa (abs)/water/oil (50mm^2/s or less)	Hot water	Steam
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 60 (no freezing)	-10 to 90	-10 to 184
Ambient temperature °C	-20 to 60	-20 to 100 *1	
Thermal class	Class 130 (B)	Class 180 (H)	
Atmosphere	Place free of corrosive gas and explosive gas		
Valve structure	Direct acting poppet structure		
Valve seat leakagecm^3/min(ANR)	0.2 or less (air)		300 or less (air)
Mounting orientation	Unrestricted		
Degree of protection	IP65Equivalent	IP00	
Sealant	Fluoro rubber		PTFE

*1: -20 to 80°C when coil housing is HP terminal box with lamp.

Individual specifications

Item / Model No.	Connection Bore size	Orifice size (mm) TOP	Orifice size (mm) BODY	Max. working pressure differential (MPa) Air AC	Air DC	Water/hot water AC	Water/hot water DC	Oil(50 mm^2/s) AC	Oil(50 mm^2/s) DC	Steam AC	Rated voltage	Apparent power(VA) When holding 50Hz	When holding 60Hz	When starting 50Hz	When starting 60Hz	Power consumption(W) AC 50/60Hz	Power consumption(W) DC	Weight(kg)
AG33-01-1	Rc1/8	1.5	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	100 VAC 50/60Hz *5	14	11	20	16	6/4.2	11	0.51
-01-2		2.0	2.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7								
-02-1	Rc1/4	1.5	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0								
-02-2		2.0	2.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7								
AG43-02-4	Rc1/4	3.0	3.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	200 VAC 50/60Hz *5	22	17	35	27	8.3/6.2	11	0.65
-02-5		3.5	3.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4								
-03-4	Rc3/8	3.0	3.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	24 VDC							0.70
-03-5		3.5	3.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4								

*1: The model numbers above are for the basic port size (Rc)and orifice. Refer to How to order for other combinations.
*2: Refer to DC column for the max. working pressure differential of coil with diode.
*3: The voltage fluctuation range must be within ±10% of the rated voltage.
*4: When using in vacuum, vacuum the NO port side.
*5: 100 VAC coil is compatible with 100 VAC 50/60 Hz and 110 VAC 60 Hz, and 200 VAC coil is compatible with 200 VAC 50/60 Hz and 220 VAC 60 Hz. However, coils for Item Ⓓ 5A/5I/5J can be used only with 100 VAC50/60Hz and C200V50/60Hz.

Flow characteristics

Model No.	Port size	Orifice size (mm) TOP	Orifice size (mm) BODY	Flow characteristics C[dm^3/(s·bar)] TOP	C[dm^3/(s·bar)] BODY	b TOP	b BODY	Cv TOP	Cv BODY
AG33-01-1	Rc 1/8	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
-01-2		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
-02-1	Rc 1/4	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
-02-2		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
AG43-02-4	Rc 1/4	3.0	3.0	1.1	1.1	0.72	0.52	0.31	0.31
-02-5		3.5	3.0	1.5	1.1	0.62	0.52	0.40	0.31
-03-4	Rc 3/8	3.0	3.0	1.1	1.1	0.72	0.52	0.31	0.31
-03-5		3.5	3.0	1.5	1.1	0.62	0.52	0.40	0.31

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

How to order

AG33 - 02 - 2 - M 3A FP2 - AC100V

AG43

Model No.

- A Port size
- B Orifice size
- C Body/sealant combination
- D Coil housing
- E Voltage

Code	Description	Model No. AG33	Model No. AG43
A Port size			
01	Rc1/8	●	
02	Rc1/4	●	●
03	Rc3/8		●

B Orifice size	AG33		AG43			
	TOP	BODY	TOP	BODY		
1	ø1.5	ø1.5	-	-	●	
2	ø2.0	ø2.0	-	-	●	
4	-	-	ø3.0	ø3.0		●
5	-	-	ø3.5	ø3.0		●

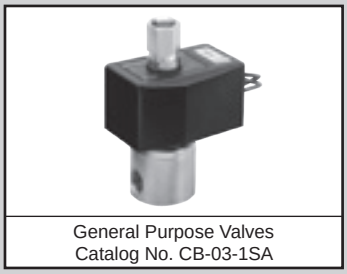
C Body/sealant combination	Body	Seal		
M	Stainless steel	Fluoro rubber	●	●
N	Stainless steel	PTFE *	●	●

D Coil housing			
3A	Open Frame type	Lead wire	
3I		With HP terminal box	(G1/2)
3J		HP terminal box with lamp	(G1/2)
4A	Open Frame type (Thermal class 180 (H))	Lead wire	
4M		With HP terminal box	(G1/2)
4N		HP terminal box with lamp	(G1/2)
5A	Open Frame type (diode integrated)	Lead wire	
5I		With HP terminal box	(G1/2)
5J		HP terminal box with lamp	(G1/2)

E Rated voltage	
3A	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3I	
3J	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
4A	100 VAC, 200 VAC
4M	
4N	
5A	100 VAC, 200 VAC
5I	
5J	

* When the sealant material is PTFE, the O-ring of the socket part is fluoro rubber.

For dimensions, refer to the AG33/AG43 Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Material compatible with the Food Sanitation Act

Direct acting 3-port solenoid valve, single unit
(general purpose valve)

AG34-FP2/AG44 -FP2 Series

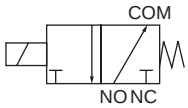
- NO pressurization
- Port size: Rc1/8, Rc1/4, Rc3/8

CE RoHS CAD

For more information about CE, please check our website.

JIS symbol

● AG34/44: NO pressurization



Common specifications

Item	Specifications	
Working fluid	Air/low vacuum (1.33 × 10^2Pa (abs)/water/oil (50mm^2/s or less)	Hot water
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 60 (no freezing)	-10 to 90
Ambient temperature °C	-20 to 60	-20 to 100 *1
Thermal class	Class 130 (B)	Class 180 (H)
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 (air)	
Mounting orientation	Unrestricted	
Degree of protection	IP65Equivalent	IP00
Sealant	Fluoro rubber	

*1: -20 to 80°C when coil housing is HP terminal box with lamp.

Individual specifications

Item / Model No.	Connection Bore size	Orifice size(mm) TOP	Orifice size(mm) BODY	Max. working pressure differential(MPa) Air AC	Air DC	Water/hot water AC	Water/hot water DC	Oil(50 mm^2/s) AC	Oil(50 mm^2/s) DC	Rated voltage	Apparent power(VA) When holding 50Hz	When holding 60Hz	When starting 50Hz	When starting 60Hz	Power consumption(W) AC 50/60Hz	Power consumption(W) DC	Weight(kg)
AG34-01-1	Rc1/8	1.5	1.5	1.0	1.0	1.0	1.0	1.0	0.7	100 VAC 50/60Hz *5	14	11	20	16	6/4.2	11	0.51
-01-2		2.0	2.0	0.7	0.45	0.7	0.6	0.3	0.2								
-02-1	Rc1/4	1.5	1.5	1.0	1.0	1.0	1.0	1.0	0.7								
-02-2		2.0	2.0	0.7	0.45	0.7	0.6	0.3	0.2								
AG44-02-1	Rc1/4	2.0	2.0	1.2	0.75	1.5	1.0	1.0	0.45	200 VAC 50/60Hz *5	22	17	35	27	8.3/6.2	11	0.65
-02-3		2.0	3.0	1.2	0.75	1.5	0.9	1.0	0.45								
-02-4		3.0	3.0	0.4	0.3	0.5	0.3	0.3	0.2								
-03-1	Rc3/8	2.0	2.0	1.2	0.75	1.5	1.0	1.0	0.45	24 VDC							0.70
-03-3		2.0	3.0	1.2	0.75	1.5	0.9	1.0	0.45								
-03-4		3.0	3.0	0.4	0.3	0.5	0.3	0.3	0.2								

*1: The model numbers above are for the basic port size (Rc) and orifice size. Refer to How to order for other combinations.
*2: Refer to DC column for the max. working pressure differential of coil with diode.
*3: The voltage fluctuation range must be within ±10% of the rated voltage.
*4: When using at low vacuum, vacuum the NC port side.
*5: The 100 VAC (50/60 Hz) type can be used with 110 VAC (60 Hz). The 200 VAC (50/60 Hz) type can be used with 220 VAC (60 Hz). However, this does not apply to coil housings 5A/5I/5J.

Flow characteristics

Model No.	Port size	Orifice size(mm) TOP	Orifice size(mm) BODY	Flow characteristics C[dm^3/(s·bar)] TOP	C[dm^3/(s·bar)] BODY	b TOP	b BODY	Cv TOP	Cv BODY
AG34-01-1	Rc 1/8	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
-01-2		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
-02-1	Rc 1/4	1.5	1.5	0.29	0.29	0.64	0.53	0.09	0.09
-02-2		2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
AG44-02-1	Rc 1/4	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
-02-3		2.0	3.0	0.53	1.1	0.54	0.52	0.15	0.31
-02-4		3.0	3.0	1.1	1.1	0.72	0.52	0.31	0.31
-03-1	Rc 3/8	2.0	2.0	0.53	0.53	0.54	0.52	0.15	0.15
-03-3		2.0	3.0	0.53	1.1	0.54	0.52	0.15	0.31
-03-4		3.0	3.0	1.1	1.1	0.72	0.52	0.31	0.31

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

How to order

AG34 - 02 - 1 - M 3A FP2 - AC100V

AG44

Model No.

A Port size

B Orifice size

C Body/sealant combination

D Coil housing

E Voltage

Code	Description	Model No. AG34	Model No. AG44
A Port size			
01	Rc1/8	●	
02	Rc1/4	●	●
03	Rc3/8		●

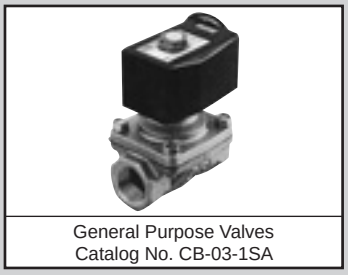
B Orifice size	AG34		AG44			
	TOP	BODY	TOP	BODY		
1	ø1.5	ø1.5	ø2.0	ø2.0	●	●
2	ø2.0	ø2.0	-	-	●	
3	-	-	ø2.0	ø3.0		●
4	-	-	ø3.0	ø3.0		●

C Body/sealant combination	Body	Seal		
M	Stainless steel	Fluoro rubber	●	●

D Coil housing			
3A	Open Frame type	Lead wire	
3I		With HP terminal box	(G1/2)
3J		HP terminal box with lamp	(G1/2)
4A	Open Frame type (Thermal class 180 (H))	Lead wire	
4M		With HP terminal box	(G1/2)
4N		HP terminal box with lamp	(G1/2)
5A	Open Frame type (diode integrated)	Lead wire	
5I		With HP terminal box	(G1/2)
5J		HP terminal box with lamp	(G1/2)

E Rated voltage	
3A 3I	100 VAC, 200 VAC, 12 VDC, 24 VDC, 48 VDC, 100 VDC
3J	100 VAC, 200 VAC, 12 VDC, 24 VDC, 100 VDC
4A 4M 4N	100 VAC, 200 VAC
5A 5I 5J	100 VAC, 200 VAC

For dimensions, refer to the AG34/AG44 Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Material compatible with the Food Sanitation Act

Pilot kick 2-port solenoid valve for dry air
(general purpose valve)

ADK11-Z-FP2 Series

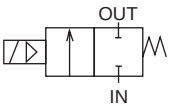
- NC (Normally Closed)
- Port size: Rc1/4 to Rc1
- Diaphragm drive

CE RoHS CAD

For CE details
Check our website.

JIS symbol

● NC (Normally Closed)



Common specifications

Item	Standard specifications
Working fluid	Dry air (atmospheric dew point -60°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.)
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 (8 A/10 A: at 0.02 to 0.7 MPa, 15 A to 25 A: at 0.02 to 0.6 MPa)*
Mounting orientation	Unrestricted
Degree of protection	IP 65 or equiv.

* When used at a pressure less than 0.02 MPa, 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	-8 A	Rc 1/4	12	0	0.7	100 VAC 50/60Hz 200 VAC 50/60Hz 24 VDC	15.5	14	0.8
	-10 A	Rc 3/8	12		0.7				0.8
	-15 A	Rc 1/2	16		0.6				1.0
	-20 A	Rc 3/4	23		0.6				1.1
	-25 A	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	24 VDC
ADK11-8A to 25A-*ZFP2	10 mA or less	5 mA or less	20 mA or less

Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics C[dm^3/(s·bar)]	b	S(mm^2)
ADK11-8A	Rc 1/4	12	9.2	0.36	-
ADK11-10A	Rc 3/8	12	11	0.46	-
ADK11-15A	Rc 1/2	16	20	0.31	-
ADK11-20 A	Rc 3/4	23	-	-	162
ADK11-25A	Rc 1	28	-	-	231

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

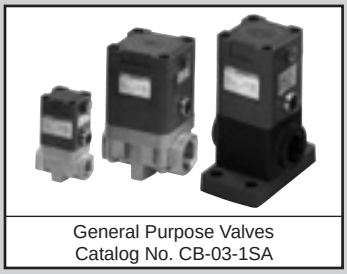
How to order

ADK11 - 15 A - M 3A Z FP2 - DC24V

- ADK11: Model No.
- 15: A Port size
- A: B Thread
- M: C Body/sealant combination
- 3A: D Coil housing
- DC24V: E Rated voltage

Code	Description		
A Port size			
8	1/4		
10	3/8		
15	1/2		
20	3/4		
25	1		
B Thread			
A	Rc		
C Body/sealant combination			
	Body	**Seal**	
M	Stainless steel	Fluoro rubber	
D Coil housing			
3A	Open Frame type	Lead wire	
3I		With HP terminal box	(G1/2)
3J		HP terminal box with lamp	(G1/2)
5A	Open Frame type (diode integrated)	Lead wire	
5I		With HP terminal box	(G1/2)
5J		HP terminal box with lamp	(G1/2)
E Rated voltage			
3A	24 VDC		
3I			
3J			
5A	100 VAC, 200 VAC		
5I			
5J			

For dimensions, refer to the ADK11-Z Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Material compatible with the Food Sanitation Act

FDA compliant materials

Diaphragm cylinder valve

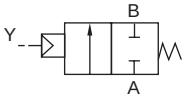
LAD-FP2 Series

- 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

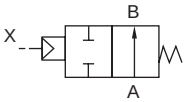
RoHS CAD

JIS symbol

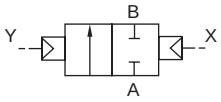
● NC (Normally Closed)



● 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_2Gas, non-corrosive/non-absorbable fluid (*1)		
Fluid temperature		°C	5 to 90 (*2)		
Proof pressureForce(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 compliant 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.

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 compliant 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(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

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

How to order

LAD **1** - **15A** - **C** **B** - **FP2**

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
1	With flow rate adjustment
B	Mounting plate

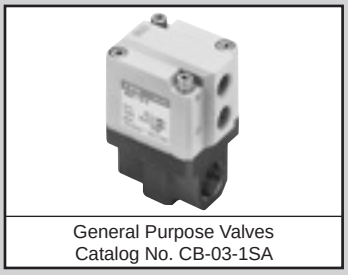
*1: To add both the flow rate adjustment and mounting plate, specify as "1B".
*2: FDA compliance is limited to the stainless steel body (SCS13) type.

[Example of model No.]

LAD1-15A-CB-FP2

Model: Diaphragm cylinder valve LAD
Ⓐ Actuation : NC (Normally Closed)
Ⓑ Port size : Rc1/2
Ⓒ Material combination : Body - PPS, diaphragm - PTFE
Ⓓ Other options : Mounting plate

For dimensions, refer to the LAD Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Diaphragm cylinder valve, single unit

Material compatible with the Food Sanitation Act

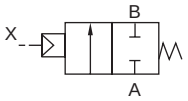
NAD*-FP2/NAD*V-FP2 Series

- NC (Normally Closed), NO (Normally Open), double acting
- Port size: Rc3/8
- Working fluid
  NAD* : Air, inert gas, water, non-corrosive liquid
  NAD*V : Low vacuum

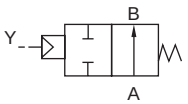
RoHS

JIS symbol

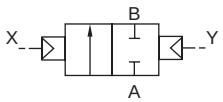
● NC (Normally Closed)



● NO (Normally Open)



● Double acting



Specifications

Item		NAD1-10	NAD2-10	NAD3-10	NAD1V-10	NAD2V-10	NAD3V-10
Actuation		NC (Normally Closed) type	NO (Normally Open) type	Double acting	NC (Normally Closed) type	NO (Normally Open) type	Double acting
Working fluid		Air, inert gas, water, non-corrosive/non-absorbable liquid			Low vacuum (air/water)		
Fluid viscosity	mm^2/s	500 or less					
Working pressure		0 to 0.5 MPa (secondary pressure 0.4 MPa or less)			1.3×10^2 to 5×10^5Pa (abs) (secondary pressure 4×10^5Pa (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		$0.12cm^3$/min or less (pneumatic pressure)			$1.33 \times 10^{-3}Pa \cdot m^3$/sHe or less		
Port size		Rc3/8			Rc3/8		
Orifice size	mm	7					
Cv		1.1					
C[$dm^3/(s \cdot bar)$]		4.4					
b		0.3			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 ( ) - 10 - R B - FP2

Model No.

Ⓐ Actuation

Ⓑ Working fluid

Ⓒ Port size

Ⓓ Body/sealant combination

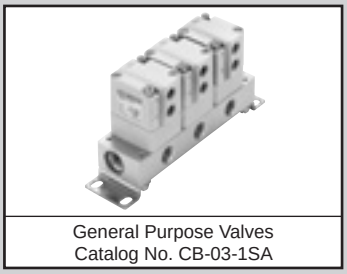
Ⓔ Other options

Code	Description
Ⓐ Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting
Ⓑ Working fluid	
Blank	Air, inert gas, water
V	Low vacuum
Ⓒ Port size	
10	Rc3/8
Ⓓ Body/sealant combination	
	Body / Seal
R	Stainless steel / Ethylene propylene rubber
Ⓔ Other options	
Blank	No option
B	Mounting plate

[Example of model No.]
NAD1-10-RB-FP2

Model: NAD
Ⓐ Actuation : NC (Normally Closed)
Ⓑ Working fluid : Air, inert gas, water
Ⓒ Port size : Rc3/8
Ⓓ Body/sealant combination : Body - stainless steel/sealant - ethylene propylene rubber
Ⓔ Other options : With mounting plate

For dimensions, refer to the NAD Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Diaphragm cylinder valve, manifold

Material compatible with the Food Sanitation Act

GNAD*-FP2/GNAD*V-FP2 Series

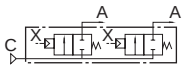
- NC (Normally Closed), NO (Normally Open), double acting
- Port size: Rc1/4, Rc3/8
- Working fluid
  GNAD* : Air, inert gas, water, non-corrosive liquid
  GNAD*V : Low vacuum

RoHS

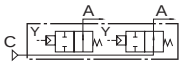
JIS symbol

● Common supply (port C pressurization)

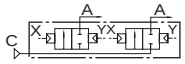
NC (Normally Closed)



NO (Normally Open)

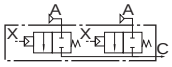


Double acting

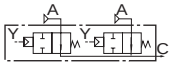


● Individual supply (port A pressurization)

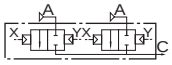
NC (Normally Closed)



NO (Normally Open)



Double acting



Specifications

Item		GNAD1-1, 5	GNAD2-1, 5	GNAD3-1, 5	GNAD1V-1, 5	GNAD2V-1, 5	GNAD3V-1, 5
Actuation		NC (Normally Closed) type	NO (Normally Open) type	Double acting	NC (Normally Closed) type	NO (Normally Open) type	Double acting
Working fluid		Air, inert gas, water, non-corrosive/non-absorbable liquid			Low vacuum (air/water)		
Fluid viscosity	mm^2/s	500 or less					
Working pressure		0 to 0.5MPa (secondary pressure 0.4MPa or less)			1.3×10^2 to 5×10^5Pa (abs) (secondary pressure 4×10^5Pa (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		$0.12cm^3$/min or less (pneumatic pressure)			1.33×10^{-3}Pa·m^3/sHe or less		
Orifice size	mm	7					
Cv		0.7					
C[dm^3/(s·bar)]		3.4					
b		0.1			-		
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 ( ) - 1 - 3 - R - FP2

Model No.

Ⓐ Actuation

Ⓑ Working fluid

Ⓒ Air supply category

Ⓓ Manifold station No.

Ⓔ Sub-plate/body/sealant combination

Code	Description
Ⓐ Actuation	
1	NC (Normally Closed)
2	NO (Normally Open)
3	Double acting
Ⓑ Working fluid	
Blank	Air, inert gas, water
V	Low vacuum
Ⓒ Air supply category	
1	Common supply
5	Individual supply
Ⓓ Manifold station No.	
2	2 stations
to	to
10	10 stations
0	Actuator only

Ⓔ Sub-plate/body/sealant combination

	Sub-plate	Body	Seal
R	Stainless steel	Stainless steel	Ethylene propylene rubber
8	Stainless steel	Polypropylene	Ethylene propylene rubber
3	Aluminum	Polypropylene	Ethylene propylene rubber

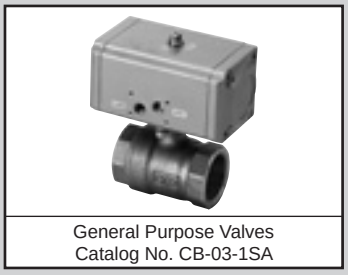
[Example of model No.]

GNAD1-1-3-R-FP2

Model name: GNAD

ⒶActuation	: NC (Normally Closed)
ⒷWorking fluid	: Air, inert gas, water
ⒸAir supply category	: Common supply
ⒹManifold station No.	: 3 stations
ⒺSub-plate/body/sealant combination	: Sub-plate - stainless steel/body - stainless steel/sealant - ethylene propylene rubber

For dimensions, refer to the GNAD Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Material compatible with the Food Sanitation Act

Air operated 2-port ball valve
(Compact rotary valves)

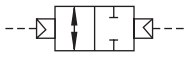
CHB-FP2/CHB-R*-FP2
CHBF-FP2/CHBF-R*-FP2 Series

● Port size: Rc3/8 to Rc2

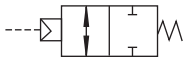
RoHS CAD

JIS symbol

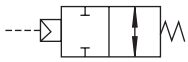
● CHB/CHBF
(double acting)



● CHB-R1/CHBF-R1
(Single acting-NC)



● CHB-R2/CHBF-R2
(Single acting-NO)



Common specifications

Item		Double acting	Single acting
		CHB(Standard bore) CHBF(Full bore)	CHB-R*(Standard bore) CHBF-R* (Full bore)
Actuation		Air operated: Double acting	Air operated: Single 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	
Mounting orientation		Unrestricted	
Frequency cycles/min.		1 or less	
Rotary actuator	Pilot fluid	Compressed air	
	Lubrication	Not required	
	Proof pressure(water pressure) MPa	1.5	
	Working pressureMPa	0.35 to 0.7	0.4 to 0.7
	Fluid temperature°C	5 to 60	
	Port size	Rc1/8	Rc1/8

Individual specifications

Item / Model No.		Port size	Orifice size(mm)	Cv	Weight(kg)	
					Double acting	Single acting
Standard bore	CHB-(R*-)10	Rc3/8	10	10	1.0	1.1
	CHB-(R*-)15	Rc1/2	10	6	1.0	1.1
	CHB-(R*-)20	Rc3/4	15	16	1.2	1.3
	CHB-(R*-)25	Rc1	20	29	1.3	2.2
	CHB-(R*-)32	Rc1 1/4	25	50	2.1	2.5
	CHB-(R*-)40	Rc1 1/2	32	98	2.6	4.7
	CHB-(R*-)50	Rc2	40	125	3.3	5.5
Full bore	CHBF-(R*-)15	Rc1/2	15	23	1.1	1.2
	CHBF-(R*-)20	Rc3/4	20	51	1.3	2.1
	CHBF-(R*-)25	Rc1	25	66	2.0	2.4
	CHBF-(R*-)32	Rc1 1/4	32	114	2.5	4.7
	CHBF-(R*-)40	Rc1 1/2	40	176	3.2	5.4

1:CHB-(R-)10 is a full bore type.

How to order

CHB - R1 - 15 - N - FP2

CHBF

Model No.

Ⓐ Actuator

Ⓑ Port size
*1

Ⓒ Body material

Code	Description	Model No. CHB (Standard bore)	Model No. CHBF (Fullbore)
Ⓐ Actuator			
Blank	Double acting	●	●
R1	Single acting NC (Normally Closed)	●	●
R2	Single acting NO (Normally Open)	●	●
Ⓑ Port size			
10	Rc3/8	●	
15	Rc1/2	●	●
20	Rc3/4	●	●
25	Rc1	●	●
32	Rc1 1/4	●	●
40	Rc1 1/2	●	●
50	Rc2	●	
Ⓒ Body material			
N	Stainless steel Oil-prohibited specifications	●	●

[Example of model No.]

CHB-R1-15-N-FP2

Model No.: CHB (standard bore)

Ⓐ Actuator : Single acting NC (Normally Closed)
Ⓑ Port size : Rc1/2
Ⓒ Body material : Stainless steel

For dimensions, refer to the CHB/CHBF Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Material compatible with the Food Sanitation Act

Air operated 3-port ball valve
(Compact rotary valves)

CHG-FP2/CHG-R*-FP2 Series

● Port size: Rc1/2 to Rc2

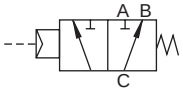
RoHS CAD

JIS symbol

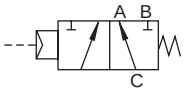
● CHG(Double acting)



● CHG-R1(Single acting - normally B-C path)



● CHG-R2(Single acting - normally A-C path)



Common specifications

Item		CHG(Double acting)	CHG-R*(SingleActuation)
Actuation		Air operated: Double acting	Air operated: Single acting
Working fluid		Water/air/oil (500 mm²/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	
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	
	Proof pressure(water pressure) MPa	1.5	
	Working pressure MPa	0.35 to 0.7	0.4 to 0.7
	Fluid temperature°C	5 to 60	
	Port size	Rc1/8	Rc1/8

Individual specifications

Item / Model No.	Port size	Orifice size(mm)	Cv	Weight(kg)	
				Double acting	Single acting
CHG-(R*-)15	Rc1/2	10	3	1.1	1.2
CHG-(R*-)20	Rc3/4	14	6	1.3	1.4
CHG-(R*-)25	Rc1	19	11	1.5	2.4
CHG-(R*-)32	Rc1¼	23	16	2.3	2.8
CHG-(R*-)40	Rc1½	30	28	2.8	5.0
CHG-(R*-)50	Rc2	38	47	3.7	5.9

How to order

CHG - R1 - 20 - N - FP2

- CHG: Model No.
- R1: Ⓐ Actuator
- 20: Ⓑ Port size
- N: Ⓒ Body material
- FP2: Model No.

Code	Description
Ⓐ Actuator	
Blank	Double acting
R1	Single acting, normally B-C path
R2	Single acting, normally A-C path
Ⓑ Port size	
15	Rc1/2
20	Rc3/4
25	Rc1
32	Rc1¼
40	Rc1½
50	Rc2
Ⓒ Body material	
N	Stainless steel/oil-prohibited specifications

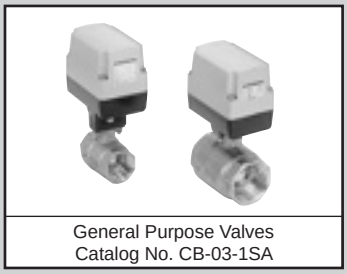
[Example of model No.]

CHG-R1-20-N-FP2

Model: CHG

Ⓐ Actuator : Single acting, normally B-C path
Ⓑ Port size : Rc3/4
Ⓒ Body material : Stainless steel

For dimensions, refer to the CHG Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Material compatible with the Food Sanitation Act

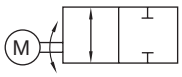
Oil-free motorized 2-port ball valve

MXB1-FP2/MXB1D-FP2 Series

● Port size: Rc3/8 to Rc2

RoHS CAD

JIS symbol



Common specifications

Item	MXB1(Standard)/MXB1D(With relay)
Working fluid	Water/air/oil (500mm^2/s or less)
Working pressure MPa	0 to 1.0(Refer to working pressure in individual specifications.)
Proof pressure(water pressure)MPa	2.0
Fluid temperature °C	0 to 80(no freezing)
Ambient temperature °C	-10 to 50
Ambient humidity %	95 or less
Mounting orientation	From vertical direction with the actuator on the top to horizontal direction. (General Purpose Valves (Catalog No.CB-03-1SA).)
Pressurization direction	Arbitrary
Degree of protection	IPX3 "rainproof"

Electrical specifications

Item			MXB1-10	MXB1-15	MXB1-20	MXB1-25	MXB1-32	MXB1-40	MXB1-50
Rated voltage *1			100 VAC (50/60Hz), 200 VAC (50/60Hz), 12 VDC, 24 VDC						
Apparent power VA	Operating	100 VAC	4.9/5.9 (50/60Hz)				13/15 (50/60Hz)		
		200 VAC	5.4/6.2 (50/60Hz)				13/15 (50/60Hz)		
	When starting	100 VAC	4.9/5.9 (50/60Hz)				13/15 (50/60Hz)		
		200 VAC	5.4/6.2 (50/60Hz)				13/15 (50/60Hz)		
Average current value A		12 VDC	1.1				1.5		
*2		24 VDC	0.7				1.0		
Starting current A		12 VDC	1.8 or less				3 or less		
*2		24 VDC	1.2 or less				2 or less		
Power consumption W		AC	7				15		
		12 VDC	13				18		
		24 VDC	17				24		

Item			MXB1D-10	MXB1D-15	MXB1D-20	MXB1D-25	MXB1D-32	MXB1D-40	MXB1D-50
Rated voltage *1			100 VAC (50/60Hz), 200 VAC (50/60Hz)						
Apparent power VA	Operating	100 VAC	6.0/6.8 (50/60Hz)				14/16 (50/60Hz)		
		200 VAC	6.6/7.2 (50/60Hz)				14/16 (50/60Hz)		
	When starting	100 VAC	6.0/6.8 (50/60Hz)				14/16 (50/60Hz)		
		200 VAC	6.6/7.2 (50/60Hz)				14/16 (50/60Hz)		
Power consumption W			8				16		

Individual specifications

Item		MXB1-10 / MXB1D-10	MXB1-15 / MXB1D-15	MXB1-20 / MXB1D-20	MXB1-25 / MXB1D-25	MXB1-32 / MXB1D-32	MXB1-40 / MXB1D-40	MXB1-50 / MXB1D-50
Port size		Rc3/8	Rc1/2	Rc3/4	Rc1	Rc1 1/4	Rc1 1/2	Rc2
Orifice size mm		10	10	15	20	25	32	40
Cv		10	6	16	29	50	98	125
Working pressure MPa		0 to 1.0						0 to 0.5
Response time sec	AC	10/8(50/60Hz)				13/11(50/60Hz)		
	DC	8				10.5		
Frequency	AC	2 cycles/min. or less				1 cycle/min. or less		
*3	DC	1 cycle/min. or less				1 cycle/2 min. or less		
Weight kg	MXB1	1.2	1.2	1.4	1.5	2.6	3.1	3.8
	MXB1D	1.2	1.3	1.4	1.6	2.7	3.1	3.9

*1: Use the product within ±10% of the rated voltage.
*2: Current values at the rated voltage.
*3: Be sure to observe the specified frequency of use.
*4: Consult with CKD for specifications not indicated above.

How to order

MXB1 - 32 - N T M - FP2 - 1
MXB1D

Model No.
A Port size
B Body/seat material
C Other options
D Manual override *1
E Voltage

Code	Description	Model No. MXB1	Model No. MXB1D
A Port size			
10	Rc3/8	●	●
15	Rc1/2	●	●
20	Rc3/4	●	●
25	Rc1	●	●
32	Rc1 1/4	●	●
40	Rc1 1/2	●	●
50	Rc2	●	●
B Body/seat material			
N	Body - stainless steel/seat - PTFE/oil-prohibited specifications	●	●

C Other options

	Description	Applications	Remarks		
Blank	5-conductor cable 0.5mm² (With output lead wire)	-	-	●	●
T	3-conductor cable 0.75mm² (Without signal output)	When output lead wire is not required	3-conductor cabtyre cable used	●	●

D Manual override			
Blank	No	●	●
M	Manual override	●	●
E Voltage			
1	100 VAC (50/60 Hz)	●	●
2	200 VAC (50/60 Hz)	●	●
3	24 VDC	●	
4	12 VDC	●	

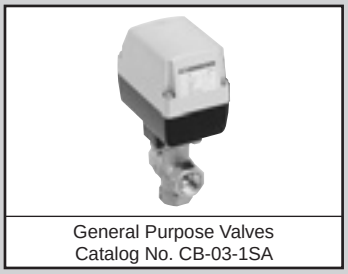
*1: Manual override (D Item M) is for port sizes 32/40/50. Manual override is provided as standard with other port size.

[Model No. example]

MXB1-32-NTM-FP2-1
Model: MXB1 (standard)

A Port size: Rc1 1/4
B Body material: Body - stainless steel/seat - PTFE/oil-prohibited specifications
C Other options: 3-conductor cable (without output lead wire)
D Manual override: Selected
E Voltage: 100 VAC (50/60 Hz)

For dimensions, refer to the MXB1/MXB1D Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Material compatible with the Food Sanitation Act

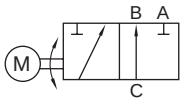
Oil-free motorized 3-port ball valve

MXG1-FP2/MXG1D-FP2 Series

● Port size: Rc1/2 to Rc2

RoHS CAD

JIS symbol



Common specifications

Item	MXG1(Standard)/MXG1D(With relay)
Working fluid	Water/air/oil (500mm²/s or less)
Working pressure MPa	0 to 1.0(Refer to working pressure in individual specifications.)
Proof pressure(water pressure) MPa	2.0
Fluid temperature °C	0 to 80 (no freezing)
Ambient temperature °C	-10 to 50
Ambient humidity %	95 or less
Mounting orientation	From vertical direction with the actuator on the top to horizontal direction.
Pressurization direction	Port C pressurization only
Degree of protection	IPX3 "rainproof"

Electrical specifications

Item			MXG1-15	MXG1-20	MXG1-25	MXG1-32	MXG1-40	MXG1-50
Rated voltage *1			100 VAC(50/60Hz), 200 VAC(50/60Hz), 12 VDC, 24 VDC					
Apparent power VA	Operating	100 VAC	4.9/5.9(50/60Hz)			13/15(50/60Hz)		
		200 VAC	5.4/6.2(50/60Hz)			13/15(50/60Hz)		
	When starting	100 VAC	4.9/5.9(50/60Hz)			13/15(50/60Hz)		
		200 VAC	5.4/6.2(50/60Hz)			13/15(50/60Hz)		
Average current value A		12 VDC	1.1			1.5		
*2		24 VDC	0.7			1.0		
Starting current A		12 VDC	1.8 or less			3 or less		
*2		24 VDC	1.2 or less			2 or less		
Power consumption W		AC	7			15		
		12 VDC	13			18		
		24 VDC	17			24		

Item			MXG1D-15	MXG1D-20	MXG1D-25	MXG1D-32	MXG1D-40	MXG1D-50
Rated voltage *1			100 VAC(50/60Hz), 200 VAC(50/60Hz)					
Apparent power VA	Operating	100 VAC	6.0/6.8(50/60Hz)			14/16(50/60Hz)		
		200 VAC	6.6/7.2(50/60Hz)			14/16(50/60Hz)		
	When starting	100 VAC	6.0/6.8(50/60Hz)			14/16(50/60Hz)		
		200 VAC	6.6/7.2(50/60Hz)			14/16(50/60Hz)		
Power consumption W			8			16		

Individual specifications

Item		MXG1-15 / MXG1D-15	MXG1-20 / MXG1D-20	MXG1-25 / MXG1D-25	MXG1-32 / MXG1D-32	MXG1-40 / MXG1D-40	MXG1-50 / MXG1D-50
Port size		Rc1/2	Rc3/4	Rc1	Rc1 1/4	Rc1 1/2	Rc2
Orifice size mm		10	14	19	23	30	38
Cv		3	6	11	16	28	47
Working pressure MPa		0 to 1.0					0 to 0.5
Response time sec	AC	20/16(50/60Hz)			26/22(50/60Hz)		
	DC	16			21		
Frequency	AC	1 cycle/min. or less			1 cycle/2 min. or less		
*3	DC	1 cycle/2 min. or less			1 cycle/5 min. or less		
Weight kg	MXG1	1.3	1.4	1.7	2.7	3.2	4.1
	MXG1D	1.3	1.5	1.7	2.7	3.3	4.2

*1: Use the product within ±10% of the rated voltage.
*2: Current values at the rated voltage.
*3: Be sure to observe the specified frequency of use.
*4: Consult with CKD for specifications not indicated above.

How to order

MXG1 - **20** - **N** **K** - **FP2** - **2**

MXG1D

Model No.

Ⓐ Port size

Ⓑ Body/seat material

Ⓒ Other options

Ⓓ Voltage

Code	Description	Model No. MXG1	Model No. MXG1D
Ⓐ Port size			
15	Rc1/2	●	●
20	Rc3/4	●	●
25	Rc1	●	●
32	Rc1¼	●	●
40	Rc1½	●	●
50	Rc2	●	●
Ⓑ Body/seat material			
N	Body - stainless steel/seat - PTFE/oil-prohibited specifications	●	●

Ⓒ Other options

	Description	Applications	Remarks		
Blank	5-conductor cable 0.5mm² (With output lead wire)	-	-	●	●
T	3-conductor cable 0.75mm² (Without signal output)	When output lead wire is not required	3-conductor cabtyre cable used	●	●
K	Multi-fluid type (90° Rotation switching method Response time 1/2)	To remove load to pump	Fluids may mix somewhat during switching	●	●
TK	3-conductor cable 0.75mm² Multi-fluid type	-	-	●	●

Ⓓ Voltage			
1	100 VAC (50/60 Hz)	●	●
2	200 VAC (50/60 Hz)	●	●
3	24 VDC	●	
4	12 VDC	●	

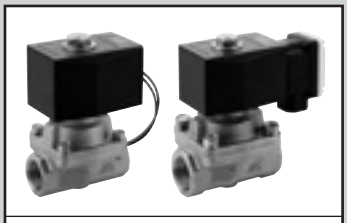
[Model No. example]

MXG1-20-NK-FP2-2

Model: MXG1

Ⓐ Port size: Rc3/4
Ⓑ Body/seat material: Body - stainless steel/seat - PTFE/oil-prohibited specifications
Ⓒ Other options: Multi-fluid type (90° Rotation switching, response time 1/2)
Ⓓ Voltage: 200 VAC (50/60 Hz)

For dimensions, refer to the MXG1/MXG1D Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

Material compatible with the Food Sanitation Act

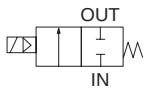
Pilot kick 2-port solenoid valve for steam

SPK-FP2 Series

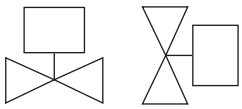
- NC
- Working fluid: Steam
- Port size: Rc1/2 to Rc1

RoHS CAD

JIS symbol



Mounting orientation



Common specifications

Item	SPK11
Working fluid	Steam
Working pressure differential MPa	0 to 1.0
Max. working pressure MPa	1
Proof pressure (water pressure) MPa	2
Fluid temperature °C	5 to 180
Ambient temperature °C	-10 to 60
Thermal class	Class 180 (H)
Atmosphere	Place free of corrosive gas and explosive gas
Valve structure	Pilot kick poppet, piston drive
Valve seat leakage (*1) cm^3/min (ANR)	400 or less (air)
Mounting orientation	Limited to the range of vertical orientation with the coil on top to horizontal orientation (*2).

*1: Value at pneumatic pressure 0.05 to 1.0MPa. When used at a pressure less than 0.05 MPa, the sealant may be unstable. Contact CKD in this case.
*2: Limited to vertical orientation when used at a pressure less than 0.05 MPa.

Individual specifications

Item / Model No.	Connection Bore size	Orifice size (mm)	Rated voltage	Apparent power (VA)				Power consumption (W)	Weight (kg)
				When holding		When starting			
				50Hz	60Hz	50Hz	60Hz	AC 50/60Hz	
SPK11-15A	Rc1/2	16	100 VAC 110 VAC 200 VAC 220 VAC	14	12	49	43	6.5/5.6	1.1
SPK11-20A	Rc3/4	23							1.3
SPK11-25A	Rc1	28							1.8

*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. If the pressure difference is more than 0.7MPa, it should be within -5% to +10%.

How to order

SPK11 - 15 A - N 4A S FP2 - AC100V

- SPK11 — Model No.
- 15 — A Port size
- A — B Thread
- N — C Body/sealant combination
- 4A — D Coil housing
- S — E Surge suppressor
- FP2 — F Rated voltage
- AC100V — F Rated voltage

Code	Description
A Port size	
15	1/2
20	3/4
25	1
B Thread	
A	Rc
C Body/sealant combination	
N	Stainless steel / PTFE
D Coil housing	
4A	Lead wire
4M	Terminal box
4 N	Terminal box with lamp
E Surge suppressor	
Blank	Without surge suppressor
S *1	Surge suppressor included
F Rated voltage	
AC100V	100 VAC 50/60 Hz, 110 VAC 60 Hz
AC200V	200 VAC 50/60 Hz and 220 VAC 60 Hz

Precautions for model No. selection

*1: "S" is attached only when the coil housing [D] is "4A".

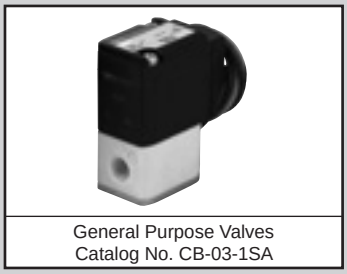
[Example of model No.]

SPK11-15A-N4ASFP2-AC100V

- A Port size : 1/2
- B Thread : Rc
- C Body material : Stainless steel
- D Coil housing : Lead wire
- E Surge suppressor : Surge suppressor included
- F Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

For dimensions, refer to the SPK Series in "General Purpose Valves (CB-03-1SA)".

MEMO



General Purpose Valves
Catalog No. CB-03-1SA

Material compatible with the Food Sanitation Act

Metal-free 2-port solenoid valve

MYB3 -FP2 Series

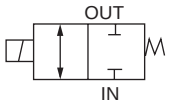
- NC (Normally Closed)
- Working fluid: Water/pure water/chemical liquids
- Port size: Rc1/8, Rc1/4, Rc3/8

CE RoHS CAD

For CE details
Check our website.

JIS symbol

- MYB3 (2-port)
  : NC



Specifications

Item		MYB3
Working fluid		Water/pure water/chemical liquids (fluids that do not corrode wetted part materials)
Proof pressure	MPa	0.3 (water pressure)
Working pressure	MPa	See table below
Fluid temperature	°C	5 to 60
Ambient temperature	°C	0 to 50
Atmosphere		No explosive or corrosive atmospheres
Valve seat leakage	cm^3/min	0 (water pressure)
Port size		Rc1/8, Rc1/4, Rc3/8
Orifice size	mm	5.0 or equiv.
Cv		0.5
Mounting orientation		Unrestricted
Weight	kg	0.55
Electrical specifications		
Rated voltage		24 VDC/100 VAC (50/60Hz)
Voltage fluctuation range		±10%
Power consumption	AC	11
	DC	11.5
Leakage current	mA	1 or less (24 VDC) /2 or less (100 VAC) (*1)
Thermal class		Class 130 (B)

Conditions	Fluid flow direction	Working pressure range of each port	
		IN	OUT
IN Positive pressure	IN→OUT	0 to 0.2	0 to 0.1
OUT Positive pressure	OUT→IN	0 to 0.1	0 to 0.1
IN Negative pressure	OUT→IN	-0.05 to 0	-0.05 to 0

*1: The leakage current from the control circuit must be equal to or less than the values shown in the table.
*2: Always read the precautions in "General Purpose Valves (catalog No.CB-03-1SA)" before use.

How to order

MYB3 - 6 - FP2 - DC24V

Ⓐ Port size
Ⓑ Rated voltage

Code	Description
Ⓐ Port size	
6	Rc1/8
8	Rc1/4
10	Rc3/8
Ⓑ Rated voltage	
DC24V	24 VDC
AC100V	100 VAC

For dimensions, refer to the MYB3 Series in "General Purpose Valves (CB-03-1SA)".



General Purpose Valves
Catalog No. CB-03-1SA

High corrosion resistant direct acting 2-port solenoid valve

Material compatible with the Food Sanitation Act

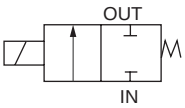
HB-FP2 Series

- NC (Normally Closed)
- Working fluid: Water/pure water/chemical liquids
- Port size: Rc1/8, Rc1/4, Rc3/8

RoHS CAD

JIS symbol

● NC (Normally Closed)



Common specifications

Item	HB31/41
Working fluid	Water/pure water/chemical liquids (fluids that do not corrode wetted part materials)
Working pressure MPa	0 to 0.4
Proof pressure (water pressure) MPa	2
Fluid temperature °C	-10 to 60 (no freezing)
Valve seat leakage cm^3/min	0 (water pressure)
Mounting orientation	Unrestricted
Degree of protection	IP 65 or equiv.
Electrical specifications	
Rated voltage	100 VAC(50/60Hz), 200 VAC(50/60Hz), 24 VDC

*1: The AC rated voltage will be converted to DC by the diode integrated into the coil.
*2: Always read the precautions in "General Purpose Valves (catalog No.CB-03-1SA)" before use.

Individual specifications

Item / Model No.	Connection Bore size	Orifice size (mm)	Cv	Working pressure (MPa)	Ambient temperature° (°C)	Power consumption (w)	Weight (kg)
HB31-6-3	Rc1/8	3.0	0.31	0 to 0.4	-20 to 60	11	0.52
HB31-8-3	Rc1/4						
HB41-8-5		4.0	0.48				0.69
HB41-10-5	Rc3/8						

How to order

HB31 - 6 - 3 - M - 5A FP2 - AC100V

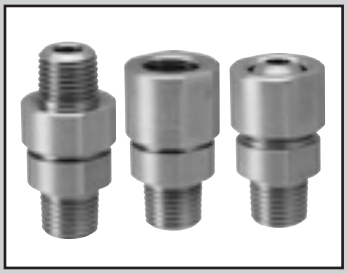
HB41

Ⓐ Model No.
Ⓑ Port size
Ⓒ Orifice size
Ⓓ Body/sealant combination
Ⓔ Coil housing
Ⓕ Rated voltage

Code	Description		Ⓐ Model No. HB31	Ⓐ Model No. HB41
Ⓑ Port size				
6	Rc1/8		●	
8	Rc1/4		●	●
10	Rc3/8			●
Ⓒ Orifice size				
3	ø3		●	
5	ø4			●
Ⓓ Body/sealant combination				
	Body	Seal		
M	Stainless steel	Fluoro rubber	●	●
Ⓔ Coil housing				
3 A	Open frame	Lead wire	●	●
5 A	Open frame (diode integrated)	Lead wire	●	●
Ⓕ Rated voltage				*2
AC100V	100 VAC		●	●
AC200V	200 VAC		●	●
DC24V	24 VDC		●	●

*1: The combinations indicated with ● above are available.
*2: Ⓔ100 VAC or 200 VAC for Item 5A, and 24 VDC for 3A.

For dimensions, refer to the HB Series in "General Purpose Valves (CB-03-1SA)".



Material compatible with the Food Sanitation Act

Check valve (nozzle)

CCN-FP2 Series

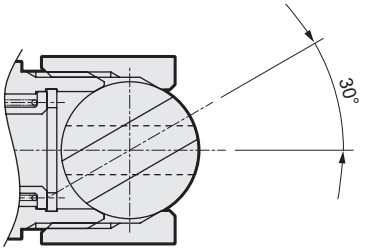
● Working pressure range: 0.05 to 1.0MPa

RoHS CAD

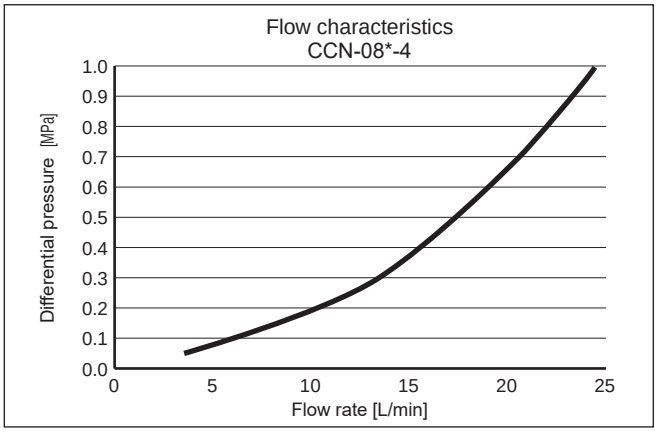
Specifications

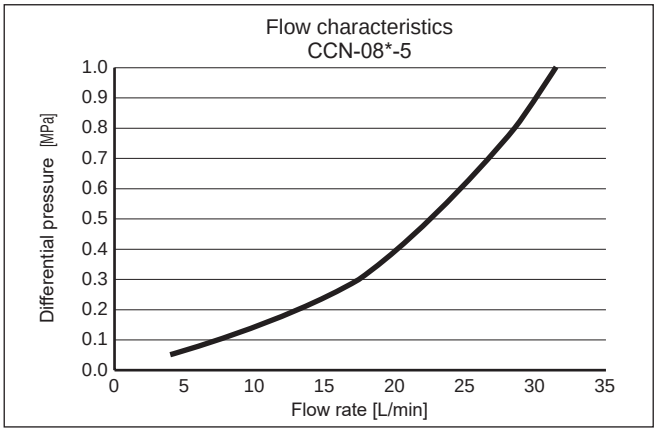
Item		CCN	
Working fluid		Water/oil/other non-corrosive fluids (*1)	
Fluid viscosity	mm^2/s	500 or less	
Max. working pressure	MPa	1.0	
Proof pressure (water pressure)	MPa	2.0	
Fluid temperature	°C	−10 to 60 (no freezing) (During 130°C steam sterilization for 20 mins or less)	
Ambient temperature	°C	−10 to 60	
Cracking pressure	kPa	25 (reference value) (*2)	
Closing pressure	kPa	10 (water head: 1 m)	
Port size		R1/4, G1/4, 1/4NPT	R3/8, G3/8, 3/8NPT
Weight	kg	0.05	0.06
Orifice size	mm	5	6
Mounting orientation		Unrestricted (*3)	

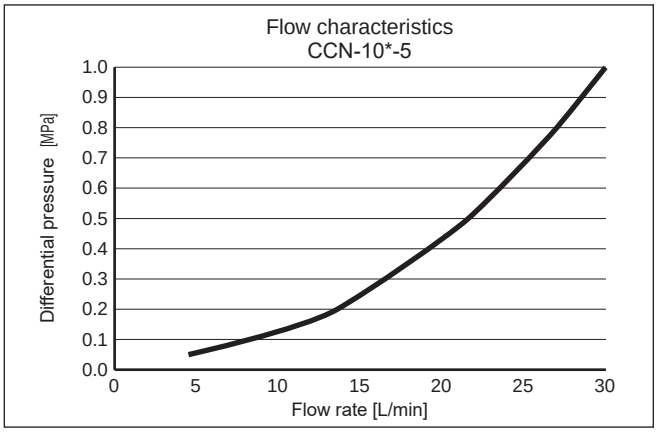
*1: Stainless steel (chrome plating), liquid that does not affect fluoro rubber
*2: Cracking pressure indicates the pressure permitting a 5mL/min (air) flow rate.
It may become higher depending on the fluid type and viscosity.
When the valve is used for the first time after being unused for long periods, the initial cracking pressure may be higher than normal.
*3: The nozzle can be adjusted up to 30°. (when OUT side port size is selected: 4, 5 or 6)

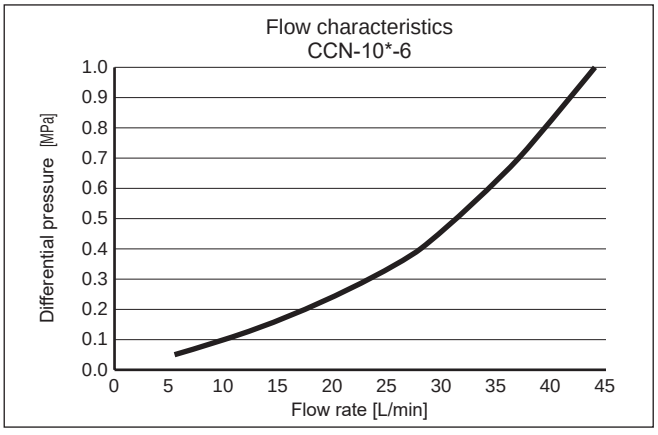


Flow characteristics









* These are reference values based on CKD test conditions.
Note that the flow characteristics may differ depending on the piping conditions.

How to order

CCN - 08F - 4 - FP2

Ⓐ IN side port size

Ⓑ OUT side port size

Code	Description
Ⓐ IN side port size	
08F	R 1/4
10F	R 3/8
08G	G1/4 (male thread)
10G	G3/8 (male thread)
08H	1/4NPT (male thread)
10H	3/8NPT(male thread)

Ⓑ OUT side port size

		08F	10F	08G	10G	08H	10H
4	ø4	●		●		●	
5	ø5	●	●	●	●	●	●
6	ø6		●		●		●
A	Rc1/4	●	●				
B	R 1/4	●	●				
C	G1/4 (female thread)			●	●		
D	G1/4 (male thread)			●	●		
E	1/4NPT (female thread)					●	●
F	1/4NPT (male thread)					●	●

Refer to the CCN Series of "Check valve (nozzle) CCN Series (CC-1440A)" for dimensions and safety precautions.

Safety precautions

FP Series: Warnings and Cautions

Be sure to read this section before use.
Refer to "Pneumatic Cylinders I (CB-029SA)", "Pneumatic Cylinders II (CB-030SA)", "Pneumatic Valves (CB-023SA)", "Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)", and "Fluid Control Valves (CB-03-1SA)" for general and product-specific precautions.
Although the above general catalog states that products are not applicable for equipment or applications with direct contact with beverages/foodstuffs, the FP2 Series products can be used in such applications as long as they are within the range of the product specifications.

Design/selection

⚠CAUTION

- "Compliant with the Food Sanitation Act" refers to products with materials (resin, rubber) conforming to the Food Sanitation Act.
- Use after confirming the structure and material, valve structure, working fluids, and working atmospheres of each component carefully yourself.
- Depending on the model, internal parts may wear when the valve operates. If affected, take necessary measures such as installing a filter on the secondary side.
- If the fluid is water or water drops remain inside, rust may be generated and flow to the secondary side depending on the model. Take necessary measures in that case.
- Bearings used in cylinders contain trace amounts of mineral oil. It is processed so as not to discharge within the product specifications range, but please carefully consider the installation location.
- The protection structure and material (except lubricant) of the 4G-FP1 Series are the same as those of standard products. Therefore, leakage or corrosion may occur in an environment with a high temperature and humidity or where the product is exposed to water. Select installation locations with care.

When using the product

⚠CAUTION

- After installation, check for leaks from pipes, for proper wire connections and that the product is installed correctly.
- Do not use the product as a footing or place any heavy objects on top of the product.
- If the product has been out of use for one month or more, perform a test run before starting the actual operation.
- When hot fluid flows during steam sterilization, the valve body becomes hot, so do not touch with your hand or body. There is a risk of burns if these coils are touched directly.

Safety precautions

FP Series: Warnings/Cautions

Be sure to read this section before use.
Refer to "Electric Actuator Motorless (CB-055A)" and "Electric Actuator EBS-M/EBR-M Series (CC-1422A)" for general and product-specific precautions.

Product-specific cautions: Electric actuator EBS-M/EBR-M/EBS-L/EBR-L/EKS-L/ETS/ETV/ECS/ECV Series

Design/selection

1. Common

⚠ CAUTION

- Do not hit the trolley table against the stroke end.
- Indicate the maintenance conditions in the device's instruction manual.
  - The product's functionality may drop too low to maintain an appropriate safety level depending on usage conditions, working environment and maintenance status. With correct maintenance, the product functions can be used to the fullest.
- Regarding installing, setting up, and/or adjusting the actuator, read through the instruction manual and operate correctly.
- The product is manufactured in conformity with the related standards. Do not disassemble or modify the product.
- Refer to the instruction manual of the motor mounted to the product and control for your safety before wiring and designing.
- The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines and equipment.

2. EBS-M/EBR-M Series

⚠ DANGER

- Use a DC stabilized power supply (48 VDC±10% or 24 VDC±10%) for the motor, control, and input/output circuit power supplies. Connecting directly to the AC power supply may cause fire, explosion, damage, etc.

⚠ CAUTION

- Select a power supply which provides ample capacity based on the number of installed products. Malfunction may occur if there is no excess capacity. (Guideline: □35...4.0A/base, □42...5.2A/base, □56...8.6A/base)

Use/maintenance

1. Common

⚠ CAUTION

- This product uses food-grade (NSF H1) lubricants. Do not mix with other greases.
- Regularly inspect the product at least two or three times a year to check that it operates correctly.
- Grease the product once every 3 months or at 100km intervals as a general guide. Note that grease interval differs depending on the working conditions. It is recommended to determine the interval based on initial inspection. Refer to the instruction manual for details.
- If the product has been out of use for one month or more, perform a test run before starting the actual operation.

2. EBS-M/EBR-M Series

⚠ CAUTION

- The circuit board inside the product has capacitors connected between the circuits and the metal body to prevent damage due to static electricity. Avoid withstand voltage and insulation resistance tests on equipment with this product installed. If tests are done, the product will be damaged. If necessary for the equipment, remove the product before doing the test.
- If the actuator and controller combination is changed, be sure to confirm the programs and parameters prior to operation.
  Otherwise, there is a risk of unexpected accidents.

Precautions for export

Products and related technologies in this catalog

The products and related technologies in this catalog are subject to US Export Administration Regulations (EAR), and display of EAR-compliant products is marked on the product page. For export or provision of products or related technologies subject to EAR regulations, we request that the US Export Administration Regulations (EAR) be observed appropriately.

Anti-bacterial/bacteria-removing/odor removal filter

Safety Precautions

Be sure to read this section before use.Refer to "Pneumatic Components (CB-023SA)" and "Pneumatic, Vacuum, and Auxiliary Valves (CB-024SA)" for general and product-specific precautions. Although the above general catalog states that products are not applicable for equipment or applications with direct contact with beverages/foodstuffs, the FP2 Series products can be used in such applications as long as they are within the range of the product specifications.

Design/selection

⚠WARNING

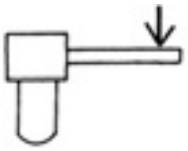
- The antibacterial filter has an antibacterial effect on the bacteria attached to internal filter elements, suppressing bacteria growth. The working fluid has no bacteria-reducing effects. Anti-bacterial activity value, which represents the anti-bacterial effect, is an actual value from CKD's prescribed conditions.
- The bacteria-removing filter and reduces the bacteria in the working fluid, but it does not kill all bacteria. It also does not remove viruses. LRV, which represents bacteria-removing effect, is an actual value from CKD's prescribed conditions.
- This product is for industrial use. Do not use in any equipment or circuit that concerns human life.
- This product tolerates a small amount of leakage which does not affect performance.
- For use with nitrogen gas (N_2) or carbon dioxide (CO_2), provide sufficient ventilation.
- This filter traps waste and bacteria in working fluids and provides clean working fluids to the secondary side. Anti-bacterial and bacteria removing functions are not added to the working fluid itself.
- It cannot be used in environments containing sodium hypochlorite, synthetic oil, organic solvents, chemicals, cutting oil, screw locking agent, leak detection solutions, or hot water, etc., or where these substances may come in contact with the product. For more information on the chemical resistance of plastic bowls and transparent cases, see page 369.
- Piping load torque

  Avoid piping fixed with a single support, as this can result in excessive force and lead to damage.

  [Combination, module type]

  Avoid applying piping load or torque to the body or pipes.

Series	SFC3**	SFC4**	SFC8**
Max. torque N·m	50	50	100

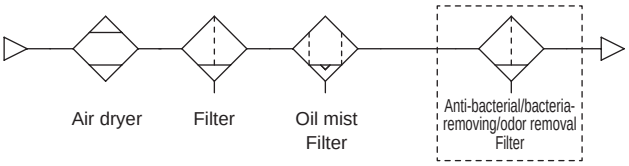


- Use this product after properly checking compatibility of the material with its use conditions and environments.

⚠CAUTION

- Check the working circuit and working fluid.

  To prevent drop in filter performance, install the dryer, air filter and oil mist filter on the primary side, and remove water or oil.



- Installation order for anti-bacterial/bacteria-removing/odor removal filter

  We recommend the use of the bacteria-removing unit as the final filter before the compressed air/gas contact foodstuffs.



- Do not exceed maximum working or differential pressure. Not observing this could damage the product or element.
- Do not create flow exceeding the max. processing flow rate.

  Doing so may degrade the filtration accuracy and damage the element.
- This device cannot be used as an absolute filter (absolute degree of filtration).
- Do not use where the IN/OUT pressure differential exceeds 0.1 MPa.

  A sudden supply of fluid to the filter (such as air blow by releasing the secondary side to the atmosphere, etc.) may reduce the removal efficiency. In this case, install a restriction valve on the filter's IN side to keep the pressure difference to 0.1 MPa or less. Consult with CKD about attaching differential pressure gauge GA400.
- When there is excessive drainage

  Install the air dryer and drain separator before the anti-bacterial/bacteria removing filter.If there is a lot of moisture from the compressor, hot and highly humid air could shorten the device's life or result in corrosion.
- Water-lubricated compressor circuit

  Take measures to prevent chlorine-based substances from entering the compressed air.
- The odor removal filter uses activated carbon to apply suction to oil vapor. Be sure to install an oil mist filter (M Series M type) on the primary side, and remove oil mist in advance.
- The odor removal filter uses suction to remove the oil vapor in compressed air (nitrogen gas, carbon dioxide). Activated carbon suction is not equally effective with all substances, so that it will not completely eliminate all odors.
- The odor removal filter does not have anti-bacterial or bacteria-removing functions.

Mounting, installation and adjustment

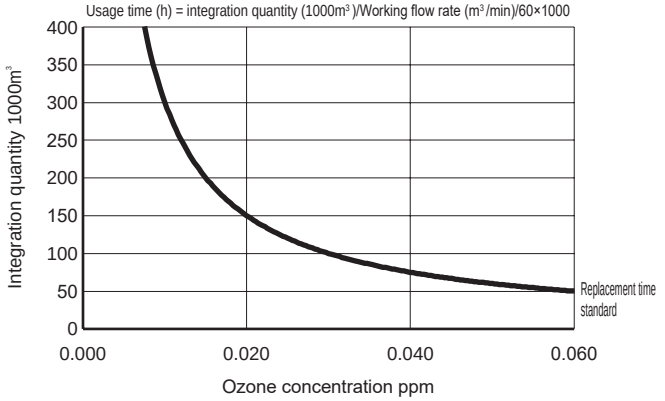
⚠WARNING

■ Prevent the generated ozone from passing through the filter. Otherwise the filter element may be degraded. Take care especially when using an ozone generator (e.g., ionizer) together.
(1) Do not install in the upstream portion of the filter.
(2)When installing downstream of the filter, stop air while static electricity is neutralized since generated ozone may flow back.

■ Avoid installing this product where it is subject to direct ultraviolet.

■ If the hollow fiber membrane in the bacteria-removing filter suffers oxidative degradation from ozone or ultraviolet in the fluid, it may be damaged and allow flow over to the secondary side. Implement periodic inspections and exchange. Consult the graph below for standard replacement times.

Relation between ozone concentration and integration quantity
Filter element replacement period



⚠CAUTION

■ Check the flow direction by arrow and connect correctly.

■ Securing maintenance space
Secure sufficient space for maintenance and inspection.

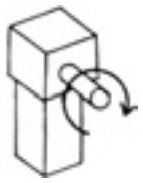
■ After attaching the pipes, flush and clean them before use.
Dirt or foreign matter remaining in the piping will deteriorate product performance.

■ Check that foreign matter does not enter when tightening pipes or fittings.
When screwing in piping or fittings, check that swarf from port threads or sealant does not get inside. Dirt or foreign matter remaining in the piping will deteriorate product performance.In particular, if swarf from the OUT side port thread on the last-installed unit is produced, that swarf will be blown through too. During piping, tighten at or below the torque determined in the catalog, and then flush thoroughly before use.

■ Install the drain cock downward and vertically.

■ Piping screw-in torque
[Combination, module type]
Make sure that excessive torque is not applied on the body and piping when piping.

Series	SFC3**	SFC4**	SFC8**
Max. torque N·m	30	30	70



[Inline]

Port thread	Tightening torque N·m
Rc1/4	6 to 8
Rc3/8	13 to 15

■ Drain piping
● The drain piping for the plastic bowl has a barbed nipple, and can be directly installed. However, confirm that the drain cock is closed before inserting the tube.Do not route it vertically. Pipe so that no lateral load is applied on the bowl. Do not fix the tube connected to the drain outlet with a lateral load applied. If drainage is performed with a lateral load applied, external leakage may occur.

■ Tightening torque of drain cock
● The maximum tightening torque of the drain cock of the plastic bowl is 0.5 N·m.

■ Perform piping so no excessive force is applied to the product.
When piping or installing, do not apply tension, compression, bending or external force from tubes, etc.

■ When supplying working fluid after connecting pipes, do not suddenly apply high pressure.
Connected piping could be dislocated and tubing could fly off.

■ Select the appropriate piping tube.

■ Securely insert a tube into the push-in fitting before use.

■ Use the width across flats of the connection part when piping.
[Inline]
In the case of Rc thread piping, apply the wrench to the width across flats of the connection part. Do not apply it to any other part when tightening.

■ Attach the maintenance label to this product to make maintenance periods clear.

■ Storage
Do not store this product in a hot, humid atmosphere or atmospheric conditions outside of the specified range for a prolonged period of time. Resin or rubber parts could deteriorate, and the resin element housing could become discolored. Contact CKD when storing products exceeding specifications.

Use/maintenance

⚠WARNING

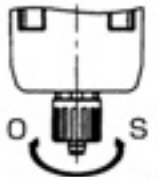
- Perform a periodic inspection once every six months or less to check for any cracks, scratches, and other damage to the plastic bowl and transparent housing. If cracks, scratches or other deterioration are found, they may cause damage. Please replace the bowl or the product with a new one.
- Check the plastic bowl periodically for contamination.
  - If parts are heavily contaminated or if transparency has decreased, replace with a new bowl.
  - Use water and household detergent to wash parts. Rinse them out well with clean water afterward.
- Removing the bowl
  Stop the working fluid supply. Release the pressure in the bowls completely and make sure that there is no residual pressure before removing the bowls.
- Remove air filter drain.
  Components could malfunction if moisture flows into the secondary side.
- Do not disinfect or clean using alcohol. It may deteriorate or damage the plastic part.

⚠CAUTION

- Anti-bacterial and bacteria removing effects lessen when there are dirt or oil deposits in the filter element. Periodically implement inspections and replacements. Contact CKD for maintenance details.
- Do not modify the product.

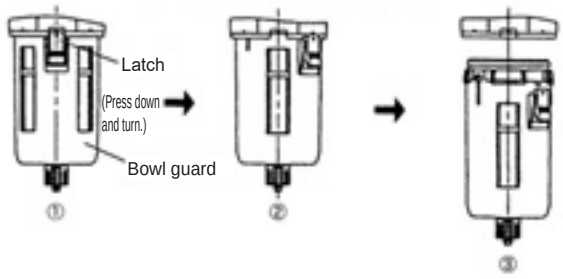
- Read instructions and precautions attached with the product before use or maintenance. Wash your hands before attaching new elements.

How to drain discharge



- Drainage starts when the cock is turned in the O direction, and the discharge stops when the cock is turned in the S direction. Tighten by hand in the S direction.

Removing the resin bowl



- This filter cannot be flushed with air, water, etc., and reused. When 1 year (6,000 hours) has passed or the pressure drops to 0.1MPa, replace the element with a new one.
  - We ask that customers perform element replacement maintenance by themselves.
  - During element replacement, take consideration that bacteria, foreign materials, or foreign matter deposits in the primary side do not flow into the secondary side.
- While operating, do to apply vibration, impact, tube flow, or other external force.

Chemical resistance of plastic

⚠WARNING

- The chemical resistance of plastic parts is shown below.
- Avoid using products in an atmosphere where chemicals are contained in working fluid or atmosphere, or where they could adhere to parts.
- Use in the above state could lead to bowl damage and accidents.

Chemical resistance of plastic bowl and clear housing

Consult CKD when using in environments filled with the following chemicals.
Check whether the testing solutions, sealants and adhesives contain the following chemicals.

Types of chemicals	Categories of chemicals	Main products of chemicals	General applications	Nylon
Inorganic chemicals	Acids	Sodium hypochlorite, hydrochloric acid, sulfuric acid, hydrofluoric acid, phosphoric acid, chromic acid, etc.	Sterilization, acid washing of metals, acidic degreasing solutions, coating treatment solutions, etc.	x
	Alkalines	Alkali substances such as caustic soda, caustic potash, calcium hydroxide, aqueous ammonia, and sodium carbonate	Alkaline degreasing solution for metals Soluble cutting oil, leakage detection agent	○
	Inorganic salts	Sodium sulfide, sodium nitrate, potassium bichromate, sulfate of soda, etc.		○

Pneumatic components (nitrogen gas extraction unit)

Safety Precautions

Be sure to read this section before use. Refer to [Pneumatic, Vacuum and Auxiliary Components (No. CB-024SA)] for general pneumatic components precautions. Although the above general catalog states that products are not applicable for equipment or applications with direct contact with beverages/foodstuffs, the FP2 Series products can be used in such applications as long as they are within the range of the product specifications.

Product-specific cautions: Nitrogen gas extraction unit NS, NSU, PNASeries

Design/selection

⚠CAUTION

■ Working environment

- Avoid installing this product where it will be subject to direct sunlight or rain.
- As the bowl material is polycarbonate, avoid use with the following chemicals or in an atmosphere containing these chemicals. [NSU Series]
- Avoid use in environments where ozone is generated.
- Avoid use where vibration and impact are present.
- Avoid using this product where it will be subject to air with a relative humidity of 50% or more. (Performance will decrease sharply if the separation membrane gets wet with droplets. (such as water))
- Avoid using air containing corrosive gases (strong acidic gases such as hydrogen sulfide, sulfur dioxide, hydrogen chloride, fluorine, etc.) or strong alkali gases (amines, ammonia, caustic soda, etc.).

■ The needle valve cannot be used as a stop valve that requires no leakage.

Slight leakage is allowed for in this product's specifications.

■ Dust cannot be completely kept out of the flow path.

Install a final clean filter if dust could be a problem with the circuit. (Use anti-bacterial/bacteria-removing filters for food processes.)

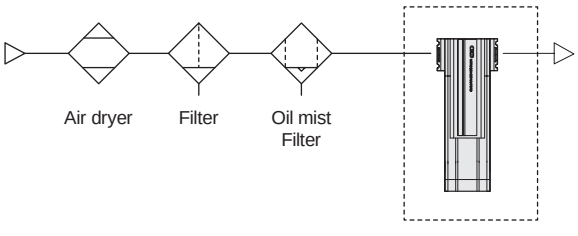
■ "Compatible with Food Sanitation Act" indicates that the product material compliants to the Food Sanitation Act.

■ Use after confirming the structure and material, valve structure, working fluids, and working atmospheres of each component carefully for yourself.

■ Internal parts may wear when the needle valve operates. If the product is affected, take necessary measures, such as installing a filter on the secondary side.

■ Check the working circuit and working fluid.

To prevent drop in membrane unit performance, install the dryer, air filter and oil mist filter on the primary side, and remove water or oil. If the working fluid could contain hydrocarbons, install an activated carbon filter.



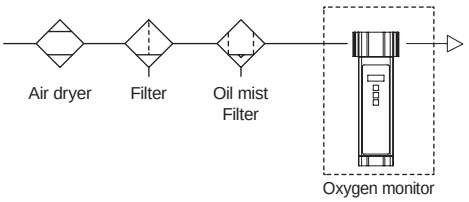
Precautions for the inline oxygen monitor

■ Working environment

- Avoid installing this product where it will be subject to direct sunlight or rain.
- In the following atmospheres, the oxygen concentration monitor may generate measurement errors, or the performance of the components or oxygen detection element may suffer.
- Avoid use in temperatures below 0°C or above 50°C, or when the constituents differ from those of air, as larger measurement errors will result.
- The device cannot be used in air containing freon gas, silicon gases, corrosive gases such as SOx (sulfur oxides) or H2S (hydrogen sulfide), or halogen gases such as Cl2 (chlorine), F2 (fluorine), or Br2 (bromine), or in air containing constituents which cause these gases to separate at high temperatures of approximately 500°C.
- If used in air containing flammable gases, the flammable gas will burn and the results will decrease.
- Use in air containing large amounts of dust or oil mist leads to element deterioration.
- Coming into contact with water drops, solutions, or other liquids leads to element damage.
- The element will be damaged if the sensor is exposed to liquids such as water drops or liquid solutions.
- Avoid use in locations with strong magnetic fields or significant electrical noise.
- The results will fail to stabilize in environments where the pressure pulses (changes continuously) in a short cycle.

■ Check the working circuit and working fluid.

To prevent decreased oxygen concentration monitor performance, install the dryer, air filter and oil mist filter on the primary side, and remove water or oil.



■ This product does not have explosion-proof specifications. Since the detection element is heated by the heater, it may lead to an explosion if used in an explosive atmosphere.

■ This product is not an oxygen detector. Do not use it as an oxygen concentration monitor in accordance with the Industrial Safety and Health Act.

■ When using this product as a CE compliant product, prepare a dedicated power supply.

■ Compliant CE product working conditions

This product is CE-marked, indicating conformity with the EMC Directives. The standard for the immunity for industrial environments applied to this product is EN61326-1. The following stability is applicable in an EMC Directive demand test environment.

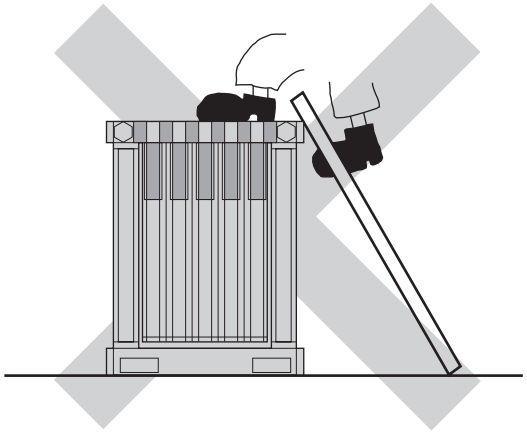
Stability ±0.5% O_2±1 digit (0.00 to 10.00% O_2)
±1.0% O_2±1 digit (10.01 to 25.00% O_2)

Types of chemicals	Categories of chemicals	Main products of chemicals	General applications	Polycarbonate
Inorganic compounds	Acids	Hydrochloric acid, sulfuric acid, fluorine, phosphoric acid, chromic acid, etc.	Acid washing of metals, acidic degreasing solutions, coating treatment solutions	x
	Alkalines	Caustic soda, caustic potash, calcium hydroxide, aqueous ammonia, sodium carbonate, etc.	Alkaline degreasing solution for metals	x
	Inorganic salts	Sodium sulfide, potassium nitrate, potassium bichromate, sodium sulfate, etc.		x
Organic compounds	Aromatic hydrocarbons	Benzene, toluene, xylene, ethyl benzene, styrene, etc.	Contained in paint thinner (benzene, toluene, and xylene)	x
	Chlorinated aliphatic hydrocarbons	Methyl chloride, ethylene chloride, methylene chloride, acetylene chloride, chloroform, trichlene, perchlene, carbon tetrachloride	Organic solvent-based washing solution for metals (trichlene, perchlene, carbon tetrachloride, etc.)	x
	Chlorinated aromatic hydrocarbons	Chlorobenzene, dichlorobenzene, benzene hexachloride (B/H/C), etc.	Agricultural chemicals	x
	Petroleum components	Solvent, naphtha, gasoline		x
	Alcohols	Methyl alcohol, ethyl alcohol, cyclohexanol, benzyl alcohol	Used as antifreezing agent	x
	Phenol	Carbolic acid, cresol, naphthol, etc.	Disinfectant solution	x
	Ethers	Methyl ether, methyl ethyl ether, ethyl ether	Additive of brake oil	x
	Ketones	Acetone, methyl ethyl ketone, cyclohexanone, acetophenone, etc.		x
	Carboxylic acids	Formic acid, acetic acid, butyl acid, acrylic acid, oxalic acid, phthalic acid, etc.	Dyes; oxalic acid for aluminum processing; phthalic acid for paint base	x
	Phosphate ester	Dimethyl phthalate (DMP), diethyl phthalate (DEP), dibutyl phthalate (DBP), dioctyl phthalate (DOP)	Lubricant, synthetic coolant, rust preventing agent additives used as plasticizer for synthetic resin	x
	Oxyacids	Glycol acid, lactic acid, malic acid, citric acid, tartaric acid		x
	Nitro compounds	Nitromethane, nitroethane, nitroethylene, nitrobenzene, etc.		x
	Amines	Methylamine, dimethylamine, ethylamine, aniline, acetanilide, etc.	Additive of brake oil	x
	Nitriles	Acetonitrile, acrylonitrile, benzonitrile, acetoisonitrile, etc.	Raw material for nitrile rubber	x

Mounting, installation and adjustment

⚠ CAUTION

■ Do not step on this product.



■ When piping, remove cutting oil, rust preventing agent or contaminants, etc.

■ Mount air filters or oil mist filters so that the drain outlet faces straight downward. Use a bore size ø5.7 to ø6 tube for drain discharge piping, and keep the length within 5 m. Avoid vertical piping. [NSU Series]

■ Install an oil removing filter (M type) in front of the membrane unit inlet to remove all water drops and oil. If oil adheres to the separation membrane, nitrogen concentration may decrease.

■ Install the regulator on the outlet side of the membrane unit.

■ When installing NS (2, 3 units), fix the inlet and outlet pipes or fix the body with a bracket.

■ When installing NS (6 units or more), place it on a solid and flat surface that does not vibrate and fix the base with anchor bolts.

Precautions for needle valves with adjusting dial

■ To adjust the flow rate, turn the dial to the right to open or the left to close.

■ After adjustment, lock the dial with the sliding lock lever.

■ The flow rate control range is from "1" to "12" or "13".
Do not set the flow rate outside this range. Turning the dial to the fully closed or fully open position forcibly may result in failure or abnormal flow characteristics.

■ Even when the needle is fully closed, the dial display is not 0.
Calibration of the dial indicator flow rate is performed when the needle is not fully closed. Note that 0 is not necessarily indicated when the needle is fully closed. After "0", either "19" or no number at all is displayed.

■ Do not remove the dial from the body.
If the dial is removed, readjustment and calibration of flow characteristics cannot be performed.

Use/maintenance

⚠ WARNING

■ **There may be oxygen deficiency in the nitrogen gas. Observe the following instructions when using.**

- Use in well ventilated locations.
- Ventilate the work area when nitrogen gas is being used.
- Periodically inspect nitrogen gas piping for leakage.

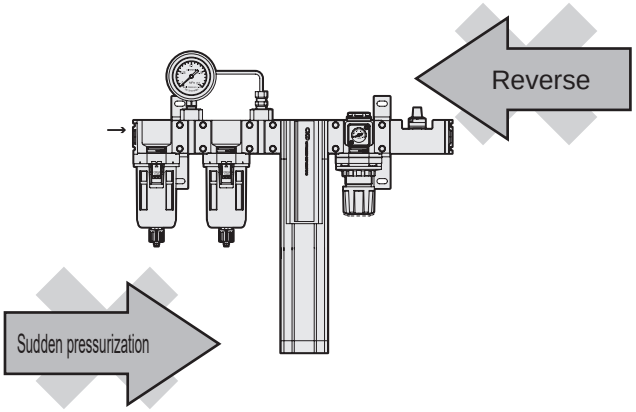
■ **Oxygen-rich gas is discharged from the exhaust port of the membrane unit, so be aware of the following points when installing the equipment.**

- Install away from fire or flammable objects.
- Ventilate the work area during operation of the equipment.

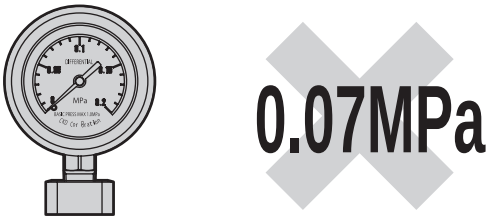
■ **Do not use the product for any purpose directly related to human life.**

⚠ CAUTION

■ Do not use reverse air flow.
Do not pressurize suddenly. The differential pressure gauge or mantle may be damaged. [NSU Series]



■ The oil mist filter life is spent when the pressure drops to 0.07MPa or after one year of use, whichever comes first. Replace the mantle with a new one at the end of its life. (Check the pressure drop with the differential pressure gauge.) (Do not touch the urethane rubber foam layer when replacing the mantle) [NSU Series]



■ The service life of the membrane unit differs according to the working conditions. As a guideline, replace the membrane every 3 to 5 years.

■ Confirm that pressure has been released before mounting or removing the bowl and bowl guard. [NSUSeries]

■ Be aware that adequate time is necessary to obtain a required nitrogen concentration after compressed air is supplied.

Precautions for the inline oxygen monitor

■ Do not disassemble or modify this product. Doing so could result in faults.

■ The sensor may deteriorate depending on the working conditions. To maintain performance longer, yearly calibration is recommended.

Pneumatic components (flow rate sensor)

Safety Precautions

Be sure to read this section before use. pneumatic components Refer to “Pneumatic, Vacuum and Auxiliary Components (No. CB-024SA)” for general precautions. Although the above general catalog states that products are not applicable for equipment or applications with direct contact with beverages/foodstuffs, the FP2 Series products can be used in such applications as long as they are within the range of the product specifications.

Product-specific cautions: Flow rate sensor NS-QFS Series

Design/selection

Working fluids

DANGER

- Never use this product with flammable fluids.

WARNING

- This product cannot be used as a billing meter. Do not use this product for commercial transactions as it is not compliant with the Measurement Act. Intended applications include industrial sensors.
- Do not use fluids which are not applicable.
- 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.
- Depending on the fluid, retaining the fluid for long periods could adversely affect the performance. Do not seal the fluid in the pipe for long periods of time.
- Working pressure/flow rate range
  Applications exceeding the max. working pressure and specified flow rate range may result in faults.
- When using a valve on the primary side of the sensor, use only valves with oil-prohibited specifications. This sensor could malfunction or fail if exposed to splattering grease, oil, etc. As friction powder may be generated depending on the valve, mount a filter to prevent the powder from entering the sensor.

Working environment

DANGER

- Explosion-proof environments: Never use this product in an explosive gas atmosphere. The structure is not explosion-proof, and explosions or fires could occur.

WARNING

- Corrosive environments: Do not use this product in an atmosphere containing corrosive gases such as sulfur dioxide.
- Ambient/fluid temperatures: Use ambient/fluid temperatures from 5 to 50°C within the specified range. Even if the temperature is within the specified range, do not use this product if the ambient temperature and fluid temperature could suddenly change and cause dew to condense.
- Drip-proof environment: The degree of protection of this product is equivalent to IP40. Do not install this product where water, salt, dust, or swarf is present or in a pressurized or depressurized environment. The product cannot be used with large temperature variations or high temperature/humidity since condensation may occur inside the body.

Flow rate unit

CAUTION

- This product's flow rate is measured at a mass flow rate unaffected by temperature or pressure. The unit is L/min, but this is the display when the mass flow rate is converted to volumetric flow rate at 20°C, 1 atmosphere (101 kPa) relative humidity 65%RH.

Overflow

CAUTION

- The sensor can handle an overflow double the measured range. If dynamic pressure is applied near the maximum working pressure (when a pressure difference exceeding the max. working pressure is applied between primary and secondary sides), the sensor may operate abnormally. If dynamic pressure is applied, such as when a workpiece is filled for leakage inspection, provide a bypass circuit or restrictor so that dynamic pressure is not applied to the sensor.

Other

CAUTION

- The flow path is not completely free of dust generation. A final clean filter should be used in circuits where dust generation could be a problem.

Mounting/Installation/During adjustment

Piping

⚠ CAUTION

- Always attach the pipes before starting wiring.
- Align the fluid flow direction to the direction indicated on the product when connecting the pipes.
- Do not install the regulator/solenoid valve, etc., immediately before this product. Generated drift may cause errors.
- Before installing the piping, clean out the pipes using an air blower to remove all foreign matter and cutting chips from the pipes. The rectifier or sensor chip could be damaged if a large amount of foreign matter, cutting chips, etc., enters.
- Make sure that the leakage detection solution does not enter the inside of this product when inspecting the pipe for leaks.
- This product is exclusively for nitrogen gas extraction unit system type NSU. When piping, provide modular connection with our products.

Mounting

⚠ CAUTION

- The LCD display flow rate meter uses a liquid crystal display. This may be difficult to read depending on the angle.

Wiring

⚠ DANGER

- Use power supply voltage and output within the specified voltage.If voltage exceeding the specified voltage is applied, the sensor could malfunction or be damaged, or electrical shock or fire could occur. Do not use any load that exceeds the rated output. Otherwise, output may result in damage or fire.
- Stop the controls and machine devices and turn power OFF before wiring. Starting operation suddenly could cause unpredictable and dangerous operation. Conduct an energized test with controls and machine devices stopped, and set target switch data.Be sure to discharge any accumulated electrostatic charge among personnel, tools, or equipment before and during work.

⚠ WARNING

- Install the product and wiring as far away as possible from sources of noise such as power distribution wires. Provide separate countermeasures for surge applied to the power cable. The display or output could fluctuate.
- Do not short-circuit the load. Failure to observe this could result in rupture or burning.
- Ensure that wires are properly insulated.
  Check that wires do not come into contact with other circuits, that no ground faults occur, and that the insulator between terminals is not defective. Overcurrent could flow in and damage the sensor.
- Check line color when wiring. As incorrect wiring could result in sensor damage and malfunctions, check wire color against the instruction manual before wiring.
- Use a stabilized DC power supply within the specified rating, insulated from the AC power supply. A non-isolated power supply could result in electrical shock. If power is not stabilized, the peak value could be exceeded. This could damage the product or impair accuracy.
- The power supply is a DC stabilized power supply completely isolated from the AC primary side. Connect either the + side or - side of the power to the FG. Connect either the + side or - side of the power to the F.G. Between the internal power circuit and the product's housing, a varistor (limit voltage approx. 40 V) is connected to prevent dielectric breakdown of the sensor. Disconnect wiring first if this testing is required. Disconnect wiring first if this testing is required. An excessive potential difference between the power supply and product housing will burn internal parts. After installing, connecting and wiring the unit, electrical welding of the device/frame, short-circuit accidents, etc., could cause welding current, excessively high voltage caused by welding, or surge voltage, etc., to run through the wiring, ground wire, or fluid path connected between the above devices, damaging wires or devices. Conduct any work such as electrical welding after removing this device and disconnecting all electric wires connected to the F.G.
- Do not use this product at levels exceeding the power supply voltage. If voltage exceeding this range or AC power is applied, the controller could rupture or burn.
- Check that stress (7N and over) is not directly applied to lead wire.

During adjustment

⚠ CAUTION

- If switches are operated when fluid is pulsating or flow rate is otherwise unstable, operation may be unstable. Avoid setting switches in an unstable area, and confirm that switch operation is stable before use.

Usage/Maintenance

⚠ WARNING

■ Working conditions for CE compliance

This product is CE-marked, indicating conformity with the EMC Directives. The standard for the immunity for industrial environments applied to this product is EN61000-6-2; the following requirements must be satisfied in order to conform to this standard.

Conditions

- The evaluation of this product is performed by using a lead wire that has a power supply line and a signal line paired to assess the product's performance.
- This product is not equipped with surge protection. Implement surge protection measures on the system side.

■ Do not disassemble or modify this product. Doing so could result in faults.

■ Immediately after power is turned ON, this product does not start flow rate detection switch operation for approx. 5 seconds to complete self-diagnosis. Provide a control circuit/program that ignores signals for at approximately 5 seconds after power is turned ON.

■ This product does not use flow rate control for five seconds after power is turned ON to complete self-diagnostics. Provide a control circuit/program that ignores signals for at approximately 5 seconds after power is turned ON.

⚠ CAUTION

■ If a problem occurs during operation, immediately turn the power OFF, stop use, and contact your dealer.

■ This product uses a micro-sensor chip, and must be installed where it will not be subject to dropping, impact or vibration. Handle this product as a precision component during installation and transportation.

■ Keep this product's flow rate within the rated flow range.

■ Use this product within the working pressure.

■ Contact CKD to purchase lead wire discrete for maintenance.

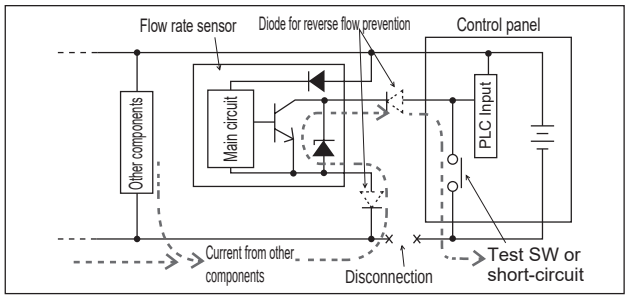
■ If the output setting value is changed, control system devices could operate unintentionally. Stop devices before changing settings.

■ Analog output continues even if the flow rate range is exceeded. "Hi" or "Lo" will be displayed. Note that this is outside the guaranteed precision.

■ The accuracy may vary from the initial status depending on the working environment or working conditions. It is recommended to check the operation of the product periodically.

■ The sensor chip will degrade when used for long periods and cause the detected flow rate to fluctuate. Periodically inspect the sensor chip.

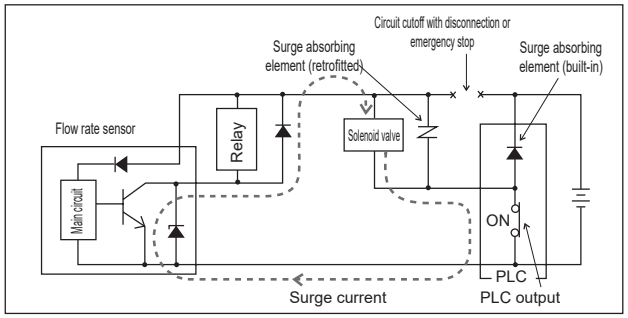
■ Pay attention to reverse currents caused by disconnected wires and wiring resistance. If other devices, including a flow rate sensor, are connected to the same power supply as the flow rate sensor, and the switch output wire and power cable negative (-) side are short-circuited to check the operation of the control panel input unit, or if the power cable negative (-) side is disconnected, reverse current could flow to the flow rate sensor's switch output circuit and cause damage.



■ Take the following measures to prevent damage caused by reverse current:

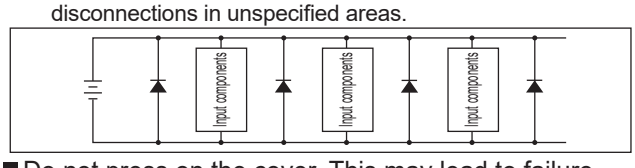
①Avoid centralizing current at the power cable, especially the minus side power cable, and use as thick a cable as possible.
②Limit the number of devices connected to the same power source as the flow rate sensor.
③Insert a diode parallel to the flow rate sensor's output line to prevent reverse current.
④Insert a diode parallel to the flow rate sensor power wire's negative (-) side to prevent reverse current.

■ Pay attention to surge current flow-around. When flow rate sensor power is shared with an inductive load that generates surges, such as a solenoid valve or relay, if the circuit is cut off while the inductive load is functioning, surge current could enter the switch output circuit and cause damage depending on where the surge absorbing element is installed.



Take the measures below to prevent damage from sneak surge current.

①Separate the power supply for output including the inductive load, such as the solenoid valve and relay, and input, such as the flow rate sensor.
②If a separate power supply cannot be used, directly install a surge absorption element for all inductive loads. Consider that the surge absorption element connected to the PLC, etc., protects only the individual device.
③Connect a surge absorption element to places on the power wiring shown in the figure below, as a measure against disconnections in unspecified areas.



■ Do not press on the cover. This may lead to failure.

■ The display case is made of resin. Do not use solvent, alcohol or detergent in cleaning, since the resin could absorb it. There is a risk of affecting the resin. Wipe off dirt with a diluted neutral detergent solution and rag wrung out well.

Compatible with standard models

Models below are standard types and they are FP* specifications equiv.

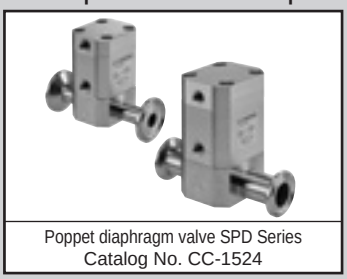
FP1 specifications equiv.

Compact flow rate sensor	Compact flow rate controller	Pressure switch	Fine buffer
FSM3 (oil free P80 Series)	FCM (stainless steel body)	PPX	FBU2-SU
			

Plug	Blanking plug	Silencer
GWP □ -0	GWP □ -B	SL/SLW/SLM
		

Pressure gauge			
	Low-profile pressure gauge	Pressure gauge with safety marker	Pressure gauge with limit marker
	G401	G40D	G45D
	General-use pressure gauge	Pressure gauge for panel mounting	Pressure gauge with switch
	G49D/G59D	G53D	G52D
	Miniature pressure gauge	Compact round pressure gauge	Differential pressure gauge
	G29D	G39D	GA400

FP2 specifications equiv.



Poppet diaphragm valve SPD Series
Catalog No. CC-1524

Poppet diaphragm valve

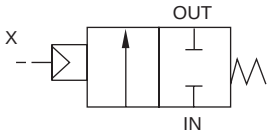
SPD Series

● Connection: ISO ferrule

RoHS CAD

JIS symbol

● NC (normally closed)



Specifications

Item		SPD-1108	SPD-2115
Actuation		NC (normally closed)	
Working fluid		Water, pure water, chemical liquids (fluids that do not corrode wetted part materials)	
Fluid temperature	°C	5 to 90 (Steam sterilization at 130ºC for 20 mins or less)	
Proof pressure	MPa	0.9	
Working pressure	MPa	0 to 0.3	
Back pressure	MPa	0 to 0.1	
Valve seat leakage	cm^3 /min	0 (water pressure)	
Ambient temperature	°C	0 to 60	
Frequency	cycles/min.	30 or less	
Cv		1.9	4.6
Operating pressure	MPa	0.3 to 0.5	
Operating port		Rc1/8	
Material	Diaphragm	PTFE	
	Body	SUS316L (buff polishing #400 or equiv., electrolytic polishing)	
	Actuator	A5056 (anodization)	

How to order

SPD - 1 1 08 Y F 1

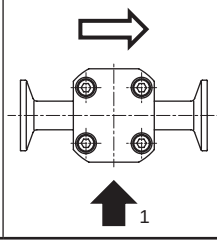
- Ⓐ Series
- Ⓑ Actuation
- Ⓒ Port size
- Ⓓ Connection
- Ⓔ Actuator/ diaphragm/ body material combination
- Ⓕ Operating port direction

Code	Description	Model No. SPD-1	Model No. SPD-2
Ⓐ Series			
1	Size 1	●	
2	Size 2		●
Ⓑ Actuation			
1	NC (normally closed)	●	●
Ⓒ Port size			
08	8 A	●	
15	15 A		●
Ⓓ Connection			
Y	Clamp fitting	●	●

Ⓔ Actuator/diaphragm/body material combination

	Actuator	Diaphragm	Body		
F	A + 5056	PTFE	SUS316L	●	●

Ⓕ Operating port direction

1	Direction 1		With valve viewed from above, fluid flows in the ⇨ direction, ➡ indicates the operating port direction.	●	●

FP3 specifications equiv.



Made-to-order product

Bacteria removing filter

AF7000A Series

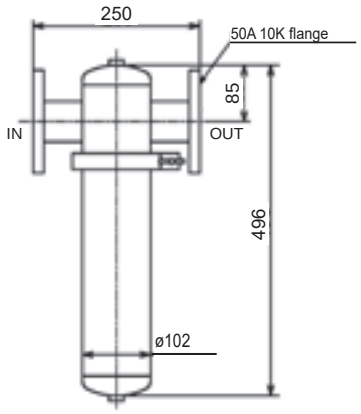
Ideal for bacteria and solid removing. Bacteria-removing performance LRV ≧ 8
Processing air flow rate:6 to 18m^3/min (ANR) (0.7MPa)

Specifications

Item		AF7006A	AF7012A	AF7018A
Processing air flow rate	m^3/min(ANR)	6	12	18
Working fluid		Compressed air (JISB8392-1:2012[1:1:1] to [1:6:1])		
Working pressure	MPa	0.1 to 0.8		
Proof pressure	MPa	1.2		
Operating ambient temperature range	°C	5 to 60		
Bacteria removing performance		LRV ≥ 8		
Filtration rating	μm	0.01		
Initial pressure drop	MPa	0.01		
Port size	Flange	1½, 2	1½, 2	2
Weight	kg	12.5	14	15.5

*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: Drain discharger is not included.
*4: Replace the element once per year as general guide.
*5: Attach an air dryer and M Series equiv. filter on primary side for drain and particle elimination.
*6. Flange is a 10K flange.

Dimensions ●AF7006A-50



How to order

AF - AF7 006 A - 50

Ⓐ Model No. Ⓑ Flow rate classification Ⓒ Element Type Ⓓ Bore size

Code	Description	Ⓐ Model No. AF7006A	AF7012A	AF7018A
Ⓑ Flow rate classification				
006	6m^3/min (ANR)	●		
012	12m^3/min (ANR)		●	
018	18m^3/min (ANR)			●
Ⓒ Element				
A	Bacteria-removing/ultra-high-performance solid removing filter	●	●	●
Ⓓ Bore size				
40	FLG1½	●	●	
50	FLG2	●	●	●

Related products

Vacuum system equipment SELVACS

Catalog No. CC-796A-5



■ Compact design

Each component has been compactly designed to save space.

■ Wide model variation

Extensive model series and variations handle a wide range of fields and applications.

■ Unitized/modularized

The ejector system/vacuum pump system which form the core are unitized and modularized, designed to save space and increase ease of use.

Weir diaphragm valve SWD/MWD Series

Catalog No. CC-1096A



■ Pursuit for highly aseptic conditions (sterility)

Adopts a sealing structure to eliminate gaps between diaphragm and body. A flow path with high efficiency of washing has been achieved by thorough analysis work.

■ Space and energy saving

Air consumption can be reduced significantly by the downsized actuator with highly-efficient diaphragm that operates at a low pilot pressure.

Air blow nozzle BN* Series

Catalog No. CC-1347A



■ Wide range of variations

Diverse lineup of shapes to match industries and applications

■ Energy saving

A special structure which brings in the surrounding air to enhance the pneumatic air source. Blows air strongly even with little air consumption.

■ Uniformity

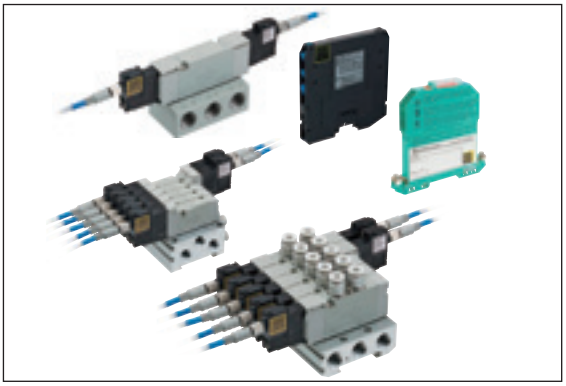
Employs a special structure that ejects air to the target area more uniformly. Achieves stable quality of workpieces.

■ Low noise

Flat types and round types are available to suit specific application needs, with a work environment-friendly design that reduces turbulence.

Intrinsically safe explosion-proof pilot operated 3, 5-port valve 4GD/E EJ Series

Catalog No. CC-1445A



■ Can be used in Japan Explosion-Proof Certification Class 1 and Class 2 danger zones

Explosion-proof performance Ex ib II C T4 Gb Certification organization DEKRA

■ Realized Explosion-proof min. class valve width of 10mm (4G1 EJ)

■ High environmental performance, reliability and ease of use

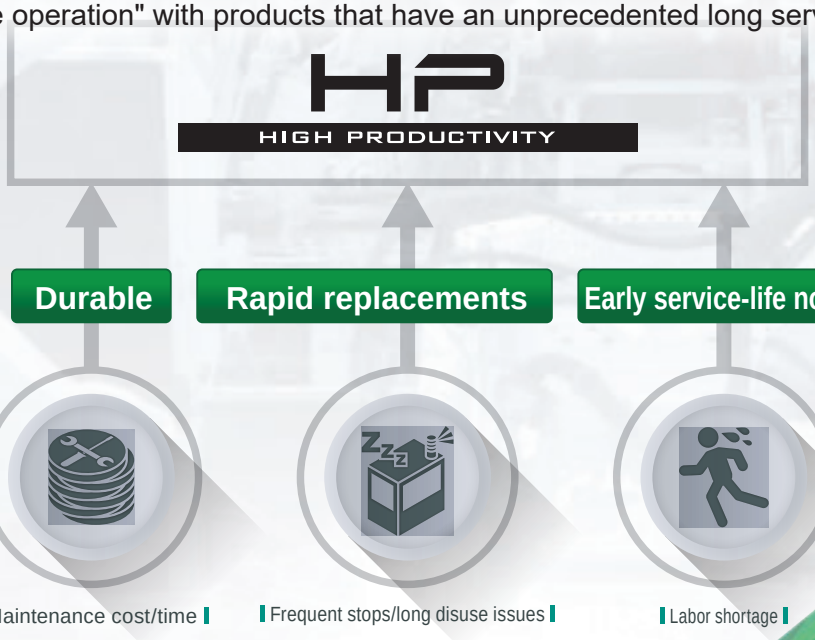
- ○ Equipped with a manual protective cover to prevent misoperation and a safety mechanism for the check valve.
- ○ 2-direction cable connectors
- ○ The in-stop valve spacer (optional) enables individual valves to be replaced without stopping the production line.

■ Conforms to IP67

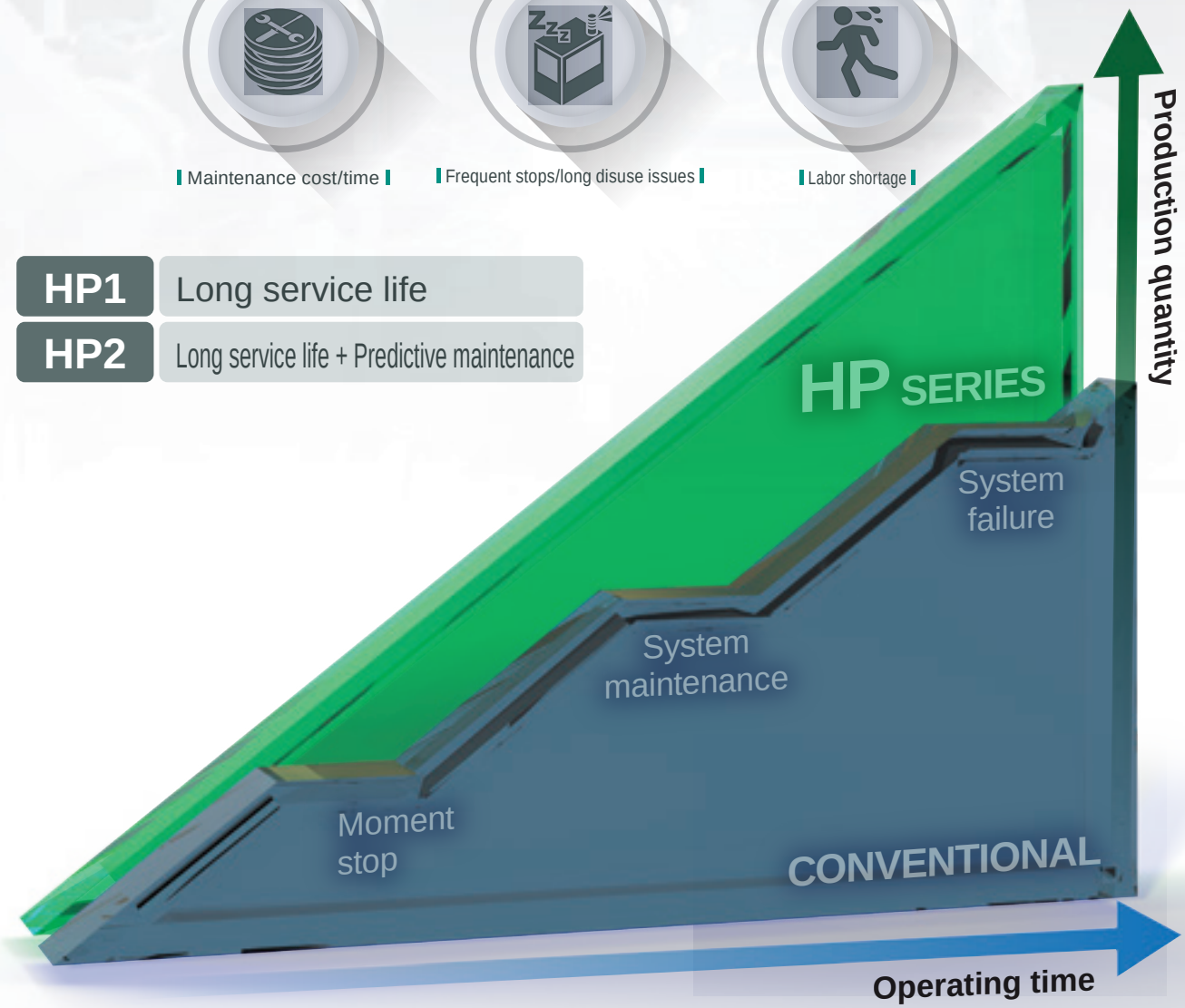
Productivity improvement starts with the long service life of components.

What "HIGH PRODUCTIVITY" means to CKD

If things like production loss due to component failure and unexplained stoppages or maintenance while the line is in operation can be prevented, productivity will improve. HP Series emphasizes that type of manufacturing, one that originates from the perspective of components. To improve productivity in places with high usage frequency and high-stress environments, the series serves to create a "production facility that never stops" and "achieves stable operation" with products that have an unprecedented long service life.



HP1	Long service life
HP2	Long service life + Predictive maintenance



Optimized sliding parts
Does not break even with high frequency usage

Long service life cylinder

HP1 Series

- Momentary stops greatly reduced
- Number of replacements greatly reduced
- Service life over 20 million cycles

Subject to CKD prescribed conditions



Increased linear guide rigidity
Achieves high rigidity, high precision, and high durability

Linear Slide Hand

LSH-HP1 Series

- Momentary stops greatly reduced
- Number of replacements greatly reduced
- Significant reduction in replacement time
- Service life over 20 million cycles

Subject to CKD prescribed conditions



Increased rigidity of linear guides even in thin types
Achieves high rigidity, high precision, and high durability

Low-profile long stroke hand

LST-HP1 Series

- Momentary stops greatly reduced
- Number of replacements greatly reduced
- Significant reduction in replacement time
- Service life over 20 million cycles

Subject to CKD prescribed conditions



Increased component service life and productivity from compressed air

Air booster

ABP2-HP1 Series

- Momentary stops greatly reduced
- Number of replacements greatly reduced
- Service life over 10 million cycles

Subject to CKD prescribed conditions



Improved environmental resistance
Does not break even in dusty environments

Environment resistance cylinder

G-HP1 Series

- Momentary stops greatly reduced
- Number of replacements greatly reduced
- Improved environmental resistance
- Durability count over 5 million cycles

Subject to CKD prescribed conditions



Grips and measures simultaneously
Can be replaced before breakdowns

Measuring hand

LSHM-HP2 Series

- Momentary stops greatly reduced
- Number of replacements greatly reduced
- Predictive maintenance available
- Service life over 20 million cycles

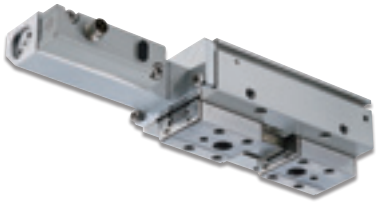
Subject to CKD prescribed conditions



Although thin, it can make measurements at the time of gripping. Can be replaced before breakdowns

Low-profile long stroke hand with length measuring function

LSTM-HP2 Series



- Momentary stops greatly reduced
- Number of replacements greatly reduced
- Predictive maintenance available
- Service life over 20 million cycles

Subject to CKD prescribed conditions

CKD's outdoor series guarantees long-term use even in harsh outdoor environments.

Guaranteed durability for outdoor use

- Compound cycle test (JIS H8502:1999) 960 hours cleared
- Ozone exposure test (JIS D0205:1987) 400 hours cleared

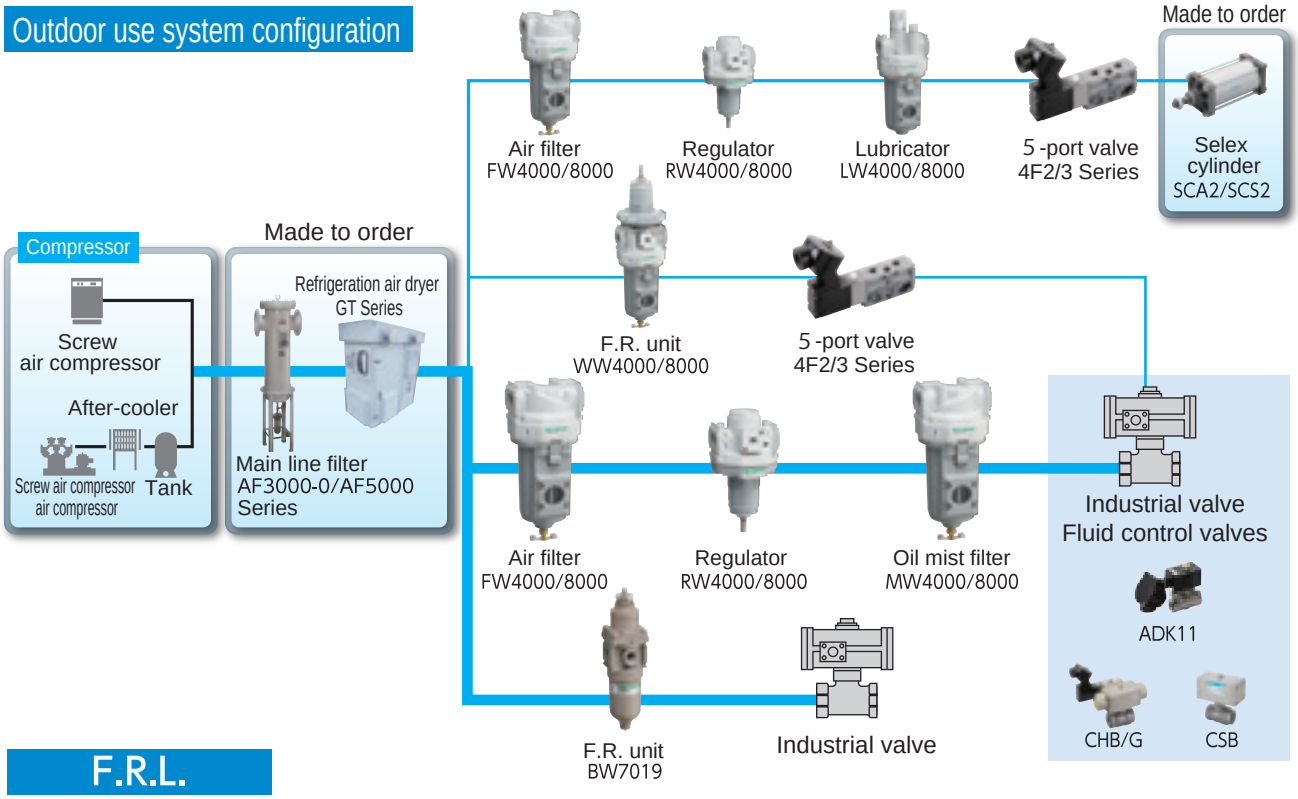
Accelerated weathering*1 test
Equivalent to **3**-year acceleration

Combined cycle test
Equivalent to **7**-year acceleration

Ozone exposure test
400 hours

*1: Sunshine weather meter test

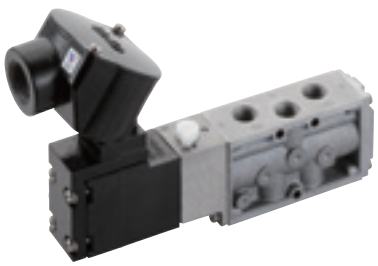
Outdoor use system configuration



F.R.L.



4F Series



General purpose valves



WEATHER PROOF **WEATHER PROOF** This logo represents CKD's guarantee of its products for outdoor use.

Special polyolefin-based resin (polypropylene + special elastomer) used!

eco-flex

Aoi Co., Ltd.

Eco-flex is an **environment-friendly** tube with unprecedented **flexibility** and **transparency**.

eco-flex Features

●Flexibility

Excellent flexibility: Soft type is softer than a soft urethane tube, and even semi-soft type is as soft as a soft nylon tube. (in-house comparison)

●Eco-friendly and pollution-free product

Food Sanitation Act compliant (Ministry of Health and Welfare, Notification No. 370)
*The ecos series excludes only eluted tests for fats and oils and fatty foods.

●Lightweight and economical

Small specific gravity (0.9) contributes to less weight, better workability, and reduction in device weight.

●Transparent and clean

No dust generation due to special elastomer used for the tube. High transparency ideal for a clean room, pure water piping, etc.

●Ecology compatibility

Only carbon dioxide is emitted during incineration (at 750°C). No toxic gas is generated, such as nitrogen oxide (NO) or sulfur oxide (SOx). Ecology tube emitting no dioxins.

ecos Series
[Soft type]



■ Standards Metric Size Standard 1 roll length: 20 m Standard color: transparent, black

Name	O.D. x I.D.	Min. bending radius		Product weight	Max. working pressure	Operating ambient temperature range
	mm x mm	At positive pressure (mm)	At negative pressure (mm)	g/m	MPa	°C
ecos–4 x 2.5	4.0 x 2.5	8.0	10.0	6.9	0.50	−20 to 60
ecos–6 x 4	6.0 x 4.0	14.0	17.0	14.1		
ecos–8 x 5	8.0 x 5.0	20.0	24.0	27.6		
ecos–10 x 6.5	10.0 x 6.5	25.0	30.0	40.8		
ecos–12 x 8	12.0 x 8.0	30.0	36.0	56.5		

Negative pressure → 1.0 to 600 Torr *Do not use push-in fitting for ecos 4×2.5 only. (at 20 °C)

■ Max. working pressure change ratio by the ambient temperature (%)

Ambient temperature	20°C or less	30°C	40°C	50°C	60°C
Change ratio	100	90	70	60	50

E.g.) Max. working pressure at 40°C 0.50MPa×70%=0.35MPa (all sizes)

ecoh Series
[Semi-soft type]



■ Standards Metric Size Standard 1 roll length: 20 m Standard color: transparent, black

Name	O.D. x I.D.	Min. bending radius		Product weight	Max. working pressure	Operating ambient temperature range
	mm x mm	At positive pressure (mm)	At negative pressure (mm)	g/m	MPa	°C
ecoh–4 x 2.5	4.0 x 2.5	12.0	14.0	6.9	1.20	−20 to 80
ecoh–6 x 4	6.0 x 4.0	20.0	23.0	14.1	1.10	
ecoh–8 x 6	8.0 x 6.0	35.0	40.0	19.8	0.80	
ecoh–10 x 7.5	10.0 x 7.5	45.0	50.0	30.9	0.80	
ecoh–12 x 9	12.0 x 9.0	55.0	62.0	44.5	0.80	
ecoh–10 x 8	10.0 x 8.0	60.0	70.0	25.4	0.60	

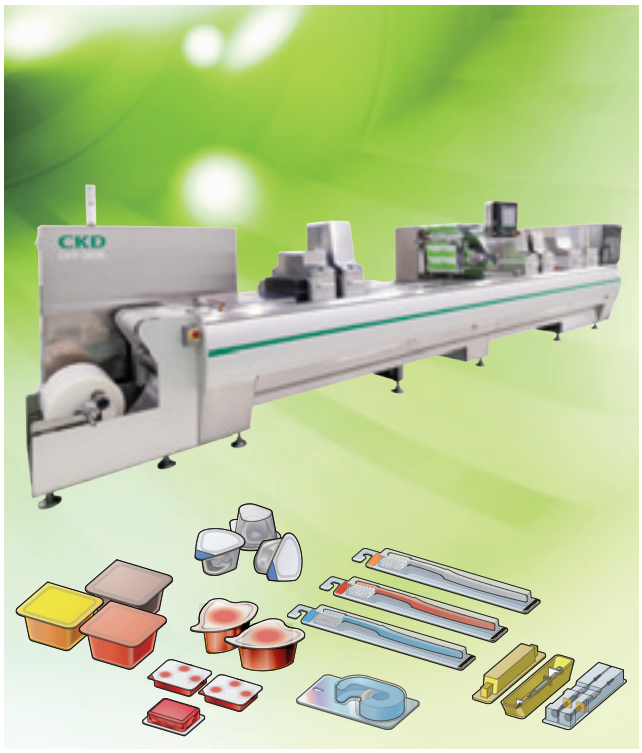
Negative pressure →1.0 to 600 Torr *Do not use push-in fitting for ecos 4×2.5 only. (at 20 °C)

■ Max. working pressure change ratio by the ambient temperature (%)

Ambient temperature	20°C or less	30°C	40°C	50°C	60°C	80°C
Change ratio	100	90	70	60	50	30

E.g.) Max. working pressure at 40°C 1.10MPa×70%=0.77MPa

Introducing ECO BLISTER CFF-360E



ECO BLISTER
CFF-360E

For operation cost reduction

For labor reduction

For preventing contamination



Easy

Automatic position correction ensures that punching and sealing positions are always correct



Easy

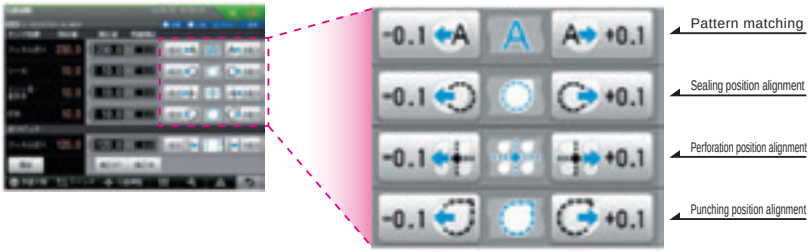
Mold thickness control (plug movement) is easily set digitally



Easy

Easy digital setting of sealing pressure control

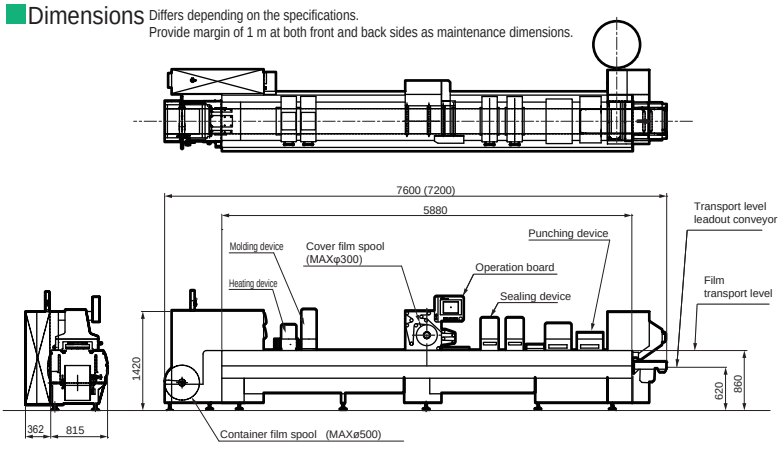
Easy controls make operation effortless



Position alignment can be easily set with "+" and "-"

Dimensions

Differs depending on the specifications.
Provide margin of 1 m at both front and back sides as maintenance dimensions.



Specifications

Type / Item		CFF-360E
Packaging capacity	Film width	200 to 360mm
	Film drive	120 to 200mm
	Production speed	MAX 20 shots/min. (Differs depending on the item packaged)
Molding depth		MAX 60mm
Packaging materials	Container	Thermoplastic film (A-PET, PP, HIPS, PVC, PVDC, etc.)
	Lid	Combination films (PA+PE, PET+MPET+PE, etc.)
Packaging style	Standard	○
	Full	○
Power supply *		200 VAC 51kVA
Compressed air (working pressure 0.6 MPa)*		1,600 NL/min.
Weight *		Approx. 3,800kg
Total length *		7,600mm (7,200mm)

PP requires cooling water of 10 to 20°C. *Differs depending on the specifications.

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- DETROIT OFFICE
- BOSTON OFFICE

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VEGETABLE OIL INK

2022.5