CKD

Equipment for
Food Manufacturing Processes
FP Series



Satisfying a variety of needs for food processing



Equipment for Food Manufacturing Processes FP Series

FP Food Process®

CKD Corporation
CC-1271A 3





A wide selection of air filters to actuators which can be used safely and securely in food manufacturing processes are available as standard products

FP1 Series

Eliminates concerns of lubricant contamination!

Lubricants

FP2 Series

Uses safe materials!

Lubricants Material Environment

FP3 Series

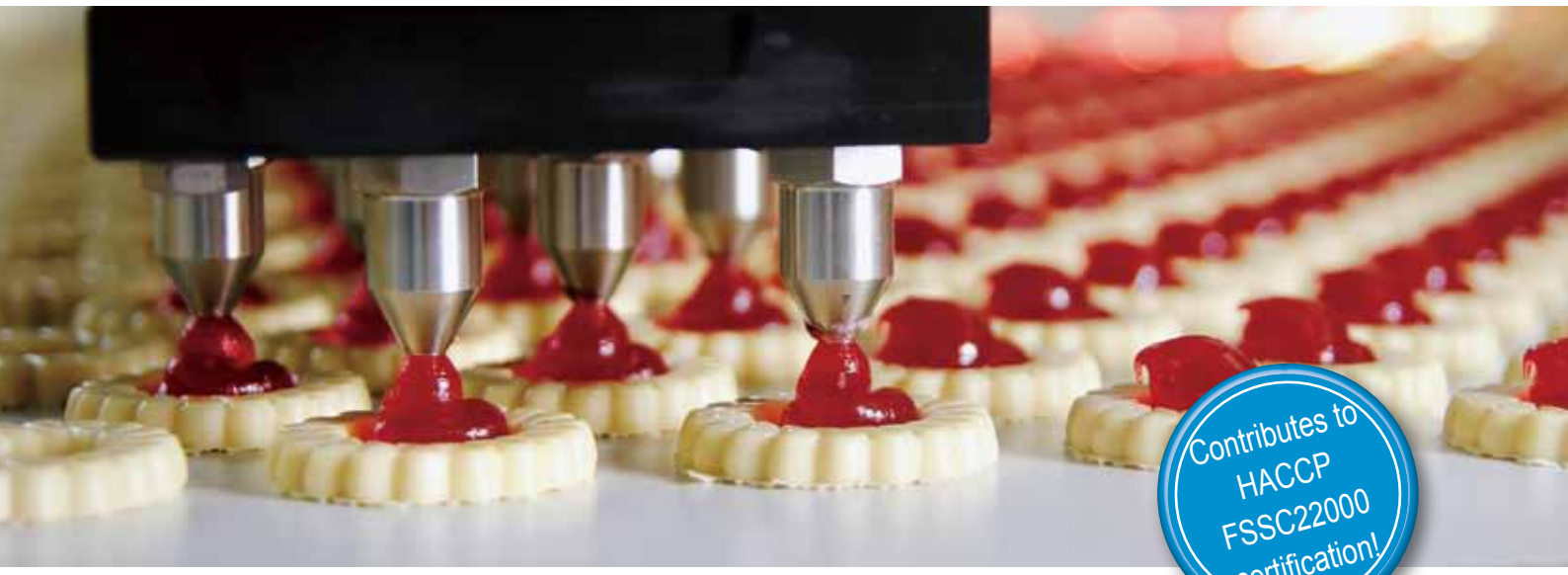
Enhances further safety!

Lubricants Material Structure Environment Shape



FP Food Process®

This logo represents CKD's stance to provide you with safe components for supporting your food manufacturing processes.



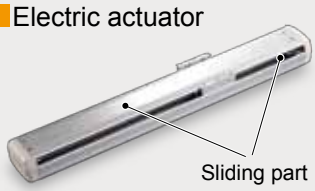
We provide total support for your food manufacturing processes with our comprehensive engineering capability in packing, pneumatics, fluid control and motors

FP1 Series

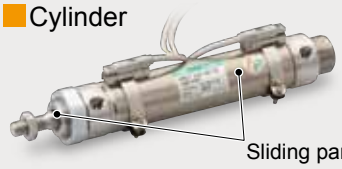
Food grade lubricant (NSF H1) is used for flow paths and sliding parts.

* Materials and dimensions are the same as standard products.

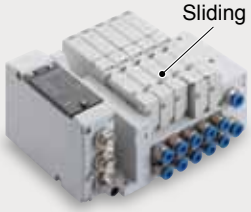
Electric actuator



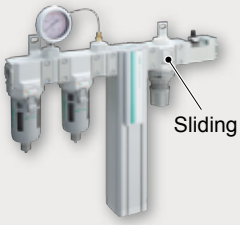
Cylinder



Pneumatic valve



Nitrogen gas extraction unit



FP2 Series

In addition to the features of FP1, materials conforming to the Food Sanitation Act (resin/rubber) are used for the flow path.

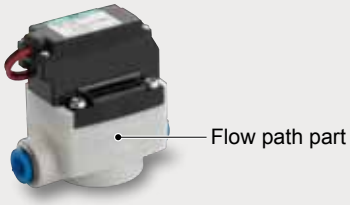
* Materials (except for the flow path part) and dimensions are the same as standard products.

Anti-bacterial/bacteria removing filter

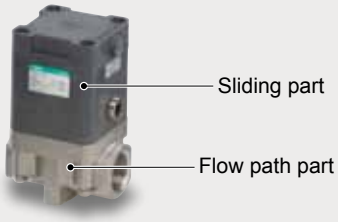


* Food Sanitation Act "Specifications and standards for foods, food additives, etc. (The Ministry of Health and Welfare Notification No. 370, 1959)"

Solenoid valve



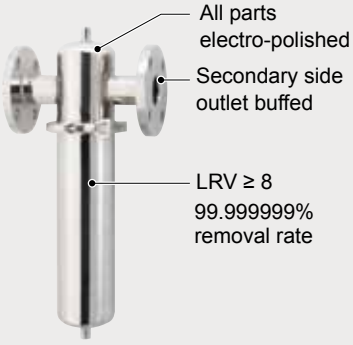
Diaphragm cylinder valve



FP3 Series

In addition to the features of FP2, the lubricants, materials, shapes, etc., are even more suitable for food manufacturing processes.

Bacteria removing filter



Reliable anti-bacterial and bacteria removing power with a triple block module design

Anti-bacterial pre-filter | High-performance anti-bacterial filter | Bacteria removing filter



New

FDA
Materials compatible
Fluid passage section
Resin/Rubber

Antibacterial activity value
≥4

LRV8
or higher
Bacteria trapping performance

Materials compatible with the Food Sanitation Act
Fluid passage section
Resin/Rubber

NSF H1
Uses food-grade grease

Anti-bacterial
material used for External parts

Maintenance

Push ring employed in SUS

Risk of contamination is reduced, allowing for installation near the point of use.



Replaceable elements

Elements are easy to replace.



Equipped with maintenance seal

* Supplied with the product.

The replacement period is clearly indicated.



* The bactericidal activity value and bacterial trapping performance value are actual values based on predetermined conditions set by CKD.

Anti-bacterial

Proprietary anti-bacterial filter Stops bacteria growth!

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

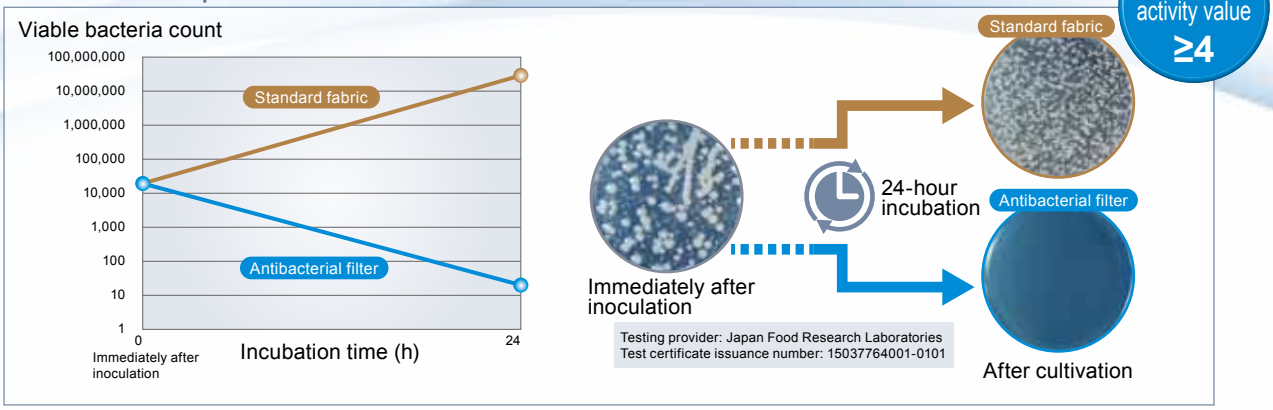
Non-woven fabric uses silver-based anti-bacterial agent

The silver ions included in the antibacterial filter are absorbed into the bacteria cells, the bacteria enzyme's actions are obstructed, and they die out.



Silver ions penetrate into bacteria cells → Enzyme activity is inhibited → Bacteria is eradicated

Anti-bacterial performance



Testing provider: Japan Food Research Laboratories
Test certificate issuance number: 15037764001-0101

Verification data from tests based on JIS L 1902

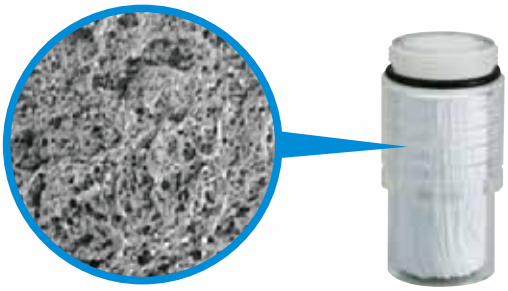
Bacteria Removal

Proprietary bacteria removing filter Removes bacteria!

Removal rate 99.999999% hollow fiber membrane

Hollow string membrane

The bacteria removing filter consists of a straw-shaped fiber membrane with a countless number of special slit-shaped ultrafine pores.
These pores trap bacteria when the compressed air passes through.



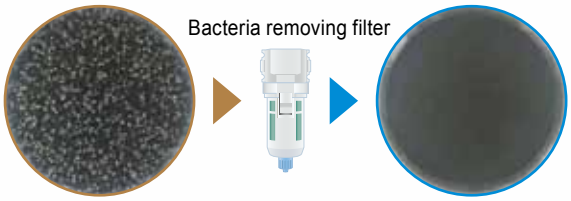
Bacteria removing performance

$$\text{Bacteria trapping performance LRV} = \frac{\log_{10}\text{total bacterial count of raw water}}{\text{Number of bacteria in filtrate}}$$

$$= \frac{\log_{10} 8.5\times10^{8}}{1^{*}} = 8.9$$

LRV8 or higher Bacteria trapping performance

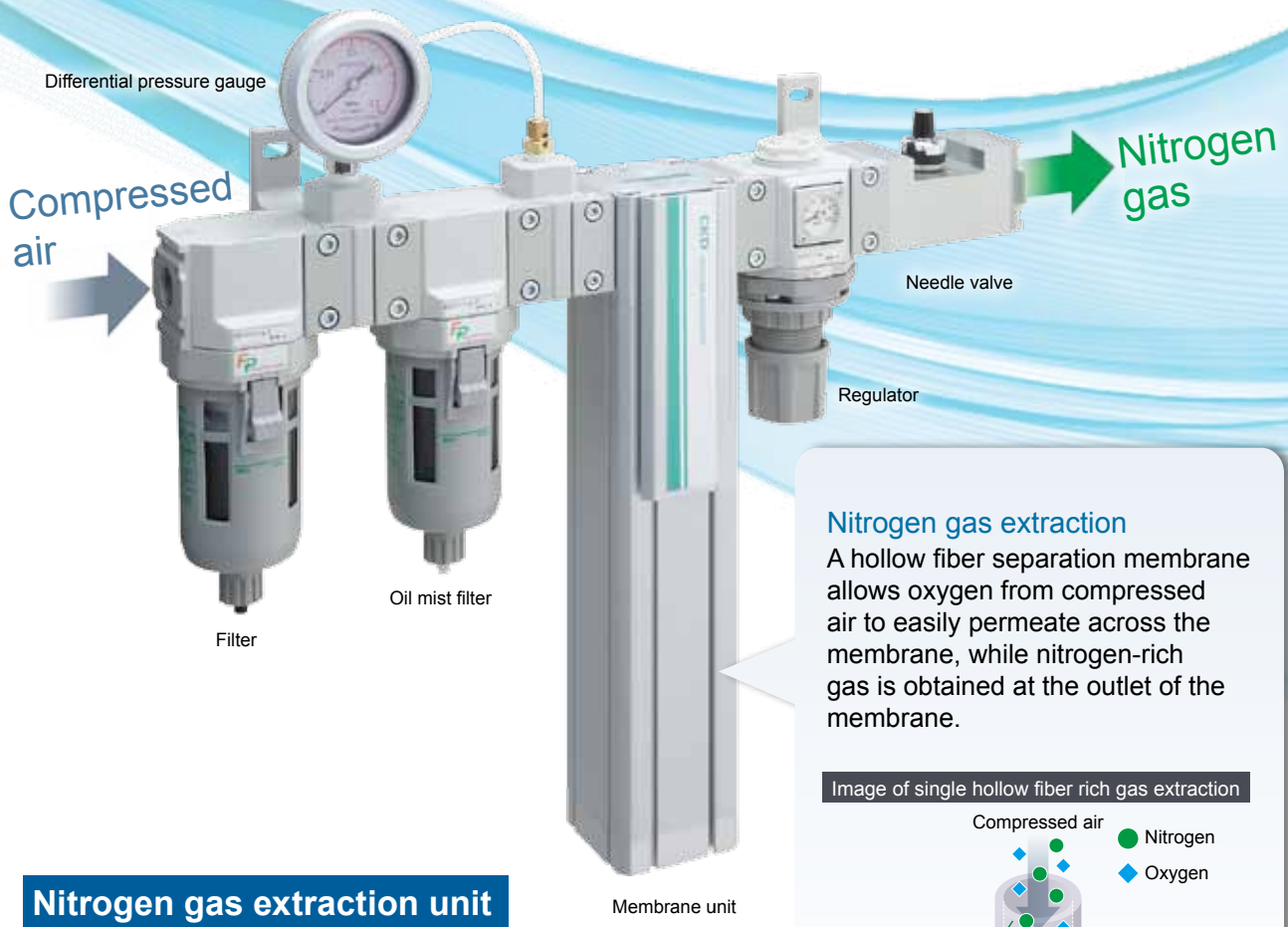
* A value of 1 is used when the number of bacteria in the filtrate is 0.



Testing provider: Japan Microbiological Clinic Co., Ltd.
Test certificate issuance number: CJ2014. 10-1

Verification data from tests based on JIS K 3835

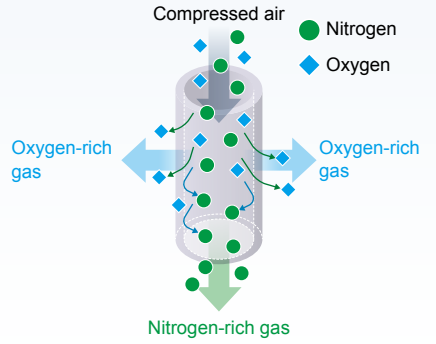
Easily extract nitrogen gas from compressed air.



Nitrogen gas extraction

A hollow fiber separation membrane allows oxygen from compressed air to easily permeate across the membrane, while nitrogen-rich gas is obtained at the outlet of the membrane.

Image of single hollow fiber rich gas extraction



Nitrogen gas extraction unit

NS Series

NS Series configuration

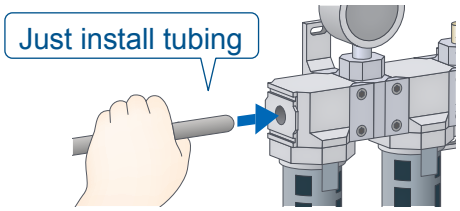
System	Unit	
	Single cylinder	Double cylinder
NSU	NS	



Installation for all places

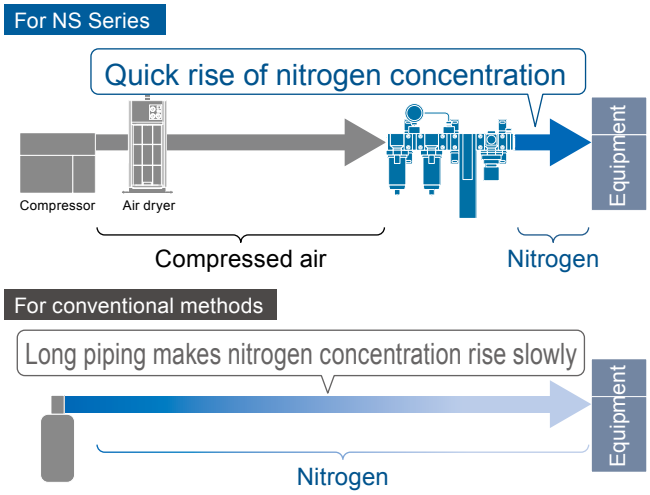
Reduced workload, piping, and space

- Providing system equipment makes design and piping easy.
- The optimum system can be selected for the required flow rate.
- Can be installed near the equipment, so nitrogen-dedicated long piping is not required.



Power supply not required

- Usable even in explosion-proof atmospheres and areas with different voltages.
- No misoperations caused by noise.
- Silent and no heating due to driveless system.



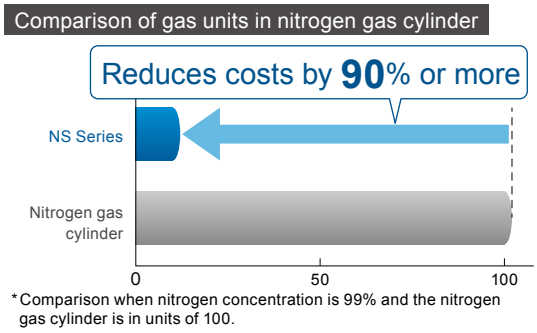
Lowered costs

Reduced operation costs

- The electricity costs for the air compressor are the only maintenance fees.
- Continuous costs, such as the cost of cylinder replacement, are not applied.

Reduced expenses

- Troublesome maintenance of remaining cylinders and replacement operations not required.



*Comparison when nitrogen concentration is 99% and the nitrogen gas cylinder is in units of 100.

Easy maintenance

Duration of reliability

- No movable parts, enabling stable performance.
- Parts can be replaced while piped.



Not subject to High Pressure Gas Safety Act

- Providing applications and qualified persons is not required.

Secure support for food manufacturing processes FP Series

Safe and secure for food manufacturing processes.

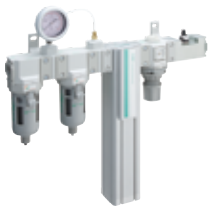
NSF H1 grease for foodstuffs used

Materials compliant with the Food Sanitation Act
Fluid passage section resin/rubber

FP Food Process®

This logo represents CKD's stance to provide you with safe components for supporting your food manufacturing processes.

System

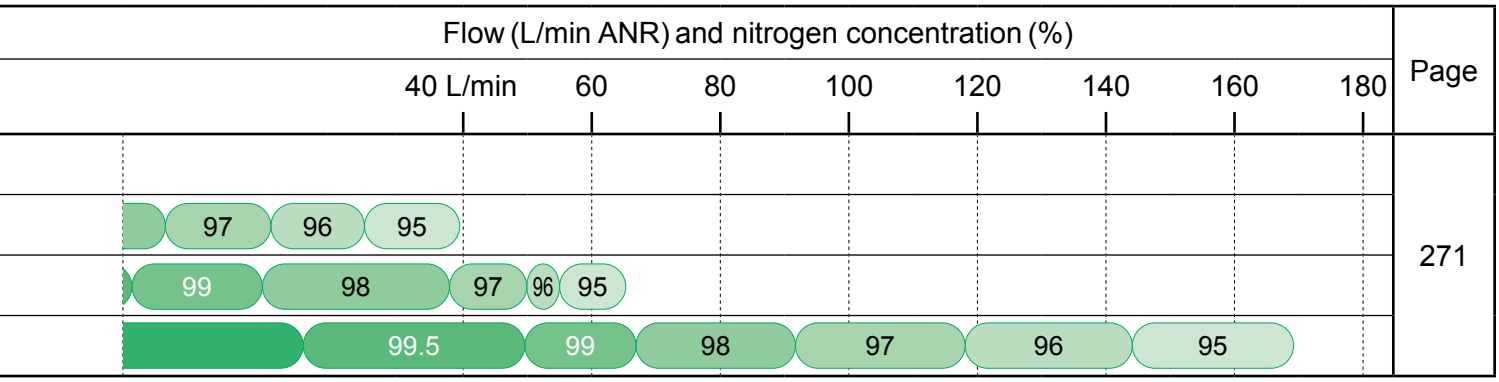
Model No.	Appearance	Flow (L/min ANR) and nitrogen concentration (%)
		10 L/min　20
NSU-3S		99.9　99.5　99　98　97　96　95
NSU-3L		99.9　99.5　99　98
NSU-4S		99.9　99.5
NSU-4L		99.9

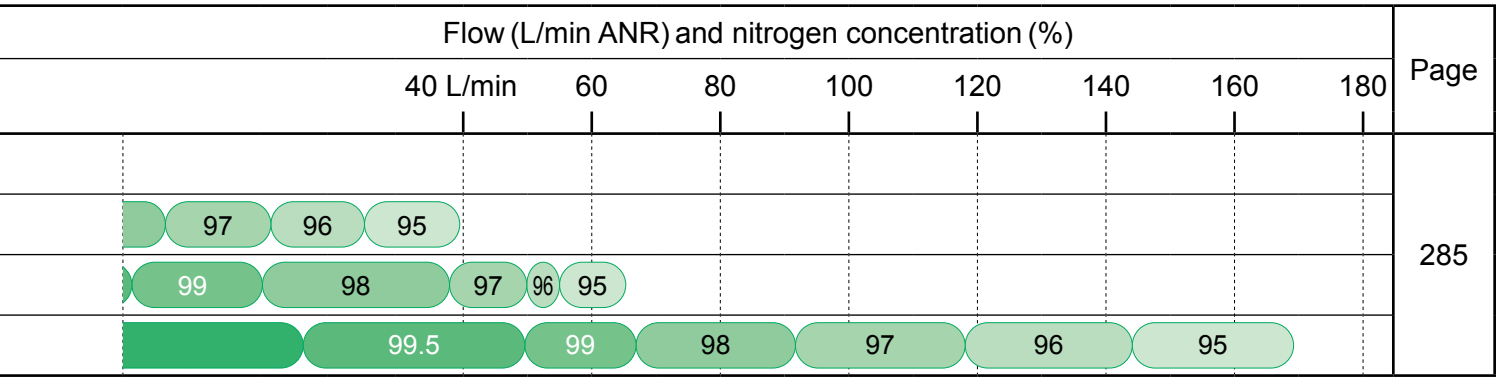
Unit

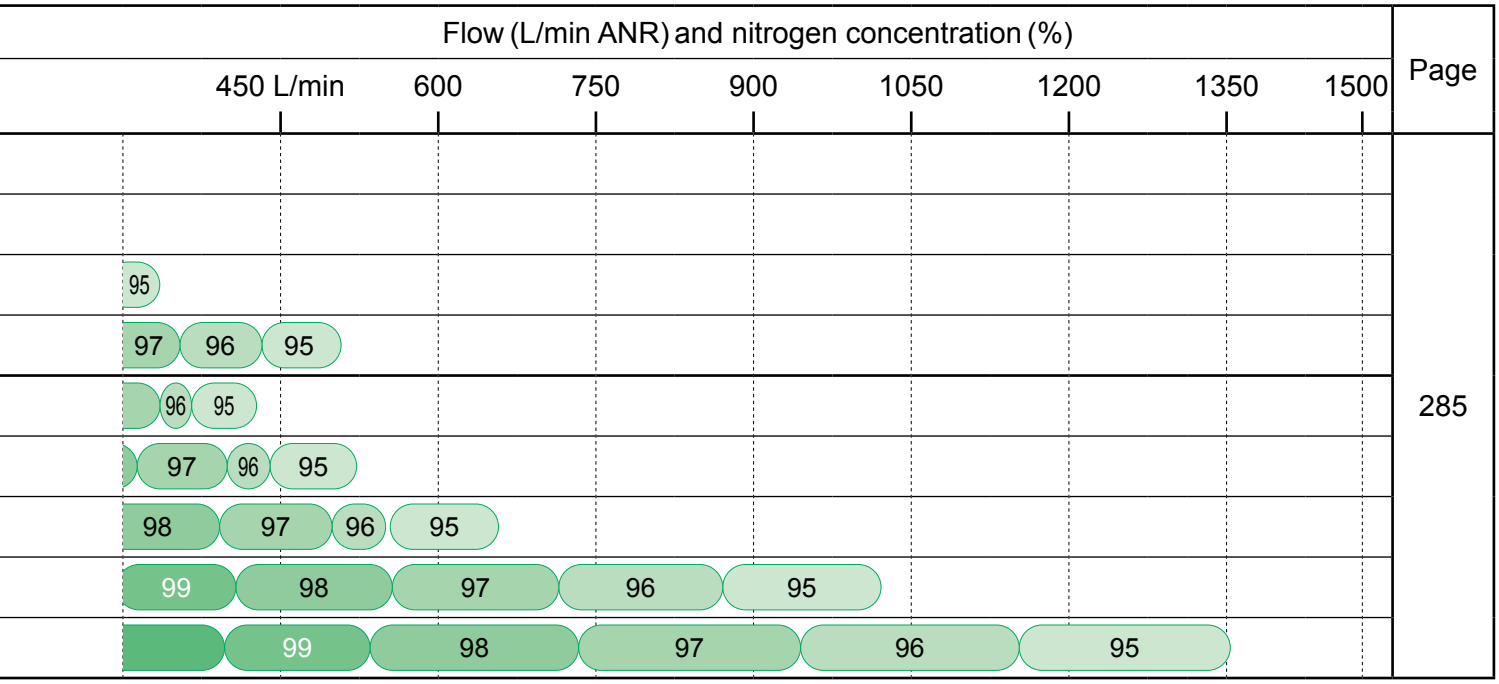
Model No.	Appearance	Flow (L/min ANR) and nitrogen concentration (%)
		10 L/min　20
NS-3S1		99.9　99.5　99　98　97　96　95
NS-3L1		99.9　99.5　99　98
NS-4S1		99.9　99.5
NS-4L1		99.9

Model No.	Number of pcs.	Appearance	Flow (L/min ANR) and nitrogen concentration (%)
			50 L/min　100　150　300
NS-4S2	2		99.9　99.5　99　98　97　96　95
NS-4S3	3		99.9　99.5　99　98　97　96　95
NS-4L2	2		99.9　99.5　99　98　97　96
NS-4L3	3		99.9　99.5　99　98
NS-4S6	6		99.9　99.5　99　98　97
NS-4S8	8		99.9　99.5　99　98
NS-4SA	10		99.9　99.5　99
NS-4L6	6		99.9　99.5
NS-4L8	8		99.9　99.5

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







Supplement:
The nitrogen concentration display of nitrogen obtained from the nitrogen gas extraction unit actually shows the total concentration of elements other than oxygen (O2). The raw air contains nitrogen, oxygen, 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 50 ppm, and water vapor reduces to -40°C through atmospheric dew point conversion.

INDEX

Avoid contamination from lubricant. Food grade lubricant (NSF H1) is used.

FP1

Electric actuator Slider
ETS Series P1



Electric actuator Belt
ETV Series P3



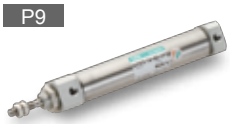
Electric actuator Low dust generation
ECS Series P5



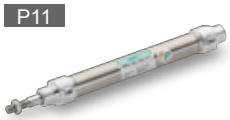
Electric actuator Low dust generation belt type
ECV Series P7



Pencil shaped cylinder
SCPD3 Series P9



Small bore size cylinder
CMK2 Series P11



Small bore size cylinder, stainless steel variation
CMK2-J Series P17



Round shaped cylinder
SCM Series P21



Tie rod air cylinder
SCG Series P27



Selex cylinder with T switch
SCA2 Series P31



Selex cylinder
SCS2 Series P37



Compact cylinder
SSD2 Series P39



Guided cylinder
STG-M Series P45



Rodless cylinder
SRL3 Series P49



Floating fitting
FJ Series P53



Feather hand (mini-parallel hand)
FH100 Series P55



Compact cross roller parallel hand
BHA/BHG Series P57



Compact wide parallel hand
HMF Series P61



Feather hand (mini-fulcrum hand)
FH500 Series P63



3-way jaw bearing chuck
CKG Series P65



Powerful chuck
CKL2 Series P67



Powerful chuck with rubber cover
CKLG2 Series P69



Pilot operated 3, 4, 5-port valve
4G Series P77



Pilot operated 3, 5-port valve
W4G*2 Series P171



Filter/regulator combination
C*020/ C*030/ C*060/ Series P211



Filter/regulator
W1*00 to W8*00 Series P217



Air filter
F1000 to F8000 Series P221



Oil mist filter
M(X)1000 to M(X)8000 Series P223



Regulator
R1*00 to R8*00 Series P227



Reed switch compact pressure switch
P1100 to P8100 Series P231



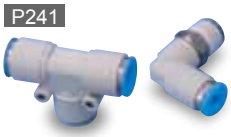
Shut-off valve P233
V1000/ V3000/ V3010/ V6010 Series



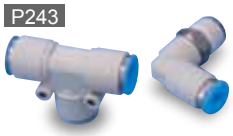
Digital electro pneumatic regulator
EVD Series P237



Fitting
GW Series P241



Fitting (stainless steel series)
ZW Series P243



Speed controller elbow with push-in fitting
SC3W Series P249



Speed controller with adjusting dial
DSC Series P251



Speed controller line type with push-in fitting
SCL2 Series P253



Needle valve with adjusting dial
DVL-S Series P255



Speed controller
SC-M5 Series P257

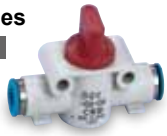


FP Food Process®

Speed controller
SC1 Series
P258


Metering valve with silencer
SMW/ SMW2 Series
P259


Block valve
FPV Series
P261


Quick valve
2QV/3QV Series
P263


Single ejectors
VSH/VSC Series
P265


Super dryer
SU/SD Series
P267


Nitrogen gas extraction unit
NSU Series
P271


Medium main line filter
AF Series
P275


Drain separator
FX Series
P277


Pilot kick 2-port solenoid valve
APK Series
P279


Air operated 2-port valve
SAB Series
P281


Air operated 3-port valve
NAP Series
P283


Material compatible with Food Sanitation Law is used.

FP2

Nitrogen gas extraction unit
NS Series
P285


Anti-bacterial/bacteria removing filter
SFC/SFS Series
P291


Suction pad
VSP Series
P305


Pilot operated 2-port solenoid valve for compressed air
EXA Series
P307


Compact pilot operated solenoid valve for water
FWD Series
P309


Compact direct acting 2, 3-port solenoid valve
USB/G Series
P311


Direct acting 2-port solenoid general purpose valve
AB31/41 Series
P317


Direct acting 3-port solenoid general purpose valve
AG31/41/ 33/43/ 34/44 Series
P319


Pilot 2-port solenoid general purpose valve for dry air
ADK11-Z Series
P325


Diaphragm cylinder valve
LAD Series
P327


Diaphragm cylinder valve
NAD Series
P329


Diaphragm cylinder valve, manifold
GNAD Series
P330


Compact rotary valve
CHB/ CHG Series
P331


Oil prohibited motorized 2-port ball valve
MXB/ MXG Series
P333


Pilot kick 2-port solenoid valve for steam
SPK Series
P337


Metal-free solenoid valve
MYB3 Series
P339


High corrosion resistant direct acting 2-port solenoid valve
HB Series
P340


- Grease for pneumatic cylinder maintenance P75
- Standard model supports. P341
- Contact CKD for details. P342
- Related products P351



Electric actuator ETS Series
Catalog No. CC-1165A

Electric actuator Slider

ETS-FP1 Series

● Applicable motor capacity: 100 W, 200 W, 400 W, 750 W

Specifications

Descriptions		Applicable motor capacity: 100 W													
		Model													
		ETS-05			ETS-06			ETS-10				ETS-12			
Ball screw diameter mm		12			12			16				16			
Ball screw accuracy grade		C7													
Screw lead mm		2	5	10	2	5	10	5	10	16	20	5	10	16	20
Repeatability mm		±0.02													
Max. load capacity *1	Horizontal kg	10	10	5	30	30	15	50	30	22	18	50	30	22	18
	Vertical kg	7	3	1.5	15	10	5	12	8	5	3	12	8	5	3
Max. speed *1 mm/s		100	250	500	100	250	500	250	500	800	1000	250	500	800	1000
Stroke *2 mm		100 to 800			100 to 800			100 to 1050				100 to 1050			
Thrust N		854	341	170	854	341	170	341	170	106	85	341	170	106	85

*1: Acceleration and deceleration time is the value at 0.2 sec.
*2: Stroke length is 50 pitch.

Descriptions		Applicable motor capacity: 200 W															
		Model															
		ETS-10				ETS-12				ETS-13				ETS-14			
Ball screw diameter mm		16				16				16				16			
Ball screw accuracy grade		C7															
Screw lead mm		5	10	16	20	5	10	16	20	5	10	16	20	5	10	16	20
Repeatability mm		±0.02															
Max. load capacity *1	Horizontal kg	50	30	22	18	50	30	22	18	70	47	30	24	95	75	44	35
	Vertical kg	12	8	5	3	12	8	5	3	17	12	6	4	27	18	7	6
Max. speed *1 mm/s		250	500	800	1000	250	500	800	1000	250	500	800	1000	250	500	800	1000
Stroke *2 mm		50 to 1050				50 to 1050				50 to 1050				50 to 1050			
Thrust N		683	341	213	174	683	341	213	174	683	341	213	174	683	341	213	174

*1: Acceleration and deceleration time is the value at 0.2 sec.
*2: Stroke length is 50 pitch.

Descriptions		Applicable motor capacity: 400 W												Applicable motor capacity: 750 W							
		Model																			
		ETS-13				ETS-14				ETS-17				ETS-17				ETS-22			
Ball screw diameter mm		16				16				20				20				25			20
Ball screw accuracy grade		C7												C7							
Screw lead mm		5	10	16	20	5	10	16	20	5	10	20	40	5	10	20	40	5	10	25	40
Repeatability mm		±0.02												±0.02							
Max. load capacity *1	Horizontal kg	70	47	30	24	110	88	48	40	120	110	75	35	120	120	83	50	150	150	120	60
	Vertical kg	17	12	6	4	33	22	10	8	40	30	14	7	50	40	25	10	55	45	20	10
Max. speed *1 mm/s		250	500	800	1000	250	500	800	1000	250	500	1000	2000	250	500	1000	2000	250	500	1250	2000
Stroke *2 mm		50 to 1050				100 to 1050				100 to 1250				100 to 1250				100 to 1500			
Thrust N		1388	694	483	347	1388	694	433	347	1388	694	347	174	2100	1050	525	260	2100	1050	420	260

*1: Acceleration and deceleration time is the value at 0.2 sec.
*2: Stroke length is 50 pitch.

How to order

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

Model No.

Ⓐ Body size

Ⓑ Screw lead

Ⓒ Stroke

Ⓓ Motor mounting method

Ⓔ Mounted motor specification

Ⓕ Motor capacity

Ⓖ Brake

Ⓗ Origin sensor

Ⓘ Limit sensor

Ⓙ Option 1

Ⓚ Option 2

Code	Content
Ⓐ Body size (mm)	
05	Width 51 × height 54
06	Width 65 × height 56
10	Width 102 × height 66
12	Width 102 × height 70
13	Width 135 × height 78
14	Width 135 × height 78
17	Width 170 × height 97
22	Width 220 × height 122
Ⓑ Screw lead	
02	2 mm
05	5 mm
10	10 mm
16	16 mm
20	20 mm
25	25 mm
40	40 mm
Ⓒ Stroke	
010 to 150	100 mm to 1500 mm (50 mm pitch) Display is 1/10.
Ⓓ Motor mounting method	
E	External direct mounting
D	Downward return mounting
R	Right return mounting
L	Left return mounting
B	Built-in *
Ⓔ Mounted motor specification	
M / **Y** / **P**	Select the mounted motor specification from the table below.
Ⓕ Motor capacity	
1	100 W
2	200 W
4	400 W
8	750 W
Ⓖ Brake	
N	None
B	With brake *
Ⓗ Origin sensor (1 pc)	
N	None
A	Inside Motor side
B	Inside Opposite side of motor
C	Outside Motor side (included at shipment)
D	Outside Opposite side of motor (included at shipment)
Ⓘ Limit sensor (2 pcs)	
N	None
A	Inside
B	Outside (included at shipment)
Ⓙ Option 1	
N	Body mounting direction Standard/without grease nipple
D	Body mounting direction Bottom/without grease nipple
R	Grease nipple right
L	Grease nipple left
Ⓚ Option 2	
N	Without positioning pin hole
P	With positioning pin hole

[Example of model No.]

ETS-06-05040-EM1NCBDN-FP1

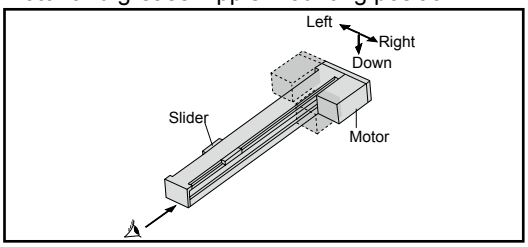
- Ⓐ Body size: width 65 × height 56 mm
- Ⓑ Screw lead: 5 mm
- Ⓒ Stroke: 400 mm
- Ⓓ Motor mounting method: External direct mounting
- Ⓔ Mounted motor specifications: Manufactured by Mitsubishi Electric Co., Ltd.
- Ⓕ Motor capacity: 100 W
- Ⓖ Brake: None
- Ⓗ Origin sensor: Outside motor side
- Ⓘ Limit sensor: Outside
- Ⓙ Option 1: Mounting direction Bottom/ without grease nipple
- Ⓚ Option 2: Without positioning pin hole

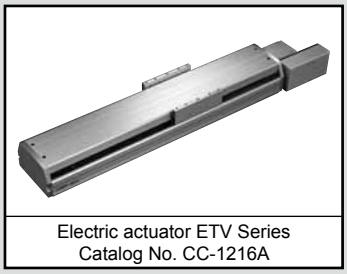
*Actuator is the same as the type with no brake except when the motor mounting method is "B (built-in)". ⒼSelect "N" for all types with brakes.

Ⓔ 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

Motor and grease nipple mounting position





Electric actuator ETV Series
Catalog No. CC-1216A

Electric actuator Belt

ETV-FP1 Series

● Applicable motor capacity: 100 W, 200 W, 400 W, 750 W

RoHS CAD

Specifications

Descriptions			Applicable motor capacity: 100 W			Applicable motor capacity: 200 W
			Model			
			ETV-05	ETV-06	ETV-10	ETV-14
Belt width		mm	9	12	15	22
Lead		mm	40	40	32	40
Repeatability		mm	±0.08		±0.04	±0.04
Max. load capacity *1	Horizontal	kg	3	3	10	25
	Vertical	kg	-	-	-	-
Max. speed *1		mm/s	2000	2000	1600	2000
Stroke *2		mm	100 to 800	100 to 800	100 to 2550	100 to 3050
Thrust		N	42	42	61	100

*1: Acceleration and deceleration time is the value at 0.4 sec.
*2: Stroke length is 50 pitch.

Descriptions			Applicable motor capacity: 400 W	Applicable motor capacity: 750 W
			Model	
			ETV-17	ETV-22
Belt width		mm	30	50
Lead		mm	40	40
Repeatability		mm	±0.04	±0.04
Max. load capacity *1	Horizontal	kg	45	85
	Vertical	kg	-	-
Max. speed *1		mm/s	2000	2000
Stroke *2		mm	100 to 3500	100 to 3500
Thrust		N	204	367

*1: Acceleration and deceleration time is the value at 0.4 sec.
*2: Stroke length is 50 pitch.

How to order

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

- ETV: Model No.
- 06: Ⓐ Body size
- 40: Ⓑ Lead
- 010: Ⓒ Stroke
- D: Ⓓ Motor mounting method
- M: Ⓔ Mounted motor specification
- 1: Ⓕ Motor capacity
- X: Ⓖ Driving belt
- C: Ⓗ Origin sensor
- B: Ⓘ Limit sensor
- D: Ⓙ Option 1
- N: Ⓚ Option 2
- FP1

Code	Content
Ⓐ Body size (mm)	
05	Width 50 × height 54
06	Width 65 × height 56
10	Width 102 × height 66
14	Width 135 × height 93
17	Width 170 × height 108
22	Width 220 × height 134
Ⓑ Lead	
32	32 mm
40	40 mm
Ⓒ Stroke	
010 to 350	100 mm to 3500 mm (50 mm pitch) Display is 1/10.
Ⓓ Motor mounting method	
U	Upward mounting
D	Downward mounting
R	Right mounting
S	Upper right mounting
T	Lower right mounting
L	Left mounting
V	Upper left mounting
W	Lower left mounting
Ⓔ Mounted motor specification	
M / Y / P	Select the mounted motor specification from the table below.
Ⓕ Motor capacity	
1	100 W
2	200 W
4	400 W
8	750 W
Ⓖ Driving belt type	
X	Standard (rubber)
L	Low dust generation (urethane) *
Ⓗ Origin sensor (1 pc)	
N	None
C	Outside Motor side (attached at shipment)
D	Outside Opposite side of motor (included at shipment)
Ⓘ Limit sensor (2 pcs)	
N	None
B	Outside (included at shipment)
Ⓙ Option 1	
N	Body mounting direction Standard/without grease nipple
D	Body mounting direction Bottom/without grease nipple
R	Grease nipple right
L	Grease nipple left
Ⓚ Option 2	
N	Without positioning pin hole
P	With positioning pin hole

[Example of model No.]

ETV-06-40010-DM1XCBDN-FP1

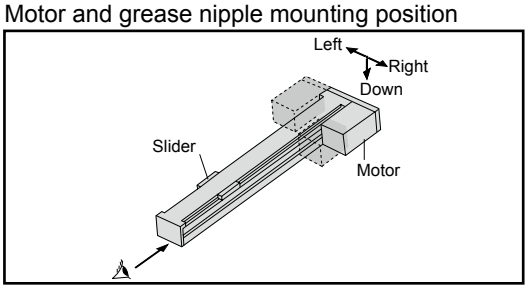
- Ⓐ Body size: width 65 × height 56 mm
- Ⓑ Lead: 40 mm
- Ⓒ Stroke: 100 mm
- Ⓓ Motor mounting method: Downward mounting
- Ⓔ Mounted motor specifications: Manufactured by Mitsubishi Electric Co., Ltd.
- Ⓕ Motor capacity: 100 W
- Ⓖ Driving belt type: Standard (rubber)
- Ⓗ Origin sensor: Outside motor side
- Ⓘ Limit sensor: Outside
- Ⓙ Option 1: Mounting direction Bottom/without grease nipple
- Ⓚ Option 2: Without positioning pin hole

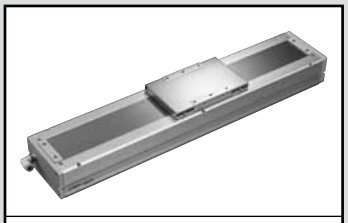
* For Ⓐ Body sizes "05" and "06", Ⓖ Belt type "L" cannot be selected.

Ⓔ 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

Motor and grease nipple mounting position





Electric actuator ECS Series
Catalog No. CC-1217A

Electric actuator Low dust generation

ECS-FP1 Series

● Applicable motor capacity: 100 W, 200 W, 400 W, 750 W

RoHS CAD

Specifications

Descriptions		Applicable motor capacity: 100 W														Applicable motor capacity: 200 W			
		Model																	
		ECS-05			ECS-06			ECS-10				ECS-12				ECS-14			
Ball screw diameter mm		12			12			16				16				16			
Ball screw accuracy grade		C7														C7			
Screw lead mm		2	5	10	2	5	10	5	10	16	20	5	10	16	20	5	10	16	20
Repeatability mm		±0.02														±0.02			
Max. load capacity	Horizontal kg	10	10	5	30	30	15	50	30	22	18	50	30	22	18	95	75	44	35
*1	Vertical kg	7	3	1.5	15	10	5	12	8	5	3	12	8	5	3	27	18	7	6
Max. speed *1 mm/s		100	250	500	100	250	500	250	500	800	1000	250	500	800	1000	250	500	800	1000
Stroke *2 mm		100 to 800			100 to 800			100 to 1050				100 to 1050				100 to 1050			
Thrust N		825	330	165	854	341	170	341	170	106	85	341	170	106	85	683	341	213	174

*1: Acceleration and deceleration time is the value at 0.2 sec.
*2: Stroke length is 50 pitch.

Descriptions		Applicable motor capacity: 400 W								Applicable motor capacity: 750 W							
		Model															
		ECS-14				ECS-17				ECS-17				ECS-22			
Ball screw diameter mm		16				20				20				25			20
Ball screw accuracy grade		C7								C7							
Screw lead mm		5	10	16	20	5	10	20	40	5	10	20	40	5	10	25	40
Repeatability mm		±0.02								±0.02							
Max. load capacity	Horizontal kg	110	88	48	40	120	110	75	35	120	120	83	50	150	150	120	60
*1	Vertical kg	33	22	10	8	40	30	14	5	50	40	25	10	55	45	20	10
Max. speed *1 mm/s		250	500	800	1000	250	500	1000	2000	250	500	1000	2000	250	500	1250	2000
Stroke *2 mm		100 to 1050				100 to 1250				100 to 1250				100 to 1500			
Thrust N		1388	694	433	347	1388	694	347	174	2100	1050	525	260	2100	1050	420	260

*1: Acceleration and deceleration time is the value at 0.2 sec.
*2: Stroke length is 50 pitch.

How to order

ECS - 06 - 05 010 - E M 1 N C B N N - FP1

- ECS: Model No.
- 06: Ⓐ Body size
- 05: Ⓑ Screw lead
- 010: Ⓒ Stroke
- E: Ⓓ Motor mounting method
- M: Ⓔ Mounted motor specification
- 1: Ⓕ Motor capacity
- N: Ⓖ Brake
- C: Ⓗ Origin sensor
- B: Ⓘ Limit sensor
- N: Ⓙ Option 1
- N: Ⓚ Option 2
- FP1: Series

Code	Content
Ⓐ Body size (mm)	
05	Width 51 × height 54
06	Width 65 × height 56
10	Width 102 × height 78.5
12	Width 102 × height 82.5
14	Width 135 × height 91
17	Width 170 × height 107
22	Width 220 × height 138
Ⓑ Screw lead	
02	2 mm
05	5 mm
10	10 mm
16	16 mm
20	20 mm
25	25 mm
40	40 mm
Ⓒ Stroke	
010 to 150	100 mm to 1500 mm (50 mm pitch) Display is 1/10.
Ⓓ Motor mounting method	
E	External direct mounting
D	Downward return mounting
R	Right return mounting
L	Left return mounting
B	Built-in *
Ⓔ Mounted motor specification	
M / Y / P	Select the mounted motor specification from the table below.
Ⓕ Motor capacity	
1	100 W
2	200 W
4	400 W
8	750 W
Ⓖ Brake	
N	None
B	With brake *
Ⓗ Origin sensor (1 pc)	
N	None
A	Inside Motor side
B	Inside Opposite side of motor
C	Outside Motor side (included at shipment)
D	Outside Opposite side of motor (included at shipment)
Ⓘ Limit sensor (2 pcs)	
N	None
A	Inside
B	Outside (included at shipment)
Ⓙ Option 1	
N	Body mounting direction Standard/without grease nipple
R	Grease nipple right
L	Grease nipple left
Ⓚ Option 2	
N	Without positioning pin hole
P	With positioning pin hole

[Example of model No.]

ECS-06-05010-EM1NCBNN-FP1

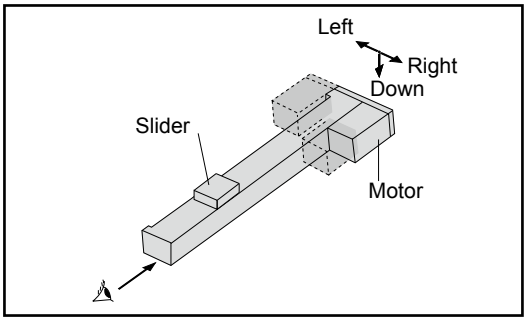
- Ⓐ Body size: width 65 × height 54 mm
- Ⓑ Screw lead: 5 mm
- Ⓒ Stroke: 100 mm
- Ⓓ Motor mounting method: External direct mounting
- Ⓔ Mounted motor specifications: Manufactured by Mitsubishi Electric Co., Ltd.
- Ⓕ Motor capacity: 100 W
- Ⓖ Brake: None
- Ⓗ Origin sensor: Outside motor side
- Ⓘ Limit sensor: Outside
- Ⓙ Option 1: Mounting direction standard
- Ⓚ Option 2: Without positioning pin hole

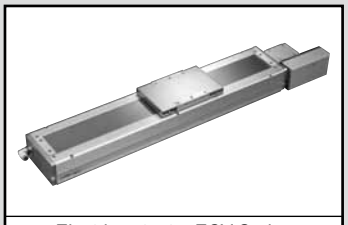
*Actuator is the same as the type with no brake except when the motor mounting method is "B (built-in)". ⒼSelect "N" for all types with brakes.

Ⓔ 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

Motor and grease nipple mounting position





Electric actuator ECV Series
Catalog No. CC-1257A

Electric actuator Low dust generation belt type

ECV-FP1 Series

● Applicable motor capacity: 100 W, 200 W, 400 W, 750 W

RoHS CAD

Specifications

Descriptions			Applicable motor capacity: 100 W			Applicable motor capacity: 200 W
			Model			
			ETV-05	ETV-06	ETV-10	ETV-14
Belt width		mm	9	12	15	22
Lead		mm	40	40	32	40
Repeatability		mm	±0.08		±0.04	±0.04
Max. load capacity *1	Horizontal	kg	3	3	10	25
	Vertical	kg	-	-	-	-
Max. speed *1		mm/s	2000	2000	1600	2000
Stroke *2		mm	100 to 800	100 to 800	100 to 2550	100 to 3050
Thrust		N	42	42	61	100

*1: Acceleration and deceleration time is the value at 0.4 sec.
*2: Stroke length is 50 pitch.

Descriptions			Applicable motor capacity: 400 W	Applicable motor capacity: 750 W
			Model	
			ETV-17	ETV-22
Belt width		mm	30	50
Lead		mm	40	40
Repeatability		mm	±0.04	±0.04
Max. load capacity *1	Horizontal	kg	45	85
	Vertical	kg	-	-
Max. speed *1		mm/s	2000	2000
Stroke *2		mm	100 to 3500	100 to 3400
Thrust		N	204	367

*1: Acceleration and deceleration time is the value at 0.4 sec.
*2: Stroke length is 50 pitch.

How to order

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

- ECV: Model No.
- 06: Ⓐ Body size
- 40: Ⓑ Lead
- 010: Ⓒ Stroke
- D: Ⓓ Motor mounting method
- M: Ⓔ Mounted motor specification
- 1: Ⓕ Motor capacity
- X: Ⓖ Belt type
- C: Ⓗ Origin sensor
- B: Ⓘ Limit sensor
- N: Ⓙ Option 1
- N: Ⓚ Option 2
- FP1: Model No.

Code	Content
Ⓐ Body size (mm)	
05	Width 50 × height 54
06	Width 65 × height 56
10	Width 108 × height 78.5
14	Width 135 × height 91
17	Width 170 × height 107
22	Width 220 × height 138
Ⓑ Lead (refer to table 1 on the next page)	
32	32 mm
40	40 mm
Ⓒ Stroke (refer to table 1 on the next page)	
010 to 350	100 mm to 3500 mm (50 mm pitch) Display is 1/10.
Ⓓ Motor mounting method (refer to table 2 on the next page)	
U	Upward mounting
D	Downward mounting
R	Right mounting
S	Upper right mounting
T	Lower right mounting
L	Left mounting
V	Upper left mounting
W	Lower left mounting
Ⓔ Mounted motor specification	
M	Select the mounted motor specification from the table below.
Y	
P	
Ⓕ Motor capacity (refer to table 2 on the next page)	
1	100 W
2	200 W
4	400 W
8	750 W
Ⓖ Belt type	
X	Standard (rubber)
L	Low dust generation (urethane) *
Ⓗ Origin sensor (1 pc) (refer to table 4 on the next page)	
N	None
C	Outside Motor side (included at shipment)
D	Outside Opposite side of motor (included at shipment)
Ⓘ Limit sensor (2 pcs) (refer to table 4 on the next page)	
N	None
B	Outside (included at shipment)
Ⓙ Option 1 (refer to table 5 on the next page)	
N	Body mounting direction Standard/without grease nipple
R	Grease nipple right
L	Grease nipple left
Ⓚ Option 2	
N	Without positioning pin hole
P	With positioning pin hole

[Example of model No.]

ECV-06-40010-DM1XCBNN-FP1

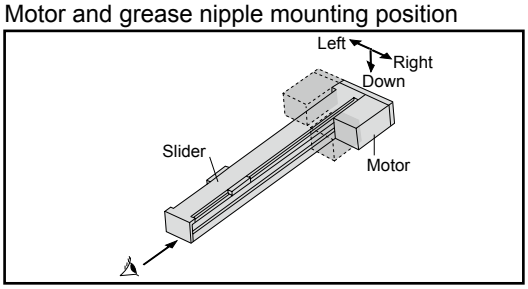
- Ⓐ Body size: width 65 × height 56 mm
- Ⓑ Lead: 40 mm
- Ⓒ Stroke: 100 mm
- Ⓓ Motor mounting method: Downward mounting
- Ⓔ Mounted motor specifications: Manufactured by Mitsubishi Electric Co., Ltd.
- Ⓕ Motor capacity: 100 W
- Ⓖ Belt type: Standard (rubber)
- Ⓗ Origin sensor: Outside motor side
- Ⓘ Limit sensor: Outside
- Ⓙ Option 1: Mounting direction standard
- Ⓚ Option 2: Without positioning pin hole

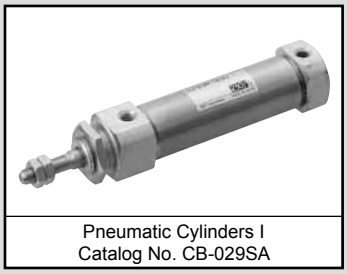
* For Ⓐ Body sizes "05" and "06", Ⓖ Belt type "L" cannot be selected.

Ⓔ 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

Motor and grease nipple mounting position





Pneumatic Cylinders I
Catalog No. CB-029SA

Pencil shaped cylinder

SCPD3-FP1 Series

● Bore size: ø6, ø10, ø16

Specifications

Descriptions		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: Made-to-order 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: Made-to-order stroke length is available in 1 mm increments.

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

Ⓗ Accessories *4

Code	Content			
Ⓐ 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		●	●
ZL	Double acting/built-in speed controller/with switch		●	●
M	Double acting/rotation-stop		●	●
ML	Double acting/rotation-stop/with switch		●	●
K	Double acting/high load	●	●	●
KL	Double acting/high load/with switch	●	●	●
Ⓑ 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 included)		●	●
Ⓒ Bore size (mm)				
6	ø6			
10	ø10			
16	ø16			
Ⓓ Stroke (mm)				
Refer to the stroke length table on page 9.				
Ⓔ Head side port direction				
Blank	Vertical direction			
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	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

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

Precautions for model No. selection

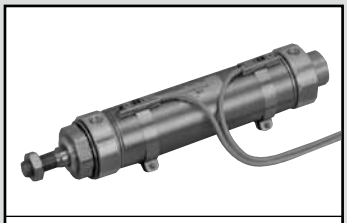
*1: "CB" mounting style is not available when the port direction is "0" (axial direction).
*2: Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
*3: The magnet is not built into the type without switch.
*4: "I" and "Y" cannot be selected simultaneously.
*5: Switches are 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: 15 mm
Ⓔ Head side port direction: Axial direction
Ⓕ Switch model No.: Proximity switch T2H, lead wire 1 m
Ⓖ Switch quantity: 1 on rod side
Ⓗ Accessory: Rod clevis

How to order a mounting bracket

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.



Pneumatic Cylinders I
Catalog No. CB-029SA

Small bore size cylinder

CMK2-FP1 Series

● Bore size: ø20, ø25, ø32, ø40

Specifications

Descriptions		CMK2			
Bore size	mm	ø20	ø25	ø32	ø40
Actuation		Double acting			
Working fluid		Compressed air			
Max. working pressure	MPa	1.0			
Min. working pressure	MPa	0.1			
Proof pressure	MPa	1.6			
Ambient temperature	°C	−10 to 60 (no freezing)			
Port size		Rc1/8			
Stroke tolerance	mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (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, refer to Pneumatic 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: Made-to-order stroke length is available in 1 mm increments.
*2: Single foot (LS) has a max. stroke length of 50 mm.
*3: Contact CKD when the stroke length shorter than 25 mm is necessary 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: Made-to-order stroke length is available in 1 mm increments.
*2: Single foot (LS) has a max. stroke length of 50 mm.
*3: Contact CKD when a stroke length shorter than 25 mm 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
ø 20	25, 50, 75, 100, 150, 200, 250, 300	430	350	25	25
ø 25					
ø 32					
ø 40		400			

*1: Made-to-order stroke length is available in 1 mm increments.
*2: Single foot (LS) has a max. stroke length of 50 mm.
*3: Contact CKD when the 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: Made-to-order stroke length is available in 1 mm increments.
*2: Single foot (LS) has a max. stroke length of 50 mm.
*3: Contact CKD whenever a stroke length shorter than 25 mm 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
Ⓘ Accessories *4

Code	Content
Ⓐ 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)

Ⓔ Stroke (mm)
Refer to the stroke length table on page 11.

Ⓕ Switch model No.
Refer to the switch model numbers on page 16.

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

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

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

⚠ Precautions for model No. selection

*1: Single foot (LS) has a max. stroke length of 50 mm.
*2: Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
*3: The instantaneous max. temperature is that at which sparks, swarf, etc., instantaneously contact bellows.
*4: "I" and "Y" cannot be selected simultaneously.
*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 switches can be installed. 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.

[Example of model No.]

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.: T0H reed switch, 1 m lead wire
Ⓖ Switch quantity: 1 on rod side
Ⓗ Option: Boss cutoff
Ⓘ Accessory: Rod clevis

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

Code	Content
Ⓐ 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
N	NPT thread (Made-to-order)
G	G thread (Made-to-order)
Ⓓ Stroke (mm)	
Refer to the stroke length table on page 11.	

Ⓔ 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	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 temperature	Instantaneous max. temperature
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
M	Piston rod material (stainless steel) *8		
V	Boss cutoff		

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

⚠ Precautions for model No. selection

*1: Single foot (LS) has a max. stroke length of 50 mm.
*2: Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
*3: The instantaneous max. temperature is that at which sparks, swarf, etc., instantaneously contact 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 switches can be installed. 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
Ⓐ Mounting: Basic
Ⓑ Bore size: ø20 mm
Ⓒ Port thread: Rc thread
Ⓓ Stroke: 100 mm
Ⓔ Switch model No.: Proximity switch T0H, lead wire 1 m
Ⓕ Switch quantity: 1 on rod side
Ⓖ Option: Boss cutoff
Ⓗ 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
Ⓙ Accessories *5

Code	Content	
Ⓐ Variation		
P	Double acting/stroke adjustable (push)	
R	Double acting/stroke adjustable (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)	
Ⓔ Stroke (mm)		
Refer to the stroke length table on page 11.		
Ⓕ Adjustable stroke range (mm)		
25	25	
50	50	
Ⓖ Switch model No.		
Refer to the switch model numbers on page 16.		
Ⓗ Switch quantity		
R	1 on rod side	
H	1 on head side	
D	2	
T	3	
Ⓘ Option		
		Max. ambient temperature / Instantaneous max. temperature
J	Bellows	100°C / 200°C
L	Bellows	250°C / 400°C
M	Piston rod material (stainless steel)	*8
Ⓙ Accessories		
I	Rod eye	
Y	Rod clevis (pin and split washer pin included)	
B2	Clevis bracket (pin and snap ring included)	

⚠ Precautions for model No. selection

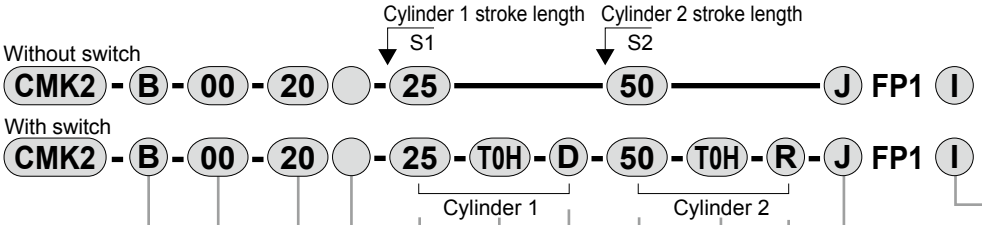
*1: Single foot (LS) has a max. stroke length of 50 mm.
*2: Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
*3: The instantaneous max. temperature is that at which sparks, swarf, etc., instantaneously contact bellows.
*4: "I" and "Y" cannot be selected together.
*5: 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 switches can be installed. 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-P-00-32-100-25-T0H-D-MFP1I

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

How to order (Variation: B)



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

Code	Content
Ⓐ 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)
Ⓔ Stroke (mm)	
Refer to the stroke length table on page 11.	

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

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

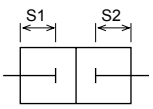
⚠ Precautions for model No. selection

*1: Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
*2: The instantaneous max. temperature is that at which sparks, swarf, etc., instantaneously contact bellows.
*3: Refer to Pneumatic Cylinders I (CB-029SA) for made-to-order specifications of rod end form.
*4: Refer to Pneumatic Cylinders I (CB-029SA) for combinations of variations and options.
*5: As a spacer is used for port adjustment in the back to back, the X and M dimensions include 0 to 1.5 mm tolerance.
*6: Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
*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.

[Example of model No.]

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): 25 mm
Ⓕ Switch model No. (S1): Reed T0H switch, Lead wire 1 m
1st stage stroke length 25 mm (S1) + 2nd stage stroke length 50 mm (S2) = Total stroke 75 mm S1+S2
Ⓖ Switch quantity: 2 pcs. included
Ⓔ Stroke (S2): 50 mm
Ⓕ Switch model No. (S2): T0H reed switch, 1 m lead wire
Ⓖ Switch quantity (S2): 1 on rod side
Ⓗ Option: Bellows, max. ambient temperature 100°C, instantaneous max. temperature 200°C
Ⓘ Accessory: Rod eye



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 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

* Lead wire length	
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

● Variation: G2, G3

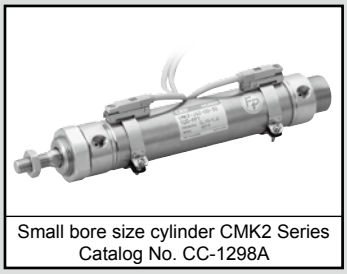
Switch model No.						
Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Display	Lead wire
T2YLH*	T2YLV*	Proximity		●	2-color display	2-wire
T3YLH*	T3YLV*			●		3-wire

* Lead wire length	
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

How to order a mounting bracket

Bore size (mm) / Mounting bracket	ø20	ø25	ø32	ø40
Basic (00) *3	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	M1-CA-30	M1-CA-30	M1-CA-30
Clevis bracket (CB)	M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

*1: As for mounting brackets, mounting nuts and toothed washers are supplied with the axial foot and flange. The trunnion includes mounting nuts.
*2: For axial foot types (both sides), 2 sets of the "M1-LB-*1" above are required.
*3: Mounting nut, toothed washer only. As the basic (00) of the product is supplied with one set of it, please use it when needed for an addition.



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

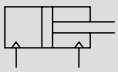
NSF H1

Double-acting small bore size cylinder/All stainless steel appearance/Waterproof

CMK2-JG2/JG3-FP1 Series

● Bore size: ø20, ø25, ø32, ø40

JIS symbol



RoHS CAD

Specifications

Descriptions	CMK2-JG2/JG3			
Bore size mm	ø20	ø25	ø32	ø40
Actuation	Double acting/waterproof			
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			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke

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

*1: Made-to-order stroke length is available in 1 mm increments.
*2: Single foot (LS) has a max. stroke length of 50 mm.

Switch specifications

Type/model No.	Proximity switch specifications	
Descriptions	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
Indicator 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: Max. load current of 20 mA as above is applied 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)

Description/ mounting / Bore size (mm)	Product weight when stroke length (S) = 0 mm					Switch weight (per 1 pc)	Switch rail + Band weight	Per S = 10 mm Additional weight per
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (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 $0.02 \times \frac{\text{Product stroke length (50)}}{10} = 0.10$ 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

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	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	35.3	47.1	70.7	94.2	1.18×10^2	1.41×10^2	1.65×10^2	1.88×10^2	2.12×10^2	2.36×10^2
ø25	Push	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	56.7	75.6	1.13×10^2	1.51×10^2	1.89×10^2	2.27×10^2	2.64×10^2	3.02×10^2	3.40×10^2	3.78×10^2
ø32	Push	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
ø40	Push	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

How to order

Without switch

CMK2 - JG2 - 00 - 20 - 50 ——— FP1

With switch

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

Ⓗ Accessories *4

Ⓐ Variation

Ⓑ Mounting *1

Ⓒ Bore size

Ⓓ Stroke

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

Ⓕ Switch quantity *3

Ⓖ Option

Code	Content
Ⓐ Variation	
JG2	All stainless steel appearance + waterproof scraper + packing NBR
JG3	All stainless steel appearance + waterproof 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 (mm)

Bore size	Stroke *2	Made-to-order stroke
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

Ⓗ Accessories	
I	Rod eye
Y	Rod clevis (pin and snap ring included)

⚠ Precautions for model No. selection

*1: Single foot (LS) has a max. stroke length of 50 mm.
*2: Refer to page 17 for the min. stroke length with switch.
*3: Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.
*4: "I" and "Y" cannot be selected together.

[Example of model No.]

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

Model: Small bore cylinder Food-grade grease specifications
Ⓐ Variation: All stainless steel appearance + waterproof scraper + packing NBR
Ⓑ Mounting: Basic
Ⓒ Bore size: ø32
Ⓓ Stroke: 50 mm
Ⓔ Switch model No.: Proximity T2YLH switch, lead wire 1 m
Ⓕ Switch quantity: 2 pcs. included
Ⓖ Option: Boss cutoff
Ⓗ Accessory: Rod clevis

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

Descriptions		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 (to 1000)		+1.4 0 (to 1500)		+2.3 0 (to 1000),		+2.7 0 (to 1500)	
	With air cushion	+1.4 0 (to 1000)		+1.4 0 (to 1500)		+1.4 0 (to 1000),		+1.8 0 (to 1500)	
Working piston speed mm/s		30 to 1000 (Use this cushion within allowable energy absorption.)							
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, this product cannot absorb large energy generated by an external load. 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: Made-to-order 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: Made-to-order 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: Made-to-order stroke length is available in 1 mm increments.
*2: Stroke length of more than 600 mm will be made-to-order 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: Made-to-order 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

Ⓑ Mounting *1, *2

Ⓐ Variation *1

Ⓕ Stroke

Ⓗ Switch quantity

Ⓒ Bore size

Ⓓ Port thread

Ⓔ Cushion *4

Ⓖ Switch model No. *5

Ⓘ Switch mounting

Ⓙ Option *2 *6 *8

Ⓚ Accessories *9

Code	Content								
Ⓐ 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	●	●	●	●	●	●	●	●
W4	Double acting/tandem	●	●	●	●	●	●		
M	Double acting/rotation-stop	●	●	●	●	●	●		

Ⓑ 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 included)							●	●
TA	Rod side trunnion	●	●	●	●	●	●		
TB	Head side trunnion	●	●	●	●	●	●		

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

Ⓓ 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

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

Ⓕ Stroke (mm)
Refer to the stroke length table on page 21.

Ⓖ Switch model No.
Refer to the switch model numbers on page 25.

Ⓗ 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.)

Ⓘ Switch mounting	
Blank	Rail method
Z	Band method

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

Ⓚ Accessories									
	Bore size	20	25	32	40	50	63	80	100
I	Rod eye	●	●	●	●	●	●	●	●
Y	Rod clevis (pin and snap ring included)	●	●	●	●	●	●	●	●
B1	Eye bracket							●	●
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 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 from ø20 to ø40 and switch mounting is the rail type.
*6: The instantaneous max. temperature is that at which sparks, swarf, etc., instantaneously contact bellows.
*7: Refer to Pneumatic Cylinders I (CB-029SA) for made-to-order specifications of rod end form.
*8: If "Z" switch mounting is selected, "Q" (switch rail included at shipment) cannot be selected.
*9: "I" and "Y" cannot be selected simultaneously.
*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
Ⓐ Variation: Double acting/rotation-stop
Ⓑ Mounting: Axial foot
Ⓒ Bore size: ø40 mm
Ⓓ Port thread: Rc thread
Ⓔ Cushion: Two-sided air cushion
Ⓕ Stroke: 100 mm
Ⓖ Switch model No.: Proximity T2H switch, lead wire 1 m
Ⓗ Switch quantity: 2 pcs. included
Ⓘ Switch mounting: Rail
Ⓙ Option: Bellows, max. ambient temperature 60°C, instantaneous max. temperature 100°C
Ⓚ Accessory: Rod eye

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 Accessories *7

Code	Content
A Variation	
P	Double acting/stroke adjustable (push)
R	Double acting/stroke adjustable (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)
E Cushion	
D	With two-sided rubber cushion
F Stroke (mm)	
Refer to the stroke length table on page 21.	
G Adjustable stroke range (mm)	
25	25
50	50
H Switch model No.	
Refer to the switch model numbers on page 25.	
I 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.)
J Switch mounting	
Blank	Rail method
Z	Band method
K Option	

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

L Accessories	
I	Rod eye
Y	Rod clevis (pin and snap ring included)
B2	Clevis bracket

⚠ Precautions for model No. selection

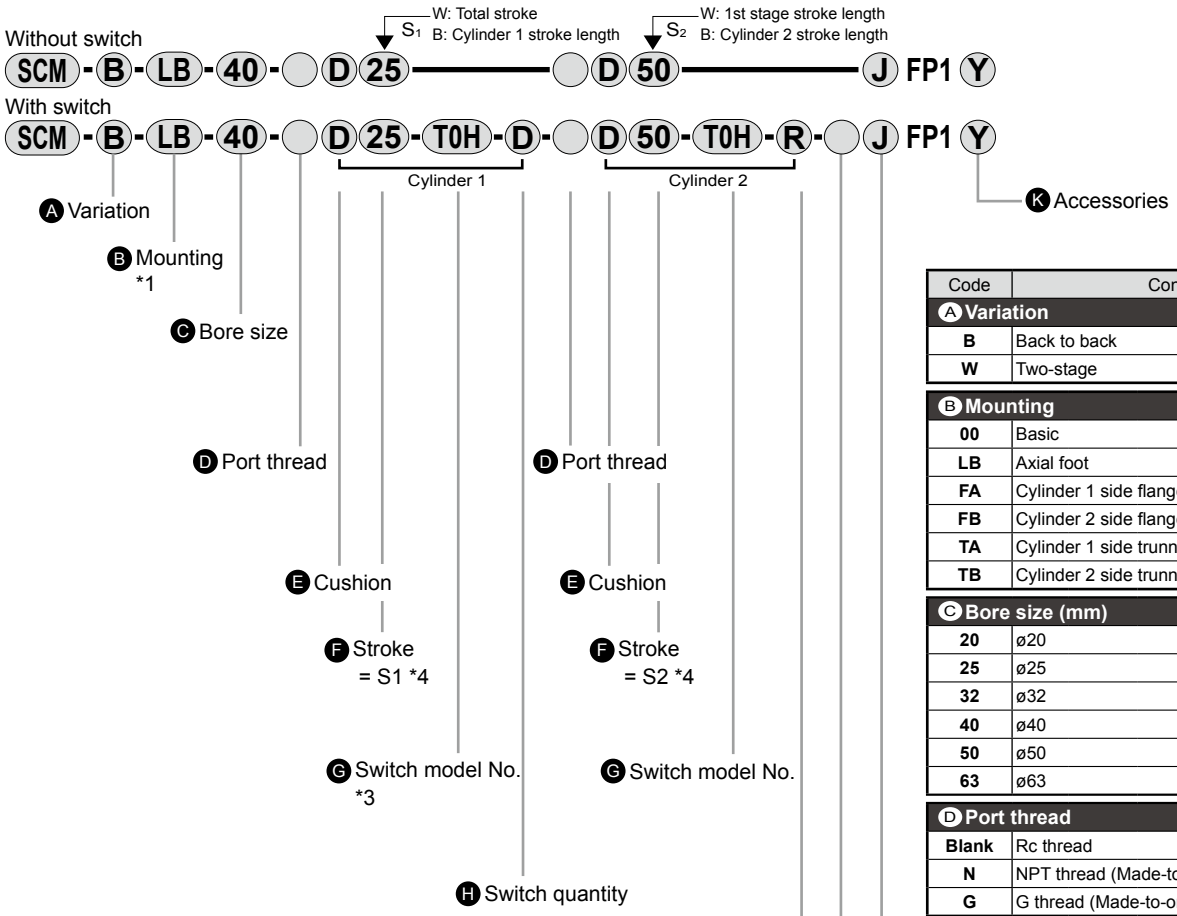
*1: Mounting bracket will be shipped assembled with the product if LB, FB, or TB is selected. FA/TA is shipped with the product.
*2: Refer to Pneumatic Cylinders I (CB-029SA) for the switch quantity and the min. stroke length.
*3: T8H/V switches cannot be mounted when the bore size is from ø20 to ø40 and switch mounting is the rail type.
*4: The instantaneous max. temperature is that at which sparks, swarf, etc., instantaneously contact bellows.
*5: Refer to Pneumatic Cylinders I (CB-029SA) for made-to-order specifications of rod end form.
*6: If "Z" switch mounting is selected, "Q" (switch rail included at shipment) cannot be selected.
*7: "I" and "Y" cannot be selected simultaneously.
*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: 100 mm
G Adjustable stroke range: 25 mm
H Switch model No.: T0H reed switch, 1 m lead wire
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	Content
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)
E Cushion	
D	With two-sided rubber cushion

F Stroke (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 numbers on page 25.

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

K Accessories	
I	Rod eye
Y	Rod clevis (pin and snap ring included)
B2	Clevis bracket

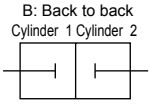
⚠ Precautions for model No. selection

*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 from ø20 to ø40 and switch mounting is the rail type.
*6: The instantaneous max. temperature is that at which sparks, swarf, etc., instantaneously contact bellows.
*7: Refer to Pneumatic Cylinders I (CB-029SA) for made-to-order specifications of rod end form.
*8: If "Z" switch mounting is selected, "Q" (switch rail included at shipment) cannot be selected.
*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
F Stroke: S1 = 25 mm
Cylinder 1
E Cushion: Two-sided rubber cushion
F Stroke: S2 = 50 mm
Cylinder 2
G Switch model No.: Reed T0H switch, Lead wire 1 m
H Switch quantity: Cylinder 1; 2 pcs. included, 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

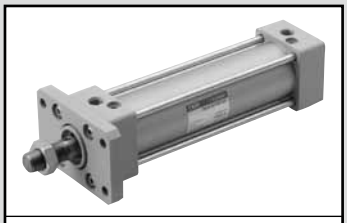
* Lead wire length	
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

How to order a mounting bracket

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 are supplied with mounting bolts.
*2: Foot mounting bracket is provided as 2 pcs./set.

MEMO



Pneumatic Cylinders I
Catalog No. CB-029SA

Tie rod cylinder

SCG-FP1 Series

● Bore size: ø32, ø40, ø50, ø63, ø80, ø100

Specifications

Descriptions		SCG					
Bore size mm		ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure MPa		1.0					
Min. working pressure MPa		0.05					
Proof pressure MPa		1.6					
Ambient temperature °C		−10 to 60 (no freezing)					
Port size		Rc1/8	Rc1/4		Rc3/8		Rc1/2
Stroke tolerance mm	With rubber cushion	$^{+1.4}_{0}$ (to 1000), $^{+1.8}_{0}$ (1001 to 1500)					
	With air cushion	$^{+1.0}_{0}$ (to 360), $^{+1.4}_{0}$ (361 to 1000), $^{+1.8}_{0}$ (1001 to 1500)					
Working piston speed mm/s		30 to 1000 (Operate within the allowable absorbed energy.)					
Cushion		Either air cushion or rubber cushion can be selected					
Effective air cushion length mm		8.6	8.6	13.4	13.4	15.4	15.4
Lubrication		Not 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: Made-to-order 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 is 500 mm for ø32 to ø40 bore size, 600 mm for ø50 to ø63, and 800 mm 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: Made-to-order 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 (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: Made-to-order 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: As for the type with bellows, the available stroke length is 500 mm for ø32 to ø40 bore size, 600 mm for ø50 to ø63, and 800 mm 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

Ⓙ Accessories *8

Code	Content						
Ⓐ Variation							
Bore size		32	40	50	63	80	100
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 included)
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)

Ⓔ 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 (mm)

Refer to the stroke length table on page 27.

Ⓖ 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 temperature	Instantaneous ambient temperature
J	Bellows	60°C	100°C
M	Piston rod material (stainless steel)		

Ⓙ Accessories	
I	Rod eye
Y	Rod clevis (pin and split pin included)
B1	Eye bracket
B2	Clevis bracket (pin and split pin included)
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 that at which sparks, swarf, etc., instantaneously contact 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.

[Example of model No.]

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: Two-sided air cushion
Ⓕ Stroke: 100 mm
Ⓖ 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	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

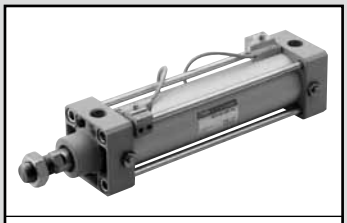
* Lead wire length	
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

How to order a mounting bracket

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: Specify the flange (FA) with bellows as "SCG-FA-(bore size)-J".
*2: The foot mounting bracket (LB) is provided as 2 pcs./set.
*3: All mounting brackets are supplied with mounting bolts.

MEMO



Pneumatic Cylinders I
Catalog No. CB-029SA

Medium bore size cylinder

SCA2-FP1 Series

● Bore size: ø40, ø50, ø63, ø80, ø100

Specifications

Descriptions		SCA2				
Bore size 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		Rc1/4	Rc3/8		Rc1/2	
Stroke tolerance mm		$^{+0.9}_{0}$ (to 360) , $^{+1.4}_{0}$ (to 800)				
Working piston speed mm/s		50 to 1000 (Use this cushion within allowable energy absorption.)				
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: Made-to-order 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: Made-to-order 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
ø50			
ø63			
ø80		700	(Total stroke)
ø100		800	

*1: Made-to-order 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: Made-to-order 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: Made-to-order 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, 300, 350, 400, 450, 500	600	1 (Cylinder 1, and Cylinder 2)
ø50			
ø63			
ø80		700	
ø100		800	

*1: Made-to-order 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
- Ⓒ Bore size
- Ⓓ Port thread
- Ⓔ Cushion
- Ⓕ Stroke *3 *4
- Ⓖ Switch model No. *5
- Ⓗ Switch quantity *7
- Ⓘ Option *9
- Ⓙ Accessories *10

Code	Content
Ⓐ 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 included)
TC	Intermediate trunnion
TA	Rod side trunnion
TB	Head side trunnion
TF	Intermediate hole trunnion (ø40 is not available)
TD	Rod side hole trunnion (ø40 is not available)
TE	Head side hole trunnion (ø40 is not available)
Ⓒ 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 (mm)	
Refer to the stroke length table on page 31.	
Ⓖ Switch model No.	
Refer to the switch model No. table on page 35.	
Ⓗ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3
Ⓘ Option	

		Max. ambient temperature	Instantaneous max. temperature
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	Content
Ⓙ Accessories	
I	Rod eye
Y	Rod clevis (pin and snap ring included)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring included)
B3	Eye bracket
B4	Trunnion No. 2 bracket (2 pcs./set)

⚠ Precautions for model No. selection

*1: CA and CB are unavailable for the variation D.
*2: Mounting bracket will be shipped with the product. (Trunnion 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 ø63 to ø100 bore size models with bellows is 2000 mm.
*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 mounted.
*9: The instantaneous max. temperature is that at which sparks, swarf, etc., instantaneously contact bellows.
*10: "I" and "Y" cannot be selected simultaneously.
*11: Refer to Pneumatic Cylinders I (CB-029SA) for made-to-order specifications of rod end form.
*12: 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: Medium bore size cylinder Food-grade grease specifications
Ⓐ Variation: Double acting/double rod
Ⓑ Mounting: Axial foot
Ⓒ Bore size: ø40 mm
Ⓓ Port thread: Rc thread
Ⓔ Cushion: With two-sided cushion
Ⓕ Stroke: 100 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: 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 *2
Ⓖ Adjustable stroke range
Ⓗ Switch model No. *4
Ⓘ Switch quantity *5
Ⓙ Option *6
Ⓚ Accessories *7

Code	Content
Ⓐ Variation	
P	Double acting/stroke adjustable (push)
R	Double acting/stroke adjustable (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 is not available)
TD	Rod side hole trunnion (ø40 is not available)
TE	Head side hole trunnion (ø40 is not available)

Ⓒ 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 (mm)
Refer to the stroke length table on page 31.

Ⓖ Adjustable stroke range (mm)
25, 50, 75, 100

Ⓗ Switch model No.
Refer to the switch model numbers on page 35.

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

Ⓙ Option			
		Max. ambient temperature	Instantaneous max. temperature
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		

Ⓚ Accessories	
I	Rod eye
Y	Rod clevis (pin and snap ring included)
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, head side flange, and trunnion 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: 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.
*6: The instantaneous max. temperature is that at which sparks, swarf, etc., instantaneously contact bellows.
*7: "I" and "Y" cannot be selected simultaneously.
*8: Refer to Pneumatic Cylinders I (CB-029SA) for made-to-order specifications of rod end form.
*9: Refer to Pneumatic Cylinders I (CB-029SA) for combinations of variations and options.

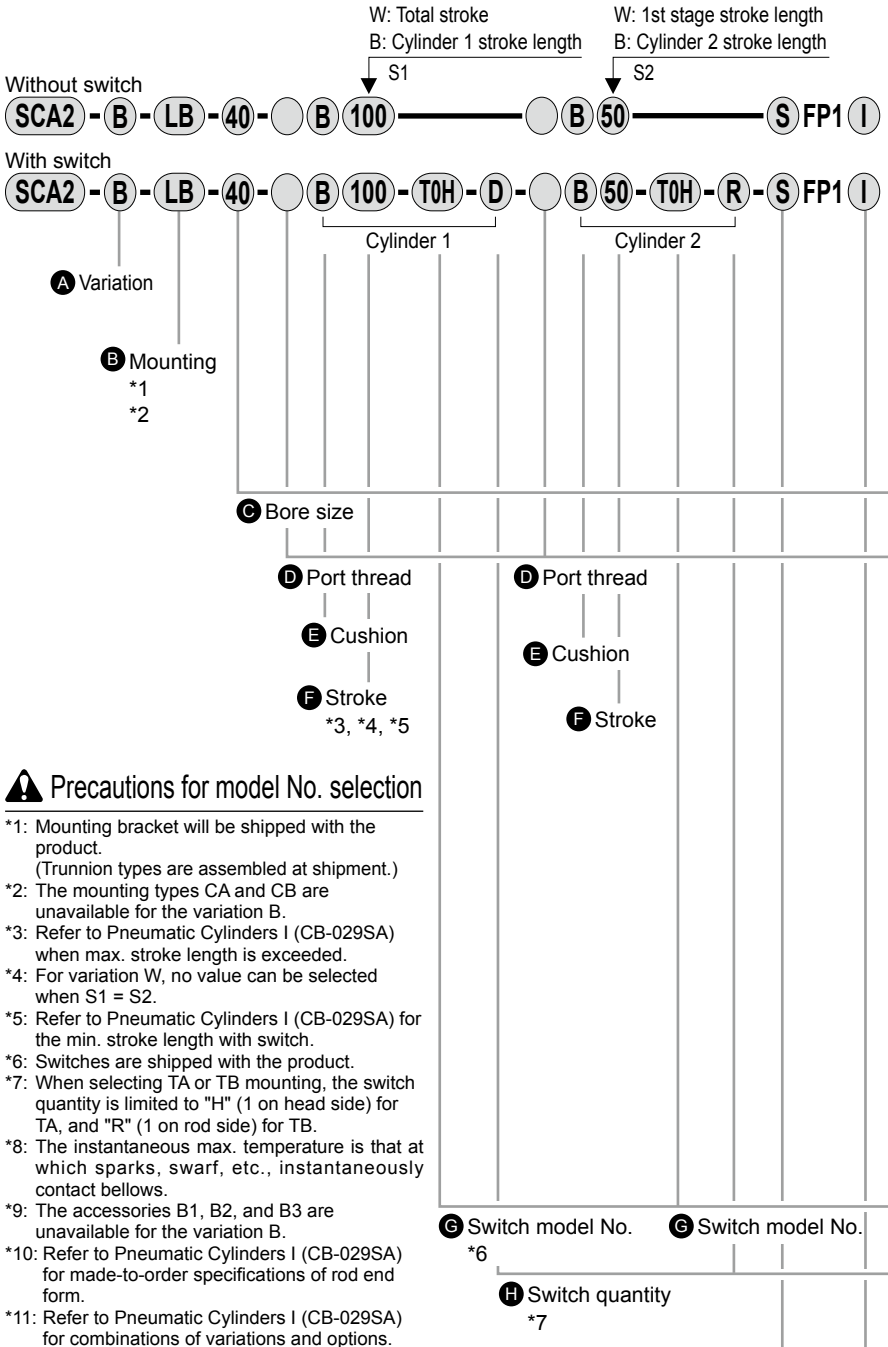
[Example of model No.]

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

Model: Medium bore size cylinder Food-grade grease specifications

Ⓐ Variation: Double acting/stroke adjustable (push)
Ⓑ Mounting: Axial foot
Ⓒ Bore size: ø40 mm
Ⓓ Port thread: Rc thread
Ⓔ Cushion: With two-sided cushion
Ⓕ Stroke: 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 variation B.
*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.
*8: The instantaneous max. temperature is that at which sparks, swarf, etc., instantaneously contact bellows.
*9: The accessories B1, B2, and B3 are unavailable for the variation B.
*10: Refer to Pneumatic Cylinders I (CB-029SA) for made-to-order specifications of rod end form.
*11: 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

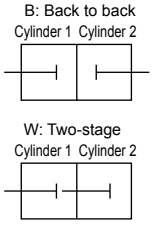
- A Variation: Double acting/back to back
- B Mounting: Axial foot
- C Bore size : ø40 mm
- D Port thread : Rc thread
- E Cushion : With two-sided cushion
- F Stroke S1 : 100 mm
- G Switch model No. : Reed T0H switch, Lead wire 1 m

Cylinder 1

- H Switch quantity : 2 pcs. included
- D Port thread : Rc thread
- E Cushion : With two-sided cushion
- F Stroke S2 : 50 mm
- G Switch model No. : Reed T0H switch, Lead wire 1 m

Cylinder 2

- H Switch quantity: 1 (on rod side)
- I Option: Cushion needle position S
- J Accessory: Rod eye



Code	Content
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 included)
TA	Rod side trunnion
TB	Head side trunnion
TD	Rod side hole trunnion (ø40 is not available)
TE	Head side hole trunnion (ø40 is not available)

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)

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

F Stroke (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 temperature	Instantaneous max. temperature
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 Accessories	
I	Rod eye
Y	Rod clevis (pin and snap ring included)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring included)
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 a mounting bracket

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: Foot mounting bracket is provided as 2 pcs./set.
*3: All mounting brackets are supplied with mounting bolts.
*4: The dimensions of the eye bracket (CA) and clevis bracket (CB) are the same as the standard products.

MEMO



Pneumatic Cylinders I
Catalog No. CB-029SA

Medium bore size cylinder

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

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

Specifications

Descriptions		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 (no freezing)					
Port size		Rc1/2	Rc3/4				Rc1
Stroke tolerance mm		$^{+1.0}_{0}$ (to 300), $^{+1.4}_{0}$ (to 1000), $^{+1.8}_{0}$ (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, this product cannot absorb large energy generated by an external load. 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 (mm)	Available stroke (mm)	Min. stroke (mm)	Trunnion min. stroke (mm)
ø125	50, 75, 100 150, 200 250, 300	800	2000	1	23
ø140					25
ø160					27
ø180		900			28
ø200		1,000			28
ø250		1,200			28

*1: Made-to-order 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 (mm)	Min. stroke (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: Made-to-order 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.

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

Code	Content
Ⓐ Variation	
Blank	Double acting/single rod
D	Double acting/double rod
G	Double acting/heavy duty scraper
Ⓑ Mounting	
00	Basic
LB	Axial foot
FA	Rod side flange
FB	Head side flange
CA	Eye bracket
CB	Clevis bracket (pin and snap ring included)
TC	Intermediate trunnion
TA	Rod side trunnion
TB	Head side trunnion
TF	Intermediate hole trunnion (Made-to-order)
TD	Rod side hole trunnion (Made-to-order)
TE	Head side hole trunnion (Made-to-order)
Ⓒ Bore size (mm)	
125	ø125
140	ø140
160	ø160
180	ø180
200	ø200
250	ø250
Ⓓ 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 (mm)	
Refer to the stroke length table on page 37.	

Ⓖ 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 (PNP output) (Made-to-order)	
T2WH*	**T2WV***			●	2-color display	2-wire
T2YH*	**T2YV***			●		
T3WH*	**T3WV***			●		3-wire
T3YH*	**T3YV***			●		
T2YD*	**-**			●	2-color display	2-wire
T2YDT*	**-**			●	AC magnetic field	
T2JH*	**T2JV***			●	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
4	4

Ⓘ Option			
C2	With cushion section check valve		
		Max. ambient temperature	Instantaneous max. temperature
J	Bellows	60°C	100°C
K	Bellows	100°C	200°C
L	Bellows	250°C	400°C
M	Piston rod material (stainless steel)		

*6

Blank	Cushion needle position (standard)	Standard
R	Cushion needle position R	T ◎ R
S	Cushion needle position S	S
T	Cushion needle position T	

Ⓙ Accessories	
I	Rod eye
Y	Rod clevis (pin and snap ring included)
B1	Eye bracket
B2	Clevis bracket (pin and snap ring included)

⚠ Precautions for model No. selection

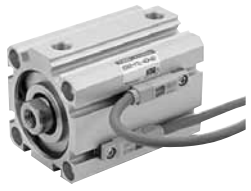
*1: Hole type trunnion is available as made-to-order for ø125 to 160 only. Contact CKD for details about dimensions.
*2: The mounting types CA and CB are unavailable for the variation D.
*3: Refer to Pneumatic Cylinders I (CB-029SA) for the min. stroke length with switch.
*4: When selecting TA or TB mounting, the switch quantity is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.
*5: The instantaneous max. temperature is that at which sparks, swarf, etc., instantaneously contact bellows.
*6: Check below for the cushion needle position indication.
*7: "I" a nd "Y" cannot be selected simultaneously.

[Example of model No.]

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

Model: Medium bore size cylinder Double acting/no-lubrication/ with switch Food-grade grease specifications

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



Pneumatic Cylinders I
Catalog No. CB-029SA

Compact cylinder

SSD2-FP1 Series

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

RoHS CAD

Specifications

Descriptions		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 ø32 bore size with a 5 mm stroke and without a 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

Note: When using the type with a 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			

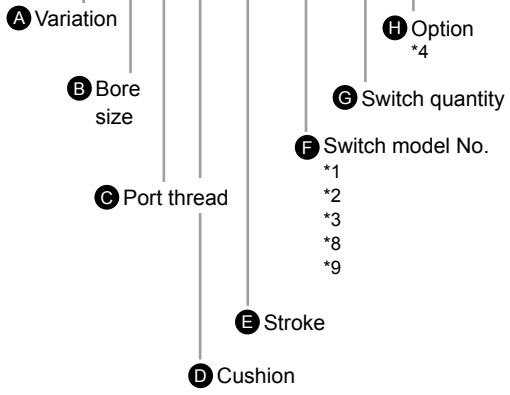
How to order

Without switch

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

With switch

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



Code	Content	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/environment-resistant scraper			●	●	●	●	●	●	●	●
G5L	Double acting/environment-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 or more) (Made-to-order)
GN	G thread (ø32 or more) (Made-to-order)

D Cushion	
Blank	Without cushion
D	With rubber cushion

E Stroke (mm)

Refer to the stroke length table on page 39.

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 made-to-order stroke		●	●	●	●	●	●	●	●	●	●

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

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

I Mounting bracket *5 *6

J Accessories *7

⚠ Precautions for model No. selection

1: The T2YD switch cannot be mounted on the ø12 and ø16 bore sizes.
2: The T8 switch cannot be mounted on the ø12 to ø32 bore sizes.
*3: The F switch can only be mounted on the piping port surface of bore sizes ø20 and ø25.
*4: Piston rod of ø12 to ø25 is stainless steel as standard. C snap ring is stainless steel instead of steel. The rod end male thread nut is stainless steel.
*5: The mounting bracket is included at shipment.
*6: The projection dimension of piston rod WF when LB or FA is selected is different from that of the standard. Refer to Pneumatic Cylinders I (CB-029SA) for dimensions. 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 simultaneously.
*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 grease specifications
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 T0H switch, lead wire length 1 m
G Switch quantity: 1 on rod side
H Option: Rod end male thread
I Mounting bracket: Axial foot
J Accessory: Rod eye

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	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

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

● 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	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

MEMO



Pneumatic Cylinders I
Catalog No. CB-029SA

Compact cylinder (Large bore size)

SSD2-FP1 Series

● Bore size: ø125, ø140, ø160, ø180, ø200

Specifications

Descriptions		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 a 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	Content
Ⓐ 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 (mm)	
Refer to the stroke length table on page 43.	

Ⓔ 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***			●		
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 switch and less than 10 mm for the 2-color display, off-delay, AC magnetic field proof, T1, or T8* switches are not available.
Refer to Pneumatic Cylinders I (CB-029SA) for the switch quantity and the min. stroke length.
*3: Total length of the made-to-order stroke is handled as the 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: ø200 mm
Ⓒ Port thread: Rc thread
Ⓓ Stroke: 100 mm
Ⓔ Switch model No.: Reed T0H switch
Lead wire length 1 m
Ⓕ Switch quantity: 1 on rod side
Ⓖ Option: Rod end male thread



Pneumatic Cylinders II
Catalog No. CB-030SA

Guided cylinder

STG-M-FP1 Series

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

JIS symbol 

RoHS CAD

Specifications

Descriptions	STG-M									
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, 150,	400		
ø25	175, 200, 250, 300, 350, 400			
ø32	25, 50, 75, 100 125, 150, 175 200, 250, 300 350, 400			
ø40				
ø50				
ø63				
ø80				
ø100				

*1: The made-to-order 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 length for switches of the 2-color display and AC magnetic field proof.

● Rubber-air cushioned (*C)

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

*1: The made-to-order 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 length 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, 100 125, 150, 175 200, 250, 300 350, 400	400		
ø25				
ø32				
ø40				
ø50				
ø63				

*1: The made-to-order stroke length is available in 1 mm increments. However, the total dimensions are the same as the longer standard stroke length. (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, 150,	400	5	5 (10) *2
ø25	175, 200, 250, 300, 350, 400			
ø32	25, 50, 75, 100 125, 150, 175 200, 250, 300 350, 400			
ø40				
ø50				
ø63				

*1: The made-to-order 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, 150,	400	5	10 *2
ø25	175, 200, 250, 300, 350, 400			
ø32	25, 50, 75, 100 125, 150, 175 200, 250, 300 350, 400			
ø40				
ø50				
ø63				

*1: The made-to-order 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, 100 125, 150, 175 200, 250, 300 350, 400			
ø40				
ø50				
ø63				
ø80				
ø100				

*1: The made-to-order 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 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.

Code	Content
Ⓐ Bearing	
M	Metal bush bearing
Ⓑ Variation	
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/environment-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 and over) (Made-to-order)
GN	G thread (ø20 or more) (Made-to-order)
Ⓔ Stroke (mm)	
Refer to the stroke length table on page 45.	
Ⓕ Switch model No.	
Refer to the switch model numbers on page 48.	
Ⓖ Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

Ⓐ Bearing

Ⓑ Variation

Ⓒ Bore size

Ⓓ Port thread

Ⓔ Stroke

Ⓕ Switch model No.

Ⓖ Switch quantity

[Example of model No.]

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

Model: Guided cylinder Food-grade grease specifications

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

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	Content
Ⓐ Bearing	
M	Metal bush 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 (mm)	
	Refer to the stroke length table on page 45.

Ⓔ 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 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)
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: 50 mm
Ⓔ 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*	-			●		

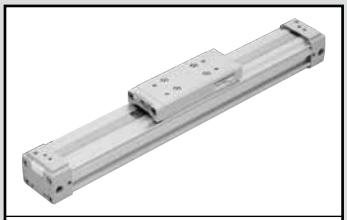
* Lead wire length	
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

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	1 m (Standard)
3	3 m (Option)
5	5 m (Option)



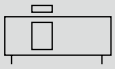
Pneumatic Cylinders I
Catalog No. CB-029SA

Rodless cylinder

SRL3-FP1 Series

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

JIS symbol



RoHS CAD

Specifications

Descriptions		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		Rc1/8		Rc1/4		Rc3/8		Rc1/2	
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 piping) (*1)									
Cushion		Air cushion									
Lubrication		Not required									

*1: For common port piping, the working piston speed varies 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	With shock absorber (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. 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.	200, 300 400, 500 600, 700 800, 900 1000	5000	1

* The made-to-order stroke 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

Ⓐ Variation
Ⓑ Mounting *1, *2
Ⓒ Bore size
Ⓓ Port thread
Ⓔ Cushion
Ⓕ Stroke
Ⓖ Switch model No. *4
Ⓗ Switch quantity
Ⓘ Option *4, *5 *6, *7 *8, *10 *11

Code	Content
Ⓐ Variation	
Blank	Double acting
G	Resin guide

Ⓑ Mounting	
00	Basic
LB	Axial foot
LB1	Axial foot (ø12 to ø32 only)

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

Ⓓ Port thread	
Blank	Rc thread
N	NPT thread (ø20 and over) (Made-to-order)
G	G thread (ø20 and over) (Made-to-order)

Ⓔ Cushion	
B	Both sides cushioned
R	R side cushioned
L	L side cushioned
N	Without cushion

Ⓕ Stroke (mm)		
Bore size	**Stroke *3**	**Made-to-order stroke**
ø12 to ø100	**1 to 5000**	**In 1 mm increments**

Ⓖ Switch model No.

Lead wire Straight	Lead wire L-shaped	Contact	Voltage AC	Voltage DC	Indicator lamp	Lead wire
M0H*	**M0V***	Reed	●	●	1-color display	2-wire
M5H*	**M5V***	Reed	●	●	Without indicator lamp	2-wire
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	2-wire
T2YDT*	**-**	Proximity		●	AC magnetic field	

*** Lead wire length**	
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

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

Ⓘ Option

	Bore size (ø)	12	16	20	25	32	40	50	63	80	100
A	Both-side full stroke adjustable, with shock absorber	●	●	●	●	●	●	●	●	●	●
A1	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 will be "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: "" 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 dimensions in Pneumatic Cylinders I (CB-029SA).
*6: In the case of the standard with ø12 to ø25, remove the cover, attach a flat nut, and install the full stroke length adjusting bracket. A flat nut is included to option "A3" to enable retrofitting the full stroke length adjusting bracket without removing the cover.
*7: In "H", the thread size for ø12 and ø16 will be "M4" and that for ø20 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 types 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.

[Example of model No.]

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

Model: Rodless cylinder Food-grade grease specifications
Ⓐ Variation: With resin guide
Ⓑ Mounting: Basic
Ⓒ Bore size: ø12 mm
Ⓓ Port thread: Rc thread
Ⓔ Cushion: With two-sided cushion
Ⓕ Stroke: 200 mm
Ⓖ Switch model No.: Reed switch M0H, lead wire 1 m
Ⓗ Switch quantity: 1 pcs. Included on R side
Ⓘ Option: Port position F, cushion needle position B

Option selection table

● : Available ▒ : Not available

	Option																	
	Code	A	A1	A2	A3	Y	Y1	L*	N*	H	U	Blank	R	B	T	D	S	X
		Both-side full stroke length adjustable, with shock absorber	R side full stroke length adjustable, with shock absorber	L side full stroke length adjustable, with shock absorber	Full stroke length adjustable with retrofitting adjusting bracket	Floating fitting	Thin floating fitting	Intermediate support bracket (for 00, LB)	Intermediate support bracket (for LB1)	Larger thread for table installation	Height adjustment plate	Port position F, cushion needle position F (standard)	Port position R, cushion needle position F (common port)	Port position F, cushion needle position B	Port position R, cushion needle position B (common port)	Port position D, cushion needle position F	Port position D, cushion needle position D	Port position F, cushion needle position F (common port)
Option	A					●	●	●	●	●	●	●	●	●	●	●	●	●
	A1					●	●	●	●	●	●	●	●	●	●	●	●	●
	A2					●	●	●	●	●	●	●	●	●	●	●	●	●
	A3					●	●	●	●	●	●	●	●	●	●	●	●	
	Y							●	●			●	●	●	●	●	●	●
	Y1							●	●			●	●	●	●	●	●	
	L*									●	●	●	●	●	●	●	●	●
	N*									●	●	●	●	●	●	●	●	
	H											●	●	●	●	●	●	
	U											●	●	●	●	●	●	●
	Blank																	
	R																	
	B																	
	T																	
	D																	
	S																	
	X																	

*1: Some combinations are not available depending on the bore size. Be sure to check the Option item in ❶ "How to order" on the previous page.
*2: LB1 with port position D is not possible. (ø25, ø32)

MEMO



Pneumatic Cylinders II
Catalog No. CB-029SA

Floating fitting

FJ-FP1 Series

● Compatible cylinder diameter: ø20 to ø200

Specifications

Descriptions / Model No.	Nominal port size of thread × pitch	Max. working tension and compression (kN) *1			Allowable eccentricity (mm)	Oscillating angle	Ambient temperature
		Basic	Flange	Foot			
FJ-*- 3	M3 × 0.5	0.019	——	——	0.5	±5°	−10 to 60°C
4	M4 × 0.7	0.053	——	——	0.5		
5	M5 × 0.8	0.121	——	——	0.5		
6	M6 × 1.0	1.08	——	——	0.75		
8	M8 × 1.0	1.08	1.08	1.08	0.75		
8-1.25	M8 × 1.25	1.08	1.08	1.08	0.75		
10	M10 × 1.25	2.45	2.45	2.45	0.75		
12-1.25	M12 × 1.25	2.45	2.45	2.45	0.75		
12	M12 × 1.5	2.45	2.45	2.45	0.75		
14	M14 × 1.5	5.88	5.88	5.88	1.0		
16	M16 × 1.5	10.8	10.8	10.8	1.5		
18	M18 × 1.5	10.8	10.8	10.8	1.5		
22	M22 × 1.5	17.6	17.6	17.6	2.0		
26	M26 × 1.5	27.5	27.5	27.5	3.0		
30	M30 × 1.5	60.8	60.8	60.8	3.0		
36	M36 × 1.5	87.3	87.3	87.3	4.0		
40	M40 × 1.5	87.3	87.3	87.3	4.0		
45	M45 × 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 × pitch

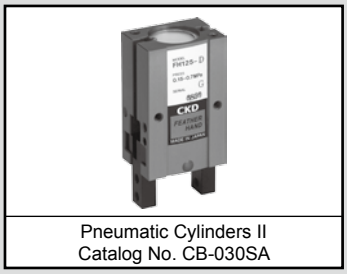
Code	Content
Ⓐ Mounting	
0	Basic
L	Foot
F	Flange

Ⓑ Nominal port size of thread × pitch				
	Mounting	**O**	**L**	**F**
3	M3 × 0.5	●		
4	M4 × 0.7	●		
5	M5 × 0.8	●		
6	M6 × 1.0	●		
8	M8 × 1.0	●	●	●
8-1.25	M8 × 1.25	●	●	●
10	M10 × 1.25	●	●	●
12-1.25	M12 × 1.25	●	●	●
12	M12 × 1.5	●	●	●
14	M14 × 1.5	●	●	●
16	M16 × 1.5	●	●	●
18	M18 × 1.5	●	●	●
22	M22 × 1.5	●	●	●
26	M26 × 1.5	●	●	●
30	M30 × 1.5	●	●	●
36	M36 × 1.5	●	●	●
40	M40 × 1.5	●	●	●
45	M45 × 1.5	●	●	●

[Example of model No.]

FJ-0-3-FP1

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



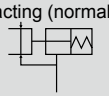
Pneumatic Cylinders II
Catalog No. CB-030SA

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

FH100-FP1 Series

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

Double acting 

Single acting (normally open) 

RoHS CAD

Specifications

Descriptions		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		M3 × 0.5		M5 × 0.8			M3 × 0.5		M5 × 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	cycle/sec.	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	Content
Ⓐ 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	No 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 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 attachments. When ordered as an option, two are included at shipment.

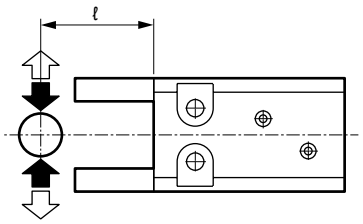
*2: Switches other than Ⓓ Switch model No. are also available. (Made-to-order) For details, refer to Pneumatic Cylinders II (CB-030SA).

*3: When with end mount (model No. B), select a switch with a radial lead wire (model No. T*V). The end mount is included at delivery.

Gripping power performance data

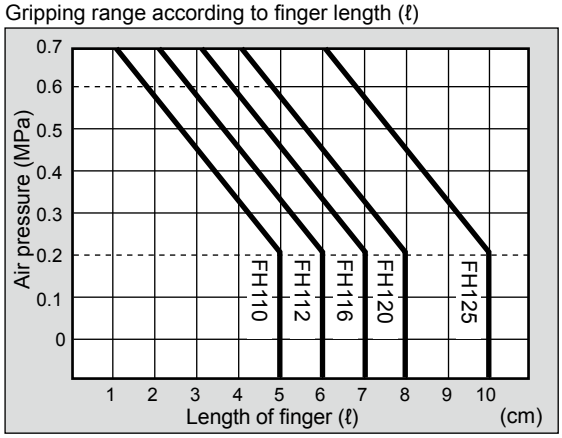
The gripping power in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.15 to 0.7 MPa is shown.

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

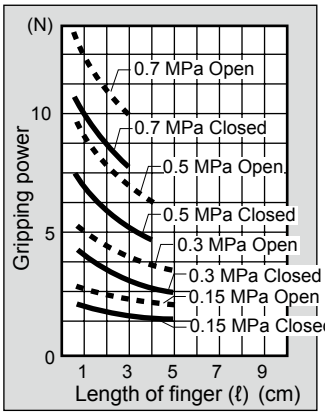


(Note) Single acting closed side gripping power is decreased by 25 to 30% compared to the double acting.

Gripping range according to finger length (ℓ)

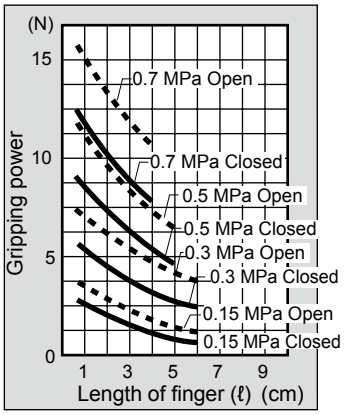


● FH110

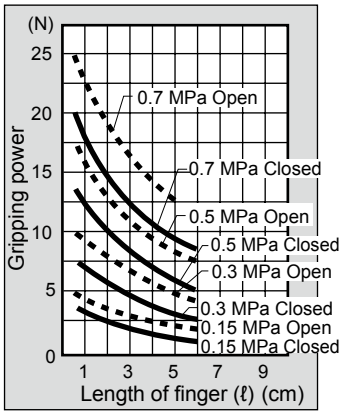


When making a selection, read the precautions for design and selection in Pneumatic Cylinders II (CB-030SA).

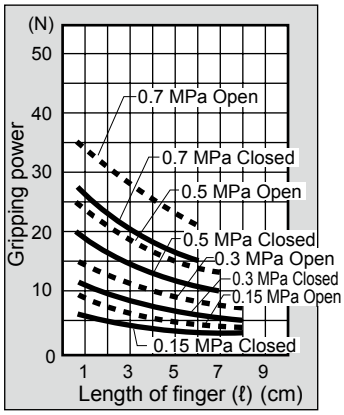
● FH112



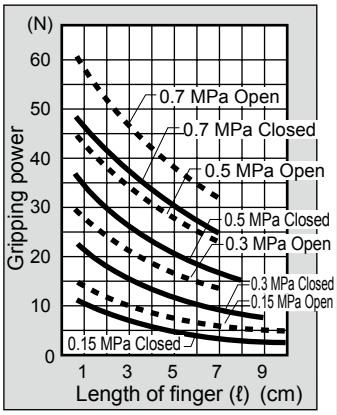
● FH116



● FH120



● FH125





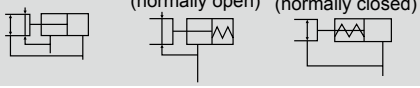
Pneumatic Cylinders II
Catalog No. CB-030SA

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

Descriptions			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	Double acting	MPa	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	Content
Ⓐ 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

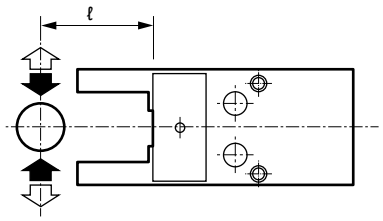
⚠ Precautions for model No. selection

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

Gripping power performance data

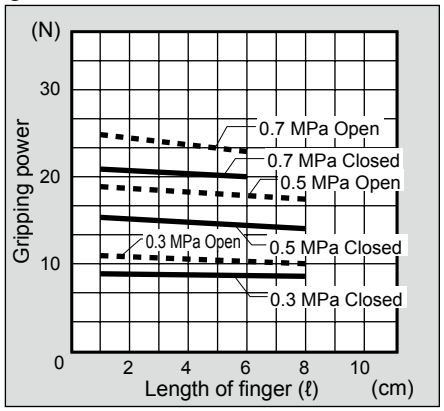
The gripping power in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

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

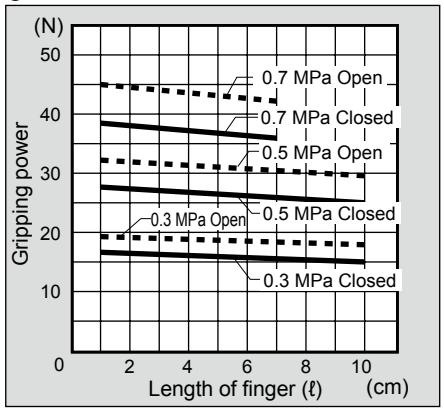


(Note) O type gripping power decreases approximately 20 to 30% in the closed direction compared to the double acting. C type gripping power decreases approximately 10 to 20% in the open direction compared to the double acting. When making a selection, read the precautions for design and selection in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

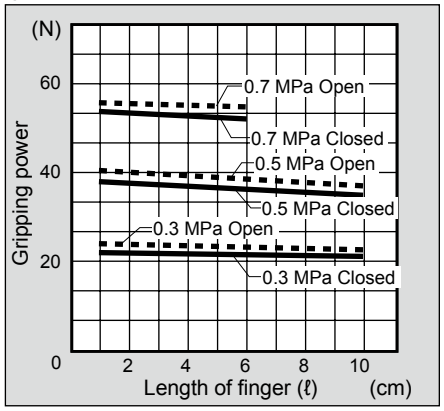
● BHA-01CS1



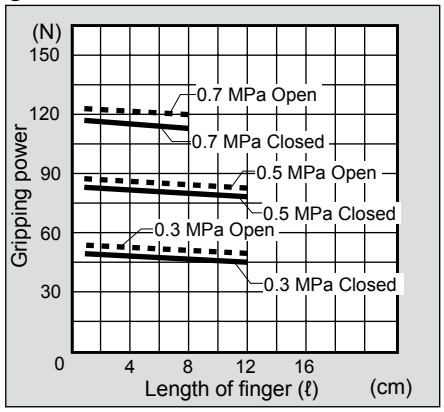
● BHA-03CS1



● BHA-04CS1



● BHA-05CS1



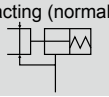
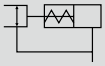


Pneumatic Cylinders II
Catalog No. CB-030SA

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

Descriptions			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	Double acting	MPa	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			Materials compliant with the Food Sanitation Act (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	Content
Ⓐ 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 the attachment of option Y1 and Y2, two are included at shipment.**
***2: Refer to Pneumatic Cylinders II (CB-030SA) for switches other than those listed here.**

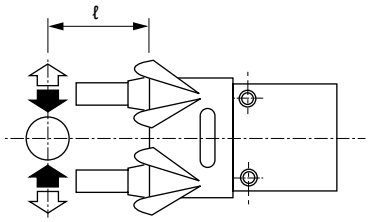
Rubber cover part model No.

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

Gripping power performance data

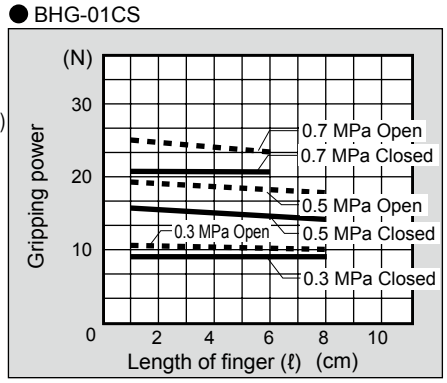
The gripping power in the opening/closing directions with a finger length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

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

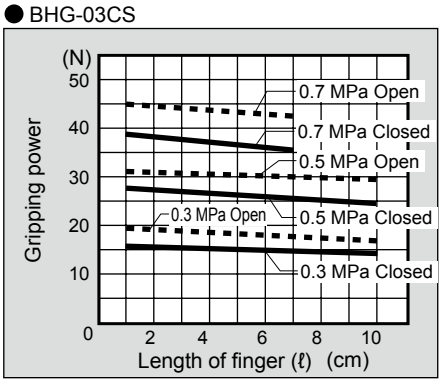


(Note) O type gripping power decreases approximately 20 to 30% in the closed direction compared to the double acting. C type gripping power decreases approximately 10 to 20% in the open direction compared to the double acting. **When making a selection, read the precautions for design and selection in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

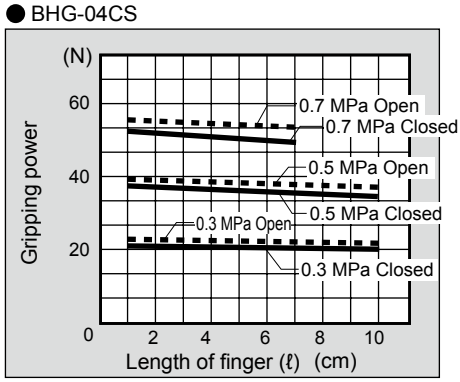
● BHG-01CS



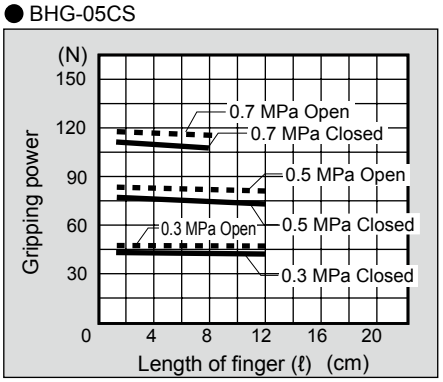
● BHG-03CS

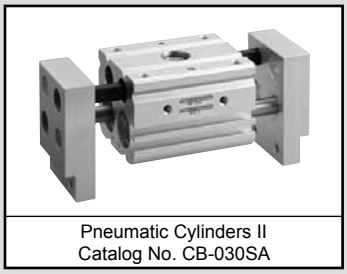


● BHG-04CS



● BHG-05CS





Pneumatic Cylinders II
Catalog No. CB-030SA

Compact wide parallel hand (standard/long stroke)

HMF-FP1 Series

● Operational stroke length:

Standard 30, 40, 50, 70, 100 mm
Long stroke length 60, 80, 100, 120, 160, 200 mm

Double acting



RoHS CAD

Specifications

Descriptions	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 × 2	ø16 × 2			ø20 × 2			ø25 × 2			ø32 × 2			ø40 × 2		
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	Content
Ⓐ Size	
12CS	
16CS	
20CS	
25CS	
32CS	
40CS	

Ⓑ Option	
Blank	Standard
L1	Long stroke length 1
L2	Long stroke length 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

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

⚠ Precautions for model No. selection

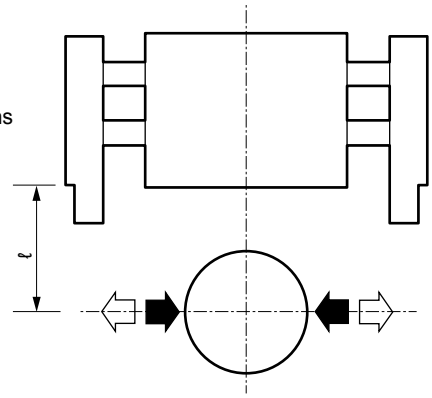
*1: 12CS is not available for long stroke "L1", "L2".

Gripping power performance data

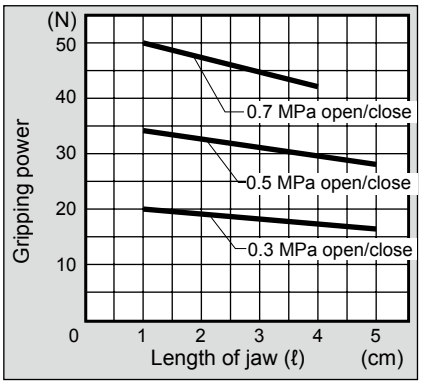
The gripping power with a jaw length ℓ of the hand and a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

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

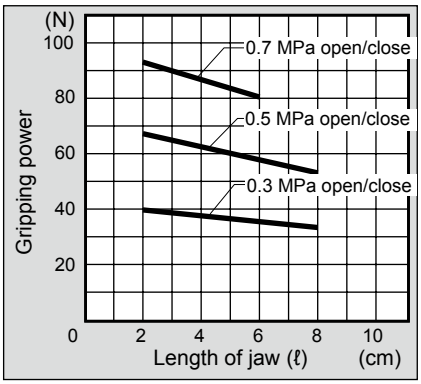
(Note) When making a selection, read the precautions for design and selection in Pneumatic Cylinders II (CB-030SA).



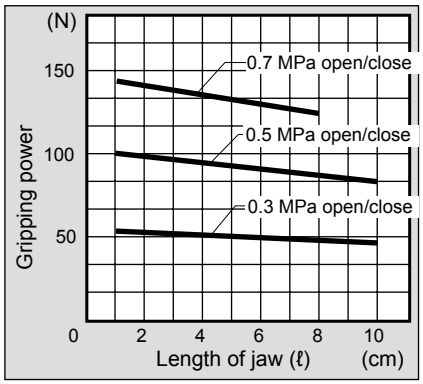
● HMF-12CS



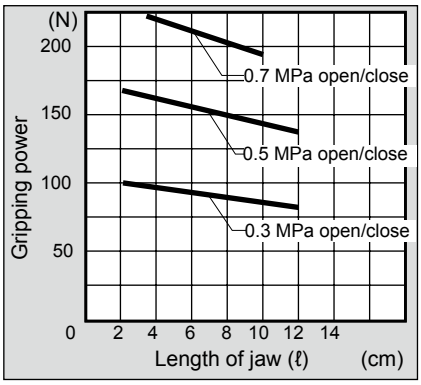
● HMF-16CS



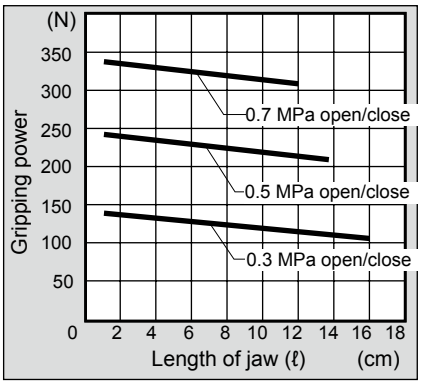
● HMF-20CS



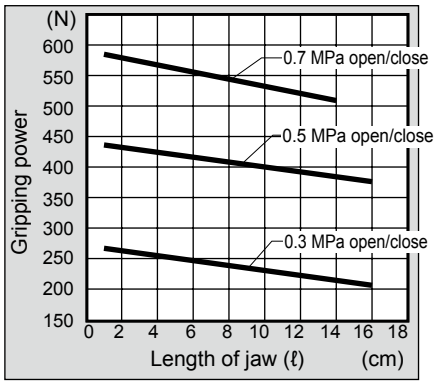
● HMF-25CS

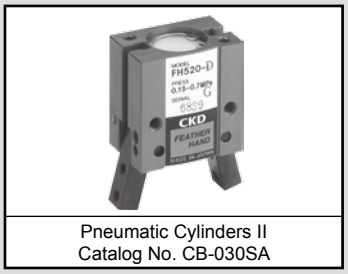


● HMF-32CS



● HMF-40CS





Pneumatic Cylinders II
Catalog No. CB-030SA

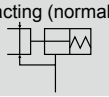
NSF H1

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

FH500-FP1 Series

● Open/close angle: 20° when open, −5° when closed

Double acting 

Single acting (normally open) 

RoHS CAD

Specifications

Descriptions	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 angle Degree	20° when open -5° when closed							
Body weight g	43	53	92	135	43	53	92	136
Repeatability (initial value) mm	±0.03							
Max. operating frequency cycle/sec.	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	Content
Ⓐ 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	No 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

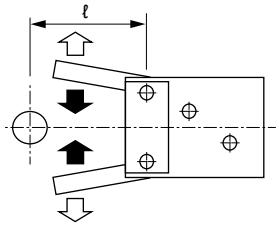
*1: Refer to Pneumatic Cylinders II (CB-030SA) for the dimensions and compatible model of the attachments. When ordered as an option, two are included at shipment.
*2: Switches other than Ⓓ Switch model No. are also available. (Made-to-order) For details, refer to Pneumatic Cylinders II (CB-030SA).
*3: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

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 0.15 to 0.7 MPa is shown.

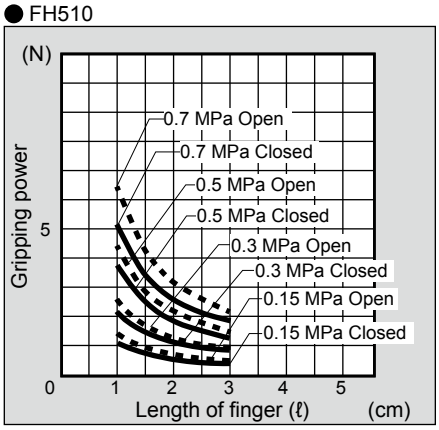
● Open direction (⇦) ---- (shown with broken line)

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

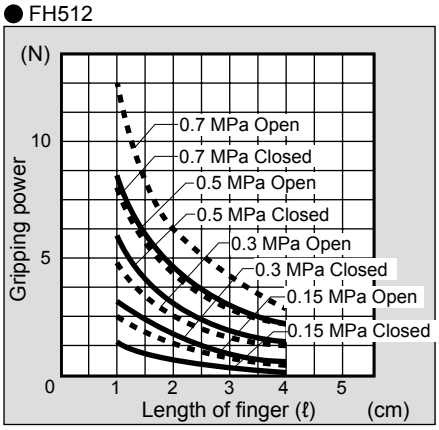


(Note) Single acting closed side gripping power is decreased by 25 to 30% compared to the double acting.
When making a selection, read the precautions for design and selection in Pneumatic Cylinders II (CB-030SA).

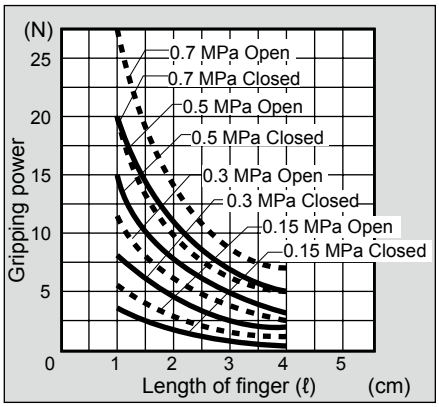
● FH510



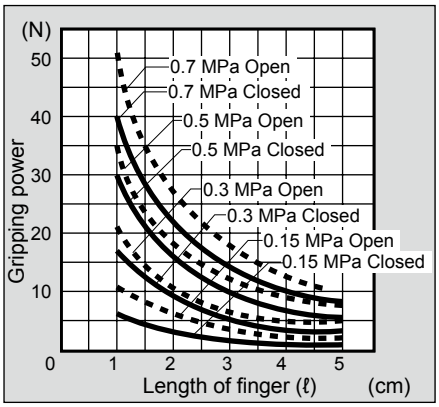
● FH512



● FH516



● FH520





Pneumatic Cylinders II
Catalog No. CB-030SA

NSF H1

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)



RoHS CAD

Specifications

Descriptions			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*	Double acting	MPa	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			Materials compliant with the Food Sanitation Act (silicone rubber)/blue				

*: 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 For models with the silicone rubber guard, select G for the option Ⓑ.

Ⓒ Switch model No. *3

Ⓓ Switch quantity

Code	Content
Ⓐ Size	
16CS	
25CS	
32CS	
40CS	
50CS	
Ⓑ Option	
Blank	Standard (double acting)
O	Single acting (normally open)
C	Single acting (normally closed)
G	**Rubber cover (silicon-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) External 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	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: Ordering is available as follows: Y11 and Y21 for CKG-16CS; Y11, Y12, Y21, and Y22 for CKG-25CS to 40CS; Y11 and Y21 for CKG-50CS.

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

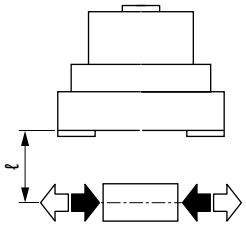
*3: Ⓒ Switches other than Switch model No. are also available. (Made-to-order) For details, refer to Pneumatic Cylinders II (CB-030SA).

Gripping power performance data

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

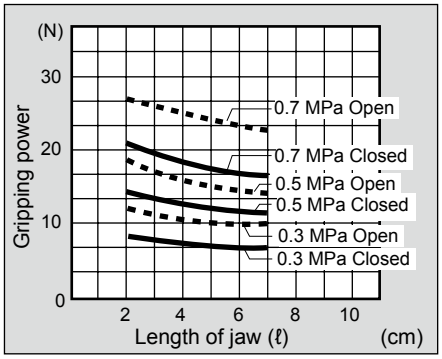
● Open direction (⇦) ---- (shown with broken line)

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

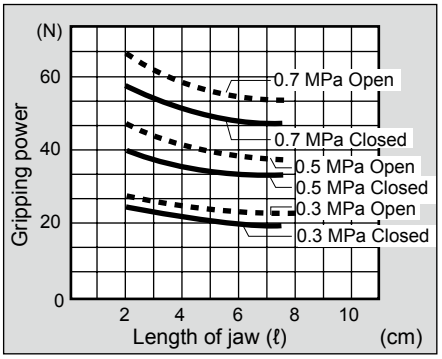


(Note) O type gripping power decreases approximately 20 to 30% in the closed direction compared to the double acting.
C type gripping power decreases approximately 10 to 20% in the open direction compared to the double acting.
When making a selection, read the precautions for design and selection in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

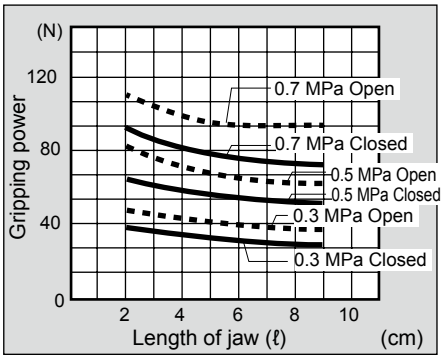
● CKG-16CS



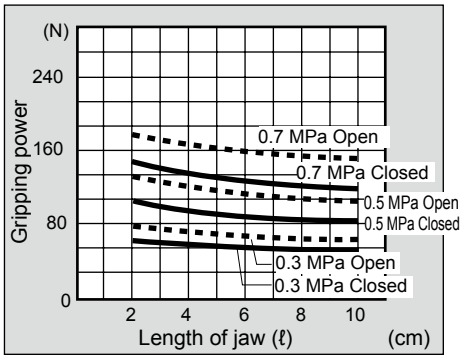
● CKG-25CS



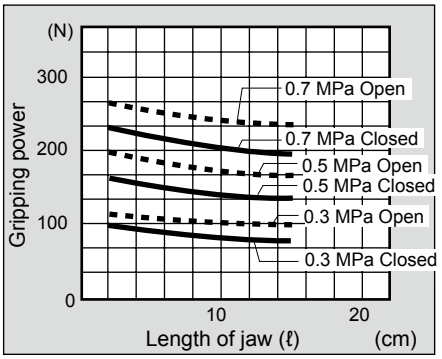
● CKG-32CS



● CKG-40CS



● CKG-50CS



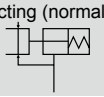
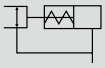


Pneumatic Cylinders II
Catalog No. CB-030SA

Powerful chuck

CKL2-FP1 Series

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

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

RoHS CAD

Specifications

Descriptions		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	Content
Ⓐ 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

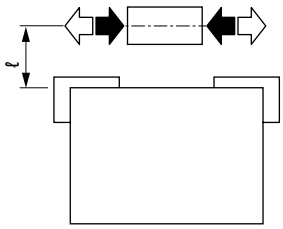
*1: The attachment is commonly used for internal and external chuck.
*2: Refer to Pneumatic Cylinders II (CB-030SA) for the dimensions and compatible model of the attachments. When ordered as an option, three are included at shipment.

Gripping power performance data

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

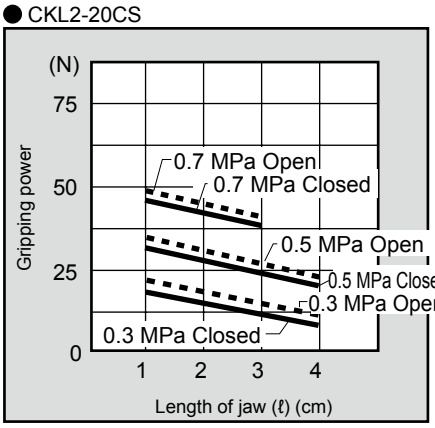
● Open direction (⇦) ---- (shown with broken line)

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

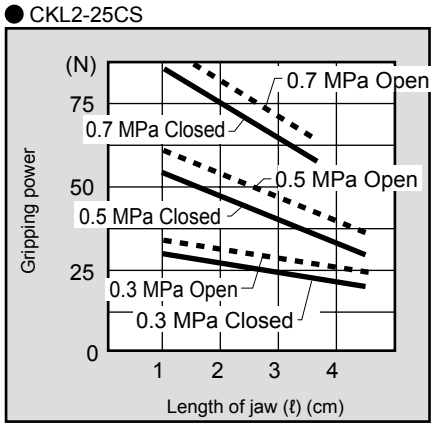


(Note) O type gripping power decreases approximately 20 to 30% in the closed direction compared to the double acting.
C type gripping power decreases approximately 10 to 20% in the open direction compared to the double acting.
When making a selection, read the precautions for design and selection in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

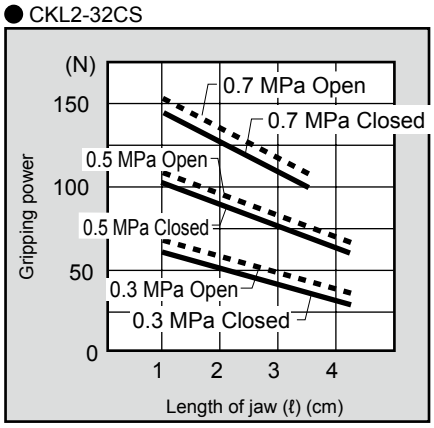
● CKL2-20CS



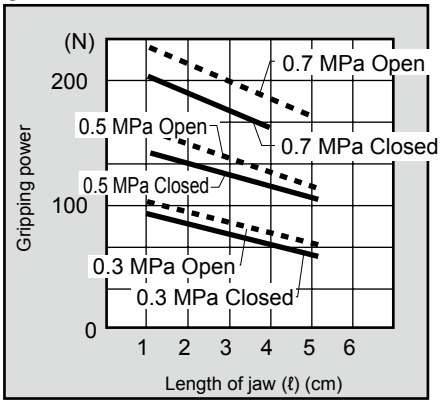
● CKL2-25CS



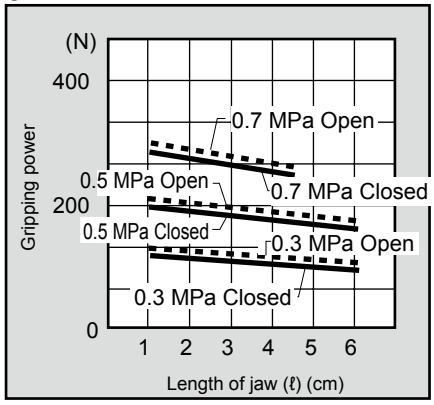
● CKL2-32CS



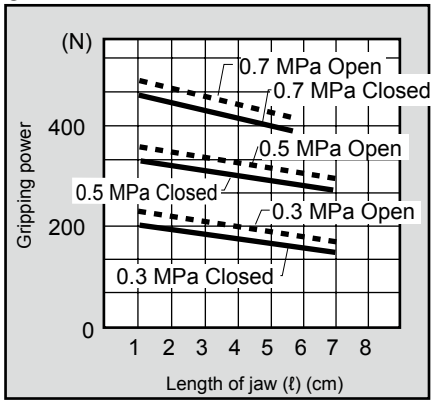
● CKL2-40CS



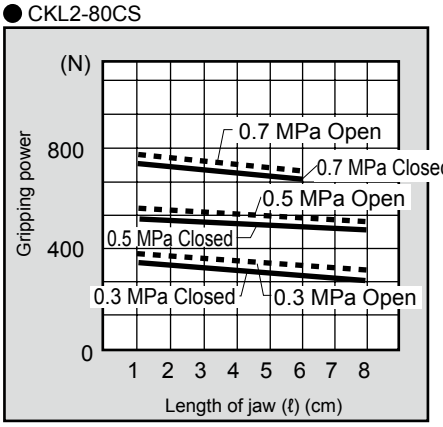
● CKL2-50CS



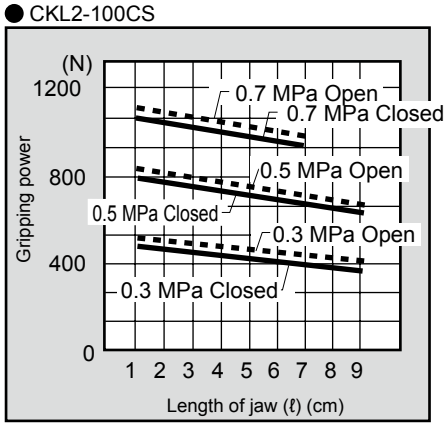
● CKL2-63CS



● CKL2-80CS



● CKL2-100CS



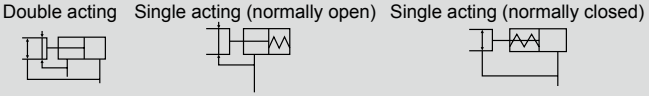


Powerful chuck with rubber cover

CKLG2-FP1 Series

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

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



RoHS CAD

Specifications

Descriptions		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	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)

CKLG2 - 20CS - O - FP1

With switch (built-in magnet for switch)

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

Ⓐ Size

Ⓑ Option
*1, *2

Ⓒ Switch model No.

Ⓓ Switch quantity

Code	Content
Ⓐ 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

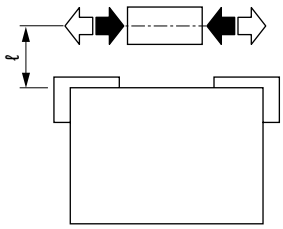
⚠ Precautions for model No. selection

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

Gripping power performance data

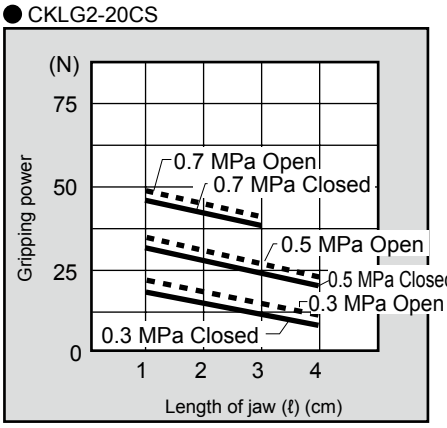
The gripping power in the opening/closing directions with a jaw length ℓ of the hand with a supply pressure of 0.3, 0.5, and 0.7 MPa is shown.

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

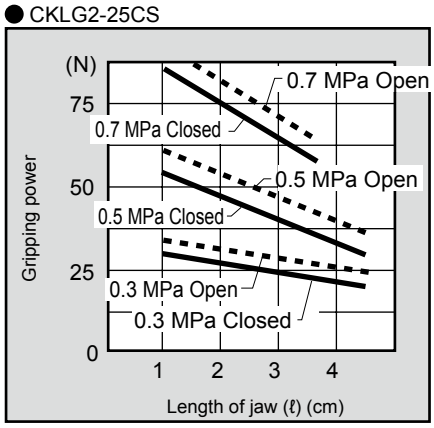


(Note) O type gripping power decreases approximately 20 to 30% in the closed direction compared to the double acting.
C type gripping power decreases approximately 10 to 20% in the open direction compared to the double acting.
When making a selection, read the precautions for design and selection of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

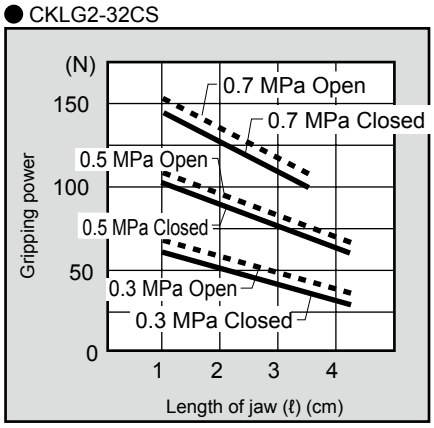
● CKLG2-20CS



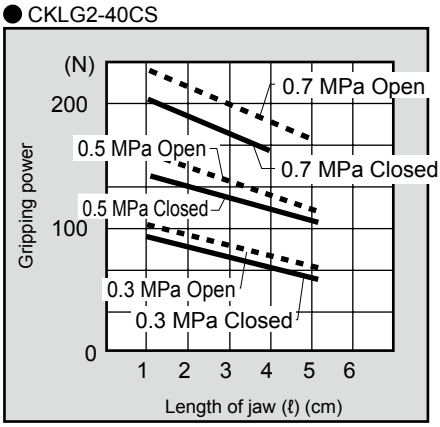
● CKLG2-25CS



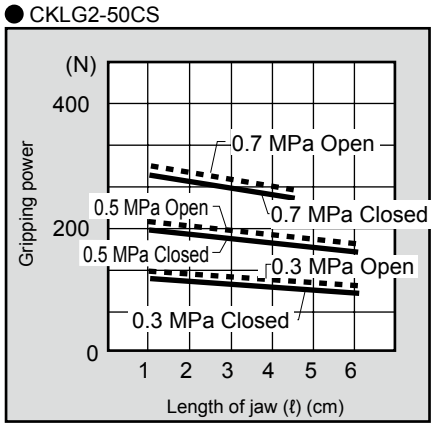
● CKLG2-32CS



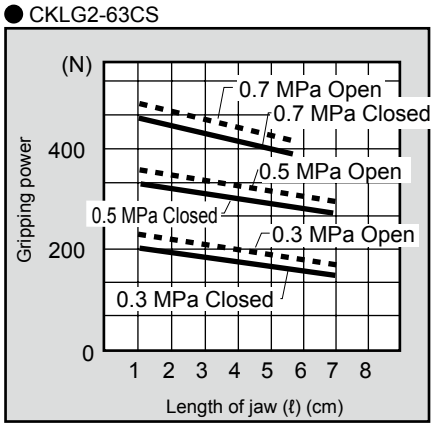
● CKLG2-40CS



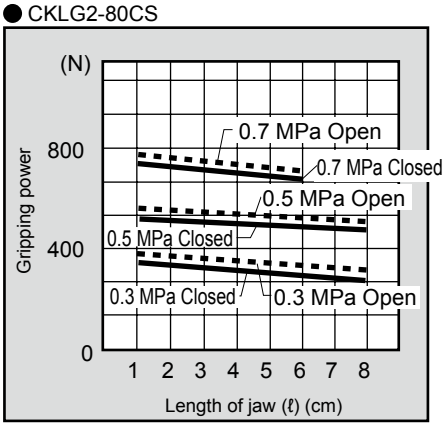
● CKLG2-50CS



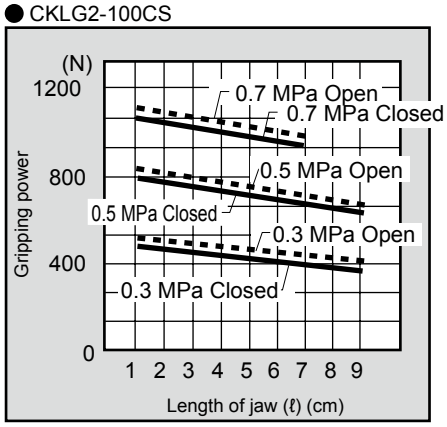
● CKLG2-63CS



● CKLG2-80CS



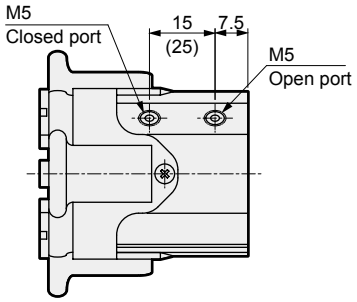
● CKLG2-100CS

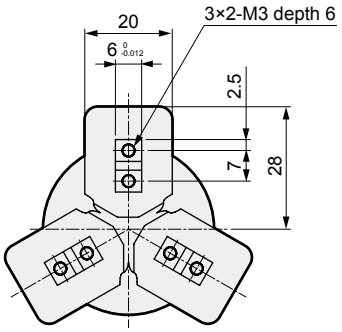


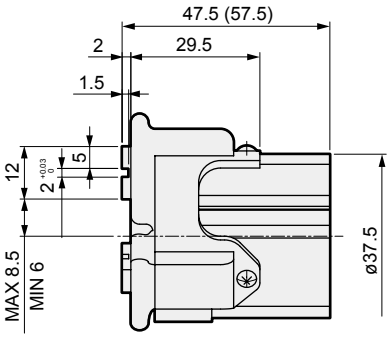
Dimensions

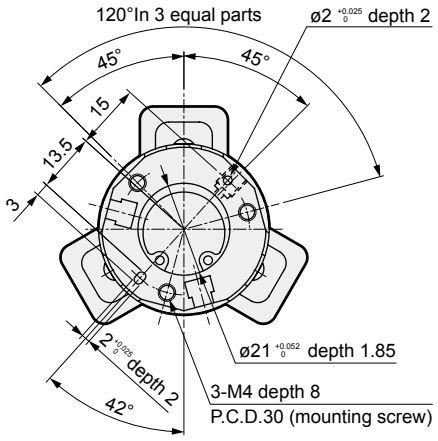
● CKLG2-20CS

Dimensions in ( ) are for the single acting.









● CKLG2-25CS

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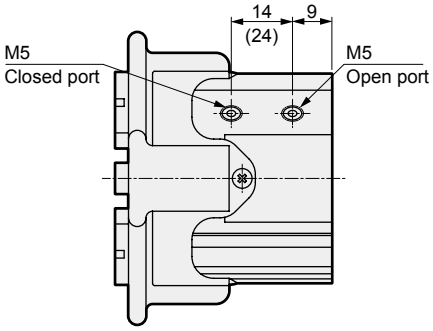

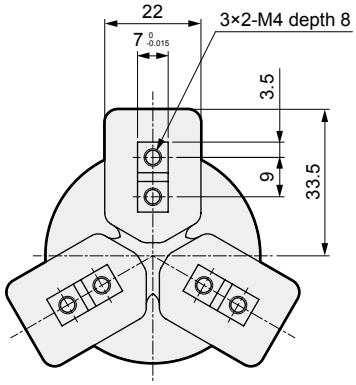

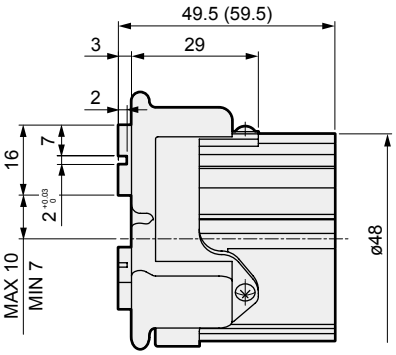

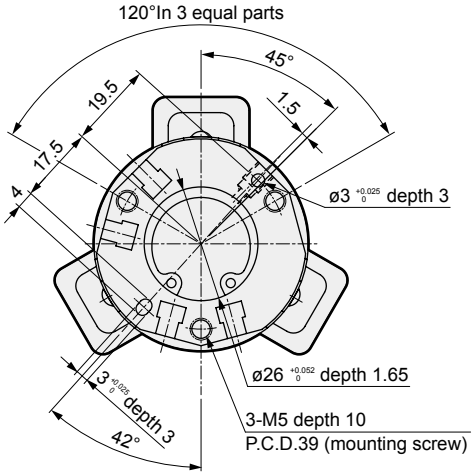

Dimensions

● CKLG2-32CS

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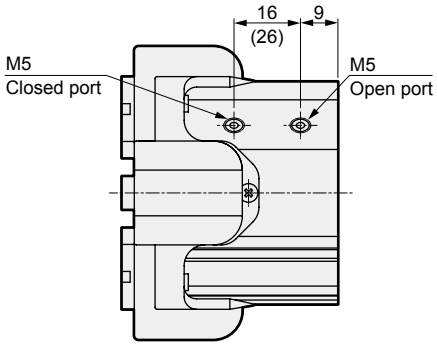

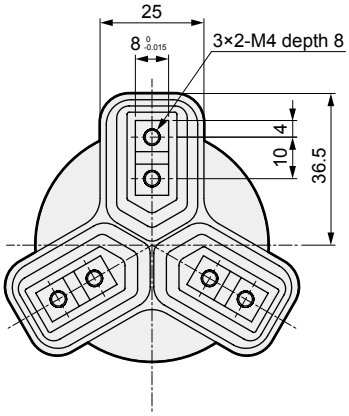

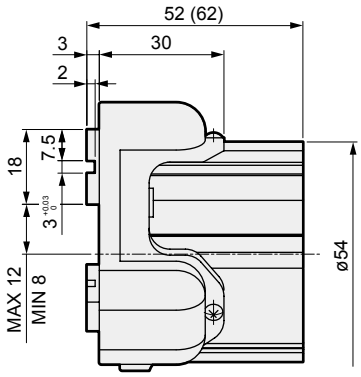

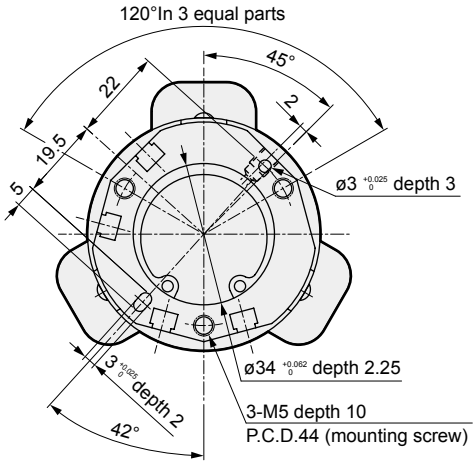

● CKLG2-40CS

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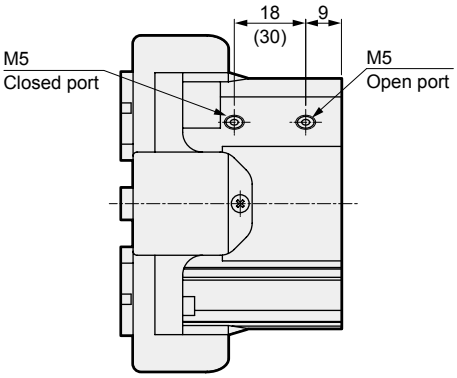

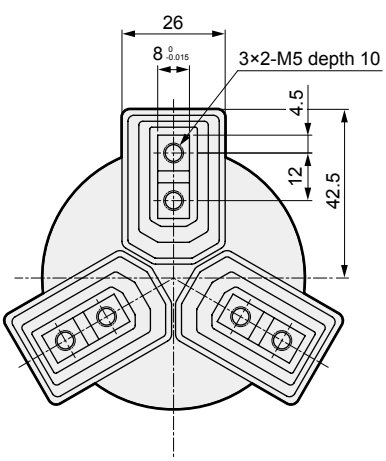

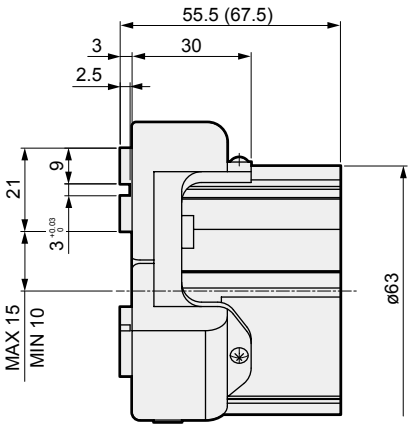

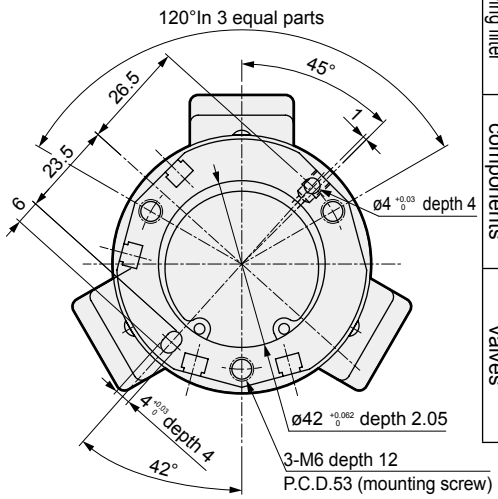

Dimensions

● CKLG2-50CS

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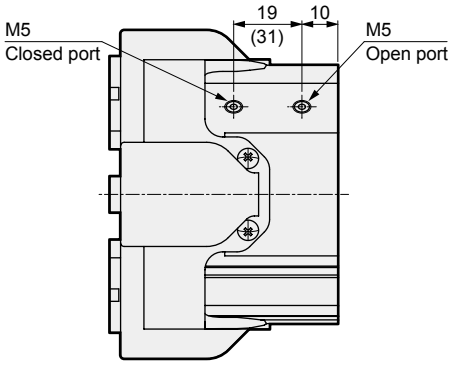

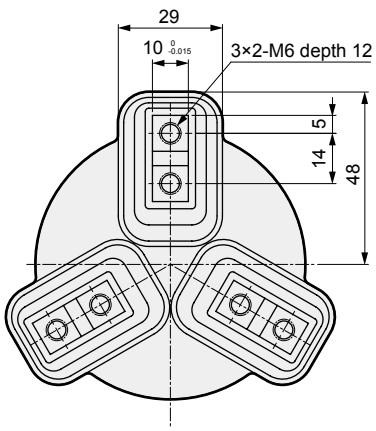

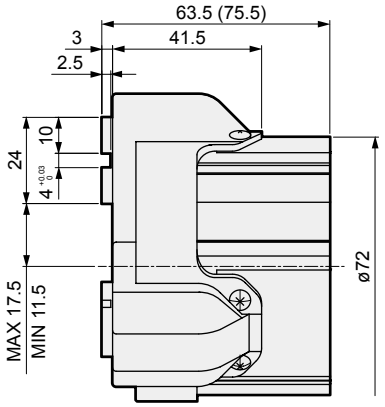

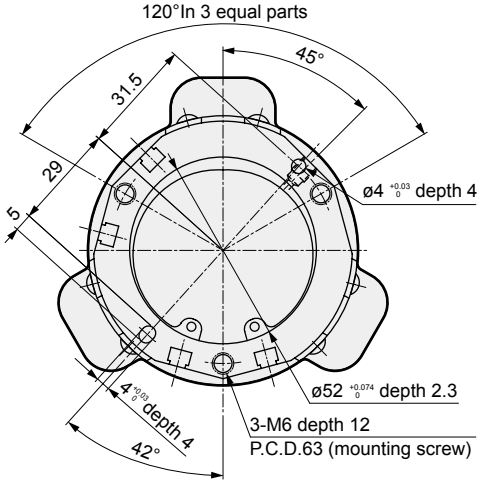

● CKLG2-63CS

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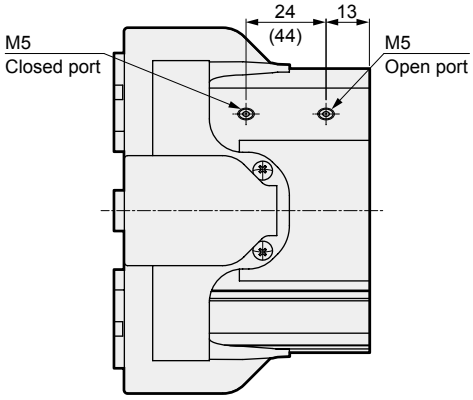

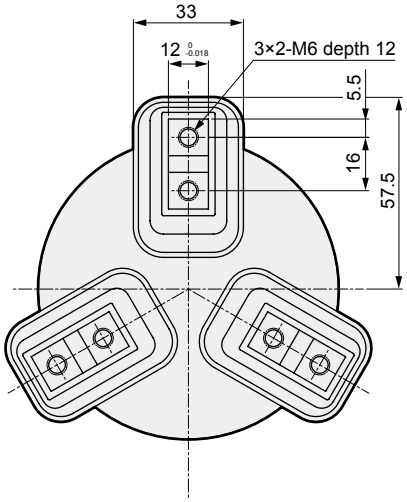

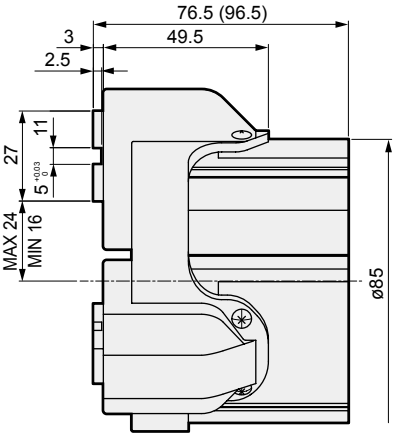

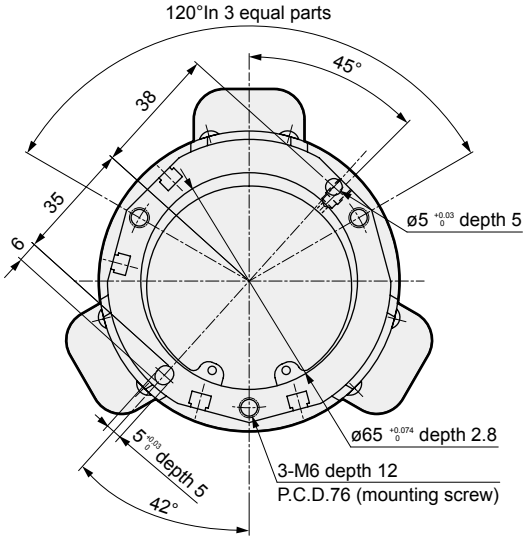

Dimensions

● CKLG2-80CS

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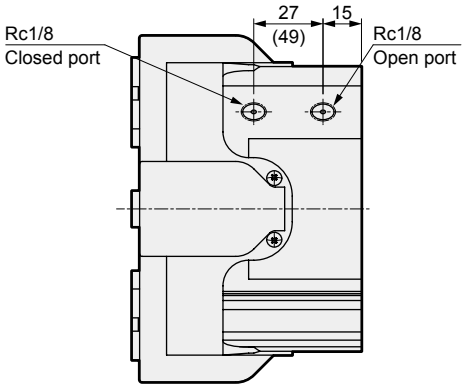

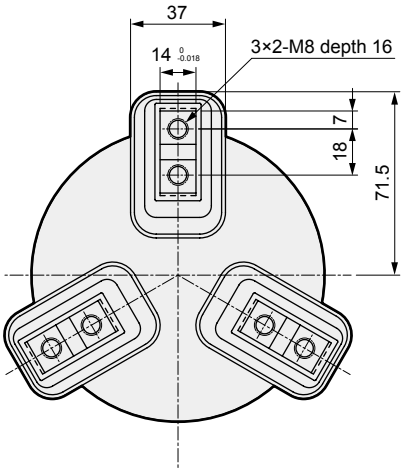

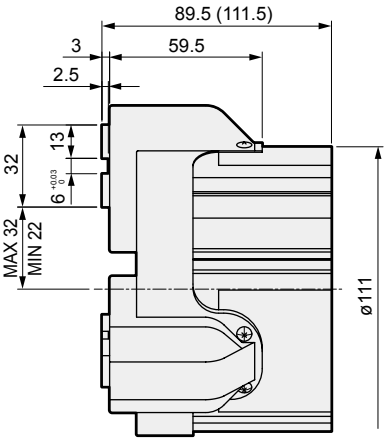

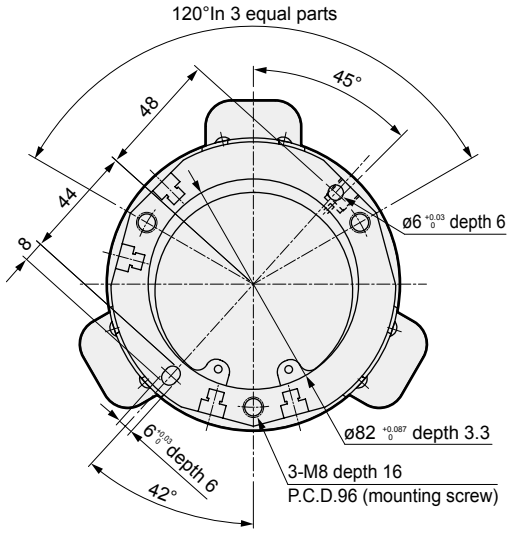

● CKLG2-100CS

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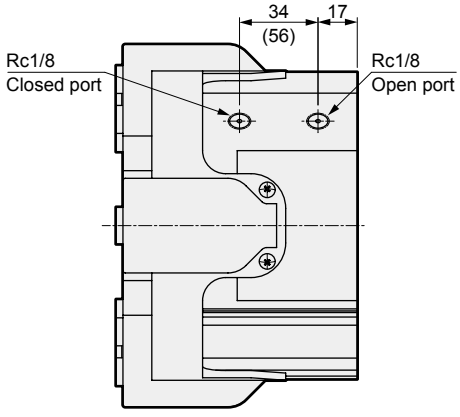
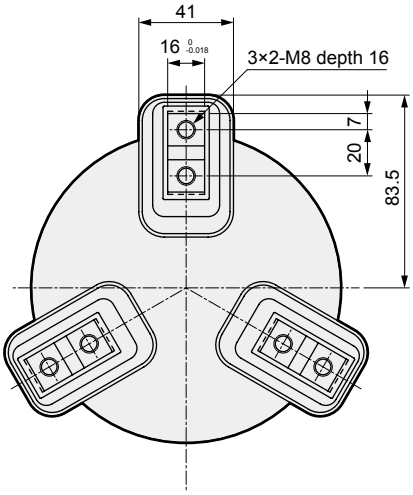
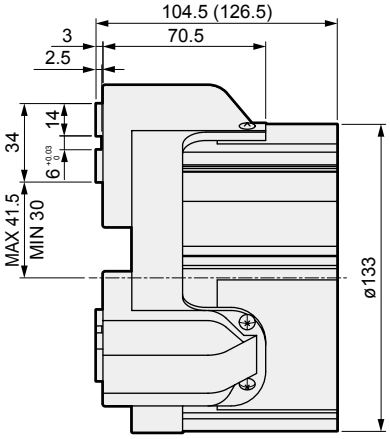
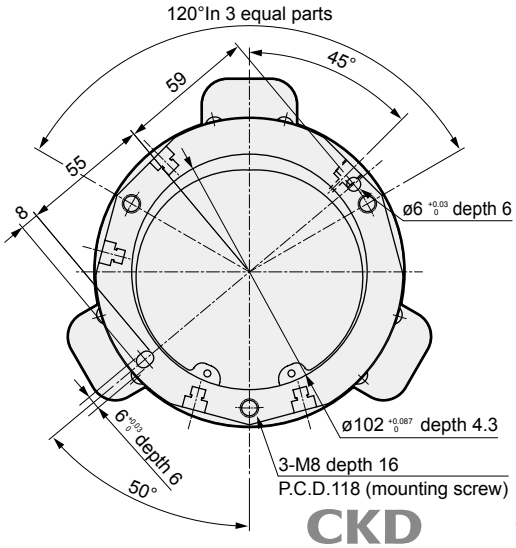










Cylinder grease for food manufacturing processes

NSF H1

GRS-FP1 Series

Specifications

Base oil	Thickener	Color
Composite hydrocarbon oil	Aluminum complex soap	Beige

How to order

GRS - 015 - FP1

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

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 as a guide.

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

⚠ Precautions for use

■ 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 10 to 40°C, humidity 80% or less, atmosphere that does not impair human living) not subject to direct sunlight.
After opening, confirm that no foreign matter (water, dust, other oils, etc.) has entered before closing the lid and storing.

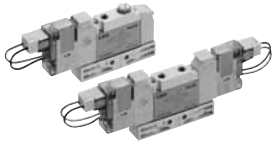
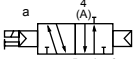
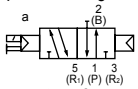
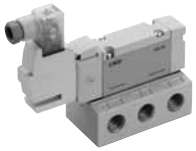
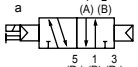
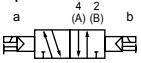
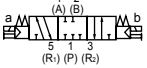
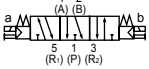
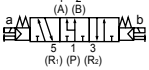
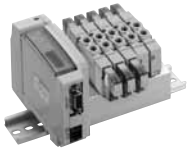
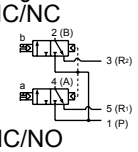
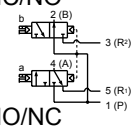
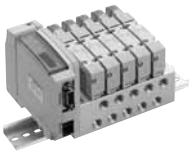
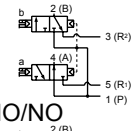
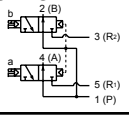
MEMO

Series variation

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

NSF H1

* Refer to page 161 for the master valve.

Series external appearance						Model No.	Position Number of solenoid valves JIS symbol	Valve performance: Flow characteristics C [dm³/(s·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	AC100 AC200 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 side piping	3-port			3GB1		1.0	20 to 40	
						3GB2		2.1	40 to 80	
			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	
Individual wiring manifold	M4GA280R-E*D 	Body piping	Direct mount DIN rail mount (-D)			M4GA1	2-position double 	0.66 to 1.0	20 to 40	AC100 AC200 DC24 DC12 (*2)
						M4GA2		1.7 to 2.5	40 to 80	
						M4GA3		2.5 to 3.3	63 to 100	
	M4GB280R-E* 	Base side piping	Direct mount DIN rail mount (-D)			M4GB1	3-position all ports closed 	0.67 to 1.0	20 to 40	
						M4GB2		1.6 to 2.4	40 to 80	
						M4GB3		2.6 to 3.3	63 to 100	
Reduced wiring manifold	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	
				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	
				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	
		Base side piping	Mount type Direct	Terminal block (-T1□) Connector (-T30, -T5□)		M4GB1	NC/NO 	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	
				Serial transmission (-T8□)		M4GB1		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	
	M4GB210R-T8D 		Mount type DIN rail	Terminal block (-T1□D) Connector (-T30D, -T5□D)		M4GB1	NO/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	
				Serial transmission (-T6□D) (-T8□D)		M4GB1	NO/NO 	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 × C.
*2: The grommet lead wire specifications are for DC voltages only.
*3: The two 3-port valves integrated is available for 3GA1/2 and 3GB1/2.
*4: P/R piping port is either M5 or Rc thread.
*5: Specification for reduced wiring manifold equipped. Only 12/24 VDC is supported.
*6: "○" indicates a made-to-order product.

Switching position									A/B piping port (*4)								Electrical connections											Selection page
2-position				3-position			Two 3-port valves 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	M5	Rc1/8	Rc1/4	Rc3/8	Grommet lead (*2)	E-connector	EJ-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□	
●	●						○		●	●			●				●	●	●									81
●	●						○		●	●	●			●			●	●	●	●								
●	●									●	●	●			●		●	●	●	●								
		●	●	●	●	●			●	●			●				●	●	●									81
		●	●	●	●	●			●	●	●			●			●	●	●	●								
		●	●	●	●	●				●	●	●			●		●	●	●	●								
							○							●			●	●	●									85
							○								●		●	●	●	●								
		●	●	●	●	●								●			●	●	●									85
		●	●	●	●	●									●		●	●	●	●								
		●	●	●	●	●									●	●	●	●	●	●								
●	●	●	●	●	●	●	○	○	●	●			●				●	●	●									89
●	●	●	●	●	●	●	○	○	●	●	●			●			●	●	●	●								
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		●	●	●	●	●	○	○	●	●			●				●	●	●									93
		●	●	●	●	●	○	○	●	●	●			●			●	●	●	●								
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●	●	●	●	●	●	●	○	○	●	●	●			●							●	●	●	●	●			
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		●	●	●	●	●	○	○	●	●	●			●							●	●	●	●	●			
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		●	●	●	●	●	○	○	●	●	●			●							●	●	●	●	●			
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		●	●	●	●	●	○	○	●	●			●								●					●	●	101
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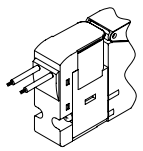
		●	●	●	●	●		○		●	●	●			●						●					●	●	

Electrical connections

Single valve/individual wiring manifold

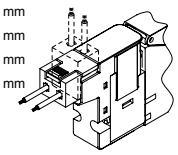
Blank Grommet lead wire Ⓘ

● **Lead wire length**
300 mm

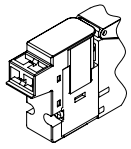


E0 E-connector Ⓘ

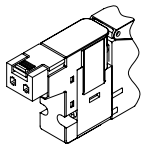
● **Lead wire length**
300 mm
500 mm
1000 mm
2000 mm
3000 mm



E0N E-connector without socket

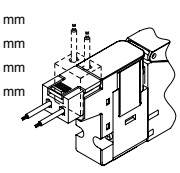


E1 E-connector with socket/terminal

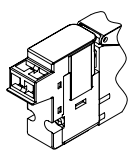


E2 E-connector ⒾⓁⓈ

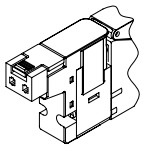
● **Lead wire length**
300 mm
500 mm
1000 mm
2000 mm
3000 mm



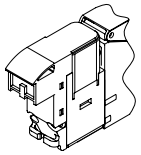
E2N E-connector without socket ⓁⓈ



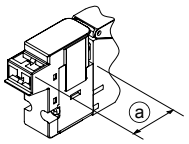
E3 E-connector with socket/terminal ⓁⓈ



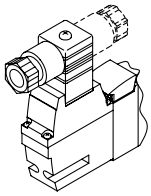
A2N A-connector downward without socket



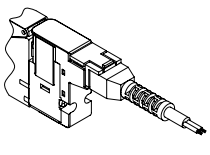
●For AC voltages, the ⓐ dimension is 3.5 mm longer than for DC voltages.



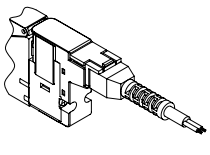
B BN DIN terminal box (BN: Without terminal box)



E0*J EJ-connector Ⓘ

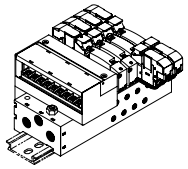


E2*J EJ-connector ⒾⓁⓈ

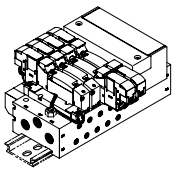


Reduced wiring manifold

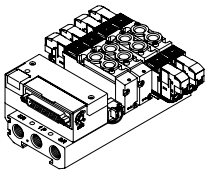
T10 T11 Common terminal block (left side) M3 thread specifications/ clamping specifications



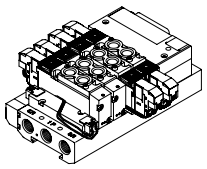
T10R T11R Common terminal block (right side) M3 thread specifications/ clamping specifications



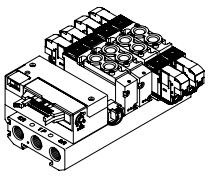
T30 D-sub-connector (left)



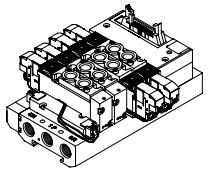
T30R D-sub-connector (right)



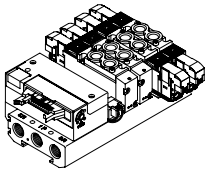
T50 Flat cable with power supply terminal (left side)



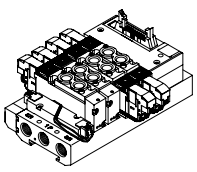
T50R Flat cable with power supply terminal (right side)



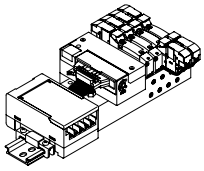
T51 T52 T53 Flat cable without power supply terminal (left side)



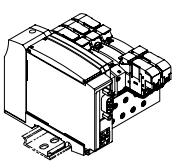
T51R T52R T53R Flat cable without power supply terminal (right side)



T6*$^{0}_{1}$ Serial transmission



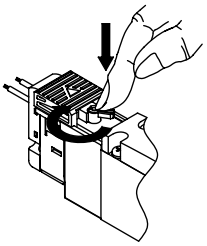
T8*$^{1}_{2}$ Serial transmission (thin)



Manual override

Blank Non-locking/locking common

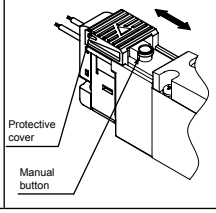
(Standard equipment)



(1)For non-locking, push to turn ON, release to turn OFF

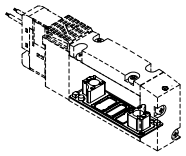
(2)For locking, push and turn 90° clockwise to hold the ON state. Turn counterclockwise to unlock OFF

M Non-locking



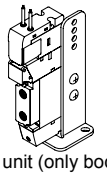
Other options

H With exhaust check valve



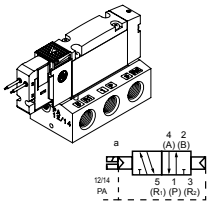
Standard for pilot exhaust

P Mounting plate

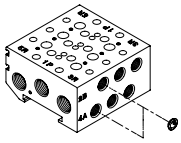


Single unit (only body piping)

K External pilot



F Port A/B filter integrated

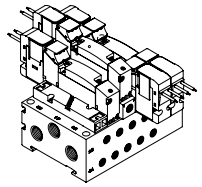


Ⓘ: With lead wire
Ⓛ: With indicator lamp
Ⓢ: With surge suppressor

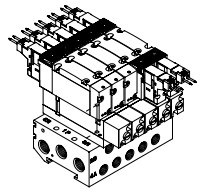
Electrical connection circuit diagram

Other options

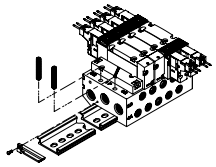
Z1 Air supply spacer
Z3 Exhaust spacer



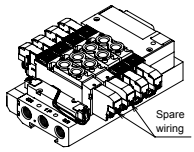
Z2 In-stop valve spacer



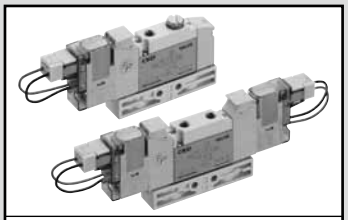
D DIN rail mount



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 / 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
	BN	DIN terminal box (without terminal box)	●			●		DC / 100 VAC / 200 VAC
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

Single valve
Body piping

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

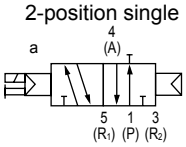
● Applicable cylinder bore size: ø20 to ø100

RoHS CAD

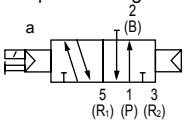
JIS symbol

● 3-port valve

2-position single NC

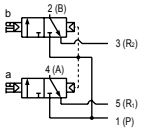


2-position single NO

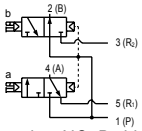


● Two 3-port valves integrated

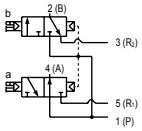
(A side valve: NC, B side valve: NC)



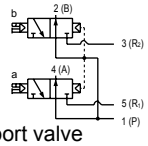
(A side valve: NC, B side valve: NO)



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

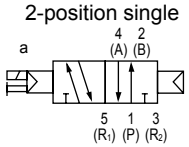


(A side valve: NO, B side valve: NO)

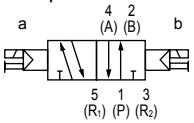


● 5-port valve

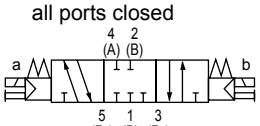
2-position single



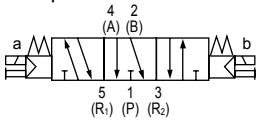
2-position double



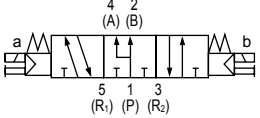
3-position all ports closed



3-position A/B/R connection



3-position P/A/B connection



Common specifications

Descriptions	Content
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 water drops, oil, etc., during use. IP65 (jet-proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

Electrical specifications

Descriptions		Content			
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	A/B Port	Push-in fitting ø4, ø6 M5	Push-in fitting ø4, ø6, ø8 Rc1/8	Push-in fitting ø6, ø8, ø10 Rc1/4
	P/R1/R2 Port	M5	Rc1/8	Rc1/4

Descriptions			3GA1		3GA2		3GA3		4GA1		4GA2		4GA3	
			ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
Response time ms	Two 3-port valves integrated		9	12	12	29	-	-	-	-	-	-	-	-
	2-position	Single	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.

Descriptions				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 adapter. 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 dual 3-port valve integrated 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

Single 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 mounting base

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

Single 3-port valve for mounting base

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

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

Ⓓ Electrical connections

Refer to page 80 for the circuit diagram with surge suppressor/lamp.

Ⓔ Option

Ⓕ Voltage

Code	Content		Ⓐ 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		P/R1/R2 Port (1) = M5, (2) = Rc1/8, (3) = Rc1/4					
Port	4(A)/2(B) Port						
C4	ø4 Push-in fitting	(1)	(2)		(1)	(2)	
C6	ø6 Push-in fitting	(1)	(2)	(3)	(1)	(2)	(3)
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	Non-locking manual override	○	○	○	○	○	○
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 circuit integrated)	●	●	●	●	●	●
2	200 VAC (rectifier circuit integrated) (*6)		●	●		●	●
3	24 VDC	●	●	●	●	●	●
4	12 VDC	●	●	●	●	●	●

is not available.

○ indicates a made-to-order product.

⚠ 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, avoid plugging the 5 (R1) port. Otherwise, malfunctions may result.

***2: 3-position with all ports closed and PAB connection are not provided with the exhaust check valve.**

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

*4: Surgeless specifications.

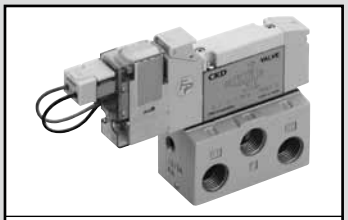
*5: A filter is built into port P as standard.

*6: Only the DIN terminal box is supported.

[Electrical connection list]

Ⓓ Electrical connections		Ⓐ Model No. 3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
Blank	Grommet lead wire (300 mm) (*7)	●	●	●	●	●	●
B	DIN terminal box (Pg7) With surge suppressor/lamp (*8)		●	●		●	●
BN	DIN terminal box (Pg7) (without terminal box) With surge suppressor/lamp (*8)		●	●		●	●
E-connector (upward/lateral direction 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)	●	●	●	●	●	●
E1	Without lead wire (socket/terminal included) (*9)	●	●	●	●	●	●
E2	Lead wire (300 mm) With surge suppressor/lamp	●	●	●	●	●	●
E20	Lead wire (500 mm) With surge suppressor/lamp	●	●	●	●	●	●
E21	Lead wire (1000 mm) With surge suppressor/lamp	●	●	●	●	●	●
E22	Lead wire (2000 mm) With surge suppressor/lamp	●	●	●	●	●	●
E23	Lead wire (3000 mm) With surge suppressor/lamp	●	●	●	●	●	●
E2N	Without lead wire (without socket) With surge suppressor/lamp	●	●	●	●	●	●
E3	Without lead wire (socket/terminal included) With surge suppressor/lamp	●	●	●	●	●	●
EJ-connector (socket with cover, upward/lateral direction 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.



Pneumatic Valves
Catalog No. CB-023SA

Single valve
Base side piping

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

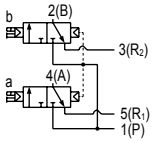
● Applicable cylinder bore size: ø20 to ø100

RoHS CAD

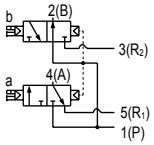
JIS symbol

● Two 3-port valves integrated

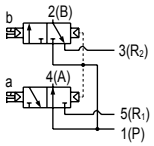
(A side valve: NC, B side valve: NC)



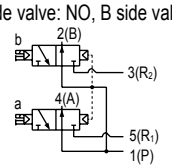
(A side valve: NC, B side valve: NO)



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

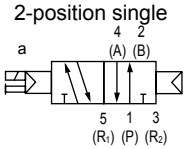


(A side valve: NO, B side valve: NO)

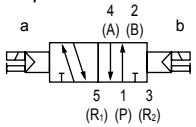


● 5-port valve

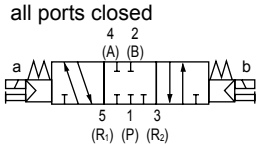
2-position single



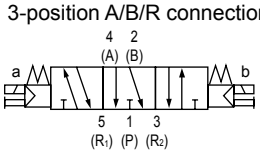
2-position double



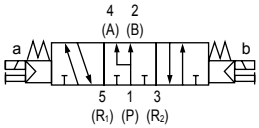
3-position
all ports closed



3-position A/B/R connection



3-position P/A/B connection



Common specifications

Descriptions		Content
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)
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, oil, etc., during use.
IP65 (jet-proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

*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

Descriptions		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)
	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)			

*3: Values in ( ) apply when lamp is included. In addition, the type with low exoergic/energy circuit is only available with lamp.

*4: 200 VAC is the value of DIN terminal box with lamp.

Individual specifications

Port size		3GB1, 4GB1	3GB2, 4GB2	4GB3
Rc thread	A/B Port	Rc1/8	Rc1/4	Rc1/4, Rc3/8
	P/R1/R2 Port	Rc1/8	Rc1/4	Rc1/4, Rc3/8

Descriptions			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.

Descriptions				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 parenthesis ( ) do not include the single sub-plate. Values for the E-connector include the socket assembly (with 300 mm lead wire).
  For EJ-connector, add 16 g/connector to E-connector weight.
- The weight of dual 3-port valve integrated 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

Single 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 mounting base

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

3 port discrete valve for mounting base

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

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

Ⓓ Electrical connections

Refer to page 80 for the circuit diagram with surge suppressor/ lamp.

Ⓔ Option

Ⓕ Voltage

Code	Content	Ⓐ 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/R2 Port (2) = Rc1/8 (3) = Rc1/4 (4) = Rc3/8				
06	Rc1/8	(2)		(2)		
08	Rc1/4		(3)		(3)	(3)
10	Rc3/8					(4)
00	Discrete valve for mounting base	●	●	●	●	●
Ⓓ Electrical connections						
Blank	Grommet lead wire (300 mm) (*7)	●	●	●	●	●
B	DIN terminal box (Pg7) With surge suppressor/lamp (*8)		●		●	●
BN	DIN terminal box (Pg7) (without terminal box) With surge suppressor/lamp (*8)		●		●	●
E-connector (upward/lateral direction 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 included) (*9)	●	●	●	●	●
E2	Lead wire (300 mm) With surge suppressor/lamp	●	●	●	●	●
E20	Lead wire (500 mm) With surge suppressor/lamp	●	●	●	●	●
E21	Lead wire (1000 mm) With surge suppressor/lamp	●	●	●	●	●
E22	Lead wire (2000 mm) With surge suppressor/lamp	●	●	●	●	●
E23	Lead wire (3000 mm) With surge suppressor/lamp	●	●	●	●	●
E2N	Without lead wire (without socket) With surge suppressor/lamp	●	●	●	●	●
E3	Without lead wire (with socket/terminal) With surge suppressor/lamp	●	●	●	●	●
EJ-connector (socket with cover, upward/lateral direction 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	●	●	●	●	●
Ⓔ Option						
Blank	Non-locking/locking common manual override	●	●	●	●	●
M	Non-locking manual override	○	○	○	○	○
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 circuit integrated)	●	●	●	●	●
2	200 VAC (rectifier integrated) (*6)		●		●	●
3	24 VDC	●	●	●	●	●
4	12 VDC	●	●	●	●	●

is not available.

○ indicates a made-to-order product.

⚠ Precautions for model No. selection

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

***2: 3-position with all ports closed and PAB connection are not provided with the exhaust check valve.**

3: E2 and E2*J-connectors support 12/24 VDC only. 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.

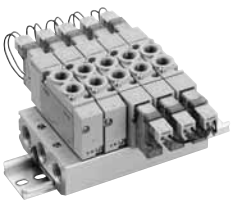
*6: Only the DIN terminal box is supported.

*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.

MEMO



Pneumatic Valves
Catalog No. CB-023SA

Individual wiring manifold
Body piping
Direct mount/DIN rail mount

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

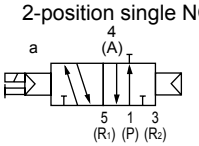
● Applicable cylinder bore size: ø20 to ø100

RoHS CAD

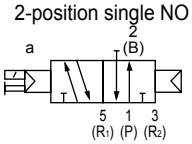
JIS symbol

● 3-port valve

2-position single NC

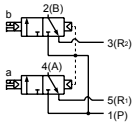


2-position single NO

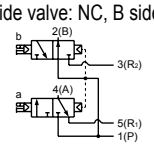


● Two 3-port valves integrated

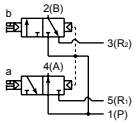
(A side valve: NC, B side valve: NC)



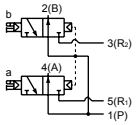
(A side valve: NC, B side valve: NO)



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

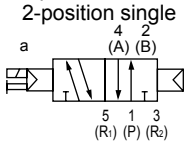


(A side valve: NO, B side valve: NO)

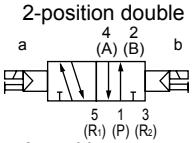


● 5-port valve

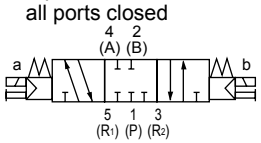
2-position single



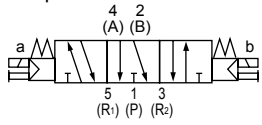
2-position double



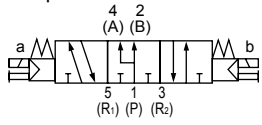
3-position
all ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Descriptions		Content
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
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, oil, etc., during use. IP65 (jet-proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

*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

Descriptions		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)
	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)			

*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

Descriptions			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	A/B Port	M5		Rc1/8		Rc1/4	
		P/R1/R2 Port	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-positionn	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-positionn	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

● Discrete 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

Ⓖ Station No.

Ⓗ Voltage

* Be sure to fill in the "Manifold specifications sheet" (pages 108 to 110).

Code	Content		Ⓐ 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 manifolds (when there are multiple solenoid positions)		○	○	○	○	○	○

Ⓒ Port size							
Port	4(A)/2(B) Port	P/R1/R2 Port (2) = Rc1/8 (3) = Rc1/4 (4) = Rc3/8					
C4	ø4 Push-in fitting	②	③		②	③	
C6	ø6 Push-in fitting	②	③	④	②	③	④
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: Select M4GA*80R when mixing with 3/5-port valves.
Furthermore, 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.

		Ⓐ 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		●	●		●	●
BN	DIN terminal box (Pg7) (without terminal box)With surge suppressor/lamp *13		●	●		●	●
E-connector (upward/lateral direction 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 included)*14	●	●	●	●	●	●
E2	Lead wire (300 mm) With surge suppressor/lamp	●	●	●	●	●	●
E20	Lead wire (500 mm) With surge suppressor/lamp	●	●	●	●	●	●
E21	Lead wire (1000 mm) With surge suppressor/lamp	●	●	●	●	●	●
E22	Lead wire (2000 mm) With surge suppressor/lamp	●	●	●	●	●	●
E23	Lead wire (3000 mm) With surge suppressor/lamp	●	●	●	●	●	●
E2N	Without lead wire (without socket) With surge suppressor/lamp	●	●	●	●	●	●
E3	Without lead wire (socket/terminal included) With surge suppressor/lamp	●	●	●	●	●	●
EJ-connector (socket with cover, upward/lateral direction 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/lamp	●	●	●	●	●	●
E22J	Lead wire (2000 mm) With surge suppressor/lamp	●	●	●	●	●	●
E23J	Lead wire (3000 mm) With surge suppressor/lamp	●	●	●	●	●	●
Ⓔ Option							
Blank	Non-locking/locking common manual override	●	●	●	●	●	●
M	Non-locking manual override	○	○	○	○	○	○
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 integrated *8	●	●	●	●	●	●
Z1	Air supply spacer *9	●	●	●	●	●	●
Z2	In-stop valve spacer *9, *10	●	●	●	●	●	●
Z3	Exhaust spacer *9	●	●	●	●	●	●
Ⓕ Mount							
Blank	Direct mount	●	●	●	●	●	●
D	DIN rail mount	●	●	●	●	●	●
Ⓖ Station No.							
2	2 stations	●	●	●	●	●	●
to	to						
20	Refer to page 89 for the max. station numbers per model.						
ⒽVoltage							
1	100 VAC (rectifier circuit integrated)	●	●	●	●	●	●
2	200 VAC (rectifier integrated) *11		●	●		●	●
3	24 VDC	●	●	●	●	●	●
4	12 VDC	●	●	●	●	●	●

is not available.

○ indicates a made-to-order product.

***4: 3-position all ports closed and PAB connection are not provided with the exhaust check valve (H).**

*5: Consult with CKD when using a vacuum with the external pilot (K).

6: E2 and E2*J-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 and quantity in the manifold specifications sheet.
Stacking of spacers is not possible.
Combination with the masking plate is not supported.
Refer to page 105 for details.**

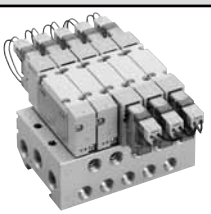
*10: Not compatible when combined with external pilot (K).

*11: Only the DIN terminal box 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 includes a rectifier circuit.



Pneumatic Valves
Catalog No. CB-023SA

Individual wiring manifold
Base side piping
Direct mount/DIN rail mount

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

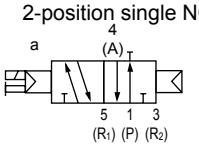
● Applicable cylinder bore size: ø20 to ø100

RoHS CAD

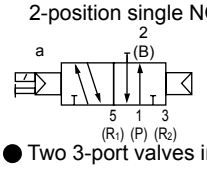
JIS symbol

● 3-port valve

2-position single NC

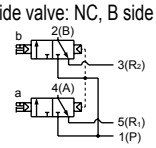


2-position single NO

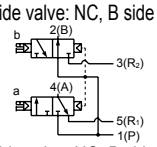


● Two 3-port valves integrated

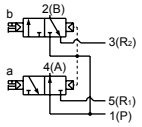
(A side valve: NC, B side valve: NC)



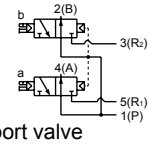
(A side valve: NC, B side valve: NO)



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

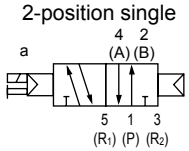


(A side valve: NO, B side valve: NO)

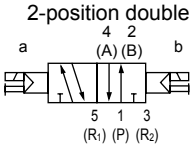


● 5-port valve

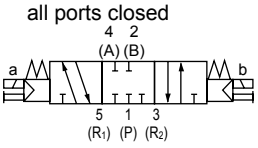
2-position single



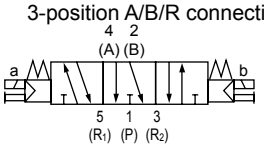
2-position double



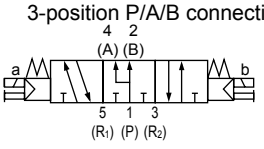
3-position
all ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Descriptions		Content
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		Lateral direction 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 (*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, oil, etc., during use. IP65 (jet-proof) applies for DIN terminal box specifications. However, the specified outer diameter of the cord and tightening torque must be used for fixing in place.

*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

Descriptions		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)
	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)			

*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

Descriptions			M3GB1, M4GB1		M3GB2, M4GB2		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	20 stations	16 stations
	External pilot		12 stations	12 stations				
Port size	Rc thread, M5	A/B Port	M5		Rc1/8		Rc1/4	
		P/R1/R2 Port	Rc1/8		Rc1/4		Rc3/8	
Manifold base Weight calculation formula (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

● Discrete 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

Ⓐ Model No.

Ⓑ Solenoid position

Ⓒ Port size

Ⓓ Electrical connections

Ⓔ Option

Ⓕ Mount

Ⓖ Station No.

Ⓗ Voltage

* Be sure to fill in the "Manifold specifications sheet" (page 108 to 110).

Code	Content		Ⓐ Model No. 3GB1	3GB2	4GB1	4GB2	4GB3
Ⓑ Solenoid position							
1	2-position single				●	●	●
2	2-position double				●	●	●
3	3-position all ports closed				●	●	●
4	3-position ABR connection				●	●	●
5	3-position PAB connection				●	●	●
66	3-port valve Two valves integrated *1, *2	A valve side: Normally closed B valve side: Normally closed	○	○			
67		A valve side: Normally closed B valve side: Normally open	○	○			
76		A valve side: Normally open B valve side: Normally closed	○	○			
77		A valve side: Normally open B valve side: Normally open	○	○			
8	Mix manifolds (when there are multiple solenoid positions)		○	○	○	○	○

Ⓒ Port size Port	4(A), 2(B) Port		P/R1/R2 Port (2) = Rc1/8 (3) = Rc1/4 (4) = Rc3/8				
C4	ø4 Push-in fitting		②	③	②	③	
C6	ø6 Push-in fitting		②	③	②	③	④
C8	ø8 Push-in fitting	*3, *4	②	③	②	③	④
C10	ø10 Push-in fitting	*3, *4		③		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 mounting base		●	●	●	●	●

⚠ Precautions for model No. selection

*1: Select M4GB*80R when mixing with 3/5-port valves.
Furthermore, select M3GB*80R when mixing with masking plate.
*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.

			Ⓐ 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		●		●	●
BN	DIN terminal box (Pg7) (without terminal box) With surge suppressor/lamp	*15		●		●	●
E-connector (upward/lateral direction 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 included)	*16	●	●	●	●	●
E2	Lead wire (300 mm) With surge suppressor/lamp		●	●	●	●	●
E20	Lead wire (500 mm) With surge suppressor/lamp		●	●	●	●	●
E21	Lead wire (1000 mm) With surge suppressor/lamp		●	●	●	●	●
E22	Lead wire (2000 mm) With surge suppressor/lamp		●	●	●	●	●
E23	Lead wire (3000 mm) With surge suppressor/lamp		●	●	●	●	●
E2N	Without lead wire (without socket) With surge suppressor/lamp		●	●	●	●	●
E3	Without lead wire (with socket/terminal) With surge suppressor/lamp		●	●	●	●	●
EJ-connector (socket with cover, upward/lateral direction common)							
E01J	Lead wire (1000 mm)	*16	●	●	●	●	●
E02J	Lead wire (2000 mm)	*16	●	●	●	●	●
E03J	Lead wire (3000 mm)	*16	●	●	●	●	●
E21J	Lead wire (1000 mm) With surge suppressor/lamp		●	●	●	●	●
E22J	Lead wire (2000 mm) With surge suppressor/lamp		●	●	●	●	●
E23J	Lead wire (3000 mm) With surge suppressor/lamp		●	●	●	●	●
Ⓔ Option							
Blank	Non-locking/locking common manual override		●	●	●	●	●
M	Non-locking manual override		○	○	○	○	○
H	With exhaust check valve	*5	●	●	●	●	●
K	External pilot	*6	●	●	●	●	●
S	Surgeless	*7	●	●	●	●	●
E	Low exoergic/energy saving 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							
Blank	Direct mount	*12	●	●	●	●	●
D	DIN rail mount		●	●	●	●	●
Ⓖ Station No.							
2	2 stations		●	●	●	●	●
to	to						
20	Refer to page 93 for the max. station numbers per model.						
Ⓗ Voltage							
1	100 VAC (rectifier circuit integrated)		●	●	●	●	●
2	200 VAC (rectifier integrated)	*13		●		●	●
3	24 VDC		●	●	●	●	●
4	12 VDC		●	●	●	●	●

is not available.

○ indicates a made-to-order product.

***5: 3-position all ports closed and PAB connection are not provided with the exhaust check valve (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 and quantity in the manifold specifications sheet.**
Stacking of spacers is not possible.
Combination with the masking plate is not supported.
Refer to page 105 for details.

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

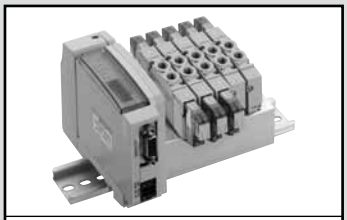
*12: The direct mount of M4GB1 cannot be changed to the DIN rail mount after purchasing.

*13: Only the DIN terminal box 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 includes a rectifier circuit.



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring manifold
Body piping
Direct mount/DIN rail mount

M3GA1/2/3-T*(D)-FP1 Series
M4GA1/2/3-T*(D)-FP1 Series

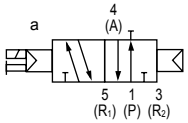
● Applicable cylinder bore size: ø20 to ø100

RoHS CAD

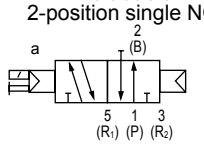
JIS symbol

● 3-port valve

2-position single NC

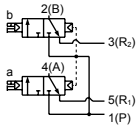


2-position single NO

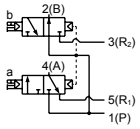


● Two 3-port valves integrated

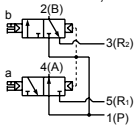
(A side valve: NC, B side valve: NC)



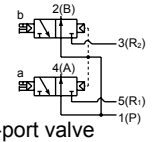
(A side valve: NC, B side valve: NO)



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

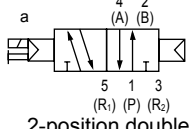


(A side valve: NO, B side valve: NO)

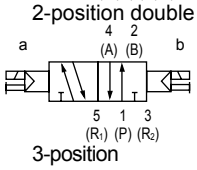


● 5-port valve

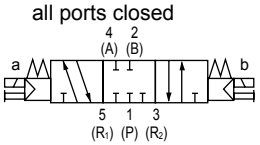
2-position single



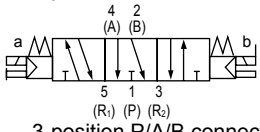
2-position double



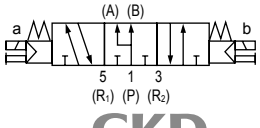
3-position
all ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Descriptions		Content
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, 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

Descriptions		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
	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		

*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

Descriptions		M3GA1/M4GA1	M3GA2/M4GA2	M3GA3/M4GA3
Port size	A/B Port	Push-in fitting ø4, ø6 M5	Push-in fitting ø4, ø6, ø8 Rc1/8	Push-in fitting ø6, ø8, ø10 Rc1/4
	P/R1/R2 Port	Rc1/8	Rc1/4	Rc3/8

T1□, T30□, T5□

Descriptions		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 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□

Descriptions		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 Weight calculation formula (n: station No.) g	Standard	31n+375	56n+444	86n+501
	External pilot	46n+494	98n+615	151n+731

T8□

Descriptions		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 Weight calculation formula (n: station No.) g	Standard	50n+305	52n+332	57n+259	60n+290	150n+384	153n+416
	External pilot	51n+313	54n+340	102n+336	105n+368	169n+417	173n+449

The max. station numbers of the manifold is limited by the max. number of solenoids for each of the following wiring specifications.

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

Descriptions	T10□ Common terminal block	T11□ Common terminal block	T30□ D-sub-connector	T50□ Flat cable 20-pin	T51□ Flat cable 20-pin	T52□ Flat cable 10-pin	T53□ Flat cable 26-pin
Connector and terminal block specifications	M3 thread fastening 18 terminals	Clamping 26 terminals	D-sub-connector 25-pin	MIL-C-83503 standard compliant pressure welding socket 20-pin	MIL-C-83503 standard compliant pressure welding socket 20-pin	MIL-C-83503 standard compliant pressure welding socket 10-pin	MIL-C-83503 standard compliant pressure welding socket 26-pin
Max. number of solenoids	16-points	24-points	24-points	16-points	18-points	8-points	24-points
Wiring block position Blank: Left side R: Right side	**Left side: T□** a solenoid side / b solenoid side; Wiring block, 1st station, 2nd station, 3rd station, ···· 6th station				**Right side: T□R** a solenoid side / b solenoid side; 1st station, 2nd station, 3rd station, ···· 6th station, Wiring block		
Array method Blank: Standard sequential W : Double wiring	**(e.g.) For T50□** Manifold specifications: 1a 2a 3a 4a / S D S D / 2b 4b; 1st station 3rd station 2nd station 4th station						

Standard wiring (sequential): Blank

Connector pin No.	1	2	3	4	5	6
Valve solenoid No.	1a	2a	2b	3a	4a	4b

Double wiring: W

Connector pin No.	1	2	3	4	5	6	7	8
Valve solenoid No.	1a	Blank	2a	2b	3a	Blank	4a	4b

Serial transmission slave unit specifications

Descriptions		T6G1 *1	T6C0 *2 T6C1
Network name		CC-Link	CompoBus/S
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)	
Output points		16 point	T6□0: 8 points T6□1: 16 points
Occupied No.		1 station	T6C0: 1 node address (8-point mode) T6C1: 2 node address (8-point mode)
Operation display		LED (power supply and communication status)	

*1: CC-Link is Ver. 1.10.
*2: Long-distance communication mode is not supported. Contact CKD for details on support.

Serial transmission slave unit specifications

Descriptions		T8G1 T8G2	T8GP1 T8GP2	T8P1 T8P2	T8PP1 T8PP2	T8EC1 T8EC2	T8ECP1 T8ECP2	T8EN1 T8EN2	T8ENP1 T8ENP2	T8D1 T8D2	T8DP1 T8DP2	T8EB1 T8EB2	T8EBP1 T8EBP2	T8EP1 T8EP2	T8EPP1 T8EPP2
Communication system name		CC-Link ver1.10		PROFIBUS-DP (V0)		EtherCAT		EtherNet/IP		DeviceNet		CC-Link IEF Basic		PROFINET	
Power supply voltage	Unit side	24 VDC ±10%													
	Valve side	24 VDC +10%, −5%													
Current consumption	Unit side	60 mA or less (when all output points are ON)		60 mA or less (when all output points are ON)		110 mA or less (when all output points are ON)		120 mA or less (when all output points are ON)		70 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)	
	Valve side	T8□1: 15 mA or less T8□2: 20 mA or less (when all output points are ON) Load current is not included								15 mA or less (when all output points are ON) Load current is not included					
Output points		T8□1: 16 points T8□2: 32 points													
Occupied No.		1 station													
Operation display		LED (power supply and communication status)													
Output format		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 manifold; 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

● Discrete 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

Ⓑ Solenoid position

Ⓐ Model No.

"A2N" indicates the A type (downward) connector with a lamp/surge suppressor and no lead wire.

Ⓒ Port size

Ⓓ Reduced wiring connection
Zener diode is used as a surge suppressor.

Ⓔ Terminal/connector pin array

Ⓕ Option

Ⓖ Mount

Ⓗ Station No.

Ⓘ Voltage

* Be sure to fill in the "Manifold specifications sheet" (pages 111 to 122).

Code	Content		Ⓐ 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 *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 manifolds (when there are multiple solenoid positions)		○	○	○	○	○	○

Ⓒ Port size			P/R1/R2 Port (2) = Rc1/8, (3) = Rc1/4, (4) = Rc3/8					
Port	4(A)/2(B) Port							
C4	ø4 Push-in fitting		②	③		②	③	
C6	ø6 Push-in fitting		②	③	④	②	③	④
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

Ⓓ Reduced wiring connection (lamp and surge suppressor provided as standard)

Refer to the next page for electrical connections.

Ⓔ Terminal/connector pin array								
Blank	Standard wiring	*3	●	●	●	●	●	●
W	Double wiring	*3	●	●	●	●	●	●
W1	Double wiring (with single spare wiring)	*3, *4	●	●	●	●	●	●

Ⓕ Option								
Blank	Non-locking/locking common manual override		●	●	●	●	●	●
M	Non-locking manual override		○	○	○	○	○	○
H	With exhaust check valve	*5	●	●	●	●	●	●
K	External pilot	*6	●	●	●	●	●	●
S	Surgeless	*7	●	●	●	●	●	●
E	Low exoergic/energy saving 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								
Blank	Direct mount		●	●	●	●	●	●
D	DIN rail mount		●	●	●	●	●	●

Ⓗ Station No.								
2	2 stations		●	●	●	●	●	●
to	to							
20	Refer to page 97 for the max. station numbers per model.							

Ⓘ Voltage								
3	24 VDC		●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●

is not available.

○ indicates a made-to-order product.

⚠ Precautions for model No. selection

*1: Select M4GA*80R when mixing with 3/5-port valves.
Furthermore, select M3GA*80R when mixing with masking plate.

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

*3: 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.

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

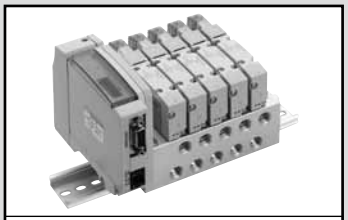
*8: Surgeless specifications.

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

***10: Specify the spacer mounting position and quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to page 105 for details.**

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

			Ⓐ Model No.					
			3GA1	3GA2	3GA3	4GA1	4GA2	4GA3
Ⓓ Reduced wiring connection (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 and surge suppressor provided as standard) 24 VDC								
T6C0	CompoBus/S	NPN 8 points	●	●	●	●	●	●
T6C1		NPN 16 points	●	●	●	●	●	●
T6G1	CC-Link	NPN 16 points	●	●	●	●	●	●
T8G1	CC-Link	NPN 16 points	●	●	●	●	●	●
T8G2		NPN 32 points	●	●	●	●	●	●
T8GP1		PNP 16 points	●	●	●	●	●	●
T8GP2		PNP 32 points	●	●	●	●	●	●
T8P1	PROFIBUS-DP	NPN 16 points	●	●	●	●	●	●
T8P2		NPN 32 points	●	●	●	●	●	●
T8PP1		PNP 16 points	●	●	●	●	●	●
T8PP2		PNP 32 points	●	●	●	●	●	●
T8EC1	EtherCAT	NPN 16 points	●	●	●	●	●	●
T8EC2		NPN 32 points	●	●	●	●	●	●
T8ECP1		PNP 16 points	●	●	●	●	●	●
T8ECP2		PNP 32 points	●	●	●	●	●	●
T8EN1	EtherNet/IP	NPN 16 points	●	●	●	●	●	●
T8EN2		NPN 32 points	●	●	●	●	●	●
T8ENP1		PNP 16 points	●	●	●	●	●	●
T8ENP2		PNP 32 points	●	●	●	●	●	●
T8D1	DeviceNet	NPN 16 points	●	●	●	●	●	●
T8D2		NPN 32 points	●	●	●	●	●	●
T8DP1		PNP 16 points	●	●	●	●	●	●
T8DP2		PNP 32 points	●	●	●	●	●	●
T8EB1	CC-Link IEF Basic	NPN 16 points	●	●	●	●	●	●
T8EB2		NPN 32 points	●	●	●	●	●	●
T8EBP1		PNP 16 points	●	●	●	●	●	●
T8EBP2		PNP 32 points	●	●	●	●	●	●
T8EP1	PROFINET	NPN 16 points	●	●	●	●	●	●
T8EP2		NPN 32 points	●	●	●	●	●	●
T8EPP1		PNP 16 points	●	●	●	●	●	●
T8EPP2		PNP 32 points	●	●	●	●	●	●
A2N	Without lead wire (without socket)	with surge suppressor and indicator lamp	●	●	●	●	●	●



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring manifold
Base side piping
Direct mount/DIN rail mount

M3GB1/2-T*(D)-FP1 Series
M4GB1/2/3-T*(D)-FP1 Series

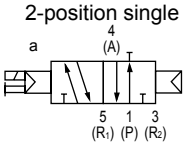
● Applicable cylinder bore size: ø20 to ø100

RoHS CAD

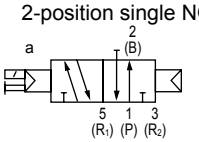
JIS symbol

● 3-port valve

2-position single NC

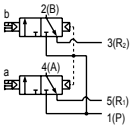


2-position single NO

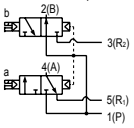


● Two 3-port valves integrated

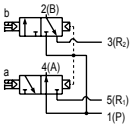
(A side valve: NC, B side valve: NC)



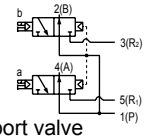
(A side valve: NC, B side valve: NO)



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

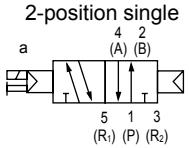


(A side valve: NO, B side valve: NO)

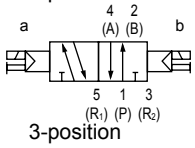


● 5-port valve

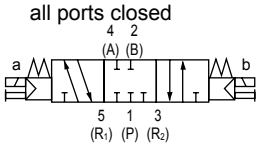
2-position single



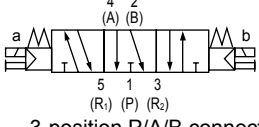
2-position double



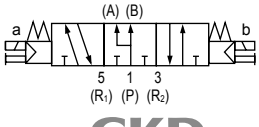
3-position all ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Descriptions		Content
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		Lateral direction 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 (*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

Descriptions		Content		
Rated voltage V		T1□, T30□, T5□		T6□, T8□
		DC24	DC12	DC24
Voltage fluctuation range (*3)		±10%		+10%, −5%
Power consumption W Holding current A	Standard	0.017	0.034	0.017
	With low exoergic/energy circuit	0.005	0.010	0.005
	Standard	0.4		
	With low exoergic/energy circuit	0.1		
Thermal class		B		
Surge suppressor (*4)		Zener diode		
Indicator		LED		

*1: Avoid water drops, 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□ 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

Descriptions		M3GB1/M4GB1	M3GB2/M4GB2	M3GB3/M4GB3
Port size	A/B Port	Push-in fitting ø4, ø6 M5	Push-in fitting ø4, ø6, ø8 Rc1/8	Push-in fitting ø6, ø8, ø10 Rc1/4
	P/R1/R2 Port	Rc1/8	Rc1/4	Rc3/8

T1□, T30□, T5□

Descriptions		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□

Descriptions		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□

Descriptions		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

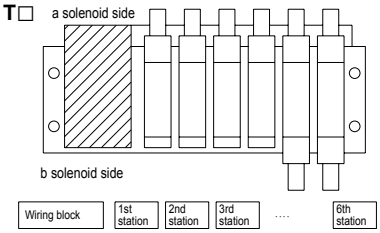
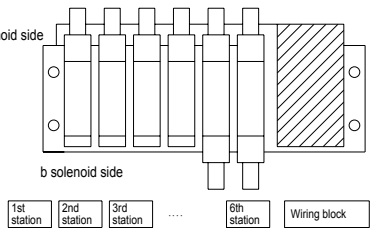
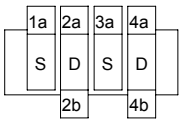
The max. station numbers of the manifold is limited by the max. number of solenoids for each of the following wiring specifications.

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

Descriptions	T10□ Common terminal block	T11□ Common terminal block	T30□ D-sub-connector	T50□ Flat cable 20-pin	T51□ Flat cable 20-pin	T52□ Flat cable 10-pin	T53□ Flat cable 26-pin
Connector and terminal block specifications	M3 thread tightening Terminal count 18	Clamping Terminal count 26	D-sub-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	**(e.g.) For T50□** Manifold specifications  1st station 3rd station 2nd station 4th station						

Standard wiring (sequential): Blank

Connector pin No.	1	2	3	4	5	6
Valve solenoid No.	1a	2a	2b	3a	4a	4b

Double wiring: W

Connector pin No.	1	2	3	4	5	6	7	8
Valve solenoid No.	1a	Blank	2a	2b	3a	Blank	4a	4b

Serial transmission slave unit specifications

Descriptions		T6G1 *1	T6C0 *2 T6C1
Network name		CC-Link	CompoBus/S
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)	
Output points		16 point	T6□0: 8 points T6□1: 16 points
Occupied No.		1 station	T6C0: 1 node address (8-point mode) T6C1: 2 node address (8-point mode)
Operation display		LED (power supply and communication status)	

*1: CC-Link is Ver. 1.10.
*2: Long-distance communication mode is not supported. Contact CKD for details on support.

Serial transmission slave unit specifications

Descriptions		T8G1 T8G2	T8GP1 T8GP2	T8P1 T8P2	T8PP1 T8PP2	T8EC1 T8EC2	T8ECP1 T8ECP2	T8EN1 T8EN2	T8ENP1 T8ENP2	T8D1 T8D2	T8DP1 T8DP2	T8EB1 T8EB2	T8EBP1 T8EBP2	T8EP1 T8EP2	T8EPP1 T8EPP2
Communication system name		CC-Link ver1.10		PROFIBUS-DP(V0)		EtherCAT		EtherNet/IP		DeviceNet		CC-Link IEF Basic		PROFINET	
Power supply voltage	Unit side	24 VDC ±10%													
	Valve side	24 VDC +10%, −5%													
Current consumption	Unit side	60 mA or less (when all output points are ON)		60 mA or less (when all output points are ON)		110 mA or less (when all output points are ON)		120 mA or less (when all output points are ON)		70 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)	
	Valve side	T8□1: 15 mA or less T8□2: 20 mA or less (when all output points are ON) Load current is not included								15 mA or less (when all output points are ON) Load current is not included					
Output points		T8□1: 16 points T8□2: 32 points													
Occupied No.		1 station													
Operation display		LED (power supply and communication status)													
Output format		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 manifold; base piping

How to order

Manifold model No.

M 4GB1 1 0 R - M5 - T30 W H D - ○ - 3 - FP1

3-port manifold model No.

M 3GB1 66 0 R - M5 - T30 W H D - ○ - 3 - FP1

● Discrete valve for mounting base

4GB1 1 9 R - 00 - A2N ○ H —— 3 - FP1

● 3-port discrete valve for mounting base

3GB1 66 9 R - 00 - A2N ○ H —— 3 - FP1

Ⓑ Solenoid position

Ⓐ Model No.

Ⓒ Port size

Ⓓ Reduced wiring connection

Ⓔ Terminal/connector pin array

Ⓕ Option

Ⓖ Mount

Ⓗ 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			P/R1/R2 Port ②=Rc1/8 ③=Rc1/4 ④=Rc3/8				
Port	4(A)/2(B) Port						
C4	ø4 Push-in fitting		②	③	②	③	
C6	ø6 Push-in fitting		②	③	②	③	④
C8	ø8 Push-in fitting	*3	②	③	②	③	④
C10	ø10 Push-in fitting	*3		③		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 mounting 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	Non-locking/locking common manual override		●	●	●	●	●
M	Non-locking manual override		○	○	○	○	○
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 integrated	*10	●	●	●	●	●
Z1	Air supply spacer	*11	●	●	●	●	●
Z2	In-stop valve spacer	*11, *12	●	●	●	●	●
Z3	Exhaust spacer	*11	●	●	●	●	●

Ⓖ Mount						
Blank	Direct mount	●	●	●	●	●
D	DIN rail mount	●	●	●	●	●

Ⓗ Station No.						
2	2 stations	●	●	●	●	●
to	to					
20	Refer to page 101 for the max. station numbers per model.					

Ⓘ Voltage						
3	24 VDC	●	●	●	●	●
4	12 VDC	●	●	●	●	●

is not available.

○ indicates a made-to-order product.

Precautions for model No. selection

*1: Select M4GB*80R when mixing with 3/5-port valves. Furthermore, select M3GB*80R when mixing with masking plate.

*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 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: Consult with CKD when using a vacuum with the external pilot (K).

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

*9: Surgeless specifications.

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

***11: Specify the spacer mounting position and quantity in the manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to page 105 for details.**

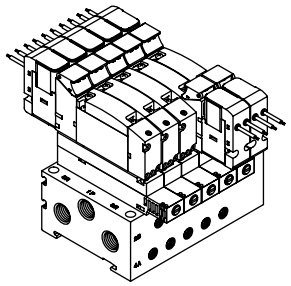
*12: Not compatible when combined with external pilot (K).

			Ⓐ Model No.				
			3GB1	3GB2	4GB1	4GB2	4GB3
Ⓓ Reduced wiring connection (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 and surge suppressor provided as standard) 24 VDC							
T6C0	CompoBus/S	NPN 8 points	●	●	●	●	●
T6C1		NPN 16 points	●	●	●	●	●
T6G1	CC-Link	NPN 16 points	●	●	●	●	●
T8G1	CC-Link	NPN 16 points	●	●	●	●	●
T8G2		NPN 32 points	●	●	●	●	●
T8GP1		PNP 16 points	●	●	●	●	●
T8GP2		PNP 32 points	●	●	●	●	●
T8P1	PROFIBUS-DP	NPN 16 points	●	●	●	●	●
T8P2		NPN 32 points	●	●	●	●	●
T8PP1		PNP 16 points	●	●	●	●	●
T8PP2		PNP 32 points	●	●	●	●	●
T8EC1	EtherCAT	NPN 16 points	●	●	●	●	●
T8EC2		NPN 32 points	●	●	●	●	●
T8ECP1		PNP 16 points	●	●	●	●	●
T8ECP2		PNP 32 points	●	●	●	●	●
T8EN1	EtherNet/IP	NPN 16 points	●	●	●	●	●
T8EN2		NPN 32 points	●	●	●	●	●
T8ENP1		PNP 16 points	●	●	●	●	●
T8ENP2		PNP 32 points	●	●	●	●	●
T8D1	DeviceNet	NPN 16 points	●	●	●	●	●
T8D2		NPN 32 points	●	●	●	●	●
T8DP1		PNP 16 points	●	●	●	●	●
T8DP2		PNP 32 points	●	●	●	●	●
T8EB1	CC-Link IEF Basic	NPN 16 points	●	●	●	●	●
T8EB2		NPN 32 points	●	●	●	●	●
T8EBP1		PNP 16 points	●	●	●	●	●
T8EBP2		PNP 32 points	●	●	●	●	●
T8EP1	PROFINET	NPN 16 points	●	●	●	●	●
T8EP2		NPN 32 points	●	●	●	●	●
T8EPP1		PNP 16 points	●	●	●	●	●
T8EPP2		PNP 32 points	●	●	●	●	●
A2N	Without lead wire (without socket)	with surge suppressor and indicator lamp	●	●	●	●	●

M4G$^{A}_{B}$1/2/3-T6D/T8*-FP1 Series

Reduced wiring manifold; base piping

● In-stop valve spacer



Specifications

Model No.	P→A/B		A/B→R		Weight
	C [dm^3/(s·bar)]	b	C [dm^3/(s·bar)]	b	g
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

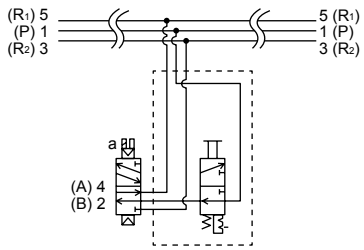
*1: Values with base piping and 2-position valve mounted.
*2: The effective cross-sectional area when discharging residual pressure is 1.0 mm^2 (reference value).
*3: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
Optional parts: PR check valve 2, body gasket 1 (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 valve | 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)11 9R- M5	○	○	○	○																					4
4G(B)12 9R- M5					○	○																			2
4G(B)15 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_2= ____ (* Write an integer multiple of 12.5.)

Included parts:

Blanking plug				Thread plug		Silencer			
GWP4-B		GWP6-B		4G1R-M5P		SLW-6S		SLW-6A	
GWP8-B									
Cable with D-sub-connector		4GR-CABLE-D0□-□							

Push-in fitting tube remover (included as standard)
☑ Not required (check the box)

If the tube remover (included as standard) is not required, place a check.

* 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.

M4GB1*OR-C8 does not have a removal tool included.

● Individual wiring…M4G (A/B) 1 (page 108), M4G (A/B) 2 (page 109), M4G (A/B) 3 (page 110)

● Reduced wiring

- Common terminal block (T1*), D-sub-connector (T30): M4G (A/B) 1 (page 111), M4G (A/B) 2 (page 112), M4G (A/B) 3 (page 113)
- Flat cable connector (T5*): M4G (A/B) 1 (page 114), M4G (A/B) 2 (page 115), M4G (A/B) 3 (page 116)
- Serial transmission (T6*): M4G (A/B) 1 (page 117), M4G (A/B) 2 (page 118), M4G (A/B) 3 (page 119)
- Serial transmission (T8*): M4G (A/B) 1 (page 120), M4G (A/B) 2 (page 121), M4G (A/B) 3 (page 122)

*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 pin No.		Installation position															
T30/T30R	T50/T50R/T6*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1	a																
14	2		a															
2	3			a														
15	4																	
3	5				a													
16	6																	
4	7					a												
17	8					b												
5	9 − Power supply						a											
18	10 + (COM) Power supply						b											
6	11							a										
19	12							b										
7	13								a									
20	14								b									
8	15									(a)								
21	16									(b)								
9	17																	
22	18																	
10	19 − Power supply																	
23	20 + (COM) Power supply																	
11																		
24																		
12																		
25																		
13 (COM)																		

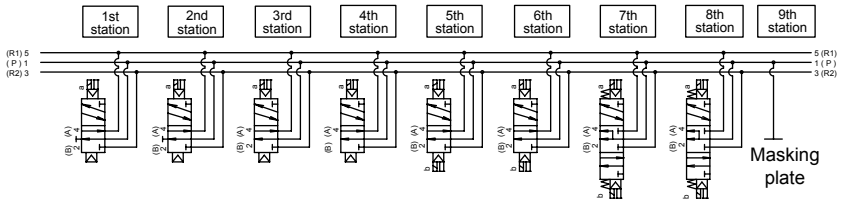
Spare cable wiring Precautions ①

* Note that when T50 wiring is used, the COM polarity is + (plus).
* When T50 wiring is used, connector pin numbers 9, 10, 19, and 20 cannot be specified, because they are used for the external input power supply.
* Wiring is sequential from connector pin No. 1 in standard wiring. Contact CKD for special wiring order.

Precautions regarding spare wiring

① Spare wires are provided on the masking plate for the reduced wiring manifold.
The number of wires for spare wiring can be specified by selecting the masking plate within the specifications.
4G *R -MP(S)…1 piece
4G *R -MP(D)…2 pieces
Indicate (a) or (b) in manifold specifications sheet for masking plate reserved wires.

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 valve / Solenoid position / Port size / Electrical connections / Other options / Mount / 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 ☐ 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 parts	Blanking plug				Thread plug		Silencer			
L_2= ☐ * Write an integer multiple of 12.5.		GWP4-B	☐	GWP6-B	☐	4G1R-M5P	☐	SLW-6S	☐	SLW-6A	☐
		GWP8-B	☐		☐						
		Push-in fitting tube remover (included as standard) ☐Not required (check)									

* M4GB1 C8 does not have a tube removal tool included.

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 valve | Solenoid position | Port size | Electrical connections | Other options | Mount | 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 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 parts:

Blanking plug				Thread plug		Silencer			
GWP4-B		GWP6-B		4G2R-06P		SLW-8S		SLW-8A	
GWP8-B		GWP10-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 valve | Solenoid position | Port size | Electrical connections | Other options | Mount | 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- ☐																									
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						Thread plug		Silencer			
			GWP6-B		GWP8-B		GWP10-B		4G3R-08P		SLW-10A		SLW-10L	

M4G1 Reduced wiring

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 valve | Solenoid position | Port size | Reduced wiring connection | Terminal/connector pin array | Option | Mount | 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 ☐ 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				Thread plug		Silencer			
GWP4-B	☐	GWP6-B	☐	4G1R-M5P	☐	SLW-6S	☐	SLW-6A	☐
GWP8-B	☐		☐						
Cable with D-sub-connector	4GR-CABLE-D0☐-☐	☐		Push-in fitting tube remover (included as standard) ☐Not required (check)					

* M4GB C8 does not have a tube removal tool included.

● 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 valve | Solenoid position | Port size | Reduced wiring connection | Terminal/connector pin array | Option | Mount | 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 □ 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					Thread plug		Silencer			
GWP4-B		GWP6-B			4G2R-06P		SLW-8S		SLW-8A	
GWP8-B		GWP10-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																									

M4G3 Reduced wiring

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 valve / Solenoid position / Port size / Reduced wiring connection / Terminal/connector pin array / Option / Mount / 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 parts:

Blanking plug						Thread plug		Silencer			
GWP6-B ☐	**GWP8-B** ☐	**GWP10-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 valve | Solenoid position | Port size | Reduced wiring connection | Terminal/connector pin array | Option | Mount | 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 □ 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				Thread plug		Silencer			
GWP4-B		**GWP6-B**		**4G1R-M5P**		**SLW-6S**		**SLW-6A**	
GWP8-B									

Push-in fitting tube remover (included as standard) ☐Not required (check the box)

* M4GB C8 does not have a tube removal tool included.

● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

Connector pin No. T50/T50R	T51/T51R	T52/T52R	T53/T53R	Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1																								
2	2	2	2																								
3	3	3	3																								
4	4	4	4																								
5	5	5	5																								
6	6	6	6																								
7	7	7	7																								
8	8	8	8																								
9 − Power supply	9	9 COM	9																								
10 + (COM) Power supply	10	10 COM	10																								
11	11		11																								
12	12		12																								
13	13		13																								
14	14		14																								
15	15		15																								
16	16		16																								
17	17		17																								
18	18		18																								
19 − Power supply	19 COM		19																								
20 + (COM) Power supply	20 COM		20																								
			21																								
			22																								
			23																								
			24																								
			25 COM																								
			26 COM																								

* Note that when T50 wiring is used, the COM polarity is + (plus).
* When T50 wiring is used, connector pin numbers 9, 10, 19, and 20 cannot be specified, because they are used for the external input power supply.

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 valve · Solenoid position · Port size · Reduced wiring connection · Terminal/connector pin array · Option · Mount · 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 ☐ 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				Thread plug		Silencer			
GWP4-B		GWP6-B		4G2R-06P		SLW-8S		SLW-8A	
GWP8-B		GWP10-B							

* 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. T50/T50R	T51/T51R	T52/T52R	T53/T53R	Installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	1																								
2	2	2	2																								
3	3	3	3																								
4	4	4	4																								
5	5	5	5																								
6	6	6	6																								
7	7	7	7																								
8	8	8	8																								
9 − Power supply	9	9 COM	9																								
10 + (COM) Power supply	10	10 COM	10																								
11	11		11																								
12	12		12																								
13	13		13																								
14	14		14																								
15	15		15																								
16	16		16																								
17	17		17																								
18	18		18																								
19 − Power supply	19 COM		19																								
20 + (COM) Power supply	20 COM		20																								
			21																								
			22																								
			23																								
			24																								
			25 COM																								
			26 COM																								

* Note that when T50 wiring is used, the COM polarity is + (plus).
* When T50 wiring is used, connector pin numbers 9, 10, 19, and 20 cannot be specified, because they are used for the external input power supply.

M4G$^{A}_{B}$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 valve | Solenoid position | Port size | Reduced wiring connection | Terminal/connector pin array | Option | Mount | 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 parts:

Blanking plug						Thread plug		Silencer			
GWP6-B	☐	GWP8-B	☐	GWP10-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 supply	10	10 COM	10																								
11	11		11																								
12	12		12																								
13	13		13																								
14	14		14																								
15	15		15																								
16	16		16																								
17	17		17																								
18	18		18																								
19 − Power supply	19 COM		19																								
20 + (COM) Power supply	20 COM		20																								
			21																								
			22																								
			23																								
			24																								
			25 COM																								
			26 COM																								

* When T50 wiring is used, the COM polarity is + (positive).
* When T50 wiring is used, connector pin numbers 9, 10, 19, and 20 cannot be specified, because they are used for the external input power supply.

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 valve · 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	Qty.
4G ☐ 1 ☐ 9R- ☐																	
4G ☐ 1 ☐ 9R- ☐																	
4G ☐ 1 ☐ 9R- ☐																	
4G ☐ 1 ☐ 9R- ☐																	
4G ☐ 1 ☐ 9R- ☐																	
3G ☐ 1 ☐ 9R- ☐																	
3G ☐ 1 ☐ 9R- ☐																	
Masking plate **4G1R-MP (S) -** ☐																	
Masking plate **4G1R-MP (D) -** ☐																	
Air supply spacer **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				Thread plug		Silencer			
GWP4-B	☐	GWP6-B	☐	4G1R-M5P	☐	SLW-6S	☐	SLW-6A	☐
GWP8-B	☐		☐						
Push-in fitting tube remover (included as standard) ☐Not required (check the box)									

* M4GB C8 does not have a tube removal tool included.

● 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
	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
T6C0: CompoBus/S 8 points	9																
T6C1: CompoBus/S 16 points	10 COM																
	11																
T6G1: CC-Link 16 points	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 valve | 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	Qty.
4G ☐ 2 ☐ 9R- ☐																	
4G ☐ 2 ☐ 9R- ☐																	
4G ☐ 2 ☐ 9R- ☐																	
4G ☐ 2 ☐ 9R- ☐																	
4G ☐ 2 ☐ 9R- ☐																	
3G ☐ 2 ☐ 9R- ☐																	
3G ☐ 2 ☐ 9R- ☐																	
Masking plate **4G2R-MP (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				Thread plug		Silencer			
GWP4-B	☐	**GWP6-B**	☐	**4G2R-06P**	☐	**SLW-8S**	☐	**SLW-8A**	☐
GWP8-B	☐	**GWP10-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.		Installation position
T6*		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
T6C0: CompoBus/S 8 points	9																
T6C1: CompoBus/S 16 points	10 COM																
	11																
T6G1: CC-Link 16 points	12																
	13																
	14																
	15																
	16																
	17																
	18																
	19																
	20 COM																

M4G3 Serial transmission

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 valve · 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	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	Included parts	Blanking plug						Thread plug		Silencer			
L_2= □ * Write an integer multiple of 12.5.		GWP6-B		GWP8-B		GWP10-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
	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
T6C0: CompoBus/S 8 points	9																
T6C1: CompoBus/S 16 points	10 COM																
T6G1: CC-Link 16 points	11																
	12																
	13																
	14																
	15																
	16																
	17																
	18																
	19																
	20 COM																

M4G$^{A}_{B}$1-T8-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- - - -3 -FP1

Solenoid valve | Solenoid position | Port size | Serial transmission | Terminal/connector pin array | Option | Mount | 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	Qty.
4G 1 9R-																					
4G 1 9R-																					
4G 1 9R-																					
4G 1 9R-																					
4G 1 9R-																					
3G 1 9R-																					
3G 1 9R-																					
Masking plate **4G1R-MP (S) -**																					
Masking plate **4G1R-MP (D) -**																					
Air supply spacer **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				Thread plug		Silencer			
GWP4-B		GWP6-B		4G1R-M5P		SLW-6S		SLW-6A	
GWP8-B									
Push-in fitting tube remover (included as standard) ☐Not required (check the box)									

* M4GB C8 does not have a tube removal tool included.

● 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-point	1																			
T8G2			32-point	2																			
T8GP1		PNP	16-point	3																			
T8GP2			32-point	4																			
T8P1	PROFIBUS-DP	NPN	16-point	5																			
T8P2			32-point	6																			
T8PP1		PNP	16-point	7																			
T8PP2			32-point	8																			
T8EC1	EtherCAT	NPN	16-point	9																			
T8EC2			32-point	10																			
T8ECP1		PNP	16-point	11																			
T8ECP2			32-point	12																			
T8EN1	EtherNet/IP	NPN	16-point	13																			
T8EN2			32-point	14																			
T8ENP1		PNP	16-point	15																			
T8ENP2			32-point	16																			
T8D1	DeviceNet	NPN	16-point	17																			
T8D2			32-point	18																			
T8DP1		PNP	16-point	19																			
T8DP2			32-point	20																			
T8EB1	CC-Link IEF Basic	NPN	16-point	21																			
T8EB2			32-point	22																			
T8EBP1		PNP	16-point	23																			
T8EBP2			32-point	24																			
T8EP1	PROFINET	NPN	16-point	25																			
T8EP2			32-point	26																			
T8EPP1		PNP	16-point	27																			
T8EPP2			32-point	28																			
				29																			
				30																			
				31																			
				32																			

M4G2 Serial transmission - thin

M4G$^{A}_{B}$2-T8-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- ☐ - ☐ ☐ ☐ ☐ - ☐ - 3 -FP1

Solenoid valve · Solenoid position · Port size · Serial transmission · Terminal/connector pin array · Option · Mount · 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	Qty.
4G ☐ 2 ☐ 9R- ☐																					
4G ☐ 2 ☐ 9R- ☐																					
4G ☐ 2 ☐ 9R- ☐																					
4G ☐ 2 ☐ 9R- ☐																					
4G ☐ 2 ☐ 9R- ☐																					
3G ☐ 2 ☐ 9R- ☐																					
3G ☐ 2 ☐ 9R- ☐																					
Masking plate **4G2R-MP (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				Thread plug		Silencer			
GWP4-B		GWP6-B		4G2R-06P		SLW-8S		SLW-8A	
GWP8-B		GWP10-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-point	1																			
T8G2			32-point	2																			
T8GP1		PNP	16-point	3																			
T8GP2			32-point	4																			
T8P1	PROFIBUS-DP	NPN	16-point	5																			
T8P2			32-point	6																			
T8PP1		PNP	16-point	7																			
T8PP2			32-point	8																			
T8EC1	EtherCAT	NPN	16-point	9																			
T8EC2			32-point	10																			
T8ECP1		PNP	16-point	11																			
T8ECP2			32-point	12																			
T8EN1	EtherNet/IP	NPN	16-point	13																			
T8EN2			32-point	14																			
T8ENP1		PNP	16-point	15																			
T8ENP2			32-point	16																			
T8D1	DeviceNet	NPN	16-point	17																			
T8D2			32-point	18																			
T8DP1		PNP	16-point	19																			
T8DP2			32-point	20																			
T8EB1	CC-Link IEF Basic	NPN	16-point	21																			
T8EB2			32-point	22																			
T8EBP1		PNP	16-point	23																			
T8EBP2			32-point	24																			
T8EP1	PROFINET	NPN	16-point	25																			
T8EP2			32-point	26																			
T8EPP1		PNP	16-point	27																			
T8EPP2			32-point	28																			
				29																			
				30																			
				31																			
				32																			

M4G$^{A}_{B}$3-T8-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- ☐ - ☐ ☐ ☐ ☐ - ☐ - 3 -FP1

Solenoid valve | Solenoid position | Port size | Serial transmission | Terminal/connector pin array | Option | Mount | 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	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 parts

Blanking plug						Thread plug		Silencer			
GWP6-B		GWP8-B		GWP10-B		4G3R-08P		SLW-10A		SLW-10L	

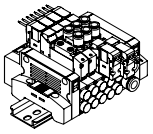
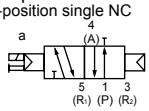
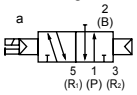
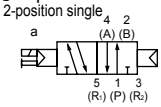
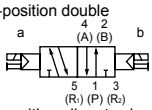
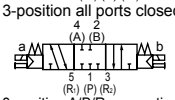
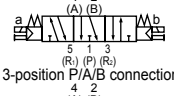
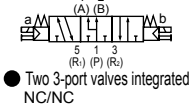
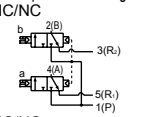
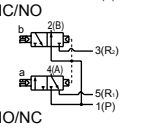
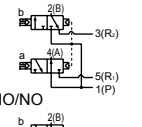
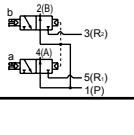
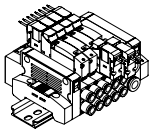
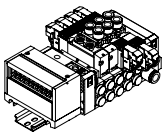
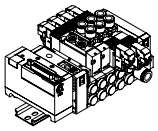
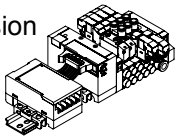
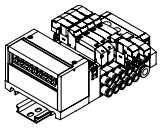
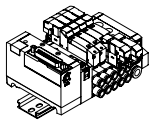
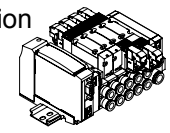
● Wiring specifications sheet (Not required for standard wiring/double wiring. Complete these specifications when specifying the wiring order and additional cables)

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-point	1															
T8G2			32-point	2															
T8GP1		PNP	16-point	3															
T8GP2			32-point	4															
T8P1	PROFIBUS-DP	NPN	16-point	5															
T8P2			32-point	6															
T8PP1		PNP	16-point	7															
T8PP2			32-point	8															
T8EC1	EtherCAT	NPN	16-point	9															
T8EC2			32-point	10															
T8ECP1		PNP	16-point	11															
T8ECP2			32-point	12															
T8EN1	EtherNet/IP	NPN	16-point	13															
T8EN2			32-point	14															
T8ENP1		PNP	16-point	15															
T8ENP2			32-point	16															
T8D1	DeviceNet	NPN	16-point	17															
T8D2			32-point	18															
T8DP1		PNP	16-point	19															
T8DP2			32-point	20															
T8EB1	CC-Link IEF Basic	NPN	16-point	21															
T8EB2			32-point	22															
T8EBP1		PNP	16-point	23															
T8EBP2			32-point	24															
T8EP1	PROFINET	NPN	16-point	25															
T8EP2			32-point	26															
T8EPP1		PNP	16-point	27															
T8EPP2			32-point	28															
				29															
				30															
				31															
				32															

Series variation

MN4GA/4GB-FP1 Series

* Refer to page 77 for metal base (integrated).
* Refer to page 161 for the master valve.

Appearance series			Model No.	Electrical connections	Position Number of solenoid valves JIS symbol	Valve performance: Flow characteristics C [dm³/(s·bar)] *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	AC100 AC200 DC24 DC12 (*2)	
			MN4GA2	Blank -E□ -B		2.2 to 2.5	ø40 to ø80		
	Base side 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 manifold	Body piping	Terminal block MN4GA280R 	MN4GA1 (N3GA1) (N4GA1)	-T10 -T11 (-A2N)		1.0 to 1.2	ø20 to ø40	DC24 DC12	
			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	DC24 DC12	
			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	DC24	
			MN4GA2 (N3GA2) (N4GA2)			2.2 to 2.5	ø40 to ø80		
	Base side piping	Terminal block MN4GB180R 	MN4GB1 (N4GB1)	-T10 -T11 (-A2N)		1.0 to 1.2	ø20 to ø40	DC24 DC12	
			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	DC24 DC12	
			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	DC24	
			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 × 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
			2-position			3-position				Push-in fitting			Female thread		Single unit, individual wiring				Reduced wiring											
	Normally closed	Normally open	Single	Double	All ports closed	ABR connection	PAB connection	Two 3-port valves integrated	Mix	ø4	ø6	ø8	M5	Rc1/8	Grommet lead (*2)	E-connector	EJ-connector	DIN terminal box	A-connector (*4)	Common terminal block	D-sub-connector	Flat cable with power supply terminal	Flat cable without power supply terminal	Serial transmission						
										C4	C6	C8	M5	06	Blank	E□	E□J	B□	A2N	T1□	T30	T50	T5□	T6□	T7□	T8□				
	●	●	●	●	●	●	●	○	●	●	●		●		●	●	●													127
	●	●	●	●	●	●	●	○	●		●	●		●	●	●	●	●												
			●	●	●	●	●	○	●	●	●				●	●	●														131
			●	●	●	●	●	○	●		●	●			●	●	●	●												
	●	●	●	●	●	●	●	○	●	●	●		●						●	●											135
	●	●	●	●	●	●	●	○	●		●	●		●																
	●	●	●	●	●	●	●	○	●	●	●		●						●		●	●	●							
	●	●	●	●	●	●	●	○	●		●	●		●																
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	●	●	●	●	●	●	●	○	●		●	●		●																
			●	●	●	●	●	○	●	●	●								●	●											139
			●	●	●	●	●	○	●		●	●																		
			●	●	●	●	●	○	●	●	●										●	●	●							
			●	●	●	●	●	○	●		●	●																		
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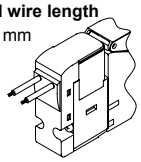
			●	●	●	●	●	○	●		●	●																		

Electrical connections

Discrete valve/individual wiring manifold

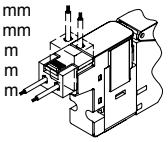
Blank Grommet lead wire (I)

● **Lead wire length**
300 mm

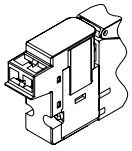


EO E-connector (I)

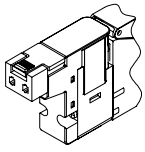
● **Lead wire length**
300 mm
500 mm
1 m
2 m
3 m



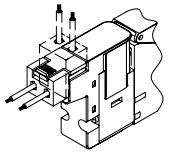
E0N E-connector without socket



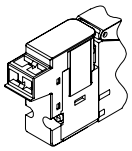
E1 E-connector with socket/terminal



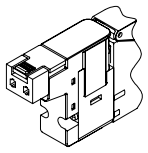
E2 E-connector (I)(S)(L)



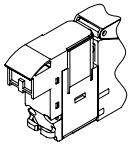
E2N E-connector without socket (S)(L)



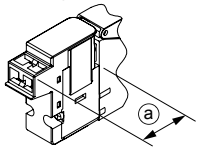
E3 E-connector with socket/terminal (S)(L)



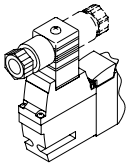
A2N A-connector downward without socket



● For AC voltage, (a) dimension is 3.5 mm longer than DC voltage.

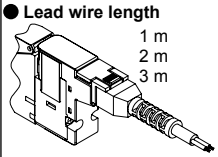


B BN DIN terminal box (BN: Without terminal box)

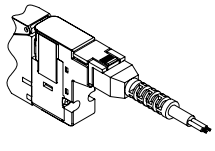


EO*J EJ-connector (I)

● **Lead wire length**
1 m
2 m
3 m

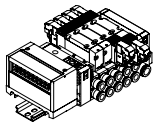


E2*J EJ-connector (I)(S)(L)

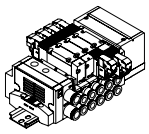


Reduced wiring manifold

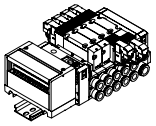
T10 Common terminal block M3 thread specifications (left side)



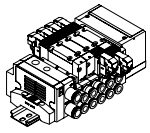
T10R Common terminal block M3 thread specifications (right side)



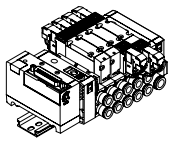
T11 Common terminal block Clamping specification (left side)



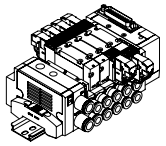
T11R Common terminal block Clamping specification (right side)



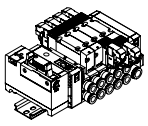
T30 D-sub-connector (left side)



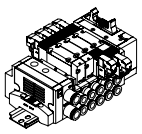
T30R D-sub-connector (right side)



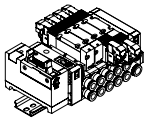
T50 Flat cable with power supply terminal (left side)



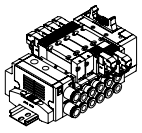
T50R Flat cable with power supply terminal (right side)



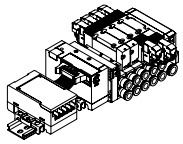
T5$^{1}_{3}$ Flat cable without power supply terminal (left side)



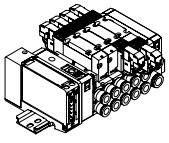
T5$^{1}_{3}$R Flat cable without power supply terminal (right side)



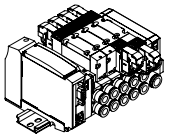
T6*0 T6*1 Serial transmission



T7*0 T7*1 Serial transmission Thin slot



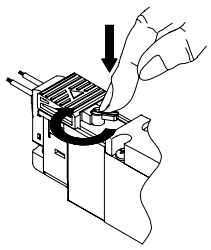
T8*1 T8*2 Serial transmission Thin slot



Manual override

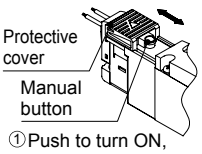
Blank Non-locking/locking common

(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 anti-clockwise to unlock OFF

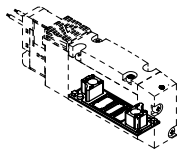
M Non-locking



① Push to turn ON, release to turn OFF

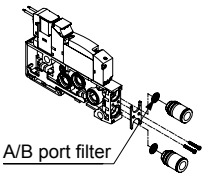
Other options

H With exhaust check valve

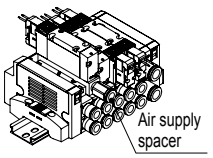


Standard for pilot exhaust

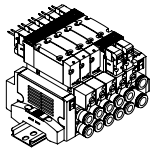
F Port A/B filter integrated



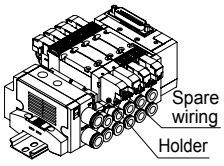
Z1 Z3 Air supply spacer Exhaust spacer



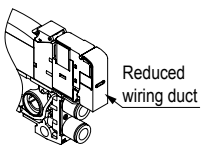
Z2 In-stop valve spacer



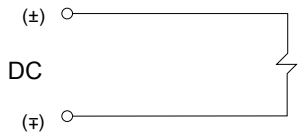
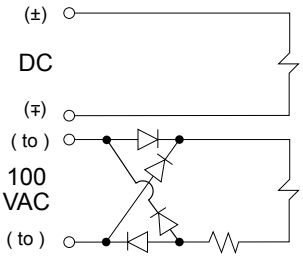
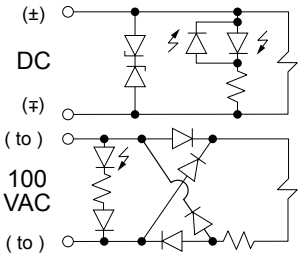
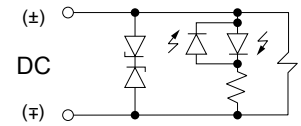
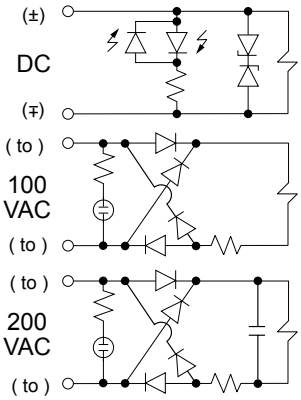
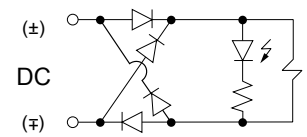
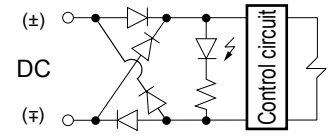
W1 Single spare wiring

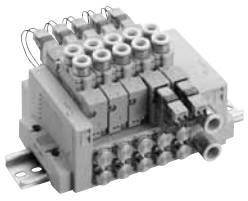


Q Reduced wiring duct



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		●				
E0	E-connector		●				
E0*J	EJ-connector		●				
E0N	E-connector					●	
E1	E-connector	●					
E2	E-connector		●	●	●		
E2*J	EJ-connector		●	●	●		
E2N	E-connector			●	●	●	
E3	E-connector	●		●	●		
A2N	A-connector			●	●	●	
B	DIN terminal box	●		●	●		
BN	DIN terminal box (without terminal box)						
Option S E2	E-connector		●	●	●		
Option S E2*J	EJ-connector		●	●	●		
Option S E2N	E-connector			●	●	●	
Option S A2N	A-connector			●	●	●	
Option E E2	E-connector		●	●	●		
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

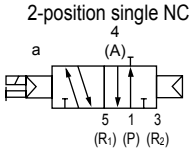
● Applicable cylinder bore size: ø20 to ø80

RoHS CAD

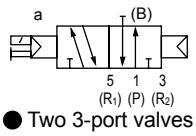
JIS symbol

● 3-port valve

2-position single NC

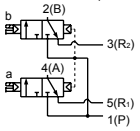


2-position single NO

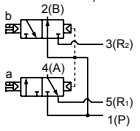


● Two 3-port valves integrated

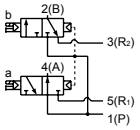
(A side valve: NC, B side valve: NC)



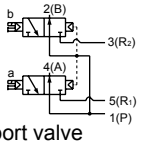
(A side valve: NC, B side valve: NO)



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

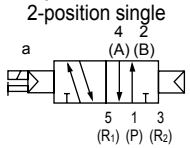


(A side valve: NO, B side valve: NO)

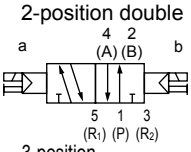


● 5-port valve

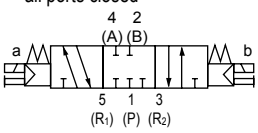
2-position single



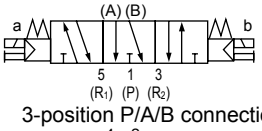
2-position double



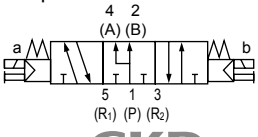
3-position
all ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Descriptions	Content
Manifold	Block manifolds
Mounting method	DIN rail mount
Air supply and exhaust method	Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
Piping direction	Valve top direction
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2 *3
Proof pressure MPa	1.05
Ambient temperature °C	−5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common (standard)
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 (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

Descriptions		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)
	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 attached. In addition, the type with low exoergic/energy circuit is only available with lamp.

Individual specifications

Descriptions			MN3GA1/MN4GA1	MN3GA2/MN4GA2
Max. station No.			24 stations	20 stations
Port size	Metric fitting/ M5, Rc thread	A/B Port	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

Descriptions			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 —
		ABR connection	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 × 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

Discrete 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	Content	Ⓐ 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
Ⓑ 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	3-port valve Two valves integrated *2: A side valve: Normally closed / B side valve: Normally open	○	○			○	○		
76	3-port valve Two valves integrated *2: A side valve: Normally open / B side valve: Normally closed	○	○			○	○		
77	3-port valve Two valves integrated *2: 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	Non-locking/locking common manual override	●	●	●	●	●	●	●	●
M	Non-locking manual override	●	●	●	●	●	●	●	●
H	With exhaust check valve *4	●	●	●	●	●	●	●	●
S	Surgeless *5	●	●	●	●	●	●	●	●
E	Low exoergic/energy saving circuit *5, *6	●	●	●	●	●	●	●	●
F	Port A/B filter integrated *7	●	●	●	●	●	●	●	●
Z1	Air supply spacer *8	●	●	●	●				
Z2	In-stop valve spacer *8, *9	●	●	●	●				
Z3	Exhaust spacer *8	●	●	●	●				
Ⓕ Station No.									
1	1 station	●	●	●	●				
to	to								
24	24 stations (Max. station number for MN3GA2/MN4GA2 is 20.)								
Ⓖ Voltage									
1	100 VAC (rectifier circuit integrated)	●	●	●	●	●	●	●	●
2	200 VAC (rectifier circuit integrated) *9		●		●		●		●
3	24 VDC	●	●	●	●	●	●	●	●
4	12 VDC	●	●	●	●	●	●	●	●

is not available.
○ indicates a made-to-order product.

⚠ Precautions for model selection

*1: Specify the port P/R bore size with the supply and exhaust block model No. in the manifold specifications sheet.
*2: Select MN4GA*80 when mixing with 4/5-port valves. Further, select MN3GA*80 when mixing with masking plate.
*3: Push-in fitting cannot be mixed with the single valve 4(A) or 2(B) port.
***4: 3-position all ports closed and PAB connection are not provided with the exhaust check valve (H).**
*5: In addition, 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 and quantity in manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 149 to 150 for details.**
*9: Only the DIN terminal box is supported.

[Electrical connection list]

		Ⓐ 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
Ⓓ Electrical connections									
Blank	Grommet lead wire (300 mm) *10	●	●	●	●	●	●	●	●
B	DIN terminal box (Pg7) With surge suppressor/lamp *11		●		●		●		●
BN	DIN terminal box (Pg7) (without terminal box) With surge suppressor *11		●		●		●		●
E-connector (upward/lateral direction common)									
E0	Lead wire (300 mm) *12	●	●	●	●	●	●	●	●
E00	Lead wire (500 mm) *12	●	●	●	●	●	●	●	●
E01	Lead wire (1000 mm) *12	●	●	●	●	●	●	●	●
E02	Lead wire (2000 mm) *12	●	●	●	●	●	●	●	●
E03	Lead wire (3000 mm) *12	●	●	●	●	●	●	●	●
E0N	Without lead wire (without socket) *12	●	●	●	●	●	●	●	●
E1	Without lead wire (socket/terminal included) *14	●	●	●	●	●	●	●	●
E2	Lead wire (300 mm) With surge suppressor/lamp	●	●	●	●	●	●	●	●
E20	Lead wire (500 mm) With surge suppressor/lamp	●	●	●	●	●	●	●	●
E21	Lead wire (1000 mm) With surge suppressor/lamp	●	●	●	●	●	●	●	●
E22	Lead wire (2000 mm) With surge suppressor/lamp	●	●	●	●	●	●	●	●
E23	Lead wire (3000 mm) With surge suppressor/lamp	●	●	●	●	●	●	●	●
E2N	Without lead wire (without socket) With surge suppressor/lamp	●	●	●	●	●	●	●	●
E3	Without lead wire (with socket/terminal) With surge suppressor/lamp	●	●	●	●	●	●	●	●
EJ-connector (socket with cover, upward/lateral direction common)									
E01J	Lead wire (1000 mm) *12	●	●	●	●	●	●	●	●
E02J	Lead wire (2000 mm) *12	●	●	●	●	●	●	●	●
E03J	Lead wire (3000 mm) *12	●	●	●	●	●	●	●	●
E21J	Lead wire (1000 mm) With surge suppressor/lamp	●	●	●	●	●	●	●	●
E22J	Lead wire (2000 mm) With surge suppressor/lamp	●	●	●	●	●	●	●	●
E23J	Lead wire (3000 mm) With surge suppressor/lamp	●	●	●	●	●	●	●	●

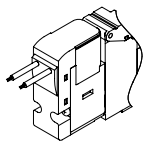
*10: The grommet lead wire specifications are compatible with DC voltage only.
*11: A lamp comes with the terminal box.
*12: AC voltage includes a rectifier circuit.

Electrical connections

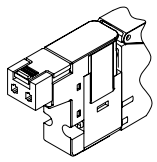
Discrete valve/individual wiring manifold

Blank Grommet lead wire

● **Lead wire length**
300 mm

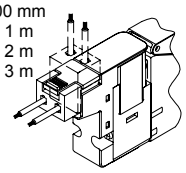


E1 E3 E-connector with socket/terminal

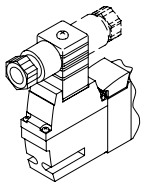


E0 E2 E-connector

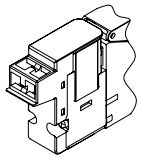
● **Lead wire length**
300 mm
500 mm
1 m
2 m
3 m



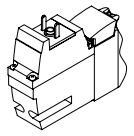
B DIN terminal box



E0N E2N E-connector without socket

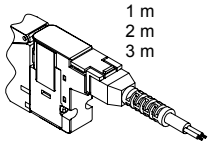


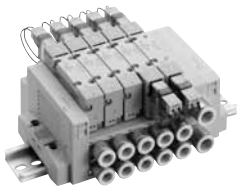
BN DIN terminal box without terminal box



E0*J E2*J EJ-connector

● **Lead wire length**
1 m
2 m
3 m





Pneumatic Valves
Catalog No. CB-023SA

Individual wiring block manifold
Base side piping

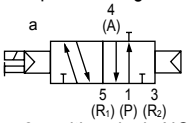
MN4GB1/2-FP1 Series

● Applicable cylinder bore size: ø20 to ø80

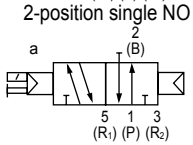
JIS symbol

● 3-port valve

2-position single NC

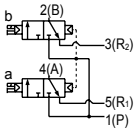


2-position single NO

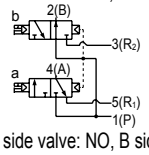


● Two 3-port valves integrated

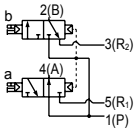
(A side valve: NC, B side valve: NC)



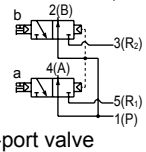
(A side valve: NC, B side valve: NO)



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

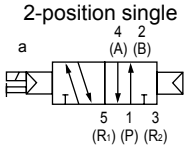


(A side valve: NO, B side valve: NO)

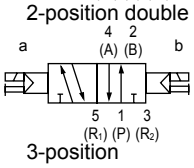


● 5-port valve

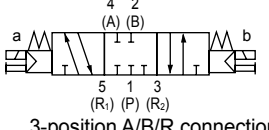
2-position single



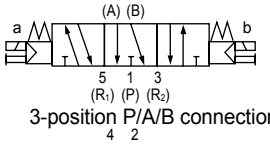
2-position double



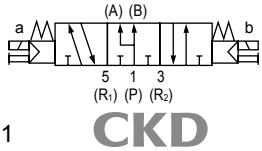
3-position
all ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Descriptions	Content
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	Lateral direction 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 *3
Proof pressure MPa	1.05
Ambient temperature °C	−5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common (standard)
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 (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

Descriptions		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)
	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

Descriptions			M3GB1/M4GB1	M3GB2/M4GB2
Max. station No.			24 stations	20 stations
Port size	Metric fitting	A/B Port	Push-in fitting ø4, ø6	Push-in fitting ø6, ø8
		P/R Port	Push-in fitting ø6, ø8	Push-in fitting ø8, ø10

Descriptions			MN3GB1/MN4GB1		MN3GB2/MN4GB2	
			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
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 —
		ABR connection	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 × C.
*2: Values in ( ) are with the exhaust check valve.

MN4GB1/2-FP1 Series

Individual wiring 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

Discrete 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	Content		Ⓐ Model No. Manifold: 3-port valve Two valves integrated MN3GB1	MN3GB2	5-port valve MN4GB1	MN4GB2	Discrete valve block with solenoid valve /Discrete solenoid valve (N) 3GB1	(N) 3GB2	(N) 4GB1	(N) 4GB2
Ⓑ 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	A Port	B Port								
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 mounting base						●	●	●	●
Ⓓ Electrical connections										
Refer to the next page for electrical connections.										
Ⓔ Option										
Blank	Non-locking/locking common manual override		●	●	●	●	●	●	●	●
M	Non-locking manual override		●	●	●	●	●	●	●	●
H	With exhaust check valve *6		●	●	●	●	●	●	●	●
S	Surgeless *7		●	●	●	●	●	●	●	●
E	Low exoergic/energy saving circuit *7, *8		●	●	●	●	●	●	●	●
F	Port A/B filter integrated *9		●	●	●	●	●	●	●	●
Z1	Air supply spacer *10		●	●	●	●				
Z2	In-stop valve spacer *10		●	●	●	●				
Z3	Exhaust spacer *10		●	●	●	●				
Ⓕ Station No.										
1	1 station		●	●	●	●				
to	to									
24	24 stations (Max. station number for MN4GB2 is 20.)									
Ⓖ Voltage										
1	100 VAC (rectifier circuit integrated)		●	●	●	●	●	●	●	●
2	200 VAC (rectifier circuit integrated) *11			●		●		●		●
3	24 VDC		●	●	●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●	●	●

is not available. ○ indicates a made-to-order product.

⚠ Precautions for model selection

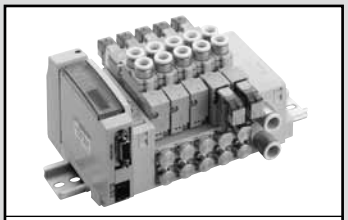
*1: Ports A and B plug specifications are available for 2-position single only.
Specify the port P/R bore size with the supply and exhaust block model No. in the manifold specifications sheet.
*2: Ports A and B are the same size for radial push-in fitting mix (CX).
*3: For a discrete solenoid valve, select "00" for port size.
*4: Select MN4GB*80R when mixing with 4/5-port valves. Further, select MN3GB*80R when mixing with masking plate.
*5: The push-in fitting cannot be mixed with the discrete valve's 4(A) or 2(B) port.
***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 and quantity in manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Only single solenoid can be selected together with radial push-in fitting (upward). Refer to pages 149 to 150 for details.**
*11: Only the DIN terminal box is supported.

[Electrical connection list]

Code	Content		Ⓐ 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)	*12	●	●	●	●	●	●	●	●
B	DIN terminal box (Pg7)	With surge suppressor/lamp *13		●		●		●		●
BN	DIN terminal box (Pg7) (without terminal box)	With surge suppressor/lamp *13		●		●		●		●
E-connector (upward/lateral direction 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 included)	*14	●	●	●	●	●	●	●	●
E2	Lead wire (300 mm)	With surge suppressor/lamp	●	●	●	●	●	●	●	●
E20	Lead wire (500 mm)	With surge suppressor/lamp	●	●	●	●	●	●	●	●
E21	Lead wire (1000 mm)	With surge suppressor/lamp	●	●	●	●	●	●	●	●
E22	Lead wire (2000 mm)	With surge suppressor/lamp	●	●	●	●	●	●	●	●
E23	Lead wire (3000 mm)	With surge suppressor/lamp	●	●	●	●	●	●	●	●
E2N	Without lead wire (without socket)	With surge suppressor/lamp	●	●	●	●	●	●	●	●
E3	Without lead wire (with socket/terminal)	With surge suppressor/lamp	●	●	●	●	●	●	●	●
EJ-connector (socket with cover, upward/lateral direction 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/lamp	●	●	●	●	●	●	●	●
E22J	Lead wire (2000 mm)	With surge suppressor/lamp	●	●	●	●	●	●	●	●
E23J	Lead wire (3000 mm)	With surge suppressor/lamp	●	●	●	●	●	●	●	●

is not available.

*12: The grommet lead wire specifications are compatible with DC voltage only.
*13: A lamp comes with the terminal box.
*14: AC voltage includes a rectifier circuit.



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring block manifold
Body piping

MN4GA1/2-T*-FP1 Series

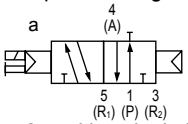
● Applicable cylinder bore size: ø20 to ø80

RoHS CAD

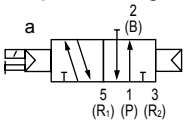
JIS symbol

● 3-port valve

2-position single NC

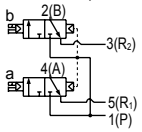


2-position single NO

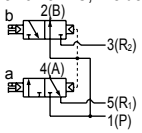


● Two 3-port valves integrated

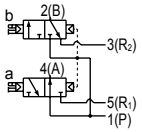
(A side valve: NC, B side valve: NC)



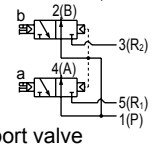
(A side valve: NC, B side valve: NO)



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

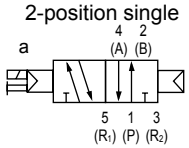


(A side valve: NO, B side valve: NO)

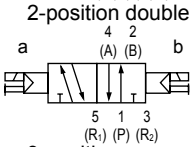


● 5-port valve

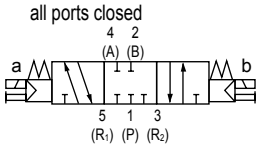
2-position single



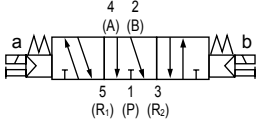
2-position double



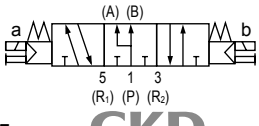
3-position
all ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Descriptions	Content
Manifold	Block manifolds
Mounting method	DIN rail mount
Air supply and exhaust method	Common supply/common exhaust (With internal exhaust check valve)
Pilot exhaust method	Main valve/pilot valve common exhaust (Pilot exhaust check valve built-in)
Piping direction	Valve top direction
Valve and operation	Pilot operated soft spool valve
Working fluid	Compressed air
Max. working pressure MPa	0.7
Min. working pressure MPa	0.2 *3
Proof pressure MPa	1.05
Ambient temperature °C	−5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common (standard)
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

Descriptions		Content		
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: 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.

*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.

Individual specifications

Descriptions			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	A/B Port	Push-in fitting ø4, ø6 M5									
		P/R Port	Push-in fitting ø6, ø8									

Descriptions			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	A/B Port	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 —
		ABR connection	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 × C.

*2: Values in ( ) are with the exhaust check valve.

Reduced wiring specifications

Descriptions	T10	T11	T30	T50	T51	T52	T53
Type	Common terminal block M3 thread	Common terminal block clamping	D-sub-connector	20-pin flat cable connector with power supply terminal	20P Flat cable connector, no power supply terminal	10P Flat cable connector, no power supply terminal	26P Flat cable connector, no 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

Descriptions		T6G1	T6C0*1	T6C1*1
Network name		CC-Link ver1.10	CompoBus/S	
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)		
Output points		16 point	8 point	16 point
Occupied No.		1 station	1 Node address (8-point mode)	2 Node address (8-point mode)
Operation display		LED (power supply and communication status)		
Output format		NPN		

Descriptions		T7C0*2	T7C1*2	T7G1	T7L1*3	T7D1	T7S1	T7SP1
Network name		CompoBus/S		CC-Link ver1.10	SAVE NET	DeviceNet*4,*5	CompoNet	
Power supply voltage	Unit side	24 VDC ±10%		24 VDC +10%, −5% Common power supply terminal				
	Valve side	24 VDC +10%, −5%						
	Communication side	—		—	—	11 to 25 VDC *6	14.0 to 26.4 VDC	
Current consumption	Unit side	50 mA or less (when all output points are ON)		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	15 mA or less (when all output points are OFF)						
	Communication side	—		—	—	50 mA or less	65 mA or less (all points ON: 24 VDC) 95 mA or less (all points ON: 14 VDC)	
Output points		8 point	16 point	16 point	16 point	16 point	16 point	
Occupied No.		1 Node address (8-point mode)	2 Node address (8-point mode)	1 station	1 station	2 bytes	Word slave 1 node (16 points)	
Operation display		LED (power supply and communication status)						
Output format		NPN					NPN	PNP

Descriptions		T8G1 / T8G2	T8GP1 / T8GP2	T8P1 / T8P2	T8PP1 / T8PP2	T8EC1 / T8EC2	T8ECP1 / T8ECP2	T8EN1 / T8EN2	T8ENP1 / T8ENP2	T8D1 / T8D2	T8DP1 / T8DP2	T8EB1 / T8EB2	T8EBP1 / T8EBP2	T8EP1 / T8EP2	T8EPP1 / T8EPP2
Communication system name		CC-Link ver1.10		PROFIBUS-DP (V0)		EtherCAT		EtherNet/IP		DeviceNet		CC-Link IEF Basic		PROFINET	
Power supply voltage	Unit side	24 VDC ±10%													
	Valve side	24 VDC +10%, −5%													
Current consumption	Unit side	60 mA or less (when all output points are ON)		60 mA or less (when all output points are ON)		110 mA or less (when all output points are ON)		120 mA or less (when all output points are ON)		70 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)		130 mA or less (when all output points are ON)	
	Valve side	T8□1: 15 mA or less T8□2: 20 mA or less (when all output points are ON) Load current is not included								15 mA or less (when all output points are ON) Load current is not included					
Output points		T8□1: 16 points T8□2: 32 points													
Occupied No.		1 station													
Operation display		LED (power supply and communication status)													
Output format		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 Long-distance communication mode is not supported.
*2 Long-distance communication mode is supported.
*3 Transmission bit rate of 128 bits and half-duplex transmission method are supported. Contact CKD for other specifications.
*4 DeviceNet compliant networks (DLNK, etc.) are supported as well.
*5 Contact CKD for EDS file. EDS file: A text file of parameters for communication with various companies' master units
*6 Communication power supply (V+ and V− of DeviceNet cable) is isolated from power supply terminals (unit power supply/valve power supply).

MN4GA1/2-T*-FP1 Series

Reduced wiring block manifold; body piping

How to order

Manifold model No.

MN4GA1 (A) (B) 0 R - (C) - (D) (E) (F) - (G) - (H) - FP1

3-port manifold model No.

MN3GA1 (A) (B) 0 R - (C) - (D) (E) (F) - (G) - (H) - FP1

Discrete valve block with solenoid valve

N4GA1 (A) (B) 0 R - (C) - A2N (*1) (F) H — (H) - FP1

Discrete 3-port valve block with solenoid valve

N3GA1 (A) (B) 0 R - (C) - A2N (*1) (F) H — (H) - FP1

* When a cable is required, refer to page 147 and specify the cable length for (*1). When not required, leave the space blank.

Discrete solenoid valve

4GA1 (B) 9 R - (C) - A2N (F) H — (H) - FP1

Discrete 3-port solenoid valve

3GA1 (B) 9 R - (C) - A2N (F) H — (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: Select MN4GA*80R when mixing with 4/5-port valves. Further, select MN3GA*80R when mixing with masking plate.

*3: Push-in fitting cannot be mixed with the single valve 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: Surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.

*8: Surgeless specifications.

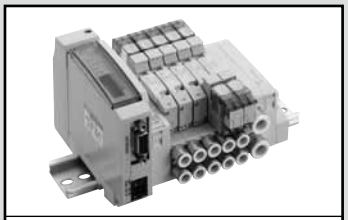
*9: A filter is built into port P as standard.

***10: Specify the spacer mounting position and quantity in manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 149 to 150 for details.**

Code	Content		(A) Model No. Manifold 3-port valve MN3GA1	MN3GA2	Manifold 5-port valve MN4GA1	MN4GA2	Discrete valve block with solenoid valve /Discrete 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									
CF	ø1.8 barbed fitting (compatible tube UP-9102-**)		●		●		●		●	
C18	ø1.8 push-in fitting (compatible tube UP-9402-**)		●		●		●		●	
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		●	●	●	●	●	●	●	●
W1	Double wiring (with single spare wiring) *4, *5		●	●	●	●	●	●	●	●
(F) Option										
Blank	Non-locking/locking common manual override		●	●	●	●	●	●	●	●
M	Non-locking manual override		●	●	●	●	●	●	●	●
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 integrated *9		●	●	●	●	●	●	●	●
Z1	Air supply spacer *10		●	●	●	●				
Z2	In-stop valve spacer *10		●	●	●	●				
Z3	Exhaust spacer *10		●	●	●	●				
(G) Station No.										
1	1 station		●	●	●	●				
to	to									
24	24 stations (Refer to page 238 for the max. station number per model)									
(H) Voltage										
3	24 VDC		●	●	●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●	●	●

is not available. ○ indicates a made-to-order product.

			Ⓐ 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 and surge suppressor provided as standard) 24 VDC										
T6C0	CompoBus/S	NPN 8 points	●	●	●	●				
T6C1		NPN 16 points	●	●	●	●				
T6G1	CC-Link	NPN 16 points	●	●	●	●				
T7C0	CompoBus/S	NPN 8 points	●	●	●	●				
T7C1		NPN 16 points	●	●	●	●				
T7D1	DeviceNet	NPN 16 points	●	●	●	●				
T7G1	CC-Link	NPN 16 points	●	●	●	●				
T7L1	SAVE NET	NPN 16 points	●	●	●	●				
T7S1	CompoNet	NPN 16 points	●	●	●	●				
T7SP1		PNP 16 points	●	●	●	●				
T8G1	CC-Link	NPN 16 points	●	●	●	●				
T8G2		NPN 32 points	●	●	●	●				
T8GP1		PNP 16 points	●	●	●	●				
T8GP2		PNP 32 points	●	●	●	●				
T8P1	PROFIBUS-DP	NPN 16 points	●	●	●	●				
T8P2		NPN 32 points	●	●	●	●				
T8PP1		PNP 16 points	●	●	●	●				
T8PP2		PNP 32 points	●	●	●	●				
T8EC1	EtherCAT	NPN 16 points	●	●	●	●				
T8EC2		NPN 32 points	●	●	●	●				
T8ECP1		PNP 16 points	●	●	●	●				
T8ECP2		PNP 32 points	●	●	●	●				
T8EN1	EtherNet/IP	NPN 16 points	●	●	●	●				
T8EN2		NPN 32 points	●	●	●	●				
T8ENP1		PNP 16 points	●	●	●	●				
T8ENP2		PNP 32 points	●	●	●	●				
T8D1	DeviceNet	NPN 16 points	●	●	●	●				
T8D2		NPN 32 points	●	●	●	●				
T8DP1		PNP 16 points	●	●	●	●				
T8DP2		PNP 32 points	●	●	●	●				
T8EB1	CC-Link IEF Basic	NPN 16 points	●	●	●	●				
T8EB2		NPN 32 points	●	●	●	●				
T8EBP1		PNP 16 points	●	●	●	●				
T8EBP2		PNP 32 points	●	●	●	●				
T8EP1	PROFINET	NPN 16 points	●	●	●	●				
T8EP2		NPN 32 points	●	●	●	●				
T8EPP1		PNP 16 points	●	●	●	●				
T8EPP2		PNP 32 points	●	●	●	●				
A2N	Without lead wire (without socket)	with surge suppressor and indicator lamp					●	●	●	●



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring block manifold
Base side piping

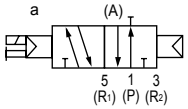
MN4GB1/2-T*-FP1 Series

● Applicable cylinder bore size: ø20 to ø80

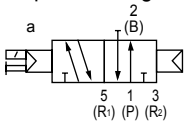
JIS symbol

● 3-port valve

2-position single NC

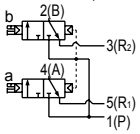


2-position single NO

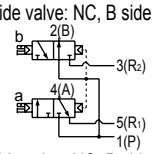


● Two 3-port valves integrated

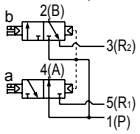
(A side valve: NC, B side valve: NC)



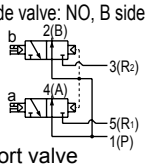
(A side valve: NC, B side valve: NO)



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

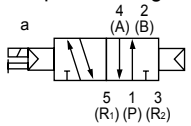


(A side valve: NO, B side valve: NO)

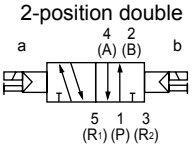


● 5-port valve

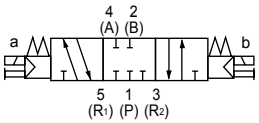
2-position single



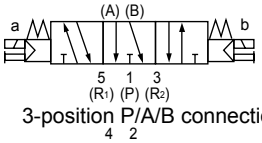
2-position double



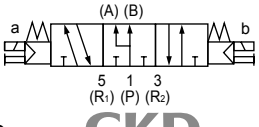
3-position
all ports closed



3-position A/B/R connection



3-position P/A/B connection



Manifold common specifications

Descriptions	Content
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	Lateral direction 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 *3
Proof pressure MPa	1.05
Ambient temperature °C	−5 to 55 (no freezing)
Fluid temperature °C	5 to 55
Manual override	Non-locking/locking common (standard)
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

Descriptions		Content		
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		

*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

Descriptions			MN3GB1/MN4GB1									
			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	A/B Port	Push-in fitting ø4, ø6									
		P/R Port	Push-in fitting ø6, ø8									

Descriptions			MN3GB2/MN4GB2									
			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	A/B Port	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 —
		ABR connection	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 with the formula S ≈ 5.0 × C.
*2: Values in ( ) are with the exhaust check valve.

Reduced wiring specifications

Descriptions	T10	T11	T30	T50	T51	T52	T53
Type	Common terminal block M3 thread	Common terminal block clamping	D-sub-connector	20-pin flat cable connector with power supply terminal	20P Flat cable connector, no power supply terminal	10P Flat cable connector, no power supply terminal	26P Flat cable connector, no 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

Descriptions		T6G1	T6C0*1	T6C1*1
Network name		CC-Link ver1.10	CompoBus/S	
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)		
Output points		16 point	8 point	16 point
Occupied No.		1 station	1 Node address (8-point mode)	2 Node address (8-point mode)
Operation display		LED (power supply and communication status)		
Output format		NPN		

Descriptions		T7C0*2	T7C1*2	T7G1	T7L1*3	T7D1	T7S1	T7SP1
Network name		CompoBus/S		CC-Link ver1.10	SAVE NET	DeviceNet*4,*5	CompoNet	
Power supply voltage	Unit side	24 VDC ±10%		24 VDC +10%, −5% Common power supply terminal				
	Valve side	24 VDC +10%, −5%						
	Communication side	—		—	—	11 to 25 VDC *6	14.0 to 26.4 VDC	
Current consumption	Unit side	50 mA or less (when all output points are ON)		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	15 mA or less (when all output points are OFF)						
	Communication side	—		—	—	50 mA or less	65 mA or less (all points ON: 24 VDC) 95 mA or less (all points ON: 14 VDC)	
Output points		8 point	16 point	16 point	16 point	16 point	16 point	
Occupied No.		1 Node address (8-point mode)	2 Node address (8-point mode)	1 station	1 station	2 bytes	Word slave 1 node (16 points)	
Operation display		LED (power supply and communication status)						
Output format		NPN						PNP

Descriptions		T8G1 / T8G2	T8GP1 / T8GP2	T8P1 / T8P2	T8PP1 / T8PP2	T8EC1 / T8EC2	T8ECP1 / T8ECP2	T8EN1 / T8EN2	T8ENP1 / T8ENP2	T8D1 / T8D2	T8DP1 / T8DP2	T8EB1 / T8EB2	T8EBP1 / T8EBP2	T8EP1 / T8EP2	T8EPP1 / T8EPP2
Communication system name		CC-Link ver1.10		PROFIBUS-DP(V0)		EtherCAT		EtherNet/IP		DeviceNet		CC-Link IEF Basic		PROFINET	
Power supply voltage	Unit side	24 VDC ±10%													
	Valve side	24 VDC +10%, −5%													
Current consumption	Unit side	60 mA or less (when all output points are ON)		60 mA or less (when all output points are ON)		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)		130 mA or less (when all output points are ON)	
	Valve side	T8□1: 15 mA or less T8□2: 20 mA or less (when all output points are ON) Load current is not included								15 mA or less (when all output points are ON) Load current is not included					
Output points		T8□1: 16 points T8□2: 32 points													
Occupied No.		1 station													
Operation display		LED (power supply and communication status)													
Output format		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 Long-distance communication mode is not supported.
*2 Long-distance communication mode is supported.
*3 Transmission bit rate of 128 bits and half-duplex transmission method are supported. Contact CKD for other specifications.
*4 DeviceNet compliant networks (DLNK, etc.) are supported as well.
*5 Contact CKD for EDS file. EDS file: A text file of parameters for communication with various companies' master units
*6 Communication power supply (V+ and V− of DeviceNet cable) is isolated from power supply terminals (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

* When a cable is required, refer to page 147 and specify the cable length for *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

Code	Content		Ⓐ Model No. Manifold: Two 3-port valves integrated MN3GB1	MN3GB2	Manifold: 5-port valve MN4GB1	MN4GB2	Discrete valve block with solenoid valve /Discrete 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	A Port	B Port								
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 mounting base						●	●	●	●
Ⓓ Reduced wiring connection										
Refer to the next page for electrical connections.										
Ⓔ Terminal/connector pin array										
Blank	Standard wiring *6		●	●	●	●	●	●	●	●
W	Double wiring *6		●	●	●	●	●	●	●	●
W1	Double wiring (with single spare wiring) *6, *7		●	●	●	●	●	●	●	●
Ⓕ Option										
Blank	Non-locking/locking common manual override		●	●	●	●	●	●	●	●
M	Non-locking manual override		●	●	●	●	●	●	●	●
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 integrated *11		●	●	●	●	●	●	●	●
Z1	Air supply spacer *12		●	●	●	●				
Z2	In-stop valve spacer *12		●	●	●	●				
Z3	Exhaust spacer *12		●	●	●	●				
Ⓖ Station No.										
1 to 24	1 station / to / 24 stations (Max. station number for MN4GB2 is 20.)		●	●	●	●				
Ⓗ Voltage										
3	24 VDC		●	●	●	●	●	●	●	●
4	12 VDC		●	●	●	●	●	●	●	●

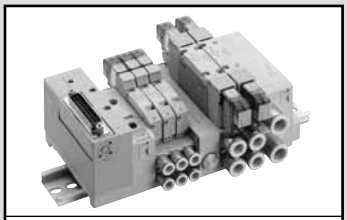
is not available.
○ indicates a made-to-order product.

⚠ 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: Select MN4GB*80R when mixing with 4, 5-port valves. Further, select MN3GB*80R when mixing with masking plate.
*5: Push-in fitting cannot be mixed with the single valve 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: 3-position all ports closed and PAB connection are not provided with the exhaust check valve (H).**
*9: In addition, surgeless "S" and low exoergic/energy circuit "E" cannot be selected together.
*10: Surgeless specifications.
*11: A filter is built into port P as standard.
***12: Specify the spacer mounting position and quantity in manifold specifications sheet.
Stacking of spacers is not possible.
Combination with the masking plate is not supported.
Cannot be selected together with radial push-in fitting (upward).
Refer to pages 149 to 150 for details.**

[Wiring method list]

Code	Content		Ⓐ Model No. Manifold: Two 3-port valves integrated: MN3GB1	MN3GB2	5-port valve: MN4GB1	MN4GB2	Discrete valve block with solenoid valve/ discrete solenoid valve: (N) 3GB1	(N) 3GB2	(N) 4GB1	(N) 4GB2
Ⓓ 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 and surge suppressor provided as standard) 24 VDC										
T6C0	CompoBus/S	NPN 8 points	●	●	●	●				
T6C1		NPN 16 points	●	●	●	●				
T6G1	CC-Link	NPN 16 points	●	●	●	●				
T7C0	CompoBus/S	NPN 8 points	●	●	●	●				
T7C1		NPN 16 points	●	●	●	●				
T7D1	DeviceNet	NPN 16 points	●	●	●	●				
T7G1	CC-Link	NPN 16 points	●	●	●	●				
T7L1	SAVE NET	NPN 16 points	●	●	●	●				
T7S1	CompoNet	NPN 16 points	●	●	●	●				
T7SP1		PNP 16 points	●	●	●	●				
T8G1	CC-Link	NPN 16 points	●	●	●	●				
T8G2		NPN 32 points	●	●	●	●				
T8GP1		PNP 16 points	●	●	●	●				
T8GP2		PNP 32 points	●	●	●	●				
T8P1	PROFIBUS-DP	NPN 16 points	●	●	●	●				
T8P2		NPN 32 points	●	●	●	●				
T8PP1		PNP 16 points	●	●	●	●				
T8PP2		PNP 32 points	●	●	●	●				
T8EC1	EtherCAT	NPN 16 points	●	●	●	●				
T8EC2		NPN 32 points	●	●	●	●				
T8ECP1		PNP 16 points	●	●	●	●				
T8ECP2		PNP 32 points	●	●	●	●				
T8EN1	EtherNet/IP	NPN 16 points	●	●	●	●				
T8EN2		NPN 32 points	●	●	●	●				
T8ENP1		PNP 16 points	●	●	●	●				
T8ENP2		PNP 32 points	●	●	●	●				
T8D1	DeviceNet	NPN 16 points	●	●	●	●				
T8D2		NPN 32 points	●	●	●	●				
T8DP1		PNP 16 points	●	●	●	●				
T8DP2		PNP 32 points	●	●	●	●				
T8EB1	CC-Link IEF Basic	NPN 16 points	●	●	●	●				
T8EB2		NPN 32 points	●	●	●	●				
T8EBP1		PNP 16 points	●	●	●	●				
T8EBP2		PNP 32 points	●	●	●	●				
T8EP1	PROFINET	NPN 16 points	●	●	●	●				
T8EP2		NPN 32 points	●	●	●	●				
T8EPP1		PNP 16 points	●	●	●	●				
T8EPP2		PNP 32 points	●	●	●	●				
A2N	Without lead wire (without socket)	with surge suppressor and indicator lamp					●	●	●	●



Pneumatic Valves
Catalog No. CB-023SA

4G1/2 mix manifolds

MN3GAX12, MN4GAX12 MN4GBX12-FP1 Series

● Applicable cylinder bore size: ø20 to ø80

Specifications

Common with all series.

For individual wiring, refer to page 127 (body piping) or page 131 (base piping), and for reduced wiring, refer to page 135 (body piping) or page 139 (base piping).

How to order

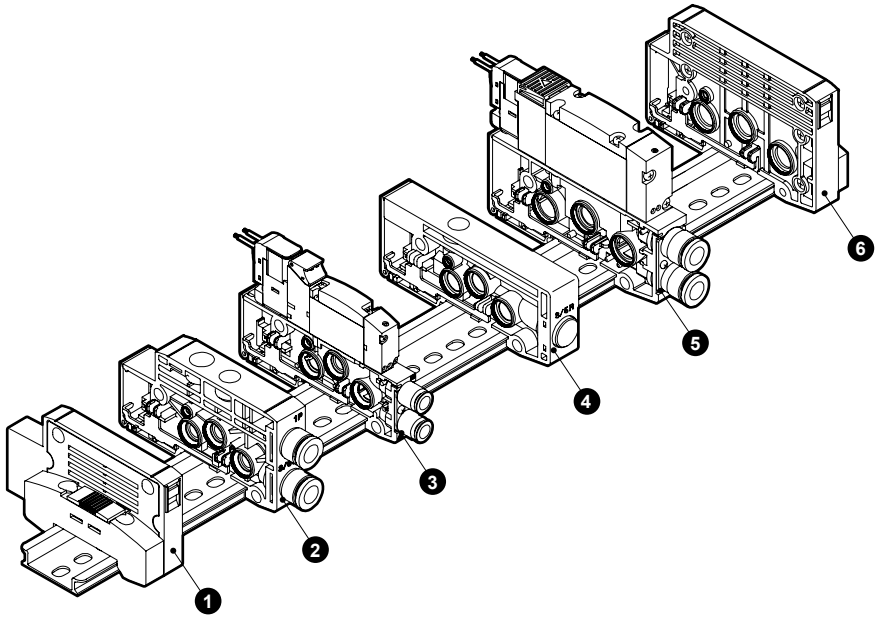
MN3G$^{A}_{B}$X12R - ○ - ○ ○ ○ - ○ - ○ - FP1

MN4G$^{A}_{B}$X12R - ○ - ○ ○ ○ ○ - ○ - ○ - FP1

Ⓐ Model No.
Ⓑ Port size
Ⓒ Electrical connections (Reduced wiring connection)
Ⓓ Terminal/connector pin array
Ⓔ Option
Ⓕ Station No.
Ⓖ Voltage

* The model No. will be "MN□G□X12R-". Other items are common with the example of model No. for each series.
For individual wiring, refer to page 129 (body piping) or page 133 (base piping), and for reduced wiring, refer to page 137 (body piping) or page 141 (base piping).

Manifold components 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.)

List of main components (refer to pages 145 to 150 for details)

No.	Component name	Model No. (example)
1	End block L	N4G1R-EL
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: 49 g

Refer to the specifications of each series for other components.

MEMO

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 129, base piping individual wiring: page 133, body piping reduced wiring: page 137,
base piping reduced wiring: page 141

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

Ⓒ Port size

Ⓓ Cable length *1

Ⓔ Option

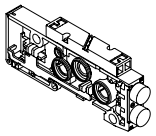
Code	Content	Ⓐ Model No. N4GA1	N4GA2	N4GB1	N4GB2
Ⓑ Type					
MP	For individual wiring	●	●	●	●
MPS	For reduced wiring single	●	●	●	●
MPD	For reduced wiring double/3-position	●	●	●	●
Ⓒ Port size (for base piping, this must be configured.)					
Type	Metric fitting/Rc thread				
C4	ø4 Push-in fitting			●	●
C6	ø6 Push-in fitting			●	●
C8	ø8 Push-in fitting				●
Single side plug specifications	A Port / B Port				
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 147.	●	●	●	●
Ⓔ Option					
Blank	No option			●	●
L	With pipe adapter			●	●
F	Port A/B filter built in			●	●

***1: A socket assembly is included with purchases for reduced wiring station expansion, so select "2 to 10". Select a cable length from page 147 and fill it into the Ⓓ cable length field. If ordering with the manifold specifications sheet, the cable length can be omitted.**

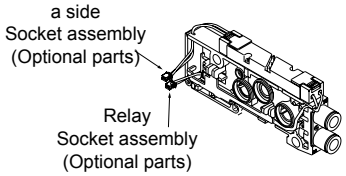
is not available.

○ indicates a made-to-order product.

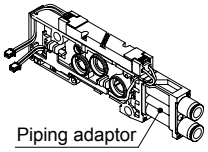
N4GA1R-MP-FP1



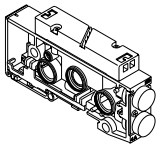
N4GB1R-MPD-C4-3-FP1



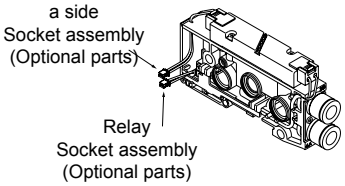
N4GB1R-MPD-C4-3L-FP1



N4GA2R-MP-FP1



N4GB2R-MPD-C6-5-FP1



Piping

C. Discrete valve block (separate item only)

Discrete valve block (split resin base).

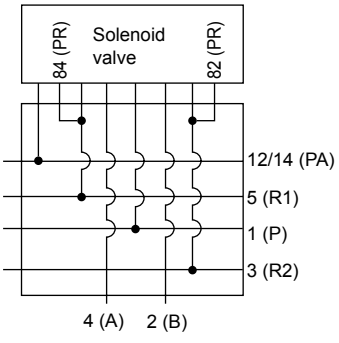
N4GA1 R - V1 ——— 3 ——— FP1
N4GB1 R - V2 - C4 - 3 F - FP1

Ⓐ Model No.
Ⓑ Type
Ⓒ Port size
Ⓓ Cable length *1
Ⓔ Option

Code	Content	Ⓐ 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	A Port / B Port				
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 147.	●	●	●	●
Ⓔ Option					
Blank	No option			●	●
L	With pipe adapter			●	●
F	Port A/B filter built in			●	●

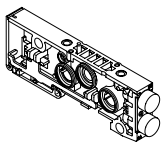
***1: A socket assembly is included with purchases for reduced wiring station expansion, so select "2 to 10". Select a cable length from page 147 and fill it into the Ⓓ cable length field. If ordering with the manifold specifications sheet, the cable length can be omitted.**

is not available.
○ indicates a made-to-order product.

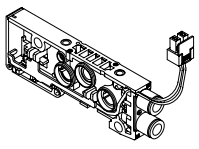


Discrete valve block circuit diagram

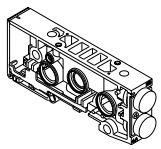
N4GA1R-V1-FP1



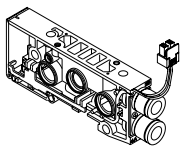
N4GB1R-V2-C4-FP1



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 will differ between the a side solenoid and the 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.

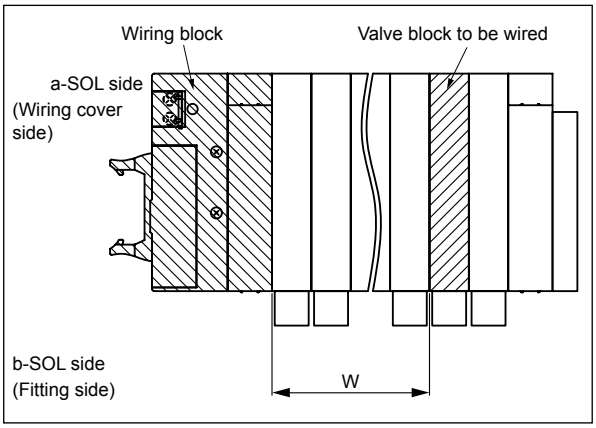
Calculation of W

- For MN4G1
  W = (10.5×n) + (16×m) + (10.5×l)
- For MN4G2
  W = (16×n) + (18×m) + (10.5×l)
  n: No. of valve blocks m: No. of supply and exhaust blocks l: No. of 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: For X, select atmosphere release (EX) for the end block.

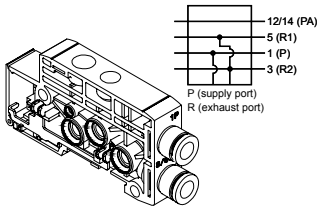
N4G2 R - Q - 10 X - FP1

Model No. Ⓐ Bore size Ⓑ Exhaust

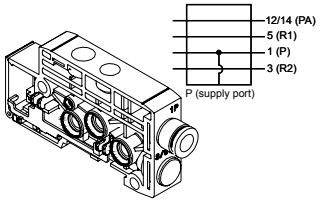
Ⓐ Bore size		Ⓑ Exhaust	
8	ø8 Push-in fitting	**Blank**	Common exhaust
10	ø10 Push-in fitting	**X** *1	Atmospheric release

*2: Select 6*M or 8*M when using a silencer with inch fitting specifications.
*3: For X, select atmosphere release (EX) for the end block.

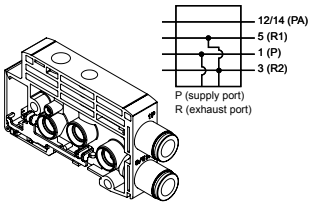
N4G1R-Q-8-FP1



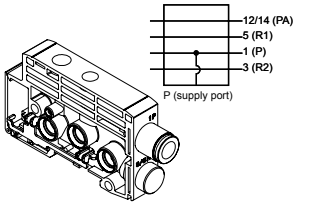
N4G1R-Q-8X-FP1



N4G2R-Q-10-FP1



N4G2R-Q-10X-FP1



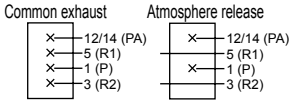
Piping

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

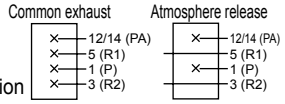
Model No. Ⓐ Type Ⓑ Installation position



Ⓐ Type		Ⓑ Installation position	
E	Common exhaust	L	For left side
EX	Atmospheric release	R	For right side

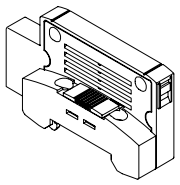
N4G2 R - EX L - FP1

Model No. Ⓐ Type Ⓑ Installation position

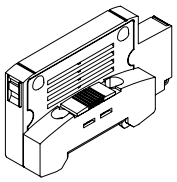


Ⓐ Type		Ⓑ Installation position	
E	Common exhaust	L	For left side
EX	Atmospheric release	R	For right side

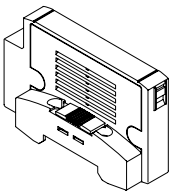
N4G1R-EL-FP1



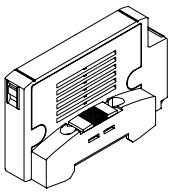
N4G1R-ER-FP1



N4G2R-EL-FP1



N4G2R-ER-FP1



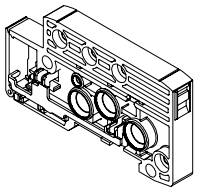
F. Partition block

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

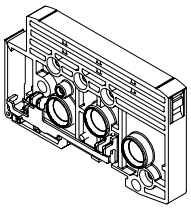


Ⓐ Type	
SA	P/R/PA blocked
S	P/R blocked PA through
SP	P blocked R/PA through
SE	R blocked P/PA through

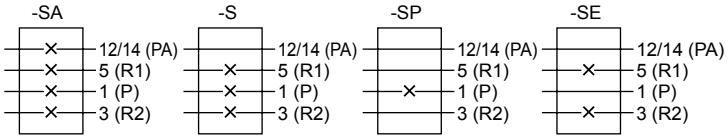
N4G2 R - SA - FP1

Model No. Ⓐ Type

N4G2-S



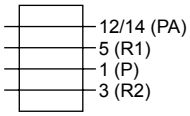
Ⓐ Type	
SA	P/R/PA blocked
S	P/R blocked PA through
SP	P blocked R/PA through
SE	R blocked P/PA through

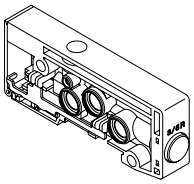


G. Mixed block

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.

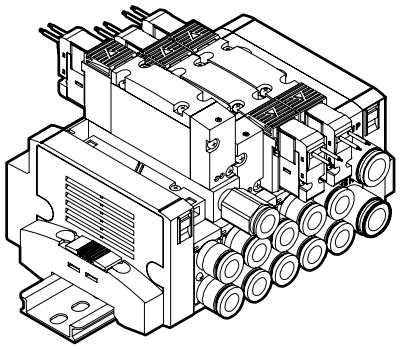
N4G12 R - MIX - FP1





Related products

● Air supply spacer



Specifications

Model No.	P→A/B		A/B→R		Weight
	C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b	g
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 × C.

How to order discrete units

4G 2 R − P − GWS6 − FP1

Ⓐ Air supply spacer model No.
Ⓑ Port size *1, *2

Code	Content	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			●	

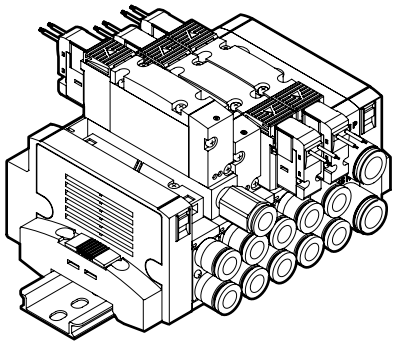
is not available.

Optional parts: 4G1 mounting screws (2), dedicated gasket (1)
4G2 mounting screws (2), PR check valves (2), body gasket (1)

⚠ Precautions for model selection

*1 Blank indicates (1) M5, (2) Rc1/8.
*2 Blank indicates the FP1 specifications or equivalent as standard, and thus does not require "FP1" at the end of the model number.
*3 Specify the positions and quantity of air supply spacers for manifold 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
	C[dm³/(s·bar)]	b	C[dm³/(s·bar)]	b	g
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 × C.

How to order discrete units

4G 2 R − R − GWS6 − FP1

Ⓐ Exhaust spacer model No.
Ⓑ Port size *1, *2

Code	Content	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.

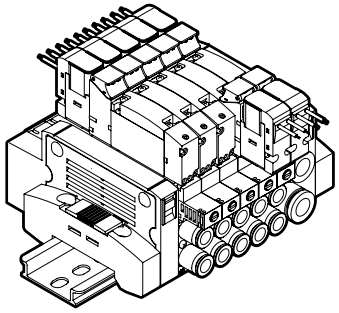
Optional parts: 4G1 mounting screws (2), dedicated gasket (1)
4G2 mounting screws (2), PR check valves (2), body gasket (1)

⚠ Precautions for model selection

*1 Blank indicates (1) M5, (2) Rc1/8.
*2 Blank indicates the FP1 specifications or equivalent as standard, and thus does not require "FP1" at the end of the model number.
*3 Specify the positions and quantity of air supply spacers for manifold 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
	C [dm³/ (s·bar)]	b	C [dm³/ (s·bar)]	b	g
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 mounted.
*2: The effective cross-sectional area when discharging residual pressure is 1.0 mm² (reference value).
*3: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.
Optional parts: PR check valve 2, body gasket 1

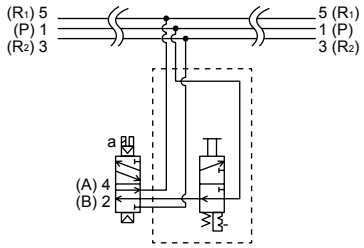
How to order discrete units

4G1 R - IS - FP1

4G2 R - IS - FP1

In-stop valve spacer

JIS symbol

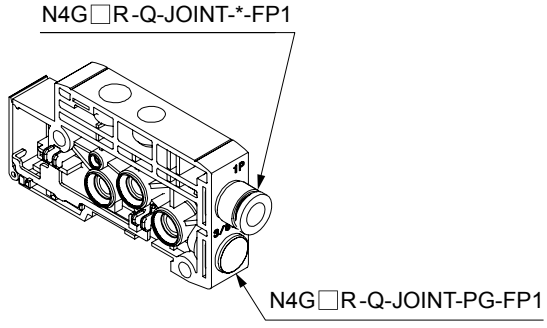


⚠ Precautions for model No. selection

*1: Specify the spacer mounting position and quantity in manifold specifications sheet.
*2: When retrofitting to the reduced wiring manifold, the existing wiring 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 (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

When filling in this field, select the model No. from "Block configurations" (pages 145 to 150).

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
Valve block with solenoid valve (page 145)	N4GA1 1 0R- C4		○	○																												2
	N4GA1 2 0R- C6					○																										1
	N4GA1 3 0R- C4				○																											1
	N4GA1 0R-																															
	N4GA1 0R-																															
	N4GA1 0R-																															
	N3GA1 1 0R- C4									○	○	○																				3
	N3GA1 0R-																															
Valve block with masking plate (page 145)	N4GA1R-MP																															
	N4GA1R-MPS																															
	N4GA1R-MPD						○																									1
Supply and exhaust block (page 147)	N4G1R-Q - 8L							○					○																			2
	N4G1R-Q -																															
	N4G1R-Q -																															
Partition block (page 148)	N4G1R-S A								○																							1
	N4G1R-S																															
	N4G1R-S																															
End block (page 148)	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
		GWP4-B		GWP6-B		GWP8-B		SLW-H6		SLW-H8		A	○	
		Cable with D-sub-connector		4GR-CABLE-D0□-□				Push-in fitting tube remover (included as standard) ☑ Not required (check the box)						

* A circuit diagram of the above manifold model No. (example) is provided on the following page. Use for reference.

Place a check here if the tube remover (included as standard) is not required.

Preparing the manifold specifications

- Complete from the left end, with the piping port facing forward.
  (Include the model No. of the block selected from block configurations (pages 145 to 150) and instructions for the arrangement thereof.)
- Indicate the total number of blocks specified in thecolumn for quantity on the right end of the table.
- Mark a circle for optional parts 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 154
  - MN4GB1: page 154
  - MN4GA2: page 155
  - MN4GB2: page 155
  - MN4GA×1/2 (Mix manifold): page 156
  - MN4GB×1/2 (Mix manifold): page 156

MN4GA/4GB-FP1 Series

Mounting rail length (L2)

① Determine the rail length using the calculation method shown below. The obtained length is standard.
② For standard length, length (L2) is not required on the specifications sheet. Indicate the length when using a non-standard length.

● How to determine the length of the mounting rail

Manifold length (L1) = (A × Valve block Quantity) + (B × Supply and exhaust block Quantity) + (C × Partition block Quantity) + D + E

Mounting rail length (L2) = L2'×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)

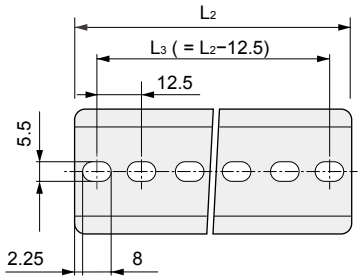
			MN4GA/B1	MN4GA/B2	MN4G1/2MIX	
					MN4GA/B1	MN4GA/B2
A	Valve block		10.5	16	10.5	16
B	Supply and exhaust block		16	18	16	18
C	Partition block		10.5	10.5	10.5	10.5
D	Individual wiring		41	46	44.5	
	Wiring block for reduced wiring	T10/T11	83.8	86.3	86.3	
		T10R/T11R	83.8	86.3	83.8	
		T30/T5*	69.3	71.8	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
Pitch L3	75	87.5	100	112.5	125	137.5	150	162.5	175	187.5	200	212.5	225	237.5	250	262.5	275	287.5	300	312.5	325	337.5	350	362.5	375	387.5

*1: When L1 exceeds this table, calculate the length by referring to "How to calculate the length of the mounting rail".



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

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 counting the valve blocks only in order from the left with the ports facing forward. Note that this differs from the installation position numbers.

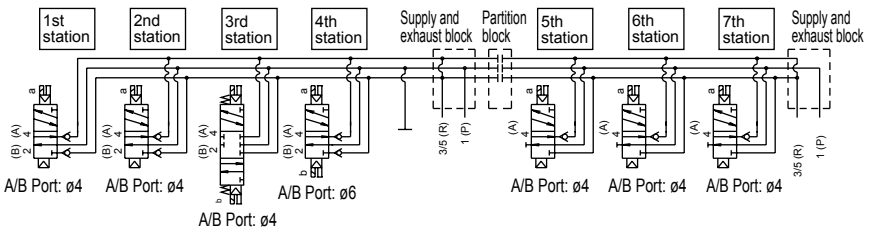
③ As the connector pin No. and valve No. differ for each reduced wiring method (T1*/T30/T5*/T6*/T7*/T8*), fill out the form upon reviewing the notes for each.

④ Wiring (socket assembly) is included with valve blocks with masking plates. A side only for "-MPS". Both A and B sides for "-MPD".

⑤ Double solenoids or 3-position solenoid valves cannot be assembled to "-MPS". Order valve block with solenoid valve and carry out expansion.

⑥ It 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.
(The electrical blocks, supply and exhaust blocks, partition block, and end block are not included in thenumber of manifold stations.)

* Select the model No. from block configuration (pages 145 to 150) and each specification model No. page.

* 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 array (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

When filling in this field, select the model No. from "Block configurations" (pages 145 to 150).

Part name (Description 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	Qty.
Wiring block	N4G1R-T ☐																															
Valve block with solenoid valve (page 145)	N4G ☐ 1 ☐ 0R- ☐																															
	N4G ☐ 1 ☐ 0R- ☐																															
	N4G ☐ 1 ☐ 0R- ☐																															
	N4G ☐ 1 ☐ 0R- ☐																															
	N4G ☐ 1 ☐ 0R- ☐																															
	N4G ☐ 1 ☐ 0R- ☐																															
	N3G ☐ 1 ☐ 0R- ☐																															
	N3G ☐ 1 ☐ 0R- ☐																															
Valve block with masking plate (page 145)	N4G ☐ 1R-MP																															
	N4G ☐ 1R-MPS																															
	N4G ☐ 1R-MPD																															
Air supply spacer (page 149)	4G1R-P- ☐																															
	4G1R-P- ☐																															
Exhaust spacer (page 149)	4G1R-R- ☐																															
In-stop valve spacer (page 150)	4G1R-IS																															
Supply and exhaust block (page 147)	N4G1R-Q ☐ - ☐																															
	N4G1R-Q ☐ - ☐																															
	N4G1R-Q ☐ - ☐																															
Partition block (page 148)	N4G1R-S ☐																															
	N4G1R-S ☐																															
	N4G1R-S ☐																															
End block (page 148)	N4G1R-E ☐																															
	N4G1R-E ☐																															

Mounting rail	L_2= ☐ *Write an integer multiple of 12.5. (How to determine the length: page 152)	Blanking plug						Silencer				Tag plate (included)		Included parts
		GWP4-B	☐	GWP6-B	☐	GWP8-B	☐	SLW-H6	☐	SLW-H8	☐	A	☐	
		Cable with D-sub-connector		4GR-CABLE-D0☐-☐				Push-in fitting tube remover (included 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 (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

When filling in this field, select the model No. from "Block configurations" (pages 145 to 150).

Part name (Description 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	Qty.
Wiring block	N4G2R-T ☐		
Valve block with solenoid valve (page 145)	N4G ☐ 2 ☐ 0R- ☐		
	N4G ☐ 2 ☐ 0R- ☐		
	N4G ☐ 2 ☐ 0R- ☐		
	N4G ☐ 2 ☐ 0R- ☐		
	N4G ☐ 2 ☐ 0R- ☐		
	N4G ☐ 2 ☐ 0R- ☐		
	N3G ☐ 2 ☐ 0R- ☐		
	N3G ☐ 2 ☐ 0R- ☐		
Valve block with masking plate (page 145)	N4G ☐ 2R-MP		
	N4G ☐ 2R-MPS		
	N4G ☐ 2R-MPD		
Air supply spacer (page 149)	4G2R-P- ☐		
	4G2R-P- ☐		
Exhaust spacer (page 149)	4G2R-R- ☐		
In-stop valve spacer (page 150)	4G2R-IS		
Supply and exhaust block (page 147)	N4G2R-Q ☐ - ☐		
	N4G2R-Q ☐ - ☐		
	N4G2R-Q ☐ - ☐		
Partition block (page 148)	N4G2R-S ☐		
	N4G2R-S ☐		
	N4G2R-S ☐		
End block (page 148)	N4G2R-E ☐		
	N4G2R-E ☐		

Mounting rail	Blanking plug				Silencer		Tag plate (included)		Included parts
L_2= ☐ *Write an integer multiple of 12.5. (How to determine the length: page 152)	GWP4-B		GWP8-B		SLW-H8		A		
	GWP6-B		GWP10-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 (Note: Fill in for reduced wiring.) Ⓕ Option Ⓖ Station No. Ⓗ Voltage

When filling in this field, select the model No. from "Block configurations" (pages 145 to 150).

Part name (Description 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	Qty.
Wiring block	N4G ☐ R-T ☐		
Valve block with solenoid valve (page 145)	N4G ☐ ☐ 0R- ☐		
	N4G ☐ ☐ 0R- ☐		
	N4G ☐ ☐ 0R- ☐		
	N4G ☐ ☐ 0R- ☐		
	N4G ☐ ☐ 0R- ☐		
	N4G ☐ ☐ 0R- ☐		
	N3G ☐ ☐ 0R- ☐		
	N3G ☐ ☐ 0R- ☐		
Valve block with masking plate (page 145)	N4G ☐ R-MP		
	N4G ☐ R-MPS		
	N4G ☐ R-MPD		
Air supply spacer (page 149)	4G1R-P- ☐		
	4G2R-P- ☐		
Exhaust spacer (page 149)	4G1R-R- ☐		
	4G2R-R- ☐		
In-stop valve spacer (page 150)	4G1R-1S		
	4G2R-1S		
Mixed block (page 148)	N4G12R-MIX		
Supply and exhaust block (page 147)	N4G ☐ R-Q ☐ - ☐		
	N4G ☐ R-Q ☐ - ☐		
	N4G ☐ R-Q ☐ - ☐		
Partition block (page 148)	N4G ☐ R-S ☐		
	N4G ☐ R-S ☐		
	N4G ☐ R-S ☐		
End block (page 148)	N4G ☐ R-E ☐		
	N4G ☐ R-E ☐		
Mounting rail	L_2= ☐ *Write an integer multiple of 12.5. (How to determine the length: page 152)	Blanking plug: GWP ☐ -B ☐ GWP ☐ -B ☐ GWP ☐ -B ☐ GWP ☐ -B ☐ Silencer: SLW-H ☐ ☐ SLW-H ☐ Cable with D-sub-connector 4GR-CABLE-D0☐-☐ Push-in fitting tube remover (included as standard) ☐ Not required (check the box)	Included parts

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 on a made to order basis)
* 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 on a made to order basis)
* 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																								
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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 on a made to order basis)
* 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 on a made to order basis)
* 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	1	1																
T6C0: CompoBus/S 8-points	2	2																
T6C1: CompoBus/S 16-points	3	3																
T6G1: CC-Link 16-points	4	4																
	5	5																
	6	6																
	7	7																
	8	8																
	9	9																
	10 COM	10																
	11	11																
	12	12																
Thin slot-insertion	13	13																
T7C0: CompoBus/S 8-points	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																
T7L1: 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 on a made to order basis)
* Not required with standard wiring/double wiring.

Serial transmission			
T8G1	CC-Link	NPN	16-point
T8G2			32-point
T8GP1		PNP	16-point
T8GP2			32-point
T8P1	PROFIBUS-DP	NPN	16-point
T8P2			32-point
T8PP1		PNP	16-point
T8PP2			32-point
T8EC1	EtherCAT	NPN	16-point
T8EC2			32-point
T8ECP1		PNP	16-point
T8ECP2			32-point
T8EN1	EtherNet/IP	NPN	16-point
T8EN2			32-point
T8ENP1		PNP	16-point
T8ENP2			32-point
T8D1	DeviceNet	NPN	16-point
T8D2			32-point
T8DP1		PNP	16-point
T8DP2			32-point
T8EB1	CC-Link IEF Basic	NPN	16-point
T8EB2			32-point
T8EBP1		PNP	16-point
T8EBP2			32-point
T8EP1	PROFINET	NPN	16-point
T8EP2			32-point
T8EPP1		PNP	16-point
T8EPP2			32-point

Connector pin No.	Valve No.																							
T8*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
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11																								
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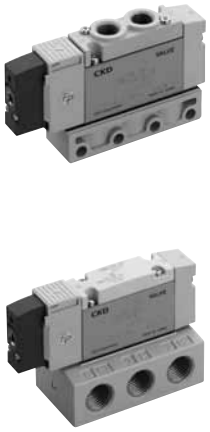
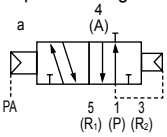
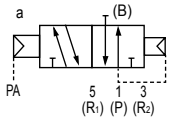
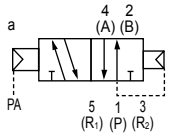
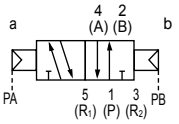
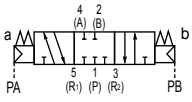
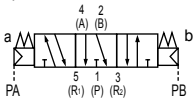
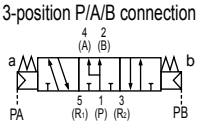
27																								
28																								
29																								
30																								
31																								
32																								

MEMO

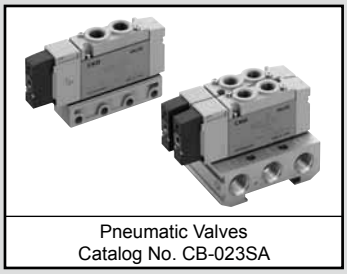
Master valve 4GA/4GB-FP1 Series

NSF H1

Series external appearance				Model No.	Position Pilot port No. JIS symbol	Valve performance: Flow characteristics C[dm³/(s·bar)]	Valve performance: Cylinder bore size (ø)
Separate item	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 side 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 	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 (-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
	M4GB 	Base side 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 (-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 × C.

Switching position								Port A/B connection port								Page
3-port								Push-in fitting				Female thread				
Normally closed	Normally open	Single	Double	All ports closed	ABR connection	PAB connection	Mix	ø4	ø6	ø8	ø10	M5	Rc1/8	Rc1/4	Rc3/8	
								C4	C6	C8	C10	M5	06	08	10	
●	●							●	●			●				163
●	●							●	●	●			●			
●	●								●	●	●			●		
		●	●	●	●	●		●	●			●				
		●	●	●	●	●		●	●	●			●			
		●	●	●	●	●			●	●	●			●		
		●	●	●	●	●							●			165
		●	●	●	●	●								●		
		●	●	●	●	●								●	●	
●	●	●	●	●	●	●	●	●	●			●				163
								●	●	●			●			
									●	●	●			●		
●	●	●	●	●	●	●	●	●	●			●				
								●	●	●			●			
									●	●	●			●		
		●	●	●	●	●	●	●	●			●				165
								●	●	●			●			
									●	●	●			●		



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

● Applicable cylinder bore size: ø20 to ø100

RoHS CAD

Common specifications

Descriptions		Content
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-positions 0.1 MPa or higher
3-positions 0.2 MPa or higher

*2 Avoid water drops or oil, etc., during use.

Individual specifications

Body piping (discrete/manifold)

No. of Ports	Model No.		Solenoid position	Pilot port PA/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 81 Manifold: Page 89
	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}{4}_{5}$1R	M4GA1$\frac{3}{4}_{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}{4}_{5}$1R	M4GA2$\frac{3}{4}_{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}{4}_{5}$1R	M4GA3$\frac{3}{4}_{5}$1R	3-position				

* Other specifications are the same as those of 4G-FP1 Series. Refer to pages for each specification.

How to order

Discrete master valve

4GA2 1 1R - 06 - H - FP1

- 4GA2 1 → Ⓐ Model No.
- 1R → Ⓑ Solenoid position
- 06 → Ⓒ Port size
- H → Ⓓ Option

Code	Content		Ⓐ 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	●	●	●			
Ⓒ Port size								
Port	A/B Port		P/R1/R2 Port (1)=M5 (2)=Rc1/8 (3)=Rc1/4					
C4	ø4 Push-in fitting		(1)	(2)		(1)	(2)	
C6	ø6 Push-in fitting		(1)	(2)	(3)	(1)	(2)	(3)
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)
Ⓓ Option								
Blank	None		●	●	●	●	●	●
H	With exhaust check valve	*2	●	●	●	●	●	●
P	With mounting plate	*3	●	●	●	●	●	●
F	Port A/B filter integrated	*4	●	●	●	●	●	●

is not available.

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, avoid plugging the 5 (R1) port. Otherwise, malfunctions may result.

***2: 3-position all ports closed and PAB connection are not provided with the exhaust check valve (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

M 4GA2 1 1R - 06 - H D - 8 - FP1

Discrete master valve for manifold (gasket, mounting screw, PR check valve included)

4GA2 1 8R - 06 - H ——— FP1

- 4GA2 1 → Ⓐ Model No.
- 8R → Ⓑ Solenoid position
- 06 → Ⓒ Port size
- H → Ⓓ Option
- Ⓔ Mount
- Ⓕ Station No.

Code	Content		Ⓐ Model No. M3GA1	M3GA2	M3GA3	M4GA1	M4GA2	M4GA3
Ⓑ 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 manifolds (when there are multiple solenoid positions)		●	●	●	●	●	●
Ⓒ Port size								
Port	A/B Port		P/R1/R2 Port (2)=Rc1/8 (3)=Rc1/4 (4)=Rc3/8					
C4	ø4 Push-in fitting		(2)	(3)		(2)	(3)	
C6	ø6 Push-in fitting		(2)	(3)	(4)	(2)	(3)	(4)
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)
Ⓓ Option								
Blank	None		●	●	●	●	●	●
H	With exhaust check valve	*2	●	●	●	●	●	●
F	Port A/B filter integrated	*3	●	●	●	●	●	●
Z1	Air supply spacer	*4, *5	●	●	●	●	●	●
Z2	In-stop valve spacer	*4, *5	●	●	●	●	●	●
Z3	Exhaust spacer	*4, *5	●	●	●	●	●	●
Ⓔ Mount								
Blank	Direct mount		●	●	●	●	●	●
D	DIN rail mount		●	●	●	●	●	●
Ⓕ Station No.								
2	2 stations		●	●	●	●	●	●
to	to							
20	Refer to page 89 for the max. station number per model.							

is not available.

Precautions for model No. selection

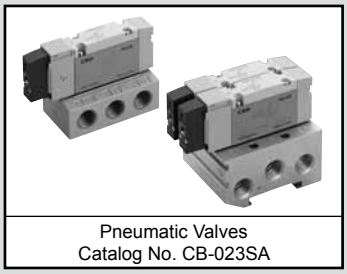
*1: The push-in fitting cannot be mixed with the single valve's 4 (A) or 2 (B) port.

***2: 3-position all ports closed and PAB connection are not provided with the exhaust check valve (H).**

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

***4: Specify the spacer mounting position and quantity in manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported.**
Refer to page 105 for details.

*5: The master valve for manifold cannot be selected as a discrete valve.



Pneumatic Valves
Catalog No. CB-023SA

Master valve single unit/manifold (metal base)
Base side piping

(M) 4GB1/2/3-FP1 Series

● Applicable cylinder bore size: ø20 to ø100

RoHS CAD

Common specifications

Descriptions		Content
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-positions 0.1 MPa or higher
3-positions 0.2 MPa or higher

*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 Description Page *
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 85 Manifold: Page 93
	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				

* Other specifications are the same as those of 4G-FP1 Series. Refer to pages for each specification.

How to order

Discrete master valve

4GB2 1 1R - 08 - H - FP1

- B Solenoid position
- A Model No.
- D Option
- C Port size

Code	Content	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	A/B Port	P/R1/R2 Port (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	None	●	●	●
H	With exhaust check valve *1	●	●	●
F	Port A/B filter integrated *2	●	●	●

is not available.

Precautions for model No. selection

***1: 3-position all ports closed and PAB connection are not provided with the exhaust check valve (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 included)

4GB2 1 8R - 00 - H —— FP1

- B Solenoid position
- A Model No.
- C Port size
- D Option
- E Mount
- F Station No.

Code	Content	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 manifolds (when there are multiple solenoid positions)	●	●	●
C Port size				
Port	A/B Port	P/R1/R2 Port (2)=Rc1/8 (3)=Rc1/4 (4)=Rc3/8		
C4	ø4 Push-in fitting	(2)	(3)	
C6	ø6 Push-in fitting	(2)	(3)	(4)
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	None	●	●	●
H	With exhaust check valve *1	●	●	●
F	Port A/B filter integrated *2	●	●	●
Z1	Air supply spacer *3, *4	●	●	
Z2	In-stop valve spacer *3, *4		●	●
Z3	Exhaust spacer *3, *4	●	●	●
E Mount				
Blank	Direct mount	●	●	●
D	DIN rail mount	●	●	●
F Station No.				
2	2 stations	●	●	●
to	to			
20	Refer to page 93 for the max. station number per model.			

is not available.

Precautions for model No. selection

***1: 3-position all ports closed and PAB connection are not provided with the exhaust check valve (H).**

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

***3: Specify the spacer mounting position and quantity in manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to page 105 for details.**

*4: The master valve for manifold cannot be selected as a discrete valve.

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.

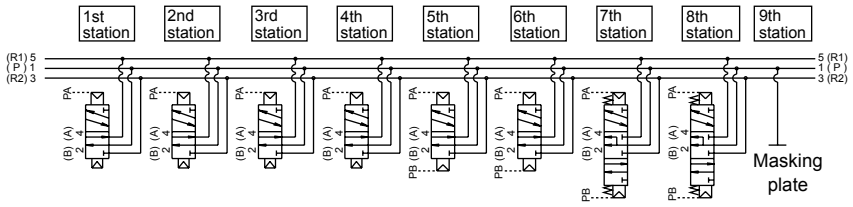
How to use base piping M4GB*11R as a 3-port valve

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	Qty.
4G(A/B)11 8R-M5	○	○	○	○																					4
4G(A/B)12 8R-M5					○	○																			2
4G(A/B)15 8R-M5							○	○																	2
4G 1 8R-																									
3GA1 8R-																									
3GA1 8R-																									
4G1R-MP									○																1

Mounting rail	Included parts	Blanking plug	Blanking plug	Thread plug	Silencer	Silencer
L_2= * Write an integer multiple of 12.5.		GWP4-B	GWP6-B	4G1R-M5P	SLW-6S	SLW-6A
	Push-in fitting tube remover (included as standard) Optional parts 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 the manifold specifications

● From the manifold specifications for each model, select and fill out the appropriate form.

M4G(A/B)1 ..... Page 168
M4G(A/B)2 ..... Page 169
M4G(A/B)3 ..... Page 170

*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 | 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 □ 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	L_2= □ * Write an integer multiple of 12.5.	Included parts	Blanking plug	Blanking plug	Thread plug	Silencer	Silencer
			GWP4-B □	**GWP6-B** □	**4G1R-M5P** □	**SLW-6S** □	**SLW-6A** □
			Push-in fitting tube remover (included as standard) ☐ Not required (check)				

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 | 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 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	L_2= * Write an integer multiple of 12.5.	Included parts	Blanking plug						Thread plug		Silencer			
			GWP4-B		**GWP6-B**		**GWP8-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 / Station No.

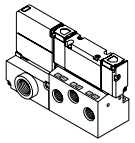
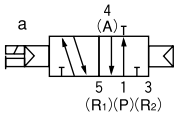
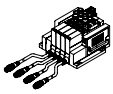
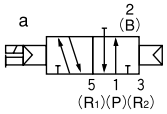
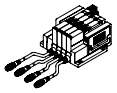
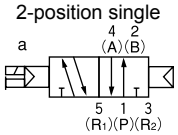
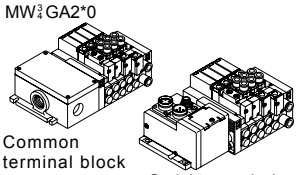
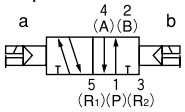
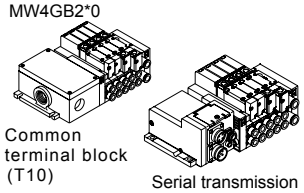
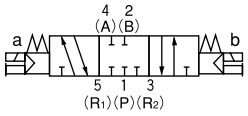
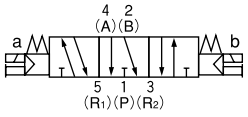
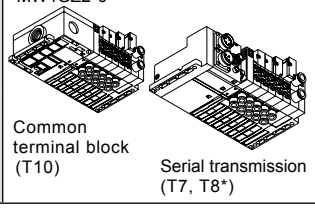
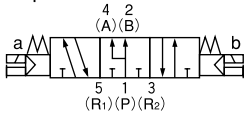
Valve model No.	Valve installation position 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Qty.
4G ☐ 3 ☐ 8R- ☐																									
4G ☐ 3 ☐ 8R- ☐																									
4G ☐ 3 ☐ 8R- ☐																									
4G ☐ 3 ☐ 8R- ☐																									
4G ☐ 3 ☐ 8R- ☐																									
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	L_2= ☐ * Write an integer multiple of 12.5.	Included parts	Blanking plug						Thread plug		Silencer			
			GWP6-B		**GWP8-B**		**GWP10-B**		**4G3R-08P**		**SLW-10A**		**SLW-10L**	

Series variation

W4G2-FP1 Series

NSF H1

Series variation/appearance			Model No.		Position Number of solenoid valves JIS symbol	Valve performance: Flow characteristics C [dm³/(s·bar)] *1	Valve performance: Applicable cylinder bore size	Voltage: 100 VAC (1)	Voltage: 24 VDC (3)	Voltage: 12 VDC (4)	Degree of protection
Separate item	Base side piping	W4GB2*0 	**W4GB2**		● 3-port valve 2-position single NC 	**2.1 to 2.5**	**ø20 to ø80**	●	●	●	IP 65
Individual wiring manifold	Body piping	MW$^{3}_{4}$GA2*0  MW4GB2*0 I/O connector (R1)	**MW3GA2 MW4GA2 (NW3GA2) (NW4GA2)**	Individual wiring (-R1)	2-position single NO 	**1.7 to 2.3**	**ø20 to ø80**		●	●	IP65 Equivalent
	Base side piping		**MW4GB2 (NW4GB2)**		● 5-port valve 2-position single 				●	●	IP65 Equivalent
	Base bottom piping	MW4GZ2*0 I/O connector (R1) 	**MW4GZ2 (NW4GZ2)**						●	●	IP65 Equivalent
Reduced wiring manifold	Body piping	MW$^{3}_{4}$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**	●	●	●	IP 65
				Serial transmission (-T7, T8*)					●		IP 65
	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**	●	●	●	IP 65
				Serial transmission (-T7, T8*)	3-position A/B/R connection 				●		IP 65
	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**	●	●	●	IP 65
				Serial transmission (-T7, T8*)					●		IP 65

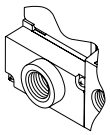
*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

Switching position								A/B piping connection port				Electrical connections				Page
2-position				3-position				Push-in fitting		Female thread						
Normally closed	Normally open	Single	Double	All ports closed	ABR connection	PAB connection	Mix	ø6	ø8	Rc1/8	Rc1/4	Terminal block	I/O connector	Common terminal block	Serial transmission	
								C6	C8	06	08	Blank	R1	T10	T7□T8□	
		●	●	●	●	●					●	●	●			175
●	●	●	●	●	●	●	●	●	●	●			●			177
		●	●	●	●	●	●	●	●				●			179
		●	●	●	●	●	●	●	●				●			179
●	●	●	●	●	●	●	●	●	●	●				●		181
●	●	●	●	●	●	●	●	●	●	●					●	
		●	●	●	●	●	●	●	●					●		187
		●	●	●	●	●	●	●	●						●	
		●	●	●	●	●	●	●	●					●		187
		●	●	●	●	●	●	●	●						●	

Electrical connections

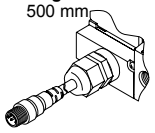
Single unit

Blank Terminal block



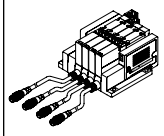
R1 I/O connector

● **Lead wire length**
500 mm



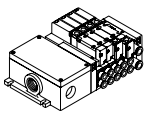
Individual wiring manifold

R1 I/O connector (M12)

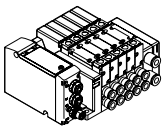


Reduced wiring manifold

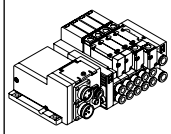
T10 Common terminal block



T7□ Serial transmission

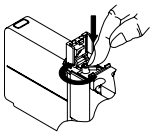


T8□ Serial transmission



Manual override

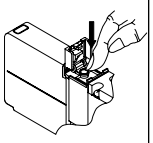
Blank Non-locking Locking common (Standard equipment)



(1) For non-locking, push to turn ON, Release to turn OFF

(2) For locking, push and turn 90° clockwise to hold the ON state. Turn counterclockwise to unlock OFF

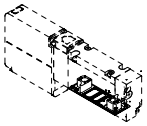
M Non-locking Manual override



(1)Push to turn ON
Release to turn OFF

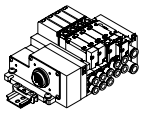
Other options

H With check valve

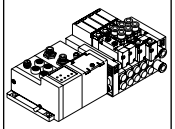


Standard for pilot exhaust

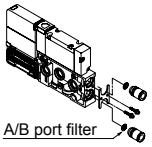
D DIN rail mount



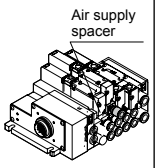
Y** I/O block



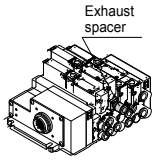
F Port A/B filter integrated



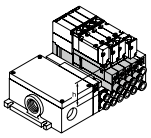
Z1 Air supply spacer



Z3 Exhaust spacer

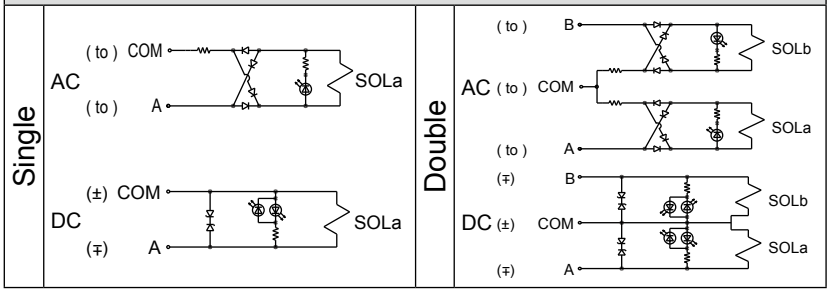


Z8 Individual air supply compatible spacer with in-stop valve spacer



Electrical connection circuit diagrams (inside the solenoid valve)

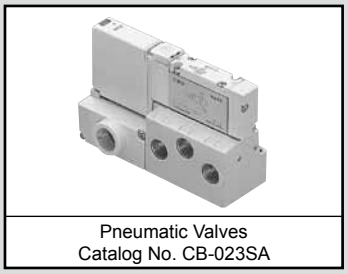
With lamp/surge suppressor (standard)



Zener diode is used as a surge suppressor.

FP1							FP2			
Electric actuator	Pneumatic cylinders	Pneumatic valves	FRL/Auxiliary components Electronic components	Vacuum components	Main line components	Fluid control valves	Main line components	Antibacterial/Bacteria-removing filter	Vacuum components	Fluid control valves

MEMO



Pneumatic Valves
Catalog No. CB-023SA

Single unit
Base side piping

W4GB2-FP1 Series

● Applicable cylinder bore size: ø20 to ø80

Common specifications

Descriptions	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 *1	Dust proof/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: Tested according to the test method for IP65 (IEC60529 [IEC529: 1989-11]) standards.**

Electrical specifications

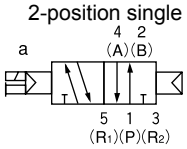
Descriptions		W4GB2
Rated voltage V	DC	12, 24
	AC	100
Voltage fluctuation range		±10%
Holding current A	24 VDC	0.025
	12 VDC	0.050
	100 VAC	0.012
Power consumption W *2	24 VDC	0.6
	12 VDC	0.6
Apparent power VA	100 VAC	1.2
Thermal class		B

*2: Surge suppressor and indicator are supplied as standard.

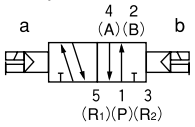
JIS symbol

●5-port valve

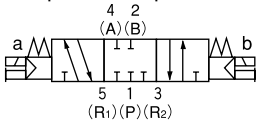
2-position single



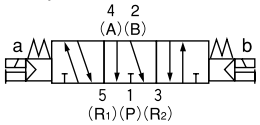
2-position double



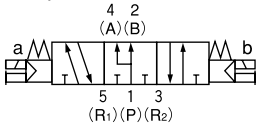
3-position all ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

Descriptions		W4GB2
Port size	A/B Port	Rc1/4
	P/R Port	Rc1/4

Descriptions			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.

Descriptions			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 × C.

How to order

● Single unit

W4GB2 1 0 - 08 - R1 H - 3 - FP1

● Single sub-plate only

W4GB2 - SP - 08 - R1 F —— FP1

Sub-plate

● Single solenoid valve

W4GB2 1 9 - 00 —— H - 3 - FP1

Ⓐ Solenoid position

Ⓑ Port size

Ⓒ Electrical connections

For circuit diagrams (inside the solenoid valve), refer to page 173.

Ⓓ Option

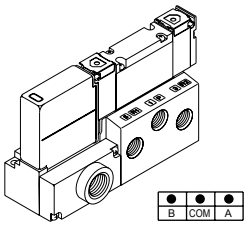
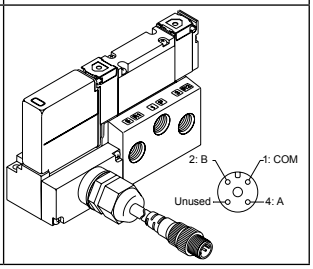
Ⓔ Voltage

Code	Content	Single unit	Single sub-plate only	Discrete 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 provided as standard)				
Blank	Terminal block (with cable clamp)	●	●	●
R1	I/O connector (500 mm) (Made-to-order)	●	●	
Ⓓ Option				
Blank	No option	●	●	●
M	Non-locking manual override	●		●
H	Check valve *1	●		●
F	Port P/A/B filter integrated	●	●	
Ⓔ Voltage				
1	100 VAC (rectifier circuit integrated) (Made-to-order) * Only when selecting Electrical connections: blank	●		
3	24 VDC	●		●
4	12 VDC (Made-to-order)	●		●

⚠ Precautions for model selection

***1: Check valve (H) is not available for 3-position all ports closed and 3-position PAB connection.**

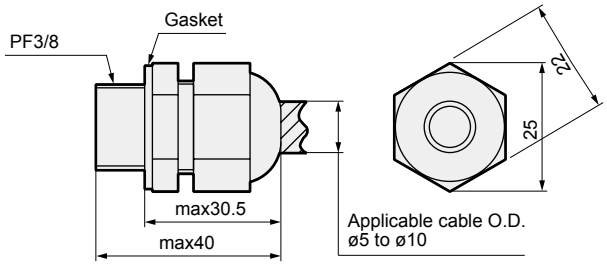
Electrical connections

Name	Terminal block	I/O connector
Code	Blank	R1
Shape / Terminal layout		

Parts kit No. for terminal block

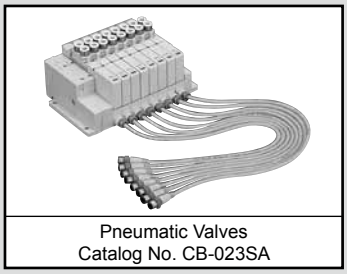
● Cable clamp (with gasket)

Model No.	Content
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



Pneumatic Valves
Catalog No. CB-023SA

Individual wiring manifold
Body piping

MW$^{3}_{4}$GA2-R1-FP1 Series

● Applicable cylinder bore size: ø20 to ø80

RoHS

Manifold common specifications

Descriptions		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/jet proof (IP65 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: Tested according to the test method for IP65 (IEC60529 [IEC529: 1989-11]) standards.**

Electrical specifications

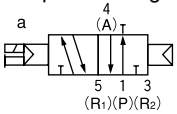
Descriptions		MW3GA2/MW4GA2
Rated voltage V	DC	12, 24
Voltage fluctuation range		±10%
Holding current A	24 VDC	0.025
	12 VDC	0.050
Power consumption W *2	24 VDC	0.6
	12 VDC	0.6
Thermal class		B

*2: Surge suppressor and indicator are supplied as standard.

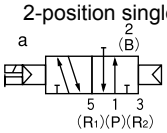
JIS symbol

●3-port valve

2-position single NC

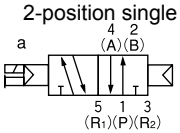


2-position single NO

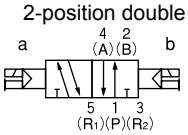


●5-port valve

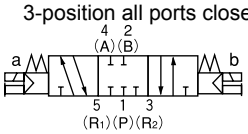
2-position single



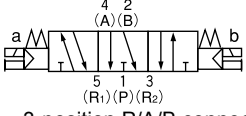
2-position double



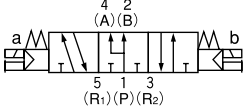
3-position all ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

Descriptions		MW3GA2/MW4GA2
Max. station No.		16
Port size	A/B Port	Push-in fitting ø6, ø8, Rc1/8
	P/R Port	Push-in fitting ø8, ø10

Descriptions			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 × C.
*2: Values for 2-position and ABR connection 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

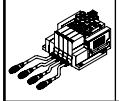
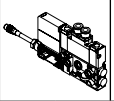
● Discrete valve block with solenoid valve

NW4GA2 1 0 - C8 — R1 H — 3 - FP1

● Discrete solenoid valve for manifold

W4GA2 1 9 - C8 — H — 3 - FP1

Ⓐ Model No. | Ⓑ Solenoid position | Ⓒ Port size *1 | Ⓓ Wiring method For circuit diagrams (inside the solenoid valve), refer to page 173. | Ⓔ Option | Ⓕ Mount | Ⓖ Station No. | Ⓗ Voltage

Code	Content	Ⓐ Model No.					
		Manifold		Discrete valve block with solenoid valve		Discrete 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 manifolds (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	●	●	●	●	●	●
Ⓓ Wiring method (including standard lamp and surge suppressor)							
R1	I/O connector (M12) (500 mm)	●	●	●	●		
Ⓔ Option							
Blank	No option	●	●	●	●	●	●
M	Non-locking manual override	●	●	●	●	●	●
H	Check valve *2	●	●	●	●	●	●
F	Port A/B filter integrated *3	●	●	●	●	●	●
Z1	Air supply spacer *4	●	●				
Z3	Exhaust spacer *4	●	●				
Z8	Individual air supply compatible spacer with in-stop valve spacer	●	●				
Ⓕ Mount							
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".

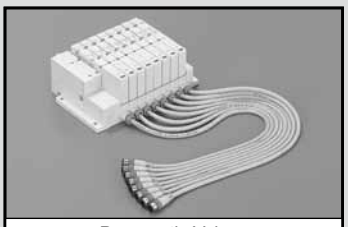
*1: Specify the size of port P/R in the supply and exhaust block section.

***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 and quantity in manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported.**

Refer to pages 200 to 201 for details.



Pneumatic Valves
Catalog No. CB-023SA

Individual wiring manifold
Base side piping/base bottom piping

MW4G$^{B}_{Z}$2-R1-FP1 Series

● Applicable cylinder bore size: ø20 to ø80

RoHS

Manifold common specifications

Descriptions	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	Lateral direction from 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 *3	
Proof pressure MPa	1.05	
Ambient temperature °C	−5 to 55 (no freezing)	
Fluid temperature °C	5 to 55	
Manual override	Non-locking/locking common (standard)	
Degree of protection *1	Dust proof/jet proof (IP65 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: Tested according to the test method for IP65 (IEC60529 [IEC529: 1989-11]) standards.**

Electrical specifications

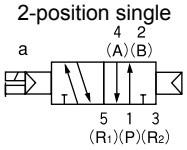
Descriptions		M4GB2
Rated voltage V	DC	12, 24
Voltage fluctuation range		±10%
Holding current A	24 VDC	0.025
	12 VDC	0.050
Power consumption W *4	24 VDC	0.6
	12 VDC	0.6
Thermal class		B

*4: Surge suppressor and indicator are supplied as standard.

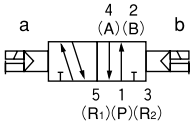
JIS symbol

●5-port valve

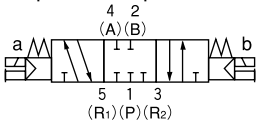
2-position single



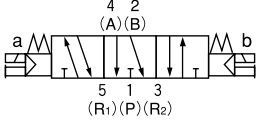
2-position double



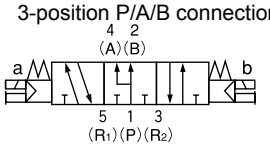
3-position all ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

Descriptions		MW4GB2/MW4GZ2
Max. station No.		16
Port size	A/B Port	Push-in fitting ø6, ø8, Rc1/8
	P/R Port	Push-in fitting ø8, ø10

Descriptions			MW4GB2/MW4GZ2	
			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
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 × C.
*2: Values for 2-position and ABR connection 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 (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 173.
Ⓔ Option
Ⓕ Mount
Ⓖ Station No.
Ⓗ Voltage

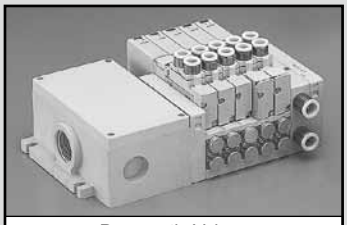
Code	Content	Ⓐ Model No.				
		Manifold		Discrete valve block with solenoid valve		Discrete solenoid valve
		MW4GB2	MW4GZ2	NW4GB2	NW4GZ2	W4GB2
Ⓑ Solenoid position						
1	2-position single	●	●	●	●	●
2	2-position double	●	●	●	●	●
3	3-position all ports closed	●	●	●	●	●
4	3-position ABR connection	●	●	●	●	●
5	3-position PAB connection	●	●	●	●	●
8	Mix manifolds (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	A Port / B Port					
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	Non-locking manual override	●	●	●	●	●
H	Check valve *4	●	●	●	●	●
F	Port A/B filter integrated *5	●	●	●	●	
Z1	Air supply spacer *3	●	●			
Z3	Exhaust spacer *3	●	●			
Z8	Individual air supply compatible spacer with in-stop valve spacer *3	●	●			
Ⓕ Mount						
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 W4GB2*9 discrete solenoid valve is used for the NW4GZ2 discrete valve block with solenoid valve.
*2: Plugs of ports A and B (*NC/*NO) are available for 2-position single only.
Specify the size of port P/R in the supply and exhaust block section.
***3: Specify the spacer mounting position and quantity in manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 200 to 201 for details.**
***4: Check valve (H) is not available for 3-position all ports closed and PAB connection.**
*5: A filter is built into port P.



Pneumatic Valves
Catalog No. CB-023SA

Reduced wiring manifold
Body piping

MW$^{3}_{4}$GA2-T1/7/8-FP1 Series

● Applicable cylinder bore size: ø20 to ø80

Manifold common specifications

Descriptions		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 *4
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 *2		Dust-proof/jet-proof (IP65) *3
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: Tested according to the test method for IP65 (IEC60529 [IEC529: 1989-11]) standards.**

Electrical specifications

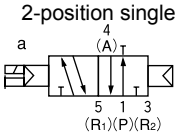
Descriptions		MW3GA2/MW4GA2
Rated voltage V	DC	12, 24
	AC	100
Voltage fluctuation range		±10%
Holding current A	24 VDC	0.025
	12 VDC	0.050
	100 VAC	0.012
Power consumption W *2	24 VDC	0.6
	12 VDC	0.6
Apparent power VA *3	100 VAC	1.2
Thermal class		B

*2: Surge suppressor and indicator are supplied as standard.
*3: Serial transmission is not available with 100 VAC and 12 VDC.

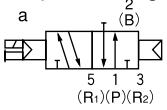
JIS symbol

●3-port valve

2-position single NC

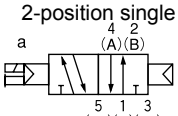


2-position single NO

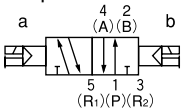


●5-port valve

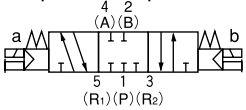
2-position single



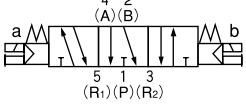
2-position double



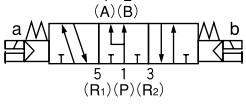
3-position all ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

Descriptions		MW3GA2/MW4GA2													
		T10	T7EC □1	T7EC □2	T7EC □7	T7EN □1	T7EN □2	T7EN □7	T8G1 T8D1	T8G2 T8D2	T8G7 T8D7	T8MA	T8M6	T8C1	T8C6
Max. station No.	Standard wiring	18	16	18	16	16	18	16	16	18	16	4	8	16	8
	Double wiring	9	8	16	8	8	16	8	8	16	8	2	4	8	4
Max. number of solenoids		18	16	32	16	16	32	16	16	32	16	4	8	16	8
Port size	A/B Port	Push-in fitting ø6, ø8, Rc1/8													
	P/R Port	Push-in fitting ø8, ø10													

Descriptions			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 × C.
*2: Values for 2-position and ABR connection are those with integrated check valve.

Reduced wiring specifications

Descriptions	T10
Type	Common terminal block M3 thread
Connector	–

Serial transmission slave unit specifications

Descriptions		Slave (adapter) unit dedicated for valves (no I/O block)				Slave (adapter) 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					

Descriptions		Slave (adapter) unit dedicated for valves (no I/O block)				Slave (adapter) 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
Number 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 supply	2 points: Unit power supply/valve power supply					
	Communication	4 points: MS, NS, L/A IN, L/A OUT					
Degree of protection		IP65					

Descriptions		Slave (adapter) unit dedicated for valves (no I/O block)				Slave (adapter) 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
Number 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 supply	2-positions: PW, PW (V)					
	Communication	4 positions: RUN, ERR, L/A IN, L/A OUT, INFO					
Degree of protection		IP65					

Descriptions		Slave (adapter) unit dedicated for valves (no I/O block)				Slave (adapter) 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
Number 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 supply	2-positions: PW, PW (V)					
	Communication	4 positions: RUN, ERR, L/A IN, L/A OUT, INFO					
Degree of protection		IP65					

Serial transmission slave unit specifications

Descriptions \ Network name	Slave (adapter) unit model No.	CC-Link (Ver1.10)			DeviceNet *1			AS-i (Ver2.0)	
		T8G1	T8G2	T8G7	T8D1	T8D2	T8D7	T8MA	T8M6
Communication speed		156 K/625 K/2.5 M/5 M/10 Mbps			125 K/250 K/500 Kbps			167 Kbps	
Power supply voltage	Unit side	24 VDC ±10%			24 VDC ±10%			30 VDC ±2%	
	Valve side	24 VDC +10%, −5%			24 VDC +10%, −5%			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	60 mA or less *2	90 mA or less *2
	Valve side	15 mA or less (when all points are OFF)			15 mA or less (when all points are OFF)			15 mA or less (when all points are OFF)	
	Communication side	—			50 mA or less			—	
Valve output		NPN			NPN			NPN	
Input/output point count		0/16	0/32	16/16	0/16	0/32	16/16	4/4 *3	8/8 *4
Occupied No.		1 station			2 bytes	4 bytes	4 bytes	1 station	2 station
Operation display		Power supply/communication status/valve power supply			Communication status/valve power supply			Communication status/valve power supply	
Others		—			For EDS file, contact CKD. *5			Profile: 7, F *6	

Descriptions \ Network name	Slave (adapter) unit model No.	CompoBus/S	
		T8C1	T8C6
Communication speed		93.75 K/750 Kbps	
Power supply voltage	Unit side	24 VDC ±10% (communication power supply)	
	Valve side	24 VDC +10%, −5%	
	Communication side	—	
Current consumption	Unit side	50 mA or less *2 (communication power supply)	
	Valve side	15 mA or less (when all points are OFF)	
	Communication side	—	
Valve output		NPN	
Input/output point count		0/16	8/8
Occupied No.		—	
Operation display		Power supply/communication status/valve power supply	
Others		—	

*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 current consumption) = ⋆ + (35 mA × number of input blocks) + (total internal current consumption of connected sensors)
⋆ ……T8G7: 60 mA, T8D7: 80 mA, T8MA: 60 mA, T8M6: 90 mA, T8C6: 50 mA
Note that the sensors should be selected so that the unit current consumption is 600 mA or less for T8G7 and T8D7 and 250 mA or less for T8MA, T8M6 and T8C6.
*3: Outputs of the slave unit with 4 inputs/4 outputs (T8MA) are all dedicated for valves.
*4: The slave unit with 8 inputs/8 outputs (T8M6) requires two addresses. Therefore, the automatic address setting cannot be used.
*5: EDS file: A text file of parameters for communication with various companies' master units
*6: Profile: Definition of meanings of I/O data and parameters of the slave unit for communication with the master unit. Defined in the AS-i specifications sheet.

I/O block specifications

● Input block

Model No. / Descriptions	NW4GA2-IN-N-K	NW4GA2-IN-N-B	NW4GA2-IN-P-K	NW4GA2-IN-P-B
No. of inputs	4 point			
Rated input voltage	24 VDC			
Rated input current	7 mA			
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 format	Sink type		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 199 for model No.**

● Output block

Model No. / Descriptions	NW4GA2-OUT-N-B	NW4GA2-OUT-P-B
Output points	4 point	
Rated voltage	24 VDC	
Max. load current	1 A/1 point (3 A/common)	
Residual voltage	1.5 V or less	
Output format	Sink type	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 199 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 173.

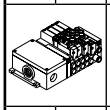
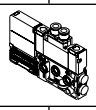
Ⓕ Terminal/connector pin array

Ⓖ Option

Ⓗ Mount

Ⓘ Station No.

Ⓙ Voltage

Ⓐ Model No.	Manifold		Discrete valve block with solenoid valve		Discrete 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 manifolds (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			●	●		
2 to 8	Select the AC cable length on page 194			●	●		
Ⓔ Reduced wiring connection (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	Non-locking manual override	●	●	●	●	●	●
H	Check valve *5	●	●	●	●	●	●
F	Port A/B filter integrated *6	●	●	●	●	●	●
Z1	Air supply spacer *3	●	●				
Z3	Exhaust spacer *3	●	●				
Z8	Individual air supply compatible spacer with in-stop valve spacer *3	●	●				
Ⓗ Mount						
Blank	Direct mount	●	●				
D	DIN rail mount	●	●				
Ⓘ Station No.						
2 to 18	2 stations to 18 stations	●	●				
Ⓙ Voltage						
1	100 VAC (rectifier circuit 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 and quantity in manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 200 to 201 for details.**

*4: Blank.....The wiring 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

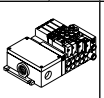
● Discrete valve block with solenoid valve

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 173.
Ⓕ Terminal/connector pin array
Ⓖ Option
Ⓗ Mount
Ⓘ Station No.
Ⓙ Voltage

Code	Content	Ⓐ Model No.					
		Manifold		Discrete valve block with solenoid valve		Discrete 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 manifolds (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			●	●		
Ⓔ Reduced wiring connection (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	Non-locking manual override	●	●	●	●	●	●
H	Check valve *4	●	●	●	●	●	●
F	Port A/B filter integrated *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 *2	●	●				
Z3	Exhaust spacer *2	●	●				
Z8	Individual air supply compatible spacer with in-stop valve spacer *2	●	●				
Ⓗ Mount							
Blank	Direct mount	●	●				
D	DIN rail mount	●	●				
Ⓘ Station No.							
2 to 16	2 stations to 16 stations (Differs depending on the reduced wiring specifications. Refer to the individual specifications (page 181).)	●	●				
Ⓙ 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 and quantity in manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 200 to 201 for details.**

*3: Blank.....The wiring 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 (sink/source) of I/O block and the power supply (shared with slave unit/ external) in the manifold specifications sheet (page 206).**

*7: Serial transmission is not available with 100 VAC and 12 VDC.

[Reduced wiring list]

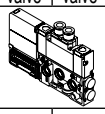
Ⓔ Reduced wiring connection (lamp and surge suppressor provided as standard)			Ⓐ Model No.					
			Manifold		Discrete valve block with solenoid valve		Discrete solenoid valve	
			3-port valve	5-port valve	3-port valve	5-port valve	3-port valve	5-port valve
								
			MW3GA2	MW4GA2	NW3GA2	NW4GA2	W3GA2	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 points I/O (NPN valve output)	●	●				
T7ECPB7		16/16 points 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 points I/O (NPN valve output)	●	●				
T7ENBP7		16/16 points I/O (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 points I/O (NPN valve output)	●	●				
T7EBPB7		16/16 points I/O (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 points I/O (NPN valve output)	●	●				
T7EPPB7		16/16 points I/O (PNP valve output)	●	●				
T8G1	CC-Link	16 point output	●	●				
T8G2		32 point output	●	●				
T8G7		16 point input/16 point output	●	●				
T8C1	CompoBus/S	16 point output	●	●				
T8C6		8 point input/8 point output	●	●				
T8D1	DeviceNet	16 point output	●	●				
T8D2		32 point output	●	●				
T8D7		16 point input/16 point output	●	●				
T8MA	AS-i	4 point input/4 point output	●	●				
T8M6		8 point input/8 point output	●	●				

Table 1 [I/O block combination table]

T7

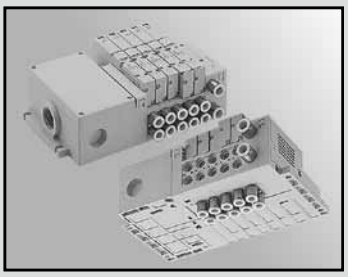
Code	Layout of I/O blocks and station No.						
Y10						IN	Electrical block side
Y20					IN	IN	
Y30				IN	IN	IN	
Y40			IN	IN	IN	IN	
Y11					OUT	IN	
Y21				OUT	IN	IN	
Y31			OUT	IN	IN	IN	
Y41		OUT	IN	IN	IN	IN	
Y12				OUT	OUT	IN	
Y22			OUT	OUT	IN	IN	
Y32		OUT	OUT	IN	IN	IN	
Y42	OUT	OUT	IN	IN	IN	IN	

T8

Code	Layout of I/O blocks and station No.						
Y10						IN	Electrical 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, refer to "Input/output point count corresponding to wiring method T8 I/O No." in "Pneumatic Valves (CB-023SA)".



Reduced wiring manifold
Base side piping/base bottom piping

MW4G$^{B}_{Z}$2-T1/7/8-FP1 Series

● Applicable cylinder bore size: ø20 to ø80

Refer to the Ending for details.

Manifold common specifications

Descriptions	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	Lateral direction from 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 *4	
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/jet-proof (IP65) *3	
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: Tested according to the test method for IP65 (IEC60529 [IEC529: 1989-11]) standards.

Electrical specifications

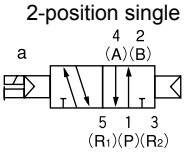
Descriptions		W4GB2
Rated voltage V	DC	12, 24
	AC	100
Voltage fluctuation range		±10%
Holding current A	24 VDC	0.025
	12 VDC	0.050
	100 VAC	0.012
Power consumption W *2	24 VDC	0.6
	12 VDC	0.6
Apparent power VA *3	100 VAC	1.2
Thermal class		B

*2: Surge suppressor and indicator are supplied as standard.
*3: Serial transmission is not available with 100 VAC and 12 VDC.

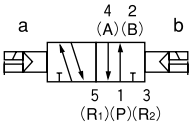
JIS symbol

● 5-port valve

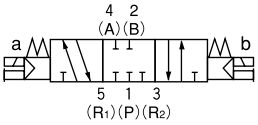
2-position single



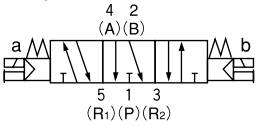
2-position double



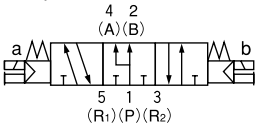
3-position all ports closed



3-position A/B/R connection



3-position P/A/B connection



Individual specifications

Descriptions		MW4GB2/MW4GZ2													
		T10	T7EC □1	T7EC □2	T7EC □7	T7EN □1	T7EN □2	T7EN □7	T8G1 T8D1	T8G2 T8D2	T8G7 T8D7	T8MA	T8M6	T8C1	T8C6
Max. station No.	Standard wiring	18	16	18	16	16	18	16	16	18	16	4	8	16	8
	Double wiring	9	8	16	8	8	16	8	8	16	8	2	4	8	4
Max. number of solenoids		18	16	32	16	16	32	16	16	32	16	4	8	16	8
Port size	A/B Port	Push-in fitting ø6, ø8, Rc1/8													
	P/R Port	Push-in fitting ø8, ø10													

Descriptions			MW4GB2/MW4GZ2	
			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
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 × C.
*2: Values for 2-position and ABR connection are those with integrated check valve.

Reduced wiring specifications

Descriptions	T10
Type	Common terminal block M3 thread
Connector	–

Serial transmission slave unit specifications

Descriptions		Slave (adapter) unit dedicated for valves (no I/O block)				Slave (adapter) 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					

Descriptions		Slave (adapter) unit dedicated for valves (no I/O block)				Slave (adapter) 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
Number 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 supply	2 points: Unit power supply/valve power supply					
	Communication	4 points: MS, NS, L/A IN, L/A OUT					
Degree of protection		IP65					

Descriptions		Slave (adapter) unit dedicated for valves (no I/O block)				Slave (adapter) 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
Number 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 supply	2-positions: PW, PW (V)					
	Communication	4 positions: RUN, ERR, L/A IN, L/A OUT, INFO					
Degree of protection		IP65					

Descriptions		Slave (adapter) unit dedicated for valves (no I/O block)				Slave (adapter) 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
Number 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 supply	2-positions: PW, PW (V)					
	Communication	4 positions: RUN, ERR, L/A IN, L/A OUT, INFO					
Degree of protection		IP65					

MW4GB/Z2-T1/7/8-FP1 Series

Reduced wiring manifold; base side piping/base bottom piping

Serial transmission slave unit specifications

Descriptions \ Network name	Slave (adapter) unit model No.	CC-Link (Ver1.10)			DeviceNet *1			AS-i (Ver2.0)	
		T8G1	T8G2	T8G7	T8D1	T8D2	T8D7	T8MA	T8M6
Communication speed		156 K/625 K/2.5 M/5 M/10 Mbps			125 K/250 K/500 Kbps			167 Kbps	
Power supply voltage	Unit side	24 VDC ±10%			24 VDC ±10%			30 VDC ±2%	
	Valve side	24 VDC +10%, −5%			24 VDC +10%, −5%			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	60 mA or less *2	90 mA or less *2
	Valve side	15 mA or less (when all points are OFF)			15 mA or less (when all points are OFF)			15 mA or less (when all points are OFF)	
	Communication side	—			50 mA or less			—	
Valve output		NPN			NPN			NPN	
Input/output point count		0/16	0/32	16/16	0/16	0/32	16/16	4/4 *3	8/8 *4
Occupied No.		1 station			2 bytes	4 bytes	4 bytes	1 station	2 station
Operation display		Power supply/communication status/valve power supply			Communication status/valve power supply			Communication status/valve power supply	
Others		—			For EDS file, contact CKD. *5			Profile: 7, F *6	

Descriptions \ Network name	Slave (adapter) unit model No.	CompoBus/S	
		T8C1	T8C6
Communication speed		93.75 K/750 Kbps	
Power supply voltage	Unit side	24 VDC ±10% (communication power supply)	
	Valve side	24 VDC +10%, −5%	
	Communication side	—	
Current consumption	Unit side	50 mA or less *2 (communication power supply)	
	Valve side	15 mA or less (when all points are OFF)	
	Communication side	—	
Valve output		NPN	
Input/output point count		0/16	8/8
Occupied No.		—	
Operation display		Power supply/communication status/valve power supply	
Others		—	

*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 current consumption) = [*] + (35 mA × number of input blocks) + (total internal current consumption of connected sensors)
[*] ……T8G7: 60 mA, T8D7: 80 mA, T8MA: 60 mA, T8M6: 90 mA, T8C6: 50 mA
Note that the sensors should be selected so that the unit current consumption is 600 mA or less for T8G7 and T8D7 and 250 mA or less for T8MA, T8M6 and T8C6.

*3: Outputs of the slave unit with 4 inputs/4 outputs (T8MA) are all dedicated for valves.

*4: The slave unit with 8 inputs/8 outputs (T8M6) requires two addresses. Therefore, the automatic address setting cannot be used.

*5: EDS file: A text file of parameters for communication with various companies' master units

*6: Profile: Definition of meanings of I/O data and parameters of the slave unit for communication with the master unit. Defined in the AS-i specifications sheet.

I/O block specifications

● Input block

Model No. / Descriptions	NW4GB2-IN-N-K	NW4GB2-IN-N-B	NW4GB2-IN-P-K	NW4GB2-IN-P-B
No. of inputs	4 point			
Rated input voltage	24 VDC			
Rated input current	7 mA			
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 format	Sink type		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 199 for model No.**

● Output block

Model No. / Descriptions	NW4GB2-OUT-N-B	NW4GB2-OUT-P-B
Output points	4 point	
Rated voltage	24 VDC	
Max. load current	1 A/1 point (3 A/common)	
Residual voltage	1.5 V or less	
Output format	Sink type	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 199 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

● Discrete solenoid valve (common for NW4GB2/NW4GZ2 *1)

W4GB2 1 9 - 00 — H — 3 - FP1

Ⓐ Model No.
Ⓑ Solenoid position
Ⓒ Port size *2
Ⓓ Electrical connections *3
Ⓔ Reduced wiring connection
For circuit diagrams (inside the solenoid valve), refer to page 173.
Ⓕ Terminal/connector pin array
Ⓖ Option
Ⓗ Mount
Ⓘ Station No.
Ⓙ Voltage

Code	Content	Ⓐ Model No. Manifold MW4GB2	Manifold MW4GZ2	Discrete valve block with solenoid valve NW4GB2	Discrete valve block with solenoid valve NW4GZ2	Discrete 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 manifolds (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	A Port / B Port					
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			●	●	
2 to 8	Select the AC cable length on page 194.			●	●	
Ⓔ Reduced wiring connection (lamp and surge suppressor provided as standard)						
T10	Common terminal block (M3 screw) Left-sided spec.	●	●			
Ⓕ Terminal/connector pin array						
Blank	Standard wiring *5	●	●	●	●	
W	Double wiring *5	●	●	●	●	
Ⓖ Option						
Blank	No option	●	●	●	●	●
M	Non-locking manual override	●	●	●	●	●
H	Check valve *6	●	●	●	●	●
F	Port A/B filter integrated *7	●	●	●	●	
Z1	Air supply spacer *4	●	●			
Z3	Exhaust spacer *4	●	●			
Z8	Individual air supply compatible spacer with in-stop valve spacer *4	●	●			
Ⓗ Mount						
Blank	Direct mount	●	●			
D	DIN rail mount	●				
Ⓘ Station No.						
2 to 18	2 stations to 18 stations	●	●			
Ⓙ Voltage						
1	100 VAC (rectifier circuit 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: Plugs of ports A and B (*NC/*NO) are available for 2-position single only.
Specify the size of port P/R in the supply and exhaust block section.

*3: If a change of specifications is expected for AC, select a valve block with masking plate as a spare block.

***4: Specify the spacer mounting position and quantity in manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 200 to 201 for details.**

*5: Blank.....The wiring 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.

MW4GB2/Z2-T7/T8-FP1 Series

Reduced wiring manifold; 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

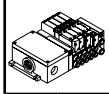
NW4GB2 1 0- C8 - ○ W H — 3 - FP1

NW4GZ2 1 0- C8 - ○ W H — 3 - FP1

● Discrete solenoid valve (common for NW4GB2/NW4GZ2 *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 173.
Ⓕ Terminal/connector pin array
Ⓖ Option
Ⓗ Mount
Ⓘ Station No.
Ⓙ Voltage

Ⓐ Model No.	Manifold		Discrete valve block with solenoid valve		Discrete solenoid valve
					
Code / Content	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 manifolds (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 / A Port / B Port					
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			●	●	
Ⓔ Reduced wiring connection (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 Non-locking manual override	●	●	●	●	●
H Check valve *4	●	●	●	●	●
F Port A/B filter integrated *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					
Blank Direct mount	●	●			
D DIN rail mount	●				
Ⓘ Station No.					
2 to 16 2 stations to 16 stations (Differs depending on the reduced wiring specifications. Refer to the individual specifications (page 187).)	●	●			
Ⓙ Voltage					
3 24 VDC *8	●	●	●	●	●

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: Plugs of ports A and B (*NC/*NO) are available for 2-position single only. Specify the port size of port P/R with the supply and exhaust block.

*3: Blank.....The wiring 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: Specify the I/O (sink/source) of I/O block and the power supply (shared with slave unit/external) in the manifold specifications sheet on pages 207 to 208.**

***7: Specify the spacer mounting position and quantity in manifold specifications sheet. Stacking of spacers is not possible. Combination with the masking plate is not supported. Refer to pages 200 to 201 for details.**

*8: Serial transmission is not available with 100 VAC and 12 VDC.

[Reduced wiring list]

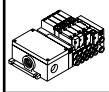
			Ⓐ Model No.				
			Manifold		Discrete valve block with solenoid valve		Discrete solenoid valve
							
			MW4GB2	MW4GZ2	NW4GB2	NW4GZ2	W4GB2
Ⓔ Reduced wiring (lamp and surge suppressor provided as standard)							
T7EC1	Thin type EtherCAT	16-point output (NPN valve output)	●	●			
T7ECP1		16-point output (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 type 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-point I/O (NPN valve output)	●	●			
T7ENBP7		16/16-point I/O (PNP valve output)	●	●			
T7EB1	Thin type 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-point I/O (NPN valve output)	●	●			
T7EBPB7		16/16-point I/O (PNP valve output)	●	●			
T7EP1	Thin type 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-point I/O (NPN valve output)	●	●			
T7EPPB7		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	●	●			
T8C1	CompoBus/S	16 point output	●	●			
T8C6		8 point input/8 point output	●	●			
T8D1	DeviceNet	16 point output	●	●			
T8D2		32 point output	●	●			
T8D7		16 point input/16 point output	●	●			
T8MA	AS-i	4 point input/4 point output	●	●			
T8M6		8 point input/8 point output	●	●			

Table 1 [I/O block combination table]

T7

Code	Layout of I/O blocks and station No.						Electrical block side
Y10						IN	
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.						Electrical block side
Y10						IN	
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 "Input/output point count corresponding to wiring method T8 I/O No." in "Pneumatic Valves (CB-023SA)".

NW4G-FP1 Series

Block manifold; piping section

Piping

A. Discrete valve block with solenoid valve

* Two tie rods are included when it is ordered for expansion.

Block assembled from solenoid valve body and valve block (split resin base).

For selection guide, refer to pages 178, 180, 184 to 186 and 190 to 192.

B. Discrete valve block with masking plate

* Two tie rods are included when it is ordered for expansion.

NW4GA2 - MP ——— R1 — FP1
NW4GB2 - MPS - C8 - [ ] F - FP1
NW4GZ2 - MPD - C8 - [ ] F - FP1

Model No. Ⓐ Type Ⓑ Port size Ⓒ Electrical connections Ⓓ Option

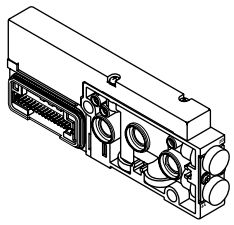
Ⓐ Type (*1)		Ⓑ Port size (*2)		Ⓒ Electrical connections (*3)		Ⓓ Option	
MP	Individual wiring	**C6**	ø6 Push-in fitting	**Blank**	DC connector relay board specifications	**Blank**	No option
MPS	Standard wiring (single)	**C8**	ø8 Push-in fitting	**R1**	I/O connector (M12) (500 mm)	**F**	Port A/B filter built in
MPD	Double wiring (single), double/3-position	**C6NC**	Port A/ø6 push-in fitting, port B/plug	**2 to 8**	Select the AC cable length on page 943.		
		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.

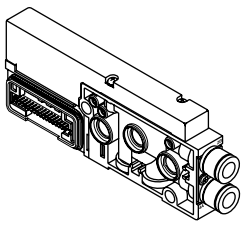
*3: Keep the code blank for DC and specify the cable length of socket assembly for AC. If specified in the manifold specifications sheet, the cable length can be omitted.
The socket assembly for AC is wired as double solenoid.

[for DC]

NW4GA2-MPS-FP1

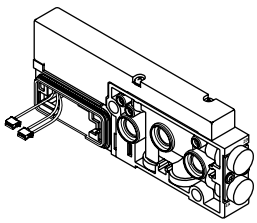


NW4GB2-MPS-C8-FP1

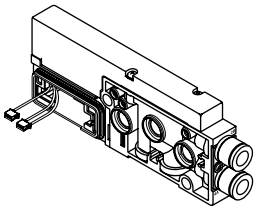


[for AC]

NW4GA2-MPD-2-FP1



NW4GB2-MPD-C8-2-FP1



Piping

C. Discrete valve block (discrete only) * Two tie rods are included when it is ordered for expansion.

NW4GA2 - V ——— R1 — FP1
NW4GB2 - V1 - C8 - F - FP1
NW4GZ2 - V2 - C8 - F - FP1

Model No. Ⓐ Type Ⓑ Port size Ⓒ Electrical connections Ⓓ Option

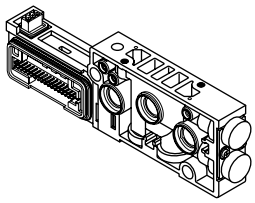
Ⓐ Type (*1)		Ⓑ Port size (*2)		Ⓒ Electrical connections (*3)		Ⓓ Option	
V	Individual wiring	**C6**	ø6 Push-in fitting	**Blank**	DC connector relay board specifications	**Blank**	No option
V1	Standard wiring (single)	**C8**	ø8 Push-in fitting	**R1**	I/O connector (M12) (500 mm)	**F**	Port A/B filter built in
V2	Double wiring (single), 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.

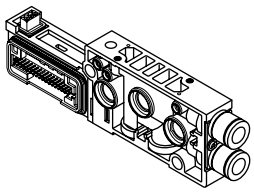
*3: Keep the code blank for DC and specify the cable length of socket assembly for AC.
The socket assembly for AC is wired as double solenoid.

[for DC]

NW4GA2-V1-FP1

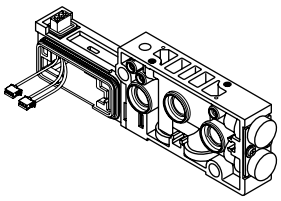


NW4GB2-V2-C8-FP1

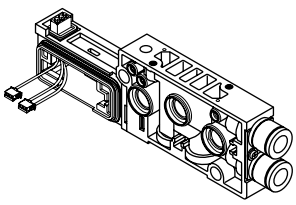


[for AC]

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.

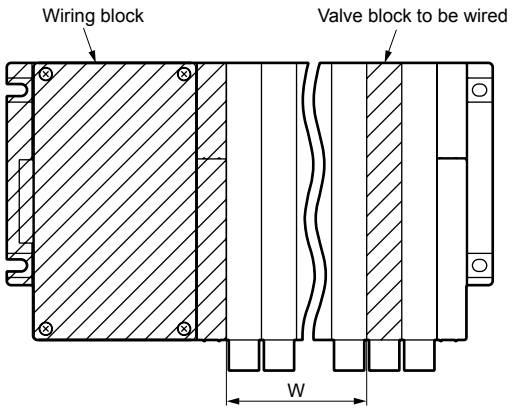
$W = (23.5 \times n)+(18 \times m)+(13.5 \times l)+230$

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

* Two tie rods are included when it is ordered for expansion.

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) (*4)		Ⓔ Voltage	
Q	Internal pilot	**8**	ø8 Push-in fitting	**Blank**	Common exhaust	**Blank**	Without partition	**Blank**	DC connector relay board
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 as an independent part. Be sure to use with another type (Q).

*2: A filter for preventing entry of foreign matter is incorporated in P port.

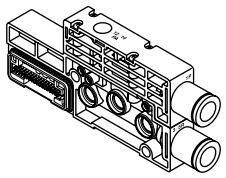
*3: The atmosphere release (X) discharges exhaust from the end block. Select the atmosphere release end block (EX) for X.

*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.

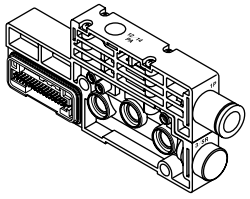
*5: Select "AC" for individual wiring manifold since it does not need a DC connector relay PCB. "Blank" is also allowed.

[for DC]

NW4G2-Q-10-FP1



NW4G2-Q-10X-FP1



*** For circuit diagrams, refer to page 173.**

E. End block

An exhaust muffler is built into the atmosphere release type.

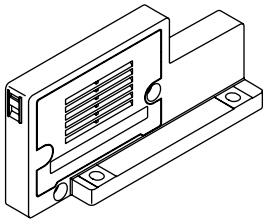
NW4G2 - ER - FP1

Model No. Ⓐ Type

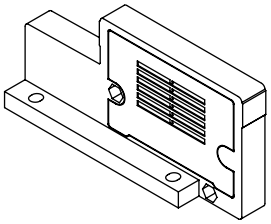
Ⓐ Type (*1)	
EL	Common exhaust Left
ER	Common exhaust Right
EXL	Atmospheric pressure release Left
EXR	Atmospheric pressure release Right

*1: An exhaust muffler is built into the atmosphere release (EX).

NW4G2-ER-FP1



NW4G2-EL-FP1



F. Partition block

* Two tie rods are included when it is ordered for expansion.

NW4G2 - SA - ◯ - FP1

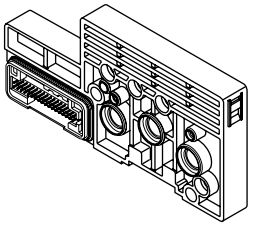
Model No. Ⓐ Type Ⓑ Voltage

Ⓐ Type (*1)		Ⓑ Voltage	
SA	P/R/PA/PR blocked	**Blank**	DC connector relay board
S	P/R blocked, PA/PR through	**AC**	Without AC connector relay board

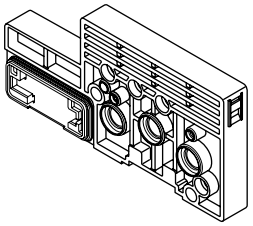
*1: PA and PR paths of pilot pressure for blocks other than SA are not blocked. Take note when configuring the system.

*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

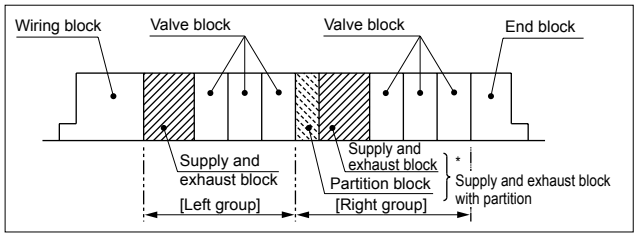


[For AC]
NW4G2-S-AC-FP1



Piping

● Notes on configuring manifold



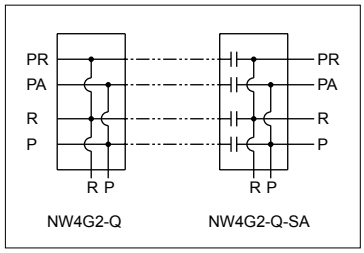
- The selected supply and exhaust block determines internal or external pilot operated. Valve block is the same for both types.
- The multi pressure type can be included when a partition block is combined with the supply and exhaust block.
- Using a supply and exhaust block with partition that combines 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

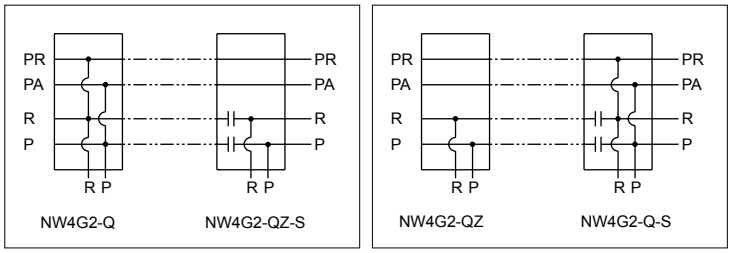
- Combine the partition block and supply and exhaust block or use the supply and exhaust block with partition to configure the desired pneumatic system. As some combinations may cause malfunction depending on the configuration, check the function of each block before actual implementation.
- Use the configuration examples below as a guide. (Supply and exhaust block with partition is used in the examples.)

Configuration for internal pilot (circuit code)

① Two supply pressures within the working pressure (0.2 to 0.7 MPa)

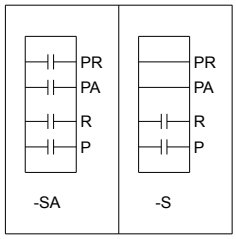


② Supply pressure within the working pressure (0.2 to 0.7 MPa) and supply pressure of low pressure (0.2 MPa or less) or low vacuum



* 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 - R1 ○ ○ - 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. Ⓐ A/B Port Port size Ⓒ Exhaust method Ⓑ P/R Port Port size Ⓓ P/R Port Air supply and exhaust position Ⓔ Wiring method Ⓕ Terminal/ connector pin array Ⓖ Option Ⓗ Station No. Ⓘ Voltage

Ⓐ A/B port Port size		Ⓑ P/R port Port size		Ⓒ Exhaust method		Ⓓ P/R port Air 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 *2 (including standard lamp and surge suppressor)			Ⓕ Terminal/connector pin array	
R1	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)		
T7ECB7		16/16 I/O point (NPN)		
T7ECPB7		16/16 I/O point (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)		
T7ENB7		16/16 I/O point (NPN)		
T7ENPB7		16/16 I/O point (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)		
T7EBB7		16-point/16-point I/O point (NPN)		
T7EBPB7		16-point/16-point I/O point (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)		
T7EPB7		16-point/16-point I/O point (NPN)		
T7EPPB7		16-point/16-point I/O point (PNP)		
T8G1	Serial transmission CC-Link	16 point output		
T8G2		32 point output		
T8G7		16 point input/16 point output		
T8C1	Serial transmission CompoBus/S	16 point output		
T8C6		8 point input/8 point output		
T8D1	Serial transmission DeviceNet	16 point output		
T8D2		32 point output		
T8D7		16 point input/16 point output		
T8MA	Serial transmission AS-i	4 point input/4 point output		
T8M6		8 point input/8 point output		

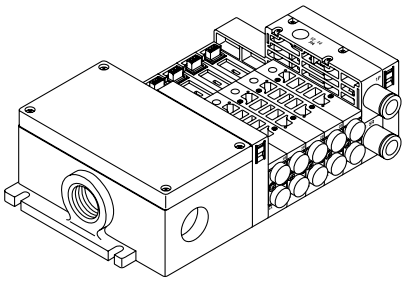
*2: 100 VAC is only for common terminal block. Serial transmission is not available with 100 VAC and 12 VDC.

Ⓖ Option *3		Ⓗ Station No. *5		Ⓘ Voltage	
Blank	No option	2	2 stations	1	100 VAC (rectifier circuit 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)

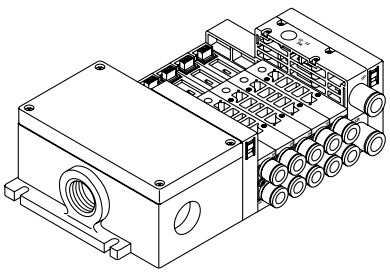
*3: I/O block cannot be selected.
*4: A filter is built into port P.

***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 177, 179, 181 and 187).**

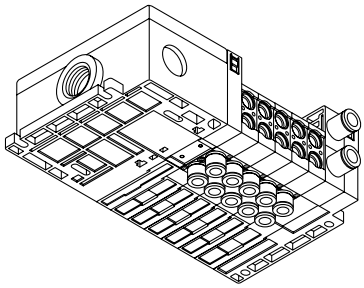
MW4GA2 (Body piping)



MW4GB2 (Base side piping)



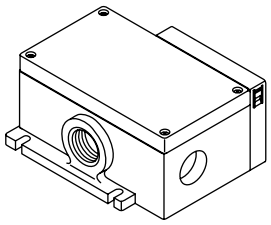
MW4GZ2 (Base bottom piping)



Wiring (Wiring block) * Wiring block cannot be ordered as a separate item.

H. Common terminal box (T10)

NW4G2-T10*-FP1



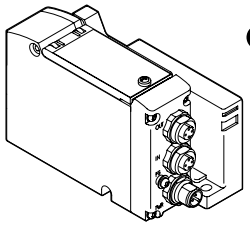
L. Serial transmission block

(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

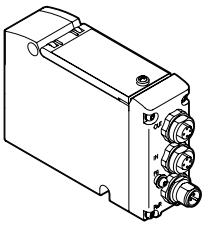
Ⓐ Type



Ⓐ 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)

W4G - OPP8 - 1EC - FP1

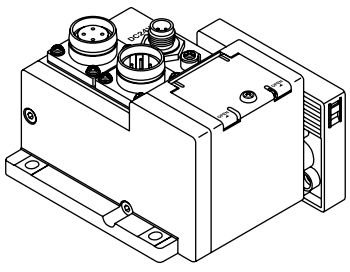
Ⓐ Type



Ⓐ 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)

● CC-Link (T8G*)

NW4GA2-T8G*-FP1

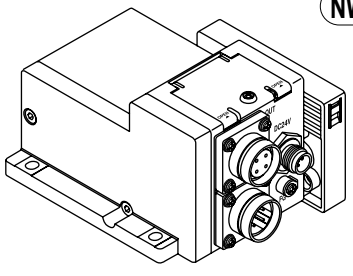


NW4GA2 - T8G1 - FP1

Ⓐ Type

Ⓐ Type	
T8G1	16 point output
T8G2	32 point output
T8G7	16 point input/16 point output

NW4GB2-T8G*-FP1



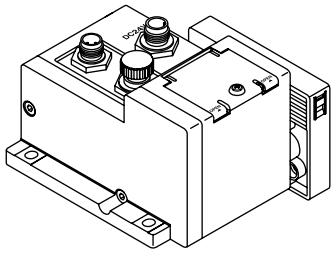
NW4GB2 - T8G1 - FP1

Ⓐ Type

Ⓐ Type	
T8G1	16 point output
T8G2	32 point output
T8G7	16 point input/16 point output

● DeviceNet (T8D*)

NW4GA2-T8D*-FP1

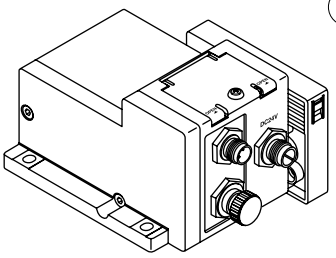


NW4GA2 - T8D1 - FP1

Ⓐ Type

Ⓐ Type	
T8D1	16 point output
T8D2	32 point output
T8D7	16 point input/16 point output

NW4GB2-T8D*-FP1



NW4GB2 - T8D1 - FP1

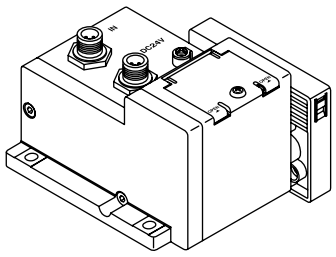
Ⓐ Type

Ⓐ Type	
T8D1	16 point output
T8D2	32 point output
T8D7	16 point input/16 point output

● AS-i (T8M*)

● CompoBus/S (T8C*)

NW4GA2-T8M*-FP1
NW4GA2-T8C*-FP1

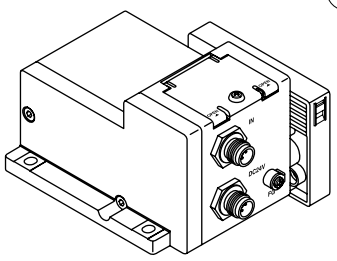


NW4GA2 - T8M6 - FP1

Ⓐ Type

Ⓐ Type	
T8MA	4 point input/4 point output
T8M6	8 point input/8 point output
T8C1	0 point input/16 point output
T8C6	8 point input/8 point output

NW4GB2-T8M*-FP1
NW4GB2-T8C*-FP1



NW4GB2 - T8M6 - FP1

Ⓐ Type

Ⓐ Type	
T8MA	4 point input/4 point output
T8M6	8 point input/8 point output
T8C1	0 point input/16 point output
T8C6	8 point input/8 point output

M. I/O block

* Two tie rods are included when it is ordered for expansion.

Top wiring: **NW4GA2 - IN - N - K - FP1**

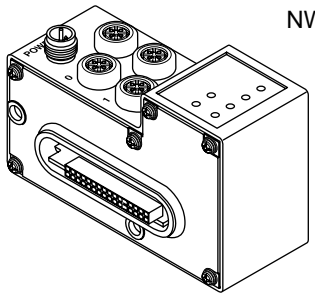
Side wiring: **NW4GB2 - OUT - N - B - FP1**

Ⓐ I/O
Ⓑ I/O format
Ⓒ Power supply

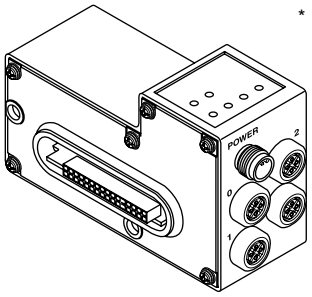
Ⓐ I/O		Ⓑ I/O format		Ⓒ Power supply	
IN	Input	N	Sink	K	Shared with serial transmission slave unit *1, *2
OUT	Output	P	Source	B	External power supply

*1 Output block can be used with external power supply (B) only.
*2 A waterproof cap is included as standard to the power supply connector of the power supply shared (K) with the serial transmission slave unit.

NW4GA2-$\frac{IN}{OUT}$-$\frac{N}{P}$-$\frac{K}{B}$-FP1



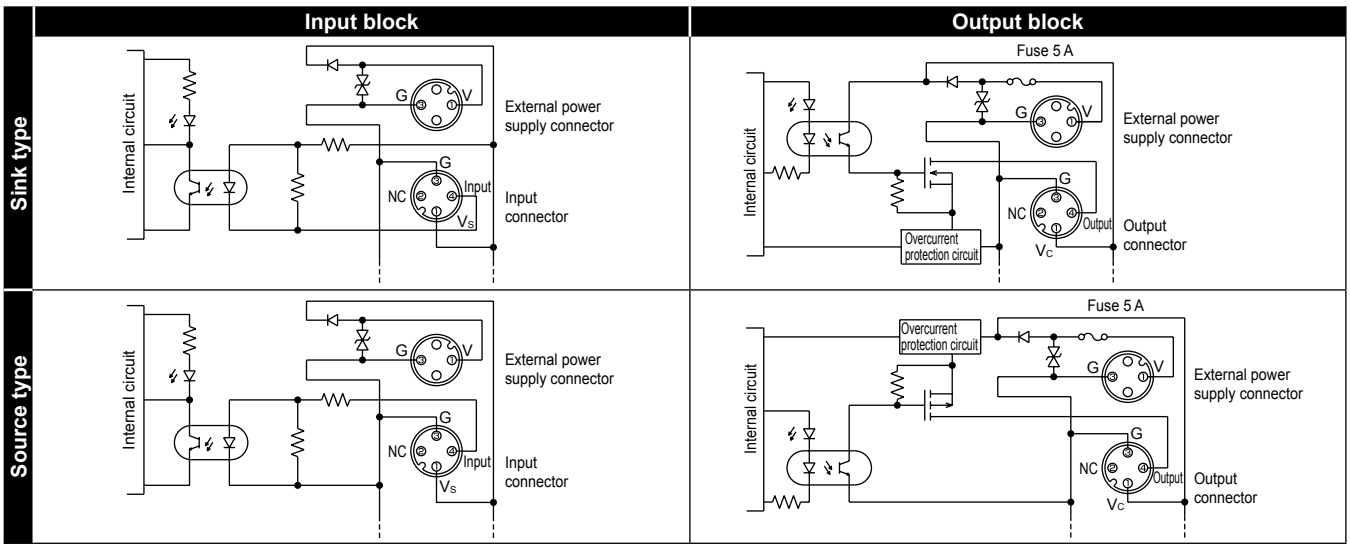
NW4GB2-$\frac{IN}{OUT}$-$\frac{N}{P}$-$\frac{K}{B}$-FP1



* When serial transmission slave unit is T7, all are side wiring.

* When ordered as manifold component and combined with I/O block, an end block is mounted on the left as standard.

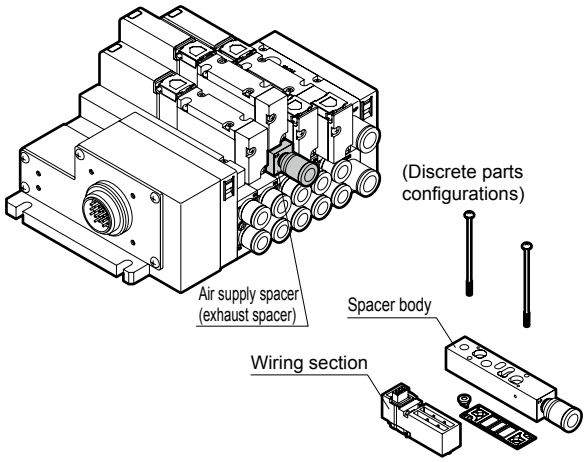
I/O type [Simplified circuit]



*** For the procedure for wiring connection, 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: Formula to calculate sonic conductance C from effective cross-sectional area S is S ≈ 5.0 × 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: Formula to calculate sonic conductance C from effective cross-sectional area S is S ≈ 5.0 × C.

● Discrete air supply spacer model No.

W4G2 − P ○ − GWS6 − FP1

Ⓐ Type

Ⓑ Port size

Code	Content
Ⓐ Type	
Blank	Internal pilot

Ⓑ Port size		
	Bore size	Content
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	Content
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 positions and quantity of spacers for manifold in the manifold specifications sheet (pages 205 to 208).**

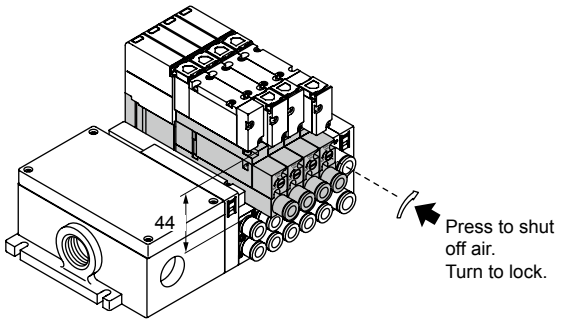
*2: Stacking of spacers is not possible.

*3: A spacer cannot be combined with a masking plate.

NW4G-FP1 Series

Block manifold; related products

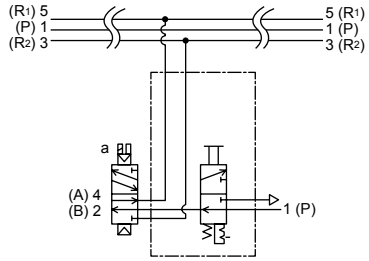
● Individual air supply compatible spacer with in-stop valve spacer



Specifications

Descriptions		W4G2-PIS
Working fluid		Compressed air
Max. working pressure	MPa	0.7
Min. working pressure	MPa	0.2
Proof pressure	MPa	1.05
Flow characteristic 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: Individual air supply compatible spacer with in-stop valve spacer
- GWS6: Ⓐ Port size

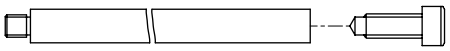
Code	Content
Ⓐ Port size	
GWS6	ø6 Fitting
GWS8	ø8 Fitting

⚠ 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



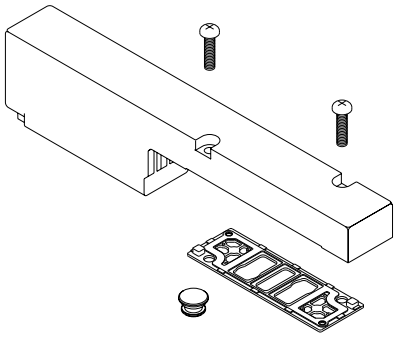
W4G2 - TR - V1 - FP1

- 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

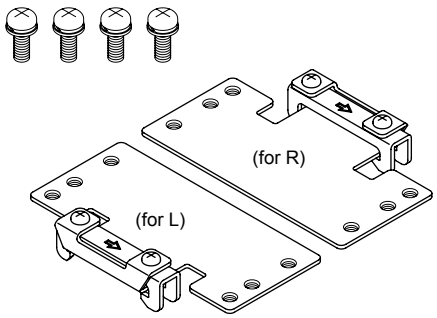
W4G2-MP-FP1



* 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 Ⓘ Station No. Ⓙ Voltage

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.199)	NW4GA2-IN-[N]-[K]-FP1	○ at 2	1
	NW4GA2-OUT-[N]-B-FP1	○ at 1	1
Wiring block (P.198)	NW4GA2-T[8G7]-FP1	○ at 3	1
Valve block with solenoid valve (P.184 to 186)	NW4GA2[2]0-[C6]-FP1	○ at 4	1
	NW4GA2[3]0-[C4]-FP1	○ at 6	1
	NW4GA2[ ]0-[ ]-FP1	○ at 5	1
	NW4GA2[ ]0-[ ]-FP1		
	NW4GA2[ ]0-[ ]-FP1		
Valve block with masking plate (P.193)	NW4G2-MPS-FP1		
	NW4G2-MPD-FP1	○ at 12	1
Supply and exhaust block (P.195)	NW4G2-Q[ ]-[8]-[ ]-FP1	○ at 7, ○ at 9	2
	NW4G2-Q[ ]-[ ]-[ ]-FP1		
	NW4G2-Q[ ]-[ ]-[ ]-FP1		
	NW4G2-Q[ ]-[ ]-[ ]-FP1		
Partition block (P.195)	NW4G2-[SA]-FP1	○ at 8	1
	NW4G2-[ ]-FP1		
	NW4G2-[ ]-FP1		
End block R (P.195)	NW4G2-[E]R-FP1	○ at 13	1

When the input/output blocks are both being installed, the output block will be on the 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.

Mark a circle if necessary when the reduced wiring connection is T10. (Select with applicable cable O.D.)

DIN rail	L_7 = [ ] (How to calculate length P.203)	Blanking plug	Silencer	Tag plate	Cable clamp W4G-SCL-18A	Cable clamp W4G-SCL-18B	Waterproof plug	Included parts
		GWP4-B, GWP6-B, GWP8-B, GWP10-B	SLW-H8, SLW-H10	A	Applicable cable O.D. ø14.5 to 16.5	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 the manifold specifications

- Complete from the left end, with the piping port facing forward, regardless of the electrical block method. (Include the model No. of the block selected from block configurations (pages 193 to 201) and instructions for the arrangement thereof.)
- Indicate the total number of blocks designated in the required quantity on the right of the table.
- Mark a circle for optional parts 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 205
MW4GA2 (reduced wiring body piping).....Page 206
MW4GB2 (reduced wiring base side piping).....Page 207
MW4GZ2 (reduced wiring base bottom piping).....Page 208

* 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, length (L_7) is not required on the specifications sheet. 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 right table.

DIN rail length (L_7) = L_7' × 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

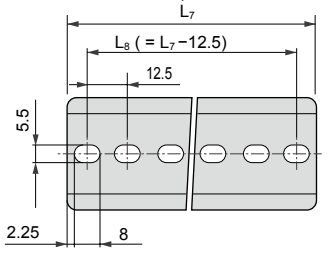
Model No.		Dimensions (mm)
Wiring block for reduced wiring	T10	175.5
	T20	110
	T30/5*	106
	T8*	148.5

* 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: When L_6 exceeds the range shown in this table, 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 203.

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.

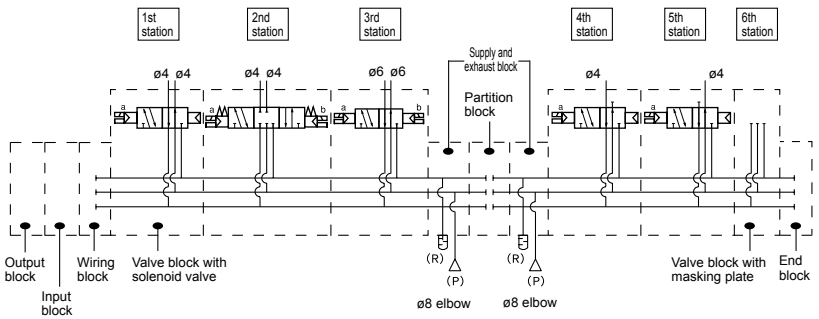
(3) The valve block with masking plate is wired in advance.
"-MPS" will be wired on only the a side while "-MPD" will be wired on the a and b sides.

(4) It is not possible to assemble a double solenoid or 3-position solenoid valve 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.
(* The I/O blocks, 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 193 to 201) and individual wiring manifolds (pages 178 to 180), and reduced wiring manifolds (pages 184 to 185, 190 to 191).
- 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. Ⓑ Solenoid position Ⓒ Port size Ⓓ Wiring method Ⓔ Option Ⓕ Mount Ⓖ Station No. Ⓗ Voltage

When filling in this field, select the model No. from Block configurations (pages 193 to 201) and pages 178 to 180.

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	Qty.
Valve block with solenoid valve (P.178, P180)	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																															
Valve block with masking plate (P.193)	NW4G☐2-MP-☐-R1-FP1																															
	NW4G☐2-MP-☐-R1-FP1																															
	NW4G☐2-MP-☐-R1-FP1																															
Supply and exhaust block (P.195)	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
Various spacers (P.200, P.201)	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.195)	NW4G2-S☐-FP1																															
	NW4G2-S☐-FP1																															
End block (P.195)	NW4G2-E☐L-FP1																															
	NW4G2-E☐R-FP1																															

DIN rail	L_7= ☐ (How to calculate length P.203)	Blanking plug						Silencer				Tag plate (included)		Included parts
		GWP6-B		GWP8-B		GWP10-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 Ⓕ Terminal/connector pin array Ⓖ Option Ⓗ Mount Ⓘ Station No. Ⓙ Voltage

When filling in this field, select the model No. from Block configurations (pages 193 to 201) and pages 184 to 186.

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	Qty.
I/O block (P.199) (*2)	NW4G☐2-IN-☐-☐-FP1																															
	NW4G☐2-OUT-☐-B-FP1																															
Wiring block (P.198)	NW4G☐2-T☐-FP1 (*1)																															
Valve block with solenoid valve (P.184 to 186)	NW4GA2☐0-☐-FP1																															
	NW4GA2☐0-☐-FP1																															
	NW4GA2☐0-☐-FP1																															
	NW4GA2☐0-☐-FP1																															
	NW4GA2☐0-☐-FP1																															
	NW4GA2☐0-☐-FP1																															
	NW4GA2☐0-☐-FP1																															
	NW4GA2☐0-☐-FP1																															
Valve block with masking plate (P.193)	NW4GA2-MPS-FP1																															
	NW4GA2-MPD-FP1																															
Supply and exhaust block (P.195)	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
Various spacers (P.200, P.201)	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.195)	NW4G2-☐-FP1																															
	NW4G2-☐-FP1																															
End block (P.195)	NW4G2-☐R-FP1																															

DIN rail (*3)	L_7 = ☐ (How to calculate length P.203)	Blanking plug			Silencer		Tag plate	Cable clamp W4G-SCL-18A	Cable clamp W4G-SCL-18B	Waterproof plug	Individual parts
		GWP6-B	GWP8-B		SLW-H8		A	Applicable cable O.D. ø14.5 to 16.5	Applicable cable O.D. ø16.5 to 18.5	W4G-XSZ-12	
		GWP10-B			SLW-H10						
		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 198)

Blank: when T10/T7*
A: when T8*

2: When the wiring block is reduced wiring T7, the I/O block is side wiring and MW4GB2-$^{IN}_{OUT}$ is 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 Ⓘ Station No. Ⓙ Voltage

When filling in this field, select the model No. from Block configurations (pages 193 to 201) and pages 190 to 192.

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	Qty.
I/O block (P.199)	NW4GB2-IN-☐-☐-FP1																															
	NW4GB2-OUT-☐-B-FP1																															
Wiring block (P.198)	NW4G☐2-T☐-FP1 (*1)																															
Valve block with solenoid valve (P.190 to 192)	NW4GB2☐0-☐-FP1																															
	NW4GB2☐0-☐-FP1																															
	NW4GB2☐0-☐-FP1																															
	NW4GB2☐0-☐-FP1																															
	NW4GB2☐0-☐-FP1																															
	NW4GB2☐0-☐-FP1																															
	NW4GB2☐0-☐-FP1																															
	NW4GB2☐0-☐-FP1																															
Valve block with masking plate (P.193)	NW4GB2-MPS-☐-FP1																															
	NW4GB2-MPD-☐-FP1																															
Supply and exhaust block (P.195)	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
Various spacers (P.200, P.201)	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.195)	NW4G2-☐-FP1																															
	NW4G2-☐-FP1																															
End block (P.195)	NW4G2-☐R-FP1																															

DIN rail (*2)	L_7 = ☐ (How to calculate length P.203)	Blanking plug				Silencer		Tag plate		Cable clamp W4G-SCL-18A		Cable clamp W4G-SCL-18B		Waterproof plug		Included parts
		GWP6-B		GWP8-B		SLW-H8		B		Applicable cable O.D. ø14.5 to 16.5		Applicable cable O.D. ø16.5 to 18.5		W4G-XSZ-12		
		GWP10-B				SLW-H10										

Cable with D-sub-connector	Cable with multi-connector	Multi-connector only	Included parts
N4T-CABLE-DO☐-☐	W4G-RMC-☐	W4G2-RM21WTP-☐	

*1: Specify the model No. for the wiring block in the following manner.

NW4G☐2-T☐-FP1

- ☐ (before 2-T): Blank: when T10/T7*, B: when T8*
- ☐ (after 2-T): Type of wiring block (Refer to page 198)

2: T7 is not DIN rail mount.

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 193 to 201) and pages 190 to 192.

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	Qty.
I/O block (P.199)	NW4GB2-IN-☐-☐-FP1																															
	NW4GB2-OUT-☐-B-FP1																															
Wiring block (P.198)	NW4G☐2-T☐-FP1 (*1)																															
Valve block with solenoid valve (P.190 to 192)	NW4GZ2☐0-☐-FP1																															
	NW4GZ2☐0-☐-FP1																															
	NW4GZ2☐0-☐-FP1																															
	NW4GZ2☐0-☐-FP1																															
	NW4GZ2☐0-☐-FP1																															
	NW4GZ2☐0-☐-FP1																															
	NW4GZ2☐0-☐-FP1																															
	NW4GZ2☐0-☐-FP1																															
Valve block with masking plate (P.193)	NW4GZ2-MPS-☐-FP1																															
	NW4GZ2-MPD-☐-FP1																															
Supply and exhaust block (P.195)	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
	NW4G2-Q☐-☐-☐-FP1																															
Various spacers (P.200, P.201)	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.195)	NW4G2-☐-FP1																															
	NW4G2-☐-FP1																															
End block (P.195)	NW4G2-☐R-FP1																															

Included parts	Blanking plug				Silencer		Tag plate		Cable clamp				Waterproof plug		
	GWP6-B		GWP8-B		SLW-H8		B		W4G-SCL-18A		W4G-SCL-18B		W4G-XSZ-12		
	GWP10-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 198)

Blank: when T10/T7*
B: when T8*

Common gland (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																								
9																								
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18																								
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 

Specifications

Descriptions		C1020-W	C2020-W	C2520-W	C3020-W	C4020-W	C6020-W	C8020-W
Appearance								
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
Filtration μm		5						
Set pressure MPa		0.05 to 0.85 *2	0.05 to 0.85					
Relief		With relief mechanism						
Drain capacity cm^3		12	25	45	45	80	80	80 (*3)
Port size Rc *8		1/8, 1/4 (3/8 with adapter)	1/4, 3/8 (1/2 with adapter)	1/4, 3/8 (1/2 with adapter)	1/4, 3/8 (1/2 with adapter)	1/4, 3/8, 1/2 (3/4 with adapter)	3/4, 1 (1 1/4 with adapter)	3/4, 1 (1 1/4 with adapter)
Weight kg		0.28	0.64	0.65	0.79	1.25	2.07	2.93
Standard accessories		Pressure gauge, bracket, bowl guard						

*1: With PPX attached, the ambient/fluid temperature of the digital pressure sensor "R2" is 5 to 50°C.

***2: When using C1020 Series "F1" with auto-drain, the min. working pressure is 0.2 MPa and max. working pressure is 0.7 MPa. Refer to the max. working flow rate table for F1000-F1 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.**

*3: Up to 170 cm^3 is stored with the manual drain cock only.

*4: 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.

*5: In the case of "F1" with auto-drain, the min. working pressure of auto-drain is 0.15 MPa.

***6: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for max. flow rate when element option "Y" is selected. Set the working flow rate to less than or equal to the max. working flow rate.**

***7: 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.)**

*8: 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		Pressure gauge		Pipe adapter 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 — Ⓓ Pipe adapter set (not assembled)
- A6W — Ⓔ Pressure gauge (not assembled)

*** Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.**

Code	Content	Ⓐ 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/manual or auto drain (NO: Exhaust w/o pressurized)			●	●	●	●	●
F1	Filter/manual or auto drain (NC: No exhaust w/o pressurized)	●	●	●	●	●	●	●
Bowl material **Blank**	Polycarbonate bowl	●	●	●	●	●	●	●
Z	Nylon bowl	●	●	●	●	●	●	●
M	Metal bowl			●	●	●	●	●
M1	Metal bowl with manual drain cock		●	●	●	●	●	●
Element **Blank**	5 µm	●	●	●	●	●	●	●
Y	0.3 µm (Submicron) *4			●	●	●	●	●
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	●	●	●	●	●	●	●
Relief **Blank**	With relief mechanism	●	●	●	●	●	●	●
N	Pressure reduction	●	●	●	●	●	●	●
Pressure gauge **Blank**	With standard pressure gauge (G401-W)	●	●	●	●	●	●	●
T	No pressure gauge (pressure gauge port (1/4) is assembled sealed)	●	●	●	●	●	●	●
T8	Pressure gauge included (pressure gauge mounting port (1/4) is ventilated)	●	●	●	●	●	●	●
T6	Digital pressure sensor PPX option *6	●	●	●	●	●	●	●
Flow direction **Blank**	Standard flow (left → right)	●	●	●	●	●	●	●
X1	IN/OUT reverse flow (right → left)	●	●	●	●	●	●	●
Ⓓ Pipe adapter set (not assembled)		*7 Refer to CB-024SA						
Blank	Not included	●	●	●	●	●	●	●
A6W	Rc1/8 pipe adapter set	●						
A8W	Rc1/4 pipe adapter set	●	●	●	●	●		
A10W	Rc3/8 pipe adapter set	●	●	●	●	●		
A15W	Rc1/2 pipe adapter set		●	●	●	●		
A20W	Rc3/4 pipe adapter set					●	●	●
A25W	Rc1 pipe adapter set						●	●
A32W	Rc1 1/4 pipe adapter set						●	●
Ⓔ Pressure gauge (not assembled)		*8 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 *9	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: For the auto-drain usage conditions, refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA).**
***4: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for max. processing flow rate when option "Y" is selected.**
*5: The pressure gauge's indication range is 0 to 0.4 MPa for the option "L".
*6: When option "T6" is selected, only "Blank" or "R2" can be selected for Ⓔ Pressure gauge (not assembled). The digital pressure sensor PPX mounting port (Rc1/8) is ventilated.
*7: The joiner set is included with the pipe adapter set.
*8: An R thread pressure gauge is included.



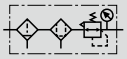
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

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

Descriptions		C1030-W	C2030-W	C2530-W	C3030-W	C4030-W	C6030-W	C8030-W
Appearance								
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					
Relief		With relief mechanism						
Port size	Rc *7	1/8, 1/4 (3/8 with adapter)	1/4, 3/8 (1/2 with adapter)	1/4, 3/8 (1/2 with adapter)	1/4, 3/8 (1/2 with adapter)	1/4, 3/8, 1/2 (3/4 with adapter)	3/4, 1 (1 1/4 with adapter)	3/4, 1 (1 1/4 with adapter)
Weight	kg	0.40	0.98	1.02	1.10	1.86	3.19	4.45
Secondary oil concentration (Oil mist filter outlet side)		0.01 mg/m^3 or less (0.1 mg/m^3 or less after oil saturation)						
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 0.7 MPa. Refer to Pneumatic, Vacuum, and Auxiliary Components (CB-024SA) for max. flow rate when element option "Y" is selected.**

*2: With PPX attached, the ambient/fluid temperature of the digital pressure sensor "R2" is 5 to 50°C.

***3: When using C1030-W Series "F1" with auto-drain, the NC auto-drain is included for both the filter and oil mist filter. Min. working pressure is 0.2 MPa and max. working pressure is 0.7 MPa. Refer to the M1000-W-F1 auto-drain max. working flow rate table (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) 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: 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		Pressure gauge		Pipe adapter 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

- C1030 — Ⓐ Model No.
- 6 — Ⓑ Port size
- W — Ⓒ Option
- L — Ⓓ Pipe adapter set (not assembled)
- FP1 — Ⓔ Pressure gauge (not assembled)
- A6W

*** Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.**

Code	Content	Ⓐ 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 w/o pressurization)			●	●	●	●	●
	F1	Auto-drain with manual override (NC: No exhaust w/o pressurization)	●	●	●	●	●	●	●
Bowl material	**Blank**	Polycarbonate bowl	●	●	●	●	●	●	●
	Z	Nylon bowl	●	●	●	●	●	●	●
	M	Metal bowl			●	●	●	●	●
	M1	Metal bowl with manual drain cock		●	●	●	●	●	●
Element	**Blank**	5 µm	●	●	●	●	●	●	●
	Y	0.3 µm (Submicron) *5			●	●	●	●	●
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 *6	●	●	●	●	●	●	●
Relief	**Blank**	With relief mechanism	●	●	●	●	●	●	●
	N	Pressure reduction	●	●	●	●	●	●	●
Pressure gauge	**Blank**	With standard pressure gauge (G401-W)	●	●	●	●	●	●	●
	T	No pressure gauge (pressure gauge port (1/4) is assembled sealed)	●	●	●	●	●	●	●
	T8	Pressure gauge included (pressure gauge mounting port (1/4) is ventilated.)	●	●	●	●	●	●	●
	T6	Digital pressure sensor PPX option *7	●	●	●	●	●	●	●
Flow direction	**Blank**	Standard flow (left → right)	●	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●	●
Ⓓ Pipe adapter set (not assembled)								*8 Refer to CB-024SA
Blank	Not included	●	●	●	●	●	●	●
A6W	Rc1/8 pipe adapter set	●						
A8W	Rc1/4 pipe adapter set	●	●	●	●	●		
A10W	Rc3/8 pipe adapter set	●	●	●	●	●		
A15W	Rc1/2 pipe adapter set		●	●	●	●		
A20W	Rc3/4 pipe adapter set					●	●	●
A25W	Rc1 pipe adapter set						●	●
A32W	Rc1 1/4 pipe adapter set						●	●
Ⓔ Pressure gauge (not assembled)								*9 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 *8	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: For the auto-drain usage conditions, refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA).**

*4: When option code "F" is selected, the NO auto-drain is included for the air filter and the NC auto-drain is included 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: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for max. processing flow rate when option "Y" is selected.**

*6: The pressure gauge's indication range is 0 to 0.4 MPa for the option "L".

*7: When option "T6" is selected, only "Blank" or "R2" can be selected for Ⓔ Pressure gauge (not assembled). The digital pressure sensor PPX mounting port (Rc1/8) is ventilated.

*8: The joiner set is included with the pipe adapter set.

*9: An R-thread pressure gauge is included.



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

JIS symbol 

RoHS CAD

Specifications

Descriptions		C1060-W	C2060-W	C3060-W	C4060-W	C6060-W	C8060-W
Appearance							
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 *3, *4, *5					
Proof pressure MPa		1.5 *3					
Ambient/fluid temperatures °C		5 to 60					
Port size Rc *7		1/8, 1/4 (3/8 with adapter)	1/4, 3/8 (1/2 with adapter)	1/4, 3/8 (1/2 with adapter)	1/4, 3/8, 1/2 (3/4 with adapter)	3/4, 1 (1 1/4 with adapter)	(1 1/4 with adapter)
Weight kg		0.22	0.58	0.62	1.06	2.02	2.68
Secondary oil concentration		0.01 mg/m^3 or less (0.1 mg/m^3 or less after oil saturation)					
Max. flow rate (*1, *2) m^3/min		0.15 *3	0.25	0.36	0.825	1.27	2.6

*1: The max. flow is for a primary pressure of 0.7 MPa.

***2: Refer to Pneumatic, Vacuum, and Auxiliary Components (CB-024SA) for max. flow rate when element option "Y" is selected. The working flow must be less than the max. working flow.**

***3: For "F1" with auto-drain, the NC auto-drain is included for both the filter and oil mist filter. Min. working pressure is 0.2 MPa, max. working pressure is 0.7 MPa, and proof pressure is 1.05 MPa. 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. The working flow must be less than the max. working flow.**

*4: 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.

*5: In the case of "F1" with auto-drain, the required supply air pressure is 0.15 MPa or more.

***6: Refer to Pneumatic, Vacuum, and Auxiliary Components (CB-024SA) for details on other oil mist filters.**

*7: 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 adapter 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 adapter set (not assembled)

* **Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.**

Code		Content	Ⓐ Model No. C1060	C2060	C3060	C4060	C6060	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	●	●	●	●	●	●
	F	Auto-drain with manual override (NO: Exhaust w/o pressurization)			●	●	●	●
	F1	Auto-drain with manual override (NC: No exhaust w/o pressurization)	●	●	●	●	●	●
Bowl material	**Blank**	Polycarbonate bowl	●	●	●	●	●	●
	Z	Nylon bowl	●	●	●	●	●	●
	M	Metal bowl			●	●	●	●
	M1	Metal bowl with manual drain cock		●	●	●	●	●
Element	**Blank**	5 µm	●	●	●	●	●	●
	Y	0.3 µm (Submicron) *5			●	●	●	●
Differential pressure detection	**Blank**	Without differential pressure detection port	●	●	●	●	●	●
	Q	With differential pressure detection port (Rc1/4)					●	●
Flow Direction	**Blank**	Standard flow (left → right)	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●
Ⓓ Pipe adapter set (not assembled)			*6 Refer to CB-024SA					
Blank		Not included	●	●	●	●	●	●
A6W		Rc1/8 pipe adapter set	●					
A8W		Rc1/4 pipe adapter set	●	●	●	●		
A10W		Rc3/8 pipe adapter set	●	●	●	●		
A15W		Rc1/2 pipe adapter set		●	●	●		
A20W		Rc3/4 pipe adapter set					●	●
A25W		Rc1 pipe adapter set					●	●
A32W		Rc1 1/4 pipe adapter set					●	●

⚠ Precautions for model No. selection

*1: Pipe adapters (A400-20-W) are assembled on both ends of the C4060-20-W model. "A20W" does not need to be selected for the pipe adapter set.

*2: Select options for drainage, bowl material, element, and differential pressure detection sections. When selecting options for several items, list options in order from the top.

***3: For the auto-drain usage conditions, refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA).**

*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: Refer to (Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)) for max. processing flow rate when option "Y" is selected.**

*6: The joiner set is included with the pipe adapter set.



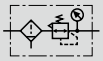
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Filter/regulator

W1000/W2000/W3000/W4000/W8000-W-FP1 Series

New series using 5 μm elements for dust removal, and 0.3 μm elements for tar removal.

● Port size: Rc1/8 to Rc1

JIS symbol 

RoHS CAD

Specifications

Descriptions	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 μm	5		5 or 0.3		
Set pressure MPa	0.05 to 0.85 *1	0.05 to 0.85			
Relief	With relief mechanism				
Drain capacity cm^3	12	25	45	80	80 (*5)
Port size Rc *7	1/8, 1/4 (3/8 with adaptor)	1/4, 3/8 (1/2 with adaptor)	1/4, 3/8, 1/2	1/4, 3/8, 1/2 (3/4 with adaptor)	3/4, 1 (1 1/4 with 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 0.2 MPa, the max. working pressure is 0.7 MPa and the proof pressure is 1.05 MPa. 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: With PPX attached, the ambient/fluid temperature of the digital pressure sensor "R2" is 5 to 50°C.
*5: Up to 170 cm^3 is stored with the manual drain cock only.
*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: Contact CKD for the NPT and G threads.

Option weight

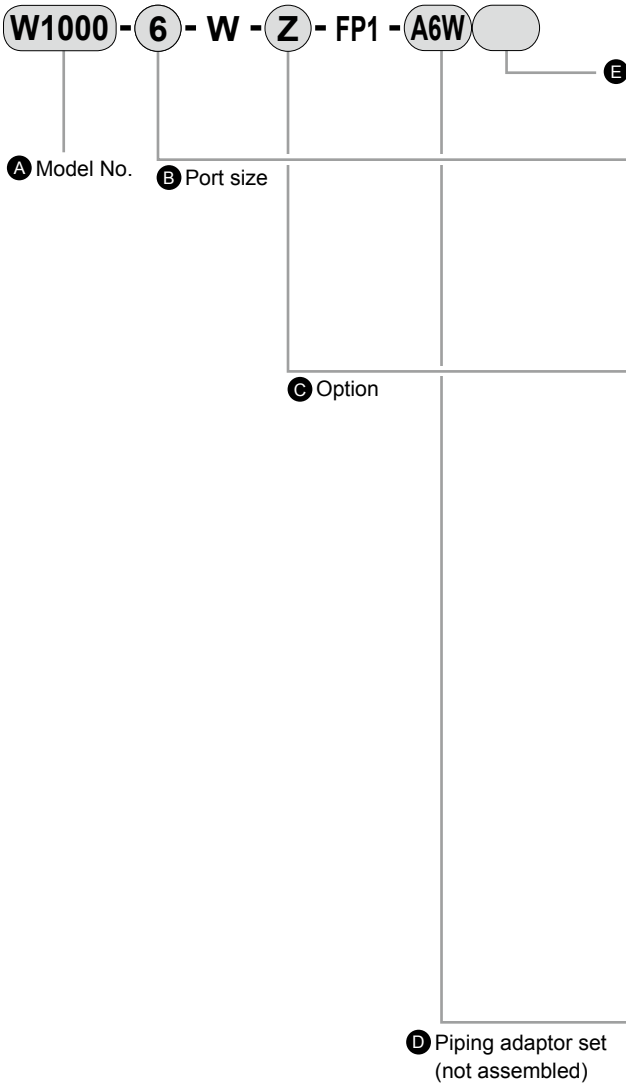
* Add to the weight of the standard accessories.

Unit: kg

Code	Drain discharge		Bowl material		Pressure gauge	Pipe adaptor set			
	F	F1	M	M1	T*	A6W	A8W	A10W	A15W
W1000		0.007			0	0.09	0.09	0.09	
W2000		0.02		0.1	0		0.16	0.16	0.16
W3000	0.02	0.02	0.1	0.1	0		0.16	0.16	0.16
W4000	0.02	0.02	0.1	0.1	0		0.16	0.16	0.16
W8000	0.02	0.02	0.1	0.1	0				

Code	Pipe adaptor set			Optional parts							
	A20W	A25W	A32W	BW	B3W	G45P	G49P	G59P	G40P	G52P	R2
W1000				0.1	0.04	0.074	0.086	0.115	0.085	0.15	0.04
W2000				0.15	0.06	0.074	0.086		0.085	0.15	0.04
W3000				0.17	0.07	0.074	0.086	0.115	0.085	0.15	0.04
W4000	0.16			0.21	0.11	0.074	0.086	0.115	0.085	0.15	0.04
W8000	0.53	0.53	0.53	0.36		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	Content	Ⓐ 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 w/o pressurization)			●	●	●
	F1 Auto-drain with manual override (NC: No exhaust w/o pressurization)	●	●	●	●	●
Bowl material	**Blank** Polycarbonate bowl	●	●	●	●	●
	Z Nylon bowl	●	●	●	●	●
	M Metal bowl			●	●	●
	M1 Metal bowl with manual drain cock		●	●	●	●
Element	**Blank** 5 µm	●	●	●	●	●
	Y 0.3 µm (Submicron) *3			●	●	●
Pressure range	**Blank** 0.05 to 0.85 MPa	●	●	●	●	●
	L 0.05 to 0.35 MPa *4	●	●	●	●	●
Relief	**Blank** With relief mechanism	●	●	●	●	●
	N Pressure reduction	●	●	●	●	●
Pressure gauge	**Blank** With standard pressure gauge (G401-W)	●	●	●	●	●
	T No pressure gauge (pressure gauge port (1/4) is assembled sealed)	●	●	●	●	●
	T8 Pressure gauge included (pressure gauge mounting port (1/4) is ventilated)	●	●	●	●	●
	T6 Digital pressure sensor PPX option *5	●	●	●	●	●
Flow direction	**Blank** Standard flow (left → right)	●	●	●	●	●
	X1 Reverse flow (right → left)	●	●	●	●	●
Ⓓ Piping adaptor set (not assembled)		*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					●
Ⓔ Optional parts		*8 Refer to CB-024SA				
Blank	No optional parts	●	●	●	●	●
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 at each selection; drainage, bowl material, element, and regulator. When selecting options for several items, list options in order from the top.
*2: For the auto-drain usage conditions, refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA).
*3: For max. processing flow rate when option "Y" is selected, refer to Pneumatic, Vacuum, and Auxiliary Components (CB-024SA).
*4: The pressure gauge's indication range is 0 to 0.4 MPa for the option "L".
*5: When the option "T6" is selected, only "Blank" or "R2" can be selected for Ⓔ Optional parts. The digital pressure sensor PPX mounting port (Rc1/8) is ventilated.
*6: The piping adaptor set and C-bracket cannot be used together.
*7: The joiner set is included with the piping adapter set.
*8: An R-thread pressure gauge is included.
*9: For mounting an L-bracket, refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA).



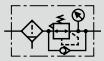
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Reverse filter/regulator

W1100/W2100/W3100/W4100/W8100-W-FP1 Series

New series of 5 µm elements for dust removal and 0.3 µm elements for tar removal, with back flow function.

● Port size: Rc1/8 to Rc1

JIS symbol 

RoHS CAD

Specifications

Descriptions	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 µm	5		5 or 0.3		
Set pressure (*2) MPa	0.05 to 0.85 *1	0.05 to 0.85			
Relief	With relief mechanism				
Drain capacity cm^3	12	25	45	80	80 (*5)
Port size Rc *9	1/8, 1/4 (3/8 with adaptor)	1/4, 3/8 (1/2 with adaptor)	1/4, 3/8, 1/2	1/4, 3/8, 1/2 (3/4 with adaptor)	3/4, 1 (1 1/4 with 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 0.2 MPa, the max. working pressure is 0.7 MPa and the proof pressure is 1.05 MPa. 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: With PPX attached, the ambient/fluid temperature of the digital pressure sensor "R2" is 5 to 50°C.
*5: Up to 170 m^3 is stored with the manual drain cock only.
*6: Check that the primary pressure is at least 0.05 MPa 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: 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		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			Optional parts							
	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

Ⓐ Model No.
Ⓑ Port size
Ⓒ Option
Ⓓ Piping adaptor set (not assembled)
Ⓔ Optional parts

* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.

Code		Content	Ⓐ Model No. W1100	W2100	W3100	W4100	W8100
Ⓑ Port size							
6		Rc1/8	●				
8		Rc1/4	●	●	●	●	
10		Rc3/8		●	●	●	
15		Rc1/2			●	●	
20		Rc3/4					●
25		Rc1					●
Ⓒ Option							*1, *2
Drain discharge *3	Blank	Manual drain cock	●	●	●	●	●
	F	Auto-drain with manual override (NO: Exhaust w/o pressurization)			●	●	●
	F1	Auto-drain with manual override (NC: No exhaust w/o pressurization)	●	●	●	●	●
Bowl material	Blank	Polycarbonate bowl	●	●	●	●	●
	Z	Nylon bowl	●	●	●	●	●
	M	Metal bowl			●	●	●
	M1	Metal bowl with manual drain cock		●	●	●	●
Element	Blank	5 µm	●	●	●	●	●
	Y	0.3 µm (Submicron) *4			●	●	●
Pressure range	Blank	0.05 to 0.85 MPa	●	●	●	●	●
	L	0.05 to 0.35 MPa *5	●	●	●	●	●
Relief	Blank	With relief mechanism	●	●	●	●	●
	N	Pressure reduction	●	●	●	●	●
Pressure gauge	Blank	With standard pressure gauge (G401-W)	●	●	●	●	●
	T	No pressure gauge (pressure gauge port (1/4) is assembled sealed)	●	●	●	●	●
	T8	Pressure gauge included (pressure gauge mounting port (1/4) is ventilated)	●	●	●	●	●
	T6	Digital pressure sensor PPX option *6	●	●	●	●	●
Flow direction	Blank	Standard flow (left → right)	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●
Ⓓ Piping adaptor set (not assembled)			*7, *8 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					●
Ⓔ Optional parts			*9 Refer to CB-024SA				
Blank		No optional parts	●	●	●	●	●
BW		C-bracket	●	●	●	●	●
B3W		L-bracket *10	●	●	●	●	
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: Select options at each selection; 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: For the auto-drain usage conditions, refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA).
*4: For max. processing flow rate when option "Y" is selected, refer to Pneumatic, Vacuum, and Auxiliary Components (CB-024SA).
*5: The pressure gauge's indication range is 0 to 0.4 MPa for the option "L".
*6: When the option "T6" is selected, only "Blank" or "R2" can be selected for Ⓔ Optional parts. The digital pressure sensor PPX mounting port (Rc1/8) is ventilated.
*7: The piping adaptor set and C-bracket cannot be used together.
*8: The joiner set is included with the piping adapter set.
*9: An R-thread pressure gauge is included.
*10: For mounting an L-bracket, refer to 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

New series using 5 μm elements for dust removal and 0.3 μm element for tar removal. (excluding F1000 Series) ● Port size: Rc1/8 to Rc1

JIS symbol 

RoHS CAD

Specifications

Descriptions	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					
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 with adaptor)	1/4, 3/8 (1/2 with adaptor)		1/4, 3/8, 1/2 (3/4 with adaptor)	3/4, 1 (1 1/4 with adaptor)	3/4, 1 (1 1/4 with 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 0.2 MPa, max. working pressure is 0.7 MPa and proof pressure is 1.05 MPa. Refer to the max. working flow rate table (table below) 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. When using F2000-W 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 0.15 MPa.
*4: Up to 170 cm^3 is stored with the manual drain cock only.
*5: Contact CKD for the NPT and G threads.

● 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

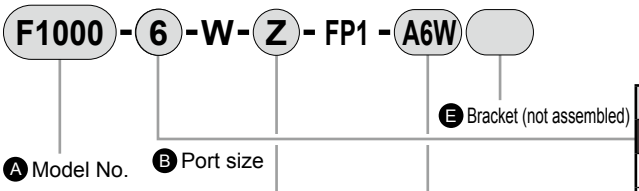
Option weight

* 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



* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.

Code		Content	A Model No. F1000	F2000	F3000	F4000	F6000	F8000
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 *2	**Blank**	With manual drain cock	●	●	●	●	●	●
	F	Auto-drain with manual override (NO: Exhaust w/o pressurization)			●	●	●	●
	F1	Auto-drain with manual override (NC: No exhaust w/o pressurization)	●	●	●	●	●	●
Bowl material	**Blank**	Polycarbonate bowl	●	●	●	●	●	●
	Z	Nylon bowl	●	●	●	●	●	●
	M	Metal bowl			●	●	●	●
	M1	Metal bowl with manual drain cock		●	●	●	●	●
Element	**Blank**	5 µm	●	●	●	●	●	●
	Y	0.3 µm (Submicron)			●	●	●	●
Differential pressure detection	**Blank**	Without differential pressure detection port	●	●	●	●	●	●
	Q	With differential pressure detection port (Rc1/4)					●	●
Flow direction	**Blank**	Standard flow (left → right)	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●
D Piping adaptor set (not assembled) *3, *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 (not assembled) Refer to CB-024SA								
Blank		Not included	●	●	●	●	●	●
BW		C-bracket	●	●	●	●	●	●

⚠ Precautions for model No. selection

*1: Select options for the drainage, bowl material, element and differential pressure detection.
When selecting options for several items, list options in order from the top.
*2: For the auto-drain usage conditions, refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA).
*3: The piping adaptor set and C-bracket cannot be used together.
*4: The joiner set is included with the piping adapter set.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Oil mist filter

M1000/M2000/M3000 M4000/M6000/M8000-W-FP1 Series

Ideal for circuits susceptible to oil

● Port size: Rc1/8 to Rc1

JIS symbol 

RoHS CAD

Specifications

Descriptions	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 with adaptor)	1/4, 3/8 (1/2 with adaptor)		1/4, 3/8, 1/2 (3/4 with adaptor)	3/4, 1 (1 1/4 with adaptor)	3/4, 1 (1 1/4 with 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) For the primary pressure of 0.7 MPa	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 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) replacement		1 year (6000 hours) or pressure drop 0.1 MPa		- *7

*1: Use within the max. processing flow rate.
If the max. processing flow is exceeded temporarily, or if the filter is installed at a place with high levels of pulsation, the mantle could be damaged or oil or drainage, etc., could splatter to the secondary side and result in faults at the terminal.

*2: When using M1000-W-F1 auto-drain, the min. working pressure is 0.2 MPa, the max. working pressure is 0.7 MPa and the proof pressure is 1.05 MPa. 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 0.15 MPa.

*4: The secondary oil concentration is the value when the primary oil concentration is 30 mg/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: 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							Bracket
	F1	M	M1	A6W	A8W	A10W	A15W	A20W	A25W	A32W	BW
M1000	0.007			0.09	0.09	0.09					0.1
M2000	0.02		0.1		0.16	0.16	0.16				0.15
M3000	0.02	0.1	0.1		0.16	0.16	0.16				0.17
M4000	0.02	0.1	0.1		0.16	0.16	0.16	0.16			0.21
M6000	0.02	0.1	0.1					0.53	0.53	0.53	0.34
M8000	0.02	0.1	0.1					0.53	0.53	0.53	0.36

How to order

M1000 - 6 - W - S - FP1 - A6W

- M1000 — Ⓐ Model No.
- 6 — Ⓑ Port size
- W — Ⓒ Option
- S — Ⓓ Piping adaptor set (not assembled)
- FP1 — Ⓒ Option
- A6W — Ⓓ Piping adaptor set (not assembled)
- Ⓔ Bracket (not assembled)

* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.

Code		Content	Ⓐ Model No. M1000	M2000	M3000	M4000	M9000	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 w/o pressurization)	●	●	●	●	●	●
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 0.01 mg/m^3)	●	●	●	●	●	●
	S	S type (0.3 µm; remaining oil 0.5 mg/m^3)	●	●	●	●	●	●
	X *6	X type (deodorization; remaining oil 0.003 mg/m^3)	●	●	●	●	●	●
Differential pressure detection	**Blank**	Without differential pressure detection port	●	●	●	●	●	●
	Q	With differential pressure detection port (Rc1/4)					●	●
Flow direction	**Blank**	Standard flow (left → right)	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●
Ⓓ Piping adaptor set (not assembled)		*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					●	●
Ⓔ Bracket (not assembled)		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 auto-drain cannot be selected.
*3: For the auto-drain usage conditions, refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA).
*4: The piping adaptor set and C-bracket cannot be used together.
*5: The joiner set is included with the piping adapter set.
*6: When the mantle is "X", combination with option F1 is not possible.



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 side oil concentration 0.001 mg/m^3

● Port size: Rc1/8 to Rc1

JIS symbol 

RoHS CAD

Specifications

Descriptions	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 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 with adaptor)	1/4, 3/8 (1/2 with adaptor)	1/4, 3/8, 1/2 (3/4 with adaptor)	3/4, 1 (1 1/4 with adaptor)	3/4, 1 (1 1/4 with adaptor)
Weight kg	0.096	0.28	0.52	0.95	1.35
Mantle (element) replacement	1 year (6000 hours) or pressure drop 0.1 MPa				
Standard accessories	Bowl guard				

*1: Values when primary pressure is 0.7 MPa and pressure drop is 0.01 MPa. Use the product within the max. processing flow rate.
If the max. processing flow is exceeded temporarily, or if the filter is installed at a place with high levels of pulsation, the mantle could be damaged or oil or drainage, etc., could splatter to the secondary side and result in faults at the terminal.
*2: In the case of "F1" with auto-drain, the min. working pressure is 0.15 MPa.
*3: The secondary oil content is the value when the primary oil content is 30 mg/m^3, the inlet air temperature is 21°C, and before the oil is saturated.
*4: Install an oil mist filter (S type) as a pre-filter on the primary side to prevent early clogging.
*5: Contact CKD for the NPT and G threads.

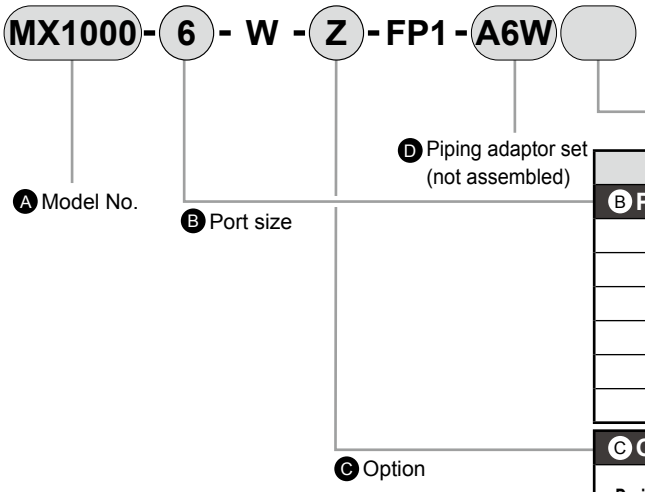
Option weight

* Add to the weight of the standard accessories.

Unit: kg

Code	Drain discharge	Bowl material		Pipe adaptor set							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		Content	Ⓐ Model No. MX1000	MX3000	MX4000	MX9000	MX8000
Ⓑ Port size							
6		Rc1/8	●				
8		Rc1/4	●	●	●		
10		Rc3/8		●	●		
15		Rc1/2			●		
20		Rc3/4				●	●
25		Rc1				●	●
Ⓒ Option							*1
Drain discharge	**Blank**	With manual drain cock	●	●	●	●	●
	F1 *2, *3	Auto-drain 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)				●	●
Flow direction	**Blank**	Standard flow (left → right)	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●
Ⓓ Piping adaptor set (not assembled)			*4 Refer to CB-024SA *5				
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 (not assembled)			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 auto-drain cannot be selected.
*3: For the auto-drain usage conditions, refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA).
*4: The piping adaptor set and C-bracket cannot be used together.
*5: The joiner set is included with the piping adapter set.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Regulator

R1000/R2000/R3000
R4000/R6000/R8000-W-FP1 Series

Compact, pressure gauge embedded

● Port size: Rc1/8 to Rc1

JIS symbol 

RoHS CAD

Specifications

Descriptions	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					
Relief	With relief mechanism					
Port size Rc *2	1/8, 1/4 (3/8 with adaptor)	1/4, 3/8 (1/2 with adaptor)	1/4, 3/8 (1/2 with adaptor)	1/4, 3/8, 1/2 (3/4 with adaptor)	3/4, 1 (1 1/4 with adaptor)	3/4, 1 (1 1/4 with 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: With PPX attached, the ambient/fluid temperature of the digital pressure sensor "R2" is 5 to 50°C.
*2: Contact CKD for the NPT and G threads.

Option weight

* Add to the weight of the standard accessories.

Unit: kg

Code	Pressure gauge	Piping adaptor set							Optional parts		
	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	Optional parts					
	G45P	G49P	G59P	G40P	G52P	R2
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

R1000 - 6 - W - L - FP1 - A6W

* Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for options.

Ⓐ Model No.
Ⓑ Port size
Ⓒ Option
Ⓓ Piping adaptor set (not assembled)
Ⓔ Optional parts

Code		Content	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	●	●	●	●	●	●
Relief	Blank	With relief mechanism	●	●	●	●	●	●
	N	Pressure reduction	●	●	●	●	●	●
Pressure gauge	Blank	With standard pressure gauge (G401-W)	●	●	●	●	●	●
	T	No pressure gauge (pressure gauge port (1/4) is assembled sealed)	●	●	●	●	●	●
	T8	Pressure gauge included (pressure gauge mounting port (1/4) is ventilated)	●	●	●	●	●	●
	T6	Digital pressure sensor PPX option *3	●	●	●	●	●	●
Flow direction	Blank	Standard flow (left → right)	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●
Ⓓ Piping adaptor set (not assembled)								*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					●	●
Ⓔ Optional parts								*6 Refer to CB-024SA
Blank		No optional parts	●	●	●	●	●	●
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-R10N-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 0.4 MPa for the option "L".
*3: When the option "T6" is selected, only "Blank" or "R2" can be selected for Ⓔ Optional parts. The digital pressure sensor PPX mounting port (Rc1/8) is ventilated.
*4: The piping adaptor set and C-bracket cannot be used together.
*5: The joiner set is included with the piping adapter set.
*6: An R-thread pressure gauge is included.
*7: For mounting an L-bracket, refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA).



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

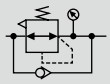
Reverse regulator

R1100/R2100/R3100
R4100/R6100/R8100-W-FP1 Series

From secondary pressure to primary side with reverse flow function built in.

● Port size: Rc1/8 to Rc1

JIS symbol



RoHS CAD

Specifications

Descriptions	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					
Relief	With relief mechanism					
Port size Rc *4	1/8, 1/4 (3/8 with adaptor)	1/4, 3/8 (1/2 with adaptor)	1/4, 3/8 (1/2 with adaptor)	1/4, 3/8, 1/2 (3/4 with adaptor)	3/4, 1 (1 1/4 with adaptor)	3/4, 1 (1 1/4 with 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: With PPX attached, the ambient/fluid temperature of the digital pressure sensor "R2" is 5 to 50°C.
*3: Check that the primary pressure is higher than the secondary pressure by 0.05 MPa or more.
*4: Contact CKD for the NPT and G threads.

Option weight

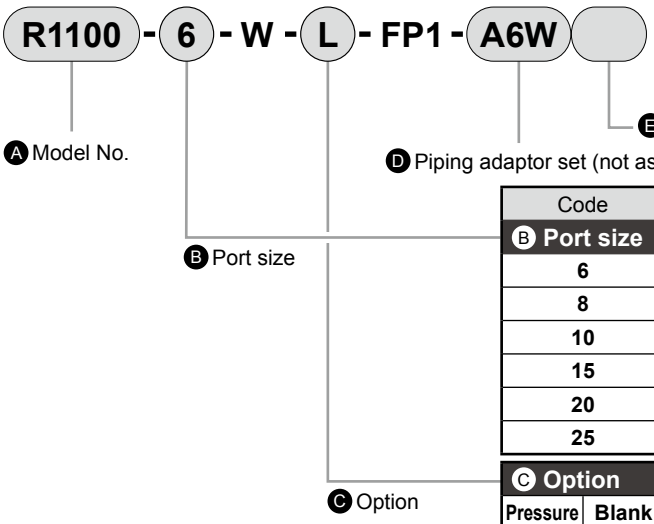
* Add to the weight of the standard accessories.

Unit: kg

Code	Pressure gauge	Pipe adaptor set							Optional parts		
	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	Optional parts					
	G45P	G49P	G59P	G40P	G52P	R2
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



Code		Content	Ⓐ Model No. R1100	R2100	R3100	R4100	R6100	R8100
Ⓑ Port size								
6		Rc1/8	●					
8		Rc1/4	●	●	●	●		
10		Rc3/8		●	●	●		
15		Rc1/2				●		
20		Rc3/4					●	●
25		Rc1					●	●
Ⓒ Option								*1, *2
Pressure range	**Blank**	0.05 to 0.85 MPa	●	●	●	●	●	●
	L	0.05 to 0.35 MPa *3	●	●	●	●	●	●
Relief	**Blank**	With relief mechanism	●	●	●	●	●	●
	N	Pressure reduction	●	●	●	●	●	●
Pressure gauge	**Blank**	With standard pressure gauge (G401-W)	●	●	●	●	●	●
	T	No pressure gauge (pressure gauge port (1/4) is assembled sealed)	●	●	●	●	●	●
	T8	Pressure gauge included (pressure gauge mounting port (1/4) is ventilated)	●	●	●	●	●	●
	T6	Digital pressure sensor PPX option *4	●	●	●	●	●	●
Flow direction	**Blank**	Standard flow (left → right)	●	●	●	●	●	●
	X1	Reverse flow (right → left)	●	●	●	●	●	●
Ⓓ Piping adaptor set (not assembled)								*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					●	●
Ⓔ Optional parts								*7 Refer to CB-024SA
Blank		No optional parts	●	●	●	●	●	●
BW		C-bracket	●	●	●	●	●	●
B3W		L-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-R10N-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 0.4 MPa for the option "L".
*4: When the option "T6" is selected, only "Blank" or "R2" can be selected for Ⓔ Optional parts. The digital pressure sensor PPX mounting port (Rc1/8) is ventilated.
*5: The piping adaptor set and C-bracket cannot be used together.
*6: The joiner set is included with the piping adapter set.
*7: An R-thread pressure gauge is included.
*8: For mounting an L-bracket, refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA).



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

NSF H1

Reed switch type compact mechanical pressure switch

P1100-W/P4100-W/P8100-W-FP1 Series

• Compatible with module connection to rotary actuator F.R.L.

JIS symbol 

RoHS CAD

Specifications

Descriptions	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 0.2 mm^2)		
Ambient/fluid temperatures	5 to 60°C		
Degree of protection *2	IP20 equivalent		
Product weight (excluding joiner) 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 50 mA	7 to 20 mA
Internal voltage drop	3 V or less	
Lamp	LED (Lit when ON)	
Max. shock	294 m/s^2	
Insulation resistance	20 MΩ or over at 500 VDC megger	
Withstand voltage	No failure impressed at 1000 VAC for one minute	

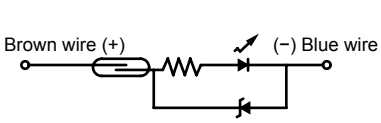
Option weight

* Add to the weight of the standard accessories.

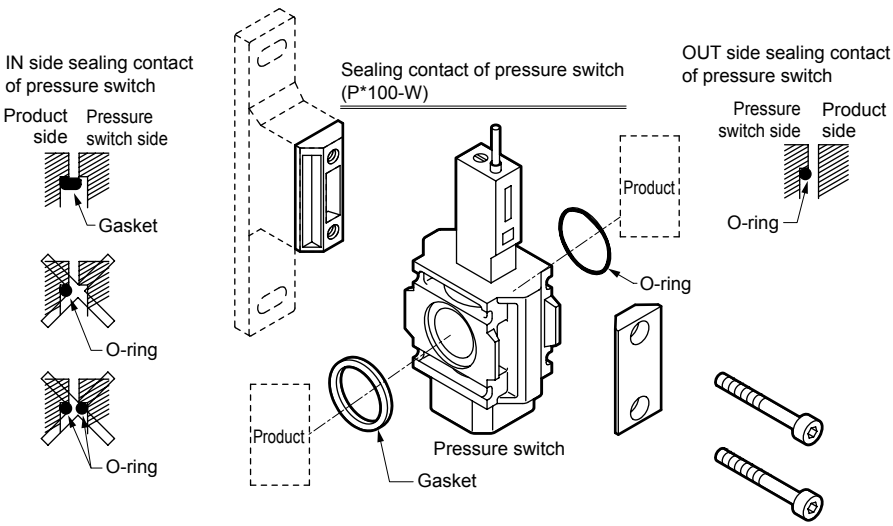
Unit: g

Code	Optional parts					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
(White type)

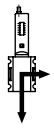
Ⓐ Series model No.
Ⓑ Port size
Ⓒ Branch direction
Ⓓ Optional parts
Ⓔ Length of lead wire

Code	Content
Ⓐ 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
		

Ⓓ Optional parts

		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	1 m
3	3 m
5	5 m

⚠ Precautions for model No. selection

*1: This is used for intermediate connection of the module series, so the module connection section is not threaded.
*2: A masking plug matching the port size is included.
*3: When piping the P□100-W single unit, use piping adapter A□00-W. (The horizontal direction port does not have threads.)



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

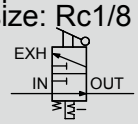
NSF H1

Shut-off 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

JIS symbol 

RoHS CAD

Specifications

Descriptions	V1000-W	V3000-W
Appearance		

Descriptions		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		
	Rotation 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
	EXH	Rc1/8		Rc3/8		
Weight	kg	0.17		0.25		
Effective cross-sectional area (mm^2)	IN/OUT	15	18	40	70	85
	OUT/EXH	5		40	50	50

Option weight

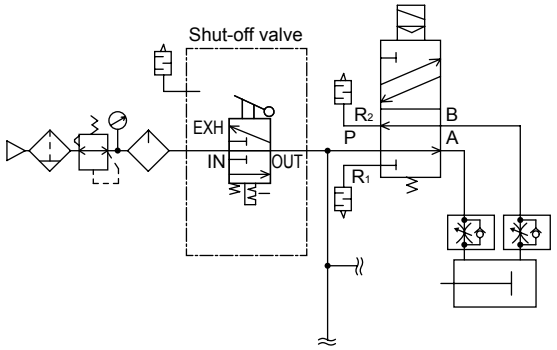
* Add to the weight of the standard accessories.

Unit: kg

Code	Optional parts						
	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

Explanation: For safety, release compressed air in the pneumatic circuit from the shut-off valve before repairing or adjusting the solenoid valve or air cylinder, etc.



How to order

● Rotary actuator F.R.L.1000 Series

V1000 - 6 - W - ○ - ○ - FP1 - A6W

● Rotary actuator F.R.L. 3000/4000 Series

V3000 - 8 - W - ○ - ○ - FP1 - A6W

Ⓐ Model No.
Ⓑ Port size
Ⓒ Option
Ⓓ Display unit
Ⓔ Optional parts

Code	Content	Ⓐ 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	●	●
Ⓔ Optional parts			***1, *2**
Blank	Without optional parts	●	●
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 piping adaptor set and C-bracket cannot be used together.
*2: The joiner set is included with the piping adapter set.

⚠ Select the reverse regulator (R*100-W) or reverse filter regulator (W*100-W) when installing V*000-W onto the primary side of the regulator or filter regulator.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

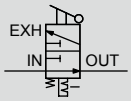
NSF H1

Shut-off 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

JIS symbol 

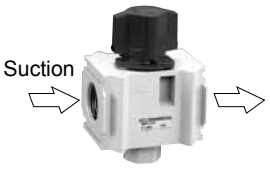
CAD RoHS

Specifications

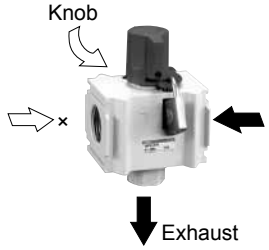
Descriptions		V3010-8-W	V3010-10-W	V3010-15-W	V6010-20-W	V6010-25-W
Working fluid		Compressed air				
Max. working pressure MPa		1.0				
Proof pressure MPa		1.5				
Ambient/fluid temperatures °C		5 to 60				
Operation lever switching angle		90°				
Operating force	Pushing force N	80 or less				
	Rotation N·m	2.5 or less				
Valve seat leakage cm^3/min (ANR)		10 or less				
External leakage cm^3/min (ANR)		10 or less				
Port size	IN-OUT	1/4	3/8	1/2	Rc3/4	Rc1
	EXH	3/8			Rc1/2	
Weight kg		0.3			0.8	
Effective cross-sectional area (mm^2)	IN→OUT	40	70	85	145	150
	OUT→EXH	40	50	50	105	110

Usage methods

● Regular use



● During maintenance work
A lock is set where residual pressure is released.



OSHA (Occupational Safety and Health Administration)

Establishes safety standards for employees, as well as US safety standards.

[Lockout/Tagout Regulation]
When servicing or maintaining machinery, the air source shall be closed with a shut-off valve (shut-off valve), and residual pressure 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

● Rotary actuator F.R.L. 2000/3000/4000 Series

V3010 - 8 - W - ○ - FP1 - A8W

● Rotary actuator F.R.L. 6000/8000 Series

V6010 - 20 - W - ○ - FP1 - A20W
(White type)

Ⓐ Model No.
Ⓑ Port size
Ⓒ Option
Ⓓ Optional parts

Code	Content	Ⓐ Model No. V3010	Ⓐ Model No. V6010
Ⓑ Port size			
8	Rc1/4	●	
10	Rc3/8	●	
15	Rc1/2	●	
20	Rc3/4		●
25	Rc1		●
Ⓒ Option			
Blank	None	●	●
X1	IN/OUT Reverse flow (right → left)	●	●
Ⓓ Optional parts		*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 adapter set	●	●
A32W	Rc1 1/4 pipe adapter set		●
BW	C-bracket	●	●
S	Silencer	●	●

⚠ Precautions for model No. selection

*1: The piping adaptor set and C-bracket cannot be used together.
*2: The joiner set is included with the piping 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	Optional parts							
	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

MEMO

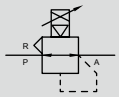


Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Digital electro pneumatic regulator

EVD-FP1 Series

JIS symbol



Specifications

Descriptions		EVD-1100-*08□ Analog (*…0/1/2)	EVD-1100-P08□ Parallel	EVD-1500-*08□ Analog (*…0/1/2)	EVD-1500-P08□ Parallel	EVD-1900-*08□ Analog (*…0/1/2)	EVD-1900-P08□ Parallel	EVD-3500-*08□ EVD-3500-*10□ Analog (*…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 power is ON)							
Input signal (Input impedance)		0-10 VDC (6.7 kΩ) 0-5 VDC (10 kΩ) 4-20 mADC (250 Ω)	10 bit	0-10 VDC (6.7 kΩ) 0-5 VDC (10 kΩ) 4-20 mADC (250 Ω)	10 bit	0-10 VDC (6.7 kΩ) 0-5 VDC (10 kΩ) 4-20 mADC (250 Ω)	10 bit	0-10 VDC (6.7 kΩ) 0-5 VDC (10 kΩ) 4-20 mADC (250 Ω)	10 bit
Preset input		8 point	None	8 point	None	8 point	None	8 point	None
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		60 ℓ/min		400 ℓ/min				1500 ℓ/min	
Step response *5	No load	0.2 sec. or less							
Vibration resistance		98 m/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						450 g	
Protection circuit		Power reverse connection protection, switch output reverse connection protection, switch output load short-circuit protection							

*1: There is 1% F.S. or less residual pressure when the input signal is 0%. (EVD-1100: 1 kPa, EVD-1500: 5 kPa, EVD-1900: 9 kPa, EVD-3500: 5 kPa)
*2: Select analog output or switch output.
*3: The above characteristics apply in the control pressure 10 to 90% range with a 24 ±0.1 VDC power voltage and the working pressure set to maximum control pressure +50 kPa (EVD-1100), or maximum control pressure +100 kPa (EVD-1500, 1900, 3500), with no load, at ambient temperature of 25 ±3°C.
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 value above is obtained at the max. working pressure and when the step amount changes from
- 50% F.S. to 100% F.S.
- 50% F.S. to 60% F.S.
- 50% F.S. to 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	Content	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	0-5 VDC	○	○
2	4-20 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	None	○	○
C1	Analog 9-conductor, 1 m cable	○	○
C3	Analog 9-conductor, 3 m cable	○	○
P1	Parallel 15-conductor, 1 m cable	○	○
P3	Parallel 15-conductor, 3 m cable	○	○
Bracket option			
Blank	None	○	○
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.

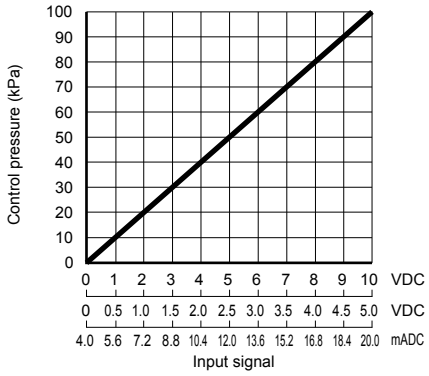
EVD- C1

Ⓕ Option

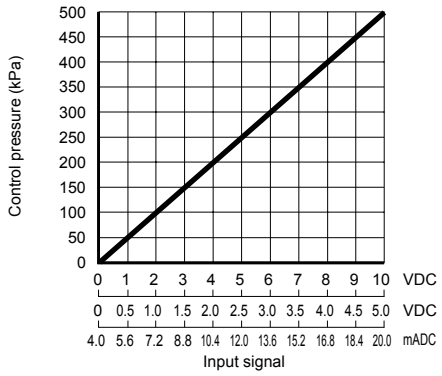
*1: There is 1% F.S. or less residual pressure when the input signal is 0%.
*2: When the input signal P is selected, select blank, P1 or P3.
*3: For EVD-3000 Series, only 500 kPa F.S. is available.

I/O characteristics

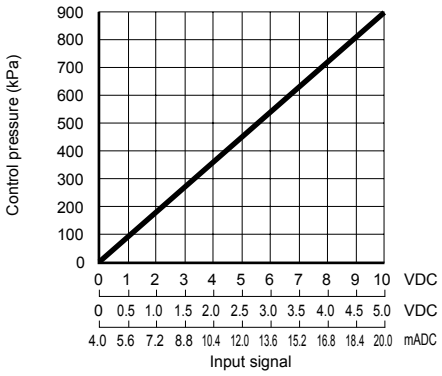
● EVD-1100



● EVD-1500
● EVD-3500

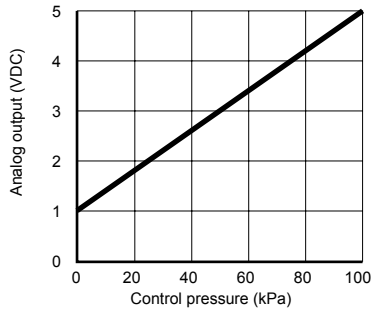


● EVD-1900

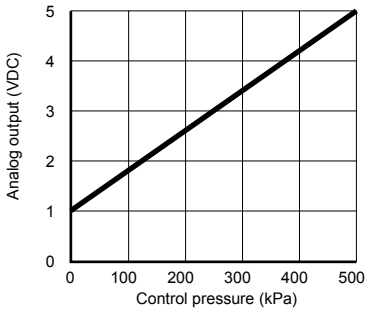


Analog output (analog output only: model No. AN/AP)

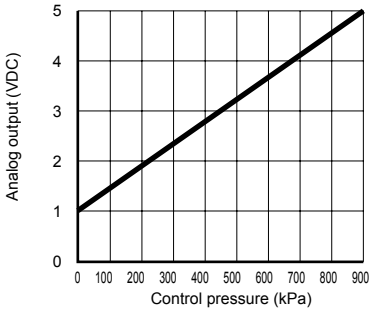
● EVD-1100



● EVD-1500
● EVD-3500



● EVD-1900

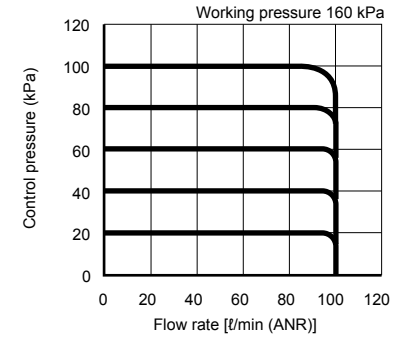


EVD-FP1 Series

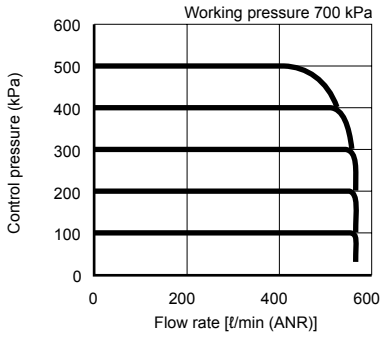
Flow characteristics/Relief flow characteristics

Flow characteristics

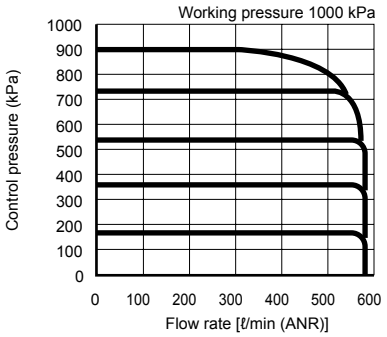
● EVD-1100



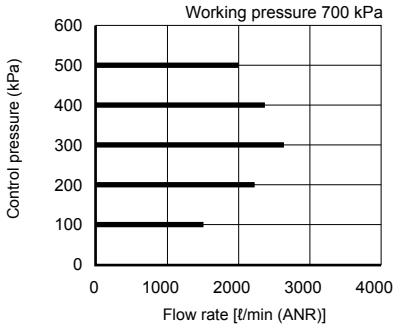
● EVD-1500



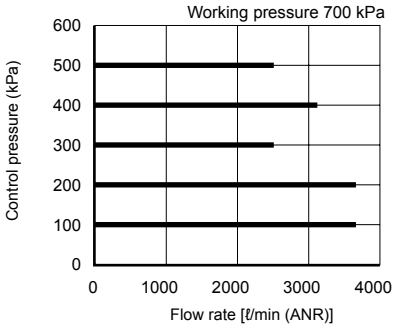
● EVD-1900



● EVD-3500-□08

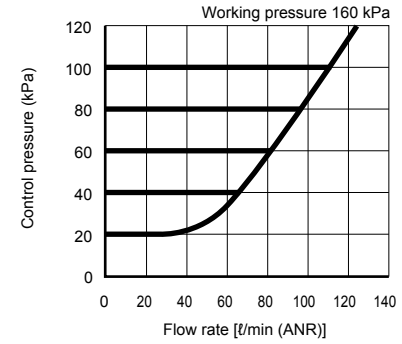


● EVD-3500-□10

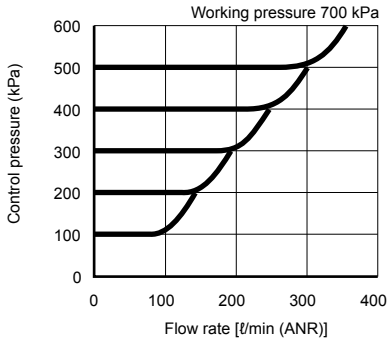


Relief characteristics

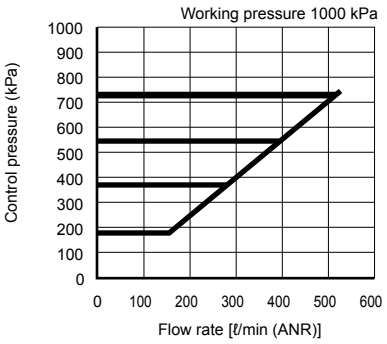
● EVD-1100



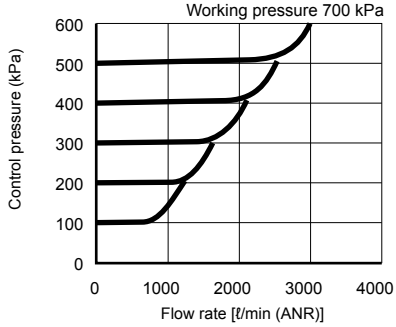
● EVD-1500



● EVD-1900



● EVD-3500



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

RoHS

Specifications

Descriptions		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-**) together with an insert ring at 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)

Ⓐ 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

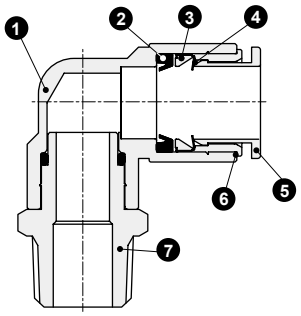
Ⓑ Compatible tube O.D.	
4	ø4
6	ø6
8	ø8
10	ø10
12	ø12
16	ø16
44	ø4/ø4
46	ø4/ø6
48	ø4/ø8
64	ø6/ø4
66	ø6/ø6
68	ø6/ø8
610	ø6/ø10
86	ø8/ø6
88	ø8/ø8
810	ø8/ø10
812	ø8/ø12
108	ø10/ø8
1010	ø10/ø10
1012	ø10/ø12
1210	ø12/ø10
1212	ø12/ø12

Ⓒ Port size	
M5	M5 × 0.8
6	R1/8
8	R1/4
10	R3/8
15	R1/2
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

Ⓓ 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°

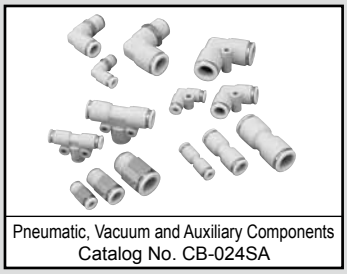
Note: Sales unit is 10 pcs. /1 bag.

Internal structure and parts list



No.	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: Body is copper alloy (electroless nickel plated) for single straight, single straight (round), female straight, bulkhead female, bulkhead, and tightening connector.
*2: UL94 standards V-0 equivalent



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Fitting

ZW-FP1 Series

- Port size M3 to R1/2, ø4 to ø12
- Compatible tube O.D.: ø3.2 to ø12

RoHS

Specifications

Descriptions	ZW
Working fluid	Air
Max. working pressure MPa	1.0
Operating 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 could occur by adiabatic expansion depending on 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

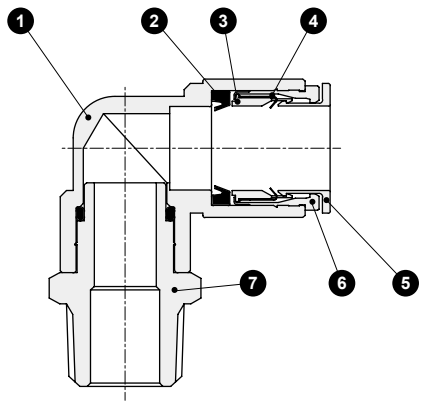
(B) Compatible tube O.D.	
4	ø4
6	ø6
8	ø8
10	ø10
12	ø12
44	ø4/ø4
46	ø4/ø6
48	ø4/ø8
64	ø6/ø4
66	ø6/ø6
68	ø6/ø8
610	ø6/ø10
86	ø8/ø6
88	ø8/ø8
810	ø8/ø10
108	ø10/ø8
1010	ø10/ø10
1012	ø10/ø12
1210	ø12/ø10
1212	ø12/ø12

(C) Port size	
M5	M5 × 0.8
6	R1/8
8	R1/4
10	R3/8
15	R1/2
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



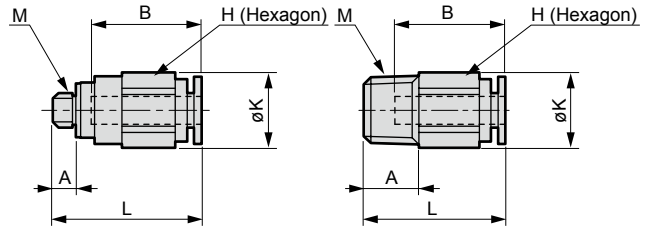
No.	Part name	Material
1	Body *1	Stainless steel (SUS303)
		Polybutylene terephthalate (flame-resistant resin *2)
2	Packing	Nitrile rubber
3	Chuck holder	Polyacetal
4	Chuck	Stainless steel (SUS301)
5	Push ring *3	Polybutylene terephthalate (flame-resistant resin *2)
6	Outer ring	Stainless steel (SUS303)
7	Drive-in nipple	Stainless steel (SUS303)

*1: The single straight body is stainless steel (SUS303).
*2: UL94 standards V-0 equivalent
*3: Standard push ring color is light blue.

Dimensions: Single straight/bulkhead/straight/different diameter straight

Single straight

● ZW-S□-□-FP1

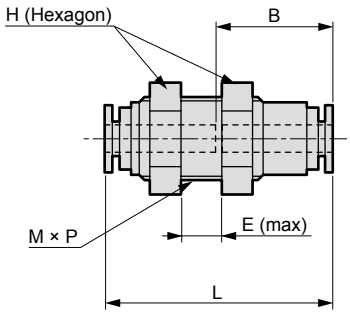


M5 Type

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	M5 × 0.8	10	11	21.5	3.4	16	2.5	4
ZW-S 4- 6-FP1		R1/8	10	11	20.5	8	16	2.5	4
ZW-S 4- 8-FP1		R1/4	14	15.8	19.5	11	16	2.5	4
ZW-S 6-M5-FP1	6	M5 × 0.8	12	13.5	23	3.4	17.5	2.5	4.4
ZW-S 6- 6-FP1		R1/8	12	13.5	23	8	17.5	4	10.3
ZW-S 6- 8-FP1		R1/4	14	15.8	23.5	11	17.5	4	10.3
ZW-S 6-10-FP1		R3/8	17	19.1	21.5	12	17.5	4	10.3
ZW-S 8- 6-FP1	8	R1/8	14	15.8	28	8	19	5	17.5
ZW-S 8- 8-FP1		R1/4	14	15.8	27	11	19	6	22.4
ZW-S 8-10-FP1		R3/8	17	19.1	22.5	12	19	6	22.4
ZW-S10- 6-FP1	10	R1/8	17	19.1	31	8	21.5	5	17.5
ZW-S10- 8-FP1		R1/4	17	19.1	32.5	11	21.5	8	30.5
ZW-S10-10-FP1		R3/8	17	19.1	28.5	12	21.5	8	30.5
ZW-S10-15-FP1		R1/2	22	24	26.5	15	21.5	8	30.5
ZW-S12- 8-FP1	12	R1/4	19	21.4	35.5	11	23	8	35.5
ZW-S12-10-FP1		R3/8	19	21.4	30.5	12	23	10	40
ZW-S12-15-FP1		R1/2	22	24	29.5	15	23	10	40

Bulkhead

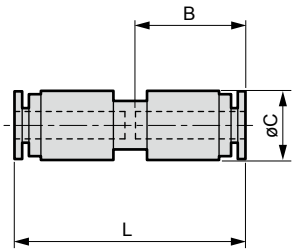
● ZW-S□-□-X-FP1



Model No.	Compatible tube O.D. ø	H	L	B	E	M × P	Mounting hole diameter	Min. bore size	Effective cross-sectional area mm²
ZW-S 4-0-X-FP1	4	14	33	16	7.5	M12 × 1	13	2.5	4
ZW-S 6-0-X-FP1	6	17	36	17.5	9.5	M14 × 1	15	4	10
ZW-S 8-0-X-FP1	8	19	39	19	12.5	M16 × 1	17	6	22
ZW-S10-0-X-FP1	10	23	44.5	21.5	18	M20 × 1	21	8	30
ZW-S12-0-X-FP1	12	26	47	23	20.5	M22 × 1	23	9	35

Straight

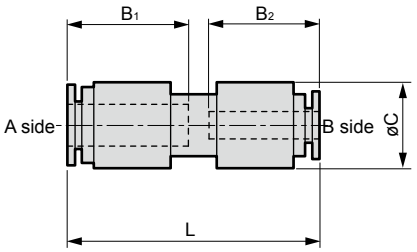
● ZW-S□-0-FP1



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

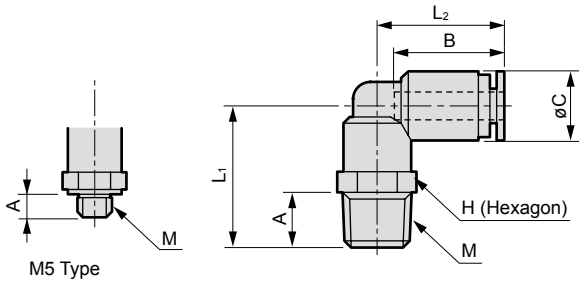
● ZW-S□-0-FP1



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

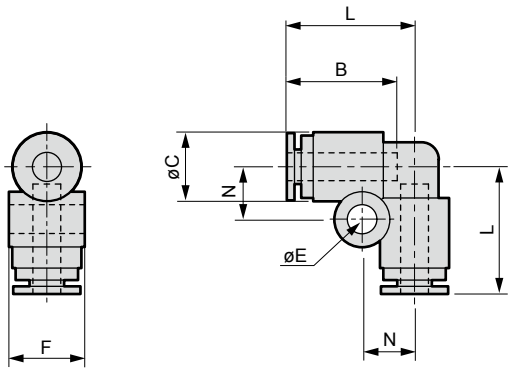
Dimensions: Single elbow/elbow/double tee/D tee

Single elbow
● ZW-L□-□-FP1



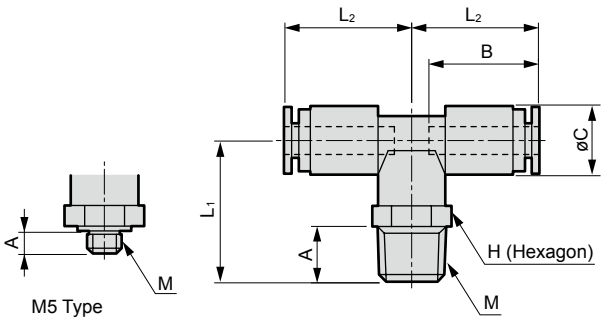
Model No.	Compatible tube O.D. ø	M	H	L_1	L_2	A	B	C	Min. bore size	Effective cross-sectional area mm²
ZW-L 4-M5-FP1	4	M5 × 0.8	8	15	18	3.4	16	10	2.5	3.2
ZW-L 4- 6-FP1		R1/8	10	20.5	18.5	8	16	10	2.5	3.2
ZW-L 4- 8-FP1		R1/4	14	24	18.5	11	16	10	2.5	3.2
ZW-L 6-M5-FP1	6	M5 × 0.8	10	15	20	3.4	17.5	12.5	2.5	4.2
ZW-L 6- 6-FP1		R1/8	12	24	21	8	17.5	12.5	4	8
ZW-L 6- 8-FP1		R1/4	14	27.5	21	11	17.5	12.5	4	8
ZW-L 6-10-FP1		R3/8	17	29	21	12	17.5	12.5	4	8
ZW-L 8- 6-FP1	8	R1/8	14	25.5	23.5	8	19	14.5	6	18
ZW-L 8- 8-FP1		R1/4	14	28.5	23.5	11	19	14.5	6	18
ZW-L 8-10-FP1		R3/8	17	30	23.5	12	19	14.5	6	18
ZW-L10- 6-FP1	10	R1/8	17	28	27	8	21.5	17.5	6.5	24.3
ZW-L10- 8-FP1		R1/4	17	31	27	11	21.5	17.5	8	27
ZW-L10-10-FP1		R3/8	17	32.5	27	12	21.5	17.5	8	27
ZW-L10-15-FP1		R1/2	22	35.5	27	15	21.5	17.5	8	27
ZW-L12- 8-FP1	12	R1/4	19	33	29.5	11	23	20	8.5	33
ZW-L12-10-FP1		R3/8	19	34.5	29.5	12	23	20	9	35
ZW-L12-15-FP1		R1/2	22	37.5	29.5	15	23	20	9	35.5

Elbow
● ZW-L□-0-FP1



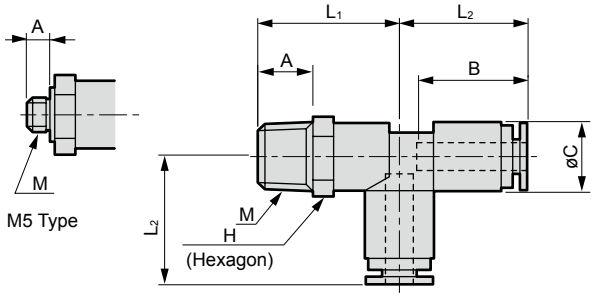
Model No.	Compatible tube O.D. ø	L	B	C	N	E	F	Min. bore size	Effective cross-sectional area mm²
ZW-L 4-0-FP1	4	18.5	16	10	7.5	4.2	11	2.5	3
ZW-L 6-0-FP1	6	21	17.5	12.5	8.5	4.2	13.5	4	7.5
ZW-L 8-0-FP1	8	23.5	19	14.5	9.5	4.2	15.5	6	17
ZW-L10-0-FP1	10	27	21.5	17.5	11	4.2	18.5	8	25.5
ZW-L12-0-FP1	12	29.5	23	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	M5 × 0.8	10	16.5	18.5	3.4	16	10	2.5	4.3
ZW-T 4- 6-FP1		R1/8	10	20.5	18.5	8	16	10	2.5	4.3
ZW-T 4- 8-FP1		R1/4	14	24	18.5	11	16	10	2.5	4.3
ZW-T 6-M5-FP1	6	M5 × 0.8	12	20	21	3.4	17.5	12.5	2.5	4.3
ZW-T 6- 6-FP1		R1/8	12	24	21	8	17.5	12.5	4	10.5
ZW-T 6- 8-FP1		R1/4	14	27.5	21	11	17.5	12.5	4	10.5
ZW-T 6-10-FP1		R3/8	17	29	21	12	17.5	12.5	4	10.5
ZW-T 8- 6-FP1	8	R1/8	14	25.5	23.5	8	19	14.5	6	23.5
ZW-T 8- 8-FP1		R1/4	14	28.5	23.5	11	19	14.5	6	23.5
ZW-T 8-10-FP1		R3/8	17	30	23.5	12	19	14.5	6	23.5
ZW-T10- 8-FP1	10	R1/8	17	31	27	11	21.5	17.5	8	33.5
ZW-T10-10-FP1		R1/4	17	32.5	27	12	21.5	17.5	8	33.5
ZW-T10-15-FP1		R3/8	22	35.5	27	15	21.5	17.5	8	33.5
ZW-T12- 8-FP1	12	R1/2	19	33	29.5	11	23	20	8.5	37
ZW-T12-10-FP1		R1/4	19	34.5	29.5	12	23	20	9	41
ZW-T12-15-FP1		R3/8	22	37.5	29.5	15	23	20	9	41

D tee
● ZW-T□-□-D-FP1

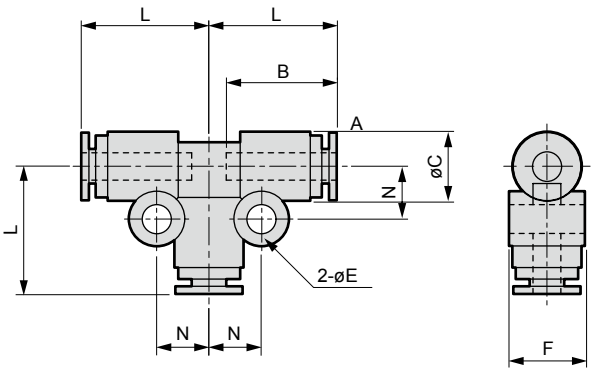


Model No.	Compatible tube O.D. ø	M	H	L_1	L_2	A	B	C	Min. bore size	Effective cross-sectional area mm²
ZW-T 4-M5-D-FP1	4	M5 × 0.8	10	16.5	18.5	3.4	16	10	2.5	4.3
ZW-T 4- 6-D-FP1		R1/8	10	20.5	18.5	8	16	10	2.5	4.3
ZW-T 4- 8-D-FP1		R1/4	14	24	18.5	11	16	10	2.5	4.3
ZW-T 6-M5-D-FP1	6	M5 × 0.8	12	19.5	21	3.4	17.5	12.5	2.5	4.3
ZW-T 6- 6-D-FP1		R1/8	12	24	21	8	17.5	12.5	4	10.5
ZW-T 6- 8-D-FP1		R1/4	14	27.5	21	11	17.5	12.5	4	10.5
ZW-T 6-10-D-FP1		R3/8	17	29	21	12	17.5	12.5	4	10.5
ZW-T 8- 6-D-FP1	8	R1/8	14	25.5	23.5	8	19	14.5	6	23.5
ZW-T 8- 8-D-FP1		R1/4	14	28.5	23.5	11	19	14.5	6	23.5
ZW-T 8-10-D-FP1		R3/8	17	30	23.5	12	19	14.5	6	23.5
ZW-T10- 8-D-FP1	10	R1/8	17	31	27	11	21.5	17.5	8	33.5
ZW-T10-10-D-FP1		R1/4	17	32.5	27	12	21.5	17.5	8	33.5
ZW-T10-15-D-FP1		R3/8	22	35.5	27	15	21.5	17.5	8	33.5
ZW-T12- 8-D-FP1	12	R1/2	19	33	29.5	11	23	20	8.5	37
ZW-T12-10-D-FP1		R1/4	19	34.5	29.5	12	23	20	9	41
ZW-T12-15-D-FP1		R3/8	22	37.5	29.5	15	23	20	9	41

Dimensions: Tee/different diameter tee/Y tee/double Y tee

Tee

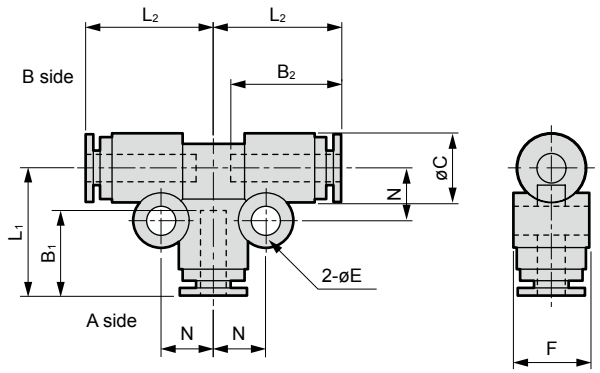
● ZW-T□-0-FP1



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

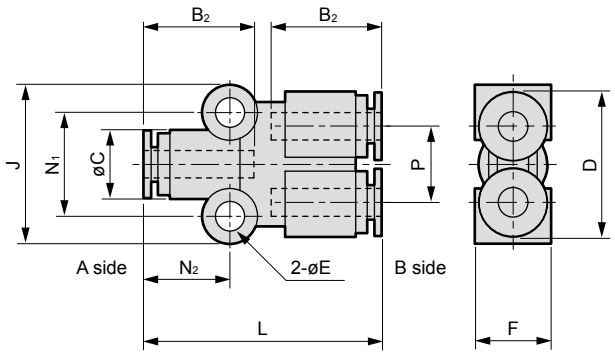
● ZW-T□-0-FP1



Model No.	Compatible tube O.D. ø		L_1	L_2	B_1	B_2	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

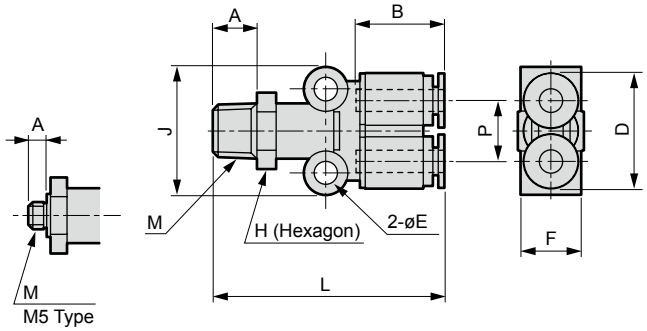
● ZW-Y□-0-FP1



Model No.	Compatible tube O.D. ø		L	B_1	B_2	C	D	E	F	J	N_1	N_2	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

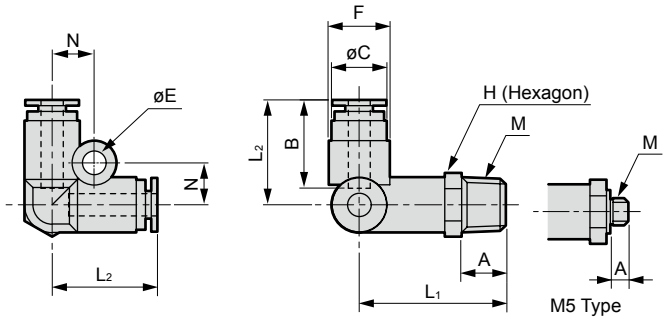


Model No.	Compatible tube O.D. ø	M	H	L	A	B	D	E	F	J	P	Effective cross-sectional area mm²
ZW-Y 4-M5-FP1	4	M5 × 0.8	12	38	3.4	16	21	4.2	11	23	11	4.5
ZW-Y 4- 6-FP1		R1/8	12	42	8	16	21	4.2	11	23	11	5.5
ZW-Y 4- 8-FP1		R1/4	14	45.5	11	16	21	4.2	11	23	11	5.5
ZW-Y 6-M5-FP1	6	M5 × 0.8	14	41	3.4	17.5	26	4.2	13.5	25.5	13.5	4.5
ZW-Y 6- 6-FP1		R1/8	14	46	8	17.5	26	4.2	13.5	25.5	13.5	17.5
ZW-Y 6- 8-FP1		R1/4	14	49	11	17.5	26	4.2	13.5	25.5	13.5	17.5
ZW-Y 6-10-FP1		R3/8	17	50.5	12	17.5	26	4.2	13.5	25.5	13.5	17.5
ZW-Y 8- 6-FP1	8	R1/8	17	49	8	19	30	4.2	15.5	27	15.5	25.5
ZW-Y 8- 8-FP1		R1/4	17	52	11	19	30	4.2	15.5	27	15.5	25.5
ZW-Y 8-10-FP1		R3/8	17	53.5	12	19	30	4.2	15.5	27	15.5	25.5
ZW-Y10- 8-FP1	10	R1/4	19	59.5	11	21.5	36	4.2	18.5	30	18.5	35
ZW-Y10-10-FP1		R3/8	19	61	12	21.5	36	4.2	18.5	30	18.5	38.5
ZW-Y10-15-FP1		R1/2	22	64	15	21.5	36	4.2	18.5	30	18.5	38
ZW-Y12- 8-FP1	12	R1/4	22	64.5	11	23	41	4.2	21	32	21	37
ZW-Y12-10-FP1		R3/8	22	66	12	23	41	4.2	21	32	21	37
ZW-Y12-15-FP1		R1/2	22	69	15	23	41	4.2	21	32	21	40.5

Dimensions: Tetrapod (with R)/FY (with R)/double Y (with R)/tetrapod

Tetrapod (with R)

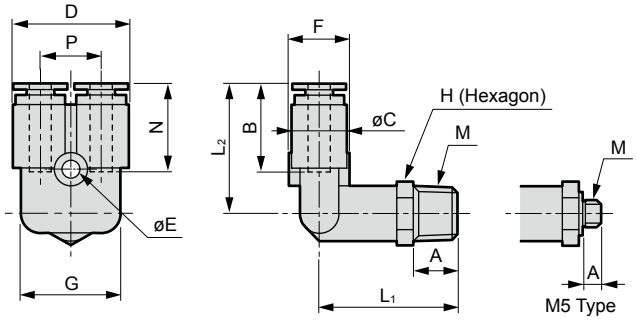
● ZW-TR□-□-FP1



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 × 0.8	10	22.5	19	3.4	16	10	4.2	11	7.5	2.5	4.3
ZW-TR 4- 6-FP1		R1/8	10	26.5	19	8	16	10	4.2	11	7.5	2.5	4.5
ZW-TR 4- 8-FP1		R1/4	14	30	19	11	16	10	4.2	11	7.5	2.5	4.5
ZW-TR 6-M5-FP1	6	M5 × 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		R1/8	14	30	21.5	8	17.5	12.5	4.2	13.5	8.5	4	10.5
ZW-TR 6- 8-FP1		R1/4	14	33	21.5	11	17.5	12.5	4.2	13.5	8.5	4	10.5
ZW-TR 6-10-FP1		R3/8	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	R1/8	17	32.5	24	8	19	14.5	4.2	15.5	9.5	6	23.5
ZW-TR 8- 8-FP1		R1/4	17	35.5	24	11	19	14.5	4.2	15.5	9.5	6	23.5
ZW-TR 8-10-FP1		R3/8	17	37	24	12	19	14.5	4.2	15.5	9.5	6	23.5
ZW-TR10- 8-FP1	10	R1/4	19	39.5	27.5	11	21.5	17.5	4.2	18.5	13	8	35.5
ZW-TR10-10-FP1		R3/8	19	41	27.5	12	21.5	17.5	4.2	18.5	13	8	35.5
ZW-TR10-15-FP1		R1/2	22	44	27.5	15	21.5	17.5	4.2	18.5	13	8	35.5
ZW-TR12- 8-FP1	12	R1/4	22	41.5	30	11	23	20	4.2	21	14	8.5	37.5
ZW-TR12-10-FP1		R3/8	22	43	30	12	23	20	4.2	21	14	8.5	37.5
ZW-TR12-15-FP1		R1/2	22	46	30	15	23	20	4.2	21	14	8.5	37.5

FY (with R)

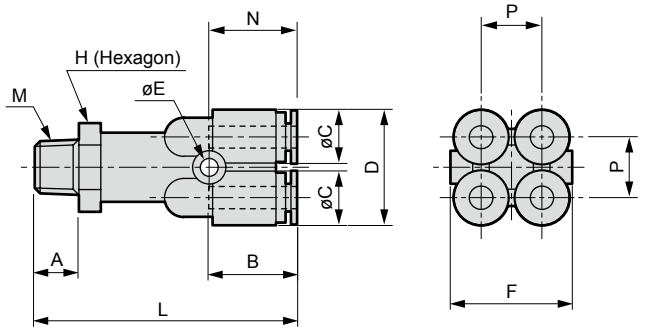
● ZW-FY□-□-FP1



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 × 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		R1/8	10	25	23.5	8	16	10	21	3.2	11	18	15.5	11	2.5	4.6
ZW-FY 4- 8-FP1		R1/4	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 × 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		R1/8	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		R1/4	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		R3/8	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	R1/8	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		R1/4	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		R3/8	17	35	29	12	19	14.5	30	4.2	15.5	26.5	18	15.5	6	23
ZW-FY10- 8-FP1	10	R1/4	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		R3/8	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		R1/2	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	R1/4	22	39.5	35.5	11	23	20	41	4.2	21	37	21.5	21	8.5	37.5
ZW-FY12-10-FP1		R3/8	22	41	35.5	12	23	20	41	4.2	21	37	21.5	21	8.5	37.5
ZW-FY12-15-FP1		R1/2	22	44	35.5	15	23	20	41	4.2	21	37	21.5	21	8.5	37.5

Double Y (with R)

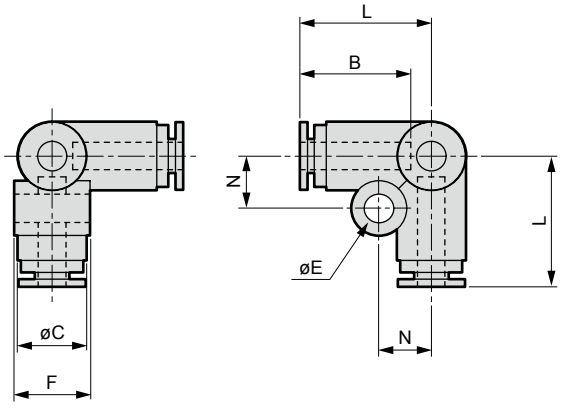
● ZW-WY□-□-FP1



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	R1/8	14	47.5	8	16	10	21	3.2	22	15.5	11	9.7
ZW-WY4- 8-FP1		R1/4	14	50.5	11	16	10	21	3.2	22	15.5	11	9.7
ZW-WY6- 6-FP1	6	R1/8	17	51.5	8	17.5	12.5	26	3.2	27	17	13.5	23

Tetrapod

● ZW-TR□-0-FP1

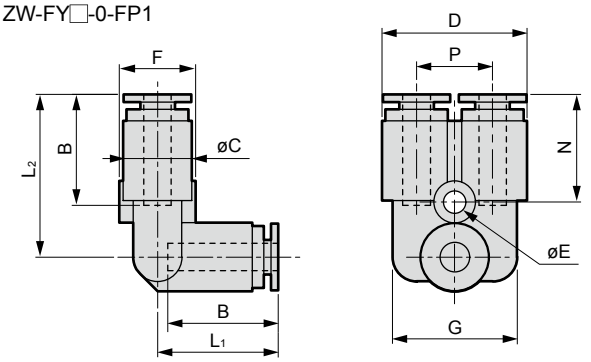


Model No.	Compatible tube O.D. ø	L	B	C	E	F	N	Min. bore size	Effective Cross-sectional area mm²
ZW-TR 4-0-FP1	4	19	16	10	4.2	11	7.5	2.5	4
ZW-TR 6-0-FP1	6	21.5	17.5	12.5	4.2	13.5	8.5	4	9.5
ZW-TR 8-0-FP1	8	24	19	14.5	4.2	15.5	9.5	6	12.5
ZW-TR10-0-FP1	10	27.5	21.5	17.5	4.2	18.5	13	8	29.5
ZW-TR12-0-FP1	12	30	23	20	4.2	21	14	10	35.5

Dimensions: FY/double Y/cap/manifold (single/with R)

FY

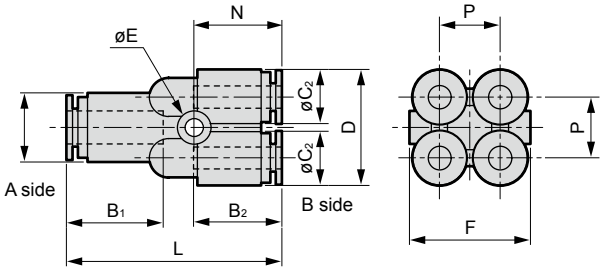
● ZW-FY□-0-FP1



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

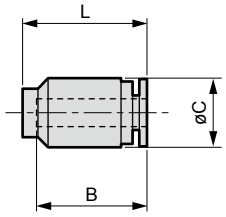
● ZW-WY□-0-FP1



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

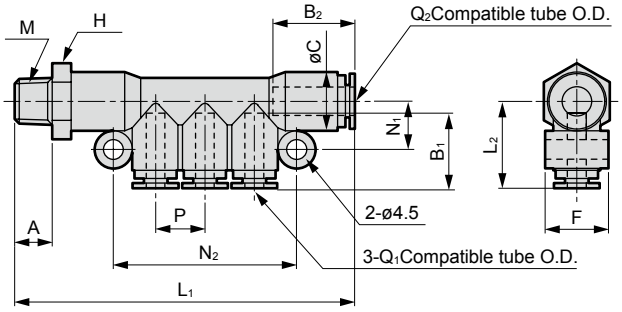
● ZW-C□-FP1



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

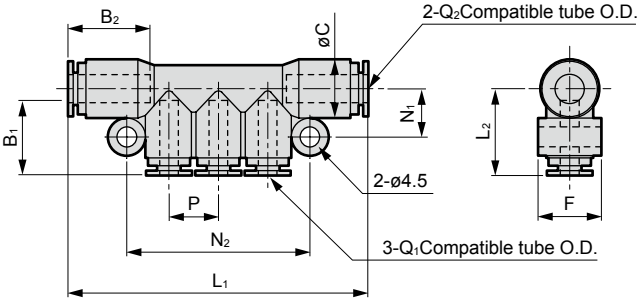


Model No.	Compatible tube O.D. ø		M	H	L1	L2	A	B1	B2	C	F	N1	N2	P	Effective Cross-sectional area mm²
	Q1	Q2													
ZW-MF 46- 6-FP1	4	6	R1/8	14	72.5	18.5	8	16	17.5	12.5	13.5	10.5	39	10.5	8.3
ZW-MF 48- 8-FP1	4	8	R1/4	17	77.5	19.5	11	16	19	14.5	15.5	11.5	39	10.5	24.2
ZW-MF 68- 8-FP1	6	8	R1/4	17	84.5	21	11	17.5	19	14.5	15.5	11.5	46.5	13	24.2
ZW-MF810-10-FP1	8	10	R3/8	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)

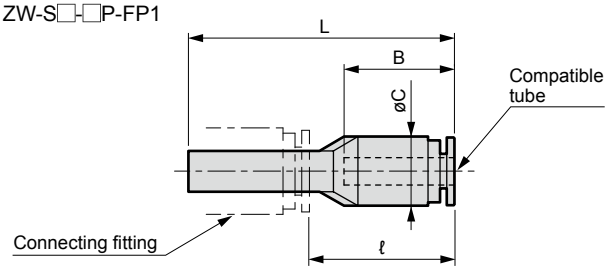
● ZW-MF□-0-FP1



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	Connecting fitting 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 CKD connection fittings (ZW-FP1 Series).



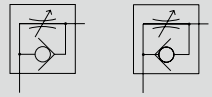
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

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

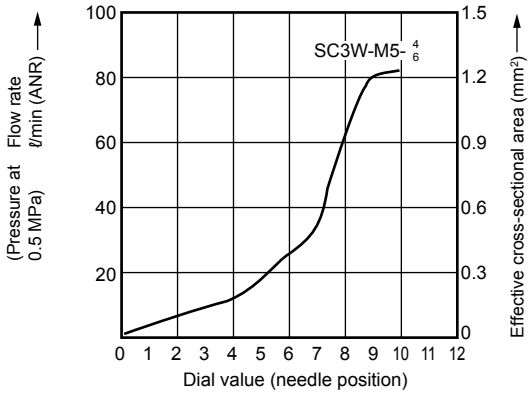
Specifications

Descriptions		SC3W-M5		SC3W-6			SC3W-8			SC3W-10				SC3W-15	
Compatible tube O.D. 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		R1/8			R1/4			R3/8				R1/2	
Weight g		8.8	9.6	25	26	27	50	51	54	63.7	75	78	81	134	138
Dial value (needle position)		10 or more		10 or more			13 or more			13 or more				14 or more	
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

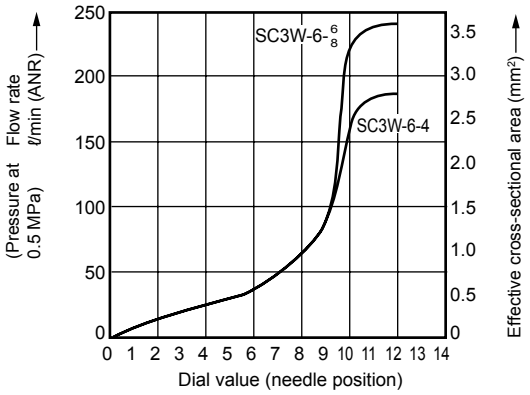
*1: Flow rate is the atmospheric pressure conversion value at pressure 0.5 MPa.
*2: Freezing could occur by adiabatic expansion depending on air quality (dew point).

Flow characteristics

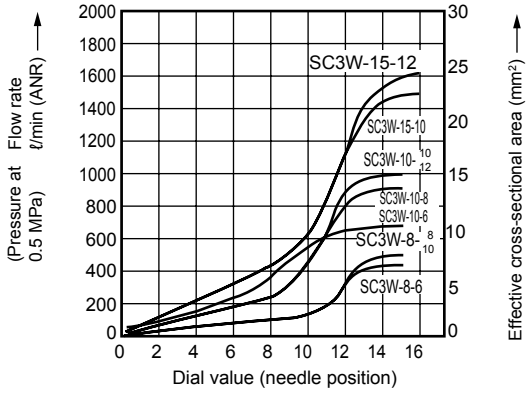
● Standard (port size M3, M5)



● 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: Ⓑ Compatible tube O.D.
- I: Ⓒ Option

Code	Content
Ⓐ Port size	
M5	M5 × 0.8
6	R1/8
8	R1/4
10	R3/8
15	R1/2

Ⓑ Compatible tube O.D.

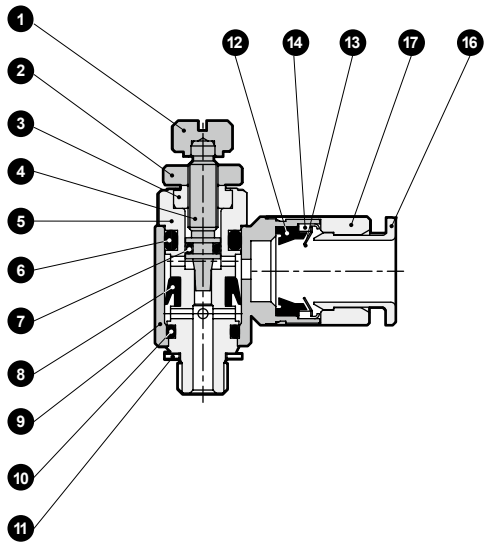
		Piping size				
		M5	6	8	10	15
4	ø4	●	●			
6	ø6	●	●	●	●	
8	ø8		●	●	●	
10	ø10			●	●	●
12	ø12				●	●

Code	Content
Ⓒ Option	
Blank	Meter-out
I	Meter-in (Push ring color: black)

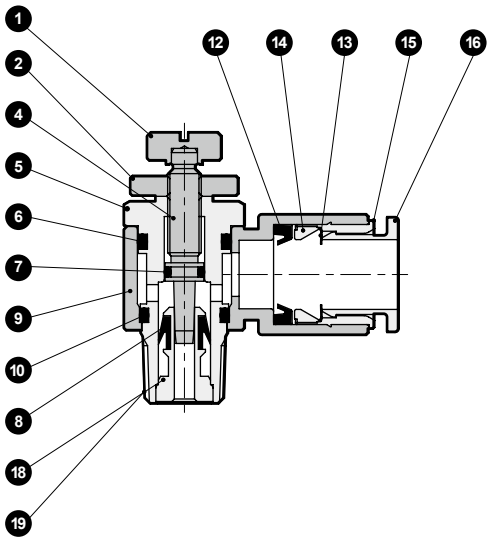
indicates not available.

Internal structure and parts list

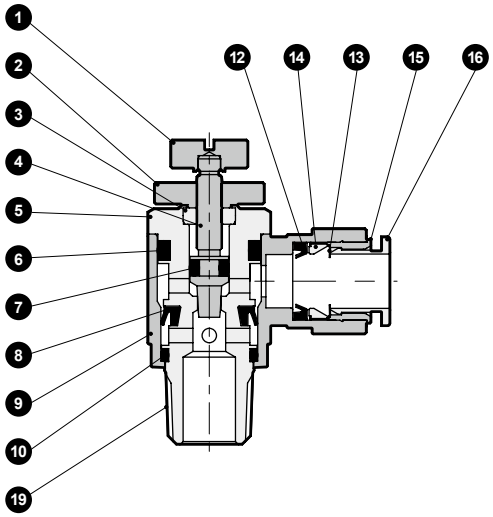
● Port size: M5



● Port size: 6, 10 (ø6 only)



● Port size: 8, 10, 15



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

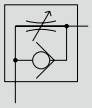
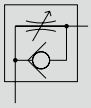


Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Speed controller with adjusting dial

DSC-FP1 Series

● Port size: R1/8 to R1/2

JIS symbol  (Meter-out)  (Meter-in)

RoHS CAD

Specifications

Descriptions			DSC-6			DSC-8			DSC-10				DSC-15	
Compatible tube O.D.		mm	ø4	ø6	ø8	ø6	ø8	ø10	ø6	ø8	ø10	ø12	ø10	ø12
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			R1/8			R1/4			R3/8				R1/2	
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	mm²	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	mm²	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	mm²	0.9			2			4				6	

*1: Flow rate is the atmospheric pressure conversion value at 0.5 Mpa.
*2: Freezing could occur by adiabatic expansion depending on air quality (dew point).

How to order

DSC - 6 - 6 - I L - FP1

Ⓐ Port size
Ⓑ Compatible tube O.D.
Ⓒ Control method
Ⓓ Flow rate

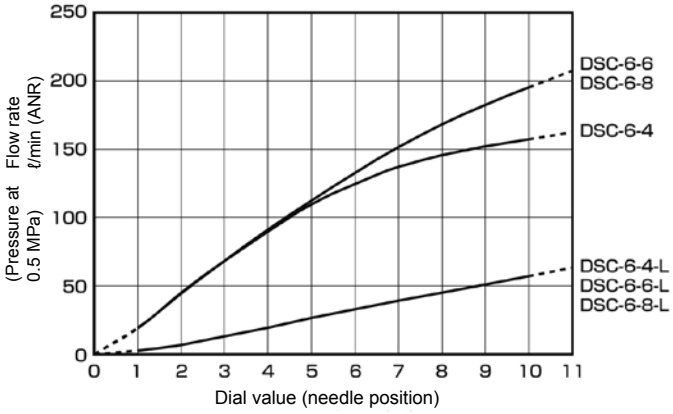
Code	Content
Ⓐ Port size	
6	R1/8
8	R1/4
10	R3/8
15	R1/2
Ⓑ Compatible tube O.D.	
4	ø4
6	ø6
8	ø8
10	ø10
12	ø12
Ⓒ Control method	
Blank	Meter-out
I	Meter-in (Push ring color: black)
Ⓓ Flow rate	
Blank	Standard flow rate
L	Low flow rate

Port size - compatible tube O.D. combination

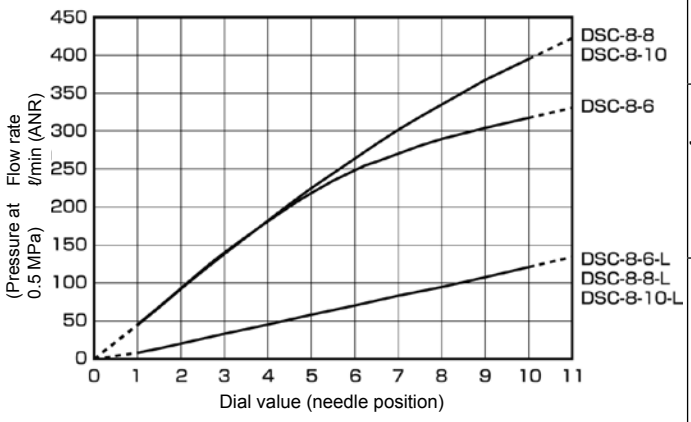
Tube \ Piping	R1/8	R1/4	R3/8	R1/2
ø4	○			
ø6	○	○	○	
ø8	○	○	○	
ø10		○	○	○
ø12			○	○

Flow characteristics

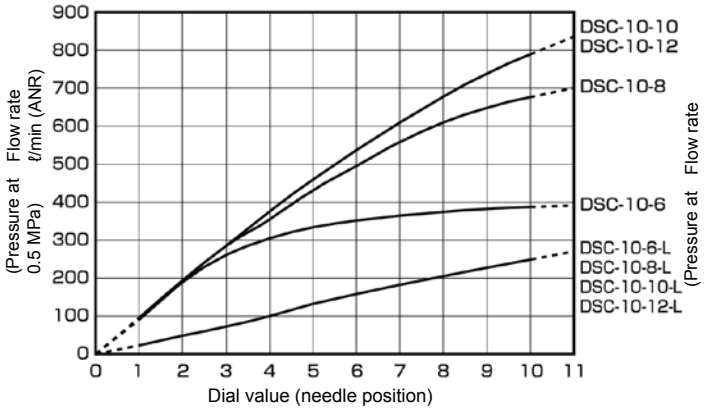
●DSC-6-※



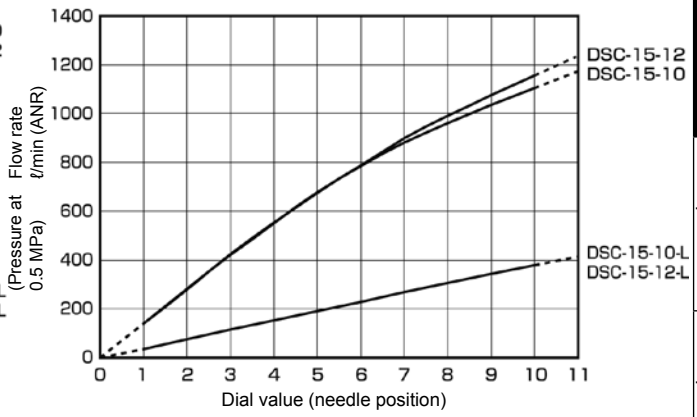
●DSC-8-※



●DSC-10-※

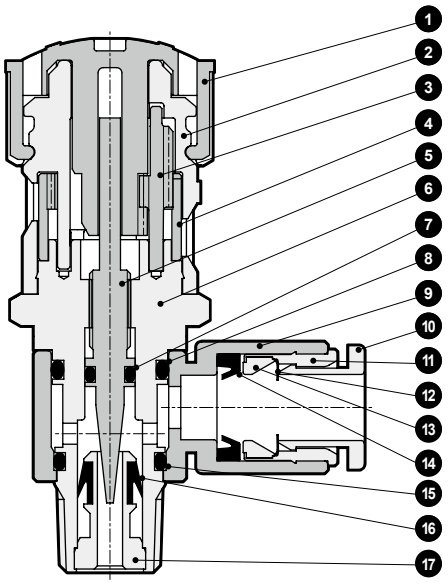


●DSC-15-※



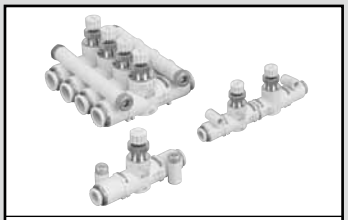
Note: The flow characteristics may differ depending on the piping conditions around the unit and the temperature changes.

Internal structure and parts list



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.

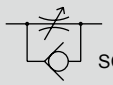


Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Speed controller Line type with push-in fitting

SCL2-FP1 Series

● Port size: ø4, ø6, ø8, ø10, ø12

JIS symbol 

RoHS CAD

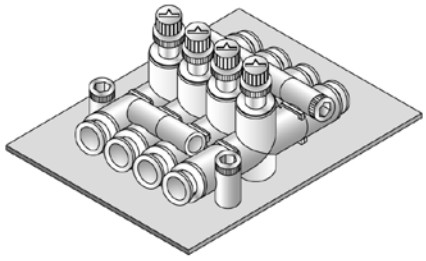
Overview

● The SCL2 Series is an inline speed controller useful for remote or centralized actuator control.

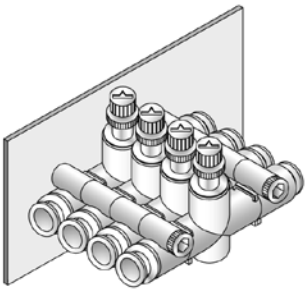
Features

Unrestricted mounting

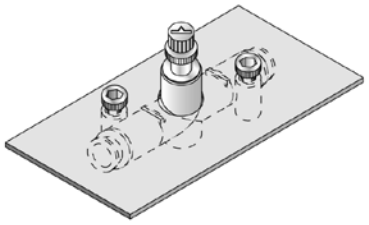
The mounting part rotates by 360°, enabling flexible selection of bottom/side mounting, panel mounting and mounting/installation style. An installation bracket is not required.



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 is large, which extends the selection range for cylinder size and speed control.

Push-in connection

Push-in fittings simplify tubing connections.

Standard ozone-resistant materials

Ozone-resistant materials are used as standard for check packing to prevent deterioration of product.

Standard flame-resistant resin

(UL94 Standard V-0 or equivalent)

Specifications

● Speed controller Line type SCL2

Model No.			SCL2-04	SCL2-06	SCL2-08		SCL2-10		
Compatible tube O.D.		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
Needle rotation speed			12 [15]						
Free flow	Flow rate	ℓ/min (ANR)	130	300	400	550	900	1100	1200
	Effective cross-sectional area	mm^2	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	mm^2	1.9	4.5	6	8	13.5	16.5	18

*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).

⚠ Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for the safety precautions for the SCL2 Series.

How to order

● Speed controller Line type

SCL2 - 04 - H44 - FP1

Model No.

Ⓐ Body size

Ⓑ Compatible tube O.D.

Refer to the table at right for body size, compatible tube O.D., and flow characteristic combinations.

Code	Content
Ⓐ Body size	
04	M5 thread equivalent
06	1/8 thread equivalent
08	1/4 thread equivalent
10	3/8 thread equivalent
Ⓑ Compatible tube O.D.	
H44	ø4
H66	ø6
H88	ø8
H1010	ø10
H1212	ø12

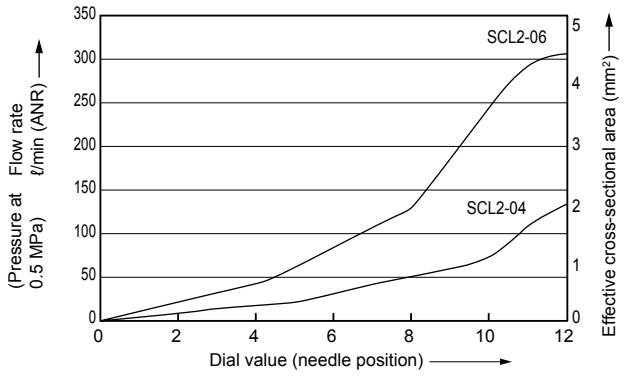
Combination of body size, compatible tube O.D., and flow characteristics

			Ⓐ Body size			
			04	06	08	10
Ⓑ Compatible tube O.D.	**H44**	ø4	●			
	H66	ø6		●	●	
	H88	ø8			●	●
	H1010	ø10				●
	H1212	ø12				●

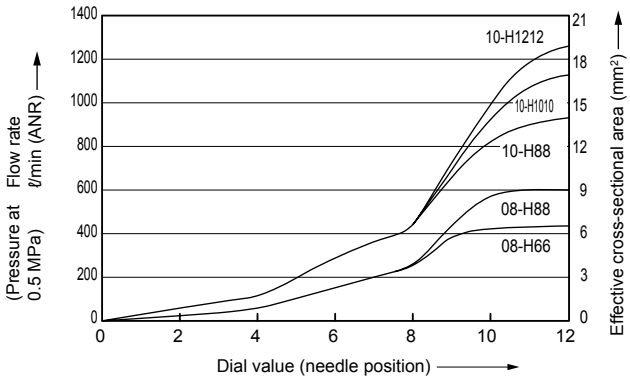
● Flow characteristics "standard"
Not available

Flow characteristics

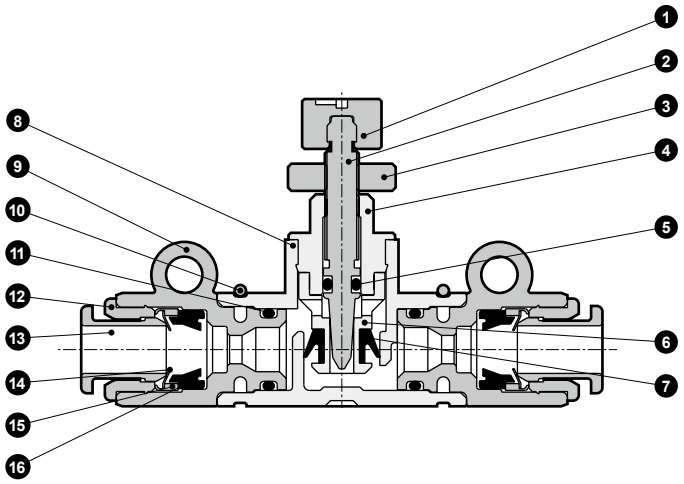
● Standard
SCL2-04, SCL2-06



● Standard
SCL2-08, SCL2-10

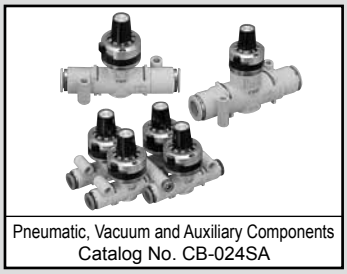


Internal structure and parts list



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	Fitting 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: Resin parts are all flame-resistant (UL94 standards V-0 or equivalent)



Needle valve with adjusting dial, check valve

DVL-S-FP1 Series

● Port size: ø4, ø6, ø8, ø10, ø12

JIS symbol



DVL-S

RoHS CAD

Specifications

● Needle valve with adjusting dial, check valve DVL-S

Descriptions		DVL-S-06					DVL-S-08		DVL-S-10		
		020		080		160	240		400		
Compatible tube O.D.	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 mm²	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 mm²	0.15		1.2		2.4	3.6		6.6		

*1: Flow rate is the atmospheric pressure conversion at 0.5 MPa.
*2: Freezing could occur by adiabatic expansion depending on air quality (dew point).
*3: Evacuating up to −100 kPa is possible only in the direction of free flow. (Needle control is not available)

How to order

DVL - S - 06 - H66 - 020 - FP1

Model No.

Ⓐ Control method

Ⓑ Body size

Ⓒ Compatible tube O.D.

Refer to the table below for the body size, compatible tube O.D. and flow rate combination.

Ⓓ Flow rate

Code	Content
Ⓐ Control method	
S	Check valve
Ⓑ Body size	
06	1/8 thread equivalent
08	1/4 thread equivalent
10	3/8 thread equivalent
Ⓒ Compatible tube O.D.	
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)

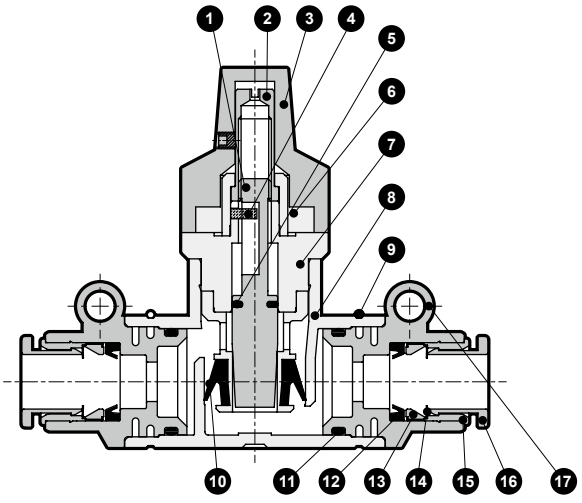
Precautions for model No. selection

*1: The flow rate is the guide value at 0.5 MPa.

Combination of body size, compatible tube O.D., and flow rate

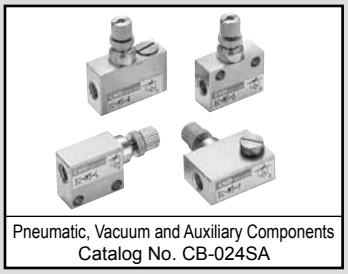
	Ⓑ Body size						
	06		08		10		
Ⓒ Compatible tube O.D. / Ⓓ Flow rate	H44	H66	H66	H88	H88	H1010	H1212
020	●	●					
080	●	●					
160		●					
240			●	●			
400					●	●	●

Internal structure and parts list



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	Fitting 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



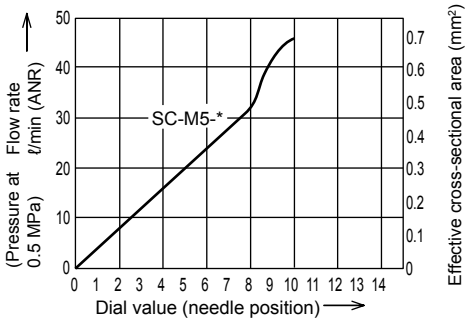
RoHS CAD

Specifications

Descriptions			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			
Needle rotation speed			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 0.5 MPa.

Flow characteristics



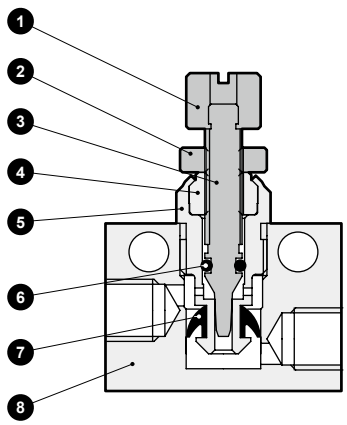
How to order

SC - M5 - A - FP1

Ⓐ Port size
Ⓑ Shape

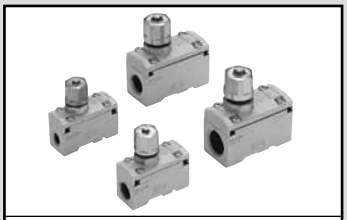
Code	Content
Ⓐ Port size	
M5	M5 × 0.8
Ⓑ Shape	
S	Straight
L	Elbow
F	Flat
A	Adjustable

Internal structure and parts list



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: For fine speed, the material of the needle guide is stainless steel.



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Speed controller Medium bore size

SC1-FP1 Series

● Port size: Rc1/8 to Rc1/2

JIS symbol 

RoHS CAD

Specifications

Descriptions			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 resistance/ozone-proof specifications)			
Ambient temperature		°C	0 to 60 (no freezing) (5°C to 120°C for heat resistance/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
Needle rotation speed			10	10	10	10
Free flow	Flow rate	ℓ/min (ANR)	730	930	2600	2900
	Effective cross-sectional area	mm^2	11	14	39	43
Controlled flow	Flow rate	ℓ/min (ANR)	530	870	1500	2400
	Effective cross-sectional area	mm^2	8	13	22	36

*1: Flow rate is the atmospheric pressure conversion at 0.5 MPa.
*2: Freezing could occur by adiabatic expansion depending on air quality (dew point).

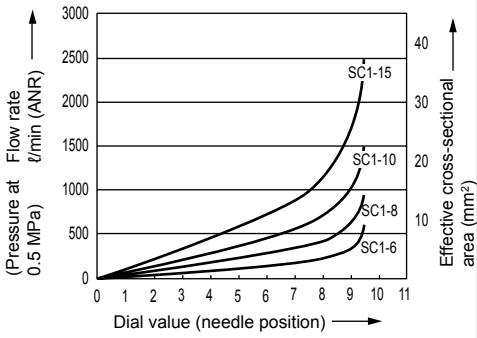
How to order

SC1 — 6 — FP1

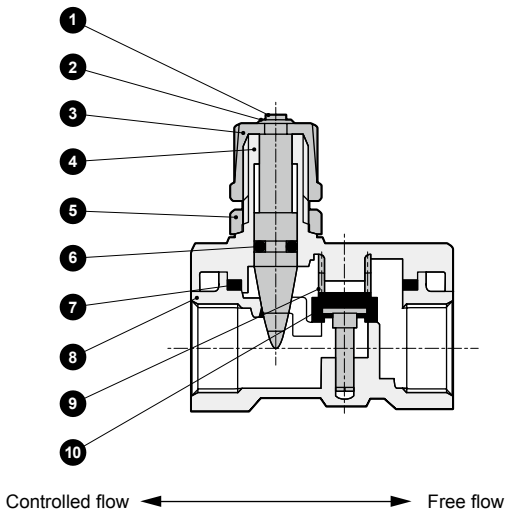
Ⓐ Port size

Code	Content
Ⓐ **Port size**	
6	Rc1/8
8	Rc1/4
10	Rc3/8
15	Rc1/2

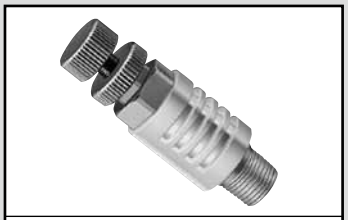
Flow characteristics



Internal structure and parts list



No.	Part name	Material
1	Needle	Copper alloy
2	E 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



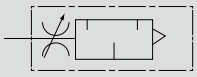
NSF H1

Metering valve with silencer

SMW-FP1 Series

● Port size: R3/8, R1/2

JIS symbol



RoHS CAD

Specifications

Descriptions	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
Needle rotation speed	19	19
Noise reduction effect *2 dB	20 or more	
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 0.5 MPa.
*2: Noise reduction effect at maximum flow rate is shown.
*3: Freezing could occur by adiabatic expansion depending on air quality (dew point).

How to order

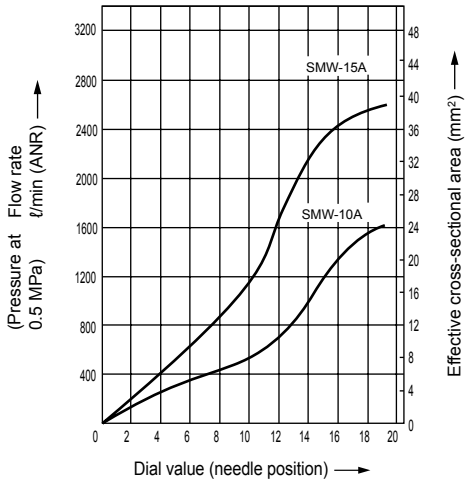
SMW – 10A – FP1

Ⓐ Port size

Code	Content
Ⓐ **Port size**	
10A	R3/8
15A	R1/2

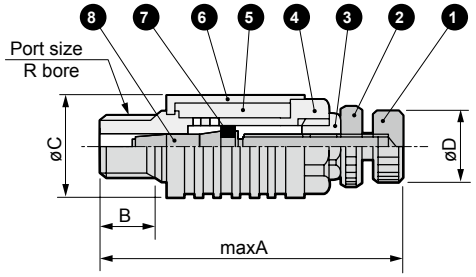
Flow characteristics

● 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



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Metering valve with silencer

SMW2-FP1 Series

● Port size: R1/8 to R1/4

JIS symbol 

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 23 dB (A) and over
  P.P. sintering element with high damping effect integrated into the body to maintain low noise level.
- Uses a push lock type 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

Descriptions	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
Needle rotation speed	9	
Noise reduction effect (*2) dB[A]	23 or more	28 or more
Flow rate (*1) ℓ/min (ANR)	370	660
Effective cross-sectional area mm^2	5.6	9.9

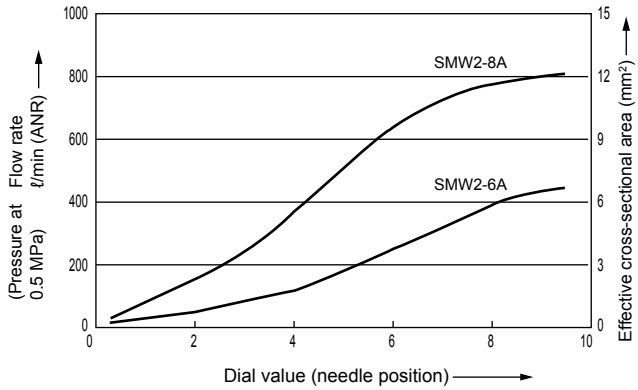
*1: Flow rate is the atmospheric pressure conversion at 0.5 MPa.
*2: Noise reduction effect at maximum flow rate is shown.

How to order

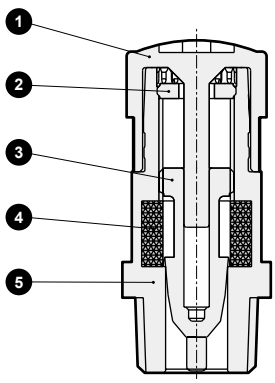
SMW2 - 6A - FP1

Code	Content
Ⓐ Port size	
6A	R1/8
8A	R1/4

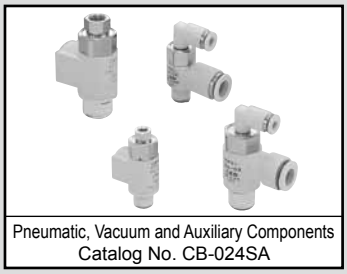
Flow characteristics



Internal structure and parts list



No.	Part name	Material
1	Knob	Polybutylene terephthalate
2	Guide ring	Polyamide
3	Needle	Polyamide
4	Element	PP sintered resin
5	Body	Polyamide



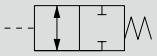
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Block valve

FPV-FP1 Series

● Port size: M5, R1/8 to R1/2

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

Descriptions	FPV-M5	FPV-6A		FPV-8A		FPV-10A		FPV-15A	
Port size	M5	R1/8		R1/4		R3/8		R1/2	
Main side applicable tube O.D.	ø6	ø6	ø8	ø6	ø8	ø8	ø10	ø10	ø12
Pilot side applicable 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 separate table (page 192).								
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	R1/8
8A	R1/4
10A	R3/8
15A	R1/2

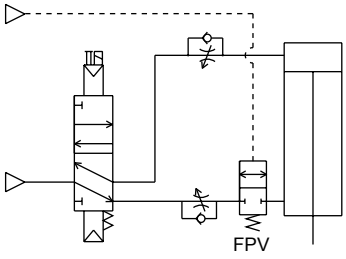
Ⓑ Compatible tube O.D.

Ⓑ Compatible tube O.D.		Ⓐ Piping port size				
		M5	**6A**	**8A**	**10A**	**15A**
06	ø6	●	●	●		
08	ø8		●	●	●	
10	ø10				●	●
12	ø12					●

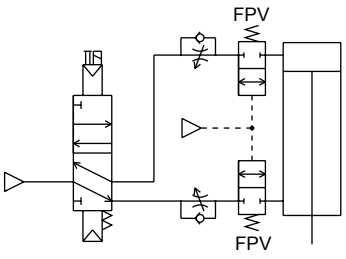
Not available

Applications

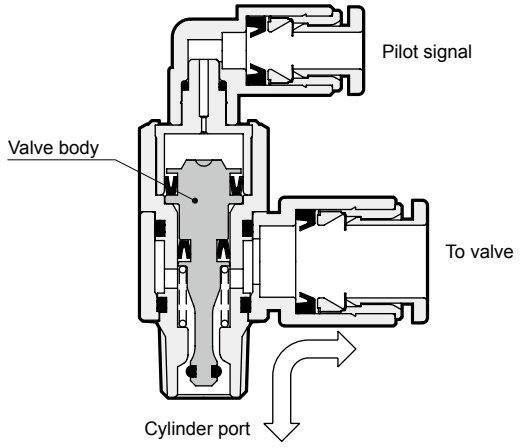
● Used for cylinder position locking circuit



● Used for cylinder braking circuit



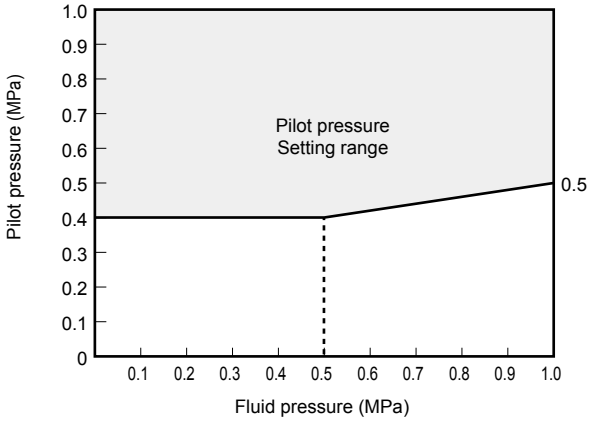
Operational principle



The valve opens if there is a pilot signal, but closes if the pilot signal is cut off.

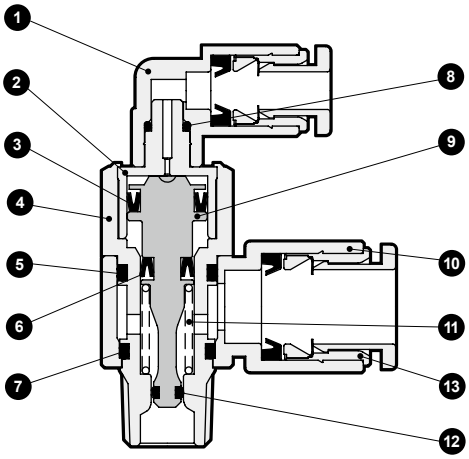
Pilot pressure

Set pilot air pressure within the specified range.



Note that the characteristics differ from the standard.

Internal structure and parts list



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.



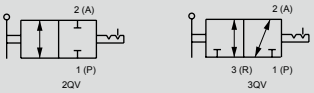
Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Quick valve

2QV/3QV-FP1 Series

● Port size: Push-in fitting ø4, ø6, ø8, ø10, ø12

JIS symbol



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- and 3-port valves are available.

Specifications

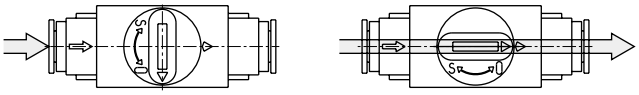
Descriptions	2QV/3QV
Working fluid	Air
Max. working pressure MPa	1.0
Min. working pressure kPa	−100 (*1)
Proof pressure MPa	1.5
Fluid temperature °C	0 to 60
Ambient temperature °C	0 to 60
Switching angle °	90
Tube used	Soft nylon tube (tube F-15**) Urethane tube (tube U-95**, NU-**)
Mounting orientation	Arbitrary

*1: When using urethane tube (U-95**, NU-**) at vacuum, use an insert ring.
*2: Lubricant is used, so oil-prohibited specification is not available.

Operational explanation

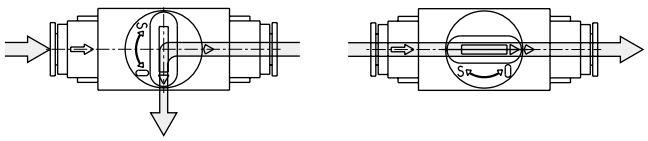
● 2-port valve (2QV Series)

[Closed state] [Open state]



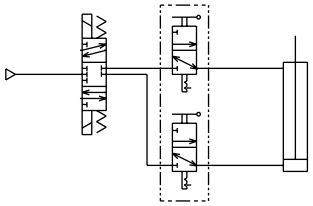
● 3-port valve (3QV Series)

[Closed state] [Open state]



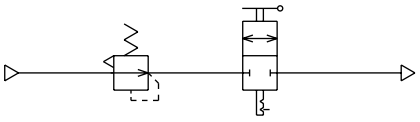
Applications

● Shut-off valve in air cylinder circuit



Quick valve (3QV)

● Stop valve in air blow circuit



Quick valve (2QV)

How to order

● Quick valve

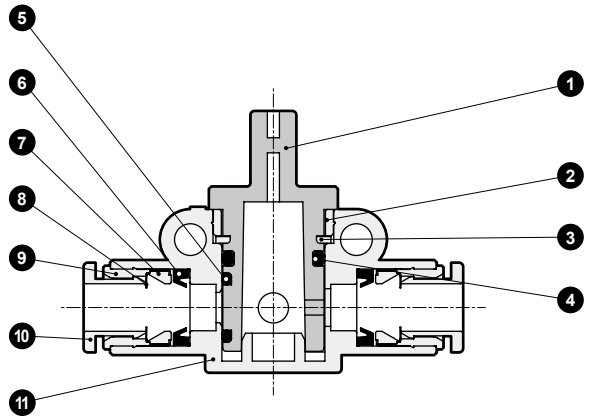
2 QV - 04-04 - FP1

Ⓐ Valve type

Ⓑ Port size (port P) - (port A)

Code	Content
Ⓐ Valve type	
2	2 way valve
3	3 way valve
Ⓑ Port size (port P) - (port A)	
	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

No.	Part name	Material
1	Rotary shaft	PBT (UL94V-0 or 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 (UL94V-0 or equivalent)
11	Body	PBT (UL94V-0 or equivalent)

*1: The port sizes in the dimensions apply to the 04-04, 06-06, and 08S-08S model material.
*2: The port sizes in the dimensions apply to the 08-08, 10-10, and 12-12 model material.



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

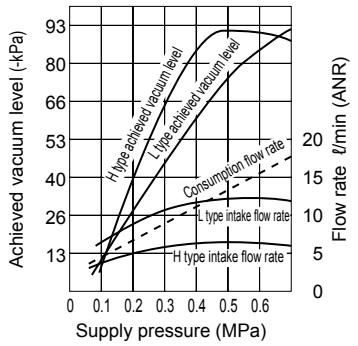
Descriptions	Specifications
Working fluid	Air
Working pressure MPa	0.15 to 0.7
Working temperature/fluid temperature °C	0 to 60

Vacuum characteristics, flow characteristics

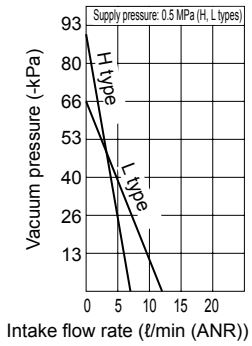
Supply pressure - achieved vacuum pressure, intake flow rate, air consumption rate

● VSH-$^{H}_{L}$05

Vacuum characteristics

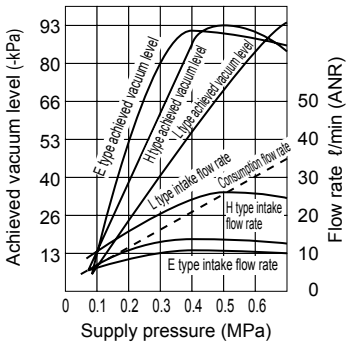


Flow characteristics

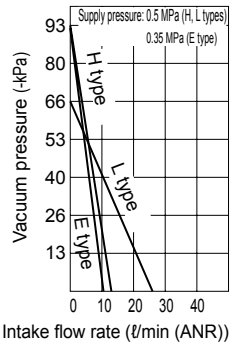


● VSH-*07, VSC-*07

Vacuum characteristics

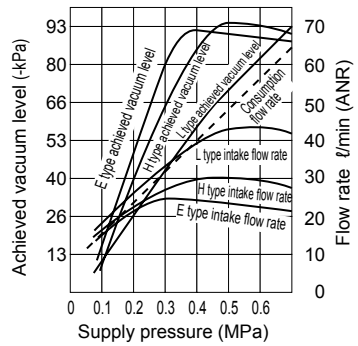


Flow characteristics

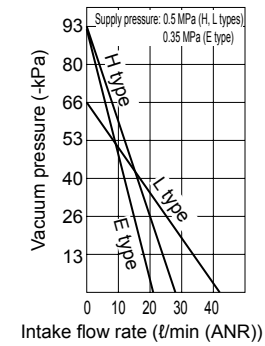


● VSH-*10, VSC-*10

Vacuum characteristics

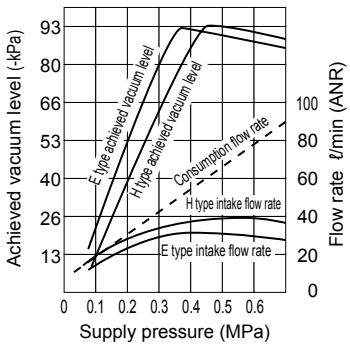


Flow characteristics

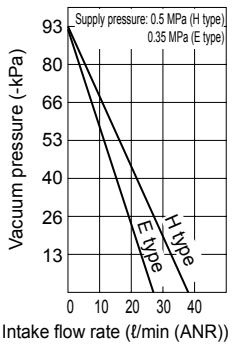


● VSH-*12, VSC-*12

Vacuum characteristics

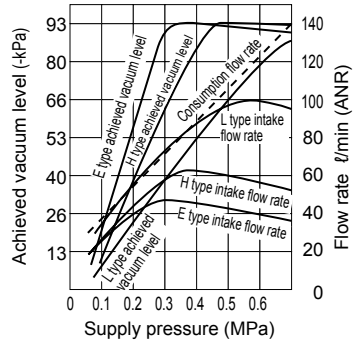


Flow characteristics

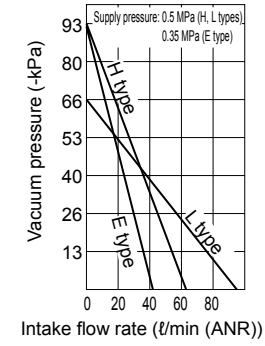


● VSH-*15, VSC-*15

Vacuum characteristics

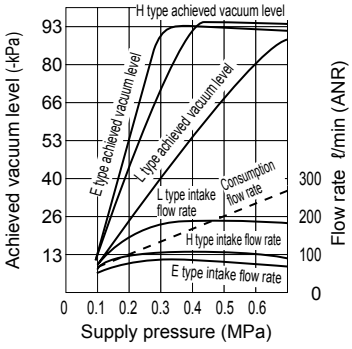


Flow characteristics

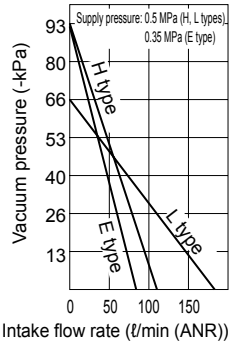


● VSH-*20, VSC-*20

Vacuum characteristics



Flow characteristics



How to order

* Refer to Vacuum system equipment SELVACS (CC-796A) for selectable combinations of model numbers.

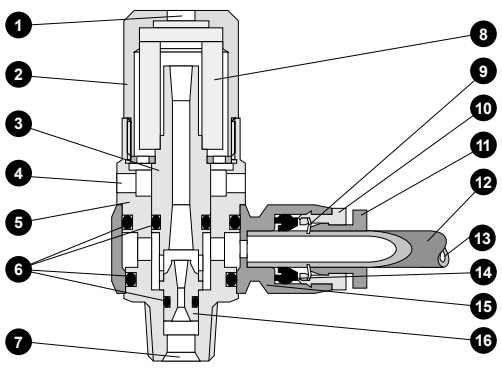
VS H - H 07 - 10 8A J - FP1

Ⓐ Shape
Ⓑ Vacuum characteristics
Ⓒ Nozzle diameter
Ⓓ Vacuum port (V)
Ⓔ Air supply port (P)
Ⓕ Additional functions

Code	Content
Ⓐ Shape	
H	Solenoid valve direct mounting
C	Pad direct mounting
Ⓑ Vacuum characteristics	
H	High vacuum/Medium flow rate
L	Medium vacuum/large flow rate
E	High vacuum/low flow rate
Ⓒ Nozzle diameter	
05	ø0.5
07	ø0.7
10	ø1.0
12	ø1.2
15	ø1.5
20	ø2.0
Ⓓ 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)
Ⓔ 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)
Ⓕ Additional functions	
S	Atmospheric release with silencer
J	Common exhaust

Internal structure and parts list

● VSH Series



No.	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



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)
  (0.7 MPa, atmospheric dew point −15°C)

RoHS CAD

Specifications

Descriptions	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				Air filter Oil mist filter (with differential pressure gauge) Super dryer				Air filter Oil mist filter (with differential pressure gauge) Super dryer Regulator				Super 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: Filtration μm	—				5								—			
Oil mist filter: Oil removal mg/m³	0.1 (about 0.1 PPM) (inlet air 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				—			

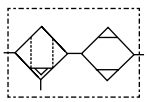
*1: Oil mist filter cannot be controlled with a differential pressure gauge for C1. Replace the oil mist filter mantle every year.
*2: Purge flow rate in reference rating section is also the same value at 0.5 MPa.

JIS symbol

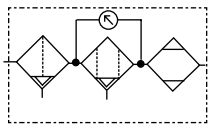
SD301E to 402E-*



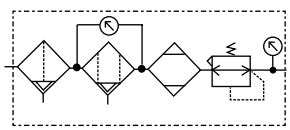
SU301E to 402E-*-C1



SU301E to 402E-*-C2



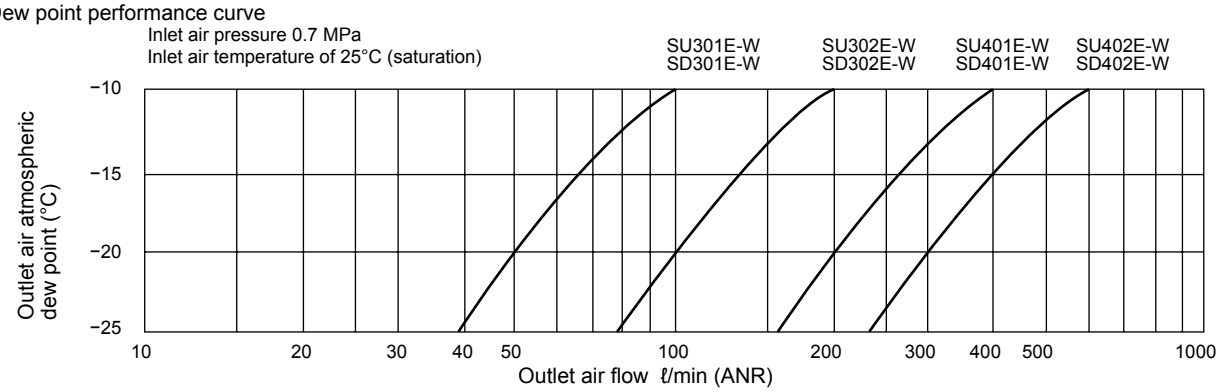
SU301E to 402E-*-C3



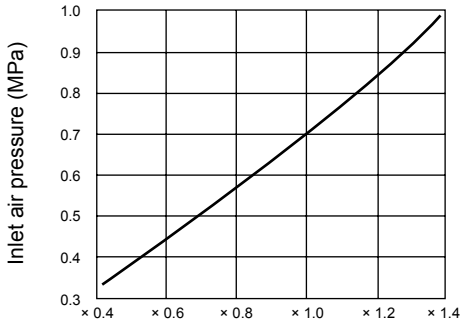
Dew point performance

Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for selection guide and compensation method.

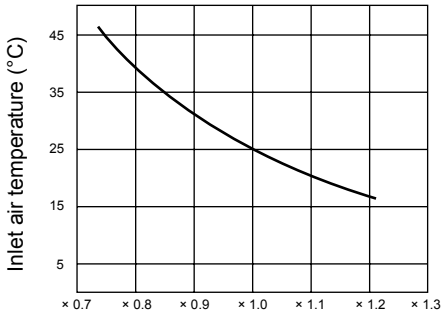
● Dew point performance curve



Inlet pressure - outlet air flow rate correction curve



Inlet temperature - outlet air flow rate correction curve



How to order

● Super dryer unit

SU301E - 05 - W - C1 - X1 - FP1

Ⓐ Model No.

Code	Content
Ⓐ **Model No.**	
SU301E	
SU302E	
SU401E	
SU402E	

Ⓑ Inlet air pressure

Ⓑ **Inlet air pressure**	
05	0.5 MPa (*1)
07	0.7 MPa (*1)

Ⓒ Unit

Ⓒ **Unit**
C1
C2
C3

Ⓓ Option *5

Ⓓ **Option**	
Blank	None
E	Common exhaust (*4)
X1	Reversed inlet and outlet (*3)

● Super dryer

SD402E - 05 - W - B - FP1

Ⓐ Model No.

Code	Content
Ⓐ **Model No.**	
SD301E	
SD302E	
SD401E	
SD402E	

Ⓑ Inlet air pressure

Ⓑ **Inlet air pressure**	
05	0.5 MPa (*1)
07	0.7 MPa (*1)

Ⓒ Option *5

Ⓒ **Option**	
Blank	None
B	With C-bracket (*2)
E	Common exhaust (*4)
X1	Reversed inlet and outlet (*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-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 of standard products is released to 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 750 ℓ/min (ANR)
  (0.7 MPa, atmospheric dew point −20°C)

CAD

Specifications

Descriptions		SU301D -*-W-C1	SU302D -*-W-C1	SU401D -*-W-C1	SU402D -*-W-C1	SU301D -*-W-C2	SU302D -*-W-C2	SU401D -*-W-C2	SU402D -*-W-C2	SU301D -*-W-C3	SU302D -*-W-C3	SU401D -*-W-C3	SU402D -*-W-C3	SD301D -*-W	SD302D -*-W	SD401D -*-W	SD402D -*-W
Appearance		 Simple & space saving structure unit that removes moisture from the air from which solid impurities have already been removed. (*1)				 Unit supplying clean dry air with line not requiring pressure adjustment.				 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				Air filter Oil mist filter (with differential pressure gauge) Super dryer				Air filter Oil mist filter (with differential pressure gauge) Super dryer Regulator				Super dryer			
Range of working conditions	Working fluid	Compressed air															
	Inlet air pressure MPa	0.4 to 1.0															
	Proof pressure MPa	1.5															
	Inlet air temperature °C	5 to 50															
	Ambient temperature °C	5 to 50															
Standard rating	Outlet air atmospheric dew point °C	−20															
	Inlet air flow rate ℓ/min (ANR)	125	250	500	750	125	250	500	750	125	250	500	750	125	250	500	750
	Outlet air flow ℓ/min (ANR)	100	200	400	600	100	200	400	600	100	200	400	600	100	200	400	600
	Purge flow rate ℓ/min (ANR)	25	50	100	150	25	50	100	150	25	50	100	150	25	50	100	150
	Inlet air pressure dew point °C	25															
	Inlet air pressure MPa	0.7															
	Inlet air temperature °C	25															
	Ambient temperature °C	25															
Air filter	Filtration μm	—				5								—			
Oil mist filter	Oil removal mg/m³	0.1 (about 0.1 PPM) (inlet air 30°C)												—			
Regulator	Set pressure range MPa	—								0.05 to 0.85				—			
	Relief pressure MPa	—								Setting pressure plus 0.05				—			
Standard accessories		Bracket				Differential pressure gauge/bracket				Pressure gauge/differential pressure gauge/bracket				—			

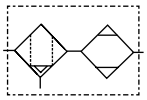
*1: Oil mist filter cannot be controlled with a differential pressure gauge for C1. Replace the oil mist filter mantle every year.
*2: Purge flow rate in reference rating section is also the same value at 0.5 MPa.

JIS symbol

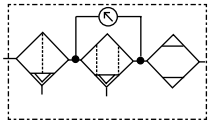
SD301D to 402D-*



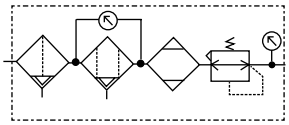
SU301D to 402D-*-C1



SU301D to 402D-*-C2



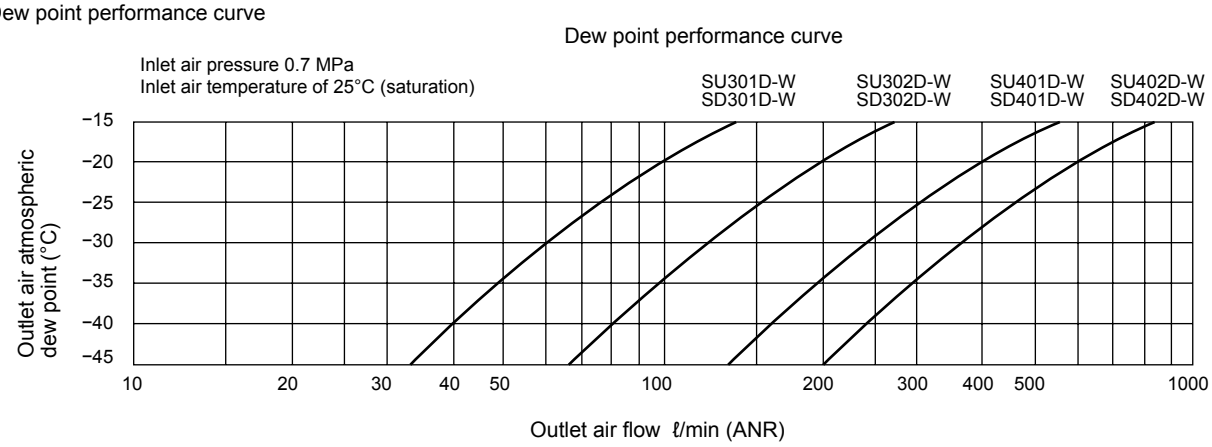
SU302D to 402D-*-C3



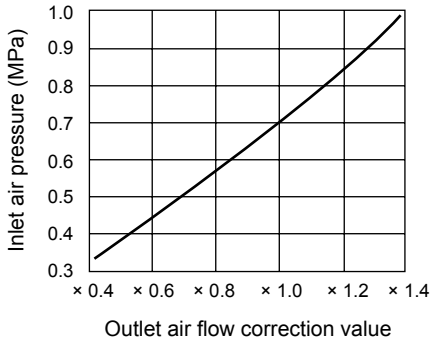
Dew point performance machine

Refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA) for selection guide and compensation method.

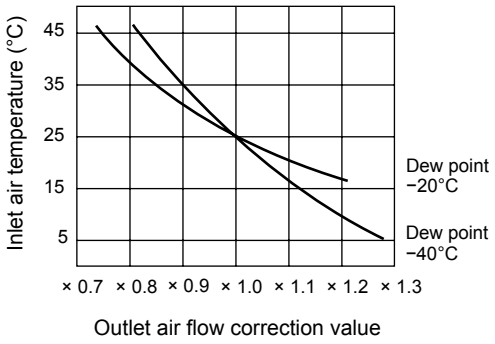
● Dew point performance curve



Inlet pressure - outlet air flow rate correction curve



Inlet temperature - outlet air flow rate correction curve



How to order

● Super dryer unit

SU301D - 05 - W - C1 - X1 - FP1

Code	Content
Ⓐ Model No.	
SU301D	
SU302D	
SU401D	
SU402D	
Ⓑ Inlet air pressure	
05	0.5 MPa (*1)
07	0.7 MPa (*1)
Ⓒ Unit	
C1	
C2	
C3	
Ⓓ Option	
Blank	None
E	Common exhaust (*4)
X1	Reversed inlet and outlet (*3)

Ⓐ Model No.
Ⓑ Inlet air pressure
Ⓒ Unit
Ⓓ Option *5

● Super dryer

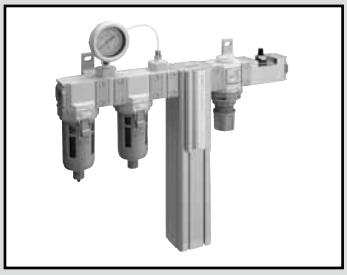
SD402D - 05 - W - B - FP1

Code	Content
Ⓐ Model No.	
SD301D	
SD302D	
SD401D	
SD402D	
Ⓑ Inlet air pressure	
05	0.5 MPa (*1)
07	0.7 MPa (*1)
Ⓒ Option	
Blank	None
B	With C-bracket (*2)
E	Common exhaust (*4)
X1	Reversed inlet and outlet (*3)

Ⓐ Model No.
Ⓑ Inlet air pressure
Ⓒ Option *5

⚠ Precautions for model No. selection

*1: If inlet air pressure is less than 0.7 MPa, indicate 05; for 0.7 MPa and over, indicate 07.
*2: If fixed by C-bracket, modular connection with peripheral devices is not possible.
*3: Viewed from the front, standard products have an air inlet on the left port and an air outlet on the right port. For "X1", an air inlet is provided on the right port, with an air outlet provided on the left port.
*4: Purge air of standard products is released to 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

Nitrogen gas supplied easily and stably.

- Obtain nitrogen gas by just piping to the pneumatic source.
- All in one design with superior installability.

Specifications

Descriptions				NSU-3S	NSU-3L	NSU-4S	NSU-4L
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			
	Inlet air relative humidity	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			
Rated flow	Outlet nitrogen gas flow rate ℓ/min (ANR)	Nitrogen concentration (%)	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
	Inlet air flow rate ℓ/min (ANR)		99.9	21.2	62.3	122.3	340.0
			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
Air filter		Filtration	μm	5			
Oil mist filter		Oil removal	mg/m^3	0.01 or less (0.1 or less after oil saturation) *Value when primary oil concentration is 30 mg/m^3 and temperature is 21°C.			
Regulator		Set pressure range	MPa	0.05 to 0.85			
Standard accessories				Pressure gauge/differential pressure gauge/bracket			

* Compare outlet nitrogen gas and needle valve flow characteristics (refer to page 274) and confirm the whether you are withing the working range. Contact CKD when working outside the specified range.

Selection guide

Temperature and inlet air pressure affect the outlet nitrogen gas flow rate, so compensation is required when the rate differs from the specifications.

STEP 1 Confirm the working conditions and specification rates.
Working conditions: inlet air pressure, inlet air temperature, required nitrogen gas flow rate

STEP 2 Confirm the compensation coefficient of outlet nitrogen gas flow rate affected by inlet air temperature. (Table (1) at right)

STEP 3 Confirm the compensation coefficient of outlet nitrogen gas flow rate affected by inlet air pressure. (Table (2) at right)

STEP 4 **Determine the appropriate model from the rated outlet nitrogen gas flow rate of each model.**
Rated outlet nitrogen gas flow rate × (1) Temperature - gas flow rate compensation coefficient × (2) Pressure - gas flow rate compensation coefficient = Outlet nitrogen gas flow rate after compensation
Select a model that has the required outlet nitrogen gas flow rate after compensation as calculated above.

STEP 5 Confirm the compensation coefficient of inlet air flow rate affected by inlet air temperature. (Table (3) at right)

STEP 6 Confirm the compensation coefficient of inlet air flow rate affected by inlet air pressure. (Table (4) at right)

STEP 7 **Determine 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 STEP 4 × (3) Temperature - air flow rate compensation coefficient × (4) Pressure - air flow rate compensation coefficient = Inlet air flow rate after compensation ℓ/min (ANR)
Confirm that the model can be used with the compressor's capacity from the inlet air flow rate after compensation as calculated above.

(1) Temperature - gas flow rate compensation coefficient

Temperature (°C)	Outlet nitrogen gas concentration			
	99.9%	99%	97%	95%
10	0.73	0.84	0.84	0.81
25	1	1	1	1
40	0.95	1.08	1.06	1.11
50	0.9	1.09	1.11	1.15

(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

(3) Temperature - air flow rate compensation coefficient

Temperature (°C)	Outlet nitrogen gas concentration			
	99.9%	99%	97%	95%
10	0.8	0.76	0.81	0.77
25	1	1	1	1
40	1.32	1.25	1.17	1.2
50	2.05	1.38	1.31	1.31

(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

Example of calculation

Conditions	Working conditions	Selecting conditions	Compensation coefficient of outlet nitrogen gas flow rate	Compensation coefficient of 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 in the above formula and determine the outlet nitrogen gas flow rate in cases when NSU-4L is used with a nitrogen concentration of 99%.
66.9 (rated outlet nitrogen gas flow rate) × 1.08 × 0.65 = 46.9 ℓ/min (ANR). If the required product nitrogen gas flow rate is less than or equal to this value, select that model. The inlet air flow rate in that case is 278.8 × 1.25 × 0.79 = 275.3 ℓ/min (ANR).

How to order

NSU - 3 S - N - FP1

Model No.

Ⓐ Body size

Ⓑ Membrane unit size

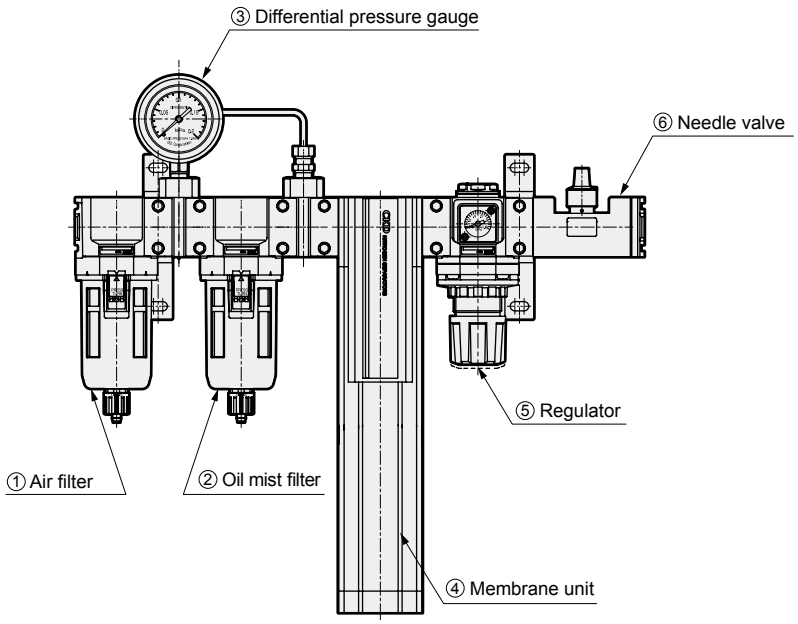
Ⓒ Option

Code	Content
Ⓐ Body size	
3	Body width 63
4	Body width 79
Ⓑ Membrane unit size	
S	Short
L	Long
Ⓒ Option	
N	No option
E	With exhaust port *2

⚠ Precautions for model No. selection

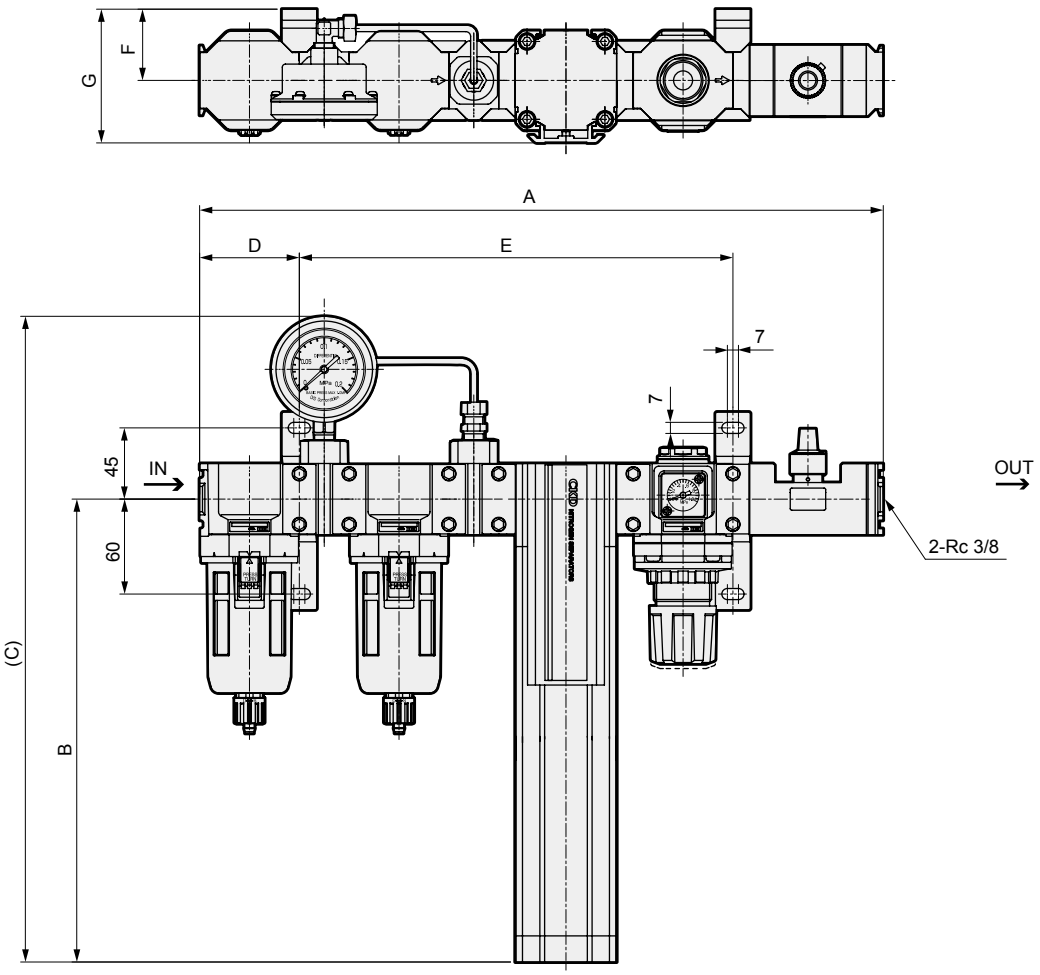
*1: Viewed from the front, standard products have an air inlet on the left port and an air outlet on the right port.
*2: Exhaust (oxygen-rich gas) from standard products is released into the atmosphere. For "E", piping connection for exhaust (oxygen-rich gas) is possible. The bore size of the exhaust port is Rc1/2.

Components



Unit model No.	NSU-3S-□-FP1	NSU-3L-□-FP1	NSU-4S-□-FP1	NSU-4L-□-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-3S1-N-FP2	NS-3L1-N-FP2	NS-4S1-N-FP2	NS-4L1-N-FP2
⑤ Regulator	NS-QR3-FP1		NS-QR4-FP1	
⑥ Needle valve	NS-QDVL-020	NS-QDVL-080	NS-QDVL-160	NS-QDVL-240

Dimensions

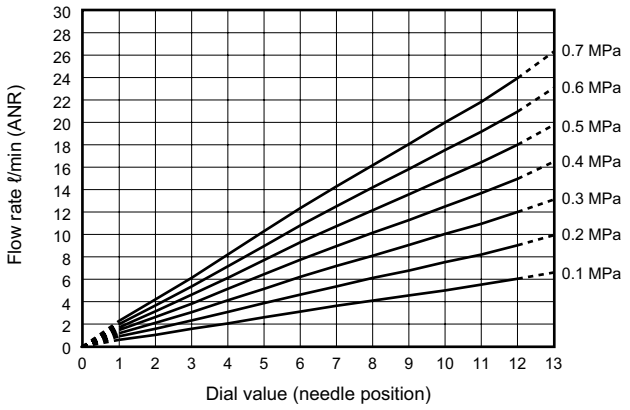


	A	B	C	D	E	F	G	Weight (kg)
NSU-3S-FP1	432	293	408	63	274	45	85	4.0
NSU-3L-FP1	432	543	658	63	274	45	85	4.9
NSU-4S-FP1	498	543	658	80	323	55	106	6.9
NSU-4L-FP1	498	1043	1158	80	323	55	106	9.7

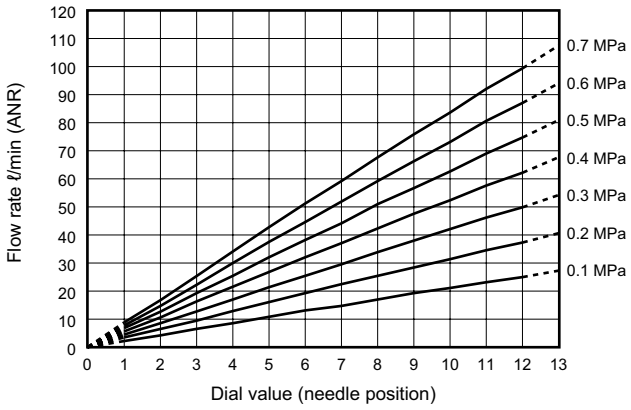
Flow characteristics

*The flow characteristics graph gives reference values and does not guarantee the values.

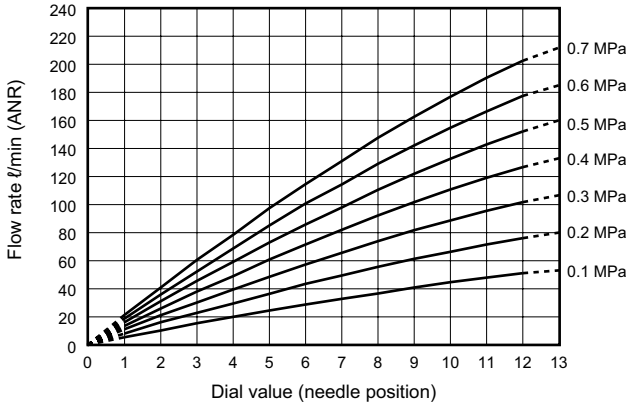
● NS-QDVL-020



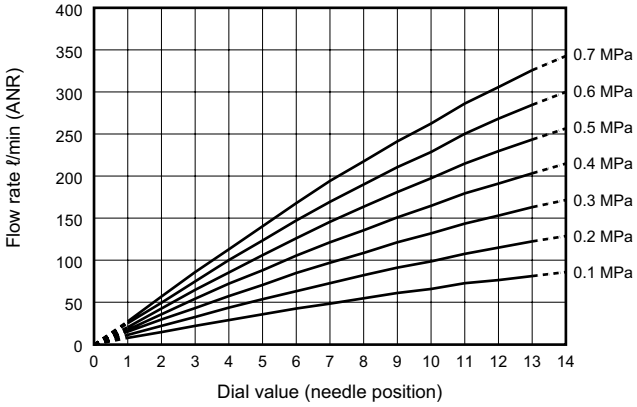
● NS-QDVL-080

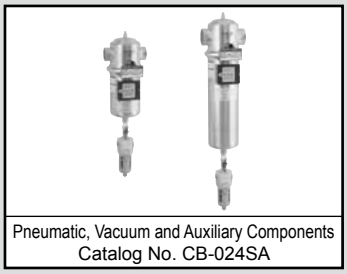


● NS-QDVL-160



● NS-QDVL-240





Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

NSF H1

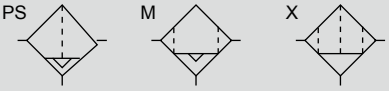
Medium main line stainless steel filter

AF4000P/S/M/X-FP1 Series

Ideal for pre-filter, oil removal and deodorizing applications.

● Processing air flow rate: 3.7 to 18.8 m³/min (ANR) (at 0.7 MPa)

JIS symbol



CAD

Specifications

Descriptions		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.

Descriptions			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 generation	Pressure dew point 10°C
		Inlet oil content mg/m³	-	-	3	0.01
	Filtration	µm	5	1	0.01	Suction by activated carbon fibers
	Secondary side oil concentration	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 0.7 MPa.
*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 element must be replaced when the pressure drops or the service life is reached, whichever is sooner.
*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	Content
Ⓐ Flow rate classification	
004	3.7 m³/min (ANR)
007	6.2 m³/min (ANR)
010	10 m³/min (ANR)
013	13 m³/min (ANR)
020	18.8 m³/min (ANR) (S, M, or X only)

Ⓑ Element

Ⓑ Element	
P	P type (solid/water removing filter)
S	S type (solid removing filter)
M	M type (oil mist removing filter)
X	X type (deodorizing filter)

Ⓒ Bore size

Ⓒ Bore size	
25	Rc1
40	Rc1 1/2
50	Rc2

Ⓓ Optional parts

Ⓓ Optional parts	
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

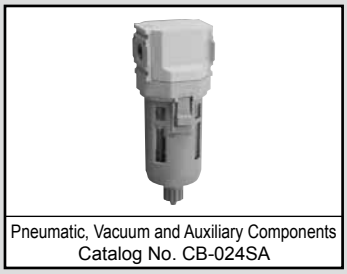
The required performance may not be attained if using at a level less than the selected pressure. Always select the model No. with the working pressure.

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.

MEMO



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

JIS symbol



RoHS CAD

Specifications

Descriptions		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 0.15 MPa.

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
Ⓔ Optional parts

Code		Content	Ⓐ 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)	●	●	●
Ⓔ Optional parts (not assembled) *3, *4					
Blank		Not included	●	●	●
A8*W		1/4 piping adaptor set	●	●	
A10*W		3/8 piping adaptor set	●	●	
A15*W		1/2 piping adaptor set	●	●	
A20*W		3/4 piping adaptor set		●	●
A25*W		1 pipe adaptor set			●
A32*W		1 1/4 pipe adaptor set			●
BW		C-bracket	●	●	●
***Adapter threaded**					
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.
When selecting options for several items, list options in order from the top.
For port thread types "N" and "G", the combination of drain discharge "blank" and bowl material "M" cannot be selected.

***2: For the auto-drain usage conditions, refer to Pneumatic, Vacuum and Auxiliary Components (CB-024SA).**

*3: The piping adaptor set and C-bracket cannot be used together.

*4: The joiner set is included with the pipe adapter set.



General Purpose Valves
Catalog No. CB-03-1SA

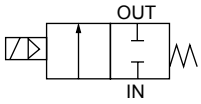
Pilot kick 2-port solenoid valve
(general purpose valve)

APK21-FP1 Series

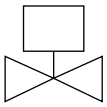
- NC (normally closed)
- Port size: Rc1¼ to Rc2, 32 to 50 flange
- Piston drive

RoHS CAD

JIS symbol



Mounting orientation



Common specifications

Descriptions	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 of 0.05 to 0.7 MPa. When used at a pressure less than 0.05 MPa, the sealant may be unstable. Contact CKD in this case.

Individual specifications

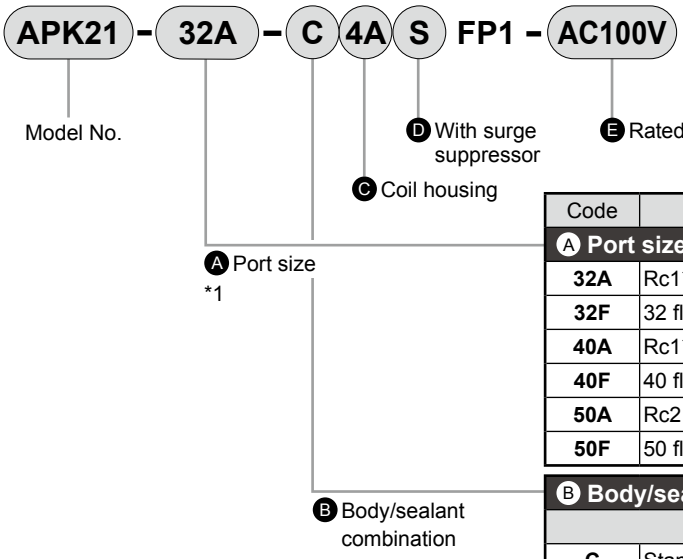
Descriptions / Model No.	Port size	Orifice size (mm)	Min. working pressure differential (MPa)	Max. working pressure differential (MPa)	Rated voltage	Apparent power (VA)				Power consumption (W)	Weight (kg)
						When holding		When starting			
				Steam		50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz	
APK21-32A	Rc1¼	35	0	0.7	100 VAC 50/60 Hz 200 VAC 50/60 Hz	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									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	Rc2	53	53	975
APK21-50F	50 flange			

How to order



Code	Content
A Port size	
32A	Rc1 1/4
32F	32 flange
40A	Rc1 1/2
40F	40 flange
50A	Rc2
50F	50 flange

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 table below for details on the coil housing, other options and 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 included 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.

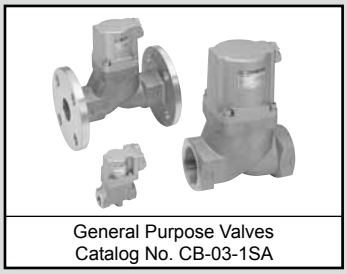
C Coil housing				D	E Rated voltage
Content				With surge suppressor	Content
4A	Standard	Open frame (Thermal class 180 (H))	Lead wire	**S**	100 VAC, 200 VAC
4M	Option		HP terminal box (G1/2)		
4N			HP terminal box with lamp (G1/2)		

⚠ Refer to the following cautions for Item Ⓓ.

⚠ Precautions for model No. selection

Ⓓ Notes for Item

*2: A surge suppressor is included, if applicable.



General Purpose Valves
Catalog No. CB-03-1SA

Air operated 2-port valve
(cylinder valve)

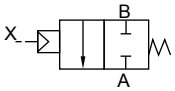
SAB*A-FP1 Series

- NC (normally closed), NO (normally open), double acting
- Port size: Rc1/4 to Rc2, 32 to 50 flange
- Working fluid: Air

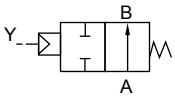
RoHS CAD

JIS symbol

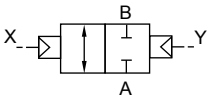
- NC (normally closed)



- NO (normally open)



- Double acting



Common specifications

Descriptions	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

Descriptions / Model No.	Port size	Orifice size (mm)	C $[dm^3/(s\cdot bar)]$	b	S (mm^2)	Allowable back pressure (MPa)	Pilot port size	Weight (kg)
NC (normally closed)								
SAB1A-8A	Rc1/4	10	8.3	0.4	-	0.5	Rc1/8	0.3
SAB1A-10A	Rc3/8	10	11	0.4	-			0.3
SAB1A-15A	Rc1/2	15	-	-	120	0.1		0.6
SAB1A-20A	Rc3/4	16	-	-	150			0.8
SAB1A-25A	Rc1	20	-	-	240			1.1
SAB1A-32A	Rc1 1/4	26	-	-	390			2.2
SAB1A-32F	32 flange	26	-	-	390			5.2
SAB1A-40A	Rc1 1/2	32	-	-	610			3.2
SAB1A-40F	40 flange	32	-	-	610			6.3
SAB1A-50A	Rc2	42	-	-	920			5.2
SAB1A-50F	50 flange	42	-	-	920			9.1
NO (normally open)								
SAB2A-8A	Rc1/4	10	8.9	0.4	-	0.1	Rc1/8	0.3
SAB2A-10A	Rc3/8	10	12	0.3	-			0.3
SAB2A-15A	Rc1/2	15	-	-	140			0.6
SAB2A-20A	Rc3/4	16	-	-	180			0.8
SAB2A-25A	Rc1	20	-	-	280			1.1
SAB2A-32A	Rc1 1/4	26	-	-	450	0.05		2.2
SAB2A-32F	32 flange	26	-	-	450			5.2
SAB2A-40A	Rc1 1/2	32	-	-	680			3.2
SAB2A-40F	40 flange	32	-	-	680			6.3
SAB2A-50A	Rc2	42	-	-	1020			5.2
SAB2A-50F	50 flange	42	-	-	1020			9.1
Double acting (*1)								
SAB3A-8A	Rc1/4	10	8.3 (8.9)	0.4	-	1	Rc1/8	0.3
SAB3A-10A	Rc3/8	10	11 (12)	0.4 (0.3)	-			0.3
SAB3A-15A	Rc1/2	15	-	-	120 (140)			0.6
SAB3A-20A	Rc3/4	16	-	-	150 (180)			0.8
SAB3A-25A	Rc1	20	-	-	240 (280)			1.1
SAB3A-32A	Rc1 1/4	26	-	-	390 (450)			2.2
SAB3A-32F	32 flange	26	-	-	390 (450)			5.2
SAB3A-40A	Rc1 1/2	32	-	-	610 (680)			3.2
SAB3A-40F	40 flange	32	-	-	610 (680)			6.3
SAB3A-50A	Rc2	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 rate 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

SAB 2 A - 15 A - B B - - FP1

- SAB: Model No.
- 2: Ⓐ Actuation
- A: Working fluid (For air/gas)
- 15: Ⓑ Port size
- A: Ⓒ Type of thread/flange
- B: Ⓓ Body/sealant combination
- B: Ⓔ Other options *1
- (blank): Ⓕ Assembly direction *2

Code	Content
Ⓐ Actuation	
1	NC (normally closed)
2	NO (normally open)
3	Double acting
Ⓑ Port size	
8	1/4
10	3/8
15	1/2
20	3/4
25	1
32	$1^{1}/_{4}$, 32 (Flange)
40	$1^{1}/_{2}$, 40 (Flange)
50	2, 50 (Flange)
Ⓒ Type of thread/flange	
A	Rc (8 A to 50 A)
F	Flange (32 F to 50 F)

Ⓓ Body/sealant combination		
	Body	**Seal**
B	Copper alloy	Fluoro rubber
E	Stainless steel	Fluoro rubber

Ⓔ Other options	
Blank	No option
B	Mounting plate *1

Ⓕ 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

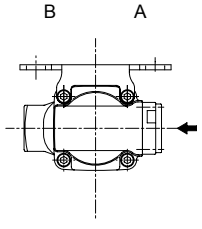
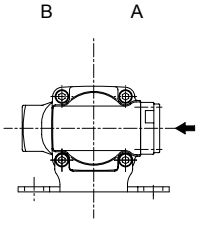
*1: The mounting plate (Ⓔ Item B) can be attached to only the female thread of port sizes 8 to 32.
*2: Reversed mounting plate (Ⓕ Item B-R) is available for port sizes 15 to 32.
*3: Clockwise when viewed from above with port A on the right.

[Example of model No.]

SAB2A-15A-BB-FP1

Model: SAB
Ⓐ Actuation : NO (normally open)
Ⓑ Port size : 1/2
Ⓒ Type of thread/flange : Rc
Ⓓ Body/sealant combination : Body - copper alloy, sealant - fluoro rubber
Ⓔ Other options : Mounting plate
Ⓕ Assembly direction : No option

Ⓕ 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.



General Purpose Valves
Catalog No. CB-03-1SA

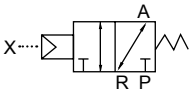
Air operated 3-port valve

NAP11-FP1 Series

- Universal type
- Port size: Rc3/8 to Rc2

JIS symbol

- Universal type



Common specifications

Descriptions	NAP11
Actuation	Universal type
Working fluid	Compressed air, low vacuum
Proof pressure MPa	1.2
Working pressure MPa	0 to 0.8 (1.3×10^2 to 8×10^5 Pa (abs) when used in vacuum)
Fluid temperature °C	5 to 60
Ambient temperature °C	−5 to 60
Lubrication	No lubrication
Valve seat leakage cm^3/min	1 or less (pneumatic pressure at 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

Descriptions / Model No.	Port size: P, A port	Port size: R port	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	Rc1	25.4 or equiv.	60 or less (*1)	1.4
NAP11-25A	Rc1				1.4
NAP11-32A	Rc1 1/4	Rc2	41.4 or equiv.	120 or less (*1)	4.2
NAP11-40A	Rc1 1/2				4.2
NAP11-50A	Rc2				4.1

*1: Response time is the time required for the valve to turn on at a supply pressure of 0.5 MPa and without lubrication. They depend on the pressure.

Flow characteristics

Model No.	P→A				A→R			
	C[$dm^3/(s \cdot bar)$]	b	Cv	S (mm^2)	C[$dm^3/(s \cdot bar)$]	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 × C.

How to order

NAP1 1 - 15A - 1 - FP1

Model No.

Ⓐ Actuation

Ⓑ Port size

Ⓒ Body/sealant combination

Code	Content	
Ⓐ Actuation		
1	Universal type	
Ⓑ Port size		
10A	Rc3/8	
15A	Rc1/2	
20A	Rc3/4	
25A	Rc1	
32A	Rc1 1/4	
40A	Rc1 1/2	
50A	Rc2	
Ⓒ Body/sealant combination		
	Body	Seal
1	Aluminum	Nitrile rubber

[Example of model No.]

NAP11-15A-1-FP1

Model: NAP

Ⓐ Actuation : Universal
Ⓑ Port size : Rc1/2
Ⓒ Body/sealant combination
: Body/aluminum, sealant/nitrile rubber

Materials compliant with the Food Sanitation Act



Nitrogen gas extraction unit

NS-FP2 Series

Modular design for easy system expansion with peripheral devices

■ Obtain nitrogen gas by just supplying compressed air.

Specifications

■ Single cylinder

Descriptions				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			
	Inlet air relative humidity	RH		50% or less			
	Ambient temperature	°C		5 to 50			
Rating	Inlet air purity grade			1:6:1 (JIS B 8392-1:2012)			
	Inlet air pressure	MPa		0.7			
	Inlet air temperature	°C		25			
	Ambient temperature	°C		25			
Rated flow	Outlet nitrogen gas flow rate ℓ/min (ANR)	Nitrogen concentration (%)	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
	Inlet air flow rate ℓ/min (ANR)		99.9	21.2	62.3	122.3	340.0
			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

■ Double cylinder

Descriptions				NS-4S2	NS-4S3	NS-4L2	NS-4L3	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								
	Inlet air relative humidity	RH		50% or less								
	Ambient temperature	°C		5 to 50								
Rating	Inlet air purity grade			1:6:1 (JIS B 8392-1:2012)								
	Inlet air pressure	MPa		0.7								
	Inlet air temperature	°C		25								
	Ambient temperature	°C		25								
Rated flow	Outlet nitrogen gas flow rate ℓ/min (ANR)	Nitrogen concentration (%)	99.9	22.0	33.0	61.2	91.8	66.0	88.0	110.0	183.6	244.8
			99	56.4	84.6	133.8	200.7	169.2	225.6	282.0	401.4	535.2
			97	99.8	149.7	236.2	354.3	299.4	399.2	499.0	708.6	944.8
			95	130.6	195.9	338.4	507.6	391.8	522.4	653.0	1015.2	1353.6
	Inlet air flow rate ℓ/min (ANR)		99.9	244.6	366.9	680.0	1020.0	733.8	978.4	1223.0	2040.0	3400.0
			99	235.0	352.5	557.6	836.4	705.0	940.0	1175.0	1672.8	2788.0
			97	269.8	404.7	638.4	957.6	809.4	1079.2	1349.0	1915.2	3192.0
			95	290.4	435.6	752.0	1128.0	871.2	1161.6	1452.0	2256.0	3760.0

Note: Six or more units of the product will be floor-mounted.

Selection guide

Temperature and inlet air pressure affect the outlet nitrogen gas flow rate, so compensation is required when the rate differs from the specifications.

STEP 1 Confirm the working conditions and specification rates.
Working conditions: inlet air pressure, inlet air temperature, required nitrogen gas flow rate

STEP 2 Confirm the compensation coefficient of 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%
10	0.73	0.84	0.84	0.81
25	1	1	1	1
40	0.95	1.08	1.06	1.11
50	0.9	1.09	1.11	1.15

STEP 3 Confirm the compensation coefficient of 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 × (1) Temperature - gas flow rate compensation coefficient × (2) Pressure - gas flow rate compensation coefficient = Outlet nitrogen gas flow rate after compensation
Select a model that has the required outlet nitrogen gas flow rate after compensation as calculated above.

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%
10	0.8	0.76	0.81	0.77
25	1	1	1	1
40	1.32	1.25	1.17	1.2
50	2.05	1.38	1.31	1.31

STEP 6 Confirm the compensation coefficient of 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

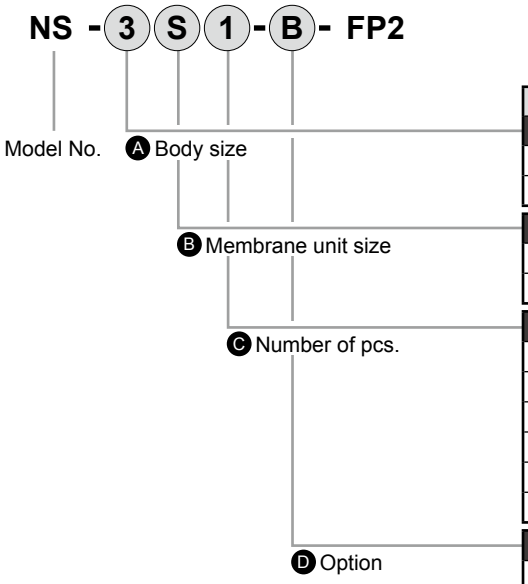
STEP 7 Determine the inlet air flow rate from the rated outlet nitrogen gas flow rate of each model.
Inlet air flow rate of the model selected in STEP 4 × (3) Temperature - air flow rate compensation coefficient × (4) Pressure - air flow rate compensation coefficient = Inlet air flow rate after compensation ℓ/min (ANR)
Confirm that the model can be used with the compressor's capacity from the inlet air flow rate after compensation as calculated above.

Example of calculation

Conditions	Working conditions	Selecting conditions	Compensation coefficient of outlet nitrogen gas flow rate	Compensation coefficient of 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 in the above formula and determine the outlet nitrogen gas flow rate in cases when NS-4L1 is used with a nitrogen concentration of 99%.
66.9 (rated outlet nitrogen gas flow rate) × 1.08 × 0.65 = 46.9 ℓ/min (ANR).
If the required product nitrogen gas flow rate is less than or equal to this value, select that model.
The inlet air flow rate in that case is 278.8 × 1.25 × 0.79 = 275.3 ℓ/min (ANR).

How to order

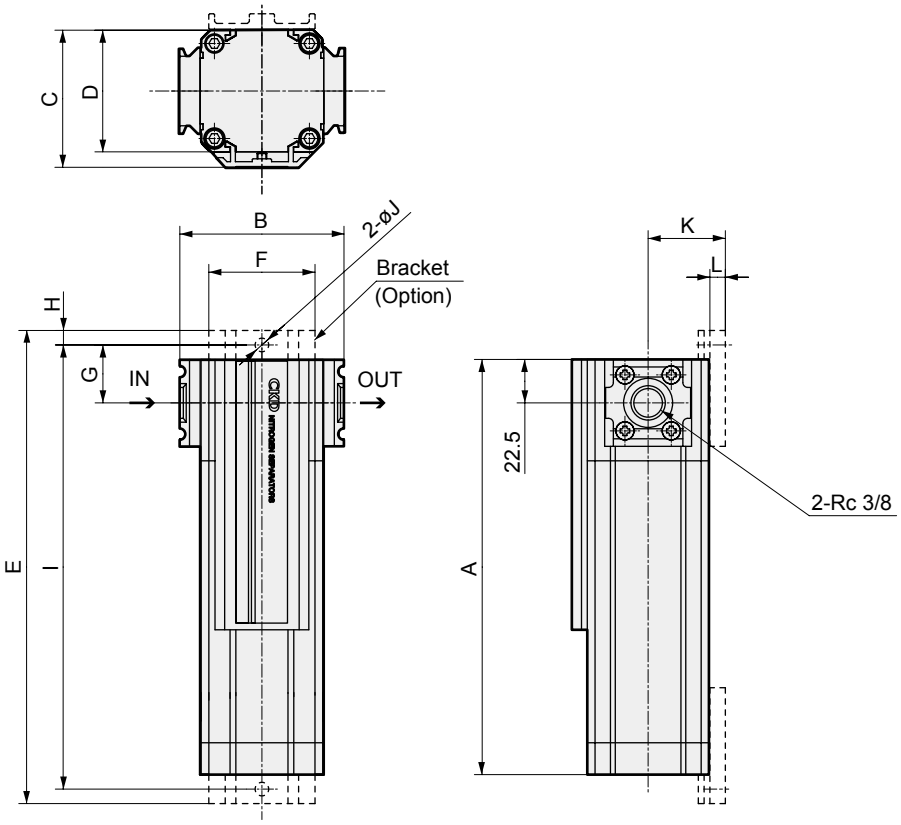


Code	Content
A Body size	
3	Body width 63
4	Body width 79
B Membrane unit size	
S	Short
L	Long
C Number of pcs. *1	
1	1 pc.
2	2 pcs. (Select from models NS-4S and 4L.)
3	3 pcs. (Select from models NS-4S and 4L.)
6	6 pcs. (Select from models NS-4S and 4L.)
8	8 pcs. (Select from models NS-4S and 4L.)
A	10 pcs. (Selectable model is NS-4S.)
D Option *2	
N	No option
B	Bracket
C	Bracket + reverse flow
D	Bracket + exhaust port
F	Bracket + reverse flow + exhaust port
X	Reverse flow
E	With exhaust port
H	Reverse flow + exhaust port

⚠ Precautions for model No. selection

*1: Six or more units of the product will be floor-mounted and have no bracket.
*2: Viewed from the front, a standard product has an air inlet on the left port, while an air outlet on the right port. For "X", an air inlet is provided on the right port, with an air outlet provided on the left port.
*3: Exhaust (oxygen-rich 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.

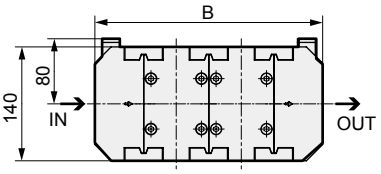
Dimensions

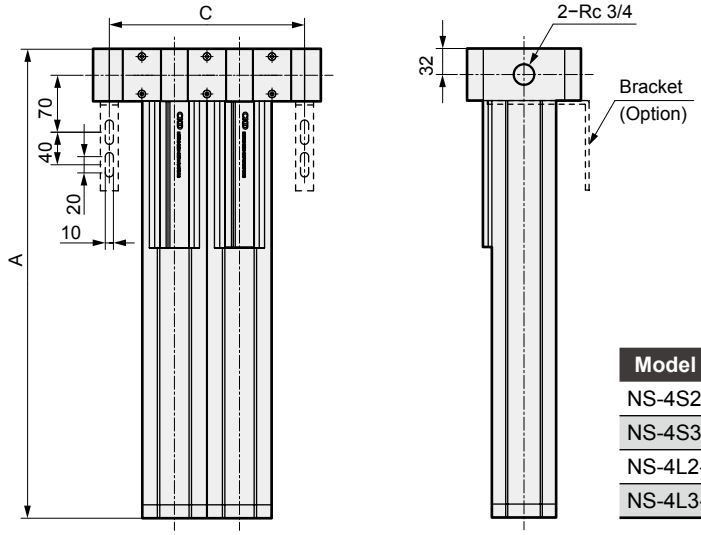


Model No.	A	B	C	D	Weight (kg)	Bracket relational dimensions							
						E	F	G	H	I	J	K	L
NS-3S1-FP2	315	85	71	63	1.8	345	55	30	7.5	330	7	40	8
NS-3L1-FP2	565	85	71	63	2.7	595	55	30	7.5	580	7	40	8
NS-4S1-FP2	565	100	90	79	4.0	605	70	32.5	10	585	9	50	10
NS-4L1-FP2	1065	100	90	79	6.8	1105	70	32.5	10	1085	9	50	10

Dimensions

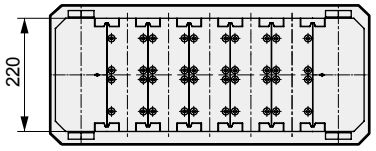
● Number of pcs.: 2 or 3

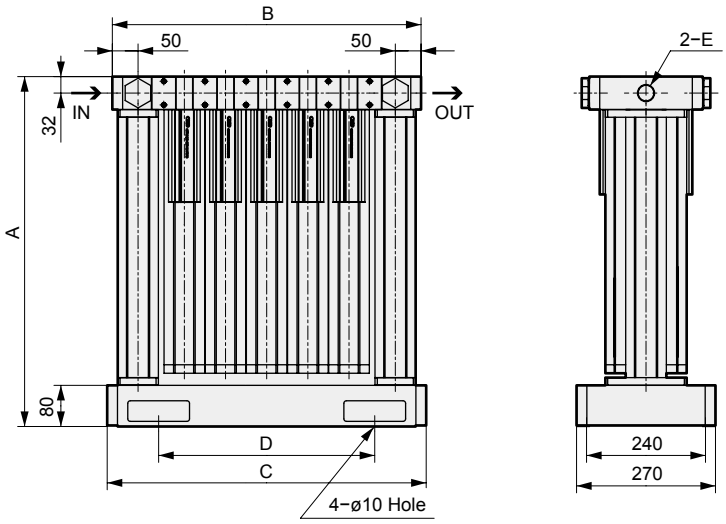




Model No.	A	B	C	Weight (kg)
NS-4S2-FP2	577	280	240	12
NS-4S3-FP2	577	360	320	17
NS-4L2-FP2	1077	280	240	18
NS-4L3-FP2	1077	360	320	25

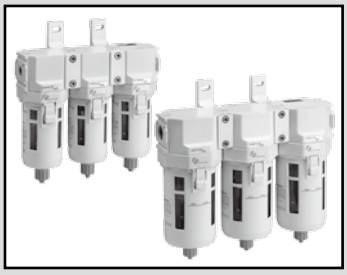
● Number of pcs.: 6, 8, or 10





Model No.	A	B	C	D	E	Weight (kg)
NS-4S6-FP2	680	440	460	260	Rc1	41
NS-4S8-FP2	680	520	540	340	Rc1	50
NS-4SA-FP2	680	600	620	420	Rc1	59
NS-4L6-FP2	1180	440	460	260	Rc1	63
NS-4L8-FP2	1180	520	540	340	Rc1	78

MEMO



Materials compliant with the Food Sanitation Act

FDA compatible materials

Antibacterial/Bacteria-removing combination

SFC307/SFC407-FP2 Series

● Port size: 1/4 to 1/2

RoHS CAD

Specifications

Descriptions			SFC307	SFC407
Components	(1)	Antibacterial pre-filter	SFC310	SFC410
	(2)	High-performance antibacterial 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	0.15 to 1.0	
Proof pressure		MPa	1.5	
Differential pressure-resistant		MPa	0.5	
Ambient/fluid temperatures		°C	5 to 45	
Filtration		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 seal (included)	
Element replacement			1 year (6000 hours) or pressure drop 0.1 MPa	

*1: Use within the max. processing flow rate. This value applies when the primary pressure is 0.7 MPa.

How to order

SFC307 - 10 ( ) - X1 - FP2

- SFC307 - Ⓐ Model No.
- 10 - Ⓑ Port size
- ( ) - Ⓒ Port thread
- X1 - Ⓓ Flow direction

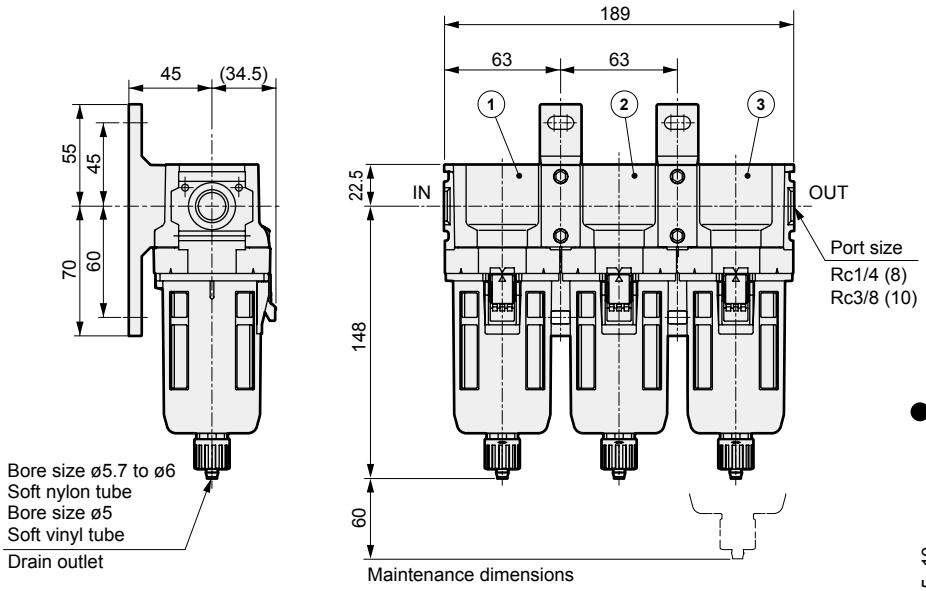
Code	Content	Ⓐ Model No. SFC307	Ⓐ Model No. SFC407
Ⓑ Port size			
8	1/4	●	●
10	3/8	●	●
15	1/2		●
Ⓒ Port thread			
Blank	Rc Thread	●	●
N	NPT Thread	●	●
G	G Thread	●	●
Ⓓ Flow direction			
Blank	Standard flow (left → right)	●	●
X1	Reverse flow (right → left)	●	●

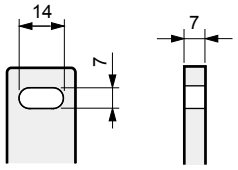
● Single unit model number for replacement element

Element model No. / Model	Antibacterial pre-filter Element	High-performance antibacterial filter Element	Bacteria-removing filter Element
SFC307	SFC310-ELEMENT	SFC320-ELEMENT	SFC330-ELEMENT
SFC407	SFC410-ELEMENT	SFC420-ELEMENT	SFC430-ELEMENT

Dimensions

● SFC307

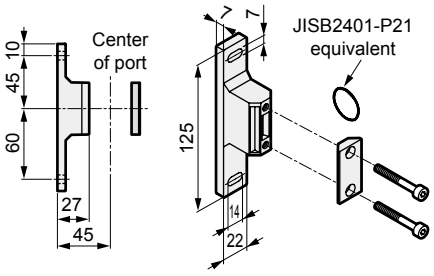




Enlarged view of bracket section

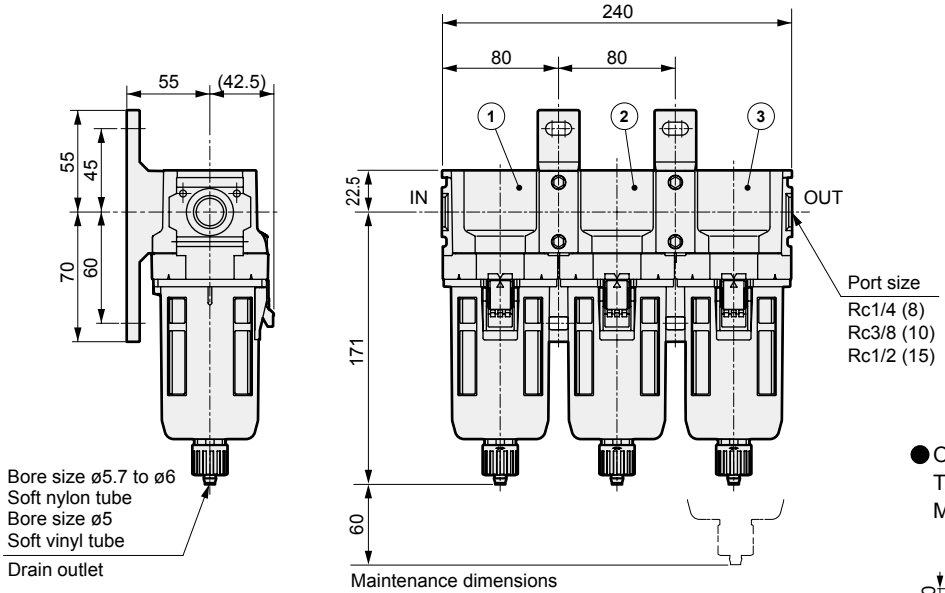
No.	Series
(1)	Antibacterial pre-filter
(2)	High-performance antibacterial filter
(3)	Bacteria-removing filter

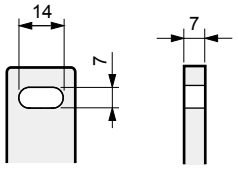
● Optional parts
T-bracket
Model No.: SFB310-FP2



Material: Aluminum die-casting
Stainless steel for mounting screws

● SFC407

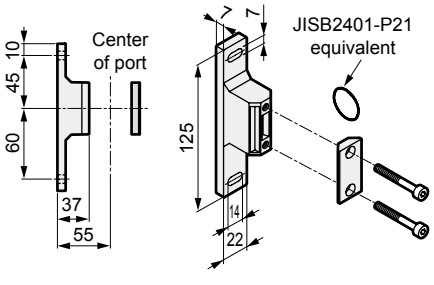




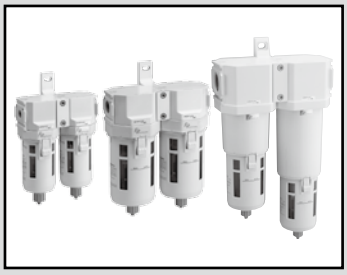
Enlarged view of bracket section

No.	Series
(1)	Antibacterial pre-filter
(2)	High-performance antibacterial filter
(3)	Bacteria-removing filter

● Optional parts
T-bracket
Model No.: SFB410-FP2



Material: Aluminum die-casting
Stainless steel for mounting screws



Materials compliant with the Food Sanitation Act

FDA compatible materials

Antibacterial combination

SFC306/SFC406/SFC806-FP2 Series

● Port size: 1/4 to 1

RoHS CAD

Specifications

Descriptions			SFC306	SFC406	SFC806
Components	(1)	Antibacterial pre-filter	SFC310	SFC410	SFC810
	(2)	High-performance antibacterial filter	SFC320	SFC420	SFC820
Working fluid			Compressed air, nitrogen gas (N_2), and carbon dioxide (CO_2)		
Working pressure range		MPa	0.15 to 1.0		
Proof pressure		MPa	1.5		
Ambient/fluid temperatures		°C	5 to 45		
Filtration		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 seal (included)		
Element replacement			1 year (6000 hours) or pressure drop 0.1 MPa		

*1: Use within the max. processing flow rate. This value applies when the primary pressure is 0.7 MPa.

How to order

SFC306 - 10 ( ) - X1 - FP2

- SFC306 - Ⓐ Model No.
- 10 - Ⓑ Port size
- ( ) - Ⓒ Port thread
- X1 - Ⓓ Flow direction

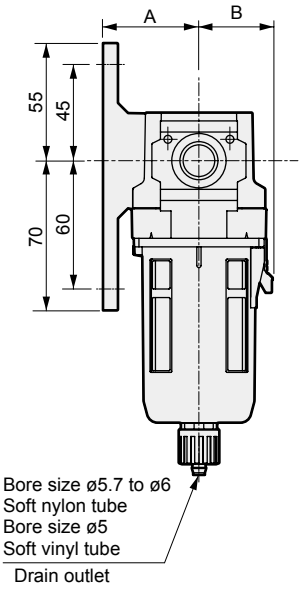
Code	Content	Ⓐ Model No. SFC306	SFC406	SFC806
Ⓑ Port size				
8	1/4	●	●	
10	3/8	●	●	
15	1/2		●	
20	3/4			●
25	1			●
Ⓒ Port thread				
Blank	Rc Thread	●	●	●
N	NPT Thread	●	●	●
G	G Thread	●	●	●
Ⓓ Flow direction				
Blank	Standard flow (left → right)	●	●	●
X1	Reverse flow (right → left)	●	●	●

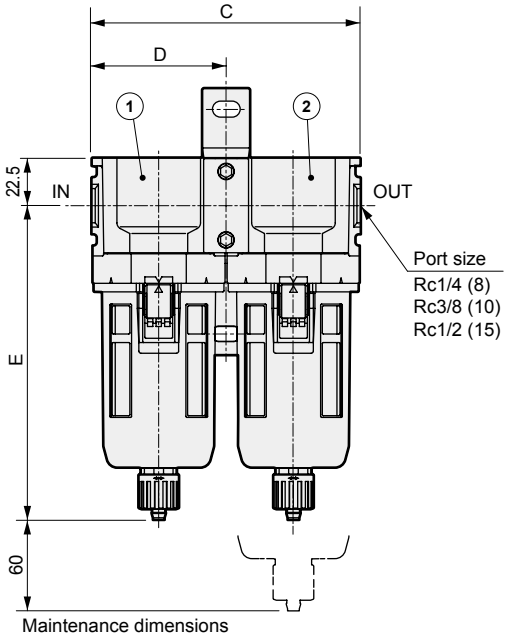
● Single unit model number for replacement element

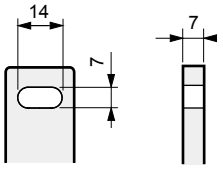
Element model No. / Model	Antibacterial pre-filter Element	High-performance antibacterial filter Element
SFC306	SFC310-ELEMENT	SFC320-ELEMENT
SFC406	SFC410-ELEMENT	SFC420-ELEMENT
SFC806	SFC810-ELEMENT	SFC820-ELEMENT

Dimensions

● SFC306/SFC406

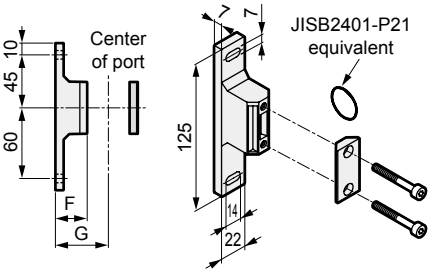






Enlarged view of bracket section

● Optional parts
T-bracket
Model No.: SFB310-FP2
(Compatible model: SFC306)
SFB410-FP2
(Compatible model: SFC406)

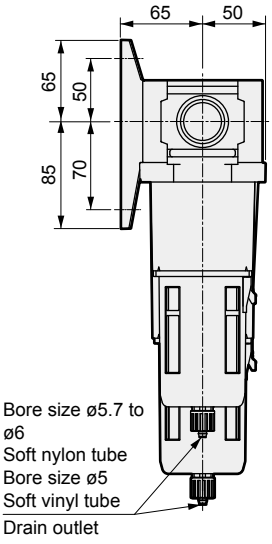


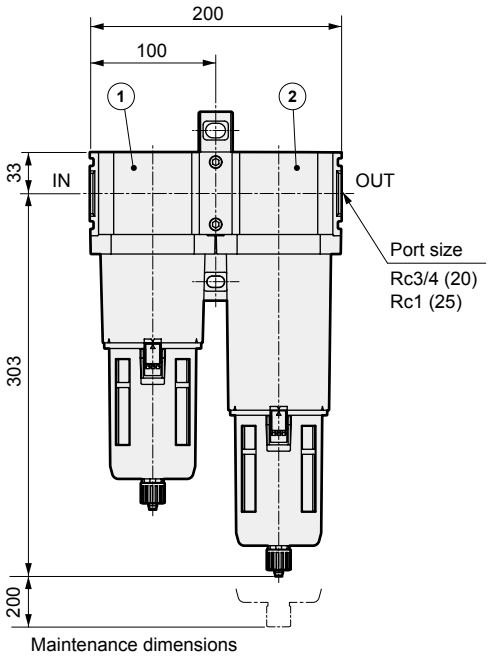
Material: Aluminum die-casting
Stainless steel for mounting screws

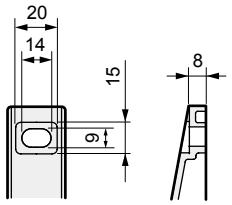
No.	Series
(1)	Antibacterial pre-filter
(2)	High-performance antibacterial filter

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

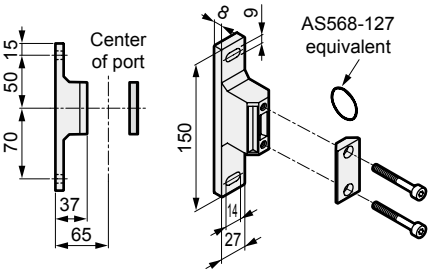






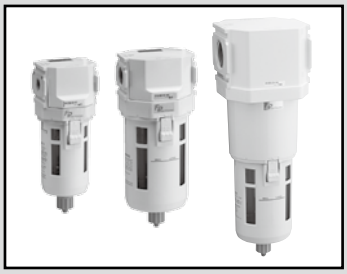
Enlarged view of bracket section

● Optional parts
T-bracket
Model No.: SFB810-FP2



Material: Aluminum die-casting
Stainless steel for mounting screws

No.	Series
(1)	Antibacterial pre-filter
(2)	High-performance antibacterial filter



Materials compliant with the Food Sanitation Act

FDA compatible materials

Antibacterial pre-filter

SFC310/SFC410/SFC810-FP2 Series

● Port size: 1/4 to 1

RoHS CAD

Specifications

Descriptions		SFC310	SFC410	SFC810
Working fluid		Compressed air, nitrogen gas (N_2), and carbon dioxide (CO_2)		
Working pressure range	MPa	0.15 to 1.0		
Proof pressure	MPa	1.5		
Ambient/fluid temperatures	°C	5 to 45		
Filtration	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	2.7
Standard accessories		Maintenance seal (included)		
Element replacement		1 year (6000 hours) or pressure drop 0.1 MPa		

*1: Use within the max. processing flow rate. This value applies when the primary pressure is 0.7 MPa.

How to order

SFC310 - 10 ( ) - X1 - FP2

- SFC310 — Ⓐ Model No.
- 10 — Ⓑ Port size
- ( ) — Ⓒ Port thread
- X1 — Ⓓ Flow direction

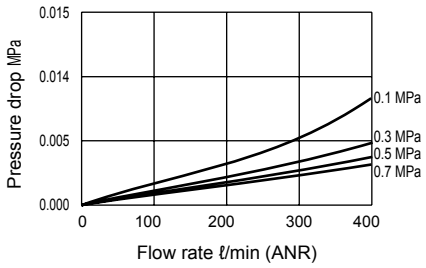
Code	Content	Ⓐ Model No. SFC310	SFC410	SFC810
Ⓑ Port size				
8	1/4	●	●	
10	3/8	●	●	
15	1/2		●	
20	3/4			●
25	1			●
Ⓒ Port thread				
Blank	Rc Thread	●	●	●
N	NPT Thread	●	●	●
G	G Thread	●	●	●
Ⓓ Flow direction				
Blank	Standard flow (left → right)	●	●	●
X1	Reverse flow (right → left)	●	●	●

● Single unit model number for replacement element

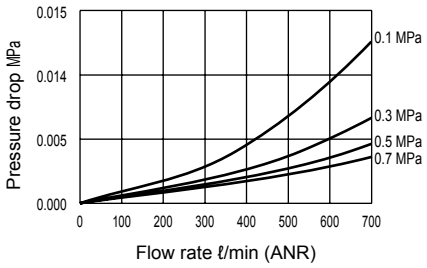
Element model No. / Model	Antibacterial pre-filter Element
SFC310	SFC310-ELEMENT
SFC410	SFC410-ELEMENT
SFC810	SFC810-ELEMENT

Flow characteristics

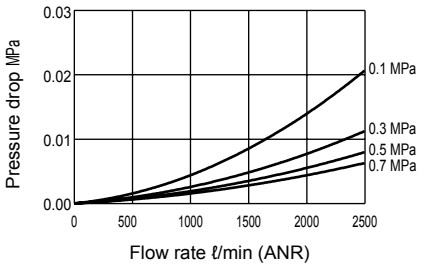
● SFC310



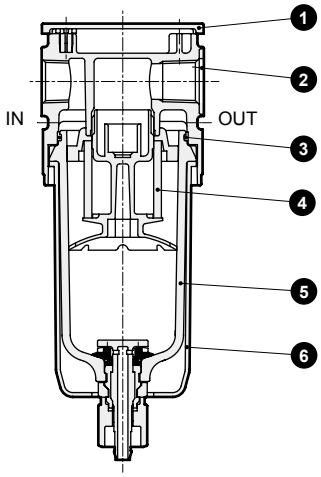
● SFC410



● SFC810



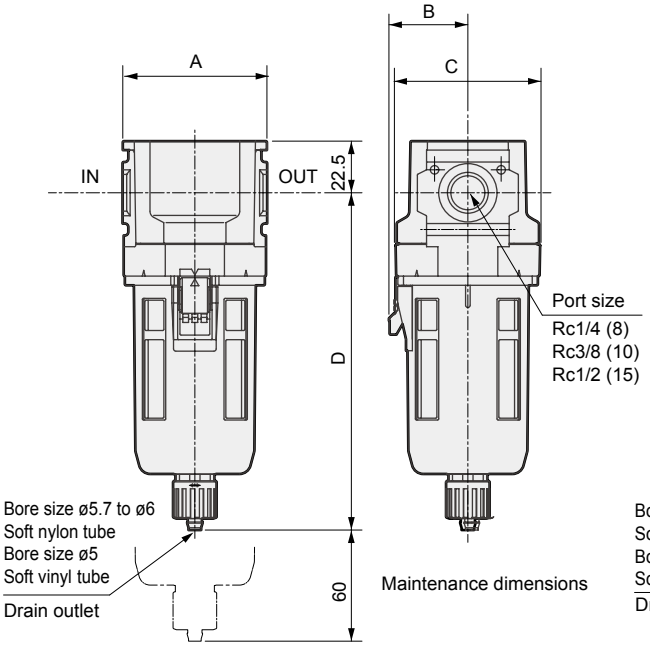
Internal structure and parts list



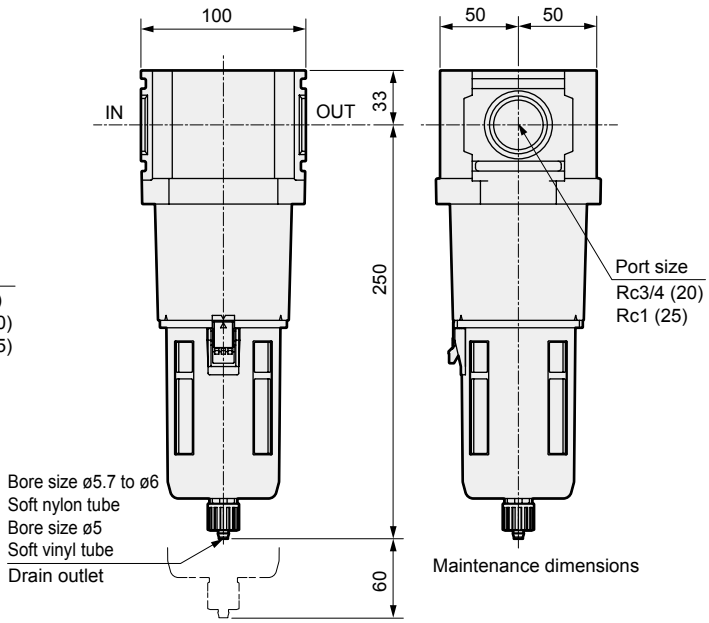
No.	Part name	Material		
		SFC310	SFC410	SFC810
1	Plate cover	ABS Resin		
2	Body	Aluminum alloy die-casting		
3	O-ring	Fluoro rubber		
4	Element	Polyethylene, polypropylene, etc.		
5	Bowl	Polyamide resin		
6	Bowl guard	Polyamide resin		
7	Drain cock	Polyacetal resin, polyester		

Dimensions

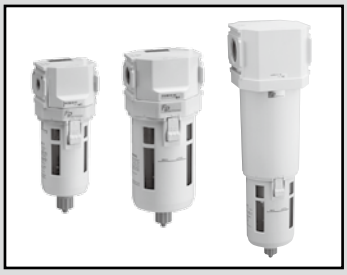
● SFC310, SFC410



● SFC810



Model No.	A	B	C	D
SFC310	63	34.5	63	148
SFC410	80	42.5	79	171



Materials compliant with the Food Sanitation Act

FDA compatible materials

High-performance antibacterial filter

SFC320/SFC420/SFC820-FP2 Series

● Port size: 1/4 to 1

RoHS CAD

Specifications

Descriptions		SFC320	SFC420	SFC820
Working fluid		Compressed air, nitrogen gas (N_2), and carbon dioxide (CO_2)		
Working pressure range	MPa	0.15 to 1.0		
Proof pressure	MPa	1.5		
Ambient/fluid temperatures	°C	5 to 45		
Filtration	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	2.7
Standard accessories		Maintenance seal (included)		
Element replacement		1 year (6000 hours) or pressure drop 0.1 MPa		

*1: Use within the max. processing flow rate. This value applies when the primary pressure is 0.7 MPa.

How to order

SFC320 - 10 ( ) - X1 - FP2

- SFC320 — Ⓐ Model No.
- 10 — Ⓑ Port size
- ( ) — Ⓒ Port thread
- X1 — Ⓓ Flow direction

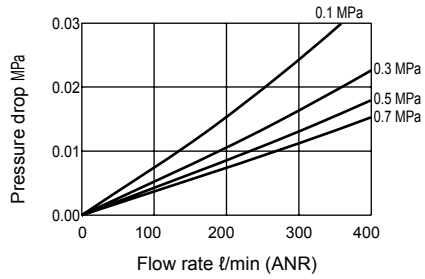
Code	Content	Ⓐ Model No. SFC320	SFC420	SFC820
Ⓑ Port size				
8	1/4	●	●	
10	3/8	●	●	
15	1/2		●	
20	3/4			●
25	1			●
Ⓒ Port thread				
Blank	Rc Thread	●	●	●
N	NPT Thread	●	●	●
G	G Thread	●	●	●
Ⓓ Flow direction				
Blank	Standard flow (left → right)	●	●	●
X1	Reverse flow (right → left)	●	●	●

● Single unit model number for replacement element

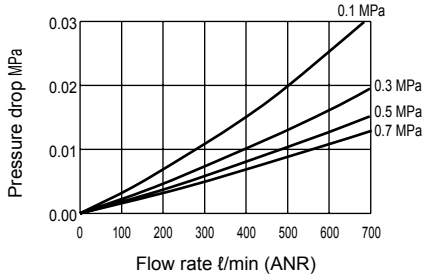
Element model No. / Model	High-performance antibacterial filter Element
SFC320	SFC320-ELEMENT
SFC420	SFC420-ELEMENT
SFC820	SFC820-ELEMENT

Flow characteristics

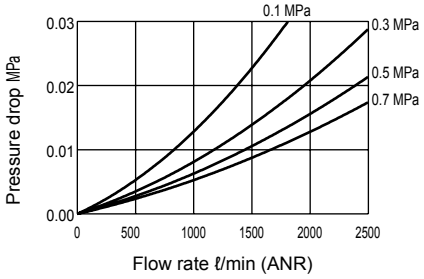
● SFC320



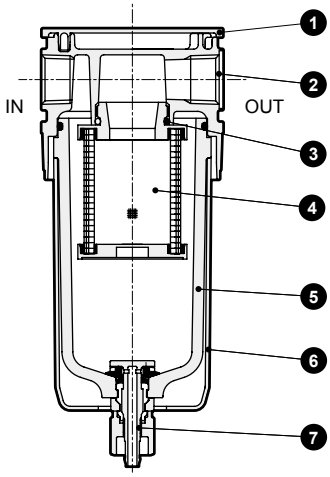
● SFC420



● SFC820



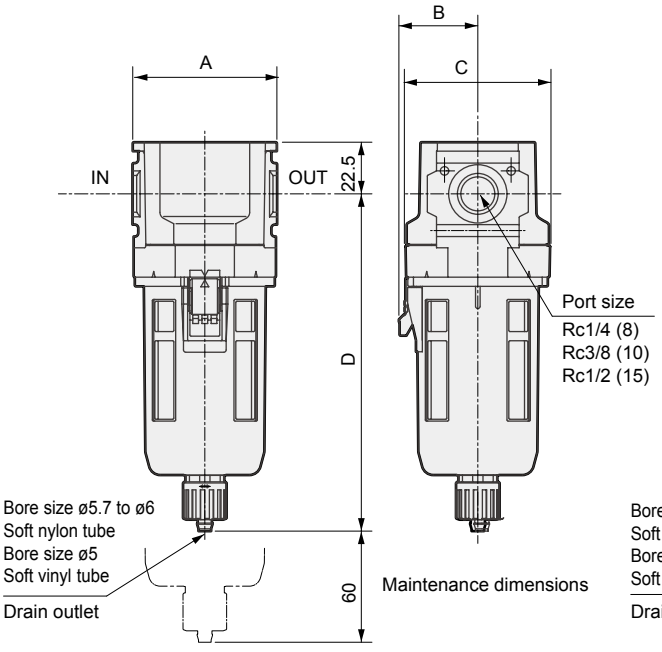
Internal structure and parts list



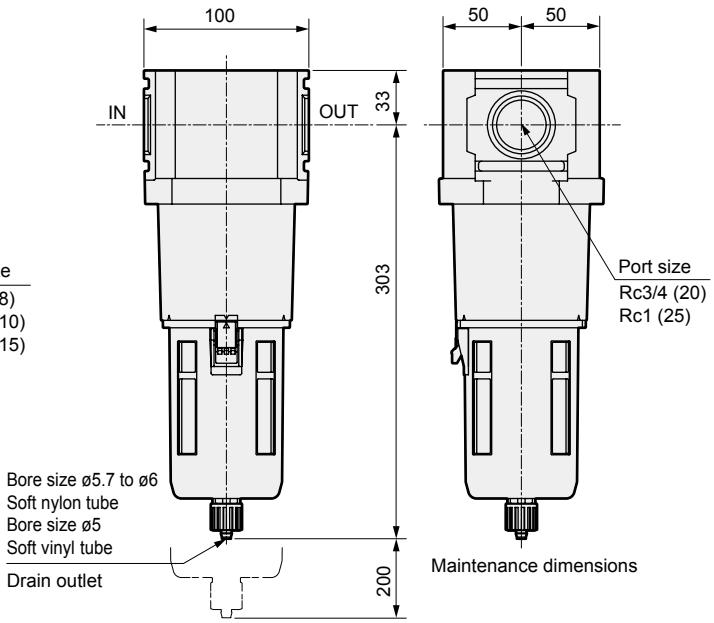
No.	Part name	Material		
		SFC320	SFC420	SFC820
1	Plate cover	ABS Resin		
2	Body	Aluminum alloy die-casting		
3	O-ring	Fluoro rubber		
4	Element	Glass fiber, polypropylene		Glass fiber, PET, etc.
5	Bowl	Polyamide resin		
6	Bowl guard	Polyamide resin		
7	Drain cock	Polyacetal resin, polyester		

Dimensions

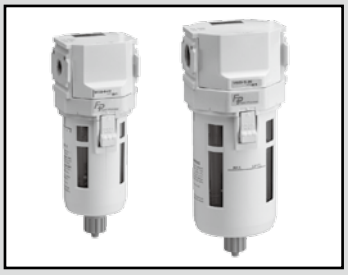
● SFC320, SFC420



● SFC820



Model No.	A	B	C	D
SFC320	63	34.5	63	148
SFC420	80	42.5	79	171



Materials compliant with the Food Sanitation Act

FDA compatible materials

Bacteria-removing filter

SFC330/SFC430-FP2 Series

● Port size: 1/4 to 1/2

RoHS CAD

Specifications

Descriptions		SFC330	SFC430
Working fluid		Compressed air, nitrogen gas (N_2), and carbon dioxide (CO_2)	
Working pressure range	MPa	0.15 to 1.0	
Proof pressure	MPa	1.5	
Differential pressure-resistant	MPa	0.5	
Ambient/fluid temperatures	°C	5 to 45	
Filtration	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 seal (included)	
Element replacement		1 year (6000 hours) or pressure drop 0.1 MPa	

*1: Use within the max. processing flow rate. This value applies when the primary pressure is 0.7 MPa.

How to order

SFC330 - **10** ( ) - **X1** - **FP2**

- Ⓐ Model No.
- Ⓑ Port size
- Ⓒ Port thread
- Ⓓ Flow direction

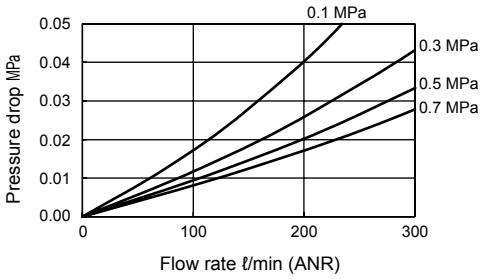
Code	Content	Ⓐ Model No. SFC330	Ⓐ Model No. SFC430
Ⓑ Port size			
8	Rc1/4	●	●
10	Rc3/8	●	●
15	Rc1/2		●
Ⓒ Port thread			
Blank	Rc Thread	●	●
N	NPT Thread	●	●
G	G Thread	●	●
Ⓓ Flow direction			
Blank	Standard flow (left → right)	●	●
X1	Reverse flow (right → left)	●	●

● Single unit model number for replacement element

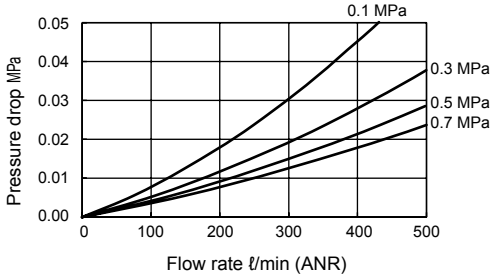
Element model No. / Model	Bacteria-removing filter Element
SFC330	SFC330-ELEMENT
SFC430	SFC430-ELEMENT

Flow characteristics

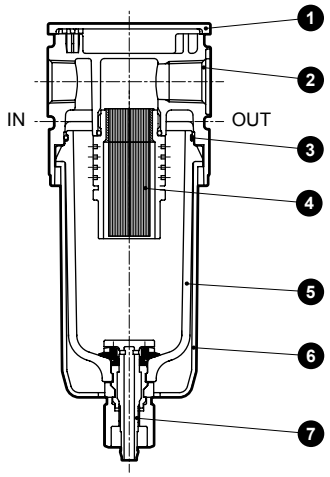
● SFC330



● SFC430



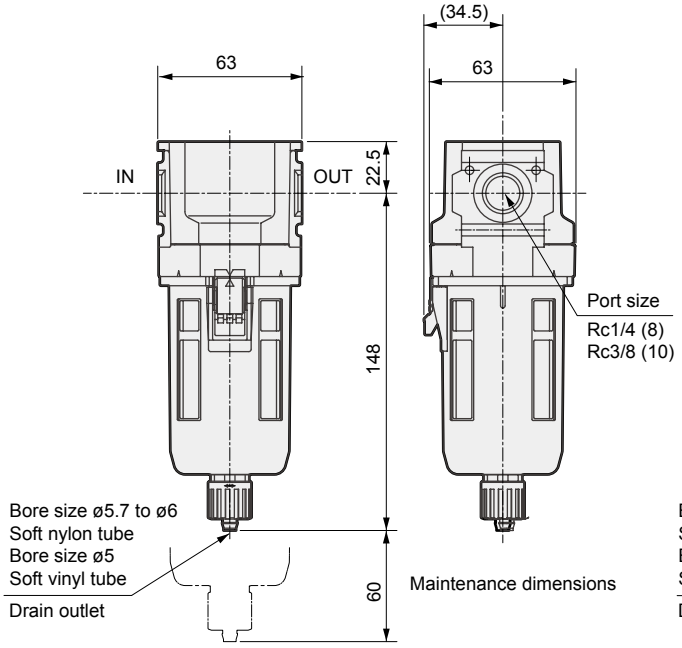
Internal structure and parts list



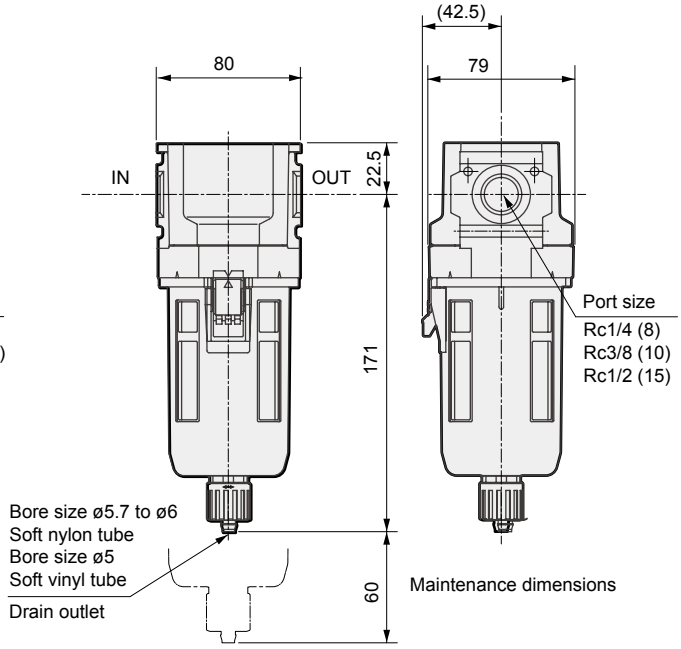
No.	Part name	Material	
		SFC330	SFC430
1	Plate cover	ABS Resin	
2	Body	Aluminum alloy die-casting	
3	O-ring	Fluoro rubber	
4	Element	Polypropylene, urethane rubber resin, transparent polyamide resin	
5	Bowl	Polyamide resin	
6	Bowl guard	Polyamide resin	
7	Drain cock	Polyacetal resin, polyester	

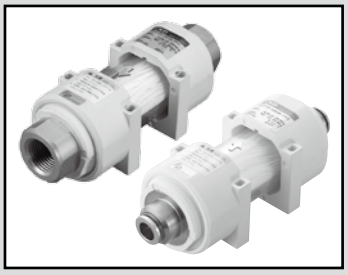
Dimensions

● SFC330



● SFC430





Bacteria-removing filter/inline

SFS10-FP2 Series

● Port size: Rc1/4, Rc3/8
Push-in fitting ø8, ø10, ø12

Materials compliant with the Food Sanitation Act

FDA compatible materials

RoHS CAD

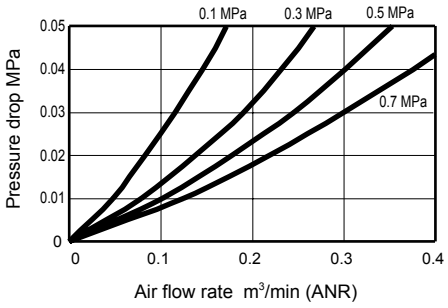
Specifications

Descriptions	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 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 0.1 MPa		

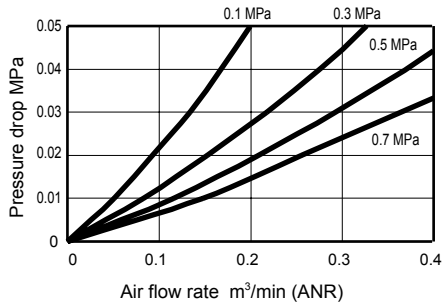
*1: Initial flow rate at primary pressure 0.7 MPa and pressure drop 0.03 MPa. (Differs according to port size.)

Flow characteristics

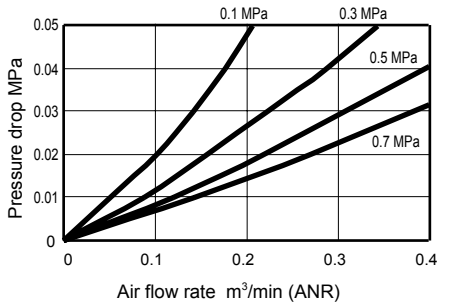
● SFS10-H8H8



● 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

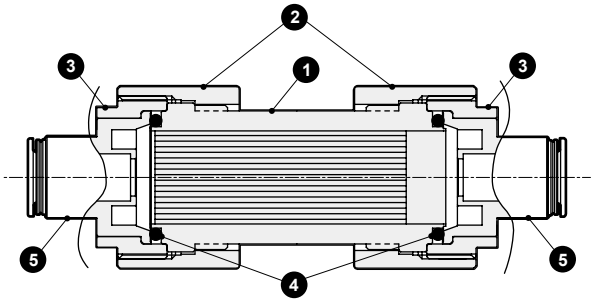
*1: Two mounting screws (M3 × 40), two plain washers, and two spring washers are included with the product.

● Single unit model number for replacement element (1 element, 2 O-rings)

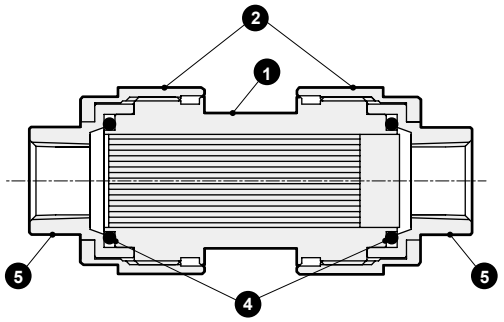
• Resin: **SFS10-E** • Stainless steel: **SFS10-E-M**

Internal structure and parts list

● Resin



● Stainless steel

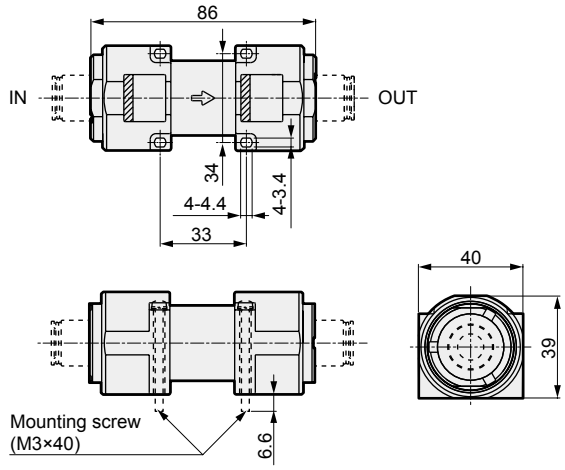


● Parts list

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	-
	Adaptor (Port size Rc1/4, Rc3/8)		Aluminum (Alumite treatment)	Stainless steel

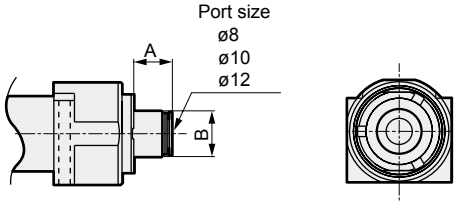
Dimensions

● Resin

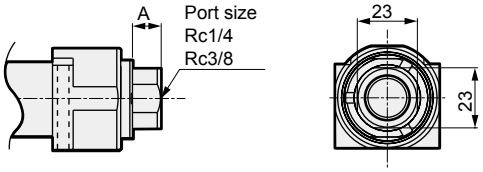


Connection model No.	Port size	A	B
H8	ø8 Push-in fitting	12	ø17.5
H10	ø10 Push-in fitting	14.5	ø17.5
H12	ø12 Push-in fitting	16	ø19.5
8	Rc1/4	11	-
10	Rc3/8	11	-

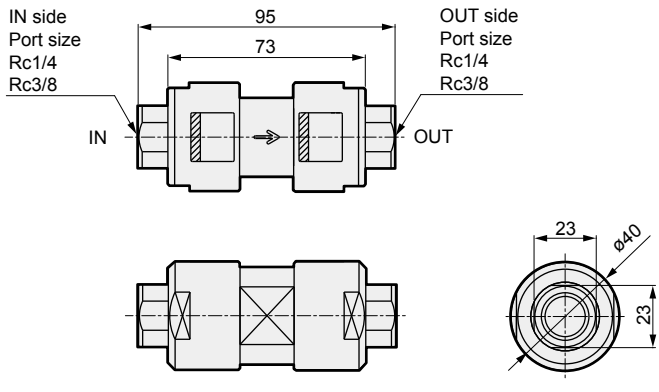
• Push-in fitting (ø8, ø10, ø12)



• Rc Thread (Rc1/4, Rc3/8)

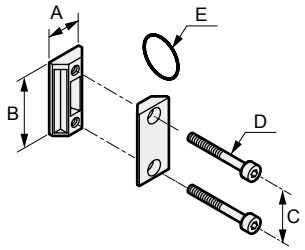


● Stainless steel



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 equivalent	0.036
SFJ800-FP2	SFC8**Series	26	65	50	M6	AS568-127 equivalent	0.094

Material: Aluminum die-casting
Stainless steel for mounting screws

Distributor

How to order

SFD401 - 00 - 8 ( ) - B31 - FP2

Ⓐ Model No.
Ⓑ Port size
Ⓒ Port thread
Ⓓ T-bracket

Code	Content
Ⓐ Model No.	
SFD401	For SFC3**Series For SFC4**Series
SFD801	For SFC8**Series

Ⓑ Port size	**SFD401**	**SFD801**
8	●	
10	●	
15	●	
20		●
25		●

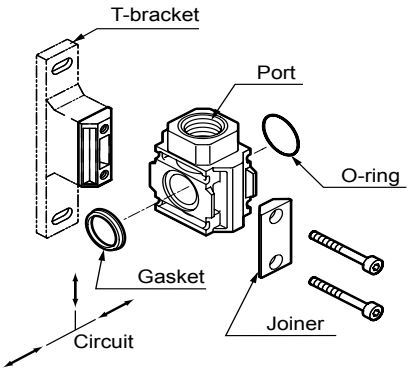
Ⓒ Port thread	
Blank	Rc Thread
N	NPT Thread
G	G Thread

Ⓓ T-bracket	
Blank	None
B31	SFC3**Series
B41	SFC4**Series
B81	SFC8**Series

Precautions for model No. selection

*1: The joiner set (joiner, bolt, O-ring) and one gasket are included as standard.
*2: Contact CKD regarding 2-way branch.

Installation method

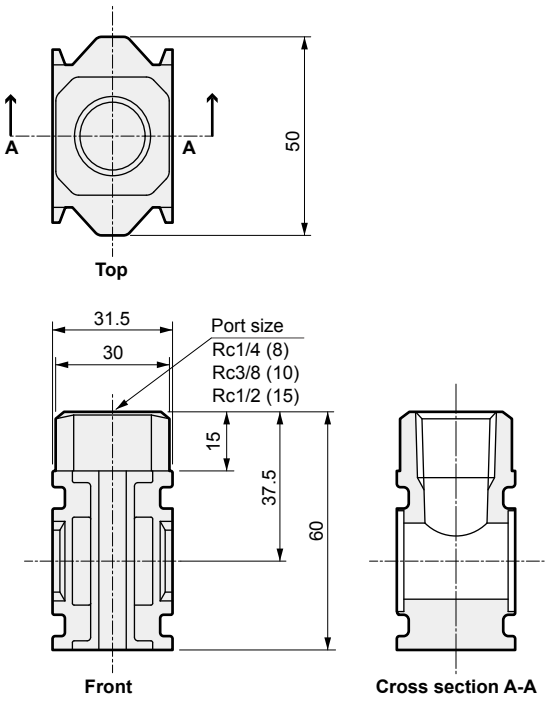


*1: Insert the O-ring when mounting on the primary side, and the gasket when mounting on the secondary side for the air flow.
*2: When inserting the O-ring and gasket during assembly, the O-ring and gasket must not be bent.

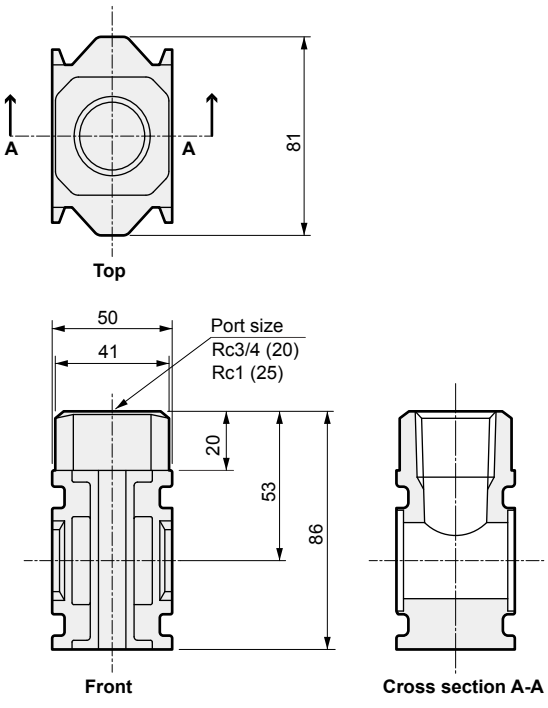
Material: Aluminum die-casting
Stainless steel for mounting screws

Dimensions

● SFD401-00-*-*-FP2



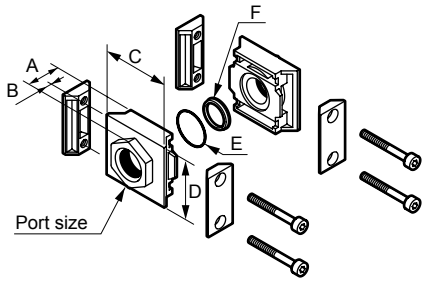
● SFD801-00-*-*-FP2



Dimensions and applications

Pipe adaptor set

● Model No.: SFA400-*-FP2
SFA800-*-FP2



Material: Aluminum die-casting
Stainless steel for mounting screws

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 equivalent 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 equivalent 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

Materials compliant with the Food Sanitation Act

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 (standard) → 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 → 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 compatible with Food Sanitation Act)

Pad material characteristics

Descriptions \ 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	Surface hardness (Shore A) by pad shape	Standard	50°	-
		Bellows	50°	-
		Multi-stage bellows	50°	-
		Soft type	40°	-
		Soft bellows	40°	-
		Type for thin object	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)	△	

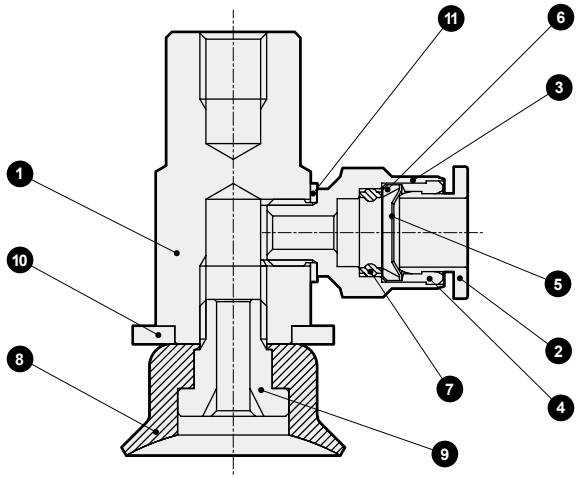
Reading the rating ➡ ◎: Ideal, ○: Suitable, △: Good, ×: Unsuitable

*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



No.	Part name	Material	Remarks
1	Metal body	Copper alloy	Electroless nickeling
2	Release ring	Polyacetal	-
3	Fitting body	Copper alloy	Electroless nickeling
4	Guide ring	Copper alloy	Electroless nickeling
5	Lock claw	Stainless steel	-
6	Lock ring	Copper alloy	Electroless nickeling
7	Elastic sleeve	Nitrile rubber	-
8	Pad	Silicone rubber	-
9	Pad screws	Copper alloy	Electroless nickeling
10	Flat washer	Copper alloy	Electroless nickeling
11	Gasket	Nitrile rubber/steel	-

Safety precautions

* Use after confirming the usage conditions, structure and material of each component carefully yourself.
* Wear powder 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 shape
- B Pad diameter
- C Pad shape
- D Pad material
- E Port size

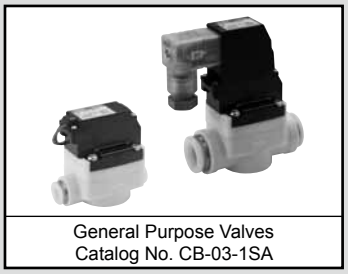
Code	Content
A Holder shape	
MA	Compact Fixed, Vacuum outlet top
MB	Compact Fixed, Vacuum outlet side
ME	Compact, Direct mounting, Fixed
A	Fixed, Vacuum outlet top
B	Fixed, Vacuum outlet side
E	Direct mounting, Fixed
B Pad diameter	
Refer to "◆Pad diameter - pad shape combinations" in Appendix 1 for pad diameter.	
C Pad shape	
R	Standard, general
A	Standard, deep
S	Sponge
B	Bellows
W	Multi-stage bellows
L	Soft type
LB	Soft bellows
P	Type for thin object
D Pad material	
S	Silicone rubber
E Port size	
Blank	M5 × 0.8
M5	M5 × 0.8
2	ø1.8 Push-in fitting
4	ø4 Push-in fitting
4T	ø4 For barbed fitting
6	ø6 Push-in fitting
6T	ø6 For 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	ø150	●	-	-	-	-	-	-	-	-
	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	×	×	×
	ø6, ø8	6/6T	6/6T	Blank	2/4T	2/4T	M5
	ø80, ø100	6A	6A	×	×	×	×
	ø150, ø200	8A	8A	×	×	×	×
A	ø15	6/6T	6/6T	×	4/4T	4/4T	×
	ø20 to ø30	6/6T	6/6T	×	4/4T/6T	4/4T/6T	×
	ø40 to ø60	6/6T	6/6T	×	×	×	×
	ø80, ø100	6A	6A	×	×	×	×
S	ø35, ø50	6/6T	6/6T	×	×	×	×
	ø60 to ø100	6A	6A	×	×	×	×
B	ø6, ø8	6/6T	6/6T	×	2/4T	2/4T	×
	ø10, ø15	6/6T	6/6T	×	4/4T	4/4T	×
	ø20 to ø30	6/6T	6/6T	×	4/4T/6T	4/4T/6T	×
	ø40, ø50	6/6T	6/6T	×	×	×	×
	ø60 to ø100	6A	6A	×	×	×	×
W	ø10	6/6T	6/6T	×	4/4T	4/4T	×
	ø20, ø30	6/6T	6/6T	×	4/4T/6T	4/4T/6T	×
	ø40, ø50	6/6T	6/6T	×	×	×	×
L	ø4 to ø15	6/6T	6/6T	×	4/4T	4/4T	×
	ø20, ø30	6/6T	6/6T	×	4/4T/6T	4/4T/6T	×
	ø40	6/6T	6/6T	×	×	×	×
LB	ø6 to ø15	6/6T	6/6T	×	4/4T	4/4T	×
	ø20	6/6T	6/6T	×	4/4T/6T	4/4T/6T	×
	ø30	6/6T	6/6T	×	×	×	×
P	All sizes	4/4T	4/4T	Blank	2/4T	2/4T	M5
F	ø10, ø15	6/6T	6/6T	×	4/4T	4/4T	×
	ø20 to ø30	6/6T	6/6T	×	4/4T/6T	4/4T/6T	×



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

Pilot operated 2-port solenoid valve for compressed air

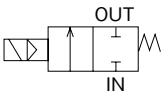
EXA-FP2 Series

- NC (normally closed)
- Port size: Push-in fitting ø6, ø8, ø10, ø12
- Diaphragm drive

RoHS CAD

JIS symbol

● NC (normally closed)



Specifications

Descriptions	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 water splash			
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

Ⓑ Sealant material

Ⓒ Coil option

Ⓓ Other options

Ⓔ Voltage

Code	Content
Ⓐ Connected tube outer diameter	
C6	ø6
C8	ø8
C10	ø10
C12	ø12
Ⓑ Sealant material	
H	H-NBR, oil-prohibited specifications, internal exhaust specifications
Ⓒ Coil option *1	
2C	**Standard** — Lead wire (without surge suppressor)
2G	**Option** — DIN terminal box (Pg7) without lamp
2GS	**Option** — DIN terminal box (Pg7) without lamp/surge suppressor
2H	**Option** — DIN terminal box (Pg7), with lamp (inside terminal box)
2HS	**Option** — DIN terminal box (Pg7), with lamp (inside terminal box)/with surge suppressor
Ⓓ Other options	
Blank	None
B	With mounting plate
Ⓔ Voltage *1	
1	100 VAC
3	24 VDC
4	12 VDC

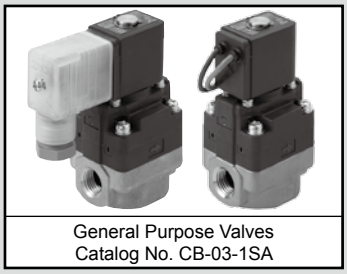
*1: Refer to the table below for the available coil option and voltage combinations.

[Example of model No.]
EXA-C6-H2CB-1-FP2
Model: Compact air blow valve EXA

Ⓐ Connected tube outer diameter: ø6
Ⓑ Sealant material: H-NBR
Ⓒ Coil option : Lead wire
Ⓓ Other options : Mounting plate
Ⓔ Voltage : 100 VAC

Coil option	Voltage 1	Voltage 3	Voltage 4
2C	●	●	●
2G	●		
2GS		●	●
2H	●		
2HS		●	●

Select from the combinations indicated with ● above.



General Purpose Valves
Catalog No. CB-03-1SA

Compact pilot operated solenoid valve for water

Materials compliant with the Food Sanitation Act

FWD-FP2 Series

- NC (normally closed)
- Port size: Rc1/4 to Rc1

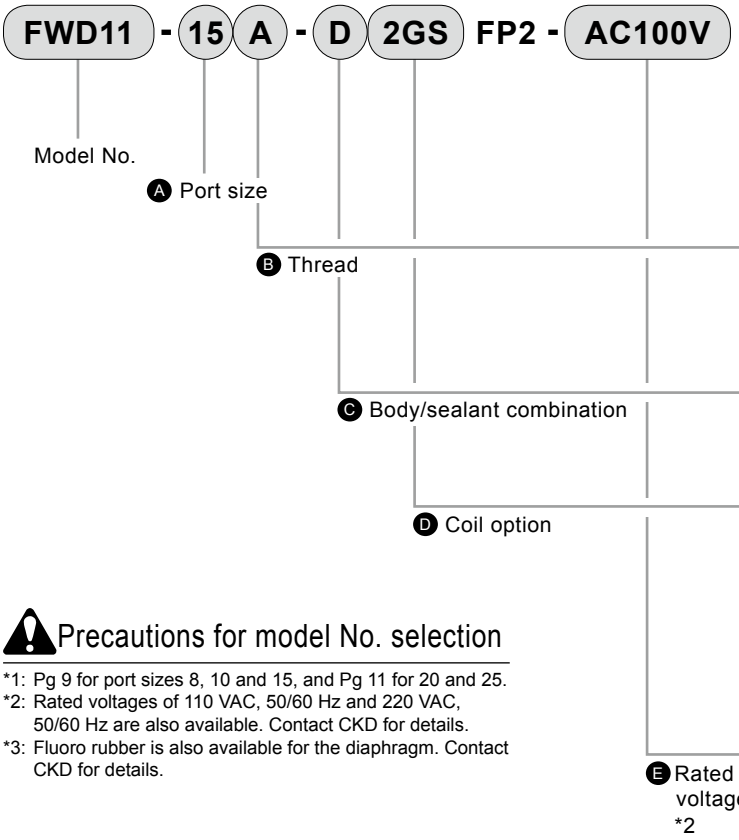
RoHS CAD

Specifications

Descriptions	FWD11-8A	FWD11-10A	FWD11-15A	FWD11-20A	FWD11-25A
Actuation	NC (normally closed)				
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 50/60 Hz, 200 VAC 50/60 Hz, 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 (50/60 Hz): 2.7/2, DC: 4			AC (50/60 Hz): 4/3.2, DC: 4	
Thermal class	Class 130 (B)				

*1: Valve seat leakage of 0 cm^3/min means that no water drops come out of the valve seat within the span of 1 min.
*2: Orifice size means the size of valve seat.

How to order



Code	Content	
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	With DIN terminal box/lamp/surge suppressor	(*1)
E Rated voltage		
AC100V	100 VAC 50/60 Hz, 110 VAC 60 Hz	
AC200V	200 VAC 50/60 Hz, 220 VAC 60 Hz	
DC24V	24 VDC	

Precautions for model No. selection

*1: Pg 9 for port sizes 8, 10 and 15, and Pg 11 for 20 and 25.
*2: Rated voltages of 110 VAC, 50/60 Hz and 220 VAC, 50/60 Hz 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



General Purpose Valves
Catalog No. CB-03-1SA

Compact direct acting 2-port solenoid valve

USB2-FP2 Series

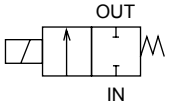
Materials compliant with the Food Sanitation Act

- NC (normally closed)
- Port size: M5

RoHS CAD

JIS symbol

● NC (normally closed)



Specifications

Descriptions		USB2-M5-1	USB2-M5-2
Working fluid		Air, water, dry air, low vacuum [1.33 × 10^2 Pa (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	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.
*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	Content
Ⓐ Orifice	
1	ø1.0
2	ø1.5

Ⓑ Body/sealant combination			
	Body	**Seal**	**Treatment**
M	Stainless steel	Fluoro rubber	Oil free

Ⓒ Voltage		
DC12V	Standard	12 VDC
DC24V		24 VDC
AC100V	Option	100 VAC 50/60 Hz
AC200V		200 VAC 50/60 Hz



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

Compact direct acting 2-port solenoid valve

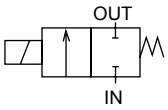
USB3-FP2 Series

- NC (normally closed)
- Port size: Rc1/8

RoHS CAD

JIS symbol

● NC (normally closed)



Specifications

Descriptions		USB3-6-1	USB3-6-2	USB3-6-3
Working fluid		Air, water, dry air, low vacuum [1.33 × 10^2 Pa (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[$dm^3/(s \cdot bar)$]		0.34	0.64	1.2
b		0.56	0.51	0.48
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	DC	4		
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

USB3 - 6 - 1 - M FP2 - DC24V

- USB3: Model No.
- 6: Port size Rc1/8
- 1: Ⓐ Orifice size
- M: Ⓑ Body/sealant combination
- DC24V: Ⓒ Voltage

Code	Content		
Ⓐ Orifice size			
1	ø1.6		
2	ø2.3		
3	ø3.2		
Ⓑ Body/sealant combination			
	Body	**Seal**	**Treatment**
M	Stainless steel	Fluoro rubber	Oil free
Ⓒ Voltage			
DC12V	Standard	12 VDC	
DC24V	Standard	24 VDC	
AC100V	Option	100 VAC 50/60 Hz	
AC200V	Option	200 VAC 50/60 Hz	



General Purpose Valves
Catalog No. CB-03-1SA

Compact direct acting 3-port solenoid valve

USG2-FP2 Series

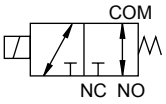
Materials compliant with the Food Sanitation Act

- Universal type
- Port size: M5

RoHS CAD

JIS symbol

- Universal type



Specifications

Descriptions		USG2-M5-1	USG2-M5-2
Working fluid		Air, water, dry air, low vacuum [1.33 × 10^2 Pa (abs)]	
Max. working pressure	MPa	0.7	0.3
Working pressure differential	MPa	0 to 0.7 (0 to 0.3 when pressurized at NO port)	0 to 0.3 (0 to 0.1 when pressurized at NO port)
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	Content		
Ⓐ Orifice size			
1	ø1.0		
2	ø1.5		
Ⓑ Body/sealant combination			
	Body	Seal	Treatment
M	Stainless steel	Fluoro rubber	Oil free
Ⓒ Voltage			
DC12V	Standard	12 VDC	
DC24V	Standard	24 VDC	
AC100V	Option	100 VAC 50/60 Hz	
AC200V	Option	200 VAC 50/60 Hz	



General Purpose Valves
Catalog No. CB-03-1SA

Compact direct acting 3-port solenoid valve

USG3-FP2 Series

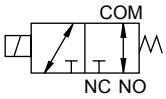
- Universal type
- Port size: Rc1/8

Materials compliant with the Food Sanitation Act

RoHS CAD

JIS symbol

● Universal type



Specifications

Descriptions		USG3-6-1	USG3-6-2
Working fluid		Air, water, dry air, low vacuum [1.33 × 10^2 Pa (abs)]	
Max. working pressure MPa		0.7	0.3
Working pressure differential MPa		0 to 0.7 (0 to 0.3 when pressurized at NO port)	0 to 0.3 (0 to 0.1 when pressurized at NO port)
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	Content		
Ⓐ Orifice size			
1	ø1.2		
2	ø1.8		
Ⓑ Body/sealant combination			
	Body	**Seal**	**Treatment**
M	Stainless steel	Fluoro rubber	Oil free
Ⓒ Voltage			
DC12V	Standard	12 VDC	
DC24V	Standard	24 VDC	
AC100V	Option	100 VAC 50/60 Hz	
AC200V	Option	200 VAC 50/60 Hz	



General Purpose Valves
Catalog No. CB-03-1SA

Compact direct acting 2, 3-port solenoid valve

Materials compliant with the Food Sanitation Act

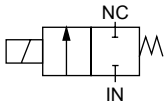
US (Resin body) -FP2 Series

- NC (normally closed), universal type
- Port size: M6, barbed fitting (compatible tube size ø6 × ø4)

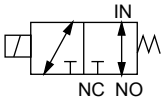
RoHS CAD

JIS symbol

● USB (2-port valve)
: NC (normally closed)



● USG (3-port valve)
: Universal type



Common specifications

Descriptions	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 (air)
Port size	M6, barbed fitting (compatible tube size ø6 × ø4)
Mounting orientation	Unrestricted
Rated voltage	12 VDC 24 VDC
Treatment	Oil free

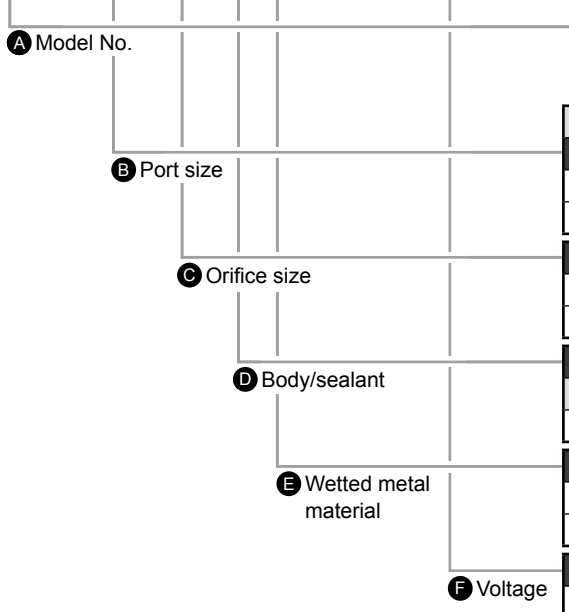
Individual specifications

Descriptions / Model No.			Working fluid	Orifice size [mm]	Cv	C[$dm^3/(s \cdot bar)$]	b	Max. working pressure differential [MPa]	Power consumption [W]
2-port valve (Item (E) 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 (E) Wetted metal material: 2 (equivalent to SUS316))									
USG2- *		-1	Water/pure water (*1)	1	0.03	0.13	0.36	0.6 (0.2 when pressurized at NO port)	3
		-2		1.5	0.06	0.27	0.28	0.3 (0.1 when pressurized at NO port)	3
USG3- *		-1		1.6	0.08	0.32	0.30	0.2 (0.08 when pressurized at NO port)	4
2-port valve (Item (E) Wetted metal material: 1 (equivalent to SUS405))									
USB2- *		-1	Air/water/dry air/ low vacuum (1.33×10^2 Pa (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 (E) Wetted metal material: 1 (equivalent to SUS405))									
USG2- *		-1	Air/water/dry air/ low vacuum (1.33×10^2 Pa (abs)) (*1)	1	0.03	0.13	0.36	0.7 (0.3 when pressurized at NO port)	3
		-2		1.5	0.06	0.27	0.28	0.3 (0.1 when pressurized at NO port)	3
USG3- *		-1		1.6	0.08	0.32	0.30	0.3 (0.1 when pressurized at NO port)	4

*1: Check the compatibility between 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



Code	Content	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	For 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 equivalent			●	●	●	●
2	SUS316 equivalent			●	●	●	●
Ⓕ Voltage							
	12 VDC			●	●	●	●
	24 VDC			●	●	●	●

⚠ Precautions for model No. selection

*1: NO port of USG2 is M5.



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

Direct acting 2-port solenoid valve, single unit (general purpose valve)

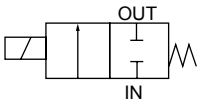
AB31-FP2/AB41-FP2 Series

- NC (normally closed)
- Port size: Rc1/8 to Rc3/8

RoHS CAD

JIS symbol

- NC (normally closed)



Common specifications

Descriptions	Specifications		
Working fluid	Air/low vacuum [1.33 × 10^2 Pa (abs)]/water/oil (50 mm^2/s or less)	Hot water	Steam
Working pressure differential MPa	0 to 5 (Refer to max. operating 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	IP65 equivalent	IP00	
Sealant material	Fluoro rubber		PTFE

*1: −20 to 80°C when coil housing is HP terminal box with lamp

Individual specifications

Descriptions / Model No.		Port size	Orifice size (mm)	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	Max working pressure (MPa)	Rated voltage	Apparent power (VA) When holding 50 Hz	When holding 60 Hz	When starting 50 Hz	When starting 60 Hz	Power consumption (W) AC 50/60 Hz	Power consumption (W) DC	Weight (kg)
NC (normally closed)																			
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 50/60 Hz*6 200 VAC 50/60 Hz*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									

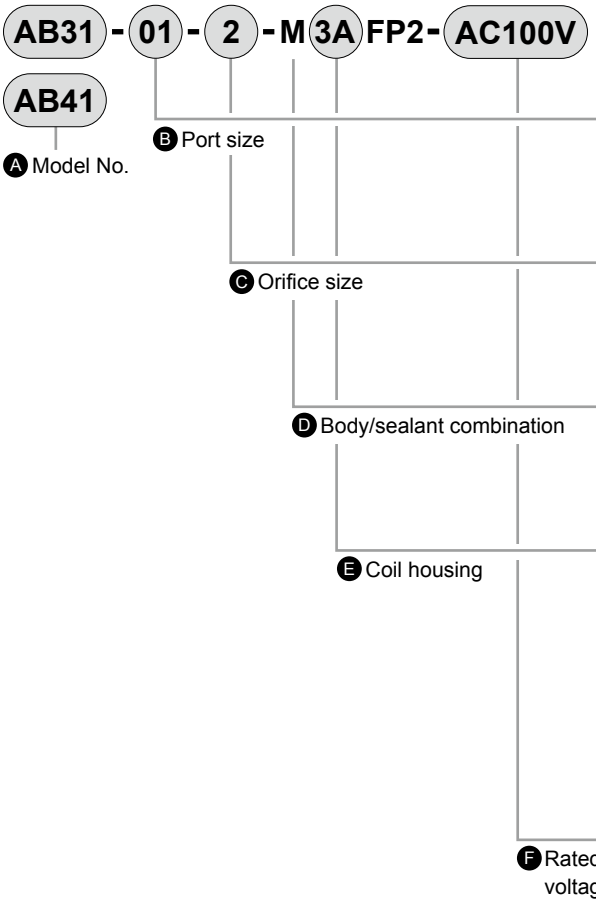
*1: The model numbers above are for the basic port size (Rc) and orifice size. Refer to How to order for other combinations.
*2: The port size symbol is 01 for Rc1/8 (6A), 02 for Rc1/4 (8A) and 03 for Rc3/8 (10A).
*3: Refer to DC column for the max. operating pressure differential of coil with diode.
*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 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

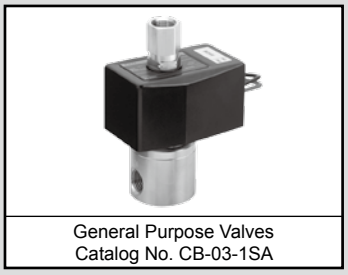
Model No.		Port size	Orifice size (mm)	Flow characteristics C[dm^3/(s·bar)]	b	Cv
NC (normally closed)						
AB31- 01 02	-2	Rc1/8 Rc1/4	2.0	0.53	0.52	0.15
AB41- 02 03	-3	Rc1/4 Rc3/8	3.0	1.1	0.52	0.31
	-5		4.0	1.9	0.47	0.48

* Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

How to order



Code	Content	A Model No. AB31	A Model No. AB41
B Port size			
01	Rc1/8	●	
02	Rc1/4	●	●
03	Rc3/8		●
C Orifice size			
2	ø2	●	
3	ø3		●
5	ø4		●
D Body/sealant combination			
	Body / Seal		
M	Stainless steel / Fluoro rubber	●	●
N	Stainless steel / PTFE	●	●
E Coil housing			
3A	Open frame	Lead wire	
3I	Open frame	HP terminal box	(G1/2)
3J	Open frame	HP terminal box with lamp	(G1/2)
4A	Open frame (Thermal class 180 (H))	Lead wire	
4M	Open frame (Thermal class 180 (H))	HP terminal box	(G1/2)
4N	Open frame (Thermal class 180 (H))	HP terminal box with lamp	(G1/2)
5A	Open frame (diode integrated)	Lead wire	
5I	Open frame (diode integrated)	HP terminal box	(G1/2)
5J	Open frame (diode integrated)	HP terminal box with lamp	(G1/2)
F Rated voltage			
3A, 3I, 3J	100 VAC, 200 VAC, 24 VDC		
4A, 4M, 4N	100 VAC, 200 VAC		
5A, 5I, 5J	100 VAC, 200 VAC		



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

Direct acting 3-port solenoid valve, single unit (general purpose valve)

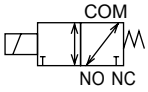
AG31-FP2/AG41-FP2 Series

- Universal type
- Port size: Rc1/8, Rc1/4, Rc3/8

RoHS CAD

JIS symbol

● AG31/41: Universal type



Common specifications

Descriptions	Specifications		
Working fluid	Air/low vacuum [1.33 × 10^2 Pa (abs)]/water/oil (50 mm^2/s or less)	Hot water	Steam
Working pressure differential MPa	0 to 1 (Refer to max. operating 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	IP65 equivalent	IP00	
Sealant material	Fluoro rubber		PTFE

*1: −20 to 80°C when coil housing is HP terminal box with lamp

Individual specifications

Descriptions / Model No.		Port size	Orifice size (mm)		Max. working pressure differential (MPa)							Rated voltage	Apparent power (VA)				Power consumption (W)		Weight (kg)
					Air		Water/hot water		Oil (50 mm^2/s)		Steam		When holding		When starting		AC	DC	
			TOP	BODY	AC	DC	AC	DC	AC	DC	AC		50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz		
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 50/60 Hz *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 50/60 Hz *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 size. Refer to How to order for other combinations.
*2: Refer to dc column for the max. operating 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)		Flow characteristics					
			TOP	BODY	C[dm^3/(s·bar)]		b		Cv	
					TOP	BODY	TOP	BODY	TOP	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.

Ⓐ Port size

Ⓑ Orifice size

Ⓒ Body/sealant combination

Ⓓ Coil housing

Ⓔ Rated voltage

Code	Content	Model No. AG31	Model No. AG41
Ⓐ Port size			
01	Rc1/8	●	
02	Rc1/4	●	●
03	Rc3/8		●

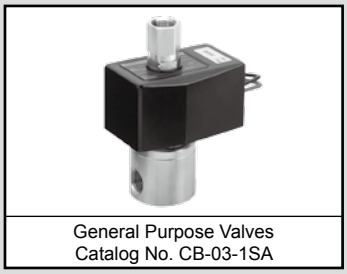
Ⓑ Orifice size	AG31		AG41			
	TOP	**BODY**	**TOP**	**BODY**		
1	ø1.5	ø1.5	ø2.0	ø2.0	●	●
2	ø2.0	ø2.0	ø2.3	ø2.3	●	●

Ⓒ Body/sealant combination	Body	Seal		
M	Stainless steel	Fluoro rubber	●	●
N	Stainless steel	PTFE	●	●

Ⓓ Coil housing			
3A	Open frame	Lead wire	
3I		HP terminal box	(G1/2)
3J		HP terminal box with lamp	(G1/2)
4A	Open frame (Thermal class 180 (H))	Lead wire	
4M		HP terminal box	(G1/2)
4N		HP terminal box with lamp	(G1/2)
5A	Open frame (diode integrated)	Lead wire	
5I		HP terminal box	(G1/2)
5J		HP terminal box with lamp	(G1/2)

Ⓔ Rated voltage	
3A	100 VAC, 200 VAC, 24 VDC
3I	
3J	
4A	100 VAC, 200 VAC
4M	
4N	
5A	100 VAC, 200 VAC
5I	
5J	

* For PTFE seal, the O-ring material of the socket will be fluoro rubber.



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

Direct acting 3-port solenoid valve, single unit (general purpose valve)

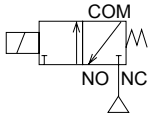
AG33-FP2/AG43-FP2 Series

- NC pressurization
- Port size: Rc1/8, Rc1/4, Rc3/8

RoHS CAD

JIS symbol

●AG33/43: NC pressurization



Common specifications

Descriptions	Specifications		
Working fluid	Air/low vacuum [1.33 × 10^2 Pa (abs)]/water/oil (50 mm^2/s or less)	Hot water	Steam
Working pressure differential MPa	0 to 1 (Refer to max. operating 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	IP65 equivalent	IP00	
Sealant material	Fluoro rubber		PTFE

*1: −20 to 80°C when coil housing is HP terminal box with lamp

Individual specifications

Descriptions / Model No.	Port size	Orifice size (mm)		Max. working pressure differential (MPa)							Rated voltage	Apparent power (VA)				Power consumption (W)		Weight (kg)
				Air		Water/hot water		Oil (50 mm^2/s)		Steam		When holding		When starting		AC	DC	
		TOP	BODY	AC	DC	AC	DC	AC	DC	AC		50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz		
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 50/60 Hz *5 200 VAC 50/60 Hz *5 24 VDC	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		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								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 size. Refer to How to order for other combinations.
*2: Refer to dc column for the max. operating 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 with 100 VAC 50/60 Hz and 200 VAC 50/60 Hz only.

Flow characteristics

Model No.	Port size	Orifice size (mm)		Flow characteristics					
				C[dm^3/(s·bar)]		b		Cv	
		TOP	BODY	TOP	BODY	TOP	BODY	TOP	BODY
AG33-01-1	Rc1/8	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	Rc1/4	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	Rc1/4	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	Rc3/8	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 Rated voltage

Code	Content	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	●	●

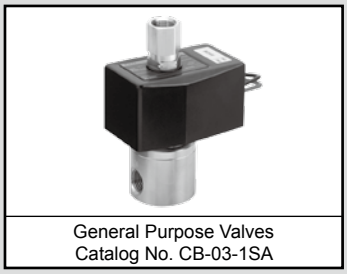
D Coil housing

3A	Open frame	Lead wire	
3I		HP terminal box	(G1/2)
3J		HP terminal box with lamp	(G1/2)
4A	Open frame (Thermal class 180 (H))	Lead wire	
4M		HP terminal box	(G1/2)
4N		HP terminal box with lamp	(G1/2)
5A	Open frame (diode integrated)	Lead wire	
5I		HP terminal box	(G1/2)
5J		HP terminal box with lamp	(G1/2)

E Rated voltage

3A	100 VAC, 200 VAC, 24 VDC
3I	
3J	
4A	100 VAC, 200 VAC
4M	
4N	
5A	100 VAC, 200 VAC
5I	
5J	

* For PTFE seal, the O-ring material of the socket will be fluoro rubber.



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

Direct acting 3-port solenoid valve, single unit (general purpose valve)

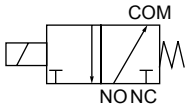
AG34-FP2/AG44 -FP2 Series

- NO pressurization
- Port size: Rc1/8, Rc1/4, Rc3/8

RoHS CAD

JIS symbol

● AG34/44: NO pressurization



Common specifications

Descriptions	Specifications	
Working fluid	Air/low vacuum [1.33 × 10^2 Pa (abs)]/water/oil (50 mm^2/s or less)	Hot water
Working pressure differential MPa	0 to 1 (Refer to max. operating 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	IP65 equivalent	IP00
Sealant material	Fluoro rubber	

*1: −20 to 80°C when coil housing is HP terminal box with lamp

Individual specifications

Descriptions / Model No.	Port size	Orifice size (mm)		Max. working pressure differential (MPa)						Rated voltage	Apparent power (VA)				Power consumption (W)		Weight (kg)
				Air		Water/hot water		Oil (50 mm^2/s)			When holding		When starting		AC	DC	
		TOP	BODY	AC	DC	AC	DC	AC	DC		50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz		
AG34-01-1	Rc1/8	1.5	1.5	1.0	1.0	1.0	1.0	1.0	0.7	100 VAC 50/60 Hz *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 50/60 Hz *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								

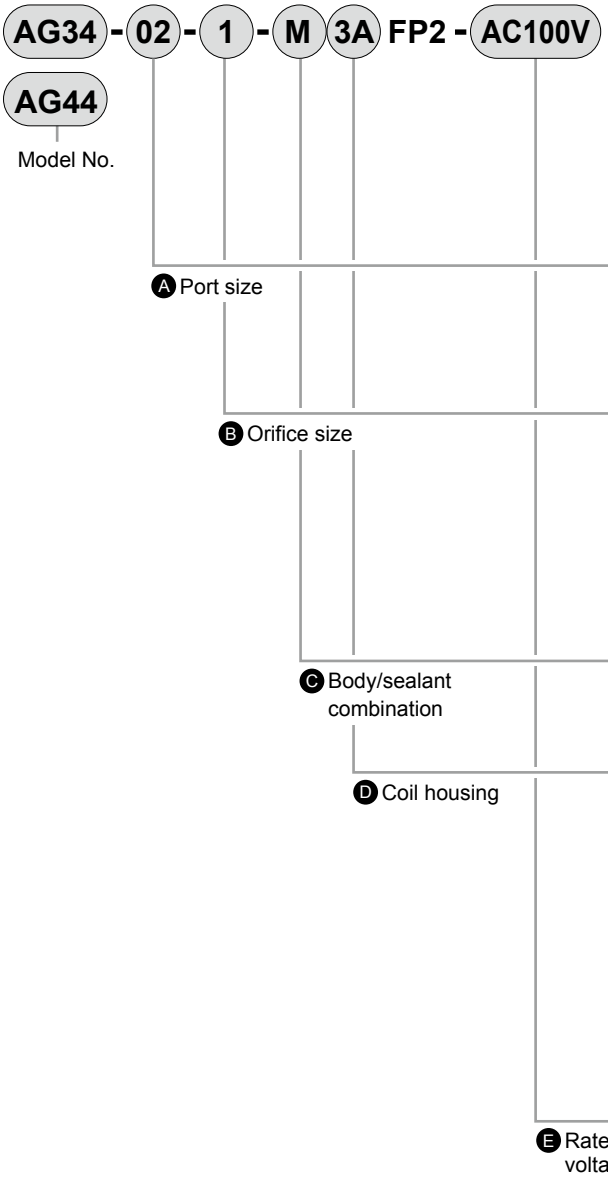
*1: The model numbers above are for the basic port size (Rc) and orifice size. Refer to How to order for other combinations.
*2: Refer to DC column for the max. operating pressure differential of coil with diode.
*3: The voltage fluctuation range must be within ±10% of the rated voltage.
*4: When using 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)		Flow characteristics					
				C[dm^3/(s·bar)]		b		Cv	
		TOP	BODY	TOP	BODY	TOP	BODY	TOP	BODY
AG34-01-1	Rc1/8	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	Rc1/4	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	Rc1/4	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	Rc3/8	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



Code	Content	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	Lead wire	
3I		HP terminal box	(G1/2)
3J		HP terminal box with lamp	(G1/2)
4A	Open frame (Thermal class 180 (H))	Lead wire	
4M		HP terminal box	(G1/2)
4N		HP terminal box with lamp	(G1/2)
5A	Open frame (diode integrated)	Lead wire	
5I		HP terminal box	(G1/2)
5J		HP terminal box with lamp	(G1/2)

E Rated voltage

3A	100 VAC, 200 VAC, 24 VDC
3I	
3J	
4A	100 VAC, 200 VAC
4M	
4N	
5A	100 VAC, 200 VAC
5I	
5J	



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

Pilot kick 2-port solenoid valve for dry air
(general purpose valve)

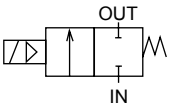
ADK11-Z-FP2 Series

- NC (normally closed)
- Port size: Rc1/4 to Rc1
- Diaphragm drive

RoHS CAD

JIS symbol

● NC (normally closed)



Common specifications

Descriptions	Standard specifications
Working fluid	For 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. operating 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	IP65 equivalent

* When used at a pressure less than 0.02 MPa, the sealant may be unstable. Contact CKD in this case.

Individual specifications

Descriptions / Model No.	Port size	Orifice size (mm)	Min. working pressure differential (MPa)	Max. working pressure differential (MPa)	Rated voltage	Power consumption (W) AC	Power consumption (W) DC	Weight (kg)
ADK11-8A	Rc1/4	12	0	0.7	100 VAC 50/60 Hz 200 VAC 50/60 Hz 24 VDC	17	14	0.8
-10A	Rc3/8	12		0.7				0.8
-15A	Rc1/2	16		0.6				1.0
-20A	Rc3/4	23		0.6				1.1
-25A	Rc1	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.

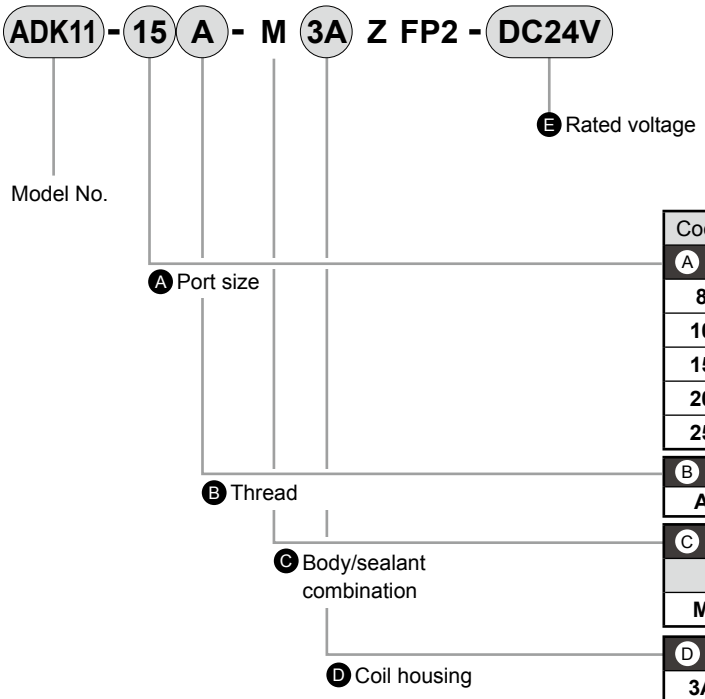
Leakage current: Voltage / Model No.	100 VAC	200 VAC	24 VDC
ADK11-8A to 25A-*ZFP2	10 mA or less	5 mA or less	20 mA or less

Flow characteristics

Model No.	Port size	Orifice size (mm)	Flow characteristics C[dm^3/ (s·bar)]	Flow characteristics b	Flow characteristics S (mm^2)
ADK11-8A	Rc1/4	12	9.2	0.36	-
ADK11-10A	Rc3/8	12	11	0.46	-
ADK11-15A	Rc1/2	16	20	0.31	-
ADK11-20A	Rc3/4	23	-	-	162
ADK11-25A	Rc1	28	-	-	231

*1: Effective cross-sectional area S and sonic conductance C are converted as S ≈ 5.0 × C.

How to order



Code	Content		
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	Lead wire	
3I		HP terminal box	(G1/2)
3J		HP terminal box with lamp	(G1/2)
5A	Open frame (diode integrated)	Lead wire	
5I		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			



General Purpose Valves
Catalog No. CB-03-1SA

Diaphragm cylinder valve

LAD-FP2 Series

Materials compliant with the Food Sanitation Act

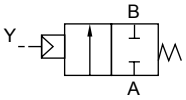
FDA compatible materials

- NC (normally closed), NO (normally open), double acting
- Port size: Rc3/8, Rc1/2, Rc3/4, Rc1
- Working fluid: Pure water, water, air, N_2 gas

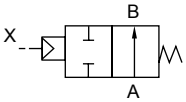
RoHS CAD

JIS symbol

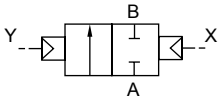
- NC (normally closed)



- NO (normally open)



- Double acting



Common specifications (PTFE diaphragm)

Descriptions			LAD1	LAD2	LAD3
Actuation			NC (normally closed)	NO (normally open)	Double acting
Working fluid			Water, pure water, air, N_2 gas, non-corrosive/non-absorbable fluid (*1)		
Fluid temperature		°C	5 to 90 (*2)		
Proof pressure (water pressure)		MPa	0.9		
Working pressure (A→B)		MPa	0 to 0.3		
Valve seat leakage		cm^3/min	0 (water pressure), 1 or less (pneumatic pressure)		
Back pressure		MPa	0 to 0.1		
Ambient temperature		°C	0 to 60		
Mounting orientation			Unrestricted		
Operating section	Pilot fluid		Air		
	Pilot pressure	MPa	0.3 to 0.5		0.3 to 0.4
	Pilot port size		Rc1/8 (*3)		

*1: Check the compatibility of product component 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 stiffening ring.

Individual specifications (PTFE diaphragm)

Descriptions / Model No.	Port size	Orifice size mm	Cv	Frequency times/min.	Weight kg	
					PPS Body	SCS13 Body
LAD*-10A	Rc3/8	8	1.7	30 or less	0.15	0.3
LAD*-15A	Rc1/2	12	3.3	20 or less	0.28	0.6
LAD*-20A	Rc3/4	20	8.5	20 or less	0.55	1.1
LAD*-25A	Rc1	20	8.5	20 or less	0.60	1.2

Common specifications (EPDM diaphragm)

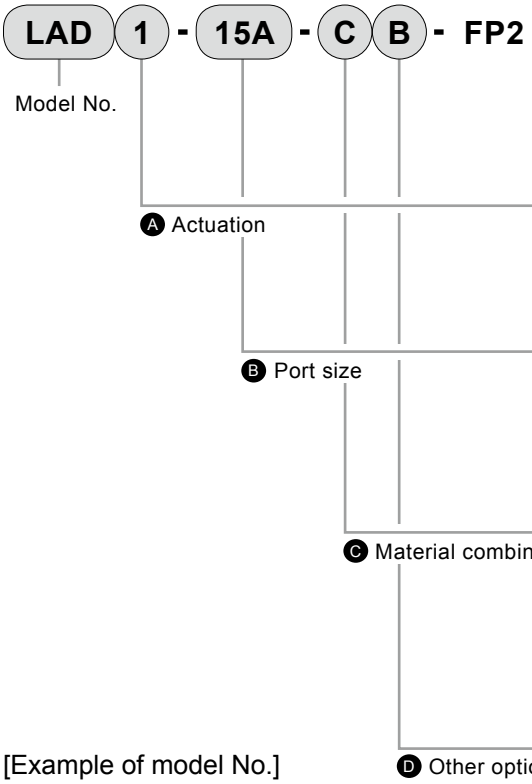
Descriptions			LAD1	LAD2	LAD3
Actuation			NC (normally closed)	NO (normally open)	Double acting
Working fluid			Water, air, N_2 gas, non-corrosive/non-absorbable fluid (*1)		
Fluid temperature		°C	0 to 60 (no freezing)		
Proof pressure (water pressure)		MPa	1.5 (refer to proof pressure in individual specifications.)		
Working pressure (A→B)		MPa	0 to 0.5 (refer to working pressure range in individual specifications.)		
Valve seat leakage		cm^3/min	0 (water pressure), 0.12 or less (pneumatic pressure)		
Back pressure		MPa	0 to 0.1		
Ambient temperature		°C	0 to 60		
Mounting orientation			Unrestricted		
Operating section	Pilot fluid		Air		
	Pilot pressure	MPa	0.3 to 0.5		0.3 to 0.4
	Pilot port size		Rc1/8 (*2)		

*1: Check the compatibility of product component materials, working fluids and atmosphere.
Strong acids and highly absorbable fluids cannot be used.
*2: With stainless steel stiffening ring.

Individual specifications (EPDM diaphragm)

Descriptions / Model No.	Port size	Proof pressure (water pressure) MPa	Working pressure (A→B) MPa	Orifice size mm	Cv	Frequency times/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



Code	Content
A Actuation	
1	NC (normally closed)
2	NO (normally open)
3	Double acting

B Port size	
10A	Rc3/8
15A	Rc1/2
20A	Rc3/4
25A	Rc1

C Material combination	Body	Diaphragm
P	PPS	EPDM
C	PPS	PTFE
R	SCS13	EPDM
F	SCS13	PTFE

D 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: Only the stainless steel body (SCS13) type is available for compliance with FDA.

[Example of model No.]

LAD1-15A-CB-FP2

Model: Diaphragm cylinder valve LAD
A Actuation : NC (normally closed)
B Port size : Rc1/2
C Material combination : Body - PPS, diaphragm - PTFE
D Other options : Mounting plate



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

Diaphragm cylinder valve, single unit

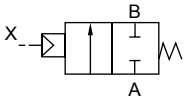
NAD*-FP2/NAD*V-FP2 Series

- 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

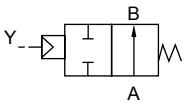
RoHS

JIS symbol

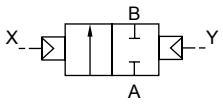
- NC (normally closed)



- NO (normally open)



- Double acting



Specifications

Descriptions	NAD1-10	NAD2-10	NAD3-10	NAD1V-10	NAD2V-10	NAD3V-10
Actuation	NC (normally closed)	NO (normally open)	Double acting	NC (normally closed)	NO (normally open)	Double acting
Working fluid	Air, inert gas, water, non-corrosive/non-absorbable liquid			Low vacuum (air/water)		
Fluid viscosity mm²/s	500 or less					
Working pressure	0 to 0.5 MPa (secondary pressure 0.4 MPa or less)			1.3×10^2 to 5×10^5 Pa (abs) (secondary pressure 4×10^5 Pa (abs) or less)		
Proof pressure (water pressure) MPa	1.0					
Fluid temperature °C	−10 to 50 (no freezing)					
Ambient temperature °C	−10 to 50					
Valve seat leakage	0.12 cm³/min or less (pneumatic pressure)			1.33×10^{-3} Pa·m³/sHe or less		
Port size	Rc3/8			Rc3/8		
Orifice size mm	7					
Cv	1.1					
C[dm³/(s·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

Code	Content
Ⓐ Actuation	
1	NC (normally closed)
2	NO (normally open)
3	Double acting

Ⓑ Working fluid

Code	Content
Ⓑ Working fluid	
Blank	Air, inert gas, water
V	Low vacuum

Ⓒ Port size

Code	Content
Ⓒ Port size	
10	Rc3/8

Ⓓ Body/sealant combination

Code	Body	Seal
Ⓓ Body/sealant combination		
R	Stainless steel	Ethylene propylene rubber

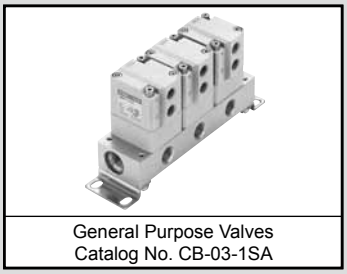
Ⓔ Other options

Code	Content
Ⓔ 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



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

Diaphragm cylinder valve, manifold

GNAD*-FP2/GNAD*V-FP2 Series

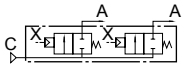
- NC (normally closed), NO (normally open), double acting
- Port size: Rc1/4, Rc3/8
- Working fluid
  GNAD* : Air, inert gas, water, non-corrosive liquid
  GNAD*V : low vacuum

RoHS

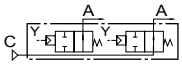
JIS symbol

- Common supply (port C pressurization)

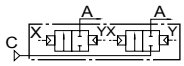
NC (normally closed)



NO (normally open)

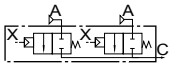


Double acting

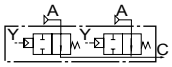


- Individual supply (port A pressurization)

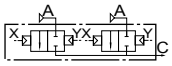
NC (normally closed)



NO (normally open)



Double acting



Specifications

Descriptions	GNAD1-1/5	GNAD2-1/5	GNAD3-1/5	GNAD1V-1/5	GNAD2V-1/5	GNAD3V-1/5
Actuation	NC (Normally closed)	NO (Normally open)	Double acting	NC (Normally closed)	NO (Normally open)	Double acting
Working fluid	Air, inert gas, water, non-corrosive/non-absorbable liquid			Low vacuum (air/water)		
Fluid viscosity mm²/s	500 or less					
Working pressure	0 to 0.5 MPa (secondary pressure 0.4 MPa or less)			1.3 × 10^2 to 5 × 10^5 Pa (abs) (secondary pressure 4 × 10^5 Pa (abs) or less)		
Proof pressure (water pressure) MPa	1.0					
Fluid temperature °C	−10 to 50 (no freezing)					
Ambient temperature °C	−10 to 50					
Valve seat leakage	0.12 cm^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

Code	Content
Ⓐ Actuation	
1	NC (normally closed)
2	NO (normally open)
3	Double acting

Ⓑ Working fluid

Code	Content
Ⓑ Working fluid	
Blank	Air, inert gas, water
V	Low vacuum

Ⓒ Air supply category

Code	Content
Ⓒ Air supply category	
1	Common supply
5	Individual supply

Ⓓ Manifold station No.

Code	Content
Ⓓ Manifold station No.	
2	2 stations
to	to
10	10 stations
0	Actuator only

Ⓔ Sub-plate/body/sealant combination

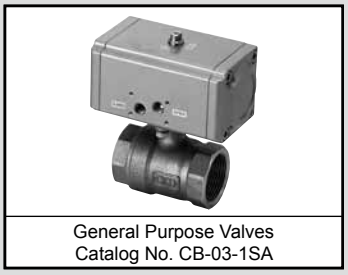
Code	Sub-plate	Body	Seal
Ⓔ Sub-plate/body/sealant combination			
R	Stainless steel	Stainless steel	Ethylene propylene rubber
8	Stainless steel	Polypropylene	Ethylene propylene rubber
3	Aluminum	Polypropylene	Ethylene propylene rubber

[Example of model No.]

GNAD1-1-3-R-FP2

Model: 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



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

Air operated 2-port ball valve
(Compact rotary valve)

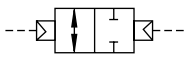
CHB-FP2/CHB-R*-FP2 Series

● Port size: Rc3/8 to Rc2

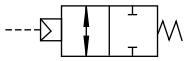
RoHS CAD

JIS symbol

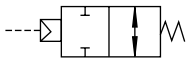
● CHB
(double acting)



● CHB-R1
(single acting-NC)



● CHB-R2
(single acting-NO)



Common specifications

Descriptions		Double acting	Single acting
		CHB (standard bore)	CHB-R* (standard bore)
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 times/min		1 or less	
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

Descriptions / 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	Rc1¼	25	50	2.3	2.8
	CHB- (R*-) 40	Rc1½	32	98	2.7	4.9
	CHB- (R*-) 50	Rc2	40	125	3.5	5.7

How to order

CHB - R1 - 15 - N - FP2

- CHB: Model No.
- R1: Ⓐ Actuator
- 15: Ⓑ Port size
- N: Ⓒ Body material

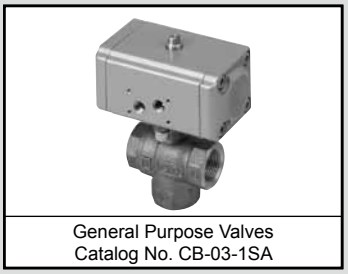
[Example of model No.]

CHB-R1-15-N-FP2

Model No.: CHB (standard bore)

Ⓐ Actuator : Single acting NC (normally closed)
Ⓑ Port size : Rc1/2
Ⓒ Body material : Stainless steel

Code	Content
Ⓐ 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	Rc1¼
40	Rc1½
50	Rc2
Ⓒ Body material	
N	Stainless steel Oil-prohibited specifications



General Purpose Valves
Catalog No. CB-03-1SA

Air operated 3-port ball valve
(Compact rotary valve)

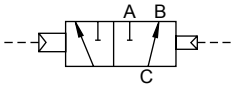
CHG-FP2/CHG-R*-FP2 Series

● Port size: Rc1/2 to Rc2

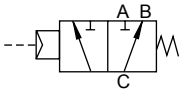
RoHS CAD

JIS symbol

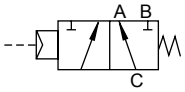
● CHG (double acting)



● CHG-R1 (single acting - normally B-C path)



● CHG-R2 (single acting - normally A-C path)



Common specifications

Descriptions		CHG (double acting)	CHG-R* (single acting)
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 times/min		1 or less	
Pressurization direction		Port C pressurization only	
Flow path shape		Multi-fluid (90° rotation switching)	
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

Descriptions / 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

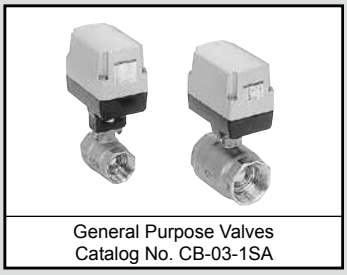
Code	Content
Ⓐ Actuator	
Blank	Double acting
R1	Single acting, normally B-C path
R2	Single acting, normally A-C path
Ⓑ Port size	
15	Rc1/2
20	Rc3/4
25	Rc1
32	Rc1¼
40	Rc1½
50	Rc2
Ⓒ Body material	
N	Stainless steel/oil-prohibited specifications

[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



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

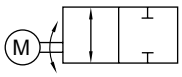
Oil-free motor driven 2-port ball valve

MXB1-FP2/MXB1D-FP2 Series

● Port size: Rc3/8 to Rc2

RoHS CAD

JIS symbol



Common specifications

Descriptions	MXB1 (standard)/MXB1D (with relay)
Working fluid	Water/air/oil (500 mm^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. (Refer to General Purpose Valves (catalog No. CB-03-1SA).)
Pressurization direction	Arbitrary
Degree of protection	IPX3 "Rainproof"

Electrical specifications

Descriptions			MXB1-10	MXB1-15	MXB1-20	MXB1-25	MXB1-32	MXB1-40	MXB1-50
Rated voltage *1			100 VAC (50/60 Hz), 200 VAC (50/60 Hz), 12 VDC, 24 VDC						
Apparent power VA	Operating	100 VAC	4.9/5.9 (50/60 Hz)				13/15 (50/60 Hz)		
		200 VAC	5.4/6.2 (50/60 Hz)				13/15 (50/60 Hz)		
	When starting	100 VAC	4.9/5.9 (50/60 Hz)				13/15 (50/60 Hz)		
		200 VAC	5.4/6.2 (50/60 Hz)				13/15 (50/60 Hz)		
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		

Descriptions			MXB1D-10	MXB1D-15	MXB1D-20	MXB1D-25	MXB1D-32	MXB1D-40	MXB1D-50
Rated voltage *1			100 VAC (50/60 Hz), 200 VAC (50/60 Hz)						
Apparent power VA	Operating	100 VAC	6.0/6.8 (50/60 Hz)				14/16 (50/60 Hz)		
		200 VAC	6.6/7.2 (50/60 Hz)				14/16 (50/60 Hz)		
	When starting	100 VAC	6.0/6.8 (50/60 Hz)				14/16 (50/60 Hz)		
		200 VAC	6.6/7.2 (50/60 Hz)				14/16 (50/60 Hz)		
Power consumption W			8				16		

Individual specifications

Descriptions		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 (50/60 Hz)				13/11 (50/60 Hz)		
	DC	8				10.5		
Frequency *3	AC	2 time/min. or less				1 time/min. or less		
	DC	1 time/min. or less				1 time/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: Contact CKD about specifications other than above.

How to order

MXB1 - **32** - **N** **T** **M** - **FP2** - **1**

MXB1D

Model No. / Ⓐ Port size / Ⓑ Body/seat material / Ⓒ Other options / Ⓓ Manual override *1 / Ⓔ Voltage

Code	Content	Model No. MXB1	Model No. MXB1D
Ⓐ Port size			
10	Rc3/8	●	●
15	Rc1/2	●	●
20	Rc3/4	●	●
25	Rc1	●	●
32	Rc1 1/4	●	●
40	Rc1 1/2	●	●
50	Rc2	●	●
Ⓑ Body/seat material			
N	Stainless steel body/PTFE seating/oil-prohibited specifications	●	●

Ⓒ Other options					
	Content	**Applications**	**Remarks**		
Blank	5-conductor cable 0.5 mm² (with output lead wire)	—	—	●	●
T	3-conductor cable 0.75 mm² (without signal output)	When output lead wire is not required	3-conductor cabtyre cable used	●	●

Code	Content	Model No. MXB1	Model No. MXB1D
Ⓓ Manual override			
Blank	None	●	●
M	Manual override	●	●
Ⓔ Voltage			
1	100 VAC (50/60 Hz)	●	●
2	200 VAC (50/60 Hz)	●	●
3	24 VDC	●	
4	12 VDC	●	

*1: When the manual override (Ⓓ Item M) is selected, available port sizes are 32, 40 and 50. Manual override is provided as standard with other port size.

[Example of model No.]

MXB1-32-NTM-FP2-1

Model No.: MXB1 (standard)

Ⓐ Port size : Rc1 1/4
Ⓑ Body material : Stainless steel body/PTFE seating/oil-prohibited specifications
Ⓒ Other options : 3-conductor cable (without output lead wire)
Ⓓ Manual override : Selected
Ⓔ Voltage : 100 VAC (50/60 Hz)



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

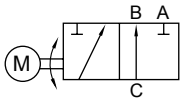
Oil-free motorized 3-port ball valve

MXG1-FP2/MXG1D-FP2 Series

● Port size: Rc1/2 to Rc2

RoHS CAD

JIS symbol



Common specifications

Descriptions	MXG1 (standard)/MXG1D (with relay)
Working fluid	Water/air/oil (500 mm²/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

Descriptions			MXG1-15	MXG1-20	MXG1-25	MXG1-32	MXG1-40	MXG1-50
Rated voltage *1			100 VAC (50/60 Hz), 200 VAC (50/60 Hz), 12 VDC, 24 VDC					
Apparent power VA	Operating	100 VAC	4.9/5.9 (50/60 Hz)			13/15 (50/60 Hz)		
		200 VAC	5.4/6.2 (50/60 Hz)			13/15 (50/60 Hz)		
	When starting	100 VAC	4.9/5.9 (50/60 Hz)			13/15 (50/60 Hz)		
		200 VAC	5.4/6.2 (50/60 Hz)			13/15 (50/60 Hz)		
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		

Descriptions			MXG1D-15	MXG1D-20	MXG1D-25	MXG1D-32	MXG1D-40	MXG1D-50
Rated voltage *1			100 VAC (50/60 Hz), 200 VAC (50/60 Hz)					
Apparent power VA	Operating	100 VAC	6.0/6.8 (50/60 Hz)			14/16 (50/60 Hz)		
		200 VAC	6.6/7.2 (50/60 Hz)			14/16 (50/60 Hz)		
	When starting	100 VAC	6.0/6.8 (50/60 Hz)			14/16 (50/60 Hz)		
		200 VAC	6.6/7.2 (50/60 Hz)			14/16 (50/60 Hz)		
Power consumption W			8			16		

Individual specifications

Descriptions		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 (50/60 Hz)			26/22 (50/60 Hz)		
	DC	16			21		
Frequency *3	AC	1 time/min. or less			1 time/2 min. or less		
	DC	1 time/2 min. or less			1 time/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: Contact CKD about specifications other than above.

How to order

MXG1 - **20** - **N** **K** - **FP2** - **2**

MXG1D

Model No.

Ⓐ Port size

Ⓑ Body/seat material

Ⓒ Other options

Ⓓ Voltage

Code	Content	Model No. MXG1	Model No. MXG1D
Ⓐ Port size			
15	Rc1/2	●	●
20	Rc3/4	●	●
25	Rc1	●	●
32	Rc1 1/4	●	●
40	Rc1 1/2	●	●
50	Rc2	●	●
Ⓑ Body/seat material			
N	Stainless steel body/PTFE seating/oil-prohibited specifications	●	●

Ⓒ Other options

	Content	Applications	Remarks		
Blank	5-conductor cable 0.5 mm² (with output lead wire)	—	—	●	●
T	3-conductor cable 0.75 mm² (without signal output)	When output lead wire is not required	3-conductor cabtyre cable used	●	●
K	Multi-fluid (90° rotation switching / Response time 1/2)	To remove load to pump	Fluids may mix somewhat during switching	●	●
TK	3-conductor cable 0.75 mm² Multi-fluid	—	—	●	●

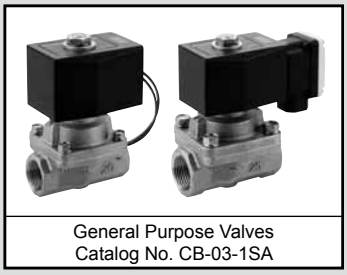
Code	Content	Model No. MXG1	Model No. MXG1D
Ⓓ Voltage			
1	100 VAC (50/60 Hz)	●	●
2	200 VAC (50/60 Hz)	●	●
3	24 VDC	●	
4	12 VDC	●	

[Example of model No.]

MXG1-20-NK-FP2-2

Model: MXG1

Ⓐ Port size : Rc3/4
Ⓑ Body/seat material : Stainless steel body/PTFE seating/oil-prohibited specifications
Ⓒ Other options : Multi-fluid (90° rotation switching, response time 1/2)
Ⓓ Voltage : 200 VAC (50/60 Hz)



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

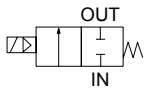
Pilot kick 2-port solenoid valve for steam

SPK-FP2 Series

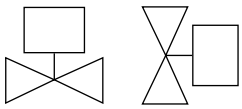
- NC (Normally closed)
- Working fluid: Steam
- Port size: Rc1/2 to Rc1

RoHS CAD

JIS symbol



Mounting orientation



Common specifications

Descriptions	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 of 0.05 to 1.0 MPa. 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

Descriptions / Model No.	Port size	Orifice size (mm)	Rated voltage	Apparent power (VA)				Power consumption (W)	Weight (kg)
				When holding		When starting		AC	
				50 Hz	60 Hz	50 Hz	60 Hz	50/60 Hz	
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 0.7 MPa, it should be within −5% to +10%.

How to order

SPK11 - 15 A - N 4A S FP2 - AC100V

- SPK11: Model No.
- 15: Ⓐ Port size
- A: Ⓑ Thread
- N: Ⓒ Body/sealant combination
- 4A: Ⓓ Coil housing
- S: Ⓔ Surge suppressor
- AC100V: Ⓕ Rated voltage

Code	Content	
Ⓐ Port size		
15	1/2	
20	3/4	
25	1	
Ⓑ Thread		
A	Rc	
Ⓒ Body/sealant combination		
	Body	Seal
N	Stainless steel	PTFE
Ⓓ Coil housing		
4A	Lead wire	
4M	Terminal box	
4N	Terminal box with lamp	
Ⓔ Surge suppressor		
Blank	Without surge suppressor	
S *1	Surge suppressor included	
Ⓕ Rated voltage		
AC100V	100 VAC 50/60 Hz, 110 VAC 60 Hz	
AC200V	200 VAC 50/60 Hz, 220 VAC 60 Hz	

Precautions for model No. selection

*1: "S" is included only when the coil housing [D] is "4A".

[Example of model No.]

SPK11-15A-N4ASFP2-AC100V

- Ⓐ Port size : 1/2
- Ⓑ Thread : Rc
- Ⓒ Body material : Stainless steel
- Ⓓ Coil housing : Lead wire
- Ⓔ Surge suppressor : Surge suppressor included
- Ⓕ Rated voltage : 100 VAC 50/60 Hz, 110 VAC 60 Hz

MEMO

Electric actuator
Pneumatic cylinders
Pneumatic valves
FRL/Auxiliary components Electronic components
Vacuum components
Main line components
Fluid control valves
F P 1
Main line components
Antibacterial/Bacteria-removing filter
Vacuum components
Fluid control valves
F P 2



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

Metal-free 2-port solenoid valve

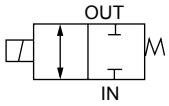
MYB3-FP2 Series

- NC (normally closed)
- Working fluid: Water/pure water/chemical liquids
- Port size: Rc1/8, Rc1/4, Rc3/8

RoHS CAD

JIS symbol

- MYB3 (2-port)
  : NC (normally closed)



Specifications

Descriptions	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	

Conditions	Fluid flow direction	Working pressure of each port IN	Working pressure of each port 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

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 (50/60 Hz)
Voltage fluctuation range	±10%
Power consumption W AC	11
Power consumption W DC	11.5
Leakage current mA	1 or less (24 VDC)/2 or less (100 VAC) (*1)
Thermal class	Class 130 (B)

*1: The leakage current from the control circuit must be equal to or less than the values shown in the table.
*2: Read safety precautions in "General Purpose Valves (catalog No. CB-03-1SA)" as well before use.

How to order

MYB3-6-FP2-DC24V

Ⓐ Port size

Ⓑ Rated voltage

Code	Content
Ⓐ Port size	
6	Rc1/8
8	Rc1/4
10	Rc3/8
Ⓑ Rated voltage	
DC24V	24 VDC
AC100V	100 VAC



General Purpose Valves
Catalog No. CB-03-1SA

Materials compliant with the Food Sanitation Act

High corrosion resistant direct acting 2-port solenoid valve

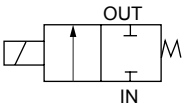
HB-FP2 Series

- 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

Descriptions	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	IP65 equivalent
Electrical specifications	
Rated voltage	100 VAC (50/60 Hz), 200 VAC (50/60 Hz), 24 VDC

*1: The AC rated voltage will be converted to DC by the diode integrated into the coil.
*2: Read safety precautions in "General Purpose Valves (catalog No. CB-03-1SA)" as well before use.

Individual specifications

Descriptions / Model No.	Port 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

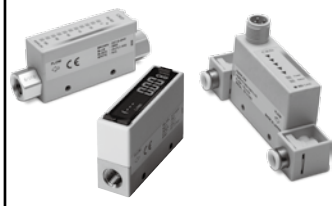
Code	Content		Ⓐ Model No. HB31	Ⓐ Model No. HB41
Ⓑ Port size				
6	Rc1/8		●	
8	Rc1/4		●	●
10	Rc3/8			●
Ⓒ Orifice size				
3	ø3		●	
5	ø4			●
Ⓓ Body/sealant combination				
	Body	Seal		
M	Stainless steel	Fluoro rubber	●	●
Ⓔ Coil housing				
3A	Open frame	Lead wire	●	●
5A	Open frame (diode integrated)	Lead 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 5A of Item Ⓔ and 24 VDC for 3A.

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
			

Tightening fitting (stainless steel)	Plug	Blanking plug	Silencer
ZJ	GWP□-0	GWP□-B	SL/SLW/SLM
			

Pressure gauge			
	Low-profile pressure gauge	Pressure gauge with safety marker	Pressure gauge with limit mark
	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

Contact CKD for details.

Karman vortex flow rate sensor for water	Karman vortex flow rate sensor for water	Dust collector control valve	Air operated valve for chemical liquids	Roller gear cam units
WFK2	WFK3000 Series	PD3 Series	AMD* Series	RGI* Series
				



Bacteria-removing filter **Made-to-order product**

AF7000A Series

Ideal for bacteria and solid removing. Bacteria-removing performance LRV ≥ 8

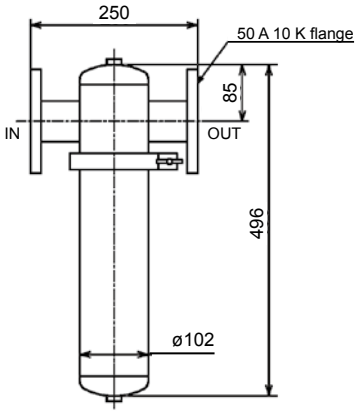
Processing air flow rate: 6 to 18 m^3/min (ANR) (at 0.7 MPa)

Specifications

Descriptions	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 μm	0.01		
Initial pressure drop MPa	0.01		
Port size flange	1 1/2, 2	1 1/2, 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 0.7 MPa.
*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 10K flange.

Dimensions ● AF7006A-50



How to order

AF7 006 A - 50

Ⓐ Model No. Ⓑ Flow rate classification Ⓒ Element Ⓓ Bore size

Code	Content	Ⓐ Model No. AF7006A	AF7012A	AF7018A
Ⓑ Flow rate classification				
006	6 m^3/min (ANR)	●		
012	12 m^3/min (ANR)		●	
018	18 m^3/min (ANR)			●
Ⓒ Element				
A	Bacteria-removing/ultra-high-performance solid removing filter	●	●	●
Ⓓ Bore size				
40	FLG1 1/2	●	●	
50	FLG2	●	●	●

Safety precautions

FP Series: Warnings and Cautions

Always 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.
The above catalogs indicate that the products cannot be used for components or applications involving direct contact with beverages or foodstuffs. However, the FP2 Series can be used for such applications, as long as product use remains within specification ranges.

Design/selection

⚠CAUTION

- "Food Sanitation Act compliant" are products with material 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 the product is 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.
- The cylinder bearings contain a minute amount of mineral oil. Although it is treated so that it will not be discharged within the product specifications, select installation locations with care.
- 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 installing, check for leaks from pipes and for wire connections, and check that the product is correctly installed.
- Do not use products as footing or place any heavy objects on top of the products.
- If the product has not been in use for over one month, perform a test run before starting actual operation.

Product-specific cautions: Electric actuator ETS/ETV/ECS/ECV Series

Refer to "Electric Actuator ETS Series (CC-1165A)", "Electric Actuator ECS Series (CC-1217A)", "Electric Actuator ETV Series (CC-1216A)", "Electric Actuator ECV Series (CC-1257A)" for general and product-specific precautions.

Design/selection

⚠CAUTION

- Do not use in a range where the moving table could collide with the stroke end and break.
- Indicate the maintenance conditions in the device's instruction manual.
  - The product's performance 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 products are manufactured in accordance with the specifications.
  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.

During Use & maintenance

⚠CAUTION

- Food-grade grease (NSF H1) is used for this product. 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 at 100 km 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 not been in use for over one month, perform a test run before starting actual operation.

Safety Precautions

Always read this section before use.
Refer to "Pneumatic Valves (CB-023SA)" and "Pneumatic, Vacuum, and Auxiliary Components (CB-024SA)" for general and product-specific precautions.
The above catalogs indicate that the products cannot be used for components or applications involving direct contact with beverages or foodstuffs. However, the FP2 Series can be used for such applications, as long as product use remains within specification ranges.

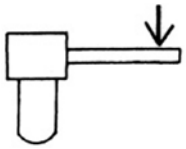
Antibacterial/Bacteria-removing filter SFC/SFS Series

Design/selection

⚠WARNING

- The antibacterial filter has an antibacterial effect on bacteria attached to internal filter elements, suppressing bacteria growth. The working fluid has no bacteria-reducing effects. The antibacterial activity value, which represents the antibacterial effect, is an actual value from CKD's prescribed conditions.
- The bacteria-removing filter removes and reduces the bacteria in working fluid, but it does not remove 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 designed for industrial use. Do not use in any equipment or circuit that concerns human life.
- This product exerts no influence on performance and a small amount of leakage is tolerable.
- Ventilate well when using nitrogen gas (N_2) and carbon dioxide (CO_2).
- This filter traps waste and bacteria in working fluids and provides clean working fluids to the secondary side. Working fluid itself does not add to antibacterial or bacteria-killing functions.
- 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. Refer to page 346 for details on plastic bowl and transparent case chemical resistance.
- Piping load torque
  Avoid piping fixed with a single support, as this can result in excessive force and lead to damage.
  [Combination, module type]
  Make sure that no piping load or torque is applied to the body or pipes.

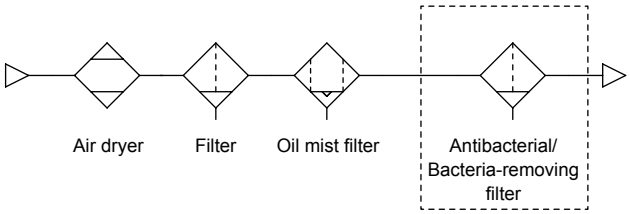
Series	SFC3**	SFC4**	SFC8**
Max. torque N·m	50	50	100



- Properly check the compatibility of the material with its working conditions and environment before using this product.

⚠CAUTION

- Check the working circuit and working fluid.
  To prevent drop in filter performance, install dryer, air filter and oil mist filter on the primary side, and remove water or oil.



- Do not exceed max. working or differential pressure.
  Not observing this could damage the product or element.
- Do not flow over the max. flow rate.
  Doing so may degrade the filtration accuracy and damage the element.
- This device cannot be used as an absolute filter.
- Do not use where IN and OUT side pressure difference exceeds 0.1 MPa.
  Suddenly supplying fluid to the filter by blowing it with secondary side released to atmospheric pressure, etc., could make removal inefficient. 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.
- High moisture levels
  Install the air dryer and drain separator before the bacteria-removing/antibacterial filter.
  If there is a large drainage 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.

Mounting, installation and adjustment

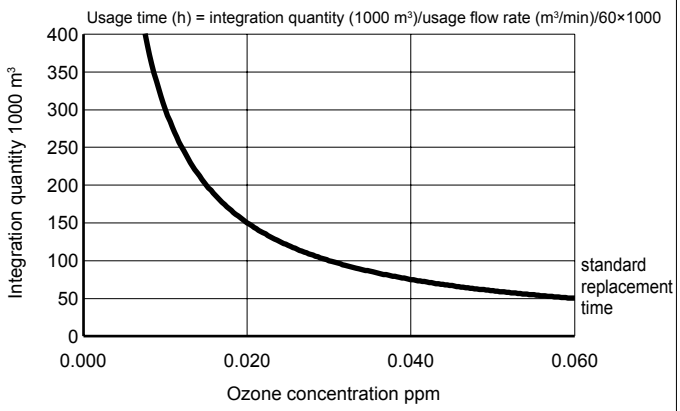
⚠WARNING

■ 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) in combination.
(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
Element replacement time



⚠CAUTION

■ Check the flow direction with arrow and connect correctly.

■ Securing of maintenance space
Secure sufficient space for maintenance and inspection.

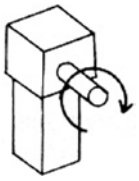
■ After attaching the pipes, flush and clean them before use.
Dirt or foreign materials in piping will lower product performance.

■ Check that foreign materials do 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 pipe 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.
Pipe so that no lateral load applies 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.

■ Pipe so no excessive force is applied to the product.
When piping or installing, do not apply tension, pressure, bending or external force from tube, 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 width across flats of the connection part when piping.
[Inline]
In the case of Rc thread piping, apply the wrench to the tang of the connection part. Do not apply it to any other part when tightening.

■ Attach the maintenance label to this product to clarify maintenance periods.

■ 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.

During Use & maintenance

⚠WARNING

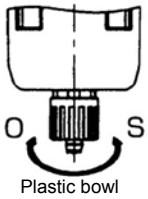
- Perform a periodic inspection at least once every six months to check for any cracks, scratches, and other damage to the plastic bowl and transparent housing.
  Replace the bowl with a new plastic or another product if you find any damages.
- Check the plastic bowl periodically for contamination.
  - 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 drainage flows into the secondary side.
- Do not disinfect or clean using alcohol. It may deteriorate or damage the plastic part.

⚠CAUTION

- Antibacterial 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.

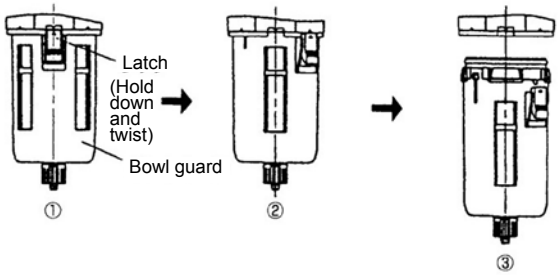
- Read the instructions and precautions attached with the product before use or maintenance. Wash your hands before attaching new elements.

Drainage method



- Drainage starts when the cock is turned to O side, and the discharge stops when the cock is turned in 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 0.1 MPa, replace the element with a new one.
  - We ask that customers perform element replacement maintenance by themselves.
  - During element replacement, take consideration that bacteria, waste, or foreign matter deposits in the primary side do not flow into the secondary side.
- While operating, do not apply vibration, impact, or other external force from tube.

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.	×
	Alkalines	Caustic soda, caustic potash, calcium hydroxide, aqueous ammonia, Alkalis such as 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.		○
Organic chemicals	Aromatic hydrocarbons	Benzene, toluene, xylene, ethyl benzene, styrene, etc.	Contained in paint thinner (benzene, toluene, and xylene)	×
	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.)	○
	Chlorinated aromatic hydrocarbons	Chlorobenzene, dichlorobenzene, benzene hexachloride (B/H/C), etc.	Agricultural chemicals	○
	Petroleum components	Solvent naphtha, gasoline, kerosene		○
	Alcohols	Methyl alcohol, ethyl alcohol, cyclohexanol, benzyl alcohol	Used as antifreezing agent Leakage detection agent	×
	Phenol	Carbolic acid, cresol, naphthol, etc.	Disinfectant solution	×
	Ethers	Methyl ether, methyl ethyl ether, ethyl ether	Additive of brake oil	○
	Ketones	Acetone, methyl ethyl ketone, cyclohexanone, acetophenone, etc.		×
	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 and leakage detection agents	×
	Esters	Dimethyl phthalate (DMP), diethyl phthalate (DEP), dibutyl phthalate (DBP), dioctyl phthalate (DOP)	Lubricant, synthetic oil, rust preventing agent additive plasticizer for synthetic resin	○
	Oxyacids	Glycol acid, lactic acid, malic acid, citric acid, tartaric acid		×
	Nitro compounds	Nitromethane, nitroethane, nitroethylene, nitrobenzene, etc.		○
	Amines	Methylamine, diemethylamine, ethylamine, aniline, acetoacetanilide, etc.	Additive of brake oil	×
	Nitriles	Acetonitrile, acrylonitrile, benzonitrile, acetoisonitrile, etc.	Raw material for nitrile rubber	○

Safety Precautions

Always read this section before use.
Refer to "Pneumatic, Vacuum and Auxiliary Components (No. CB-024SA)" for product-specific cautions. The above catalogs indicate that the products cannot be used for components or applications involving direct contact with beverages or foodstuffs. However, the FP2 Series can be used for such applications, as long as product use remains within specification ranges.

Nitrogen gas extraction unit NS, NSU Series

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 using this product 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. (When the separation membrane is moistened by a liquid (water, etc.), performance drops markedly.)
- 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.
Due to structure, a few leakage could occur.

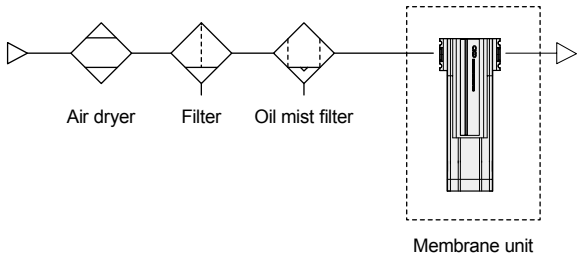
■ Dust cannot be completely kept out of the flow path.
Install a final clean filter if dust could be a problem with the circuit. (Use a antibacterial/bacteria-removing filter for food processing.)

■ "Food Sanitation Act compliant" refers to products with material 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.

■ 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.

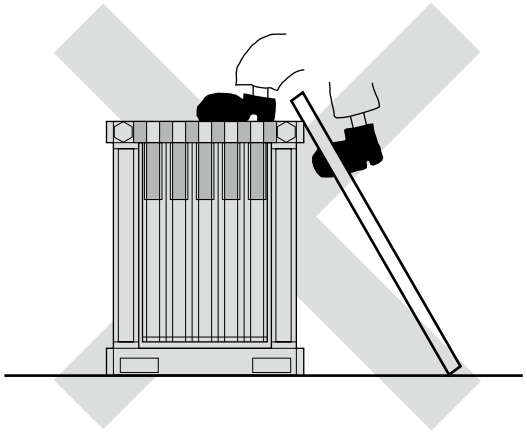


Types of chemicals	Categories of chemicals	Main products of chemicals	General applications	Polycarbonate
Inorganic compound	Acids	Hydrochloric acid, sulfuric acid, fluorine, phosphoric acid, chromic acid, etc.	Acid washing of metals and acidic degreasing solutions Coating treatment solution	×
	Alkalines	Caustic soda, caustic potash, calcium hydroxide, aqueous ammonia, sodium carbonate, etc.	Alkaline degreasing solution for metals	×
	Inorganic salts	Sodium sulfide, potassium nitrate, potassium bichromate, sodium sulfate, etc.		×
Organic compound	Aromatic hydrocarbons	Benzene, toluene, xylene, ethyl benzene, styrene, etc.	Contained in paint thinner (Benzene, toluene, and xylene)	×
	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.)	×
	Chlorinated aromatic hydrocarbons	Chlorobenzene, dichlorobenzene, benzene hexachloride (B/H/C), etc.	Agricultural chemicals	×
	Petroleum components	Solvent, naphtha, gasoline		×
	Alcohols	Methyl alcohol, ethyl alcohol, cyclohexanol, benzyl alcohol	Used as antifreezing agent	×
	Phenol	Carbolic acid, cresol, naphthol, etc.	Disinfectant solution	×
	Ethers	Methyl ether, methyl ethyl ether, ethyl ether	Additive of brake oil	×
	Ketones	Acetone, methyl ethyl ketone, cyclohexanone, acetophenone, etc.		×
	Carboxylic acids	Formic acid, acetic acid, butyl acid, acrylic acid, oxalic acid, phthalic acid, etc.	Dyes/oxalic acid are used for aluminum treatment Phthalic acid is used as a paint base	×
	Phosphate ester	Dimethyl phthalate (DMP), diethyl phthalate (DEP), dibutyl phthalate (DBP), dioctyl phthalate (DOP)	Lubricant, synthetic coolant, rust preventing agent additives Plasticizer for synthetic resin	×
	Oxyacids	Glycol acid, lactic acid, malic acid, citric acid, tartaric acid		×
	Nitro compounds	Nitromethane, nitroethane, nitroethylene, nitrobenzene, etc.		×
	Amines	Methylamine, dimethylamine, ethylamine, aniline, acetanilide, etc.	Brake oil additive	×
	Nitriles	Acetonitrile, acrylonitrile, benzonitrile, acetoisonitrile, etc.	Raw material for nitrile rubber	×

Mounting, installation and adjustment

⚠ CAUTION

■ Do not step onto the body.



■ When piping, remove cutting oil, rust preventing agents, contaminants, etc.

■ Mount the air filter and oil mist filter so that the drain outlet faces straight downward. Use a bore size ø5.7 to 6 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 on the separation membrane, nitrogen concentration could degrade.

■ Install the regulator on the outlet side of the membrane unit.

■ When installing NS (2 or 3 units), fix the inlet and outlet pipes or fix the body with a bracket.

■ When installing NS (6 or more units), place on a solid and flat surface that does not vibrate and fix the base with anchor bolts.

Precautions for needle valve 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" on the dial rotation display.
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.

During Use & maintenance

⚠WARNING

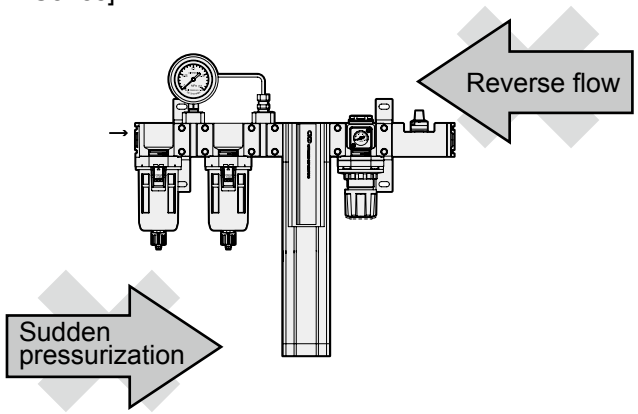
■ **There may be oxygen deficiency in the nitrogen gas. Observe the following instructions when using.**
- Use this product in well ventilated locations.
- Ventilate the work area when nitrogen gas is being used.
- Perform periodical leakage inspections of nitrogen gas piping.

■ **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 sources of fire and flammable substances.
- Ventilate the work area when equipment is being used.

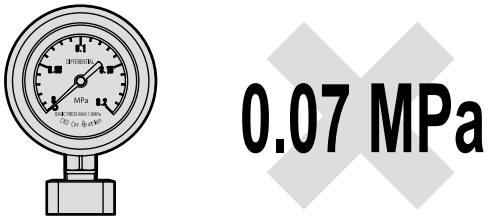
■ **Do not use this product for purposes that directly concern human life.**

⚠CAUTION

■ Do not use reverse airflow.
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 0.07 MPa 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.

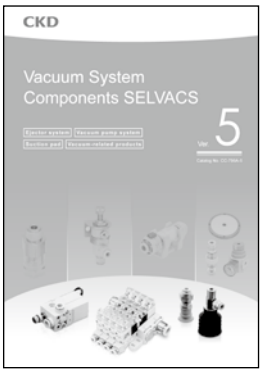
■ Confirm that pressure has been released before mounting or removing the bowl and bowl guard. [NSU Series]

■ Be aware that adequate time is necessary to obtain a required nitrogen concentration after compressed air is supplied.

Related products

Vacuum system equipment　SELVACS

Catalog No. CC-796A-5



■ Compact design

Compact components save space.

■ A wide variety of models

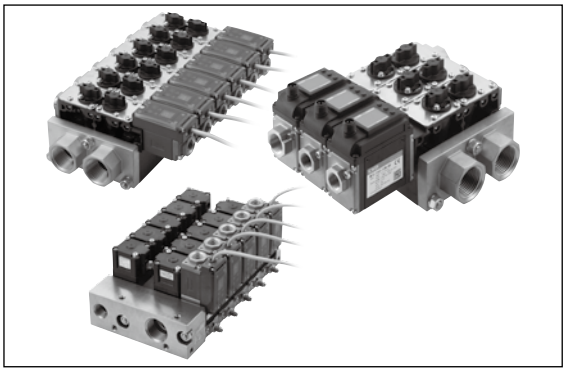
Broad series of models and variations enable use in different fields and applications.

■ Unit and module

The ejector system/vacuum pump system which form the core are unitized and modularized, designed to save space and increase ease of use.

Integrated unit for water control　WXU Series

Catalog No. CC-1116A



■ Space saving without piping

The unitized design without piping has greatly reduced the installation space compared with the discrete type.
80% smaller footprint than conventional models (two fluid control)

■ High quality

No need to worry about outside leakage since there is no piping threaded between equipment. No entry of foreign substance during installation.

■ Reduced processes

Greatly reduced troublesome processes such as piping design, piping work and parts ordering.

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 variation

Diverse lineup of shapes to match industries and applications.

■ Energy saving

Employs a special structure that sucks in the surrounding air and amplifies it. Blows air strongly even with little air consumption.

■ Uniformity

Employs a special structure that injects air to a more uniformly directed spot. Achieves stable quality of workpieces.

■ Low noise

In addition to a work environment-friendly silent design that reduces turbulence, there are also flat types and round types for the appropriate situations.

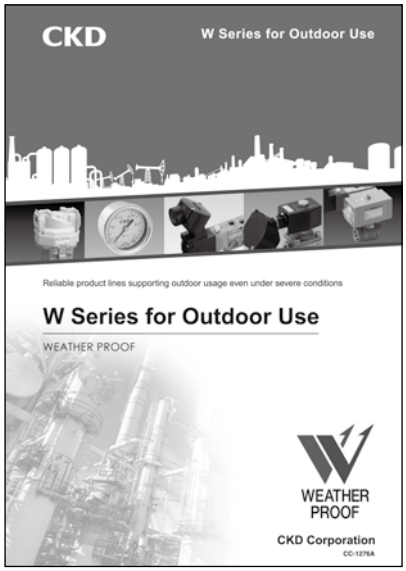
W Series for outdoor use

Catalog No. CC-1276A

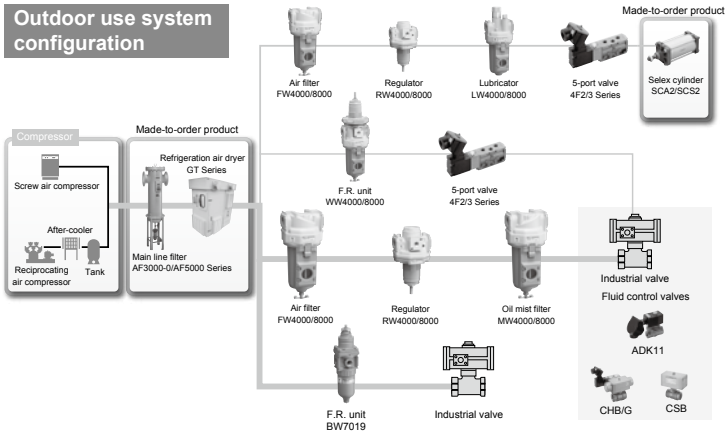
CKD's outdoor series guarantees long-term use even in severe outdoor environments.

■ The durability required for outdoor use is guaranteed

- Accelerated weathering test
  3-year acceleration equivalent passed
- Combined cycle test (JIS H8502:1999)
  7-year acceleration equivalent passed
- Ozone exposure test (JIS D0205:1987)
  400 hours cleared



Outdoor use system configuration





Power Arm PFB2 Series

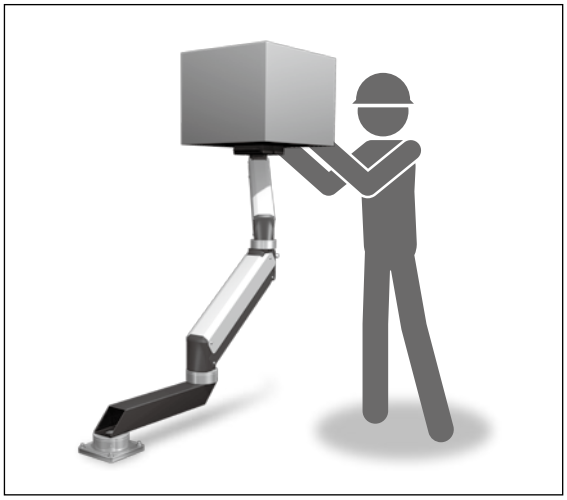
Catalog No. CC-1262A

■ Compact
Multi-axis, compact type which can be folded

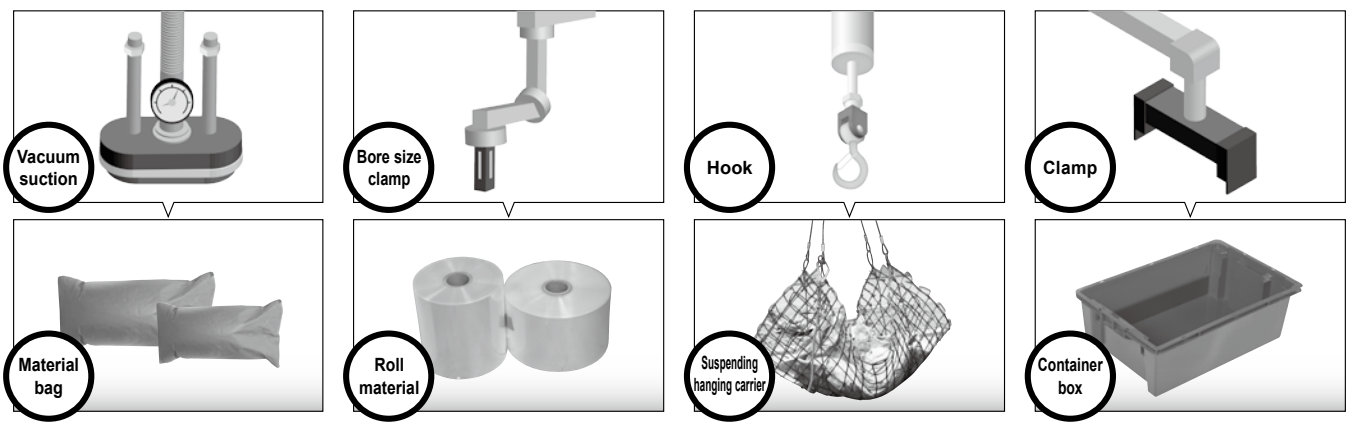
■ Wide operation range enables a variety of usages
Single axis or multiple axis can be selected according to your application.

■ Easy operation

■ Lightweight/high rigidity
Compact and lightweight with enhanced rigidity, integrating a pneumatic cylinder into the body.



[Attachment examples]



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.

Characteristics of eco-flex

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

Compliant with the Food Sanitation Act (Ministry of Health and Welfare, Notification No. 370)

* "ecos" Series only excludes dissolution tests for oil 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 (NOx) or sulfur oxide (SOx). Ecology tube emitting no dioxins.

ecos Series
[Soft type]

Standards

mm Length of 1 standard roll: 20 m Standard color: transparent, black

Name	O.D. × I.D.	Min. bending radius		Product weight	Max. working pressure	Operating ambient temperature range °C
	mm × mm	At positive pressure (mm)	At negative pressure (mm)	g/m	MPa	
ecos–4×2.5	4.0 × 2.5	8.0	10.0	6.9	0.50	−20 to 60
ecos–6×4	6.0 × 4.0	14.0	17.0	14.1		
ecos–8×5	8.0 × 5.0	20.0	24.0	27.6		
ecos–10×6.5	10.0 × 6.5	25.0	30.0	40.8		
ecos–12×8	12.0 × 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 0.50 MPa × 70% = 0.35 MPa (all sizes)

ecoh Series
[Semi-soft type]

Standards

mm Length of 1 standard roll: 20 m Standard color: transparent, black

Name	O.D. × I.D.	Min. bending radius		Product weight	Max. working pressure	Operating ambient temperature range °C
	mm × mm	At positive pressure (mm)	At negative pressure (mm)	g/m	MPa	
ecoh–4×2.5	4.0 × 2.5	12.0	14.0	6.9	1.20	−20 to 80
ecoh–6×4	6.0 × 4.0	20.0	23.0	14.1	1.10	
ecoh–8×6	8.0 × 6.0	35.0	40.0	19.8	0.80	
ecoh–10×7.5	10.0 × 7.5	45.0	50.0	30.9	0.80	
ecoh–12×9	12.0 × 9.0	55.0	62.0	44.5	0.80	
ecoh–10×8	10.0 × 8.0	60.0	70.0	25.4	0.60	

Negative pressure → 1.0 to 600 Torr

(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 1.10 MPa × 70% = 0.77 MPa

ECO BLISTER CFF-360E



ECO BLISTER

CFF-360E

Reduce running cost

Saves labor

Prevents foreign body contamination



Easy

Always exact alignment of punching/sealing positions with automatic position correction



Easy

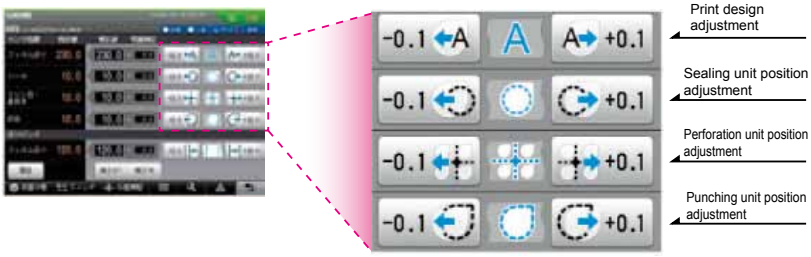
Forming:
Thickness control (Plug's extrusion amount) is Easy set digitally.



Easy

Easy digital setting of sealing pressure control

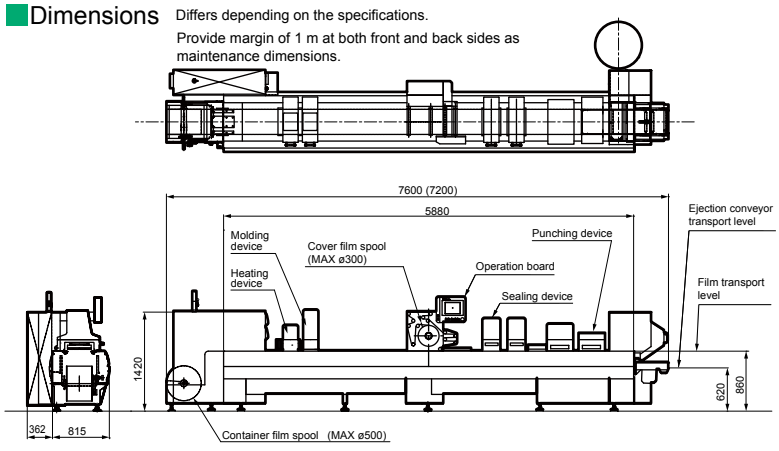
Easy operation without effort



Postion of each unit can be adjusted easily by pushing "+" or "–" buttons.

Dimensions

Differs depending on the specifications.
Provide margin of 1 m at both front and back sides as maintenance dimensions.



Specifications

Type / Descriptions		CFF-360E
Packaging capacity	Film width	200 to 360 mm
	Film drive	120 to 200 mm
	Production speed	MAX 20 shots/min. (Differs depending on the item packaged)
Molding depth		MAX 60 mm
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 51 kVA
Compressed air (working pressure 0.6 MPa)*		1,600 Nℓ/min.
Weight *		Approx. 3,800 kg
Total length *		7,600 mm (7,200 mm)

PP requires cooling water of 10 to 20°C. * Differs depending on the specifications.

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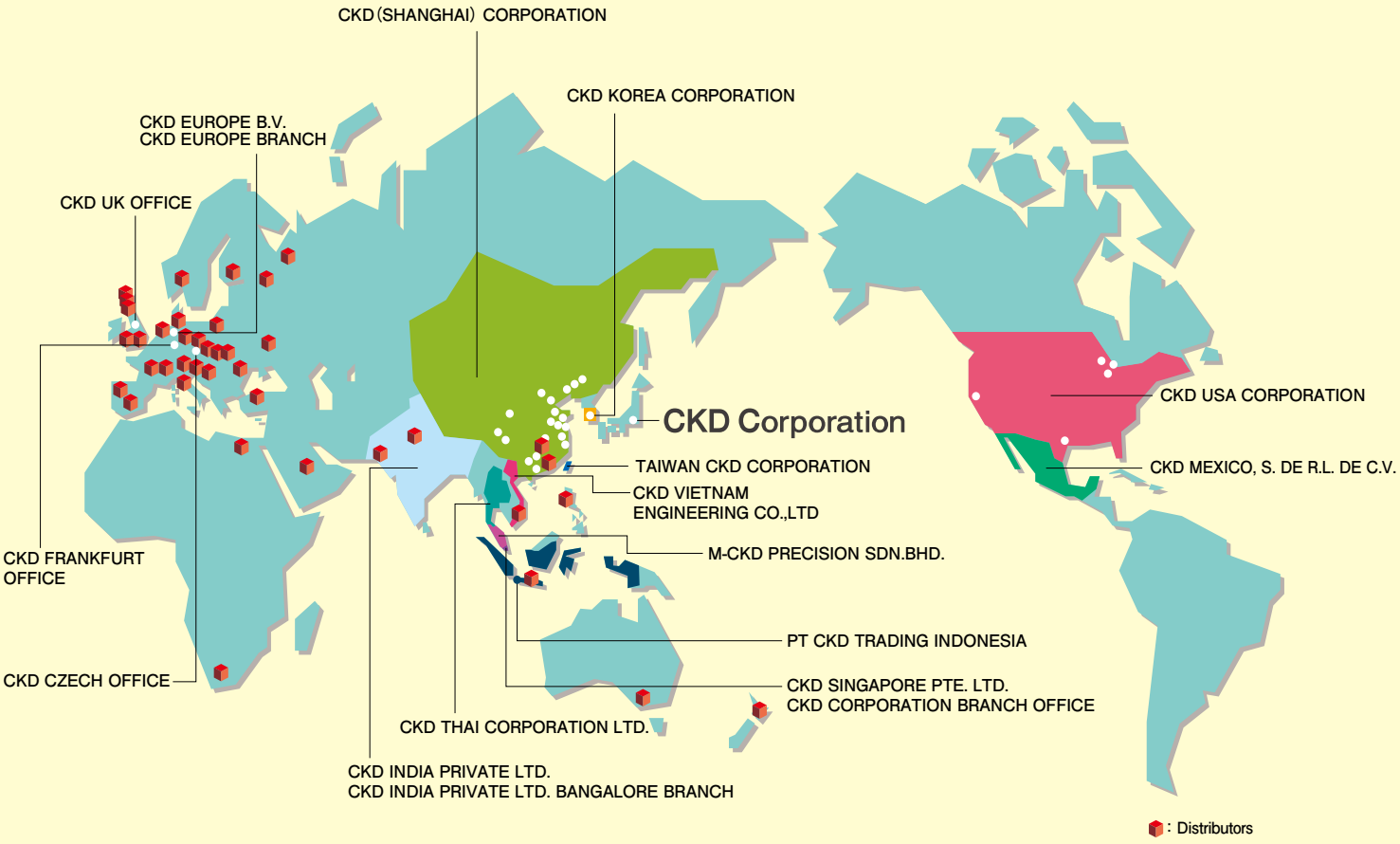
WORLD-NETWORK



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