SMC

HF Food and Beverage

Equipment for the Food Manufacturing Industry

Applicable for a diverse range of food manufacturing processes /
Designed for hygiene management in accordance with HACCP and other standards

Packaging
Transfer
Cleaning
Box making
Stirring/ Mixing
Filling
Drying
Cooling

HF1□ Series



HF2□ Series



HF3□ Series



HF□ Series
Detailed specifications
p. 250

HF□ Series

P-EU22-28-UK

HF1- Series/HF1A (Compatible*1) /HF1B (Compatible*1)

*1 The specifications of the compatible products are the same as those of the products from each series without the "HF□□-" part number prefix.

Directional Control Valves

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 Clean Design Manifold Valve Lead Wire Type JSY5000-H	HF1B Compatible*1	p. 73
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 Air Cylinder HF1A-CM2		p. 87
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 Compact Cylinder with End lock HF1A-CBQ2		p. 95
 Stainless Steel Cylinder CJ5-S/CG5-S/CG5W-S	HF1A Compatible*1	p. 97
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Air Cylinders

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Floating Joints

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 Vacuum Ejector HF1B-ZH	HF1B	p. 129
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 Slider Type HF1A-LEFS	HF1A	p. 135
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 Rod Type HF1A-LEY		p. 155
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Air Preparation Equipment/Pressure Control Equipment/Others

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Membrane Air Dryer IDG		p. 179
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HF1 (Compatible*1) /HF1B (Compatible*1)

*1 The specifications of the compatible products are the same as those of the products from each series without the "HF□□-" part number prefix.

Air Preparation Equipment/Pressure Control Equipment/Others

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 Regulator HF1B-AR20/30/40/50/60(K)-D	HF1B	p. 191
 Filter Regulator HF1B-AW20/30/40/60(K)-D	HF1B	p. 193
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Fittings and Tubing

 Insert Fittings KF	HF1B Compatible*1	p. 199
 Miniature Fittings M, MS	HF1B Compatible*1	p. 199 p. 200
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 Stainless Steel 316 One-touch Fittings KQG2	HF1B Compatible*1	p. 199
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 Nylon Tubing T/TIA	HF1B Compatible*1	p. 201
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Fittings and Tubing

 Polyurethane Tubing TU/TIUB	HF1B Compatible*1	p. 203 p. 206
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 Wear Resistant Tubing TUZ/TIUZB	HF1B Compatible*1	p. 212
 Polyurethane Coil Tubing TCU	HF1B Compatible*1	p. 213
 Polyurethane Flat Tubing TFU	HF1B Compatible*1	p. 214

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 Speed Controller with One-touch Fitting (Throttle valve) HF1B-AS-F (-X214)	HF1B	p. 221
 Stainless Steel Speed Controller ASG	HF1B Compatible*1	p. 224

Nozzles for Blowing/Pressure Gauges

 Nozzles for Blowing KN	HF1B Compatible*1	p. 225
 Pressure Gauge for General Purposes G36/G46	HF1B Compatible*1	p. 229 p. 230
 Pressure Gauge for General Purposes G36-X4/GA36-X4	HF1B Compatible*1	p. 231
 Oil-free/External Parts Copper-free Pressure Gauge G46E	HF1 Compatible*1	p. 232
 Pressure Gauge for Clean Regulator G46-SRA, B	HF1 Compatible*1	p. 233

Switches/Sensors

 3-Screen Display High-Precision Digital Pressure Switch ZSE20□(F)/ISE20□-X2	HF1 Compatible*1	p. 234
 3-Screen Display High-Precision Digital Pressure Switch ZSE20C(F)/ISE20C(H)	HF1 Compatible*1	p. 236
 3-Screen Display High-Precision Digital Pressure Switch ISE70/71-X2	HF1 Compatible*1	p. 237
 Digital Pressure Switch ISE35-X528	HF1 Compatible*1	p. 238

HF1 Compatible*1/HF1B (Compatible*1)

*1 The specifications of the compatible products are the same as those of the products from each series without the "HF□□-" part number prefix.

Switches/Sensors/Controllers

	Pressure Switch/ Reed Switch Type HF1B-IS10	HF1B	p. 239
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	2-Colour Display Digital Flow Switch PFMB7		p. 241
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Process Valves

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	Modular Mounting Type 2-Port Solenoid Valve HF1B-JSXM		p. 246
	Pilot Operated 2-Port Solenoid Valve HF1B-JSXD		p. 247
	Pulse Valve (Valve for Dust Collector) HF1B-JSXFAE/F		p. 248
	High Speed 2-Port Valve SX10	HF1B Compatible*1	p. 249

HF2- Series/HF2A (Compatible*1)/HF2B (Compatible*1)

*1 The specifications of the compatible products are the same as those of the products from each series without the "HF□□-" part number prefix..

Directional Control Valves

	Clean Design Manifold Valve Fieldbus Type, Sub-plate Type JSY5000-H	HF2A Compatible*1	p. 75

Air Cylinders

	Stainless Steel Cylinder / Non-adjustable Air Cushion Type HF2A-CG5	HF2A	p. 96-1

Electric Actuator

	Rod Type Dust-tight/Water-jet-proof (IP69K Equivalent) HF2A-LEY	HF2A	p. 177-1

Air Preparation Equipment

	Modular Connection Type Antibacterial/Odor Removal/ Bacteria Removal Filter HF2-BF□	HF2	p. 183
	Bacteria Removal Filter/ Hollow Fiber Element HF2B-SFDA	HF2B	p. 188

Fittings and Tubing

	EHEDG Compliant Fittings KFG2H□-E	HF2B Compatible*1	p. 200
	Clean Design Fittings KFG2H□-C		p. 200
	US FDA Compliant Fittings KQG2-F/KQB2-F/KFG2-F		p. 200

Fittings and Tubing

	FDA (U.S. Food and Drug Administration) and (EU) No 10/2011 Compliant Polyurethane Tubing TU-X214	HF2B Compatible*1	p. 205
	Polyethylene Tubing TX/TIX		p. 214-1
	Fluoropolymer Tubing TL/TIL		p. 215
	Fluoropolymer Tubing (PFA) TLM/TILM		p. 216
	FEP Tubing (Fluoropolymer) TH/TIH		p. 218
	Soft Fluoropolymer Tubing (Modified PTFE) TD/TID		p. 219
	Polyolefin Tubing TPH		p. 220
	Soft Polyolefin Tubing TPS		p. 220

Flow Control Equipment

	Water Resistant Stainless Steel Speed Controller HF2A-ASG□-V	HF2A	p. 224-1
	Stainless Steel Throttle Valve with One-touch Fittings HF2B-ASG-□TV	HF2B	p. 224-2

HF3- Series/HF3A (Compatible)*1

*1 The specifications of the compatible products are the same as those of the products from each series without the "HF□□-" part number prefix.

Process Valves

	**2-Port Solenoid Valve HF3-JSX**	HF3	p. 245

Suction Cup

	**Suction Cup/Compatible with Metal Detectors HF3A-ZP3F**	HF3A	p. 132

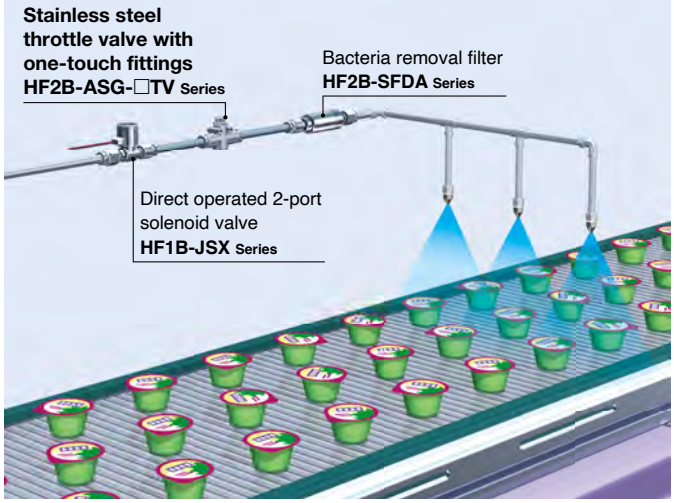
Special Pads

	**Bernoulli Gripper ZNC**	HF3A (Compatible)*1	p. 133
	**Bernoulli Gripper with Coanda Grip ZNC-C**		p. 134

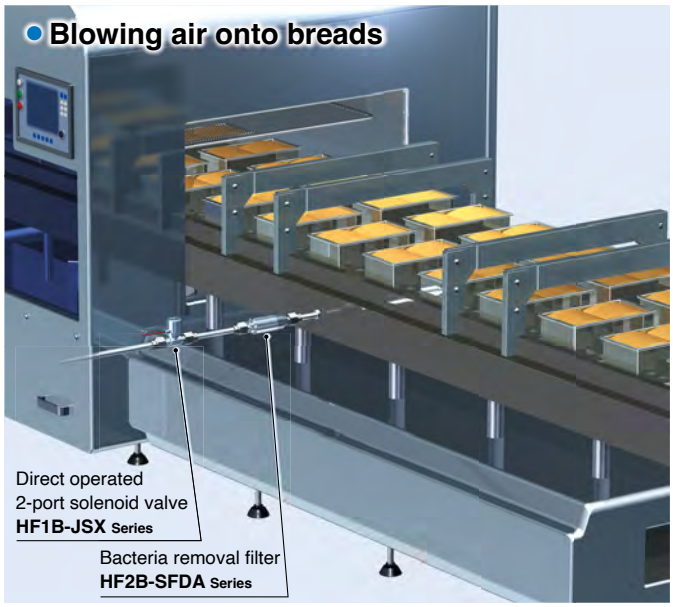
∗ Please use the product in accordance with the specifications provided in the catalogs/operation manuals. It is your responsibility to check the suitability for your workpiece and equipment.

Application Examples

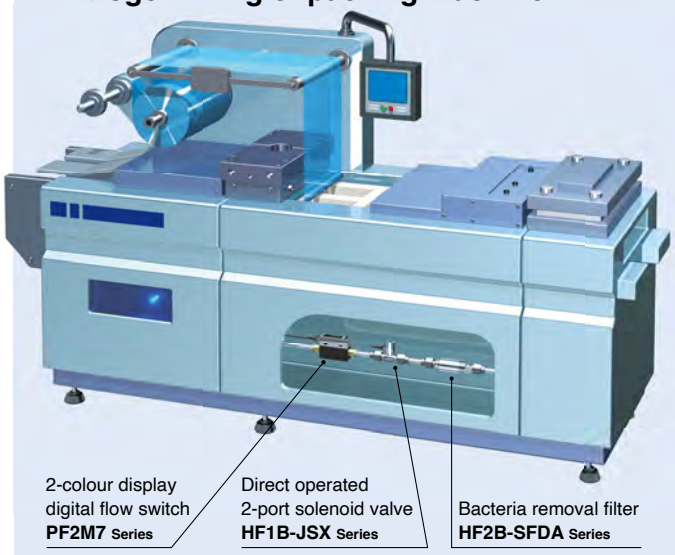
● For air blow flow rate adjustment (Removal of particles on containers)



● Blowing air onto breads



● Nitrogen filling of packing machine



● Stirring



Prefix

HF 1 □ – Series

U.S. FDA materials (rubber/resin)

1	No
2	Yes

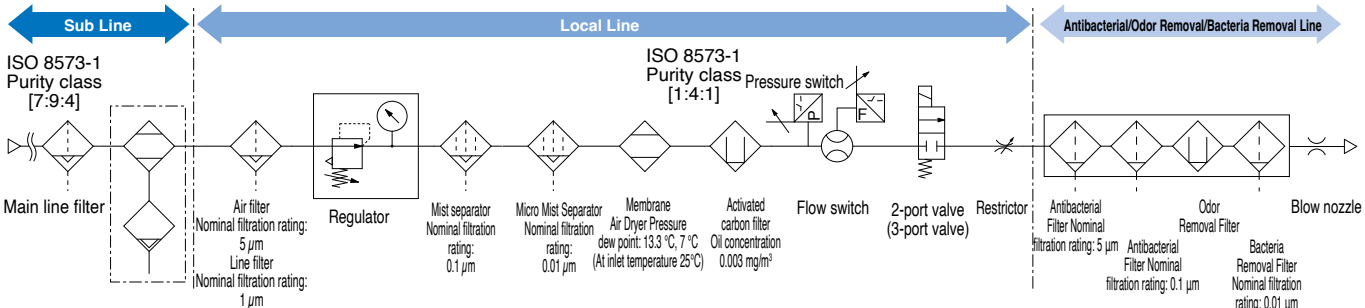
Application location

–	Product internal parts
A	Product external parts
B	Product internal parts + Product external parts

HF□ Series Detailed specifications p. 250

∗ HF3-: Refer to each product catalogue for the products certified by a third-party organization.

Pneumatic equipment circuit of air blower for food application (example)



∗ The class indicates the compressed air purity according to ISO 8573-1:2010 (JIS B 8392-1:2012) and indicates the max. purity class which can be obtained using that system. Note, however, that this value will differ according to the inlet air conditions.
∗ We recommend using HF□ series or HF□ compatible products on the outlet side of the refrigerated air dryer.

Type 10 Side Ported | Type 11 Bottom Ported | Plug-in | D-sub Connector | Flat Ribbon Cable

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 10 F 1 – 05 U □ – C6 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Series

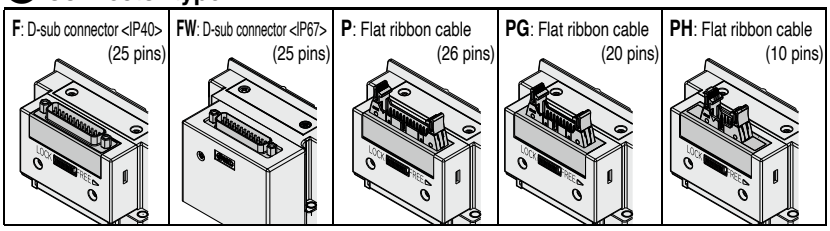
3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type

10	Side ported
11	Bottom ported*1

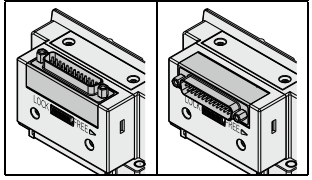
*1 The HF1-SY5000 manifold base is used for the bottom-ported HF1-SY3000. When ordering, refer to the "Plug-in Mixed Mounting Type Manifold" (from page 63 and later).

❸ Connector type



❹ Connector entry direction

1: Upward	2: Lateral



* The connector entry direction for connector type "FW" D-sub connector <IP67> cannot be rotated. If it is necessary to change, order the connector block assembly separately.

❺ Valve stations

F/FW: D-sub connector (25 pins)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
12	12 stations	
02	2 stations	Specified layout*2 (Up to 24 solenoids available)
⋮	⋮	
24	24 stations	

P: Flat ribbon cable (26 pins)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
12	12 stations	
02	2 stations	Specified layout*2 (Up to 24 solenoids available)
⋮	⋮	
24	24 stations	

PG: Flat ribbon cable (20 pins)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
09	9 stations	
02	2 stations	Specified layout*2 (Up to 18 solenoids available)
⋮	⋮	
18	18 stations	

PH: Flat ribbon cable (10 pins)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
04	4 stations	
02	2 stations	Specified layout*2 (Up to 8 solenoids available)
⋮	⋮	
08	8 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)
* This also includes the number of the blanking plate assembly.

❻ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

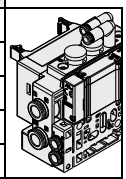
❼ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* 3/5(E) port is plugged for the built-in silencer type.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❽ A, B port size (Metric/One-touch fitting)

Symbol	A, B port		Type 10/Side ported			Type 11/Bottom ported	
			HF1-SY3000	HF1-SY5000	HF1-SY7000	HF1-SY5000	HF1-SY7000
C4	Straight	Ø 4	●	●	–	●	–
C6		Ø 6	●	●	●	●	●
C8		Ø 8	–	●	●	●	●
C10		Ø 10	–	–	●	–	●
C12		Ø 12	–	–	●	–	●
CM*1		Straight port, mixed sizes	●	●	●	●	●
P, E port size (One-touch fittings)			Ø 8	Ø 10	Ø 12	Ø 10	Ø 12



*1 Indicate the sizes on the manifold specification sheet in the case of "CM." The direction of P, E port fittings is the same as for the A, B port.
* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

❾ Mounting and Option

Symbol	Mounting	Option	
		Name plate	Station number
—	Direct mounting	–	–
AA		●	●
BA		●	–
D□	DIN rail mounting	–	–
A□		●	●
B□		●	–

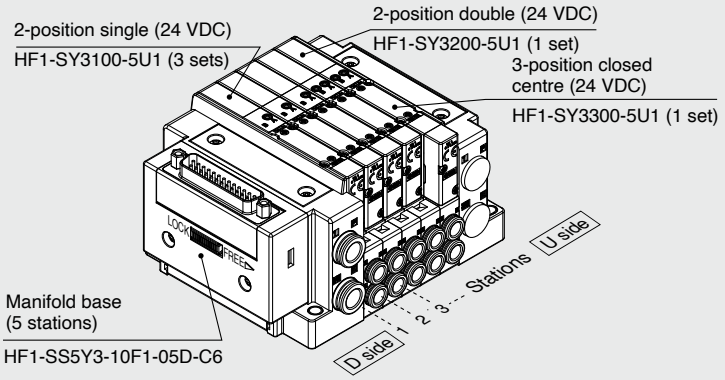
DIN Rail Option

—	Direct mounting	
0	Without DIN rail (with bracket)	
3	For 3 stations	Specify a longer rail than the total length of specified stations.
⋮	⋮	
24	For 24 stations	

* Enter the number of stations inside □ when it is larger than the number of valve stations. (Refer to "DIN Rail Option" above.)
* Only direct mounting is available for the type 11 bottom-ported type.
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

How to Order Manifold Assembly

Example (HF1-SS5Y3-10F1-□)



HF1-SS5Y3-10F1-05D-C6·····1 set (Type 10 5-station manifold base part no.)
∗**HF1-SY3100-5U1 ·····3 sets (2-position single part no.)**
∗**HF1-SY3200-5U1 ·····1 set (2-position double part no.)**
∗**HF1-SY3300-5U1 ·····1 set (3-position closed centre part no.)**
→ **The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.**

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

∗ When mixing top-ported configurations, select from those listed on page 8. In such cases, use caution as there is also output on the A and B ports on the base side. Specify on the manifold specification sheet if plugs are required for the A and B ports on the base side.

How to Order Valves (With mounting screw)

HF1-SY **3** **1** **0** **0** □ □ □ □ **–** **5** □ □ **1** **–** □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ **Base mounted**

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC
6	12 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override

—: Non-locking push type	**D**: Push-turn locking slotted type
E: Push-turn locking lever type	**F**: Slide locking type

∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class II (Mark: ⧈)

Type 12 Top Ported

Plug-in Connector Connecting Base

D-sub Connector | Flat Ribbon Cable

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 12 F 1 – 05 U □ – □ □

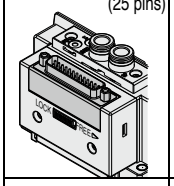
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Series

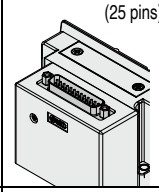
3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Connector type

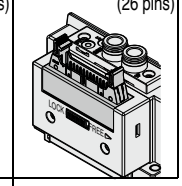
F: D-sub connector <IP40> (25 pins)



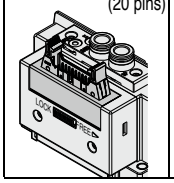
FW: D-sub connector <IP67> (25 pins)



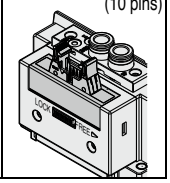
P: Flat ribbon cable (26 pins)



PG: Flat ribbon cable (20 pins)



PH: Flat ribbon cable (10 pins)

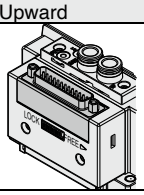
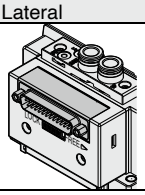


❺ P, E port entry

U*1	U side (2 to 10 stations)
D*1	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

*1 ❻ For type "S", SUP/EXH block assembly with a built-in silencer, choose U or D for P, E port entry.

❸ Connector entry direction

1: Upward	2: Lateral
	

* The connector entry direction for connector type "FW" D-sub connector <IP67> cannot be rotated. If it is necessary to change, order the connector block assembly (page 592) separately.

❹ Valve stations

F/FW: D-sub connector (25 pins)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
12	12 stations	
02	2 stations	Specified layout*2 (Up to 24 solenoids available)
⋮	⋮	
24	24 stations	

P: Flat ribbon cable (26 pins)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
12	12 stations	
02	2 stations	Specified layout*2 (Up to 24 solenoids available)
⋮	⋮	
24	24 stations	

PG: Flat ribbon cable (20 pins)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
09	9 stations	
02	2 stations	Specified layout*2 (Up to 18 solenoids available)
⋮	⋮	
18	18 stations	

PH: Flat ribbon cable (10 pins)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
04	4 stations	
02	2 stations	Specified layout*2 (Up to 8 solenoids available)
⋮	⋮	
08	8 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)
* This also includes the number of the blanking plate assembly.

❻ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot,Built-in silencer
R	External pilot

* The P and E ports are only available on the U and D sides for the built-in silencer type. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of the P and E port entry. (Example: When the P and E port entry is on the D side, the silencer exhaust port is on the U side.)
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

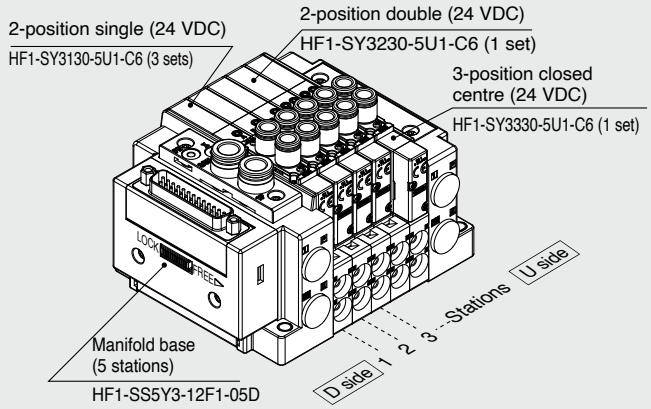
❽ Mounting

—	Direct mounting	
D	DIN rail mounting (With DIN rail)	
D0	DIN rail mounting (Without DIN rail)	
D3	For 3 stations	Specify a length longer than that of the standard rail.
⋮	⋮	
D24	For 24 stations	

* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

How to Order Manifold Assembly

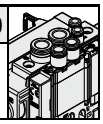
Example (HF1-SS5Y3-12F1-□)



HF1-SS5Y3-12F1-05D ····· 1 set (Type 12 5-station manifold base part no.)
***HF1-SY3130-5U1-C6 ····· 3 sets (2-position single part no.)**
***HF1-SY3230-5U1-C6 ····· 1 set (2-position double part no.)**
***HF1-SY3330-5U1-C6 ····· 1 set (3-position closed centre part no.)**
The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

❼ P, E port size (One-touch fittings)

Symbol	HF1-SY3000	HF1-SY5000	HF1-SY7000	
—	Ø 8	Ø 10	Ø 12	

How to Order Valves (With mounting screw)

HF1-SY 3 1 3 0 ☐ ☐ ☐ ☐ – 5 ☐ ☐ 1 – C6 ☐ – ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

Top ported

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

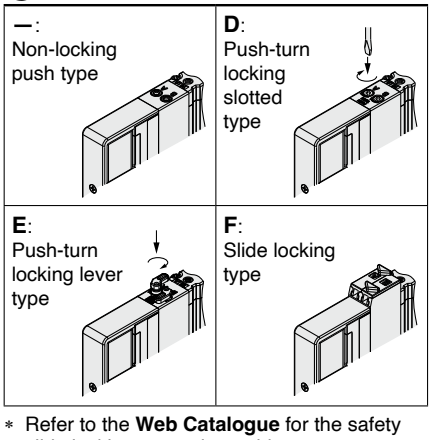
5	24 VDC
6	12 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion.
Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override



∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	A, B port	HF1-SY3000	HF1-SY5000	HF1-SY7000
C4	Ø 4	●	●	—
C6	Ø 6	●	●	●
C8	Ø 8	—	●	●
C10	Ø 10	—	—	●
C12	Ø 12	—	—	●

⓬ Thread type

—	Rc
F	G
N	NPT
T	NPTF

∗ Only — is available for M5.

⓭ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class III (Mark: ⧈)

Type 10 Side Ported | Type 11 Bottom Ported | Plug-in

Connector Connecting Base

Terminal Block Box (Spring Type)

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 10 TC – 05 D □ – C6 □

❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type

10	Side ported
11	Bottom ported *1

*1 The HF1-SY5000 manifold base is used for the bottom-ported HF1-SY3000. When ordering, refer to the "Plug-in Mixed Mounting Type Manifold" (from page 63 and later).

❸ Valve stations

TC: Spring type terminal block box

Symbol	Stations	Note
02	2 stations	Double wiring *1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout *2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

*2 Specified layout: Indicate the wiring specifications with the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)

* This also includes the number of the blanking plate assembly.

❹ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

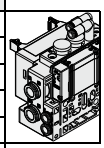
❺ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* 3/5(E) port is plugged for the built-in silencer type.
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❻ A, B port size (Metric/One-touch fitting)

Symbol		A, B port	Type 10/Side ported			Type 11/Bottom ported	
			HF1-SY3000	HF1-SY5000	HF1-SY7000	HF1-SY5000	HF1-SY7000
C4	Straight	Ø 4	●	●	–	●	–
C6		Ø 6	●	●	●	●	●
C8		Ø 8	–	●	●	●	●
C10		Ø 10	–	–	●	–	●
C12		Ø 12	–	–	●	–	●
CM*1		Straight port, mixed sizes	●	●	●	●	●
P, E port size (One-touch fittings)			Ø 8	Ø 10	Ø 12	Ø 10	Ø 12



*1 Indicate the sizes on the manifold specification sheet in the case of "CM." The direction of P, E port fittings is the same as for the A, B port.

* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

❼ Mounting and Option

Symbol	Mounting	Option
—	Direct mounting	None
AA		Name plate (with station number)
BA		Name plate (without station number)
D□	DIN rail mounting	Without name plate
A□		Name plate (with station number)
B□		Name plate (without station number)

* Enter the number of stations inside □. (Refer to "DIN Rail Option" above.)
* Only direct mounting is available for the type 11 bottom-ported type.

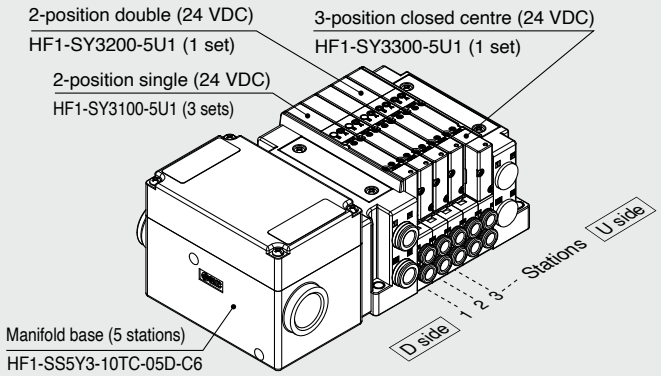
DIN Rail Option

—	DIN rail mounting (with DIN rail)
0	DIN rail mounting (without DIN rail)
3	For 3 stations
⋮	⋮
24	For 24 stations

Specify a length longer than that of the standard rail.

How to Order Manifold Assembly

Example (HF1-SS5Y3-10TC-□)



HF1-SS5Y3-10TC-05D-C6····1 set (Type 10 5-station manifold base part no.)
*** HF1-SY3100-5U1 ·····3 sets (2-position single part no.)**
*** HF1-SY3200-5U1 ·····1 set (2-position double part no.)**
*** HF1-SY3300-5U1 ·····1 set (3-position closed centre part no.)**
The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

How to Order Valves (With mounting screw)

HF1-SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC
6	12 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	–	–	Non-polar
R	–	●	
U	●		
S	–		Positive common
Z	●		
NS	–		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion.
Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override

—: Non-locking push type	D: Push-turn locking slotted type
E: Push-turn locking lever type	F: Slide locking type

∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance.
Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class III (Mark: ⧈)

Type 12 Top Ported

Plug-in Connector Connecting Base

Terminal Block Box (Spring Type)

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 12 TC – 05 D □ – □ □

❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type

12	Top ported

❸ Valve stations

TC: Spring type terminal block box

Symbol	Stations	Note
02	2 stations	Double wiring *1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout *2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

*2 Specified layout: Indicate the wiring specifications with the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)

* This also includes the number of the blanking plate assembly.

❹ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

❺ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* The P and E ports are only available on the U and D sides for the built-in silencer type. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of the P and E port entry. (Example: When the P and E port entry is on the D side, the silencer exhaust port is on the U side.)
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❻ P, E port size (One-touch fittings)

Symbol	HF1-SY3000	HF1-SY5000	HF1-SY7000
—	Ø 8	Ø 10	Ø 12

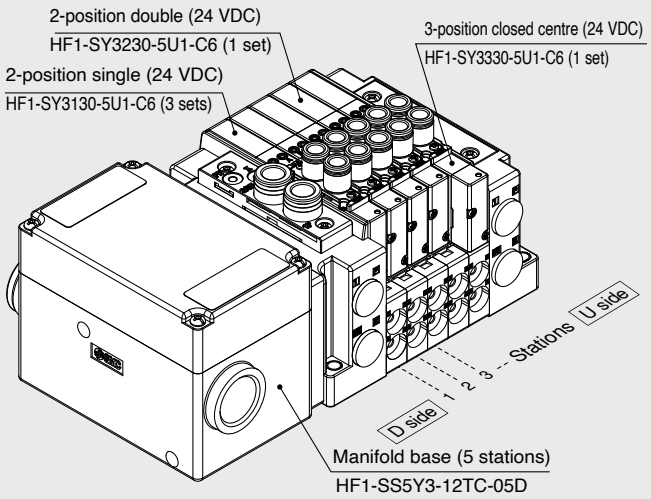
❼ Mounting

—	Direct mounting	
D	DIN rail mounting (with DIN rail)	
D0	DIN rail mounting (without DIN rail)	
D3	For 3 stations	Specify a length longer than that of the standard rail.
⋮	⋮	
D24	For 24 stations	

* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

How to Order Manifold Assembly

Example (HF1-SS5Y3-12TC-□)



HF1-SS5Y3-12TC-05D ····· 1 set (Type 12 5-station manifold base part no.)
*** HF1-SY3130-5U1-C6 ····· 3 sets (2-position single part no.)**
*** HF1-SY3230-5U1-C6 ····· 1 set (2-position double part no.)**
*** HF1-SY3330-5U1-C6 ····· 1 set (3-position closed centre part no.)**
→ The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

How to Order Valves (With mounting screw)

HF1-SY 3 1 3 0 ❹ ❺ ❻ ❼ – 5 ❽ ❾ ❿ 1 – C6 ⓫ ⓬ – ⓭

❶ ❷ ❸ Top ported

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

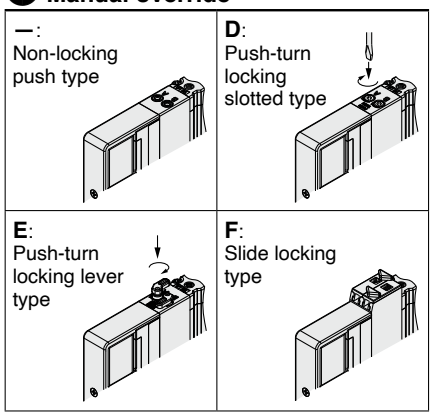
5	24 VDC
6	12 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	–	–	Non-polar
R	–	●	
U	●		
S	–		Positive common
Z	●		
NS	–		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion.
Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override



∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	A, B port	HF1-SY3000	HF1-SY5000	HF1-SY7000
C4	Ø 4	●	●	–
C6	Ø 6	●	●	●
C8	Ø 8	–	●	●
C10	Ø 10	–	–	●
C12	Ø 12	–	–	●

⓬ Thread type

—	Rc
F	G
N	NPT
T	NPTF

∗ Only — is available for M5.

⓭ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance.
Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class III (Mark: ⧫)

Type 10 Side Ported | Type 11 Bottom Ported | Plug-in | Terminal Block Box

Connector Connecting Base

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 10 T – 05 U □ – C6 □

❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type

10	Side ported
11	Bottom ported*1

*1 The HF1-SY5000 manifold base is used for the bottom-ported HF1-SY3000. When ordering, refer to the "Plug-in Mixed Mounting Type Manifold" (from page 63 and later).

❸ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
10	10 stations	
02	2 stations	Specified layout*2 (Up to 20 solenoids available)
⋮	⋮	
20	20 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

*2 Specified layout: Indicate the wiring specifications with the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)

* This also includes the number of the blanking plate assembly.

❹ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 20 stations)

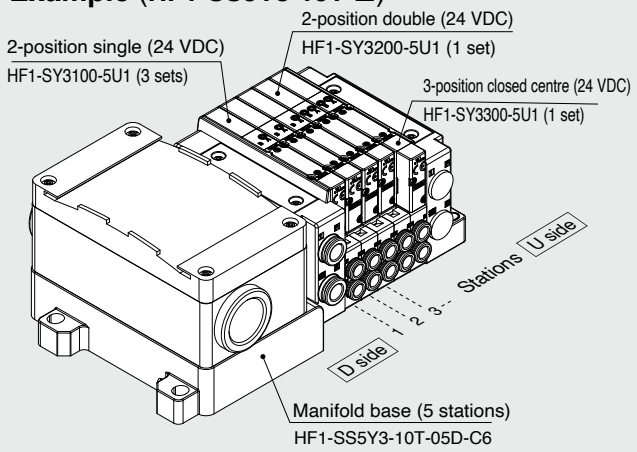
❺ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* 3/5(E) port is plugged for the built-in silencer type.
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

How to Order Manifold Assembly

Example (HF1-SS5Y3-10T-□)



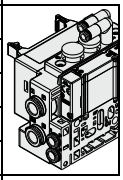
HF1-SS5Y3-10T-05D-C6 ···· 1 set (Type 10 5-station manifold base part no.)
***HF1-SY3100-5U1 ····· 3 sets (2-position single part no.)**
***HF1-SY3200-5U1 ····· 1 set (2-position double part no.)**
***HF1-SY3300-5U1 ····· 1 set (3-position closed centre part no.)**
→ The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

* When mixing top-ported configurations, select from those listed on page 16. In such cases, use caution as there is also output on the A and B ports on the base side. Specify on the manifold specification sheet if plugs are required for the A and B ports on the base side.

❻ A, B port size (Metric/One-touch fitting)

Symbol		A, B port	Type 10/Side ported HF1-SY3000	HF1-SY5000	HF1-SY7000	Type 11/Bottom ported HF1-SY5000	HF1-SY7000
C4	Straight	Ø 4	●	●	—	●	—
C6		Ø 6	●	●	●	●	●
C8		Ø 8	—	●	●	●	●
C10		Ø 10	—	—	●	—	●
C12		Ø 12	—	—	●	—	●
CM*1		Straight port, mixed sizes	●	●	●	●	●
P, E port size (One-touch fittings)			Ø 8	Ø 10	Ø 12	Ø 10	Ø 12



*1 Indicate the sizes on the manifold specification sheet in the case of "CM." The direction of P, E port fittings is the same as for the A, B port.

* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

❼ Mounting and Option

Symbol	Mounting	Option: Name plate	Option: Station number
—	Direct mounting	—	—
AA		●	●
BA		●	—
D□	DIN rail mounting	—	—
A□		●	●
B□		●	—

* Enter the number of stations inside □ when it is larger than the number of valve stations. (Refer to "DIN Rail Option" below.)
* Only direct mounting is available for the type 11 bottom-ported type.
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

DIN Rail Option

—	Standard length	
0	Without DIN rail (with bracket)	
3	For 3 stations	Specify a longer rail than the total length of specified stations.
⋮	⋮	
20	For 20 stations	

SMC

How to Order Valves (With mounting screw)

HF1-SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC
6	12 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion.
Refer to the **Web Catalogue** for details.
∗ Only “Z” and “NZ” types are available with a power saving circuit.

❿ Manual override

—: Non-locking push type	D: Push-turn locking slotted type
E: Push-turn locking lever type	F: Slide locking type

∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Falling-out-prevention type)
H	Hexagon socket head cap screw (Falling-out-prevention type)

∗ For “K” and “H,” the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class III (Mark: ⏚)

Type 12 Top Ported **Plug-in** Connector Connecting Base

Terminal Block Box

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 12T – 05 U □ – □ □

❶ ❷ ❸ ❹ ❺ ❻

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
10	10 stations	
02	2 stations	Specified layout*2 (Up to 20 solenoids available)
⋮	⋮	
20	20 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)

* This also includes the number of the blanking plate assembly.

❸ P, E port entry

U*1	U side (2 to 10 stations)
D*1	D side (2 to 10 stations)
B	Both sides (2 to 20 stations)

*1 ❹ For type "S", SUP/EXH block assembly with a built-in silencer, choose U or D for P, E port entry.

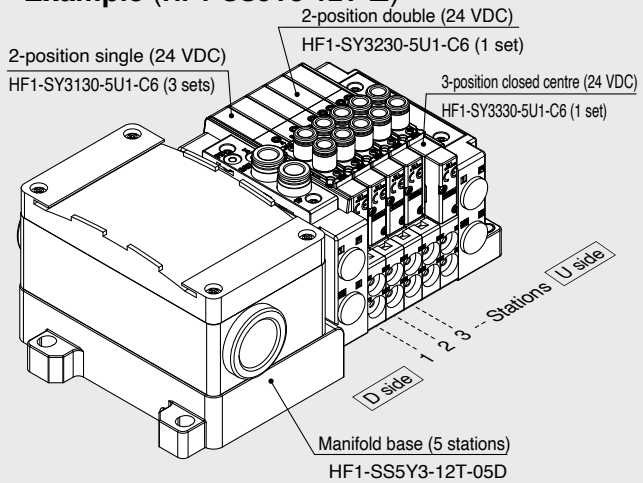
❹ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* The P and E ports are only available on the U and D sides for the built-in silencer type. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of the P and E port entry. (Example: When the P and E port entry is on the D side, the silencer exhaust port is on the U side.)
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

How to Order Manifold Assembly

Example (HF1-SS5Y3-12T-□)



HF1-SS5Y3-12T-05D ····· 1 set (Type 12 5-station manifold base part no.)
***HF1-SY3130-5U1-C6 ····· 3 sets (2-position single part no.)**
***HF1-SY3230-5U1-C6 ····· 1 set (2-position double part no.)**
***HF1-SY3330-5U1-C6 ····· 1 set (3-position closed centre part no.)**
→ The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

❺ P, E port size (One-touch fittings)

Symbol	HF1-SY3000	HF1-SY5000	HF1-SY7000
—	Ø 8	Ø 10	Ø 12

❻ Mounting

—	Direct mounting	
D	DIN rail mounting (With DIN rail)	
D0	DIN rail mounting (Without DIN rail)	
D3	For 3 stations	Specify a length longer than that of the standard rail.
⋮	⋮	
D20	For 20 stations	

* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

How to Order Valves (With mounting screw)

HF1-SY 3 1 3 0 ☐ ☐ ☐ ☐ – 5 ☐ ☐ 1 – C6 ☐ – ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❸ Top ported

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

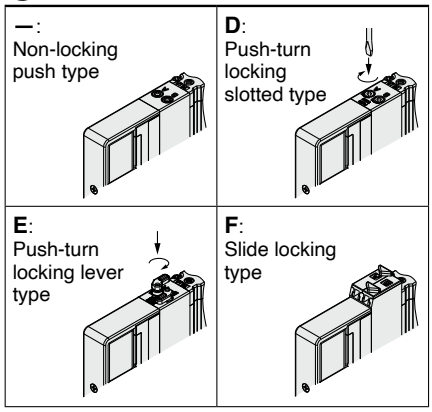
5	24 VDC
6	12 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion.
Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override



∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	A, B port	HF1-SY3000	HF1-SY5000	HF1-SY7000
C4	Ø 4	●	●	–
C6	Ø 6	●	●	●
C8	Ø 8	–	●	●
C10	Ø 10	–	–	●
C12	Ø 12	–	–	●

⓬ Thread type

—	Rc
F	G
N	NPT
T	NPTF

∗ Only — is available for M5.

⓭ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance.
Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class III (Mark: ⧫)

Type 10 Side Ported | Type 11 Bottom Ported | Plug-in Connector Connecting Base | Lead Wire

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 10 L1 1 – 05 U □ – C6 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type

10	Side ported
11	Bottom ported*1

*1 The HF1-SY5000 manifold base is used for the bottom-ported HF1-SY3000. When ordering, refer to the "Plug-in Mixed Mounting Type Manifold" (from page 63 and later).

❸ Number of cores (Lead wire)

L1	34 cores
L2	17 cores
L3	9 cores

❹ Lead wire length

1	0.6 m
2	1.5 m
3	3 m

❺ Valve stations

(L1□)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout*2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

(L3□)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
04	4 stations	
02	2 stations	Specified layout*2 (Up to 8 solenoids available)
⋮	⋮	
08	8 stations	

(L2□)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout*2 (Up to 16 solenoids available)
⋮	⋮	
16	16 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)
* This also includes the number of the blanking plate assembly.

❻ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

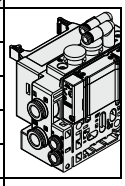
❼ SUP/EXH block assembly

–	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* 3/5(E) port is plugged for the built-in silencer type.
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❽ A, B port size (Metric/One-touch fitting)

Symbol	A, B port		Type 10/Side ported HF1-SY3000	Type 10/Side ported HF1-SY5000	Type 10/Side ported HF1-SY7000	Type 11/Bottom ported HF1-SY5000	Type 11/Bottom ported HF1-SY7000
C4	Straight	Ø 4	●	●	–	●	–
C6		Ø 6	●	●	●	●	●
C8		Ø 8	–	●	●	●	●
C10		Ø 10	–	–	●	–	●
C12		Ø 12	–	–	●	–	●
CM*1		Straight port, mixed sizes	●	●	●	●	●
P, E port size (One-touch fittings)			Ø 8	Ø 10	Ø 12	Ø 10	Ø 12



*1 Indicate the sizes on the manifold specification sheet in the case of "CM." The direction of P, E port fittings is the same as for the A, B port.
* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

❾ Mounting and Option

Symbol	Mounting	Option: Name plate	Option: Station number
–	Direct mounting	–	–
AA		●	●
BA		●	–
D□	DIN rail mounting	–	–
A□		●	●
B□		●	–

DIN Rail Option

–	Standard length	
0	Without DIN rail (with bracket)	
3	For 3 stations	Specify a longer rail than the total length of specified stations.
⋮	⋮	
24	For 24 stations	

* Enter the number of stations inside □ when it is larger than the number of valve stations. (Refer to "DIN Rail Option" above.)
* Only direct mounting is available for the type 11 bottom-ported type.
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

How to Order Valves (With mounting screw)

HF1-SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

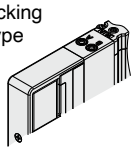
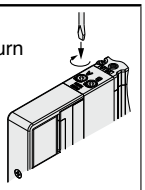
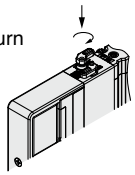
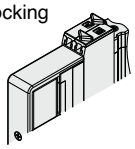
5	24 VDC
6	12 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion.
Refer to the **Web Catalogue** for details.
∗ Only “Z” and “NZ” types are available with a power saving circuit.

❿ Manual override

—: Non-locking push type 	D: Push-turn locking slotted type 
E: Push-turn locking lever type 	F: Slide locking type 

∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

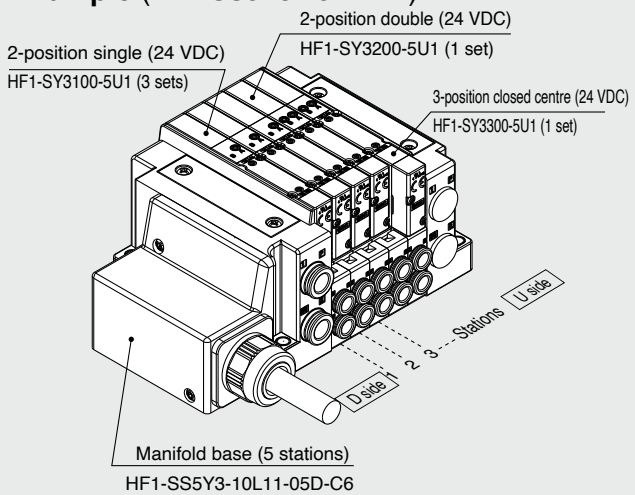
⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For “K” and “H,” the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

How to Order Manifold Assembly

Example (HF1-SS5Y3-10L11-□)



HF1-SS5Y3-10L11-05D-C6 ···· 1 set (Type 10 5-station manifold base part no.)
∗HF1-SY3100-5U1 ·····3 sets (2-position single part no.)
∗HF1-SY3200-5U1 ·····1 set (2-position double part no.)
∗HF1-SY3300-5U1 ·····1 set (3-position closed centre part no.)
The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

∗ When mixing top-ported configurations, select from those listed on page 20.
In such cases, use caution as there is also output on the A and B ports on the base side. Specify on the manifold specification sheet if plugs are required for the A and B ports on the base side.

⚠ Protective class class III (Mark: ⧈)

Type 12 Top Ported **Plug-in** Connector Connecting Base

Lead Wire

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 12 L1 1 – 05 U □ – □ □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Number of cores (Lead wire)

L1	34 cores
L2	17 cores
L3	9 cores

❸ Lead wire length

1	0.6 m
2	1.5 m
3	3 m

❺ P, E port entry

U*1	U side (2 to 10 stations)
D*1	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

*1 ❻ For type "S", SUP/EXH block assembly with a built-in silencer, choose U or D for P, E port entry.

❹ Valve stations

(L1□)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout*2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

(L3□)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
04	4 stations	
02	2 stations	Specified layout*2 (Up to 8 solenoids available)
⋮	⋮	
08	8 stations	

(L2□)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout*2 (Up to 16 solenoids available)
⋮	⋮	
16	16 stations	

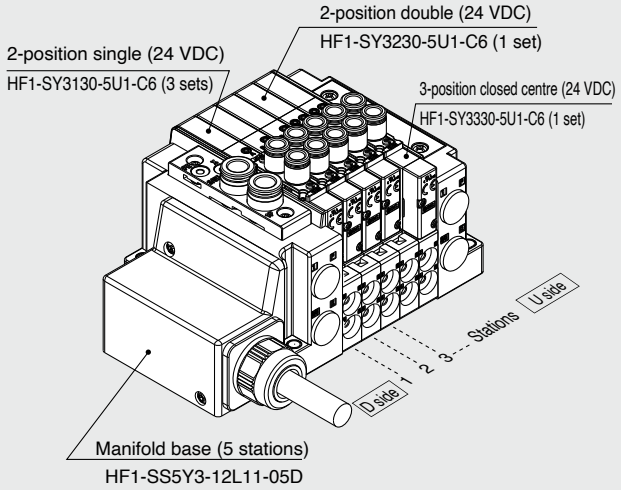
*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)

* This also includes the number of the blanking plate assembly.

How to Order Manifold Assembly

Example (HF1-SS5Y3-12L11-□)



HF1-SS5Y3-12L11-05D ··· 1 set (Type 12 5-station manifold base part no.)
***HF1-SY3130-5U1-C6 ····· 3 sets (2-position single part no.)**
***HF1-SY3230-5U1-C6 ····· 1 set (2-position double part no.)**
***HF1-SY3330-5U1-C6 ····· 1 set (3-position closed centre part no.)**
The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

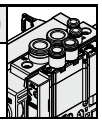
- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

❻ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* The P and E ports are only available on the U and D sides for the built-in silencer type. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of the P and E port entry. (Example: When the P and E port entry is on the D side, the silencer exhaust port is on the U side.)
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❼ P, E port size (One-touch fittings)

Symbol	HF1-SY3000	HF1-SY5000	HF1-SY7000	
—	Ø 8	Ø 10	Ø 12	

❽ Mounting

—	Direct mounting	
D	DIN rail mounting (With DIN rail)	
D0	DIN rail mounting (Without DIN rail)	
D3	For 3 stations	Specify a length longer than that of the standard rail.
⋮	⋮	
D24	For 24 stations	

* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

How to Order Valves (With mounting screw)

HF1-SY ❶ ❷ ❸ ❹ ❺ ❻ ❼ – ❽ ❾ ❿ 1 – ⓫ ⓬ – ⓭

❸ Top ported

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC
6	12 VDC

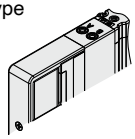
❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	–	–	Non-polar
R	–	●	
U	●		
S	–		Positive common
Z	●		
NS	–		Negative common
NZ	●		

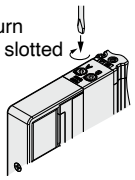
∗ For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override

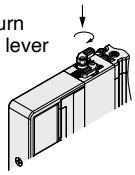
—: Non-locking push type



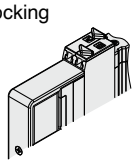
D: Push-turn locking slotted type



E: Push-turn locking lever type



F: Slide locking type



∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	A, B port	HF1-SY3000	HF1-SY5000	HF1-SY7000
C4	Ø 4	●	●	–
C6	Ø 6	●	●	●
C8	Ø 8	–	●	●
C10	Ø 10	–	–	●
C12	Ø 12	–	–	●

⓬ Thread type

—	Rc
F	G
N	NPT
T	NPTF

∗ Only — is available for M5.

⓭ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class III (Mark: ⧈)

Type 10 Side Ported | Type 11 Bottom Ported

Plug-in Connector Connecting Base

Circular Connector

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 5 – 10 M – 05 U ☐ – C6 ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type

10	Side ported
11	Bottom ported*1

*1 The HF1-SY5000 manifold base is used for the bottom-ported HF1-SY3000. When ordering, refer to the "Plug-in Mixed Mounting Type Manifold" (from page 63 and later).

❸ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
12	12 stations	
02	2 stations	Specified layout*2 (Up to 24 solenoids available)
⋮	⋮	
24	24 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)

* This also includes the number of the blanking plate assembly.

❹ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

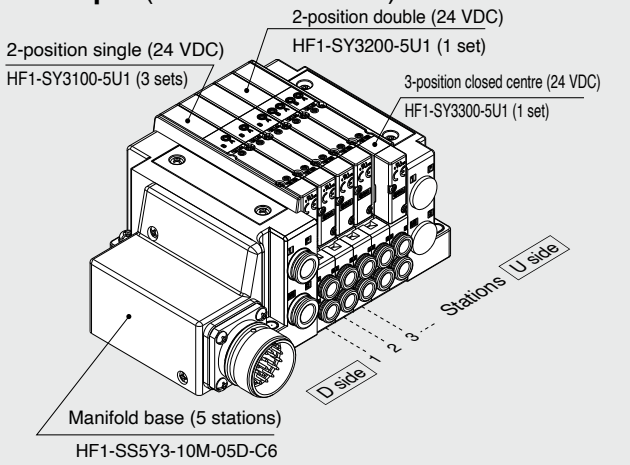
❺ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* 3/5(E) port is plugged for the built-in silencer type.
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

How to Order Manifold Assembly

Example (HF1-SS5Y3-10M-☐)



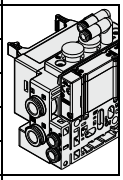
HF1-SS5Y3-10M-05D-C6 ··· 1 set (Type 10 5-station manifold base part no.)
***HF1-SY3100-5U1** ····· 3 sets (2-position single part no.)**
***HF1-SY3200-5U1** ····· 1 set (2-position double part no.)**
***HF1-SY3300-5U1** ····· 1 set (3-position closed centre part no.)**
→ The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

* When mixing top-ported configurations, select from those listed on page 24. In such cases, use caution as there is also output on the A and B ports on the base side. Specify on the manifold specification sheet if plugs are required for the A and B ports on the base side.

❻ A, B port size (Metric/One-touch fitting)

Symbol	A, B port		Type 10/Side ported			Type 11/Bottom ported	
			HF1-SY3000	HF1-SY5000	HF1-SY7000	HF1-SY5000	HF1-SY7000
C4	Straight	Ø 4	●	●	—	●	—
C6		Ø 6	●	●	●	●	●
C8		Ø 8	—	●	●	●	●
C10		Ø 10	—	—	●	—	●
C12		Ø 12	—	—	●	—	●
CM*1		Straight port, mixed sizes	●	●	●	●	●
P, E port size (One-touch fittings)			Ø 8	Ø 10	Ø 12	Ø 10	Ø 12



*1 Indicate the sizes on the manifold specification sheet in the case of "CM." The direction of P, E port fittings is the same as for the A, B port.

* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

❼ Mounting and Option

Symbol	Mounting	Option	
		Name plate	Station number
—	Direct mounting	—	—
AA		●	●
BA		●	—
D☐	DIN rail mounting	—	—
A☐		●	●
B☐		●	—

* Enter the number of stations inside ☐ when it is larger than the number of valve stations. (Refer to "DIN Rail Option" below.)
* Only direct mounting is available for the type 11 bottom-ported type.
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

DIN Rail Option

—	Standard length	
0	Without DIN rail (with bracket)	
3	For 3 stations	Specify a longer rail than the total length of specified stations.
⋮	⋮	
24	For 24 stations	

SMC

How to Order Valves (With mounting screw)

HF1-SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

* When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

* The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

* Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
* Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

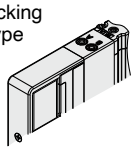
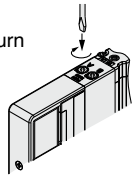
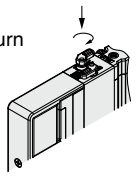
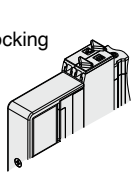
5	24 VDC
6	12 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

* For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
* Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override

—: Non-locking push type 	D: Push-turn locking slotted type 
E: Push-turn locking lever type 	F: Slide locking type 

* Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

* For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
* **When ordering a valve individually, the base gasket is not included.**
  Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class Ⅲ (Mark: ⧫)

Type 12 Top Ported **Plug-in** Connector Connecting Base

Circular Connector

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y ❶3 – 12M – ❷05 ❸U ❹ – ❺ ❻

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
12	12 stations	
02	2 stations	Specified layout*2 (Up to 24 solenoids available)
⋮	⋮	
24	24 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)

* This also includes the number of the blanking plate assembly.

❸ P, E port entry

U*1	U side (2 to 10 stations)
D*1	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

*1 ❹ For type "S", SUP/EXH block assembly with a built-in silencer, choose U or D for P, E port entry.

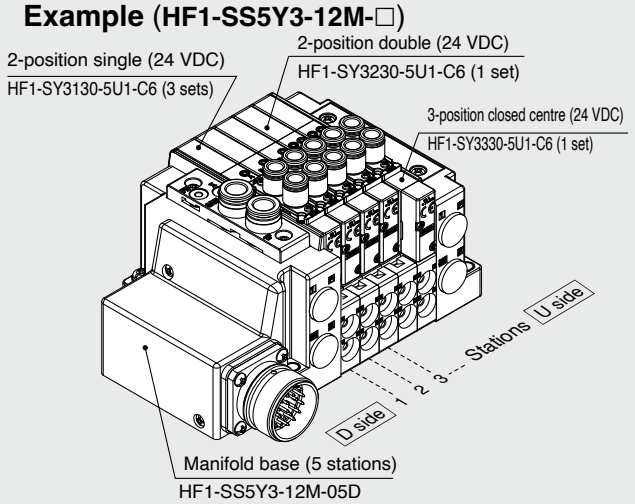
❹ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* The P and E ports are only available on the U and D sides for the built-in silencer type. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of the P and E port entry. (Example: When the P and E port entry is on the D side, the silencer exhaust port is on the U side.)
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

How to Order Manifold Assembly

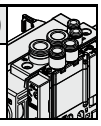
Example (HF1-SS5Y3-12M-□)



HF1-SS5Y3-12M-05D····· 1 set (Type 12 5-station manifold base part no.)
***HF1-SY3130-5U1-C6 ····· 3 sets (2-position single part no.)**
***HF1-SY3230-5U1-C6 ····· 1 set (2-position double part no.)**
***HF1-SY3330-5U1-C6 ····· 1 set (3-position closed centre part no.)**
→ The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

❺ P, E port size (One-touch fittings)

Symbol	HF1-SY3000	HF1-SY5000	HF1-SY7000	
—	Ø 8	Ø 10	Ø 12	

❻ Mounting

—	Direct mounting	
D	DIN rail mounting (With DIN rail)	
D0	DIN rail mounting (Without DIN rail)	
D3	For 3 stations	Specify a length longer than that of the standard rail.
⋮	⋮	
D24	For 24 stations	

* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

How to Order Valves (With mounting screw)

HF1-SY 3 1 3 0 ☐ ☐ ☐ ☐ – 5 ☐ ☐ 1 – C6 ☐ – ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❸ Top ported

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

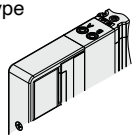
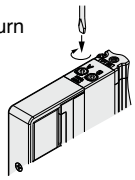
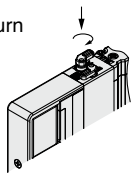
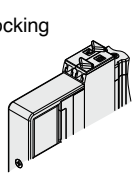
5	24 VDC
6	12 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion.
Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override

—: Non-locking push type 	**D**: Push-turn locking slotted type 
E: Push-turn locking lever type 	**F**: Slide locking type 

∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	A, B port	HF1-SY3000	HF1-SY5000	HF1-SY7000
C4	Ø 4	●	●	—
C6	Ø 6	●	●	●
C8	Ø 8	—	●	●
C10	Ø 10	—	—	●
C12	Ø 12	—	—	●

⓬ Thread type

—	Rc
F	G
N	NPT
T	NPTF

∗ Only — is available for M5.

⓭ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Falling-out-prevention type)
H	Hexagon socket head cap screw (Falling-out-prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance.
Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class Ⅲ (Mark: ⧫)

Type 10 Side Ported **Type 11** Bottom Ported **Plug-in** Connector Connecting Base

EX500 Gateway Decentralized System 2 (128 Points)

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y [3]-[10]S[A3N]-[05][U][ ]-[C6][ ]

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

∗ For mixed mounting, refer to page 63 and later.

❷ Type

10	Side ported
11	Bottom ported∗1

∗1 The HF1-SY5000 manifold base is used for the bottom-ported HF1-SY3000. When ordering, refer to the "Plug-in Mixed Mounting Type Manifold" (from page 63 and later).

∗ When mixing top-ported configurations, select from those listed on page 31. In such cases, use caution as there is also output on the A and B ports on the base side. Specify on the manifold specification sheet if plugs are required for the A and B ports on the base side.

❸ SI unit (Number of outputs, Output polarity, Max. number of valve stations)

0	Without SI unit
A3N	32 outputs∗1∗4, 2 to 16 stations (24 stations∗3), Negative common∗2

∗1 16 outputs can be set by switching the built-in setting switch.

∗2 Ensure a match with the common specification of the valve.

∗3 ( ): Maximum number of stations for mixed single and double wiring

∗4 When using the SI unit with 32 outputs, use the GW unit compatible with the EX500 Gateway Decentralized System 2 (128 points).

❹ Valve stations

	Stations	Note
02	2 stations	Double wiring∗1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout∗2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

∗1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

∗2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)

∗ When the product without the SI unit (S0) is selected, note the maximum number of solenoids of the SI unit that will be mounted. If the layout is specified, indicate it on the manifold specification sheet.

∗ This also includes the number of the blanking plate assembly.

❺ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

❻ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer∗1∗2
R	External pilot

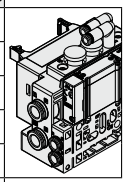
∗1 3/5(E) port is plugged for the built-in silencer type.

∗2 When built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.

∗ As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❼ A, B port size (Metric/One-touch fitting)

		A, B port	Type 10/Side ported			Type 11/Bottom ported	
			HF1-SY3000	HF1-SY5000	HF1-SY7000	HF1-SY5000	HF1-SY7000
C4	Straight	Ø 4	●	●	–	●	–
C6		Ø 6	●	●	●	●	●
C8		Ø 8	–	●	●	●	●
C10		Ø 10	–	–	●	–	●
C12		Ø 12	–	–	●	–	●
CM*1		Mixed sizes	●	●	●	●	●
		P, E port	Ø 8	Ø 10	Ø 12	Ø 10	Ø 12



*1 Indicate the sizes on the manifold specification sheet in the case of "CM."
The direction of P, E port fittings is the same as for the A, B port.

* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

* A separate GW unit and communication cable are required.

❽ Mounting and Option

	Mounting	Option	
		Name plate	Station number
—	Direct mounting	–	–
AA		●	●
BA		●	–
D□*1	DIN rail mounting	–	–
A□*1		●	●
B□*1		●	–

*1 Refer to "DIN Rail Option" below.

* Select the direct mounting type for Type 11 (Bottom ported).

DIN Rail Option

—	With DIN bracket, DIN rail with standard length
0	With DIN bracket, without DIN rail
3*1	With DIN bracket, DIN rail for 3 stations
⋮	⋮
24*1	With DIN bracket, DIN rail for 24 stations

*1 Specify a longer rail than the length of valve stations.

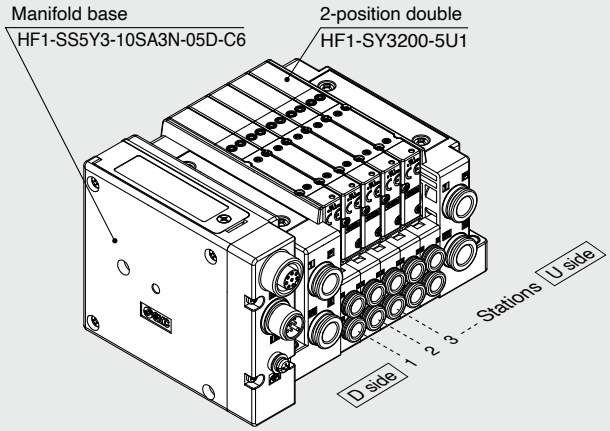
* If the DIN rail must be mounted without an SI unit, select "D0" and order the DIN rail separately. Refer to L3 of the dimensions for the DIN rail length. Refer to the **Web Catalogue** for the DIN rail part number.

* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

For details on the EX500 Gateway Type Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details.
Please download the Operation Manual via the SMC website, https://www.smc.eu

How to Order Manifold Assembly

Example



HF1-SS5Y3-10SA3N-05D-C6···1 set (Manifold base part number)
*** HF1-SY3200-5U1·····5 sets (2-position double part number)**
The asterisk denotes the symbol for the assembly.
Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold base part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

Protective class class Ⅲ (Mark: ⧫)

How to Order Valves (With mounting screw)

HF1-SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port valve	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve

—	None
H∗1	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)∗1∗2

∗1 Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗2 Be careful of the energising time when the power saving circuit is selected. For details, refer to the **Web Catalogue**.

❽ Rated voltage

5	24 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	–	–	Non-polar
R	–	●	
U	●		
NS	–		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion.
Refer to the **Web Catalogue** for details.
∗ Select "NZ" for models with a power saving circuit.

❿ Manual override

— Non-locking push type	D Push-turn locking slotted type
E Push-turn locking lever type	F Slide locking type

∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)∗1
H	Hexagon socket head cap screw (Drop prevention type)∗1

∗1 For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class Ⅲ (Mark: ⧫)

Type 12 Top Ported

Plug-in Connector Connecting Base

EX500 Gateway Decentralized System 2 (128 Points)

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 12S A3N – 05 U □ – □ □

❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

∗ For mixed mounting, refer to page 63 and later.

❷ SI unit (Number of outputs, Output polarity, Max. number of valve stations)

0	Without SI unit
A3N	32 outputs∗1∗4, 2 to 16 stations (24 stations∗3), Negative common∗2

∗1 16 outputs can be set by switching the built-in setting switch.
∗2 Ensure a match with the common specification of the valve.
∗3 ( ): Maximum number of stations for mixed single and double wiring
∗4 When using the SI unit with 32 outputs, use the GW unit compatible with the EX500 Gateway Decentralized System 2 (128 points).

❸ Valve stations

	Stations	Note
02	2 stations	Double wiring∗1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout∗2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

∗1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
∗2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)
∗ When the product without the SI unit (S0) is selected, note the maximum number of solenoids of the SI unit that will be mounted. If the layout is specified, indicate it on the manifold specification sheet.
∗ This also includes the number of the blanking plate assembly.

❹ P, E port entry

U∗1	U side (2 to 10 stations)
D∗1	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

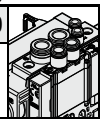
∗1 For type “S”, SUP/EXH block assembly with a built-in silencer, choose U or D for P, E port entry.

❺ SUP/EXH block assembly

—	Internal pilot
S∗1	Internal pilot, Built-in silencer∗2
R	External pilot

∗1 For type “S”, SUP/EXH block assembly with a built-in silencer, choose U or D for P, E port entry. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of the P and E port entry. (Example: When the P and E port entry is on the D side, the silencer exhaust port is on the U side.)
∗2 When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
∗ As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❻ P, E port size (One-touch fittings)

	HF1-SY3000	HF1-SY5000	HF1-SY7000	
—	Ø 8	Ø 10	Ø 12	

❼ Mounting

—	Direct mounting
D	With DIN bracket, DIN rail with standard length
D0	With DIN bracket, without DIN rail
D3∗1	With DIN bracket, DIN rail for 3 stations
⋮	⋮
D24∗1	With DIN bracket, DIN rail for 24 stations

∗1 Specify a longer rail than the length of valve stations.

∗ If the DIN rail must be mounted without an SI unit, select "D0." Then, refer to L3 of the dimensions for the DIN rail length and order separately. Refer to the **Web Catalogue** for the DIN rail part number.

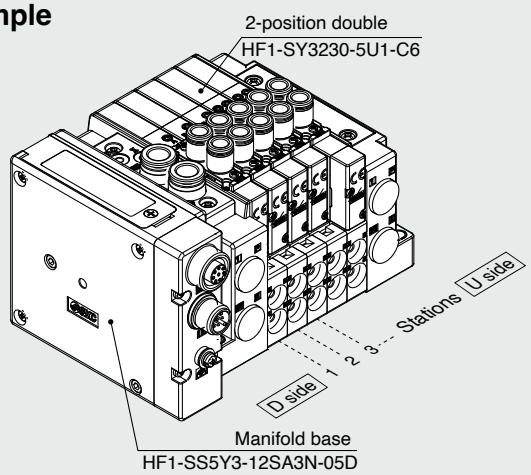
∗ Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

∗ A separate GW unit and communication cable are required.

For details on the EX500 Gateway Type Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details.
Please download the Operation Manual via the SMC website, https://www.smc.eu

How to Order Manifold Assembly

Example



HF1-SS5Y3-12SA3N-05D···1 set (Manifold base part number)
∗ HF1-SY3230-5U1-C6 ·····5 sets (2-position double part number)
The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

• For the valve arrangement, the valve closest to the D side is considered the 1st station.
• Under the manifold base part number, state the valves to be mounted in order starting with the 1 st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

How to Order Valves (With mounting screw)

HF1-SY 3 1 3 0 ❑ ❑ ❑ ❑ – 5 ❑ ❑ 1 – C6 ❑ – ❑

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❸ Top ported

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port valve	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ Select "—" for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)∗1∗2

∗1 Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗2 Be careful of the energising time when the power saving circuit is selected.
Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion.
Refer to the **Web Catalogue** for details.
∗ Select "NZ" for models with a power saving circuit.

❿ Manual override

— Non-locking push type	D Push-turn locking slotted type
E Push-turn locking lever type	F Slide locking type

∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	A, B port	HF1-SY3000	HF1-SY5000	HF1-SY7000
C4	Ø 4	●	●	—
C6	Ø 6	●	●	●
C8	Ø 8	—	●	●
C10	Ø 10	—	—	●
C12	Ø 12	—	—	●

⓬ A, B port thread type

—	Rc
F	G
N	NPT
T	NPTF

∗ Select "—" for M5.

⓭ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type∗1)
H	Hexagon socket head cap screw (Drop prevention type∗1)

∗1 For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance.
Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class Ⅲ (Mark: ⧼Ⅲ⧽)

Type 10 Side Ported | Type 11 Bottom Ported | Plug-in Connector Connecting Base | EX600

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 10 S6 Q ❹ 2 – 05 U – C6 ❾

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type

10	Side ported
11	Bottom ported*1

*1 The HF1-SY5000 manifold base is used for the bottom-ported HF1-SY3000. When ordering, refer to the "Plug-in Mixed Mounting Type Manifold" (from page 63 and later).

❸ SI unit

0	Without SI unit
Q	DeviceNet® (Version A)
N	PROFIBUS DP (Version A)
V	CC-Link
EA	EtherNet/IP™ (2 port)
EB	EtherNet/IP™ (IO-Link unit)
DA	EtherCAT (IO-Link unit)
F	PROFINET
FA	PROFINET (IO-Link unit)
WE	EtherNet/IP™ compatible wireless base*1
WF	PROFINET compatible wireless base*1
WS	Wireless remote*1

*1 The wireless system is suitable for use only in a country where it is in accordance with the Radio Act and regulations of that country.
* I/O unit cannot be mounted without SI unit.
* Valve plate which connects manifold and SI unit is included, but it is not mounted to a valve without SI unit. For mounting, refer to the EX600 series in the **Web Catalogue**.

❹ SI unit output polarity, end plate type

SI unit output polarity	M12 power supply connector B-coded (EX600-ED2)	7/8 inch power supply connector (EX600-ED3)	M12 power supply connector IN/OUT, A-coded	
			Pin arrangement 1 (EX600-ED4)	Pin arrangement 2 (EX600-ED5)
Without SI unit	—			
SI unit positive common	2	3	6	8
SI unit negative common	4	5	7	9

* Ensure a match with the common specification of the valve to be used.
* When not selecting an SI unit, the symbol will be "—."

❺ I/O unit stations

—	None
1	1 station
⋮	⋮
9	9 stations

* When not selecting an SI unit, the symbol will be "—."
* SI unit is not included in I/O unit stations.
* When I/O unit is selected, it is shipped separately, and assembled by users. Refer to the attached operation manual for mounting.

❻ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout*2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)
* This also includes the number of the blanking plate assembly.

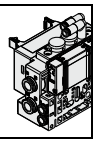
❼ P, E port entry, SUP/EXH block assembly

P, E port entry	Internal pilot	Internal pilot, Built-in silencer	External pilot
U side (2 to 10 stations)	U	C	G
D side (2 to 10 stations)	D	E	H
Both sides (2 to 24 stations)	B	F	J

* 3/5(E) port is plugged for the built-in silencer type.
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❽ A, B port size (Metric/One-touch fitting)

Symbol	A, B port		Type 10/Side ported			Type 11/Bottom ported	
			HF1-SY3000	HF1-SY5000	HF1-SY7000	HF1-SY5000	HF1-SY7000
C4	Straight	Ø 4	●	●	—	●	—
C6		Ø 6	●	●	●	●	●
C8		Ø 8	—	●	●	●	●
C10		Ø 10	—	—	●	—	●
C12		Ø 12	—	—	●	—	●
CM*1		Straight port, mixed sizes	●	●	●	●	●
P, E port size (One-touch fittings)			Ø 8	Ø 10	Ø 12	Ø 10	Ø 12



*1 Indicate the sizes on the manifold specification sheet in the case of "CM." The direction of P, E port fittings is the same as for the A, B port.
* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

❾ Mounting and Option

Symbol	Mounting	Option	
		Name plate	Station number
—	Direct mounting	—	—
AA		●	●
BA		●	—
D□	DIN rail mounting	—	—
A□		●	●
B□		●	—

* Enter the number of stations inside □ when it is larger than the number of valve stations. (Refer to "DIN Rail Option" below.)
* Only direct mounting is available for the type 11 bottom-ported type.
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

DIN Rail Option

—	Standard length	
0	Without DIN rail (with bracket)	
3	For 3 stations	Specify a longer rail than the total length of specified stations.
⋮	⋮	
24	For 24 stations	

* If the DIN rail must be mounted without an SI unit, select D0. Then, refer to L3 of the dimensions for the DIN rail length and order separately. (Refer to the **Web Catalogue** for the DIN rail part number.)

For details on the EX600 Integrated Type (For Input/Output) Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details.
(IP40 specifications may be required according to the I/O unit to be selected.)
Please download the Operation Manual via the SMC website, https://www.smc.eu

How to Order Valves (With mounting screw)

HF1-SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

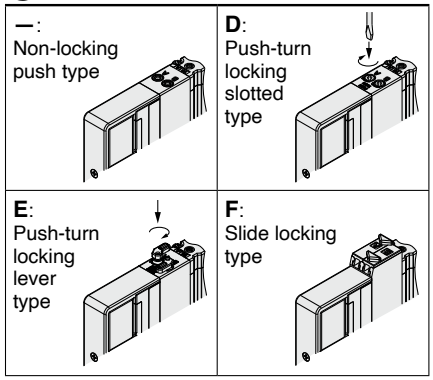
5	24 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	–	–	Non-polar
R	–	●	
U	●		
S	–		Positive common
Z	●		
NS	–		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override



∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

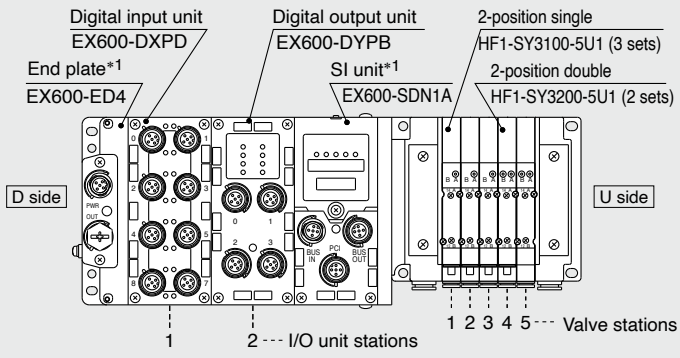
⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

How to Order Manifold Assembly

Example (HF1-SS5Y3-10S6□-□)



HF1-SS5Y3-10S6Q72-05B-C6 ··· 1 set (Type 10 5-station manifold base part no.)
∗HF1-SY3100-5U1 ····· 3 sets (2-position single part no.)
∗HF1-SY3200-5U1 ····· 2 sets (2-position double part no.)
∗EX600-DXPD····· 1 set I/O unit part number (Station 1)
∗EX600-DYPB····· 1 set I/O unit part number (Station 2)
The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted, then the I/O units in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

∗1 Do not enter the SI unit part number and the end plate part number together.
∗ When mixing top-ported configurations, select from those listed on page 36.
In such cases, use caution as there is also output on the A and B ports on the base side.
Specify on the manifold specification sheet if plugs are required for the A and B ports on the base side.

⚠ Protective class class Ⅲ (Mark: ⧫)

Type 12 Top Ported **Plug-in** Connector Connecting Base

EX600

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y ❶3 – 12S6 ❷Q ❸ ❹2 – ❺05 ❻U – ❼ ❽

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ SI unit

0	Without SI unit
Q	DeviceNet® (Version A)
N	PROFIBUS DP (Version A)
V	CC-Link
EA	EtherNet/IP™ (2 port)
EB	EtherNet/IP™ (IO-Link unit)
DA	EtherCAT (IO-Link unit)
F	PROFINET
FA	PROFINET (IO-Link unit)
WE	EtherNet/IP™ compatible wireless base*1
WF	PROFINET compatible wireless base*1
WS	Wireless remote*1

*1 The wireless system is suitable for use only in a country where it is in accordance with the Radio Act and regulations of that country.
* I/O unit cannot be mounted without SI unit.
* Valve plate which connects manifold and SI unit is included, but it is not mounted to a valve without SI unit. For mounting, refer to the EX600 series in the **Web Catalogue**.

❸ SI unit output polarity, end plate type

SI unit output polarity	M12 power supply connector B-coded (EX600-ED2)	7/8 inch power supply connector (EX600-ED3)	M12 power supply connector IN/OUT, A-coded	
			Pin arrangement 1 (EX600-ED4)	Pin arrangement 2 (EX600-ED5)
Without SI unit	—			
SI unit positive common	**2**	**3**	**6**	**8**
SI unit negative common	**4**	**5**	**7**	**9**

* When not selecting an SI unit, the symbol will be "—."
* Ensure a match with the common specification of the valve to be used.

❹ I/O unit stations

—	None
1	1 station
⋮	⋮
9	9 stations

* When not selecting an SI unit, the symbol will be "—."
* SI unit is not included in I/O unit stations.
* When I/O unit is selected, it is shipped separately, and assembled by users. Refer to the attached operation manual for mounting.

❺ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout*2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

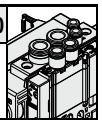
*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)
* This also includes the number of the blanking plate assembly.

❻ P, E port entry, SUP/EXH block assembly

P, E port entry	Internal pilot	Internal pilot, Built-in silencer	External pilot
U side (2 to 10 stations)	**U**	**C***1	**G**
D side (2 to 10 stations)	**D**	**E***1	**H**
Both sides (2 to 24 stations)	**B**	—	**J**

*1 For SUP/EXH block assembly specifications, built-in silencer types will have P port entry stipulated.
* The P and E ports are only available on the U and D sides for the built-in silencer type. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of the P and E port entry. (Example: When the P and E port entry is on the D side, the silencer exhaust port is on the U side.)
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❼ P, E port size (One-touch fittings)

Symbol	HF1-SY3000	HF1-SY5000	HF1-SY7000	
—	Ø 8	Ø 10	Ø 12	

❽ Mounting

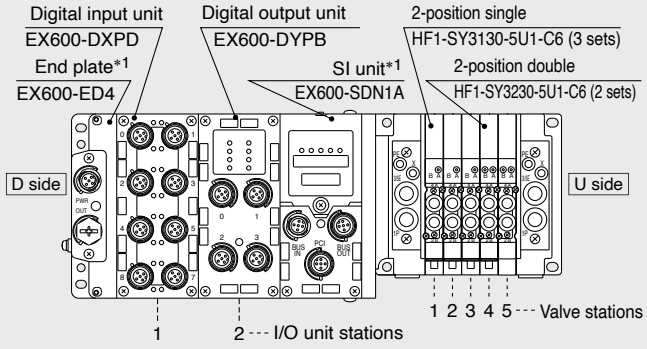
—	Direct mounting	
D	DIN rail mounting (With DIN rail)	
D0	DIN rail mounting (Without DIN rail)	
D3	For 3 stations	Specify a length longer than that of the standard rail.
⋮	⋮	
D24	For 24 stations	

* If the DIN rail must be mounted without an SI unit, select D0. Then, refer to L3 of the dimensions for the DIN rail length and order separately. (Refer to the **Web Catalogue** for the DIN rail part number.)
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

For details on the EX600 Integrated Type (For Input/Output) Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details.
(IP40 specifications may be required according to the I/O unit to be selected.)
Please download the Operation Manual via the SMC website, https://www.smc.eu

How to Order Manifold Assembly

Example (HF1-SS5Y3-12S6□-□)



HF1-SS5Y3-12S6Q72-05B ··· 1 set (Type 12 5-station manifold base part no.)
***HF1-SY3130-5U1-C6 ····· 3 sets (2-position single part no.)**
***HF1-SY3230-5U1-C6 ····· 2 sets (2-position double part no.)**
***EX600-DXPD ····· 1 set I/O unit part number (Station 1)**
***EX600-DYPB ····· 1 set I/O unit part number (Station 2)**
→ **The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.**

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted, then the I/O units in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

*1 Do not enter the SI unit part number and the end plate part number together.

How to Order Valves (With mounting screw)

HF1-SY 3 1 3 0 □ □ □ □ – 5 □ □ 1 – C6 □ – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❸: Top ported

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC

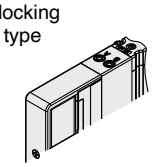
❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	–	–	Non-polar
R	–	●	
U	●		
S	–		Positive common
Z	●		
NS	–		Negative common
NZ	●		

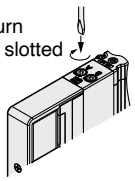
∗ For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override

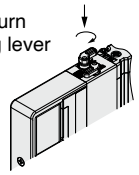
—: Non-locking push type



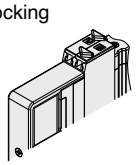
D: Push-turn locking slotted type



E: Push-turn locking lever type



F: Slide locking type



∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	A, B port	HF1-SY3000	HF1-SY5000	HF1-SY7000
C4	Ø 4	●	●	–
C6	Ø 6	●	●	●
C8	Ø 8	–	●	●
C10	Ø 10	–	–	●
C12	Ø 12	–	–	●

⓬ Thread type

—	Rc
F	G
N	NPT
T	NPTF

∗ Only — is available for M5.

⓭ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class Ⅲ (Mark: ⧫)

Type 10 Side Ported | Type 11 Bottom Ported | Plug-in | EX245

Connector Connecting Base

HF1-SY3000/5000/7000 Series

How to Order Manifold

Side Ported/Bottom Ported **HF1-SS5Y 3 – 10 S AAN □ □ – 05 D □ – C6**

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

Only direct mounting is selectable for the manifold.

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type

10	Side ported
11*1	Bottom ported

*1 The HF1-SY5000 manifold base is used for the bottom-ported HF1-SY3000. When ordering, refer to the "Plug-in Mixed Mounting Type Manifold" (from page 63 and later).

❸ SI Unit specifications

Symbol (output polarity) Negative common (PNP)	Protocol	Communication connector	Power supply connector
0	Without SI Unit		
AAN	PROFINET	Push/Pull (SCRJ): 2 pcs.	Push/Pull (24 V): 2 pcs.
ABN		Push/Pull (RJ45): 2 pcs.	Push/Pull (24 V): 2 pcs.
ACN		M12: 2 pcs.	7/8 inch: 2 pcs.

* The valve output polarity for the SI unit is negative common (PNP).

❹ With or without I/O modules

–	Without I/O module
Y	With I/O module

❺ Number of I/O modules

–	Without I/O module (Without SI Unit)
1	1 station
⋮	⋮
8	8 stations

❻ Valve stations (In the case of the 32-output SI Unit)

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout*2 (Available up to 32 solenoids)
⋮	⋮	
24	24 stations	

*1 Double wiring: 2-position single, double, 3-position and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout

*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position and 4-position valves cannot be used where single wiring has been specified.)

*3 This also includes the number of blanking plate assembly.

❼ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

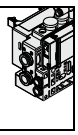
❽ SUP/EXH block assembly

–	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* 3/5(E) port is plugged for the built-in silencer type.
* When the built-in silencer type is used, keep the exhaust port from coming in direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❾ A, B port size (Metric)

Symbol		A, B port	10 (Side ported) series			11 (Bottom ported) series	
			HF1-SY3000	HF1-SY5000	HF1-SY7000	HF1-SY5000	HF1-SY7000
C4	Straight	Ø 4	●	●	–	●	–
C6		Ø 6	●	●	●	●	●
C8		Ø 8	–	●	●	●	●
C10		Ø 10	–	–	●	–	●
C12		Ø 12	–	–	●	–	●
CM*1		Straight port, mixed sizes	●	●	●	●	●
P, E port size (One-touch fittings)			Ø 8	Ø 10	Ø 12	Ø 10	Ø 12



*1 When using mixed sizes for the A and B ports, please indicate so on the separate manifold specification sheet.

For details on the EX245 Integrated Type (For Input/Output) Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details.
Please download the Operation Manual via SMC website, https://www.smc.eu

How to Order Valves (With mounting screw)

HF1-SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type when the valve is continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

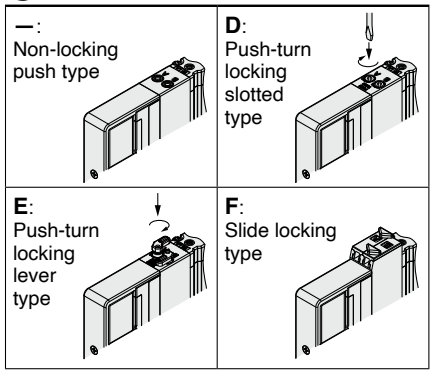
5	24 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	–	–	Non-polar
R	–	●	
U	●		
NS	–		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
∗ Only "NZ" types are available for with the power saving circuit.

❿ Manual override



∗ Refer to the **Web Catalogue** for with the safety slide locking manual override.

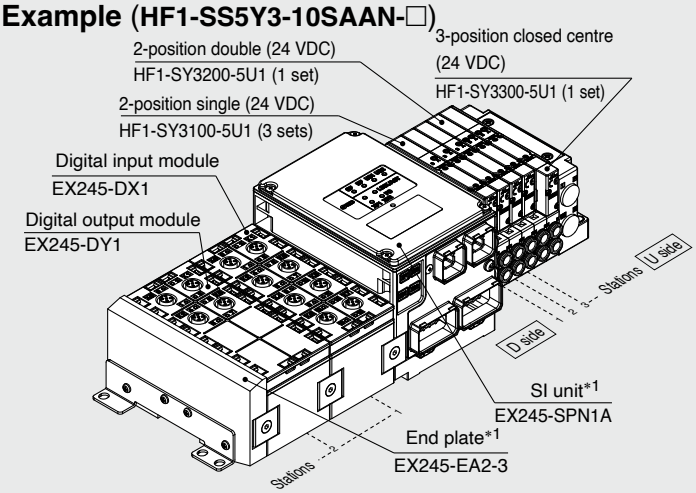
⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Falling-out-prevention type)
H	Hexagon socket head cap screw (Falling-out-prevention type)

∗ For "K" and "H", the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance service.
Refer to the **Web Catalogue** for part numbers of the base gasket and mounting screw.

How to Order Manifold Assembly

Example (HF1-SS5Y3-10SAAN-□)



HF1-SS5Y3-10SAANY2-05D-C6 ···1 set (Type 10 5-station manifold base part no.)
∗HF1-SY3100-5U1 ·····3 sets (2-position single part no.)
∗HF1-SY3200-5U1 ·····1 set (2-position double part no.)
∗HF1-SY3300-5U1 ·····1 set (3-position closed centre part no.)
∗EX245-DX1 ·····1set I/O module part no.
∗EX245-DY1 ·····1set I/O module part no.
The asterisk denotes the symbol for assembly. Prefix it to the part numbers of the valve etc.

• The valve arrangement is numbered as the 1st station from the D side.
• The I/O module station arrangement is numbered starting from the SI unit side.
• Under the manifold part number, state the valves to be mounted, then the I/O module in order from the 1st station as shown in the figure above. If the arrangement becomes complicated, specify on a manifold specification sheet.

∗1 Do not enter the SI Unit part number and the end plate part number together.
∗ When mixing top ported configurations, select from page 40. In this case, use caution as there is also output on the A and B port on base side. Specify on a manifold specification sheet if plugs are required on the A and B port on base side.

⚠ Protective class class Ⅲ (Mark: ⧫)

Type 12 Top ported **Plug-in** **Connector Connecting Base**

EX245

HF1-SY3000/5000/7000 Series

How to Order Manifold

Top ported **HF1-SS5Y** **3** – **12** **S** **AAN** □ □ – **05** **D** **S** – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

Only direct mounting is selectable for the manifold.

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ SI Unit specifications

Symbol (output polarity) Negative common (PNP)	Protocol	Communication connector	Power supply connector
0	Without SI Unit		
AAN	PROFINET	Push/Pull (SCRJ): 2 pcs.	Push/Pull (24 V): 2 pcs.
ABN		Push/Pull (RJ45): 2 pcs.	Push/Pull (24 V): 2 pcs.
ACN		M12: 2 pcs.	7/8 inch: 2 pcs.

∗ The valve output polarity for the SI unit is negative common (PNP).

❸ With or without I/O modules

—	Without I/O module
Y	With I/O module

❹ Number of I/O modules

—	Without I/O module (Without SI Unit)
1	1 station
⋮	⋮
8	8 stations

❺ Valve stations

(In the case of the 32-output SI Unit)

Symbol	Stations	Note
02	2 stations	Double wiring∗1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout∗2 (Available up to 32 solenoids)
⋮	⋮	
24	24 stations	

∗1 Double wiring: 2-position single, double, 3-position and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout

∗2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position and 4-position valves cannot be used where single wiring has been specified.)

∗ This also includes the number of blanking plate assembly.

❻ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

For details on the EX245 Integrated Type (For Input/Output) Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details.
Please download the Operation Manual via SMC website, https://www.smc.eu

❼ SUP/EXH block assembly

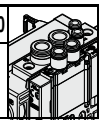
—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

∗ 3/5(E) port is plugged for the built-in silencer type. The silencer exhaust port is located on the opposite side of P, E port entry. (Example: When the P, E port entry is D side, the silencer exhaust port is U side.)

∗ When the built-in silencer type is used, keep the exhaust port from coming in direct contact with water or other liquids.

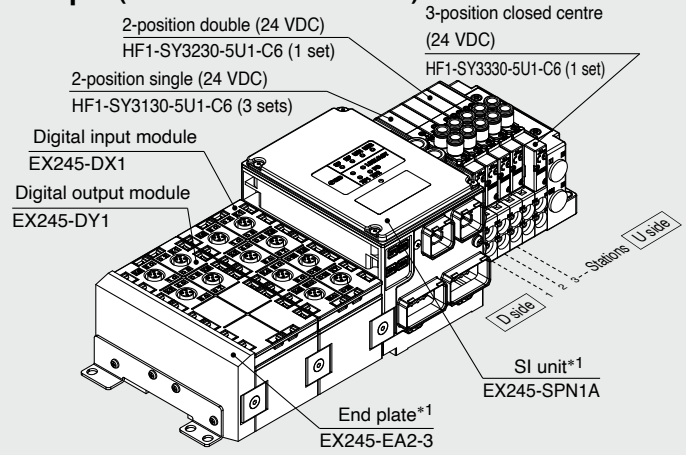
∗ As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❽ P, E port size (One-touch fittings)

Symbol	HF1-SY3000	HF1-SY5000	HF1-SY7000	
—	Ø 8	Ø 10	Ø 12	

How to Order Manifold Assembly

Example (HF1-SS5Y3-12SAAN-□)



HF1-SS5Y3-12SAANY2-05DS····1 set (Type 12 5-station manifold base part no.)
∗HF1-SY3130-5U1-C6·····3 sets (2-position single part no.)
∗HF1-SY3220-5U1-C6·····1 set (2-position double part no.)
∗HF1-SY3330-5U1-C6·····1 set (3-position closed centre part no.)
∗EX245-DX1·····1set I/O module part no.
∗EX245-DY1·····1set I/O module part no.
The asterisk denotes the symbol for assembly. Prefix it to the part numbers of the valve etc.

- The valve arrangement is numbered as the 1st station from the D side.
- The I/O module station arrangement is numbered starting from the SI unit side.
- Under the manifold part number, state the valves to be mounted, then the I/O module in order from the 1st station as shown in the figure above. If the arrangement becomes complicated, specify on a manifold specification sheet.

∗1 Do not enter the SI Unit part number and the end plate part number together.

∗ When mixing top ported configurations, select from page 40. In this case, use caution as there is also output on the A and B port on base side.
Specify on a manifold specification sheet if plugs are required on the A and B port on base side.

How to Order Valves (With mounting screw)

HF1-SY 3 1 3 0 ❑ ❑ ❑ ❑ – 5 ❑ ❑ 1 – C6 ❑ – ❑

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

• Top mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port valve	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type when the valve is continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. For details, refer to the **Web Catalogue**.

❽ Rated voltage

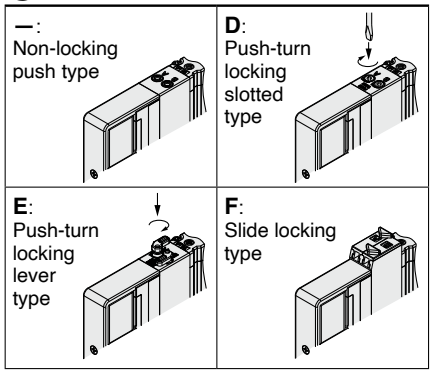
5	24 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion.
Refer to the **Web Catalogue** for details.
∗ Select "NZ" for with the power saving circuit.

❿ Manual override



∗ Refer to the **Web Catalogue** for with the safety slide locking manual override.

⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	A, B port	HF1-SY3000	HF1-SY5000	HF1-SY7000
C4	Ø 4	●	●	—
C6	Ø 6	●	●	●
C8	Ø 8	—	●	●
C10	Ø 10	—	—	●
C12	Ø 12	—	—	●

⓬ Thread type

—	Rc
F	G
N	NPT
T	NPTF

∗ Only — is available for M5.

⓭ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Falling-out-prevention type)∗1
H	Hexagon socket head cap screw (Falling-out-prevention type)∗1

∗1 For "K" and "H", the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance etc.

∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance service.
Refer to the **Web Catalogue** for part numbers of the base gasket and mounting screw.

⚠ Protective class class Ⅲ (Mark: ⧫)

Type 10 Side Ported | Type 11 Bottom Ported | Plug-in | EX250

Connector Connecting Base

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y ❶3 – ❷10 S ❸Q ❹ ❺ – ❻05 ❼U – ❽C6 ❾

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type

10	Side ported
11	Bottom ported*1

*1 The HF1-SY5000 manifold base is used for the bottom-ported HF1-SY3000. When ordering, refer to the "Plug-in Mixed Mounting Type Manifold" (from page 63 and later).

❸ SI unit

0	Without SI unit		
Q	DeviceNet® (Negative common)		
TA	AS-Interface (Negative common)	2 power supply systems	8 in/8 out 31 Slave Mode
TB			4 in/4 out 31 Slave Mode
TC		1 power supply system	8 in/8 out 31 Slave Mode
TD			4 in/4 out 31 Slave Mode
ZE	EtherNet/IP™ (Negative common)		

* Ensure a match with the common specification of the valve to be used.
* Input block cannot be mounted without SI unit.
* The supply current from the SI unit of AS-Interface applicable 1 power supply system specification to the input block and valve is limited.

❹ Input block stations

—	None
1	1 station
⋮	⋮
8	8 stations

* When not selecting an SI unit, the symbol will be "—." The maximum number of stations is limited for the AS-Interface applicable SI unit.

❺ Input block type

	PNP sensor input	NPN sensor input
Without input block	—	
M12, 2 inputs	A	D
M12, 4 inputs	B	E
M8, 4 inputs	C	F

* When not selecting an SI unit, the symbol will be "—."

❻ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout*2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)
When determining the number of valve stations, note that the maximum number of solenoids for the AS-Interface applicable SI Unit specification is as follows.
• 8 in/8 out specification: Max. 8 solenoids
• 4 in/4 out specification: Max. 4 solenoids

* This also includes the number of the blanking plate assembly.
* For the product without the SI unit (S0), note the maximum number of solenoids of the SI unit that will be mounted. If the layout is specified, indicate it on the manifold specification sheet.

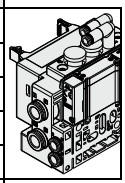
❼ P, E port entry, SUP/EXH block assembly

P, E port entry	Internal pilot	Internal pilot, Built-in silencer	External pilot
U side (2 to 10 stations)	U	C	G
D side (2 to 10 stations)	D	E	H
Both sides (2 to 24 stations)	B	F	J

* 3/5(E) port is plugged for the built-in silencer type.
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❽ A, B port size (Metric/One-touch fitting)

Symbol	A, B port		Type 10/Side ported			Type 11/Bottom ported	
			HF1-SY3000	HF1-SY5000	HF1-SY7000	HF1-SY5000	HF1-SY7000
C4	Straight	Ø 4	●	●	—	●	—
C6		Ø 6	●	●	●	●	●
C8		Ø 8	—	●	●	●	●
C10		Ø 10	—	—	●	—	●
C12		Ø 12	—	—	●	—	●
CM*1		Straight port, mixed sizes	●	●	●	●	●
P, E port size (One-touch fittings)			Ø 8	Ø 10	Ø 12	Ø 10	Ø 12



*1 Indicate the sizes on the manifold specification sheet in the case of "CM."
The direction of P, E port fittings is the same as for the A, B port.

* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

❾ Mounting and Option

Symbol	Mounting	Option	
		Name plate	Station number
—	Direct mounting	—	—
AA		●	●
BA		●	—
D□	DIN rail mounting	—	—
A□		●	●
B□		●	—

DIN Rail Option

—	Standard length	
0	Without DIN rail (with bracket)	
3	For 3 stations	Specify a longer rail than the total length of specified stations.
⋮	⋮	
24	For 24 stations	

* Enter the number of stations inside □ when it is larger than the number of valve stations. (Refer to "DIN Rail Option" above.)
* Only direct mounting is available for the type 11 bottom-ported type.
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

For details on the EX250 Integrated Type (For Input/Output) Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details.
Please download the Operation Manual via the SMC website, https://www.smc.eu

How to Order Valves (With mounting screw)

HF1-SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

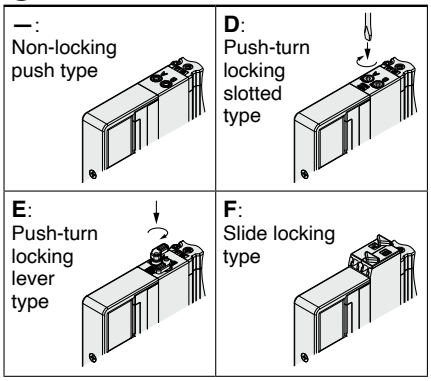
5	24 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	–	–	Non-polar
R	–	●	
U	●		
NS	–		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
∗ Only "NZ" type is available with a power saving circuit.

❿ Manual override



∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

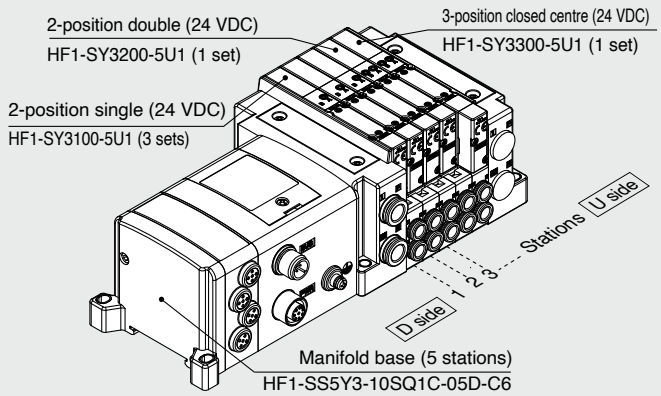
⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

How to Order Manifold Assembly

Example (HF1-SS5Y3-10S□-□)



HF1-SS5Y3-10SQ1C-05D-C6 ··· 1 set (Type 10 5-station manifold base part no.)
∗HF1-SY3100-5U1 ····· 3 sets (2-position single part no.)
∗HF1-SY3200-5U1 ····· 1 set (2-position double part no.)
∗HF1-SY3300-5U1 ····· 1 set (3-position closed centre part no.)
The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

∗ When mixing top-ported configurations, select from those listed on page 44. In such cases, use caution as there is also output on the A and B ports on the base side.
Specify on the manifold specification sheet if plugs are required for the A and B ports on the base side.

⚠ Protective class class Ⅲ (Mark: ⧫)

Type 12 Top Ported **Plug-in** Connector Connecting Base

EX250

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 12S Q □ □ – 05 U – □ □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ SI unit

0	Without SI unit		
Q	DeviceNet® (Negative common)		
TA	AS-Interface (Negative common)	2 power supply systems	8 in/8 out 31 Slave Mode
TB			4 in/4 out 31 Slave Mode
TC		1 power supply system	8 in/8 out 31 Slave Mode
TD			4 in/4 out 31 Slave Mode
ZE	EtherNet/IP™ (Negative common)		

* Ensure a match with the common specification of the valve to be used.
* Input block cannot be mounted without SI unit.
* The supply current from the SI unit of AS-Interface applicable 1 power supply system specification to the input block and valve is limited.

❸ Input block stations

—	None
1	1 station
⋮	⋮
8	8 stations

* When not selecting an SI unit, the symbol will be "—." The maximum number of stations is limited for the AS-Interface applicable SI unit.

❹ Input block type

	PNP sensor input	NPN sensor input
Without input block	—	
M12, 2 inputs	A	D
M12, 4 inputs	B	E
M8, 4 inputs	C	F

* When not selecting an SI unit, the symbol will be "—."

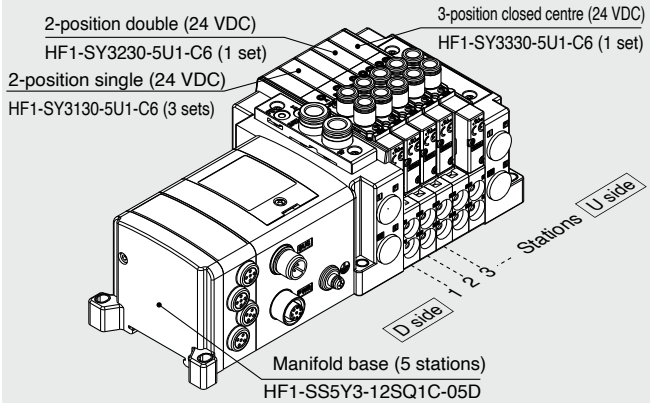
❺ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout*2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)
When determining the number of valve stations, note that the maximum number of solenoids for the AS-Interface applicable SI unit specification is as follows.
• 8 in/8 out specification: Max. 8 solenoids
• 4 in/4 out specification: Max. 4 solenoids
* This also includes the number of the blanking plate assembly.
* For the product without the SI unit (S0), note the maximum number of solenoids of the SI unit that will be mounted. If the layout is specified, indicate it on the manifold specification sheet.

How to Order Manifold Assembly

Example (HF1-SS5Y3-12S□-□)



HF1-SS5Y3-12SQ1C-05D ····· 1 set (Type 12 5-station manifold base part no.)
***HF1-SY3130-5U1-C6 ····· 3 sets (2-position single part no.)**
***HF1-SY3230-5U1-C6 ····· 1 set (2-position double part no.)**
***HF1-SY3330-5U1-C6 ····· 1 set (3-position closed centre part no.)**
The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

• For the valve arrangement, the valve closest to the D side is considered the 1st station.
• Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

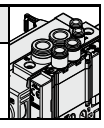
For details on the EX250 Integrated Type (For Input/Output) Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details.
Please download the Operation Manual via the SMC website, https://www.smc.eu

❻ P, E port entry, SUP/EXH block assembly

P, E port entry	Internal pilot	Internal pilot, Built-in silencer	External pilot
U side (2 to 10 stations)	U	C*1	G
D side (2 to 10 stations)	D	E*1	H
Both sides (2 to 24 stations)	B	—	J

*1 For SUP/EXH block assembly specifications, built-in silencer types will have P port entry stipulated.
* The P and E ports are only available on the U and D sides for the built-in silencer type. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of the P and E port entry. (Example: When the P and E port entry is on the D side, the silencer exhaust port is on the U side.)
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❼ P, E port size (One-touch fittings)

Symbol	HF1-SY3000	HF1-SY5000	HF1-SY7000	
—	Ø 8	Ø 10	Ø 12	

❽ Mounting

—	Direct mounting	
D	DIN rail mounting (With DIN rail)	
D0	DIN rail mounting (Without DIN rail)	
D3	For 3 stations	Specify a length longer than that of the standard rail.
⋮	⋮	
D24	For 24 stations	

* If the DIN rail must be mounted without an SI unit, select D0. Then, refer to L3 of the dimensions for the DIN rail length and order separately. (Refer to the **Web Catalogue** for the DIN rail part number.)
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

How to Order Valves (With mounting screw)

HF1-SY 3 1 3 0 □ □ □ □ – 5 □ □ 1 – C6 □ – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

• Top ported

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

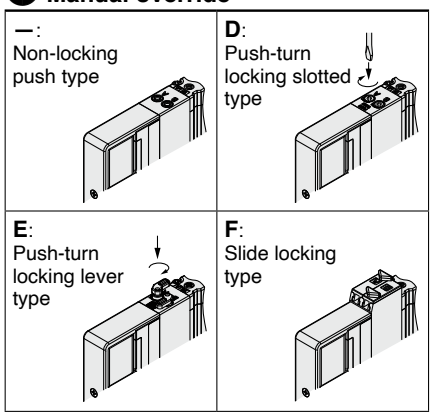
5	24 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	–	–	Non-polar
R	–	●	
U	●		
NS	–		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
∗ Only "NZ" type is available with a power saving circuit.

❿ Manual override



∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	A, B port	HF1-SY3000	HF1-SY5000	HF1-SY7000
C4	Ø 4	●	●	–
C6	Ø 6	●	●	●
C8	Ø 8	–	●	●
C10	Ø 10	–	–	●
C12	Ø 12	–	–	●

⓬ Thread type

—	Rc
F	G
N	NPT
T	NPTF

∗ Only — is available for M5.

⓭ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class Ⅲ (Mark: ⧫)

Type 10 Side Ported | Type 11 Bottom Ported | Plug-in | EX260

Connector Connecting Base

HF1-SY3000/5000/7000 Series

Refer to page 47 for details on manifolds that support safety communication (PROFIsafe).

How to Order Manifolds

HF1-SS5Y [3] – [10] S [NAN] – [05] [U] [ ] – [C6] [ ]

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type

10	Side ported
11	Bottom ported*1

*1 The HF1-SY5000 manifold base is used for the bottom-ported HF1-SY3000. When ordering, refer to the "Plug-in Mixed Type Manifold" (from page 63 and later).

❸ SI unit specifications

(Output polarity, Protocol, Number of outputs, Communication connector)

Symbol (Output polarity) Positive common (NPN)	Symbol (Output polarity) Negative common (PNP)	Protocol	Number of outputs	Communication connector
0*1		Without SI unit		
QA	QAN	DeviceNet®	32	M12
QB	QBN		16	
NA	NAN	PROFIBUS DP	32	M12
NB	NBN		16	
NC	NCN		32	*4 D-sub
ND	NDN		16	
VA	VAN	CC-Link	32	M12
VB	VBN		16	
DA	DAN	EtherCAT	32	M12
DB	DBN		16	
FA	FAN	PROFINET	32	M12
FB	FBN		16	
EA	EAN	EtherNet/IP™	32	M12
EB	EBN		16	
—*3	GAN	Ethernet POWERLINK	32	M12
—*3	GBN		16	
—*3	KAN	IO-Link	32*5	M12

*1 Without SI unit, the output polarity is decided by the SI unit used. Ensure a match with the common specification of the valves to be used.
*2 DIN rail cannot be mounted without SI unit.
*3 Positive common (NPN) type is not applicable.
*4 IP40 for the D-sub applicable communication connector specification
*5 Only the 32 outputs type is available.

For details on the EX260 Integrated Type (For Output) Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details.
Please download the Operation Manual via the SMC website, https://www.smc.eu

❹ Valve stations

In the case of the 32-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout*2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

In the case of the 16-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout*2 (Up to 16 solenoids available)
⋮	⋮	
16	16 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout
*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)
* This also includes the number of the blanking plate assembly.
* For the model without the SI unit (S0), note the maximum number of solenoids of the SI unit that will be mounted. If the layout is specified, indicate it on the manifold specification sheet.

❺ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

❻ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* 3/5(E) port is plugged for the built-in silencer type.
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❽ Mounting and Option

Symbol	Mounting	Option: Name plate	Option: Station number
—	Direct mounting	—	—
AA		●	●
BA		●	—
D□	DIN rail mounting	—	—
A□		●	●
B□		●	—

* Enter the number of stations inside □ when it is larger than the number of valve stations. (Refer to "DIN Rail Option" below.)
* Only direct mounting is available for the type 11 bottom-ported type.
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

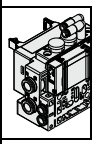
DIN Rail Option

—	Standard length	
0	Without DIN rail (with bracket)	
3	For 3 stations	Specify a longer rail than the total length of specified stations.
⋮	⋮	
24	For 24 stations	

* If the DIN rail must be mounted without an SI unit, select D0. Then, refer to L3 of the dimensions for the DIN rail length and order separately. (Refer to the **Web Catalogue** for the DIN rail part number.)

❼ A, B port size (Metric/One-touch fitting)

Symbol	A, B port		Type 10/Side ported HF1-SY3000	Type 10/Side ported HF1-SY5000	Type 10/Side ported HF1-SY7000	Type 11/Bottom ported HF1-SY5000	Type 11/Bottom ported HF1-SY7000
C4	Straight	Ø 4	●	●	–	●	–
C6		Ø 6	●	●	●	●	●
C8		Ø 8	–	●	●	●	●
C10		Ø 10	–	–	●	–	●
C12		Ø 12	–	–	●	–	●
CM*1		Straight port, mixed sizes	●	●	●	●	●
P, E port size (One-touch fittings)			Ø 8	Ø 10	Ø 12	Ø 10	Ø 12



*1 Indicate the sizes on the manifold specification sheet in the case of "CM." The direction of P, E port fittings is the same as for the A, B port.
* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

SMC

How to Order Valves (With mounting screw)

HF1-SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override

—: Non-locking push type	**D**: Push-turn locking slotted type
E: Push-turn locking lever type	**F**: Slide locking type

∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

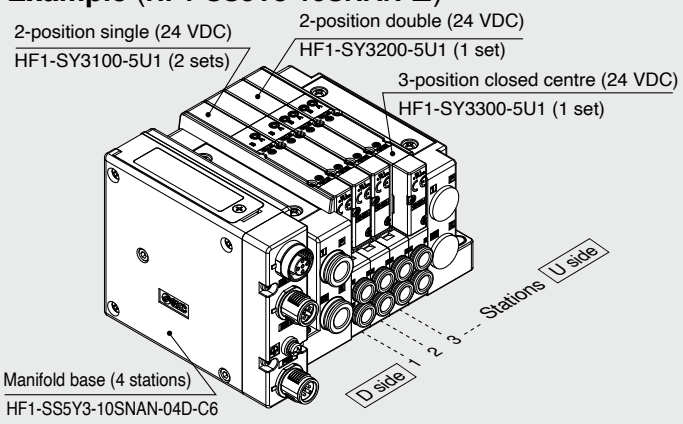
⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.
∗ "B" and "H" cannot be selected for the individual SUP/EXH spacer assembly, interface regulator, or double check spacer assembly with residual pressure release valve.

How to Order Manifold Assembly

Example (HF1-SS5Y3-10SNAN-□)



HF1-SS5Y3-10SNAN-04D-C6 ···1 set (Type 10 4-station manifold base part no.)
∗HF1-SY3100-5U1 ·····2 sets (2-position single part no.)
∗HF1-SY3200-5U1 ·····1 set (2-position double part no.)
∗HF1-SY3300-5U1 ·····1 set (3-position closed centre part no.)
→The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

∗ When mixing top-ported configurations, select from those listed on page 50. Specify on the manifold specification sheet if plugs are required for the A and B ports on the manifold.

⚠ Protective class class Ⅲ (Mark: ⧫)

Type 10 Side Ported | Type 11 Bottom Ported | Plug-in Connector Connecting Base

EX260 | Safety Communication Protocol (PROFIsafe)

HF1-SY3000/5000/7000 Series

Using the safety communication protocol

Refer to the EX260 **Web Catalogue** for details on units that support the safety communication protocol.
When using a manifold valve within an ISO 13849-compliant safety system, the device needs to be considered from both the pneumatic circuit and the electric side.
Devices (including valves) need to be selected based on whether their functions are in line with the safety level of the equipment as a whole.
The use of valves that have been validated as being compliant with ISO 13849-2 may be required.
For details on valves that have been validated, please contact SMC.
In addition, refer to "Safety Instructions" for precautions on model selection.

Refer to page 45 for details on manifolds that support Fieldbus and Industrial Ethernet.

How to Order Manifolds

HF1-SS5Y [3] – [10] **S** [FPN] – [05] [U] [ ] – [C6] [ ]

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type

10	Side ported
11	Bottom ported*1

*1 The HF1-SY5000 manifold base is used for the bottom-ported HF1-SY3000. When ordering, refer to the "Plug-in Mixed Type Manifold" (from page 63 and later).

❸ SI unit specifications

(Output polarity, Protocol, Number of outputs, Communication connector)

Symbol (Output polarity)		Protocol	Number of outputs	Communication connector
Positive common (NPN)	Negative common (PNP)			
0*1		Without SI unit		
—*3	**FPN**	PROFIsafe	32*4	M12

*1 Without SI unit, the output polarity is decided by the SI unit used. Ensure a match with the common specification of the valves to be used.
*2 DIN rail cannot be mounted without SI unit.
*3 Positive common (NPN) type is not applicable.
*4 Only the 32 outputs type is available.

❹ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout*2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

*1 Double wiring: 2-position single, 3-position, and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout
*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet.
(Note that 3-position, and 4-position valves cannot be used where single wiring has been specified.)
* This also includes the number of the blanking plate assembly.

❺ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

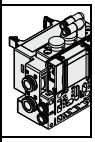
❻ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* 3/5(E) port is plugged for the built-in silencer type.
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❼ A, B port size (Metric/One-touch fitting)

Symbol	A, B port		Type 10/Side ported			Type 11/Bottom ported	
			HF1-SY3000	HF1-SY5000	HF1-SY7000	HF1-SY5000	HF1-SY7000
C4	Straight	Ø 4	●	●	—	●	—
C6		Ø 6	●	●	●	●	●
C8		Ø 8	—	●	●	●	●
C10		Ø 10	—	—	●	—	●
C12		Ø 12	—	—	●	—	●
CM*1		Straight port, mixed sizes	●	●	●	●	●
P, E port size (One-touch fittings)			Ø 8	Ø 10	Ø 12	Ø 10	Ø 12



*1 Indicate the sizes on the manifold specification sheet in the case of "CM."
The direction of P, E port fittings is the same as for the A, B port.
* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

❽ Mounting and Option

Symbol	Mounting	Option	
		Name plate	Station number
—	Direct mounting	—	—
AA		●	●
BA		●	—
D□	DIN rail mounting	—	—
A□		●	●
B□		●	—

* Enter the number of stations inside □ when it is larger than the number of valve stations. (Refer to "DIN Rail Option" below.)
* Only direct mounting is available for the type 11 bottom-ported type.
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

DIN Rail Option

—	Standard length	
0	Without DIN rail (with bracket)	
3	For 3 stations	Specify a longer rail than the total length of specified stations.
⋮	⋮	
24	For 24 stations	

* If the DIN rail must be mounted without an SI unit, select D0. Then, refer to L3 of the dimensions for the DIN rail length and order separately. (Refer to the **Web Catalogue** for the DIN rail part number.)

For details on the EX260 Integrated Type (For Output) Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details. Please download the Operation Manual via the SMC website, https://www.smc.eu

[Validated product examples]

Please contact SMC for further details as supported variations are continually being added.

How to Order Valves (With mounting screw)

HF1-SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

● Base mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

–	Internal pilot
R	External pilot

* When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

–	None
H	Built-in

* The back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

–	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

–	Standard
T	With power saving circuit (Continuous duty type)

* Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
* Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC

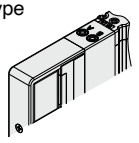
❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
–	–	–	Non-polar
R	–	●	
U	●		
NS	–		Negative common
NZ	●		

* Only “NZ” type is available with a power saving circuit.

❿ Manual override

–:
Non-locking push type



⓫ Type of mounting screw

–	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

* For “K” and “H,” the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
* **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class Ⅲ (Mark: ⧫)

Type 12 Top Ported **Plug-in** Connector Connecting Base

EX260

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y [3] – 12S [NAN] – [05] [U] [ ] – [ ] [ ]

❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ SI unit specifications

(Output polarity, Protocol, Number of outputs, Communication connector)

Symbol (Output polarity)		Protocol	Number of outputs	Communication connector
Positive common (NPN)	Negative common (PNP)			
0∗1		Without SI unit		
QA	**QAN**	DeviceNet®	32	M12
QB	**QBN**		16	
NA	**NAN**	PROFIBUS DP	32	M12
NB	**NBN**		16	
NC	**NCN**		32	∗4 D-sub
ND	**NDN**		16	
VA	**VAN**	CC-Link	32	M12
VB	**VBN**		16	
DA	**DAN**	EtherCAT	32	M12
DB	**DBN**		16	
FA	**FAN**	PROFINET	32	M12
FB	**FBN**		16	
EA	**EAN**	EtherNet/IP™	32	M12
EB	**EBN**		16	
—∗3	**GAN**	Ethernet POWERLINK	32	M12
—∗3	**GBN**		16	
—∗3	**KAN**	IO-Link	32∗5	M12

∗1 Without SI unit, the output polarity is decided by the SI unit used.
Ensure a match with the common specification of the valves to be used.
∗2 DIN rail cannot be mounted without SI unit.
∗3 Positive common (NPN) type is not applicable.
∗4 IP40 for the D-sub applicable communication connector specification
∗5 Only the 32 outputs type is available.

❸ Valve stations

In the case of the 32-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring∗1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout∗2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

In the case of the 16-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring∗1
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout∗2 (Up to 16 solenoids available)
⋮	⋮	
16	16 stations	

∗1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
∗2 Specified layout: Indicate the wiring specifications on the manifold specification sheet.
(Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)
∗ This also includes the number of the blanking plate assembly.
∗ For the model without the SI unit (S0), note the maximum number of solenoids of the SI unit that will be mounted. If the layout is specified, indicate it on the manifold specification sheet.

❹ P, E port entry

U∗1	U side (2 to 10 stations)
D∗1	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

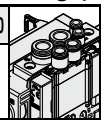
∗1 ❺ For type "S", SUP/EXH block assembly with a built-in silencer, choose U or D for P, E port entry.

❺ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

∗ The P and E ports are only available on the U and D sides for the built-in silencer type. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of the P and E port entry.
(Example: When the P and E port entry is on the D side, the silencer exhaust port is on the U side.)
∗ When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
∗ As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❻ P, E port size (One-touch fittings)

Symbol	HF1-SY3000	HF1-SY5000	HF1-SY7000	
—	Ø 8	Ø 10	Ø 12	

❼ Mounting

—	Direct mounting	
D	DIN rail mounting (With DIN rail)	
D0	DIN rail mounting (Without DIN rail)	
D3	For 3 stations	Specify a length longer than that of the standard rail.
⋮	⋮	
D24	For 24 stations	

∗ If the DIN rail must be mounted without an SI unit, select D0. Then, refer to L3 of the dimensions for the DIN rail length and order separately. (Refer to the **Web Catalogue** for the DIN rail part number.)
∗ Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

For details on the EX260 Integrated Type (For Output) Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details.
Please download the Operation Manual via the SMC website, https://www.smc.eu

How to Order Valves (With mounting screw)

HF1-SY 3 1 3 0 □ □ □ □ – 5 □ □ 1 – C6 □ – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❸ Top ported

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

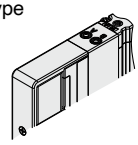
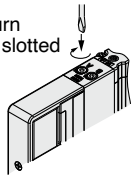
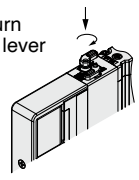
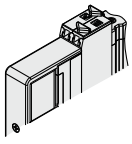
5	24 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override

— : Non-locking push type	D: Push-turn locking slotted type	E: Push-turn locking lever type	F: Slide locking type
			

∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	A, B port	HF1-SY3000	HF1-SY5000	HF1-SY7000
C4	Ø 4	●	●	—
C6	Ø 6	●	●	●
C8	Ø 8	—	●	●
C10	Ø 10	—	—	●
C12	Ø 12	—	—	●

⓬ Thread type

—	Rc
F	G
N	NPT
T	NPTF

∗ Only — is available for M5.

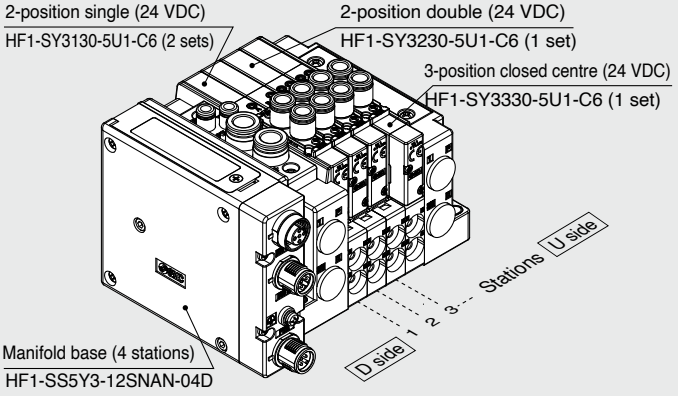
⓭ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

How to Order Manifold Assembly

Example (HF1-SS5Y3-12SNAN-□)



HF1-SS5Y3-12SNAN-04D ··· 1 set (Type 12 4-station manifold base part no.)
∗HF1-SY3130-5U1-C6 ····· 2 sets (2-position single part no.)
∗HF1-SY3230-5U1-C6 ····· 1 set (2-position double part no.)
∗HF1-SY3330-5U1-C6 ····· 1 set (3-position closed centre part no.)
The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

⚠ Protective class class Ⅲ (Mark: ⧫)

Type 10 Side Ported | Type 11 Bottom Ported | Plug-in | EX126

Connector Connecting Base

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 10 S4 V – 05 U □ – C6 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type

10	Side ported
11	Bottom ported*1

*1 The HF1-SY5000 manifold base is used for the bottom-ported HF1-SY3000. When ordering, refer to the "Plug-in Mixed Mounting Type Manifold" (from page 63 and later).

❸ SI unit

0	Without SI unit
V	CC-Link (Positive common NPN)

* Only a terminal block plate is mounted for the valve without SI unit.

❹ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout*2 (Up to 16 solenoids available)
⋮	⋮	
16	16 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations. Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

*2 Specified layout: Indicate the wiring specifications with the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)

* This also includes the number of the blanking plate assembly.

❺ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 16 stations)

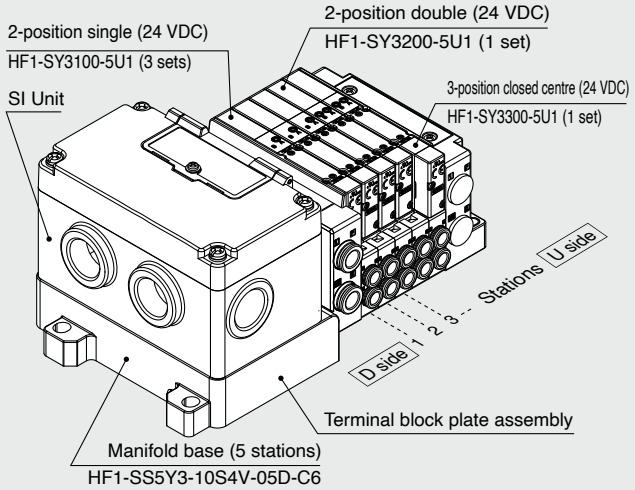
❻ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* 3/5(E) port is plugged for the built-in silencer type.
* When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

How to Order Manifold Assembly

Example (HF1-SS5Y3-10S4V-□-□)



HF1-SS5Y3-10S4V-05D-C6 ····· 1 set (Type 10 5-station manifold base part no.)
***HF1-SY3100-5U1 ····· 3 sets (2-position single part no.)**
***HF1-SY3200-5U1 ····· 1 set (2-position double part no.)**
***HF1-SY3300-5U1 ····· 1 set (3-position closed centre part no.)**

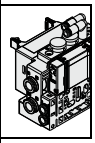
→ The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

* When mixing top-ported configurations, select from those listed on page 54. In such cases, use caution as there is also output on the A and B ports on the base side.
Specify on the manifold specification sheet if plugs are required for the A and B ports on the base side.

❼ A, B port size (Metric/One-touch fitting)

Symbol	A, B port		Type 10/Side ported			Type 11/Bottom ported	
			HF1-SY3000	HF1-SY5000	HF1-SY7000	HF1-SY5000	HF1-SY7000
C4	Straight	Ø 4	●	●	—	●	—
C6		Ø 6	●	●	●	●	●
C8		Ø 8	—	●	●	●	●
C10		Ø 10	—	—	●	—	●
C12		Ø 12	—	—	●	—	●
CM*1		Straight port, mixed sizes	●	●	●	●	●
P, E port size (One-touch fittings)			Ø 8	Ø 10	Ø 12	Ø 10	Ø 12



*1 Indicate the sizes on the manifold specification sheet in the case of "CM." The direction of P, E port fittings is the same as for the A, B port.

* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

❽ Mounting and Option

Symbol	Mounting	Option	
		Name plate	Station number
—	Direct mounting	—	—
AA		●	●
BA		●	—
D□	DIN rail mounting	—	—
A□		●	●
B□		●	—

* Enter the number of stations inside □ when it is larger than the number of valve stations. (Refer to "DIN Rail Option" on the right.)
* Only direct mounting is available for the type 11 bottom-ported type.
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

DIN Rail Option

—	Standard length	
0	Without DIN rail (with bracket)	
3	For 3 stations	Specify a longer rail than the total length of specified stations.
⋮	⋮	
16	For 16 stations	

* If the DIN rail must be mounted without an SI unit, select D0. Then, refer to L3 of the dimensions for the DIN rail length and order separately. (Refer to the **Web Catalogue** for the DIN rail part number.)

For details on the EX126 Integrated Type (For Output) Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details.
Please download the Operation Manual via the SMC website, https://www.smc.eu

How to Order Valves (With mounting screw)

HF1-SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.C.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	–	–	Non-polar
R	–	●	
U	●		
S	–		Positive common
Z	●		

∗ For the non-polar type, be careful of surge voltage intrusion.
Refer to the **Web Catalogue** for details.
∗ Only "Z" type is available with a power saving circuit.

❿ Manual override

—: Non-locking push type	D: Push-turn locking slotted type
E: Push-turn locking lever type	F: Slide locking type

∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class Ⅲ (Mark: ⧈)

Type 12 Top Ported **Plug-in** Connector Connecting Base

EX126

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 12S4 V – 05 U □ – □□

❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ SI unit

0	Without SI unit
V	CC-Link (Positive common NPN)

∗ Only a terminal block plate is mounted for the valve without SI unit.

❸ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring∗1
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout∗2 (Up to 16 solenoids available)
⋮	⋮	
16	16 stations	

∗1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.

∗2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)

∗ This also includes the number of the blanking plate assembly.

❹ P, E port entry

U∗1	U side (2 to 10 stations)
D∗1	D side (2 to 10 stations)
B	Both sides (2 to 16 stations)

∗1 ❺ For type "S", SUP/EXH block assembly with a built-in silencer, choose U or D for P, E port entry.

❺ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

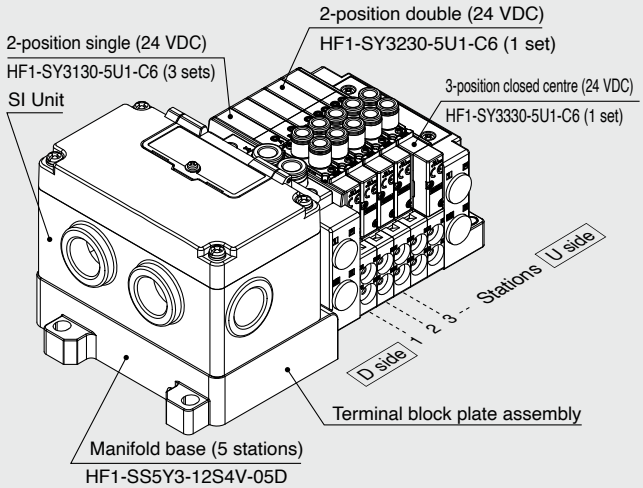
∗ The P and E ports are only available on the U and D sides for the built-in silencer type. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of the P and E port entry. (Example: When the P and E port entry is on the D side, the silencer exhaust port is on the U side.)

∗ When the built-in silencer type is used, keep the exhaust port from coming into direct contact with water or other liquids.

∗ As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

How to Order Manifold Assembly

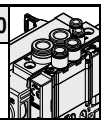
Example (HF1-SS5Y3-12S4V-□-□)



HF1-SS5Y3-12S4V-05D··· 1 set (Type 12 5-station manifold base part no.)
∗HF1-SY3130-5U1-C6 ·····3 sets (2-position single part no.)
∗HF1-SY3230-5U1-C6 ·····1 set (2-position double part no.)
∗HF1-SY3330-5U1-C6 ·····1 set (3-position closed centre part no.)
→ The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

• For the valve arrangement, the valve closest to the D side is considered the 1st station.
• Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

❻ P, E port size (One-touch fittings)

Symbol	HF1-SY3000	HF1-SY5000	HF1-SY7000	
—	Ø 8	Ø 10	Ø 12	

❼ Mounting

—	Direct mounting	
D	DIN rail mounting (With DIN rail)	
D0	DIN rail mounting (Without DIN rail)	
D3	For 3 stations	Specify a length longer than that of the standard rail.
⋮	⋮	
D16	For 16 stations	

∗ Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

For details on the EX126 Integrated Type (For Output) Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details.
Please download the Operation Manual via the SMC website, https://www.smc.eu

How to Order Valves (With mounting screw)

HF1-SY 3 1 3 0 ❑ ❑ ❑ ❑ – 5 ❑ ❑ 1 – C6 ❑ – ❑

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

Top ported

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC

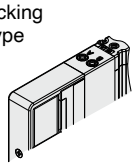
❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		

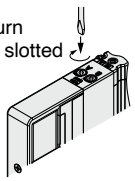
∗ For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
∗ Only "Z" type is available with a power saving circuit.

❿ Manual override

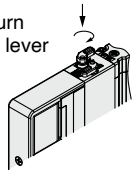
—: Non-locking push type



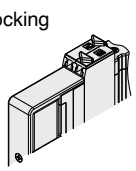
D: Push-turn locking slotted type



E: Push-turn locking lever type



F: Slide locking type



∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	A, B port	HF1-SY3000	HF1-SY5000	HF1-SY7000
C4	Ø 4	●	●	—
C6	Ø 6	●	●	●
C8	Ø 8	—	●	●
C10	Ø 10	—	—	●
C12	Ø 12	—	—	●

⓬ Thread type

—	Rc
F	G
N	NPT
T	NPTF

∗ Only — is available for M5.

⓭ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class Ⅲ (Mark: ⧫)

Type 10 Side Ported | Type 11 Bottom Ported | Plug-in | EX120

Connector Connecting Base

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 10 S3 R1 – 05 U □ – C6 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type

10	Side ported
11	Bottom ported*1

*1 The HF1-SY5000 manifold base is used for the bottom-ported HF1-SY3000. When ordering, refer to the "Plug-in Mixed Mounting Type Manifold" (from page 63 and later).

❸ SI unit

0	Without SI unit	
Q	DeviceNet® (Positive common NPN)	
R1	OMRON CompoBus/S (Positive common NPN)	16 outputs
R2		8 outputs
V	CC-Link (Positive common NPN)	
ZB*1	CompoNet®	Positive common NPN
ZBN*1		Negative common PNP

*1 The communication connector (for the opposite side) is not provided. Please order it separately.
* Ensure a match with the common specification of the valve to be used.

❹ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout*2 (Up to 16 solenoids available)
⋮	⋮	
16	16 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)
* This also includes the number of the blanking plate assembly.
* Since R2 type SI unit has 8 outputs, note that up to 8 solenoids can be accommodated.

❺ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 16 stations)

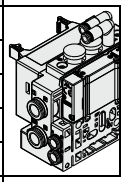
❻ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* 3/5(E) port is plugged for the built-in silencer type.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❼ A, B port size (Metric/One-touch fitting)

Symbol		A, B port	Type 10/Side ported			Type 11/Bottom ported	
			HF1-SY3000	HF1-SY5000	HF1-SY7000	HF1-SY5000	HF1-SY7000
C4	Straight	Ø 4	●	●	–	●	–
C6		Ø 6	●	●	●	●	●
C8		Ø 8	–	●	●	●	●
C10		Ø 10	–	–	●	–	●
C12		Ø 12	–	–	●	–	●
CM*1		Straight port, mixed sizes	●	●	●	●	●
P, E port size (One-touch fittings)			Ø 8	Ø 10	Ø 12	Ø 10	Ø 12



*1 Indicate the sizes on the manifold specification sheet in the case of "CM." The direction of P, E port fittings is the same as for the A, B port.
* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

❽ Mounting and Option

Symbol	Mounting	Option	
		Name plate	Station number
—	Direct mounting	–	–
AA		●	●
BA		●	–
D□	DIN rail mounting	–	–
A□		●	●
B□		●	–

* Enter the number of stations inside □ when it is larger than the number of valve stations. (Refer to "DIN Rail Option" below.)
* Only direct mounting is available for the type 11 bottom-ported type.
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

DIN Rail Option

—	Standard length	
0	Without DIN rail (with bracket)	
3	For 3 stations	Specify a longer rail than the total length of specified stations.
⋮	⋮	
16	For 16 stations	

* If the DIN rail must be mounted without an SI unit, select D0. Then, refer to L3 of the dimensions for the DIN rail length and order separately. (Refer to the **Web Catalogue** for the DIN rail part number.)

For details on the EX120 Integrated Type (For Output) Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details.
Please download the Operation Manual via the SMC website, https://www.smc.eu

How to Order Valves (With mounting screw)

HF1-SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion.
Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override

—: Non-locking push type	D: Push-turn locking slotted type
E: Push-turn locking lever type	F: Slide locking type

∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

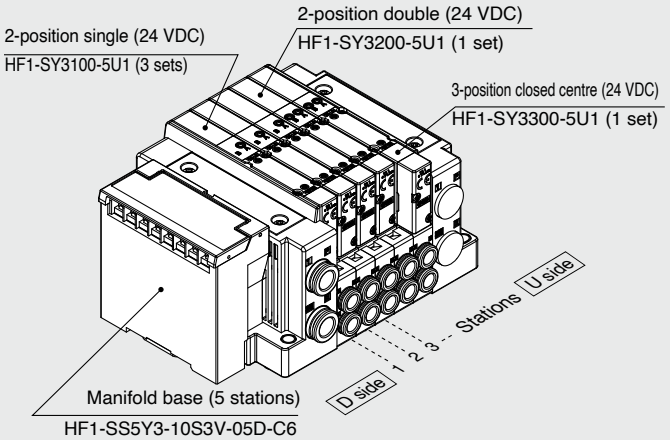
⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

How to Order Manifold Assembly

Example (HF1-SS5Y3-10S3V-□)



HF1-SS5Y3-10S3V-05D-C6 ··· 1 set (Type 10 5-station manifold base part no.)
∗HF1-SY3100-5U1 ····· 3 sets (2-position single part no.)
∗HF1-SY3200-5U1 ····· 1 set (2-position double part no.)
∗HF1-SY3300-5U1 ····· 1 set (3-position closed centre part no.)
The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

• For the valve arrangement, the valve closest to the D side is considered the 1st station.
• Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

∗ When mixing top-ported configurations, select from those listed on page 58. In such cases, use caution as there is also output on the A and B ports on the base side.
Specify on the manifold specification sheet if plugs are required for the A and B ports on the base side.

⚠ Protective class class Ⅲ (Mark: ⧫)

Type 12 Top Ported **Plug-in** Connector Connecting Base

EX120

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 12S3 R1 – 05 U □ – □ □

❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ SI unit

0	Without SI unit	
Q	DeviceNet® (Positive common NPN)	
R1	OMRON CompoBus/S (Positive common NPN)	16 outputs
R2		8 outputs
V	CC-Link (Positive common NPN)	
ZB*1	CompoNet®	Positive common NPN
ZBN*1		Negative common PNP

*1 The communication connector (for the opposite side) is not provided. Please order it separately.
* Ensure a match with the common specification of the valve to be used.

❸ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout*2 (Up to 16 solenoids available)
⋮	⋮	
16	16 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)
* This also includes the number of the blanking plate assembly.
* Since R2 type SI unit has 8 outputs, note that up to 8 solenoids can be accommodated.

❹ P, E port entry

U*1	U side (2 to 10 stations)
D*1	D side (2 to 10 stations)
B	Both sides (2 to 16 stations)

*1 ❺ For type "S", SUP/EXH block assembly with a built-in silencer, choose U or D for P, E port entry.

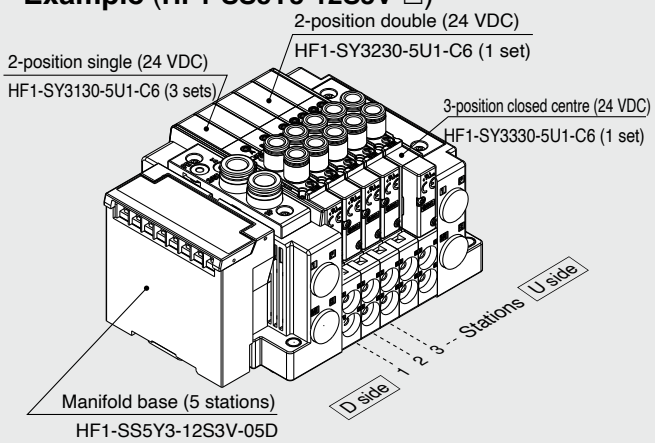
❺ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* The P and E ports are only available on the U and D sides for the built-in silencer type. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of the P and E port entry. (Example: When the P and E port entry is on the D side, the silencer exhaust port is on the U side.)
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

How to Order Manifold Assembly

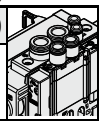
Example (HF1-SS5Y3-12S3V-□)



HF1-SS5Y3-12S3V-05D··· 1 set (Type 12 5-station manifold base part no.)
***HF1-SY3130-5U1-C6 ····· 3 sets (2-position single part no.)**
***HF1-SY3230-5U1-C6 ····· 1 set (2-position double part no.)**
***HF1-SY3330-5U1-C6 ····· 1 set (3-position closed centre part no.)**
The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

❻ P, E port size (One-touch fittings)

Symbol	HF1-SY3000	HF1-SY5000	HF1-SY7000	
—	Ø 8	Ø 10	Ø 12	

❼ Mounting

—	Direct mounting	
D	DIN rail mounting (With DIN rail)	
D0	DIN rail mounting (Without DIN rail)	
D3	For 3 stations	Specify a length longer than that of the standard rail.
⋮	⋮	
D16	For 16 stations	

* If the DIN rail must be mounted without an SI unit, select D0. Then, refer to L3 of the dimensions for the DIN rail length and order separately. (Refer to the **Web Catalogue** for the DIN rail part number.)
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

For details on the EX120 Integrated Type (For Output) Serial Transmission System, refer to the Web Catalogue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the Web Catalogue for details.
Please download the Operation Manual via the SMC website, https://www.smc.eu

How to Order Valves (With mounting screw)

HF1-SY 3 1 3 0 ☐ ☐ ☐ ☐ – 5 ☐ ☐ 1 – C6 ☐ – ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

● Top ported

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

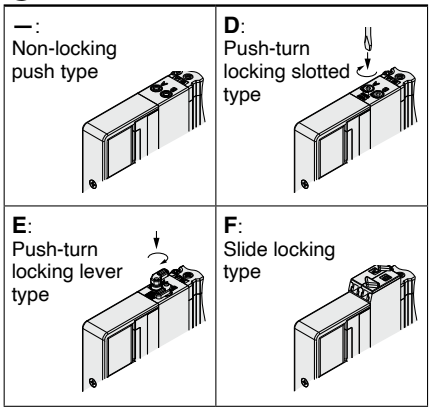
5	24 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override



∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	A, B port	HF1-SY3000	HF1-SY5000	HF1-SY7000
C4	Ø 4	●	●	—
C6	Ø 6	●	●	●
C8	Ø 8	—	●	●
C10	Ø 10	—	—	●
C12	Ø 12	—	—	●

⓬ Thread type

—	Rc
F	G
N	NPT
T	NPTF

∗ Only — is available for M5.

⓭ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class Ⅲ (Mark: ⧾)

Type 10 Side Ported | Type 11 Bottom Ported | Plug-in Connector Connecting Base | EX180

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 10 S 8 Q □ □ – 05 U – C6 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type

10	Side ported
11	Bottom ported*1

*1 The HF1-SY5000 manifold base is used for the bottom ported HF1-SY3000. When ordering, refer to the "Plug-in Mixed Mounting Type Manifold" (Refer to page 63 and later).

❸ SI unit

0	Without SI unit
Q	DeviceNet®
V	CC-Link

* Only the connector block assembly is mounted for models without an SI unit.

❹ SI unit output polarity, Number of outputs

	32 outputs	16 outputs
Without SI unit	—	
Positive common (NPN)	2	3
Negative common (PNP)	4	5

* When "V" (CC-Link) is selected for the SI unit, only symbol "2" or "4" (32 outputs) can be selected.
* Ensure a match with the common specification of the valves to be used.

❺ Communication connector

—	T-branch type
A	Straight type

* The communication connector and power connector are shipped together with the manifold. The power connector is only available for the straight type.
* When not selecting an SI unit, the symbol will be "—."

❻ Valve stations

In the case of the 32-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout*2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

In the case of the 16-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout*2 (Up to 16 solenoids available)
⋮	⋮	
16	16 stations	

*1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
*2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)
* This also includes the number of the blanking plate assembly.
* For the product without the SI unit (S80), note the maximum number of solenoids of the SI unit that will be mounted. If the layout is specified, indicate it on the manifold specification sheet.

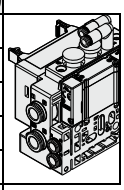
❼ P, E port entry, SUP/EXH block assembly

P, E port entry	Internal pilot	Internal pilot, Built-in silencer	External pilot
U side (2 to 10 stations)	U	C	G
D side (2 to 10 stations)	D	E	H
Both sides (2 to 24 stations)	B	F	J

* 3/5(E) port is plugged for the built-in silencer type.
* When the built-in silencer type is used, keep the exhaust port from coming in direct contact with water or other liquids.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❽ A, B port size (Metric/One-touch fitting)

Symbol	A, B port		Type 10/Side ported HF1-SY3000	Type 10/Side ported HF1-SY5000	Type 10/Side ported HF1-SY7000	Type 11/Bottom ported HF1-SY5000	Type 11/Bottom ported HF1-SY7000
C4	Straight	Ø 4	●	●	—	●	—
C6		Ø 6	●	●	●	●	●
C8		Ø 8	—	●	●	●	●
C10		Ø 10	—	—	●	—	●
C12		Ø 12	—	—	●	—	●
CM*1		Straight port, mixed sizes	●	●	●	●	●
P, E port size (One-touch fittings)			Ø 8	Ø 10	Ø 12	Ø 10	Ø 12



*1 Indicate the sizes on the manifold specification sheet in the case of "CM." The direction of P, E port fittings is the same as for the A, B port.
* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

❾ Mounting and Option

Symbol	Mounting	Option: Name plate	Option: Station number
—	Direct mounting	—	—
AA		●	●
BA		●	—
D□	DIN rail mounting	—	—
A□		●	●
B□		●	—

DIN Rail Option

—	Standard length	
0	Without DIN rail (with bracket)	
3	For 3 stations	Specify a longer rail than the total length of specified stations.
⋮	⋮	
24	For 24 stations	

* Enter the number of stations inside □ when it is larger than the number of valve stations. (Refer to "DIN Rail Option" above.)
* Only direct mounting is available for Type 11 (Bottom ported).
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

For details on the EX180 Integrated Type (For Output) Serial Transmission System, refer to the **Web Catalo**gue and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the **Web Catalogue** for details.
Please download the Operation Manual via the SMC website:
https://www.smc.eu

How to Order Valves (With mounting screw)

HF1-SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power-saving circuit (Continuous duty type)

∗ Be sure to select the power-saving circuit type when the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power-saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	–	–	Non-polar
R	–	●	
U	●		
S	–		Positive common
Z	●		
NS	–		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" are available with a power-saving circuit.

❿ Manual override

—: Non-locking push type	D: Push-turn locking slotted type
E: Push-turn locking lever type	F: Slide locking type

∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

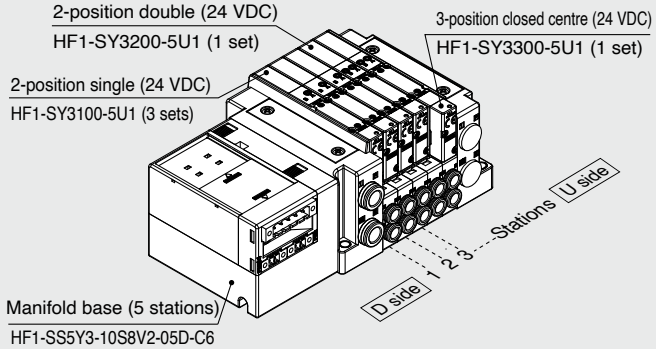
⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.
∗ "B" and "H" cannot be selected for the individual SUP/EXH spacer assembly, interface regulator, or double check spacer assembly with residual pressure release valve.

How to Order Manifold Assembly

Example (HF1-SS5Y3-10S8□-□)



HF1-SS5Y3-10S8V2-05D-C6 ····· 1 set (Type 10 5-station manifold base part no.)
∗HF1-SY3100-5U1 ····· 3 sets (2-position single part no.)
∗HF1-SY3200-5U1 ····· 1 set (2-position double part no.)
∗HF1-SY3300-5U1 ····· 1 set (3-position closed centre part no.)
The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1 st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

∗ When mixing top-ported configurations, select from those listed on page 62.
In such cases, use caution as there is also output on the A and B ports on the base side. Specify on the manifold specification sheet if plugs are required for the A and B ports on the base side.

⚠ Protective class class Ⅲ (Mark: Ⅲ)

Type 12 Top Ported **Plug-in** **Connector Connecting Base**

EX180

HF1-SY3000/5000/7000 Series

How to Order Manifolds

HF1-SS5Y 3 – 12S8 Q □ □ – 05 U – □ □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ SI unit

0	Without SI unit
Q	DeviceNet®
V	CC-Link

∗ Only the connector block assembly is mounted for models without an SI unit.

❸ SI unit output polarity, Number of outputs

	32 outputs	16 outputs
Without SI unit	—	
Positive common (NPN)	2	3
Negative common (PNP)	4	5

∗ When "V" (CC-Link) is selected for the SI unit, only symbol "2" or "4" (32 outputs) can be selected.
∗ Ensure a match with the common specification of the valves to be used.

❹ Communication connector

—	T-branch type
A	Straight type

∗ The communication connector and power connector are shipped together with the manifold. The power connector is only available for the straight type.
∗ When not selecting an SI unit, the symbol will be "—."

❺ Valve stations

In the case of the 32-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring∗1
⋮	⋮	
16	16 stations	
02	2 stations	Specified layout∗2 (Up to 32 solenoids available)
⋮	⋮	
24	24 stations	

In the case of the 16-output SI unit

Symbol	Stations	Note
02	2 stations	Double wiring∗1
⋮	⋮	
08	8 stations	
02	2 stations	Specified layout∗2 (Up to 16 solenoids available)
⋮	⋮	
16	16 stations	

∗1 Double wiring: 2-position single, double, 3-position, and 4-position valves can be used on all manifold stations.
Use of a 2-position single solenoid will result in an unused control signal. If this is not desired, order with a specified layout.
∗2 Specified layout: Indicate the wiring specifications on the manifold specification sheet. (Note that 2-position double, 3-position, and 4-position valves cannot be used where single wiring has been specified.)
∗ This also includes the number of the blanking plate assembly.
∗ For the product without the SI unit (S80), note the maximum number of solenoids of the SI unit that will be mounted. If the layout is specified, indicate it on the manifold specification sheet.

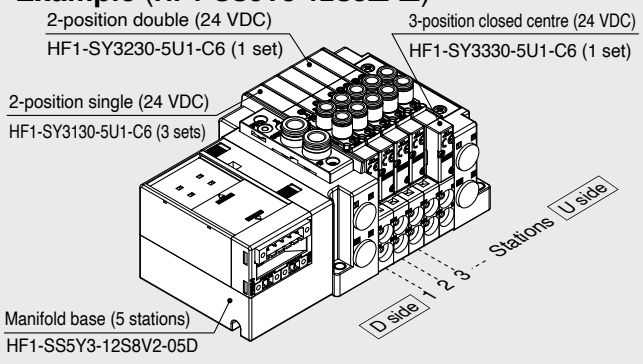
❻ P, E port entry, SUP/EXH block assembly

P, E port entry	Internal pilot	Internal pilot, Built-in silencer	External pilot
U side (2 to 10 stations)	U	C∗1	G
D side (2 to 10 stations)	D	E∗1	H
Both sides (2 to 24 stations)	B	—	J

∗1 For SUP/EXH block assembly specifications, built-in silencer types will have P port entry stipulated.
∗ For built-in silencer type, P and E ports are available on U and D sides. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of P, E port entry. (Example: When the P, E port entry is D side, the silencer exhaust port is U side.)
∗ When the built-in silencer type is used, keep the exhaust port from coming in direct contact with water or other liquids.
∗ As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

How to Order Manifold Assembly

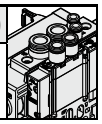
Example (HF1-SS5Y3-12S8□-□)



HF1-SS5Y3-12S8V2-05D ··· 1 set (Type 10 5-station manifold base part no.)
∗HF1-SY3130-5U1-C6 ····· 3 sets (2-position single part no.)
∗HF1-SY3230-5U1-C6 ····· 1 set (2-position double part no.)
∗HF1-SY3330-5U1-C6 ····· 1 set (3-position closed centre part no.)
The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

• For the valve arrangement, the valve closest to the D side is considered the 1st station.
• Under the manifold part number, state the valves to be mounted in order starting with the 1 st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

❼ P, E port size (One-touch fittings)

Symbol	HF1-SY3000	HF1-SY5000	HF1-SY7000	
—	Ø 8	Ø 10	Ø 12	

❽ Mounting

—	Direct mounting	
D	DIN rail mounting (With DIN rail)	
D0	DIN rail mounting (Without DIN rail)	
D3	For 3 stations	Specify a longer rail than the standard length.
⋮	⋮	
D24	For 24 stations	

∗ Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

For details on the EX180 Integrated Type (For Output) Serial Transmission System, refer to the **Web Catalogue** and the Operation Manual. For the part numbers of the SI units to be mounted, they are the same as those of the standard product. Refer to the **Web Catalogue** for details.
Please download the Operation Manual via the SMC website: https://www.smc.eu

How to Order Valves (With mounting screw)

HF1-SY 3 1 3 0 ☐ ☐ ☐ ☐ – 5 ☐ ☐ 1 – C6 ☐ – ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❸ Top ported

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power-saving circuit (Continuous duty type)

∗ Be sure to select the power-saving circuit type when the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power-saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC

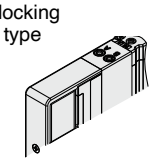
❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

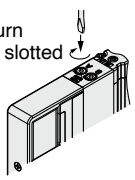
∗ For the non-polar type, be careful of surge voltage intrusion.
Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" are available with a power-saving circuit.

❿ Manual override

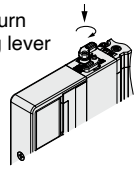
—: Non-locking push type



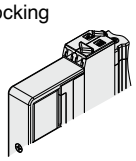
D: Push-turn locking slotted type



E: Push-turn locking lever type



F: Slide locking type



∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	A, B port	HF1-SY3000	HF1-SY5000	HF1-SY7000
C4	Ø 4	●	●	—
C6	Ø 6	●	●	●
C8	Ø 8	—	●	●
C10	Ø 10	—	—	●
C12	Ø 12	—	—	●

⓬ Thread type

—	Rc
F	G
N	NPT
T	NPTF

∗ Only — is available for M5.

⓭ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

⚠ Protective class class Ⅲ (Mark: ⧾)

Type 10 Side Ported | Type 11 Bottom Ported | **Plug-in** Connector Connecting Base: Plug-in Mixed Mounting Type Manifold

D-sub Connector (IP40/67) | Flat Ribbon Cable | Terminal Block Box/Spring Type (IP67) | Terminal Block Box (IP67) | Lead Wire (IP67) | Circular Connector (IP67) | EX500 (IP67) | EX600 (IP67) | EX245 (IP65) | EX250 (IP67) | EX260 (IP67) | EX126 (IP67) | EX120 | EX180

HF1-SY3000/5000 Series

The HF1-SY3000 can be mounted onto the HF1-SY5000 size manifold.

CE UKCA cULus * Refer to the connector type.

How to Order Manifolds

HF1-SS5Y5 – M 10 F 1 – 05 U ☐ – C 8 6 ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

Mixed Mounting Type

It is possible to mount the HF1-SY3000 size valves on all stations. In this case, there is no need to fill in part ❽ in the order code. However, the manifold block width should be 12.5 mm.

❶ Type

10	Side ported
11	Bottom ported

❸

• With Lead wire

Lead wire length

1	0.6 m
2	1.5 m
3	3 m

• With D-sub connector (IP40/67) and Flat ribbon cable

Connector entry direction

1	Upward
2	Lateral

* It is not necessary to select the items above for the valve with terminal block box or with circular connector or the serial transmission type.

❹ Valve stations

Symbol	Stations	Note
02	2 stations	Some connectors have a limitation on the number of stations. Refer to the pages shown in the table "Connector type" for details.
⋮	⋮	
24	24 stations	

❺ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

* Refer to ❼ on page 33 for the EX600, page 41 for the EX250, and page 59 for the EX180.

❷ Connector type

Symbol	Type		Page
F	D-sub connector (25 pins)	IP40	5
FW		IP67	
P	Flat ribbon cable	26 pins	
PG		20 pins	
PH		10 pins	
TC	Terminal block box (Spring type)		9
T	Terminal block box		13
L1	Lead wire	34 cores	17
L2		17 cores	
L3		9 cores	
M	Circular connector		21
S☐	Serial transmission	EX500 Gateway Decentralized System 2 (128 points)	25
S6☐		EX600	33
SA☐		EX245	37
S☐		EX250	41
S☐		EX260	45
S4☐*1		EX126	51
S3☐*1		EX120	55
S8☐		EX180	59

∗1 EX126, EX120 are not yet UL-compliant.
* Refer to the pages shown in the table above for details.

❻ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* 3/5(E) port is plugged for the built-in silencer type.
* Refer to ❼ on page 33 for the EX600, page 41 for the EX250, and page 59 for the EX180.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❼ Fitting type: One-touch fitting

Symbol	A, B port	
C	Metric size	Straight
CM*1	Mixed sizes	Straight

∗1 Select CM if mixed port sizes are to be used for each series. (For example, if mixed sizes, such as C6 and C8, are to be used for the HF1-SY5000 series) In such cases, indicate the sizes on the manifold specification sheet.
The direction of P, E port fittings is the same as for the A, B port.
* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

❽ HF1-SY5000: A, B port size

(Metric/One-touch fitting)

Symbol	Port size
4	Ø 4
6	Ø 6
8	Ø 8
—	For all stations of HF1-SY3000

* No symbol needs to be specified when fitting type "CM" is selected.

❾ HF1-SY3000: A, B port size

(Metric/One-touch fitting)

Symbol	Port size
4	Ø 4
6	Ø 6
8	Ø 8*1

∗1 The valve pitch is the same as that of the HF1-SY5000.
* No symbol needs to be specified when fitting type "CM" is selected.

❿ Mounting

—	Direct mounting	
D	DIN rail mounting (With DIN rail)	
D0	DIN rail mounting (Without DIN rail)	
D3	For 3 stations	Specify a length longer than that of the standard rail. [The HF1-SY5000 valve is now at a mountable length (manifold block length of 16 mm).]
⋮	⋮	
D24	For 24 stations	

* Only direct mounting is available for the type 11 bottom-ported type.
* Refer to the **Web Catalogue** to determine the L3 using "Calculation formula" for the DIN rail length.
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

How to Order Valves (With mounting screw)

HF1-SY 3 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

3	HF1-SY3000
5	HF1-SY5000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC
6	12 VDC

∗ Only 24 VDC is available for the serial transmission type.

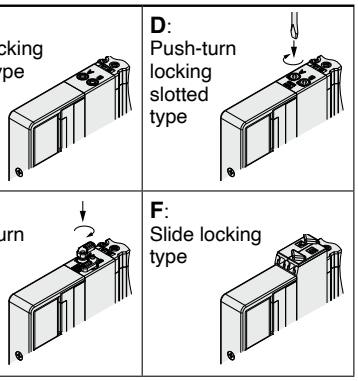
❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion.
Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override

—: Non-locking push type	**D**: Push-turn locking slotted type
E: Push-turn locking lever type	**F**: Slide locking type



∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

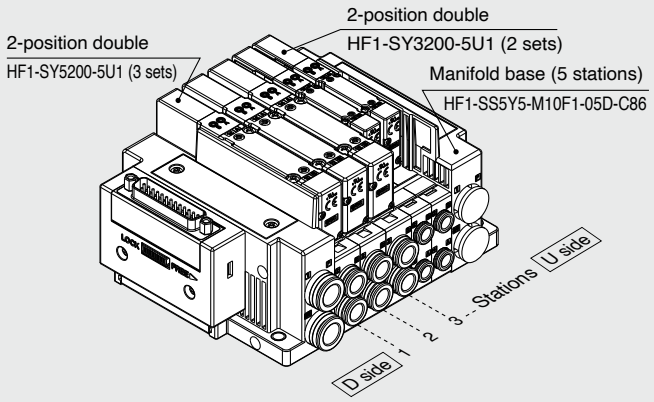
⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.
∗ "B" and "H" cannot be selected for the individual SUP/EXH spacer assembly, interface regulator, or double check spacer assembly with residual pressure release valve.

How to Order Manifold Assembly

Example (HF1-SS5Y5-M10F1-□)



HF1-SS5Y5-M10F1-05D-C86 ····1 set (Type M10 5-station manifold base part no.)
∗**HF1-SY5200-5U1** ·····**3 sets (2-position double part no.)**
∗**HF1-SY3200-5U1** ·····**2 sets (2-position double part no.)**
→ **The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.**

• For the valve arrangement, the valve closest to the D side is considered the 1st station.
• Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

∗ When mixing top-ported configurations, select from those listed on page 68.
In such cases, use caution as there is also output on the A and B ports on the base side.
Specify on the manifold specification sheet if plugs are required for the A and B ports on the base side.

⚠ Protective class class Ⅲ (Mark: Ⅲ)

Type 10 Side Ported | Type 11 Bottom Ported | **Plug-in** Connector Connecting Base: Plug-in Mixed Mounting Type Manifold

D-sub Connector (IP40/67) | Flat Ribbon Cable | Terminal Block Box/Spring Type (IP67) | Terminal Block Box (IP67) | Lead Wire (IP67) | Circular Connector (IP67) | EX500 (IP67) | EX600 (IP67) | EX245 (IP65) | EX250 (IP67) | EX260 (IP67) | EX126 (IP67) | EX120 | EX180

HF1-SY5000/7000 Series

The HF1-SY5000 can be mounted onto the HF1-SY7000 size manifold.

CE UKCA cULus * Refer to the connector type.

How to Order Manifolds

HF1-SS5Y7 – M 10 F 1 – 05 U □ – C 10 8 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

Mixed Mounting Type

It is possible to mount the HF1-SY5000 size valves on all stations. In this case, there is no need to fill in part ❽ in the order code. However, the manifold block width should be 19 mm.

❶ Type

10	Side ported
11	Bottom ported

❸

• With Lead wire

Lead wire length

1	0.6 m
2	1.5 m
3	3 m

• With D-sub connector (IP40/67) and Flat ribbon cable

Connector entry direction

1	Upward
2	Lateral

* It is not necessary to select the items above for the valve with terminal block box or with circular connector or the serial transmission type.

❹ Valve stations

Symbol	Stations	Note
02	2 stations	Some connectors have a limitation on the number of stations. Refer to the pages shown in the table "Connector type" for details.
⋮	⋮	
24	24 stations	

❺ P, E port entry

U	U side (2 to 10 stations)
D	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

* Refer to ❼ on page 33 for the EX600, page 41 for the EX250, and page 59 for the EX180.

❷ Connector type

Symbol	Type		Page
F	D-sub connector (25 pins)	IP40	5
FW		IP67	
P	Flat ribbon cable	26 pins	
PG		20 pins	
PH		10 pins	
TC	Terminal block box (Spring type)		9
T	Terminal block box		13
L1	Lead wire	34 cores	17
L2		17 cores	
L3		9 cores	
M	Circular connector		21
S□	Serial transmission	EX500 Gateway Decentralized System 2 (128 points)	25
S6□		EX600	33
SA□		EX245	37
S□		EX250	41
S□		EX260	45
S4□*1		EX126	51
S3□*1		EX120	55
S8□		EX180	59

*1 EX126, EX120 are not yet UL-compliant.
* Refer to the pages shown in the table above for details.

❻ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* 3/5(E) port is plugged for the built-in silencer type.
* Refer to ❼ on page 33 for the EX600, page 41 for the EX250, and page 59 for the EX180.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❼ Fitting type: One-touch fitting

Symbol	A, B port	
C	Metric size	Straight
CM*1	Mixed sizes	Straight

*1 Select CM if mixed port sizes are to be used for each series. (For example, if mixed sizes, such as C6 and C8, are to be used for the HF1-SY5000 series) In such cases, indicate the sizes on the manifold specification sheet.
The direction of P, E port fittings is the same as for the A, B port.
* To avoid interference with the body or piping, select a downward elbow port when mounting the optional spacer assembly.

❽ HF1-SY7000: A, B port size

(Metric/One-touch fitting)

Symbol	Port size
6	Ø 6
8	Ø 8
10	Ø 10
12	Ø 12
—	For all stations of HF1-SY5000

* No symbol needs to be specified when fitting type "CM" is selected.

❾ HF1-SY5000: A, B port size

(Metric/One-touch fitting)

Symbol	Port size
6	Ø 6
8	Ø 8
10	Ø 10
12	Ø 12

* The valve pitch is 19 mm, the same as that of the HF1-SY7000.
* No symbol needs to be specified when fitting type "CM" is selected.

❿ Mounting and Option

Symbol	Mounting	Option	
		Name plate	Station number
—	Direct mounting	—	—
AA		●	●
BA		●	—
D□	DIN rail mounting	—	—
A□		●	●
B□		●	—

DIN Rail Option

—	Standard length	
0	Without DIN rail (with bracket)	
3	For 3 stations	Specify a longer rail than the total length of specified stations.
⋮	⋮	
24	For 24 stations	

* Enter the number of stations inside □ when it is larger than the number of valve stations. (Refer to "DIN Rail Option" above.)
* Only direct mounting is available for the type 11 bottom-ported type.
* Refer to the **Web Catalogue** to determine the L3 using "Calculation formula" for the DIN rail length. (For the HF1-SY3000 and HF1-SY5000 mixed mounting type)
* The manifold block width is 19 mm for both the HF1-SY5000 and HF1-SY7000 sizes.
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

How to Order Valves (With mounting screw)

HF1-SY 5 1 0 0 □ □ □ □ – 5 □ □ 1 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❸ Base mounted

❶ Series

5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC
6	12 VDC

∗ Only 24 VDC is available for the serial transmission type.

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override

—: Non-locking push type	**D**: Push-turn locking slotted type
E: Push-turn locking lever type	**F**: Slide locking type

∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

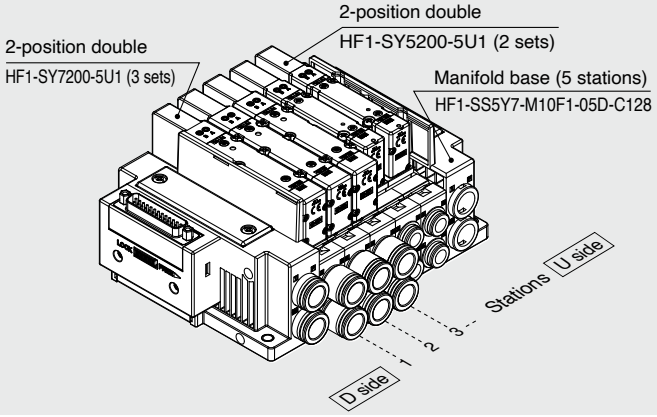
⓫ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.
∗ "B" and "H" cannot be selected for the individual SUP/EXH spacer assembly, interface regulator, or double check spacer assembly with residual pressure release valve.

How to Order Manifold Assembly

Example (HF1-SS5Y7-M10F1-□)



HF1-SS5Y7-M10F1-05D-C128 ···1 set (Type M10 5-station manifold base part no.)
∗**HF1-SY7200-5U1** ·····**3 sets (2-position double part no.)**
∗**HF1-SY5200-5U1** ·····**2 sets (2-position double part no.)**
→ **The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.**

• For the valve arrangement, the valve closest to the D side is considered the 1st station.
• Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

∗ When mixing top-ported configurations, select from those listed on page 68.
In such cases, use caution as there is also output on the A and B ports on the base side.
Specify on the manifold specification sheet if plugs are required for the A and B ports on the base side.

⚠ Protective class class Ⅲ (Mark: Ⅲ)

Type 12 Top Ported **Plug-in** Connector Connecting Base: Plug-in Mixed Mounting Type Manifold

D-sub Connector (IP40/67) | Flat Ribbon Cable | Terminal Block Box/Spring Type (IP67) | Terminal Block Box (IP67) | Lead Wire (IP67) | Circular Connector (IP67) | EX500 (IP67) | EX600 (IP67) | EX245 (IP65) | EX250 (IP67) | EX260 (IP67) | EX126 (IP67) | EX120 | EX180

HF1-SY3000/5000/7000 Series

For the HF1-SY5000 series, the HF1-SY5000 and the HF1-SY3000 can be mounted on the same manifold.
For the HF1-SY7000 series, the HF1-SY7000 and the HF1-SY5000 can be mounted on the same manifold.

CE UKCA cULus * Refer to the connector type.

How to Order Manifolds

HF1-SS5Y 5 – M 12 F 1 – 05 U □ – □ □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

Mixed Mounting Type

For the HF1-SY5000 series, it is possible to mount the HF1-SY3000 size valves on all stations. However, the HF1-SY3000 manifold block width should be 12.5 mm. (16 mm for Ø 8 One-touch fitting)
Also, for the HF1-SY7000 series, it is possible to mount the HF1-SY5000 size valves on all stations. However, the HF1-SY3000 cannot be mounted onto the HF1-SY7000 series.

❶ Series

5	HF1-SY5000
7	HF1-SY7000

❸

• With Lead wire

Lead wire length

1	0.6 m
2	1.5 m
3	3 m

• With D-sub connector (IP40/67) and Flat ribbon cable

Connector entry direction

1	Upward
2	Lateral

* It is not necessary to select the items above for the valve with terminal block box or with circular connector or the serial transmission type.

❹ Valve stations

Symbol	Stations	Note
02	2 stations	Some connectors have a limitation on the number of stations. Refer to the pages shown in the table "Connector type" for details.
⋮	⋮	
24	24 stations	

❼ P, E port size (One-touch fittings)

Symbol	HF1-SY5000	HF1-SY7000	Note
—	Ø 10	Ø 12	Metric size

❷ Connector type

Symbol	Type		Page
F	D-sub connector (25 pins)	IP40	7
FW		IP67	
P	Flat ribbon cable	26 pins	
PG		20 pins	
PH		10 pins	
TC	Terminal block box (Spring type)		11
T	Terminal block box		15
L1	Lead wire	34 cores	19
L2		17 cores	
L3		9 cores	
M	Circular connector		23
S□	Serial transmission	EX500 Gateway Decentralized System 2 (128 points)	29
S6□		EX600	35
SA□		EX245	39
S□		EX250	43
S□		EX260	49
S4□*1		EX126	53
S3□*1		EX120	57
S8□		EX180	61

*1 EX126, EX120 are not yet UL-compliant.
* Refer to the pages shown in the table above for details.

❺ P, E port entry

U*1	U side (2 to 10 stations)
D*1	D side (2 to 10 stations)
B	Both sides (2 to 24 stations)

*1 For type "S", SUP/EXH block assembly with a built-in silencer, choose U or D for P, E port entry.
* Refer to page 35 for the EX600 and ❻ on page 43 for the EX250.

❻ SUP/EXH block assembly

—	Internal pilot
S	Internal pilot, Built-in silencer
R	External pilot

* The P and E ports are only available on the U and D sides for the built-in silencer type. 3/5(E) port is plugged. The silencer exhaust port is located on the opposite side of the P and E port entry. (Example: When the P and E port entry is on the D side, the silencer exhaust port is on the U side.)
* Refer to page 35 for the EX600 and ❻ on page 43 for the EX250.
* As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted with the exhaust air if there is a built-in silencer. If this poses a problem, select an option other than the built-in silencer that allows for piping to the exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

❽ Mounting

—	Direct mounting	
D	DIN rail mounting (With DIN rail)	
D0	DIN rail mounting (Without DIN rail)	
D3	For 3 stations	Specify a length longer than that of the standard rail. [For the HF1-SS5Y5-M12, the HF1-SY5000 valve is now at a mountable length (manifold block length of 16 mm).]
⋮	⋮	
D24	For 24 stations	

* Refer to the **Web Catalogue** to determine the L3 using "Calculation formula" for the DIN rail length. (For the HF1-SY3000 and HF1-SY5000 mixed mounting type)
* Refer to the **Web Catalogue** for the fixation of DIN rail mounting type manifold.

How to Order Valves (With mounting screw)

HF1-SY 3 1 3 0 ❹ ❺ ❻ ❼ – 5 ❽ ❾ 1 – C6 ⓫ ⓬ – ⓭

❶ ❷ ❸ Top ported

❶ Series

3	HY-SY3000
5	HY-SY5000
7	HY-SY7000

❷ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A	4-position dual 3-port	N.C./N.C.
B		N.O./N.O.
C		N.C./N.O.

❸ Seal type

0	Rubber seal

❹ Pilot type

—	Internal pilot
R	External pilot

∗ When selecting the external pilot specification for the 4-position dual 3-port valve, pay attention to the pilot pressure.

❺ Back pressure check valve (Built-in valve type)

—	None
H	Built-in

∗ The built-in valve type back pressure check valve is not available for the 3-position type or the HF1-SY7000.

❻ Pilot valve option

—	Standard (0.7 MPa)
B	Quick response type (0.7 MPa)

❼ Coil type

—	Standard
T	With power saving circuit (Continuous duty type)

∗ Be sure to select the power saving circuit type if the valve is to be continuously energised for long periods of time.
∗ Be careful of the energising time when the power saving circuit is selected. Refer to the **Web Catalogue** for details.

❽ Rated voltage

5	24 VDC
6	12 VDC

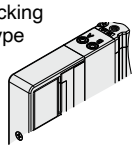
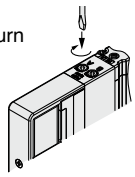
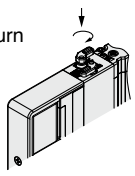
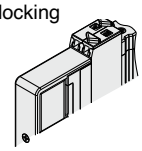
∗ Only 24 VDC is available for the serial transmission type.

❾ Light/surge voltage suppressor and common specification

Symbol	With light	Surge voltage suppressor	Common specification
—	—	—	Non-polar
R	—	●	
U	●		
S	—		Positive common
Z	●		
NS	—		Negative common
NZ	●		

∗ For the non-polar type, be careful of surge voltage intrusion. Refer to the **Web Catalogue** for details.
∗ Only "Z" and "NZ" types are available with a power saving circuit.

❿ Manual override

—: Non-locking push type	D: Push-turn locking slotted type	E: Push-turn locking lever type	F: Slide locking type
			

∗ Refer to the **Web Catalogue** for the safety slide locking manual override.

⓫ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	A, B port	HF1-SY3000	HF1-SY5000	HF1-SY7000
C4	Ø 4	●	●	—
C6	Ø 6	●	●	●
C8	Ø 8	—	●	●
C10	Ø 10	—	—	●
C12	Ø 12	—	—	●

⓬ Thread type

—	Rc
F	G
N	NPT
T	NPTF

∗ Only — is available for M5.

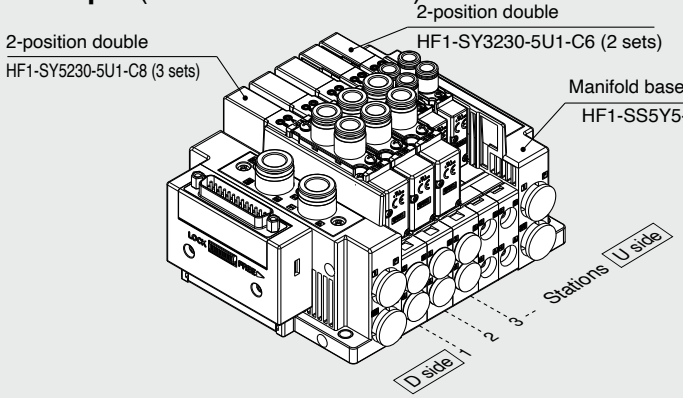
⓭ Type of mounting screw

—	Round head combination screw
B	Hexagon socket head cap screw
K	Round head combination screw (Drop prevention type)
H	Hexagon socket head cap screw (Drop prevention type)

∗ For "K" and "H," the valve body cover has a drop prevention construction to stop the mounting screws from falling out when the valve is removed for maintenance, etc.
∗ **When ordering a valve individually, the base gasket is not included.**
Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance. Refer to the **Web Catalogue** for base gasket and mounting screw part numbers.

How to Order Manifold Assembly

Example (HF1-SS5Y5-M12F1-□)



HF1-SS5Y5-M12F1-05D····1 set (Type M12 5-station manifold base part no.)
∗HF1-SY5230-5U1-C8 ·····3 sets (2-position double part no.)
∗HF1-SY3230-5U1-C6 ·····2 sets (2-position double part no.)
The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

- For the valve arrangement, the valve closest to the D side is considered the 1st station.
- Under the manifold part number, state the valves to be mounted in order starting with the 1st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

⚠ Protective class class Ⅲ (Mark: Ⅲ)

Manifold Options

∗ Refer to the **Web Catalogue** for dimensions.

⚠Caution

Tightening torque for mounting screw
M2: 0.16 N·m (HF1-SY3000)
M3: 0.8 N·m (HF1-SY5000/7000)

■ SUP stop valve spacer assembly with residual pressure release valve

[With a connector gasket, a base gasket, and two mounting screws (3 pcs. for the HF1-SY7000)]

It is used to shut off the supply air to valves individually.

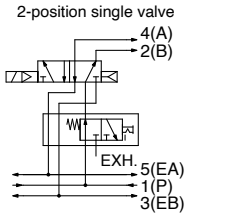
HF1-SY [3] 0M − 50 − 1A [E]

Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

Manual override

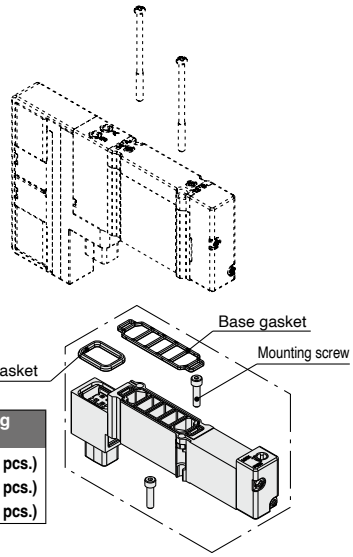
—	Push-turn locking slotted type
E	Push-turn locking lever type



SUP stop valve spacer assembly with residual pressure release valve

Circuit diagram

(Mounting example of a 2-position single valve)

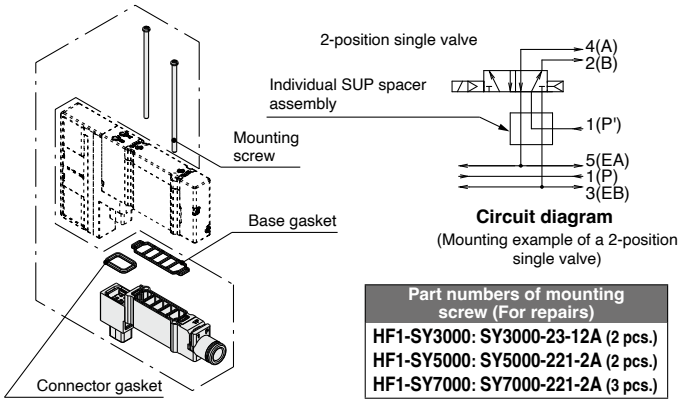


Part numbers of mounting screw (For repairs)
HF1-SY3000: SY30M-56-1A (2 pcs.)
HF1-SY5000: SY50M-56-1A (2 pcs.)
HF1-SY7000: SY70M-56-1A (3 pcs.)

■ Individual SUP spacer assembly

[With a connector gasket, a base gasket, and two mounting screws (3 pcs. for the HF1-SY7000)]

When the same manifold is used for different pressures, an individual SUP spacer assembly is used as a supply port for different pressures.



Circuit diagram

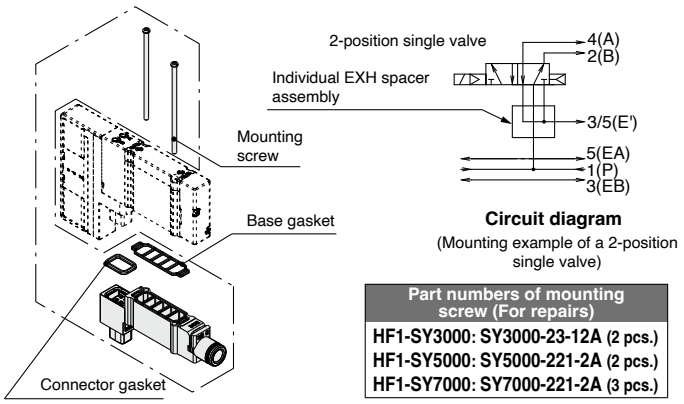
(Mounting example of a 2-position single valve)

Part numbers of mounting screw (For repairs)
HF1-SY3000: SY3000-23-12A (2 pcs.)
HF1-SY5000: SY5000-221-2A (2 pcs.)
HF1-SY7000: SY7000-221-2A (3 pcs.)

■ Individual EXH spacer assembly

[With a connector gasket, a base gasket, and two mounting screws (3 pcs. for the HF1-SY7000)]

When valve exhaust affects other stations due to the circuit configuration, this spacer assembly is used for individual valve exhaust.



Circuit diagram

(Mounting example of a 2-position single valve)

Part numbers of mounting screw (For repairs)
HF1-SY3000: SY3000-23-12A (2 pcs.)
HF1-SY5000: SY5000-221-2A (2 pcs.)
HF1-SY7000: SY7000-221-2A (3 pcs.)

How to Order Individual SUP/EXH Spacer Assembly

One-touch fitting Straight type

HF1-SY [3] 0M − [38] − 1 A − [C6]

Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

Spacer type

38	Individual SUP spacer
39	Individual EXH spacer

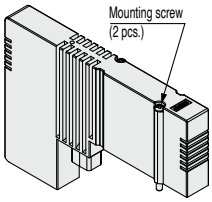
Port size (Metric/One-touch fittings)

Symbol	P, E port	SY3000	SY5000	SY7000
C4	Ø 4	●	●	—
C6	Ø 6	●	●	●
C8	Ø 8	—	●	●
C10	Ø 10	—	—	●
C12	Ø 12	—	—	●

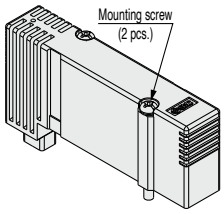
■Blanking plate assembly

HF1 compatible

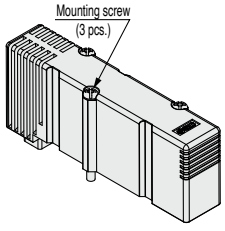
[With two mounting screws (3 pcs. for the SY7000)]
Used when valve additions are expected or for maintenance. A structure is in place on the blanking plate to prevent the mounting screws from sliding.



SY30M-26-1A(-B)



SY50M-26-1A(-B)



SY70M-26-1A(-B)

How to Order Blanking Plate Assembly

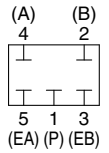
SY 3 0M−26−1A− ☐

Series

3	SY3000
5	SY5000
7	SY7000

Option for mounting

—	With mounting screw (Round head combination screw)
B	With mounting screw (Hexagon socket head cap screw)



Circuit diagram

Part numbers of mounting screw [Hexagon bolt] (For repairs)
SY3000: SY3000-23-24A [SY3000-222-1A]
SY5000: SY5000-221-1A [SY5000-222-1A]
SY7000: SY7000-221-2A [SY7000-222-1A]

⚠Caution

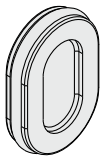
Tightening torque for mounting screw
M2: 0.16 N·m (SY3000)
M3: 0.8 N·m (SY5000/7000)

∗ Refer to the **Web Catalogue** for dimensions.

■SUP/EXH blocking disk assembly (for connector type manifold, Type 10, 11, 12)

[SUP blocking disk]
By inserting the SUP blocking disk in the pressure supply passage of the manifold valve, can provide two different high and low pressure in one manifold.

[EXH blocking disk]
By inserting the EXH blocking disk in the exhaust passage of the manifold valve, can separate the exhaust from the valve so it does not affect the other valves. It can also be used for the manifold for the positive pressure and vacuum mixed manifold. (2 pcs. are required to block FA/EB both sides of the EXH.)



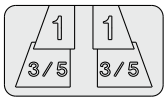
Series	SUP blocking disk assembly	EXH blocking disk assembly
SY3000	HF1-SY30M-40-1A	HF1-SY30M-40-2A
SY5000	HF1-SY50M-40-1A	HF1-SY50M-40-1A
SY7000	HF1-SY70M-40-1A	HF1-SY70M-40-1A

■Label for blocking disk

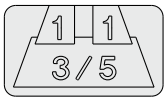
HF1 compatible

Label to indicate and confirm on the manifold where the SUP/EXH blocking disk assemblies were inserted. (3 sheets each)

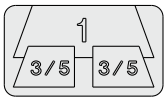
SUP/EXH blocking disk label



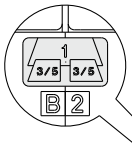
SUP blocking disk label



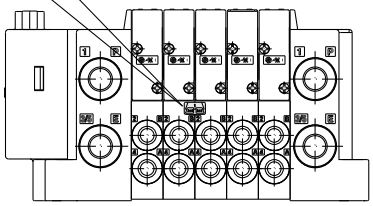
EXH blocking disk label



Series	Part no.
SY3000	SJ3000-155-1A
SY5000	
SY7000	



∗ If the blocking disk assembly is ordered using the manifold specification sheet and ordered at the same time as the manifold, the position where the blocking disk assembly is inserted will be labeled and shipped out.



5-Port Solenoid Valve
Body Ported/Single Unit

HF1-SY3000/5000/7000 Series

How to Order

HF1-SY [5] [1] **20** [ ] – [5] [L] [ ] [ ] – [01] [ ] – [ ] – **Q**

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Series

3	HF1-SY3000
5	HF1-SY5000
7	HF1-SY7000

❷ Type of actuation

1	2 position single (A) 4 2 (B) (EA) 5 1 3 (EB) (P)
2	2 position double (A) 4 2 (B) (EA) 5 1 3 (EB) (P)
3	3 position closed centre (A) 4 2 (B) (EA) 5 1 3 (EB) (P)
4	3 position exhaust centre (A) 4 2 (B) (EA) 5 1 3 (EB) (P)
5	3 position pressure centre (A) 4 2 (B) (EA) 5 1 3 (EB) (P)

❸ Coil specifications

—	Standard
T	With power saving circuit (24, 12 VDC only)

∗ Power saving circuit is not available in the case of D, DO, Y, YO or W□ type.

❹ Rated voltage

For DC

5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

For AC (50/60 Hz)

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

∗ DC specifications of type D, Y, DO and YO is only available with 12 and 24 VDC.
∗ For type W , DC voltage is only available.

❺ Electrical entry

	24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC				24, 12 VDC/ 100, 110, 200, 220 VAC	24, 12 VDC 6, 5, 3 VDC
	Grommet	L plug connector	M plug connector		DIN terminal	M8 connector
	G: Lead wire length 300 mm	**L**: With lead wire (Length 300 mm)	**M**: With lead wire (Length 300 mm)	**MN**: Without lead wire	**D, Y**: With connector	**WO**: Without connector cable
	H: Lead wire length 600 mm	**LN**: Without lead wire	**LO**: Without connector	**MO**: Without connector	**DO, YO**: Without connector	**W□**: With connector cable
DC	●	●		●	●	●
AC	—	—	—	—	●	●

∗ LN, MN type: with 2 sockets.
∗ For DIN terminal of SY3000 series, refer to the **Web Catalogue**.
∗ "Y" type is a DIN terminal conforming to EN-175301-803C (former DIN43650C). For details, refer to the **Web Catalogue**.
∗ For connector cable of M8 connector, refer to the **Web Catalogue**
∗ M8 connector conforming to IEC60947-5-2 standard is also available. Refer to the **Web Catalogue** for details.
∗ Refer to the **Web Catalogue** for the lead wire length of L and M plug connectors.
∗ Refer to the **Web Catalogue** for the connector assembly with cover for L and M plug connectors.
∗ Enter the cable length symbols in □. Please be sure to fill in the blank referring to the **Web Catalogue**.

❻ Light/surge voltage suppressor

Electrical entry for G, H, L, M, W

—	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.
∗ Power saving circuit is only available in the "Z" type.

Electrical entry for D, Y

—	Without light/surge voltage suppressor
S	With surge voltage suppressor (Non-polar type)
Z	With light/surge voltage suppressor (Non-polar type)

∗ DOZ and YOZ are not available.
∗ For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.

❼ Manual override

—: Non-locking push type	**D**: Push-turn locking slotted type	**E**: Push-turn locking lever type

❽ A, B port size

Thread piping

Symbol	Port size	Applicable series
M5	M5 x 0.8	HF1-SY3000
01	1/8	HF1-SY5000
02	1/4	HF1-SY7000

One-touch fitting (Metric)

Symbol	Port size	Applicable series
C4	One-touch fitting for Ø 4	HF1-SY3000
C6	One-touch fitting for Ø 6	
C4	One-touch fitting for Ø 4	HF1-SY5000
C6	One-touch fitting for Ø 6	
C8	One-touch fitting for Ø 8	
C8	One-touch fitting for Ø 8	HF1-SY7000
C10	One-touch fitting for Ø 10	

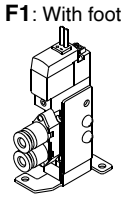
❾ Thread type

—	Rc
F	G
N	NPT
T	NPTF

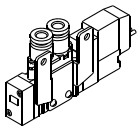
∗ Except for M5.

❿ Bracket

—: Without bracket
F1: With foot bracket



F2: With side bracket



Clean Design Manifold Valve
Lead Wire Type

JSY5000-H Series [IP69K Compliant]

⚠ Caution This is an IP69K compliant product. The manifold and valves are ordered as a set.

CE UKCA RoHS

How to Order Manifolds

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

Lead wire type JJ5SY5 − H 11 L1 ❶05 − ❷05 ❸D ❹ ❺ − ❻02F ❼

- H: Clean design manifold valve identification symbol
- L1: Lead wire type (34 cores)

❶ Lead wire length

Symbol	Length
05	5 m
10	10 m
15	15 m

❷ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
16	16 stations	

*1 Valve stations number includes stations with a blanking plate, and is the total number for all 2-port and 5-port type manifold blocks.

❸ SUP/EXH block 1(P), 5(EA), 3(EB) port entry

D	D side (2 to 10 stations)
B	Both sides (2 to 16 stations)

* SUP/EXH blocks with U side only is not available.

❹ Pilot type

—	Internal pilot
R*1	External pilot

*1 External pilot port is on the D side end block.
The external pilot specification should be ordered as made to order.

❺ 5-port type manifold block stations

Symbol	Stations	Note
—	None	Specify the number of stations with 5-port type manifold blocks, so this will be equal to or less than the total number of valve stations. **Specify the arrangement and blocking disk mounting position in the manifold specification sheet.**
01	1 station	
⋮	⋮	
16	16 stations	

* E.g.) When the symbol is "02", 2 stations are 5-port type manifold blocks.
When the symbol is — or blank, all stations are of 2-port type manifold block.
* When different pressures are required, use 5 -port type manifold blocks with blocking disks. Use of 5 -port type manifold blocks without blocking disks can be used to provide an intermediate SUP/EXH block function.

❻ Manifold block port size
[Thread piping/One-touch fitting (Metric/Inch size)]

Symbol	Fitting specifications		Manifold block port size		Note		
					SUP/EXH block	D side end block	
			2-port type	5-port type			
			A, B port	P, A, B, EA, EB port	P, EA, EB port	X, PE*2 port	VENT port
02F	Without fitting		G1/4 Thread piping		G1/2 Thread piping	G1/8 Thread piping	M5 Thread piping
B8	Metric size Threaded One-touch fitting	Brass fitting	Ø 8*1		Ø 16	Ø 6	Ø 4*3
B10			Ø 10				
G8		Stainless steel fitting	Ø 8*1				
G10			Ø 10				
BN9	Inch size Threaded One-touch fitting	Brass fitting	Ø 5/16"*1		Ø 1/2"	Ø 1/4"	Ø 5/32"*3
BN11			Ø 3/8"				
GN9		Stainless steel fitting	Ø 5/16"*1				
GN11			Ø 3/8"				

*1 Ø 8 and Ø 5/16" One-touch fitting are common for mm and inch size.
*2 In the case of external pilot type (made to order), fittings are attached to the X and PE ports according to the above fitting type.
*3 For the VENT port Ø 4 and Ø 5/32", the same fitting is used.

❼ Mounting option

—	None
L*1	Mounting leg (90 mm)

*1 Mounting legs are shipped together with the product.

Made to Order

Made to Order
(Refer to the **Web Catalogue** for details.)

Specifications
External pilot
Coil type: With power-saving circuit (Continuous duty type, 0.1 W)

⚠ Caution This is an IP69K compliant product. The manifold and valves are ordered as a set.

How to Order Valves

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

JSY5 1 0 3 □ □ – 5 U – H

❶ ❷ ❸ ❹ ❺ ❻ ❼

● Clean design manifold valve identification symbol

❶ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A*1	4-position dual 3-port	N.C./N.C.
B*1		N.O./N.O.
C*1		N.C./N.O.

*1 External pilot specification is not applicable for 4-position dual 3-port valves.

❷ Body type

0	Base mounted (For plug-in)

❸ Pilot valve exhaust method

3	Pilot valve common exhaust

❹ Pilot type

—	Internal pilot
R*1	External pilot

*1 The external pilot specification should be ordered as made to order.

❺ Coil type

—	Standard
T*1	With power-saving circuit (Continuous duty type)

*1 "T" (With power-saving circuit) should be ordered as made to order.

❻ Rated voltage

5	24 VDC

❼ Light/surge voltage suppressor

Symbol	With light	Surge voltage suppressor	Common specification
U	●	●	Non-polar
Z			Positive common
NZ			Negative common

* Only "Z" and "NZ" types are available with a power-saving circuit.
* For fieldbus type manifold, select non-polar (U) or negative common (NZ).

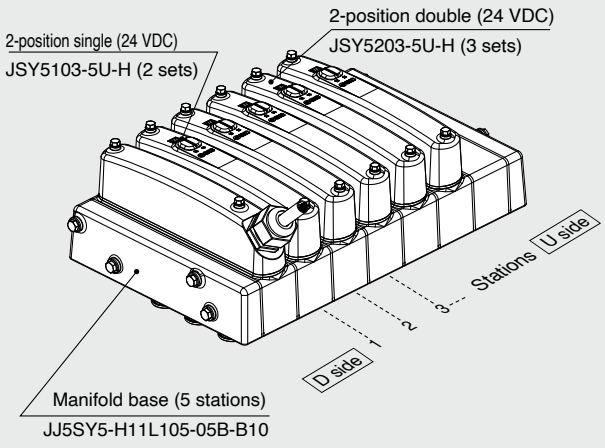
⚠ Caution

● **If the valve will be continuously energised, please be sure to use the power-saving circuit (continuous duty type). Refer to Made to Order on the Web Catalogue.**

⚠ Protective class class III (Mark: Ⅲ)

How to Order Manifold Assembly

Example (JJ5SY5-H11L105-□)



⚠ Caution This is an IP69K compliant product. The manifold and valves are ordered as a set.

Ordering example

JJ5SY5-H11L105-05B-B10 ···· 1 set (Type H11 5-station manifold base part no.)
* JSY5103-5U-H ···· 2 sets (2-position single part no.)
* JSY5203-5U-H ···· 3 sets (2-position double part no.)

→ The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

· For the valve arrangement, the valve closest to the D side is considered the 1 st station.
· Under the manifold part number, state the valves to be mounted in order starting with the 1 st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

Manifold Specifications

In order to assemble complex manifold patterns, or for arrangements including 5-port type manifold blocks, please use the manifold specification sheet.

HF1 (compatible) | HF1A (compatible) | HF1B (compatible)
HF2 | **HF2A compatible** | HF2B (compatible)
HF3 | HF3A compatible

Clean Design Manifold Valve Fieldbus Type

JSY5000-H Series [IP69K Compliant]

⚠ Caution This is an IP69K compliant product. The manifold and valves are ordered as a set.

CE UKCA RoHS

How to Order Manifolds

The specifications are the same as the "HF2A-" even though there is no "HF2A-" part number prefix.

Fieldbus type (IO-Link)

JJ5SY5 − H 11 SKAN − 05 D ❶ ❷ ❸ ❹ − 02F ❺ ❻

H: Clean design manifold valve identification symbol

SKAN: Fieldbus type (Negative common) (IO-Link)

❶ Valve stations

Symbol	Stations	Note
02	2 stations	Double wiring*1
⋮	⋮	
16	16 stations	

*1 Valve stations number includes stations with a blanking plate, and is the total number for all 2 -port and 5 -port type manifold blocks.

❷ SUP/EXH block 1(P), 5(EA), 3(EB) port entry

D	D side (2 to 10 stations)
B	Both sides (2 to 16 stations)

* SUP/EXH blocks with U side only is not available.

❸ Pilot type

—	Internal pilot
R*1	External pilot

*1 External pilot port is on the D side end block.
The external pilot specification should be ordered as made to order.

❹ 5-port type manifold block stations

Symbol	Stations	Note
—	None	Specify the number of stations with 5 -port type manifold blocks, so this will be equal to or less than the total number of valve stations. **Specify the arrangement and blocking disk mounting position in the manifold specification sheet.**
01	1 station	
⋮	⋮	
16	16 stations	

* E.g.) When the symbol is "02", 2 stations are 5-port type manifold blocks.
When the symbol is — or blank, all stations are of 2-port type manifold block.
* When different pressures are required, use 5 -port type manifold blocks with blocking disks. Use of 5 -port type manifold blocks without blocking disks can be used to provide an intermediate SUP/EXH block function.

❺ Manifold block port size [Thread piping/One-touch fitting (Metric/Inch size)]

Symbol	Fitting specifications		Manifold block port size		Note		
					SUP/EXH block	D side end block	
			2-port type	5-port type			
			A, B port	P, A, B, EA, EB port	P, EA, EB port	X, PE*2 port	VENT port
02F	Without fitting		G1/4 Thread piping		G1/2 Thread piping	G1/8 Thread piping	M5 Thread piping
B8	Metric size Threaded One-touch fitting	Brass fitting	Ø 8*1		Ø 16	Ø 6	Ø 4*3
B10			Ø 10				
G8		Stainless steel fitting	Ø 8*1				
G10			Ø 10				
BN9	Inch size Threaded One-touch fitting	Brass fitting	Ø 5/16"*1		Ø 1/2"	Ø 1/4"	Ø 5/32"*3
BN11			Ø 3/8"				
GN9		Stainless steel fitting	Ø 5/16"*1				
GN11			Ø 3/8"				

*1 Ø 8 and Ø 5/16" One-touch fitting are common for mm and inch size.
*2 In the case of external pilot type (made to order), fittings are attached to the X and PE ports according to the above fitting type.
*3 For the VENT port Ø 4 and Ø 5/32", the same fitting is used.

❻ Mounting option

—	None
L*1	Mounting leg (90 mm)

*1 Mounting legs are shipped together with the product.

Made to Order

(Refer to the **Web Catalogue** for details.)

Specifications
External pilot
Coil type: With power-saving circuit (Continuous duty type, 0.1 W)

SMC

⚠ Caution This is an IP69K compliant product. The manifold and valves are ordered as a set.

How to Order Valves

The specifications are the same as the "HF2A-" even though there is no "HF2A-" part number prefix.

JSY5 1 0 3 □ □ – 5 U – H

❶ ❷ ❸ ❹ ❺ ❻ ❼

● Clean design manifold valve identification symbol

❶ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A*1	4-position dual 3-port	N.C./N.C.
B*1		N.O./N.O.
C*1		N.C./N.O.

*1 External pilot specification is not applicable for 4-position dual 3-port valves.

❷ Body type

0	Base mounted (For plug-in)

❸ Pilot valve exhaust method

3	Pilot valve common exhaust

❹ Pilot type

—	Internal pilot
R*1	External pilot

*1 The external pilot specification should be ordered as made to order.

❺ Coil type

—	Standard
T*1	With power-saving circuit (Continuous duty type)

*1 "T" (With power-saving circuit) should be ordered as made to order.

❻ Rated voltage

5	24 VDC

❼ Light/surge voltage suppressor

Symbol	With light	Surge voltage suppressor	Common specification
U	●	●	Non-polar
Z			Positive common
NZ			Negative common

* Only "Z" and "NZ" types are available with a power-saving circuit.
* For fieldbus type manifold, select non-polar (U) or negative common (NZ).

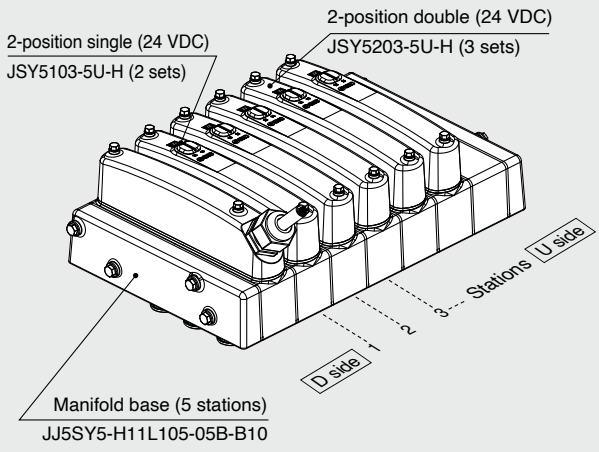
⚠ Caution

● **If the valve will be continuously energised, please be sure to use the power-saving circuit (continuous duty type). Refer to Made to Order on the Web Catalogue.**

⚠ Protective class class Ⅲ (Mark: ⧁)

How to Order Manifold Assembly

Example (JJ5SY5-H11SKAN-□)



⚠ Caution This is an IP69K compliant product. The manifold and valves are ordered as a set.

Ordering example

JJ5SY5-H11SKAN-05B-B10 ··· 1 set (Type H11 5-station manifold base part no.)
* JSY5103-5U-H ····· 2 sets (2-position single part no.)
* JSY5203-5U-H ····· 3 sets (2-position double part no.)

→ The asterisk denotes the symbol for the assembly. Prefix it to the part numbers of the valve, etc.

· For the valve arrangement, the valve closest to the D side is considered the 1 st station.
· Under the manifold part number, state the valves to be mounted in order starting with the 1 st station as shown in the figure above. If the arrangement becomes too complicated, specify the details on a manifold specification sheet.

Manifold Specifications

In order to assemble complex manifold patterns, or for arrangements including 5 -port type manifold blocks, please use the manifold specification sheet.

Clean Design Manifold Valve
Sub-plate Type

JSY5000-H Series [IP69K Compliant]

The specifications are the same as the "HF2A-" even though there is no "HF2A-" part number prefix.

How to Order Sub-plates (With Valve/Valve Cover)

JSY5 1 0 3 ❑ ❑ – 5 U – H – WO – U 02F ❑

❶ Body type ● ❷ ❸ Pilot valve exhaust method ● ❹ Clean design sub-plate identification symbol ❺ ❻ ❼ ❽

❶ Type of actuation

1	2-position	Single
2		Double
3	3-position	Closed centre
4		Exhaust centre
5		Pressure centre
A*1	4-position dual 3-port	N.C./N.C.
B*1		N.O./N.O.
C*1		N.C./N.O.

*1 External pilot specification is not applicable for 4-position dual 3-port valves.

❷ Pilot type

—	Internal pilot
R*1	External pilot

*1 The external pilot specification should be ordered as made to order.

❸ Coil type

—	Standard
T*1	With power-saving circuit (Continuous duty type)

*1 "T" (With power saving circuit) should be ordered as made to order.

❹ Light/surge voltage suppressor

Symbol	With light	Surge voltage suppressor	Common specification
U	●	●	Non-polar
Z			Positive common
NZ			Negative common

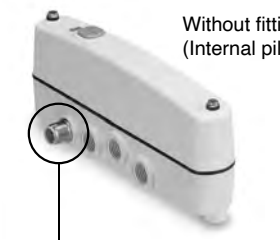
* Only "Z" and "NZ" types are available with a power-saving circuit.

❺ Wiring specification

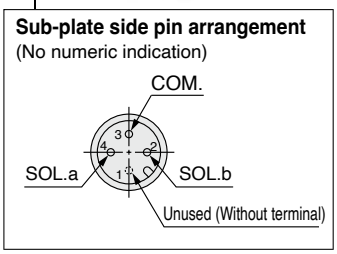
WO	Without M12 connector cable

❻ Port location

U	Bottom ported



Without fitting (Internal pilot)



* Plug connector type

❼ 1(P), 4(A), 2(B), 5(EA), 3(EB) port size [Thread piping/One-touch fitting (Metric/Inch size)]

Symbol	Fitting specifications		P, A, B, EA, EB port One-touch fitting size	Note: X, PE*2 port	Note: VENT port
02F	Without fitting		G1/4 Thread piping	M5 Thread piping	M5 Thread piping
B8	Metric size Threaded One-touch fitting	Brass fitting	Ø 8*1	Ø 4	Ø 4*3
B10			Ø 10		
G8		Stainless steel fitting	Ø 8*1		
G10			Ø 10		
BN9	Inch size Threaded One-touch fitting	Brass fitting	Ø 5/16"*1	Ø 5/32"	Ø 5/32"*3
BN11			Ø 3/8"		
GN9		Stainless steel fitting	Ø 5/16"*1		
GN11			Ø 3/8"		

*1 For B8/G8 (Ø 8) and BN9/GN9 (Ø 5/16"), the same fitting is used for them.
*2 In the case of external pilot type, fittings are attached to the X and PE ports according to the above fitting type.
*3 For X, PE port and VENT port of Ø 4 and Ø 5/32", the same fitting is used.

❽ Mounting option

—	None
L*1	Mounting leg (90 mm)

*1 Mounting legs are shipped together with the product.

Recommended M12 Connector Cables (IP69K and FDA-compliant products)



Cable length	PHOENIX CONTACT Product no.	PHOENIX CONTACT Order no.	Note
1.5 m	SAC-4P-1,5-600/M12FS HD	1403956	Produced upon receipt of order
3 m	SAC-4P-3,0-600/M12FS HD	1403957	
5 m	SAC-4P-5,0-600/M12FS HD	1403958	
10 m	SAC-4P-10,0-600/M12FS HD	1403959	

⚠Caution **Order the Phoenix Contact products from the manufacturer or the distributors.**

Rubber Seal
3-Port/Pilot Poppet Type
Body Ported/Single Unit



HF1-VP300/500/700 Series RoHS

How to Order

Body ported **HF1 – VP [3] 42 [ ][ ][ ] – [5] [G] [ ][ ] 1 – [01] [ ] [A] – [ ] – [ ]**

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❶ Series

3	HF1-VP300
5	HF1-VP500
7	HF1-VP700

❷ Pilot type

—	Internal pilot
R	External pilot

∗ If the product is used for air blow, the use of external pilot valve is recommended to avoid operation failure due to pressure drop.

❸ Pressure specification

—	Standard (0.7 MPa)
K	High-pressure type (1.0 MPa)

❹ Coil specification

—	Standard
T	With power saving circuit (DC only)

∗ Be sure to select the power saving circuit type when it is continuously energised for a long time. (Refer to the **Web Catalogue** for details.)
∗ T type is only available for DC mode. When T is selected, only Z type of light/surge voltage suppressor is available. (Note that when the electrical entry of DIN terminal type without connector is selected, only DOS and YOS are available.)

❺ Rated voltage

DC

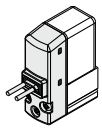
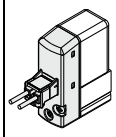
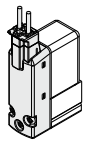
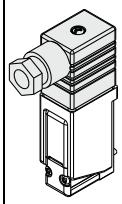
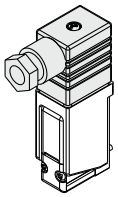
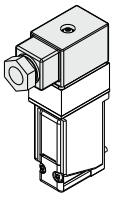
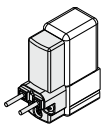
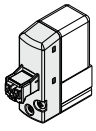
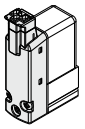
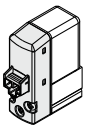
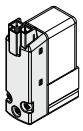
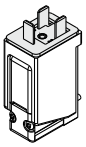
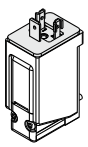
5	24 VDC
6	12 VDC

AC (50/60 Hz)∗1

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]
7	240 VAC
B	24 VAC

∗1 For triac output, refer to the made-to-order specifications (X600).

❻ Electrical entry

	Grommet	L-type plug connector	M-type plug connector	DIN terminal	DIN (EN175301-803) terminal	Conduit terminal
				[IP65 compatible]	[IP65 compatible]	[IP65 compatible]
	 **G**: Lead wire length 300 mm **H**: Lead wire length 600 mm	 **L**: With lead wire (length 300 mm)	 **M**: With lead wire (length 300 mm)	 **D**: With connector	 **Y**: With connector	 **T**: Conduit terminal
	 **G**: Lead wire length 300 mm **H**: Lead wire length 600 mm DC Without light/surge voltage suppressor	 **LN**: Without lead wire	 **MN**: Without lead wire			
		 **LO**: Without connector	 **MO**: Without connector	 **DO**: Without connector	 **YO**: Without connector	
CE/UKCA-compliant	DC	●	●	●	●	●	●
	AC∗2	○	○	○	●	●	●

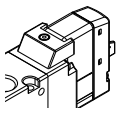
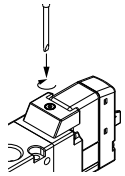
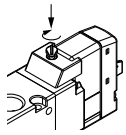
∗2 With the same specifications as the DC type, all lead wire entries for the 24 VAC type are CE/UKCA marking compliant.
∗ LN and MN types are with 2 sockets.
∗ Refer to the **Web Catalogue** when different length of lead wire for L/M-type plug connector is required.
∗ Refer to the **Web Catalogue** for details on the DIN (EN175301-803) terminal.

❼ Light/surge voltage suppressor

		DC	AC
—	Without light/surge voltage suppressor	○	○
S	With surge voltage suppressor	○	—∗3
Z	With light/surge voltage suppressor	○	○
R	With surge voltage suppressor (Non-polar)	○	—
U	With light/surge voltage suppressor (Non-polar)	○	—

∗3 There is no S option for AC mode, since a rectifier prevents surge voltage generation.
∗ In the DIN terminal type, since a light is installed in the connector, DOZ, DOU, YOZ, YOU are not available.

❽ Manual override

—: Non-locking push type	**D**: Push-turn locking slotted type	**E**: Push-turn locking lever type
		

❾ Port size

Symbol	Port size	HF1-VP300	HF1-VP500	HF1-VP700
01	1/8	○	—	—
02	1/4	○	○	—
03	3/8	—	○	○
04	1/2	—	—	○

❿ Thread type

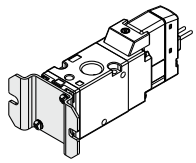
—	Rc
F	G
N	NPT
T	NPTF

⓫ Type of actuation

A	N.C. (Normally closed)
B	N.O. (Normally open)

⓬ Bracket

—	Without bracket
F	With bracket



⓭ Made to Order

—	—
X500	Pilot exhaust port with piping thread (M3) specification (Refer to the **Web Catalogue**).
X505	Interchangeable specification with the previous valve mounting hole pitch type (Refer to the **Web Catalogue**).
X600	Triac output specification (Refer to the **Web Catalogue**).

∗ As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted from the pilot exhaust port. If this poses a problem, select the X500 that allows for piping to the pilot exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

⚠ Caution

When using the surge voltage suppressor type, residual voltage will remain. Refer to the Web Catalogue for details.

Rubber Seal
3-Port/Pilot Poppet Type
Base Mounted/Single Unit



HF1-VP300/500/700 Series

RoHS

CE UKCA

How to Order

Base mounted **HF1 – VP ❶ 4 4 ❷ ❸ ❹ – ❺ ❻ ❼ ❽ 1 – ❾ ❿ ⓫ – ⓬**

❶ Series

3	HF1-VP300
5	HF1-VP500
7	HF1-VP700

❷ Pilot type

—	Internal pilot
R	External pilot

∗ If the product is used for air blow, the use of external pilot valve is recommended to avoid operation failure due to pressure drop.

❸ Pressure specification

—	Standard (0.7 MPa)
K	High-pressure type (1.0 MPa)

❹ Coil specification

—	Standard
T	With power saving circuit (DC only)

∗ Be sure to select the power saving circuit type when it is continuously energised for a long time.
(Refer to the **Web Catalogue** for details.)
∗ T type is only available for DC mode. When T is selected, only Z type of light/surge voltage suppressor is available.
(Note that when the electrical entry of DIN terminal type without connector is selected, only DOS and YOS are available.)

❺ Rated voltage

DC

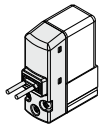
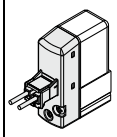
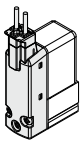
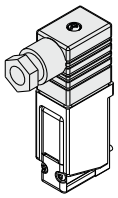
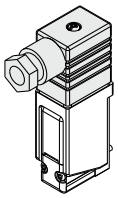
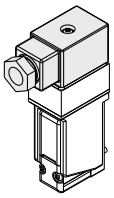
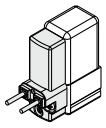
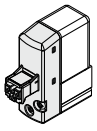
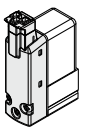
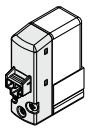
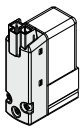
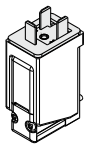
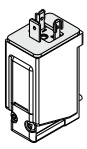
5	24 VDC
6	12 VDC

AC (50/60 Hz)∗1

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]
7	240 VAC
B	24 VAC

∗1 For triac output, refer to the made-to-order specifications (X600).

❻ Electrical entry

Grommet	L-type plug connector	M-type plug connector	DIN terminal	DIN (EN175301-803) terminal	Conduit terminal
			[IP65 compatible]	[IP65 compatible]	[IP65 compatible]
 **G**: Lead wire length 300 mm **H**: Lead wire length 600 mm	 **L**: With lead wire (length 300 mm)	 **M**: With lead wire (length 300 mm)	 **D**: With connector	 **Y**: With connector	 **T**: Conduit terminal
 **G**: Lead wire length 300 mm **H**: Lead wire length 600 mm DC Without light/surge voltage suppressor	 **LN**: Without lead wire	 **MN**: Without lead wire			
	 **LO**: Without connector	 **MO**: Without connector	 **DO**: Without connector	 **YO**: Without connector	
CE/UKCA-compliant DC	●	●	●	●	●	●
CE/UKCA-compliant AC∗2	○	○	○	●	●	●

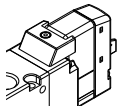
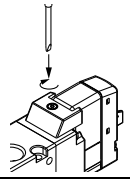
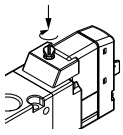
∗2 With the same specifications as the DC type, all lead wire entries for the 24 VAC type are CE/UKCA marking compliant.
∗ LN and MN types are with 2 sockets.
∗ Refer to the **Web Catalogue** when different length of lead wire for L/M-type plug connector is required.
∗ Refer to the **Web Catalogue** for details on the DIN (EN175301-803) terminal.

❼ Light/surge voltage suppressor

		DC	AC
—	Without light/surge voltage suppressor	○	○
S	With surge voltage suppressor	○	—∗3
Z	With light/surge voltage suppressor	○	○
R	With surge voltage suppressor (Non-polar)	○	—
U	With light/surge voltage suppressor (Non-polar)	○	—

∗3 There is no S option for AC mode, since a rectifier prevents surge voltage generation.
∗ In the DIN terminal type, since a light is installed in the connector, DOZ, DOU, YOZ, YOU are not available.

❽ Manual override

—: Non-locking push type	**D**: Push-turn locking slotted type	**E**: Push-turn locking lever type
		

❾ Port size (Sub-plate)

Symbol	Port size	HF1-VP300	HF1-VP500	HF1-VP700
—	Without sub-plate∗4			
01	1/8	○	—	—
02	1/4	○	○	—
03	3/8	—	○	○
04	1/2	—	—	○

∗4 With a gasket and two mounting bolts.

❿ Thread type

—	Rc
F	G
N	NPT
T	NPTF

⓫ Type of actuation

A	N.C. (Normally closed)
B	N.O. (Normally open)

⓬ Made to Order

—	—
X500	Pilot exhaust port with piping thread (M3) specification (Refer to the **Web Catalogue**).
X600	Triac output specification (Refer to the **Web Catalogue**).

∗ As a very small amount of non-H1 grade oil is used in the pilot valve, this lubricating oil may be exhausted from the pilot exhaust port. If this poses a problem, select the X500 that allows for piping to the pilot exhaust port, and run piping so that the exhaust is released in a location where it will not cause any problems.

⚠ Caution

When using the surge voltage suppressor type, residual voltage will remain. Refer to the Web Catalogue for details.

Micro Mechanical Valve

HF1B-VM1000 Series

RoHS



Model

	Actuator	Piping	Number of ports	Applicable tubing		Note	Weight [g]
				T0425	TU0425/T0403		
Manual operation	Toggle lever	Side ported	3-port	HF1B-VM1000-4N-08	HF1B-VM1000-4NU-08	–	20
			2-port	HF1B-VM1100-4N-08	HF1B-VM1100-4NU-08	–	
		Bottom ported	3-port	HF1B-VM1010-4N-08	HF1B-VM1010-4NU-08	–	
			2-port	HF1B-VM1110-4N-08	HF1B-VM1110-4NU-08	–	
	Push button	Side ported	3-port	HF1B-VM1000-4N-32R	HF1B-VM1000-4NU-32R	Red	31
			2-port	HF1B-VM1100-4N-32R	HF1B-VM1100-4NU-32R	Red	
		Bottom ported	3-port	HF1B-VM1010-4N-32R	HF1B-VM1010-4NU-32R	Red	
			2-port	HF1B-VM1110-4N-32R	HF1B-VM1110-4NU-32R	Red	
		Side ported	3-port	HF1B-VM1000-4N-32B	HF1B-VM1000-4NU-32B	Black	
			2-port	HF1B-VM1100-4N-32B	HF1B-VM1100-4NU-32B	Black	
		Bottom ported	3-port	HF1B-VM1010-4N-32B	HF1B-VM1010-4NU-32B	Black	
			2-port	HF1B-VM1110-4N-32B	HF1B-VM1110-4NU-32B	Black	
		Side ported	3-port	HF1B-VM1000-4N-32G	HF1B-VM1000-4NU-32G	Green	
			2-port	HF1B-VM1100-4N-32G	HF1B-VM1100-4NU-32G	Green	
		Bottom ported	3-port	HF1B-VM1010-4N-32G	HF1B-VM1010-4NU-32G	Green	
			2-port	HF1B-VM1110-4N-32G	HF1B-VM1110-4NU-32G	Green	

∗ To replace the push button and push button cover alone, refer to the **Web Catalogue**.
Other parts and actuator cannot be replaced.

How to Order

HF1B − VM1 [0] [0] [0] − [4N] − [08] [ ]

Number of ports

0	3-port
1	2-port

Piping

0	Side ported
1	Bottom ported

Total travel/Basic (T.T.)

0	4.8 mm

Applicable tubing (Material/Size)

4N	Nylon Ø 4/2.5 (T0425)
4NU	Nylon Ø 4/3 (T0403)
	Soft nylon Ø 4/2.5 (TS0425)
	Polyurethane Ø 4/2.5 (TU0425)

Actuator type

08	Toggle lever
32	Push button

Colour of push button

R	Red
G	Green
B	Black

2/3-Port Mechanical Valve

HF1B-VM100 Series

RoHS



Model

	Piping direction		Side ported				Bottom ported		Weight [g]		Actuator part number
	Body option		Standard		With bottom mounting thread		—		Side ported	Bottom ported	
	Number of ports		**2-port**	**3-port**	**2-port**	**3-port**	**2-port**	**3-port**			
Manual operation	Toggle lever		HF1B-VM120-01-08A	HF1B-VM130-01-08A	HF1B-VM120U-01-08A	HF1B-VM130U-01-08A	HF1B-VM122-M5-08A	HF1B-VM132-01-08A	101	108	VM-08B-X612
	Push button (Mushroom)	Red	HF1B-VM120-01-30RA	HF1B-VM130-01-30RA	HF1B-VM120U-01-30RA	HF1B-VM130U-01-30RA	HF1B-VM122-M5-30RA	HF1B-VM132-01-32RA	118	125	VM-30AR
		Black	HF1B-VM120-01-30BA	HF1B-VM130-01-30BA	HF1B-VM120U-01-30BA	HF1B-VM130U-01-30BA	HF1B-VM122-M5-30BA	HF1B-VM132-01-32BA			VM-30AB
		Green	HF1B-VM120-01-30GA	HF1B-VM130-01-30GA	HF1B-VM120U-01-30GA	HF1B-VM130U-01-30GA	HF1B-VM122-M5-30GA	HF1B-VM132-01-32GA			VM-30AG
		Yellow	HF1B-VM120-01-30YA	HF1B-VM130-01-30YA	HF1B-VM120U-01-30YA	HF1B-VM130U-01-30YA	HF1B-VM122-M5-30YA	HF1B-VM132-01-32YA			VM-30AY
	Push button (Extended)	Red	HF1B-VM120-01-32RA	HF1B-VM130-01-32RA	HF1B-VM120U-01-32RA	HF1B-VM130U-01-32RA	HF1B-VM122-M5-32RA	HF1B-VM132-01-32RA	112	119	VM-32AR
		Black	HF1B-VM120-01-32BA	HF1B-VM130-01-32BA	HF1B-VM120U-01-32BA	HF1B-VM130U-01-32BA	HF1B-VM122-M5-32BA	HF1B-VM132-01-32BA			VM-32AB
		Green	HF1B-VM120-01-32GA	HF1B-VM130-01-32GA	HF1B-VM120U-01-32GA	HF1B-VM130U-01-32GA	HF1B-VM122-M5-32GA	HF1B-VM132-01-32GA			VM-32AG
		Yellow	HF1B-VM120-01-32YA	HF1B-VM130-01-32YA	HF1B-VM120U-01-32YA	HF1B-VM130U-01-32YA	HF1B-VM122-M5-32YA	HF1B-VM132-01-32YA			VM-32AY
	Push button (Flush)	With a set of red, black, green, yellow	HF1B-VM120-01-33A	HF1B-VM130-01-33A	HF1B-VM120U-01-33A	HF1B-VM130U-01-33A	HF1B-VM122-M5-33A	HF1B-VM132-01-33A	110	117	VM-33A
	Twist selector (2-position)	Red	HF1B-VM120-01-34RA	HF1B-VM130-01-34RA	HF1B-VM120U-01-34RA	HF1B-VM130U-01-34RA	HF1B-VM122-M5-34RA	HF1B-VM132-01-34RA	116	123	VM-34AR-X612
		Black	HF1B-VM120-01-34BA	HF1B-VM130-01-34BA	HF1B-VM120U-01-34BA	HF1B-VM130U-01-34BA	HF1B-VM122-M5-34BA	HF1B-VM132-01-34BA			VM-34AB-X612
		Green	HF1B-VM120-01-34GA	HF1B-VM130-01-34GA	HF1B-VM120U-01-34GA	HF1B-VM130U-01-34GA	HF1B-VM122-M5-34GA	HF1B-VM132-01-34GA			VM-34AG-X612
		Yellow	HF1B-VM120-01-34YA	HF1B-VM130-01-34YA	HF1B-VM120U-01-34YA	HF1B-VM130U-01-34YA	HF1B-VM122-M5-34YA	HF1B-VM132-01-34YA			VM-34AY-X612
	Key selector (2-position)		HF1B-VM120-01-36A	HF1B-VM130-01-36A	HF1B-VM120U-01-36A	HF1B-VM130U-01-36A	HF1B-VM122-M5-36A	HF1B-VM132-01-36A	138	145	VM-36A-X612
	Twist selector (3-position)		**3-port**	**5-port**	**3-port**	**5-port**	**3-port**	**5-port**			
		Red	HF1B-VM131-01-35RA	HF1B-VM151-01-35RA	HF1B-VM131U-01-35RA	HF1B-VM151U-01-35RA	HF1B-VM133-M5-35RA	HF1B-VM153-M5-35RA	231	245	—
		Black	HF1B-VM131-01-35BA	HF1B-VM151-01-35BA	HF1B-VM131U-01-35BA	HF1B-VM151U-01-35BA	HF1B-VM133-M5-35BA	HF1B-VM153-M5-35BA			
		Green	HF1B-VM131-01-35GA	HF1B-VM151-01-35GA	HF1B-VM131U-01-35GA	HF1B-VM151U-01-35GA	HF1B-VM133-M5-35GA	HF1B-VM153-M5-35GA			
		Yellow	HF1B-VM131-01-35YA	HF1B-VM151-01-35YA	HF1B-VM131U-01-35YA	HF1B-VM151U-01-35YA	HF1B-VM133-M5-35YA	HF1B-VM153-M5-35YA			

∗ It is possible to change the actuator assembly when an actuator part number is specified in the column.
∗ For push button (mushroom), push button (flush), push button (extended) and individual fastening ring, refer to the **Web Catalogue**.
∗ The handle of the selector (2-position and 3-position) cannot be removed or replaced alone.
∗ Colour of plunger: Grey (2-port), White (3-port)

How to Order

HF1B– VM1 [3] [0] [ ] – [01] – [08] [R] [ ] A – [ ]
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Number of ports

2	2-port
3	3-port
5	5-port (Twist selector 3-position only)

❷ Piping direction and the height of plunger

0	Side ported	Long
1		Short
2	Bottom ported	Long
3		Short

❸ Body option

—	Side mounting
U	With bottom mounting thread

∗ U: Applicable only to side ported type

❹ Port size

01	Rc1/8	Side ported only
N01	NPT1/8	
F01	G1/8	
M5	M5 x 0.8	Bottom ported only

❺ Actuator type

Actuator type \ Height of plunger		Side ported Long **0**	Side ported Short **1**	Bottom ported Long **2**	Bottom ported Short **3**
08	Toggle lever	○	×	○	×
30	Push button (Mushroom)	○	×	○	×
32	Push button (Extended)	○	×	○	×
33	Push button (Flush)∗1	○	×	○	×
34	Twist selector (2-position)	○	×	○	×
36	Key selector (2-position)	○	×	○	×
35	Twist selector (3-position)	×	○	×	○

Combination possible: ○
Combination impossible: ×
∗1 When selecting the flush type, it is not necessary to select the suffix for the actuator.

❻ Suffix for actuator

R	Red	Colour of push button, selector
B	Black	
G	Green	
Y	Yellow	

❼ Suffix for indicator

—	None
Z	With miniature indicator

∗ Applicable only to bottom ported type

❽ Bracket option

—	None
B	With bracket

∗ Applicable only to side ported, side mounting type.
However, not applicable to twist selector (3-position).
Bracket is shipped together, but not assembled.

2/3-Port Mechanical Valve

HF1B-VM200 Series

RoHS



Model

	Piping direction		Side ported				Weight [g]	Actuator part number
	Body option		Standard		With bottom mounting thread			
	Number of ports		**2-port**	**3-port**	**2-port**	**3-port**		
Manual operatio	Toggle lever		HF1B-VM220-02-08A	HF1B-VM230-02-08A	HF1B-VM220U-02-08A	HF1B-VM230U-02-08A	200	VM-08A-X612
	Push button (Mushroom)	Red	HF1B-VM220-02-30RA	HF1B-VM230-02-30RA	HF1B-VM220U-02-30RA	HF1B-VM230U-02-30RA	148	VM-30AR
		Black	HF1B-VM220-02-30BA	HF1B-VM230-02-30BA	HF1B-VM220U-02-30BA	HF1B-VM230U-02-30BA		VM-30AB
		Green	HF1B-VM220-02-30GA	HF1B-VM230-02-30GA	HF1B-VM220U-02-30GA	HF1B-VM230U-02-30GA		VM-30AG
		Yellow	HF1B-VM220-02-30YA	HF1B-VM230-02-30YA	HF1B-VM220U-02-30YA	HF1B-VM230U-02-30YA		VM-30AY
	Push button (Extended)	Red	HF1B-VM220-02-32RA	HF1B-VM230-02-32RA	HF1B-VM220U-02-32RA	HF1B-VM230U-02-32RA	142	VM-32AR
		Black	HF1B-VM220-02-32BA	HF1B-VM230-02-32BA	HF1B-VM220U-02-32BA	HF1B-VM230U-02-32BA		VM-32AB
		Green	HF1B-VM220-02-32GA	HF1B-VM230-02-32GA	HF1B-VM220U-02-32GA	HF1B-VM230U-02-32GA		VM-32AG
		Yellow	HF1B-VM220-02-32YA	HF1B-VM230-02-32YA	HF1B-VM220U-02-32YA	HF1B-VM230U-02-32YA		VM-32AY
	Push button (Flush)	With a set of red, black, green, yellow	HF1B-VM220-02-33A	HF1B-VM230-02-33A	HF1B-VM220U-02-33A	HF1B-VM230U-02-33A	140	VM-33A
	Twist selector (2-position)	Red	HF1B-VM220-02-34RA	HF1B-VM230-02-34RA	HF1B-VM220U-02-34RA	HF1B-VM230U-02-34RA	146	VM-34AR-X612
		Black	HF1B-VM220-02-34BA	HF1B-VM230-02-34BA	HF1B-VM220U-02-34BA	HF1B-VM230U-02-34BA		VM-34AB-X612
		Green	HF1B-VM220-02-34GA	HF1B-VM230-02-34GA	HF1B-VM220U-02-34GA	HF1B-VM230U-02-34GA		VM-34AG-X612
		Yellow	HF1B-VM220-02-34YA	HF1B-VM230-02-34YA	HF1B-VM220U-02-34YA	HF1B-VM230U-02-34YA		VM-34AY-X612
	Key selector (2-position)		HF1B-VM220-02-36A	HF1B-VM230-02-36A	HF1B-VM220U-02-36A	HF1B-VM230U-02-36A	168	VM-36A-X612
	Twist selector (3-position)		**3-port**	**5-port**	**3-port**	**5-port**	410	–
		Red	HF1B-VM230-02-35RA	HF1B-VM250-02-35RA	HF1B-VM230U-02-35RA	HF1B-VM250U-02-35RA		
		Black	HF1B-VM230-02-35BA	HF1B-VM250-02-35BA	HF1B-VM230U-02-35BA	HF1B-VM250U-02-35BA		
		Green	HF1B-VM230-02-35GA	HF1B-VM250-02-35GA	HF1B-VM230U-02-35GA	HF1B-VM250U-02-35GA		
		Yellow	HF1B-VM230-02-35YA	HF1B-VM250-02-35YA	HF1B-VM230U-02-35YA	HF1B-VM250U-02-35YA		
	Foot pedal		HF1B-VM220-02-40A	HF1B-VM230-02-40A	–	–	430	–

∗ It is possible to change the actuator assembly when an actuator part number is specified in the column.
∗ For push button (mushroom), push button (flush), push button (extended) and individual fastening ring, refer to the **Web Catalogue**.
∗ The handle of the selector (2-position and 3-position) cannot be removed or replaced alone.
∗ Colour of plunger: Grey (2-port), White (3-port)

How to Order

HF1B – VM2 [3] 0 [ ] – [02] – [08] [R] A – [B]

Number of ports

2	2-port
3	3-port
5	5-port (Twist selector 3 position only)

Body option

–	Side mounting
U	With bottom mounting thread

Port size

02	R1/4
N02	NPT1/4
F02	G1/4

Actuator type

08	Toggle lever
30	Push button (Mushroom)
32	Push button (Extended)
33	Push button (Flush)∗1
34	Twist selector (2 position)
36	Key selector (2 position)
35	Twist selector (3 position)
40	Foot pedal

∗1 When selecting the flush type, it is not necessary to select the suffix for the actuator.

Suffix for actuator

R	Red	Colour of push button, selector
B	Black	
G	Green	
Y	Yellow	

Bracket option

–	None
B	With bracket

∗ Applicable only to side mounting type.
However, not applicable to twist selector (3 position) and foot pedal.
Bracket is shipped together, but not assembled.

3-Port Mechanical Valve

HF1B-VM400 Series

RoHS



Model

	Actuator	Model	Actuator part no.	Application	Weight [g]
Manual operation	Toggle lever	HF1B-VM430-01-08	VM-08A-X612	—	200
	Push button (Mushroom)	HF1B-VM430-01-30R	VM-30AR	Red	168
		HF1B-VM430-01-30B	VM-30AB	Black	
		HF1B-VM430-01-30G	VM-30AG	Green	
		HF1B-VM430-01-30Y	VM-30AY	Yellow	
	Push button (Extended)	HF1B-VM430-01-32R	VM-32AR	Red	162
		HF1B-VM430-01-32B	VM-32AB	Black	
		HF1B-VM430-01-32G	VM-32AG	Green	
		HF1B-VM430-01-32Y	VM-32AY	Yellow	
	Push button (Flush)	HF1B-VM430-01-33	VM-33A	With a set of red, black, green, yellow	167
	Twist selector (2 position)	HF1B-VM430-01-34R	VM-34AR-X612	Red	168
		HF1B-VM430-01-34B	VM-34AB-X612	Black	
		HF1B-VM430-01-34G	VM-34AG-X612	Green	
		HF1B-VM430-01-34Y	VM-34AY-X612	Yellow	
	Key selector (2 position)	HF1B-VM430-01-36	VM-36A-X612	—	188

∗ Actuator replacement is available for all types.
∗ For push button (mushroom), push button (extended), push button (flush) and a single unit of fastening ring, refer to the **Web Catalogue**. The other parts are not replaceable.
∗ The handle of the selector (2 position) cannot be removed or replaced alone.

How to Order

HF1B − VM4 3 0 − 01 − 08 R

Number of ports

3	3-port

Port size

01	Rc1/8
N01	NPT1/8
F01	G1/8

Actuator type

08	Toggle lever
30	Push button (Mushroom)
32	Push button (Extended)
33	Push button (Flush)∗1
34	Twist selector (2 position)
36	Key selector (2 position)

∗1 When selecting the flush type, it is not necessary to select the suffix for the actuator.

Suffix for actuator

R	Red	Colour of push button selector
B	Black	
G	Green	
Y	Yellow	

OSHA Standard Compliant Pressure Relief 3-Port Valve with Locking Holes

RoHS

Single Action
HF1B-VHS20/30/40/50-D Series

Double Action
HF1B-VHS20W/30W/40W/50W-D Series



HF1B-VHS30-D

How to Order

HF1B-VHS 30 ❶ ❷ – ❸ 03 ❹ – ❺ – ❻ – D

- Option/Semi-standard: Select one each for **a** to **f**.
- Option/Semi-standard symbol:
  When more than one specification is required, indicate in alphanumeric order.

Example) HF1B-VHS30-N03-BS-RZ-D

			Symbol	Description	❶ Body size 20	30	40	50
❷	Handle operation		—	Single action	●	●	●	●
			W	Double action	●	●	●	●
			+					
❸	Pipe thread type		—	Rc*1	●	●	●	●
			N	NPT	●	●	●	●
			F	G	●	●	●	●
			+					
❹	Port size		01	1/8	●	–	–	–
			02	1/4	●	●	●	–
			03	3/8	–	●	●	–
			04	1/2	–	–	●	–
			06	3/4	–	–	●	●
			10	1	–	–	–	●
			+					
❺	Option	a	Mounting	—	Without mounting option	●	●	●	●
				B	With bracket	●	●	●	●
				+					
		b	Silencer	—	Without silencer	●	●	●	●
				S	With built-in silencer (for EXH port)	●	●	●	●
				+					
❻	Semi-standard	c	Handle colour	—	Red	●	●	●	●
				K	Black	●	●	●	●
				+					
		d	Handle material	—	Resin	●	●	●	●
				M	Metal	●	●	●	●
				+					
		e	Flow direction	—	Flow direction: Left to right	●	●	●	●
				R	Flow direction: Right to left	●	●	●	●
				+					
		f	Pressure unit	—	Product label in SI units: MPa	●	●	●	●
				Z*2	Product label in imperial units: psi	○*3	○*3	○*3	○*3

*1 The pipe thread type for the EXH port is G.
*2 For the pipe thread type: NPT only. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
*3 ○: For the pipe thread type: NPT only

Air Cylinder: Standard Type
Double Acting, Single Rod

HF1A-CJ2 Series Ø 6, Ø 10, Ø 16 RoHS



How to Order

HF1A − CJ2 B 16 − 60 A ☐ Z − ☐ ☐

With auto switch: HF1A − CDJ2 B 16 − 60 A ☐ Z − ☐ ☐ − M9BW ☐ − B

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

With auto switch (Built-in magnet)

❶ Mounting

B	Basic
E	Double-side bossed
D**	Double clevis
L	Single foot
M	Double foot
F	Rod flange
G	Head flange

* Foot/Flange brackets are shipped together with the product, but not assembled.
* Double clevis is only available for Ø 10 and Ø 16.
** Refer to the **Web Catalogue** for the double clevis (with one-touch connecting pin).

❷ Bore size

6	6 mm
10	10 mm
16	16 mm

❸ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 86.

❹ Cushion

—	Rubber bumper
A	Air cushion

* Ø 6: Rubber bumper only

❺ Head cover port location

—	Perpendicular to axis	
R	Axial	

* For double clevis, the product is perpendicular to the cylinder axis.
* For double-side bossed, the product is perpendicular to the cylinder axis.

❻ Pivot bracket

—	None
N	Pivot bracket is shipped together with the product.

* Only for the double clevis type (Ø 10 and Ø 16)
* Pivot bracket is shipped together with the product, but not assembled.

❼ Rod end bracket

—	None
V	Single knuckle joint
W**	Double knuckle joint
T	Rod end cap (Flat type)
U	Rod end cap (Round type)

* Rod end bracket is shipped together with the product, but not assembled.
* Single/Double knuckle joint: Ø 10 and Ø 16 only
** Refer to the **Web Catalogue** for the double knuckle joint (with one-touch connecting pin).

❽ Auto switch

—	Without auto switch

* For applicable auto switches, refer to the table below.

★ Enter the auto switch mounting type (A or B) even when a built-in magnet cylinder without an auto switch is required.

❾ Number of auto switches

—	2 pcs.
S	1 pc.
n	"n" pcs.

❿ Auto switch mounting type

A	Rail mounting
B	Band mounting

* For rail mounting, screws and nuts for 2 auto switches come with the rail.
* Refer to the **Web Catalogue** for auto switch mounting brackets.
* Ø 6: Band mounting only

* **Refer to "Ordering Example of Cylinder Assembly" on page 86.**

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage: DC	Load voltage: AC	Auto switch model: Band mounting, Perpendicular	Band mounting, In-line	Rail mounting, Perpendicular	Rail mounting, In-line	Lead wire length [m]: 0.5 (—)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	— —	Grommet	Yes	3-wire (NPN)	5 V,12 V	—	M9NV	M9N	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			M9PV	M9P	M9PV	M9P	●	●	●	○	—	○		
				2-wire	12 V		M9BV	M9B	M9BV	M9B	●	●	●	○	—	○	—	
		Connector					—	H7C	J79C	—	●	—	●	●	●	—		
	Diagnostic indication (2-colour indicator)	Grommet		3-wire (NPN)	5 V,12 V		M9NWV	M9NW	M9NWV	M9NW	●	●	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PWV	M9PW	M9PWV	M9PW	●	●	●	○	—	○		
				2-wire	12 V		M9BWV	M9BW	M9BWV	M9BW	●	●	●	○	—	○	—	
	Water resistant (2-colour indicator)			3-wire (NPN)	5 V,12 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	○	○	●	○	—	○		
				2-wire	12 V		M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	○	○	●	○	—	○	—	
	With diagnostic output (2-colour indicator)			4-wire (NPN)	5 V,12 V		—	H7NF	—	F79F	●	—	●	○	—	○	IC circuit	
Reed auto switch	— —	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	A96V	A96	●	—	●	—	—	—	IC circuit	—
				2-wire		—	200 V	—	—	A72	A72H	●	—	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	A93V*2	A93	A93V*2	A93	●	●	●	●	—	—		
			No				100 V or less	A90V	A90	A90V	A90	●	—	●	—	—	—	IC circuit	
		Connector	Yes				—	—	C73C	A73C	—	●	—	●	●	●	—	—	
			No				24 V or less	—	C80C	A80C	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-colour indicator)	Grommet	Yes		—	—	—	—	—	A79W	—	●	—	●	—	—	—	—	

*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. A water-resistant type cylinder is recommended for use in an environment which requires water resistance.
*2 1 m type lead wire is only applicable to D-A93.

* Lead wire length symbols: 0.5 m ····· — (Example) M9NW
  1 m ····· M (Example) M9NWM
  3 m ····· L (Example) M9NWL
  5 m ····· Z (Example) M9NWZ
  None ····· N (Example) H7CN

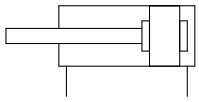
* Since there are other applicable auto switches than listed above, refer to the **Web Catalogue** for details.
* Solid state auto switches marked with "○" are produced upon receipt of order.
* The D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, but not assembled. (For band mounting, only the auto switch mounting brackets are assembled before shipment.)

SMC

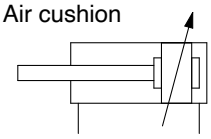


Symbol

Rubber bumper



Air cushion



Standard Strokes

[mm]

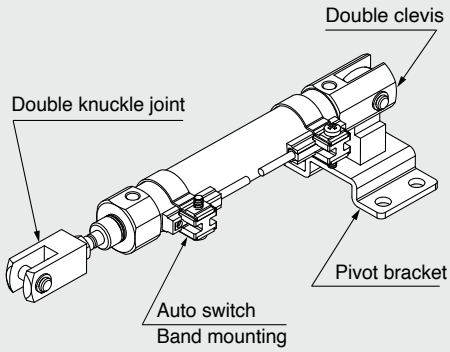
Bore size	Standard stroke	Maximum manufacturable stroke
6	15, 30, 45, 60	200
10	15, 30, 45, 60, 75, 100, 125, 150	400
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200	400

∗ Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.) Produced upon receipt of order.

∗ Applicable strokes should be confirmed according to the usage. For details, refer to “Air Cylinders Model Selection” on the **Web Catalogue**. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

Ordering Example of Cylinder Assembly

Cylinder model: HF1A-CDJ2D16-60Z-NW-M9BW-B



Mounting D: Double clevis
Pivot bracket N: Yes
Rod end bracket W: Double knuckle joint
Auto switch D-M9BW: 2 pcs.
Auto switch mounting B: Band mounting

∗: Pivot bracket, double knuckle joint and auto switch are shipped together with the product, but not assembled.

∗ Except Ø 6

Air Cylinder: Standard Type
Double Acting, Single Rod

RoHS

HF1A-CM2 Series Ø 20, Ø 25, Ø 32, Ø 40

How to Order

HF1A – CM2 B 40 □ – 150 A □ Z1 – □ □

With auto switch: HF1A – CDM2 B 40 □ – 150 A □ Z1 – □ □ – M9BW □

With auto switch (Built-in magnet)

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Mounting

B	Basic (Double-side bossed)
L	Axial foot
F	Rod flange
G	Head flange
C	Single clevis
D	Double clevis
U	Rod trunnion
T	Head trunnion
E	Integrated clevis
V	Integrated clevis (90°)
BZ	Boss-cut/Basic
FZ	Boss-cut/Rod flange
UZ	Boss-cut/Rod trunnion

❷ Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm

❸ Port thread type

—	Rc
TN	NPT
TF	G

❹ Cylinder stroke [mm]

Refer to page 88 for standard strokes.

❺ Cushion

—	Rubber bumper
A	Air cushion

❻ Rod end thread

—	Male rod end
F	Female rod end

❼ Pivot bracket

—	No bracket
N	Pivot bracket

∗ **Only for C, T, U, E, V, and UZ mounting types**
∗ The pivot bracket is shipped together with the product but does not come assembled.

❽ Rod end bracket

—	No bracket	W	Double knuckle joint
V	Single knuckle joint		

∗ No bracket is provided for the female rod end.
∗ A knuckle joint pin is not provided with the single knuckle joint.
∗ The rod end bracket is shipped together with the product but does not come assembled.

❾ Auto switch

—	Without auto switch

∗ For applicable auto switches, refer to the table below.

❿ Number of auto switches

—	2
S	1
n	n

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Perpendicular	Auto switch model: In-line	Lead wire length [m]: 0.5 (—)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load:	Applicable load:
Solid state auto switch	— —	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			M9PV	M9P	●	●	●	○	—	○		
				2-wire	12 V		M9BV	M9B	●	●	●	○	—	○	—	
		Connector					—	H7C	●	—	●	●	●	—		
		Terminal conduit		3-wire (NPN)	5 V, 12 V		—	G39A	—	—	—	—	●	—	IC circuit	
				2-wire	12 V		—	K39A	—	—	—	—	●	—	—	
	Diagnostic indication (2-colour indicator)	Grommet		3-wire (NPN)	5 V, 12 V		M9NWV	M9NW	●	●	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PWV	M9PW	●	●	●	○	—	○		
				2-wire	12 V		M9BWV	M9BW	●	●	●	○	—	○	—	
	Water resistant (2-colour indicator)			3-wire (NPN)	5 V, 12 V		M9NAV*1	M9NA*1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PAV*1	M9PA*1	○	○	●	○	—	○		
				2-wire	12 V		M9BAV*1	M9BA*1	○	○	●	○	—	○	—	
	With diagnostic output (2-colour indicator)			4-wire (NPN)	5 V, 12 V		—	H7NF	●	—	●	○	—	○	IC circuit	
Reed auto switch	— —	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit	—
			Yes	2-wire	24 V	100 V	12 V	A93V*2	A93	●	●	●	●	—	—	—	Relay, PLC
			No			100 V or less		A90V	A90	●	—	●	—	—	—	IC circuit	
			Yes			100 V, 200 V		—	B54	●	—	●	●	—	—	—	
			No			200 V or less		—	B64	●	—	●	—	—	—		
		Connector	Yes			—		—	C73C	●	—	●	●	●	—		
			No			24 V or less		—	C80C	●	—	●	●	●	—	IC circuit	
		Terminal conduit	Yes			—		—	A33A	—	—	—	—	●	—	—	PLC
						100 V, 200 V		—	A34A	—	—	—	—	●	—	—	Relay, PLC
		DIN terminal						—	A44A	—	—	—	—	●	—		
	Diagnostic indication (2-colour indicator)	Grommet			—	—		—	B59W	●	—	●	—	—	—		

∗1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance.
A water-resistant type cylinder is recommended for use in an environment which requires water resistance.
∗2 The 1 m lead wire is only applicable to the D-A93.

∗ Lead wire length symbols: 0.5 m ····· — (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ
None ····· N (Example) H7CN

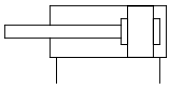
∗ Solid state auto switches marked with a "○" are produced upon receipt of order.
∗ Do not indicate suffix "N" for no lead wire on the D-A3□A/A44A/G39A/K39A models.

∗ Since there are applicable auto switches other than those listed above, refer to the **Web Catalogue** for details.
∗ For details on auto switches with pre-wired connectors, refer to the **Web Catalogue**.
∗ The D-A9□□/M9□□□ auto switches are shipped together with the product but do not come assembled. (Only the auto switch mounting brackets are assembled before shipment.)

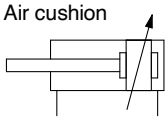


Symbol

Double acting, Single rod



Air cushion



Standard Strokes

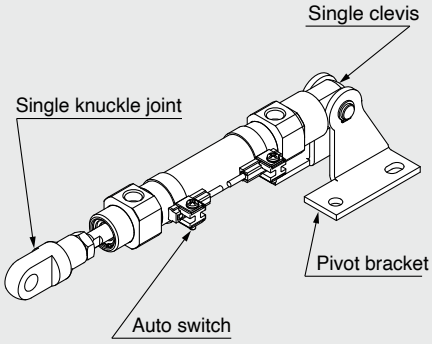
Bore size [mm]	Standard stroke [mm]*1	Max. manufacturable stroke [mm]
20	25, 50, 75, 100, 125, 150, 200, 250, 300	1000
25		
32		
40		

*1 Intermediate strokes not listed above are produced upon receipt of order. The manufacturing of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)

* Applicable strokes should be confirmed according to the usage. For details, refer to the "Air Cylinders Model Selection" in the **Web Catalogue**. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to deflection, etc.
* Using a stroke of a length which is smaller than the effective cushion length may result in reduced air cushion performance. Refer to "Technical Data 1" in the **Web Catalogue** for details on the effective cushion length.

Option: Ordering Example of Cylinder Assembly

Cylinder model: HF1A-CDM2C20-50Z1-NV-M9BW



Mounting C: Single clevis
Pivot bracket N: Yes
Rod end bracket V: Single knuckle joint
Auto switch D-M9BW: 2 pcs.

* Pivot bracket, single knuckle joint and auto switch are shipped together with the product but do not come assembled.
* Pivot bracket is only available for C, T, U, E, V, and UZ mounting types.
* No bracket is provided for the female rod end.

Air Cylinder: Standard Type
Double Acting, Single Rod

HF1A-CG1 Series Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

RoHS

How to Order

HF1A – CG1 B N 20 □ – 100 □ Z1 – □ □

With auto switch HF1A – CDG1 B N 20 □ – 100 □ Z1 – □ □ – M9BW □

With auto switch (Built-in magnet)

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Mounting

B	Basic (Without trunnion mounting female thread)
Z*1	Basic (With trunnion mounting female thread)
L	Axial foot
F	Rod flange
G	Head flange
U*1	Rod trunnion
T*1	Head trunnion
D	Clevis

*1 Not available for Ø 80 and Ø 100
* Mounting brackets are shipped together with the product but do not come assembled.
* The cylinder for L, F, G, and D mounting types is B: Basic (Without trunnion mounting female thread).

The presence of the trunnion mounting female thread (B, Z) is different from the existing product. Choose Z (with trunnion mounting female thread) when mounting the trunnion afterward.

❷ Type

N	Rubber bumper
A	Air cushion

❸ Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

❹ Port thread type

Rubber bumper			Air cushion	
—	Rc	Ø 20 to Ø 100	M5 x 0.8	Ø 20, Ø 25
			Rc	Ø 32 to Ø 100
TN	NPT	Ø 20 to Ø 100	NPT*	Ø 32 to Ø 100
TF	M5 x 0.8	Ø 20, Ø 25	G*	Ø 32 to Ø 100
	G	Ø 32 to Ø 100		

* Not available for Ø 20 and Ø 25.

❺ Cylinder stroke [mm]

For standard strokes ⇨ p. 90

❻ Rod end thread

—	Male rod end
F	Female rod end

❼ Pivot bracket

—	No bracket
N	Pivot bracket

* Only for D, U, and T mounting types
* The pivot bracket is shipped together with the product but does not come assembled.

❽ Rod end bracket

—	No bracket
V	Single knuckle joint
W	Double knuckle joint

* No bracket is provided for the female rod end.
* The rod end bracket is shipped together with the product but does not come assembled.
* A knuckle joint pin is not provided with the single knuckle joint.

❾ Auto switch

—	Without auto switch

* For applicable auto switches, refer to the table below.

❿ Number of auto switches

—	2
S	1
n	n

For details on **auto switch mounting** ⇨ **Web Catalogue**

· Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
· Minimum Stroke for Auto Switch Mounting · Auto Switch Mounting Brackets/Part Nos.
· Operating Range · Cylinder Mounting Bracket, by Stroke/Auto Switch Mounting Surfaces

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Applicable bore size Ø 20 to Ø 63 Perpendicular	Ø 20 to Ø 63 In-line	Ø 80, Ø 100 In-line	Lead wire length [m] 0.5 (—)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	**M9NV**	**M9N**	—	●	●	●	○	○	IC circuit	Relay, PLC
							—	—	**G59**	●	—	●	○	○		
				3-wire (PNP)			**M9PV**	**M9P**	—	●	●	●	○	○		
							—	—	**G5P**	●	—	●	○	○		
				2-wire	12 V		**M9BV**	**M9B**	—	●	●	●	○	○	—	
							—	—	**K59**	●	—	●	○	○		
	Diagnostic indication (2-colour indicator)	Grommet		3-wire (NPN)	24 V	5 V, 12 V	**M9NWV**	**M9NW**	—	●	●	●	○	○	IC circuit	
							—	—	**G59W**	●	—	●	○	○		
				3-wire (PNP)			**M9PWV**	**M9PW**	—	●	●	●	○	○		
							—	—	**G5PW**	●	—	●	○	○		
				2-wire		12 V	**M9BWV**	**M9BW**	—	●	●	●	○	○	—	
							—	—	**K59W**	●	—	●	○	○		
	Water resistant (2-colour indicator)			3-wire (NPN)		5 V, 12 V	**M9NAV***1	**M9NA***1	—	○	○	●	○	○	IC circuit	
				3-wire (PNP)			**M9PAV***1	**M9PA***1	—	○	○	●	○	○		
				2-wire		12 V	**M9BAV***1	**M9BA***1	—	○	○	●	○	○	—	
							—	—	**G5BA***1	—	—	●	○	○		
Reed auto switch	——	Grommet	Yes	3-wire (Equiv. to NPN)	—	5 V	—	**A96V**	**A96**	—	●	—	●	—	—	IC circuit	—
			Yes	2-wire	24 V	12 V	100 V	**A93V***2	**A93**	—	●	●	●	●	—	—	
			No				100 V or less	**A90V**	**A90**	—	●	—	●	—	—	IC circuit	Relay, PLC
			Yes				100 V, 200 V	—	—	**B54**	●	—	●	●	—	—	
			No				200 V or less	—	—	**B64**	●	—	●	—	—		

*1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance. A water-resistant type cylinder is recommended for use in an environment which requires water resistance.
*2 The 1 m lead wire is only applicable to the D-A93.
* Lead wire length symbols: 0.5 m····· — (Example) M9NW
1 m····· M (Example) M9NWM
3 m····· L (Example) M9NWL
5 m····· Z (Example) M9NWZ
None····· N (Example) H7CN
* Solid state auto switches marked with "○" are produced upon receipt of order.

* There are applicable auto switches other than those listed above. For details ⇨ **Web Catalogue**
* For details on auto switches with pre-wired connectors ⇨ Refer to the **Web Catalogue**.
* The D-A9□□/M9□□□ auto switches are shipped together with the product but do not come assembled. (Only the auto switch mounting brackets are assembled before shipment.)

SMC



Standard Strokes

[mm]

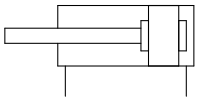
Bore size	Standard stroke*1	Max. manufacturable stroke
20	25, 50, 75, 100, 125, 150, 200	1500
25	25, 50, 75, 100, 125, 150, 200, 250, 300	
32		
40		
50, 63		
80		
100		

∗1 Intermediate strokes not listed above are produced upon receipt of order. The manufacturing of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)

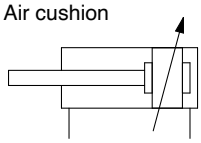
∗ Applicable strokes should be confirmed according to the usage. For details, refer to the "Air Cylinders Model Selection" in the **Web Catalogue**. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to deflection, etc.

Symbol

Rubber bumper



Air cushion

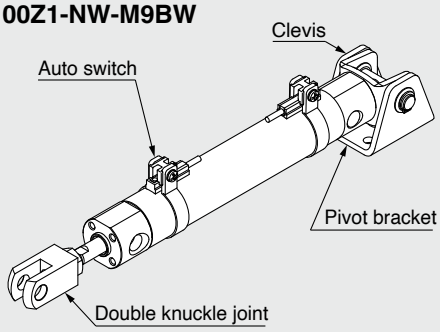


Ordering Example of Cylinder Assembly

Cylinder model: HF1A-CDG1DN20-100Z1-NW-M9BW

Mounting	**D: Clevis**
Pivot bracket	**N: Yes**
Rod end bracket	**W: Double knuckle joint**
Auto switch	**D-M9BW: 2 pcs.**

∗ Pivot bracket, double knuckle joint, and auto switch are shipped together with the product but do not come assembled.



Mounting Brackets/Part Nos.

Mounting bracket	Order qty.	Bore size [mm]								Contents
		20	**25**	**32**	**40**	**50**	**63**	**80**	**100**	
Axial foot	2*2	CG-L020	CG-L025	CG-L032	CG-L040	CG-L050	CG-L063	CG-L080	CG-L100	2 foot brackets, 8 mounting bolts
Flange	1	CG-F020	CG-F025	CG-F032	CG-F040	CG-F050	CG-F063	CG-F080	CG-F100	1 flange, 4 mounting bolts
Trunnion pin	1	CG-T020	CG-T025	CG-T032	CG-T040	CG-T050	CG-T063	—	—	2 trunnion pins, 2 trunnion bolts, 2 flat washers
Clevis*1	1	HF1A-CG-D020	HF1A-CG-D025	HF1A-CG-D032	HF1A-CG-D040	HF1A-CG-D050	HF1A-CG-D063	HF1A-CG-D080	HF1A-CG-D100	1 clevis, 4 mounting bolts, 1 clevis pin, 2 retaining rings
Pivot bracket	1	CG-020-24A	CG-025-24A	CG-032-24A	CG-040-24A	CG-050-24A	CG-063-24A	CG-080-24A	CG-100-24A	1 pivot bracket

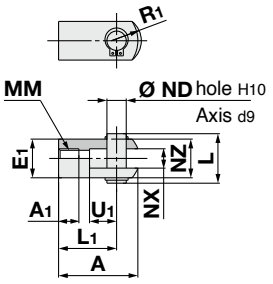
∗1 Food-grade NSF-H1 or NSF-3H is used as the anti-rust oil.

∗2 Order two foot brackets per cylinder.

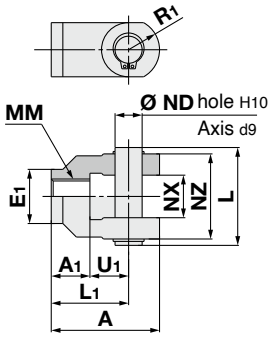
HF1A-CG1 Series
Dimensions of Accessories

Double Knuckle Joint

HF1A-Y-G02, G03
Material: Carbon steel



HF1A-Y-G04, G05, G08, G10
Material: Cast iron

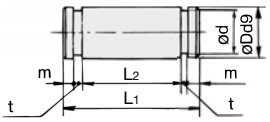


[mm]

Part no.	Applicable bore size [mm]	A	A_1	E_1	L_1	MM	R_1	U_1	ND	NX	NZ	L	Applicable pin part no.
HF1A-Y-G02	20	34	8.5	□16	25	M8 x 1.25	10.3	11.5	8	$8^{+0.4}_{+0.2}$	16	21	HF1A-IY-G02
HF1A-Y-G03	25, 32	41	10.5	□20	30	M10 x 1.25	12.8	14	10	$10^{+0.4}_{+0.2}$	20	25.6	HF1A-IY-G03
HF1A-Y-G04	40	42	16	Ø 22	30	M14 x 1.5	12	14	10	$18^{+0.5}_{+0.3}$	36	41.6	HF1A-IY-G04
HF1A-Y-G05	50, 63	56	20	Ø 28	40	M18 x 1.5	16	20	14	$22^{+0.5}_{+0.3}$	44	50.6	HF1A-IY-G05
HF1A-Y-G08	80	71	23	Ø 38	50	M22 x 1.5	21	27	18	$28^{+0.5}_{+0.3}$	56	64	HF1A-IY-G08
HF1A-Y-G10	100	79	24	Ø 44	55	M26 x 1.5	24	31	22	$32^{+0.5}_{+0.3}$	64	72	HF1A-IY-G10

∗ A knuckle pin and retaining rings are included.

Knuckle Pin

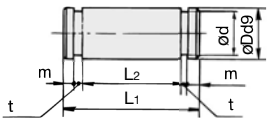


Material: Carbon steel [mm]

Part no.	Applicable bore size [mm]	Dd_9	L_1	d	L_2	m	t	Included retaining ring
HF1A-IY-G02	20	$8^{-0.040}_{-0.076}$	21	7.6	16.2	1.5	0.9	Type C8 for axis
HF1A-IY-G03	25, 32	$10^{-0.040}_{-0.076}$	25.6	9.6	20.2	1.55	1.15	Type C10 for axis
HF1A-IY-G04	40	$10^{-0.040}_{-0.076}$	41.6	9.6	36.2	1.55	1.15	Type C10 for axis
HF1A-IY-G05	50, 63	$14^{-0.050}_{-0.093}$	50.6	13.4	44.2	2.05	1.15	Type C14 for axis
HF1A-IY-G08	80	$18^{-0.050}_{-0.093}$	64	17	56.2	2.55	1.35	Type C18 for axis
HF1A-IY-G10	100	$22^{-0.065}_{-0.117}$	72	21	64.2	2.55	1.35	Type C22 for axis

∗ Retaining rings are included.

Clevis Pin



Material: Carbon steel [mm]

Part no.	Applicable bore size [mm]	Dd_9	L_1	d	L_2	m	t	Included retaining ring
HF1A-CD-G02	20	$8^{-0.040}_{-0.076}$	43.4	7.6	38.6	1.5	0.9	Type C8 for axis
HF1A-CD-G25	25	$10^{-0.040}_{-0.076}$	48	9.6	42.6	1.55	1.15	Type C10 for axis
HF1A-CD-G03	32	$12^{-0.050}_{-0.093}$	59.4	11.5	54	1.55	1.15	Type C12 for axis
HF1A-CD-G04	40	$14^{-0.050}_{-0.093}$	71.4	13.4	65	2.05	1.15	Type C14 for axis
HF1A-CD-G05	50	$16^{-0.050}_{-0.093}$	86	15.2	79.6	2.05	1.15	Type C16 for axis
HF1A-CD-G06	63	$18^{-0.050}_{-0.093}$	105.4	17	97.8	2.45	1.35	Type C18 for axis

∗ Retaining rings are included.
∗ A clevis pin and a knuckle pin are common for bore sizes Ø 80 and Ø 100.

∗ Food-grade NSF-H1 or NSF-3H anti-rust oil is used for the double knuckle joint, knuckle pin, and clevis pin.

Free Mount Cylinder
Double Acting, Single Rod

HF1A-CU Series Ø 6, Ø 10, Ø 16, Ø 20, Ø 25, Ø 32



How to Order

	HF1A-CU	6		30	D				
With auto switch	HF1A-CDU	6		30	D	–	M9BW		
		❶	❷	❸	❹		❺		❻

Built-in magnet

❶ Bore size

6	6 mm
10	10 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm

❷ Port thread type

	Type	Bore size
—	M5 x 0.8	Ø 6, Ø 10, Ø 16, Ø 20, Ø 25
	Rc 1/8	Ø 32
TN	NPT 1/8	Ø 32
TF	G 1/8	Ø 32

❸ Standard stroke [mm]

Bore size	Standard stroke
Ø 6, Ø 10, Ø 16	5, 10, 15, 20, 25, 30, 40, 50, 60
Ø 20, Ø 25, Ø 32	5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100

❹ Action

D	Double acting

❺ Auto switch

—	Without auto switch

∗ For applicable auto switches, refer to the table below.

❻ Number of auto switches

—	2
S	1

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example): HF1A-CDU20-25D

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model Perpendicular	Auto switch model In-line	Lead wire length [m] 0.5 (—)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**M9NV**	**M9N**	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9PV**	**M9P**	●	●	●	○	○		
				2-wire		12 V		**M9BV**	**M9B**	●	●	●	○	○	—	
	Diagnostic indication (2-colour indicator)			3-wire (NPN)		5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	○		
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	○	—	
	Water resistant (2-colour indicator)			3-wire (NPN)		5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	○	IC circuit	
				3-wire (PNP)				**M9PAV**∗1	**M9PA**∗1	○	○	●	○	○		
				2-wire		12 V		**M9BAV**∗1	**M9BA**∗1	○	○	●	○	○	—	
	Magnetic field resistant (2-colour indicator)			2-wire (Non-polar)		—		—	**P3DWA**	●	—	●	●	○		
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96V**	**A96**	●	—	●	—	—	IC circuit	—
			Yes	2-wire	24 V	12 V	100 V	**A93V**∗2	**A93**	●	●	●	●	—	—	Relay, PLC
			No			5 V,12 V	100 V or less	**A90V**	**A90**	●	—	●	—	—	IC circuit	

∗1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.
∗2 The 1 m lead wire is only applicable to the D-A93.

∗ Lead wire length symbols: 0.5 m ····· — (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ

∗ Solid state auto switches marked with a "○" are produced upon receipt of order.

∗ There are applicable auto switches other than those listed above. For details ⇨ **Web Catalogue**
∗ For detail about auto switches with pre-wired connector, refer to the **Web Catalogue**.
∗ Auto switches are shipped together but not assembled.

Compact Cylinder: Standard Type
Double Acting, Single Rod

HF1A-CQS Series Ø 12, Ø 16, Ø 20, Ø 25



How to Order

	HF1A-CQS B 20-30D
With auto switch	HF1A-CDQS B 20-30D -M9BW

With auto switch
(Built-in magnet)

❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Mounting

B	Through-hole/Both ends tapped common (Standard
L	Foot
LC	Compact foot
F	Rod flange
G	Head flange
D	Double clevis

❷ Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm

❸ Cylinder stroke [mm]

Bore size	Standard stroke	Long stroke
12, 16	5, 10, 15, 20, 25, 30	35, 40, 45, 50, 75, 100, 125, 150, 175, 200
20	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	75, 100, 125, 150, 175, 200
25		75, 100, 125, 150, 175, 200, 250, 300

❹ Action

D	Double acting

∗ In the case of long strokes, use either ends tapped mounting or bracket mounting.
∗ Mounting brackets are shipped together (but not assembled).
∗ Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolt for CQS" on the **Web Catalogue**

❻ Auto switch

—	Without auto switch

∗ For applicable auto switches, refer to the table below.

❼ Number of auto switches

—	2 pcs.
S	1 pc.
n	"n" pcs.

❺ Body option

<Long stroke>

—	Rod end female thread
F	With boss on head end
C	With rubber bumper
M	Rod end male thread

∗ Combination of body options is available. CM, FC, FM, FCM

<Long stroke>

C	With rubber bumper Rod end female thread (Standard)
CM	With rubber bumper Rod end male thread

∗ Rubber bumper is standard equipment for long stroke type.

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) HF1A-CDQSL25-30D

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Perpendicular	Auto switch model: In-line	Lead wire length [m]: 0.5 (—)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)			M9PV	M9P	●	●	●	○	○		
				2-wire	12 V		M9BV	M9B	●	●	●	○	○	—	
	Diagnostic indication (2-colour indicator)			3-wire (NPN)	5 V, 12 V		M9NWV	M9NW	●	●	●	○	○	IC circuit	
				3-wire (PNP)			M9PWV	M9PW	●	●	●	○	○		
				2-wire	12 V		M9BWV	M9BW	●	●	●	○	○	—	
	Water resistant (2-colour indicator)			3-wire (NPN)	5 V, 12 V		M9NAV*1	M9NA*1	○	○	●	○	○	IC circuit	
				3-wire (PNP)			M9PAV*1	M9PA*1	○	○	●	○	○		
				2-wire	12 V		M9BAV*1	M9BA*1	○	○	●	○	○	—	
	Magnetic field resistant (2-colour indicator)			2-wire (Non-polar)	—		—	P3DWA	●	—	●	●	○		
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	A93V*2	A93	●	●	●	●	—	—	Relay, PLC
			No			5 V, 12 V	100 V or less	A90V	A90	●	—	●	—	—	IC circuit	

∗1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.
∗2 The 1 m lead wire is only applicable to the D-A93.

∗ Lead wire length symbols: 0.5 m ····· — (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ

∗ Solid state auto switches marked with a "○" are produced upon receipt of order.
∗∗ Available only for Ø 25.
It is mounted away from the port side to avoid interference with fittings.

∗ There are applicable auto switches other than those listed above. For details ⇨ **Web Catalogue**
∗ For detail about auto switches with pre-wired connector, refer to the **Web Catalogue**.
∗ Auto switches are shipped together but not assembled.
∗ There is the case D-A9□V/M9□V/M9□WV/M9□AV type auto switches cannot be mounted on the port surface, depending on the cylinder's stroke and the fitting size for piping. Consult with SMC for details.

Compact Cylinder: Standard Type
Double Acting, Single Rod

HF1A-CQ2 Series Ø 12, Ø 16, Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

How to Order

Without auto switch Ø 12 to Ø 25
HF1A – CQ2 B ☐ 20 ☐ – 30 D ☐

Without auto switch Ø 32 to Ø 100
HF1A – CQ2 B ☐ 32 ☐ – 30 D ☐ Z

With auto switch
HF1A – CDQ2 B ☐ 32 ☐ – 30 D M Z – M9BW ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

With auto switch magnet
The overall length of the cylinder with an auto switch magnet is longer than that of the cylinder without an auto switch magnet by the length of the built-in magnet. For details, refer to the dimensions of each size.

❶ Mounting

B	Through-hole
A	Both ends tapped
L	Foot
LC	Compact foot
F	Rod flange
G	Head flange
D	Double clevis

* Mounting brackets are shipped together with the product but do not come assembled.
* The through-hole type mounting bolts are available separately.

For details ⇨ **Web Catalogue**

❷ Type

—	Pneumatic

❸ Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

❹ Port thread type

—	M thread	Ø 12 to Ø 25
	Rc	Ø 32 to Ø 100
TN	NPT	
TF	G	

* For cylinders without an auto switch magnet, M threads are compatible only with Ø 32-5 mm stroke.

❺ Cylinder stroke (For details on the minimum stroke for auto switch mounting ⇨ **Web Catalogue**)

[mm]

Bore size	Standard stroke
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50, 63, 80, 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

* For long strokes exceeding the standard stroke range ⇨ **Web Catalogue**
* For details on the manufacturing of intermediate strokes ⇨ **Web Catalogue**

❻ Action

D	Double acting

❼ Body option

—	Rod end female thread
F	With boss on head end
C	With rubber bumper
M	Rod end male thread

* Combined body options, such as "FC," "FM," "FCM," and "CM" can be selected.

❽ Auto switch mounting groove

Z	Ø 12 to Ø 25	2 surfaces
	Ø 32 to Ø 100	4 surfaces



⑨ Auto switch

—	Without auto switch

∗ For applicable auto switches, refer to the table below.

⑩ Number of auto switches

—	2
S	1
n	n

For details on **auto switch mounting** ⇨ **Web Catalogue**

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) HF1A-CDQ2L32-25DZ

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage DC	Load voltage AC	Auto switch model Perpendicular	Auto switch model In-line	Lead wire length [m] 0.5 (—)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**M9NV**	**M9N**	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9PV**	**M9P**	●	●	●	○	—	○		
				2-wire		12 V		**M9BV**	**M9B**	●	●	●	○	—	○	—	
	Diagnostic indication (2-colour indicator)			3-wire (NPN)		5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	—	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	—	○		
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	—	○	—	
	Water resistant (2-colour indicator)			3-wire (NPN)		5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)				**M9PAV**∗1	**M9PA**∗1	○	○	●	○	—	○		
				2-wire		12 V		**M9BAV**∗1	**M9BA**∗1	○	○	●	○	—	○	—	
	Magnetic field resistant (2-colour indicator)			2-wire (Non-polar)		—		—	**P3DWA**	●	—	●	●	—	○		
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96V**	**A96**	●	—	●	—	—	—	IC circuit	—
			Yes	2-wire	24 V	12 V	100 V	**A93V**∗2	**A93**	●	●	●	●	—	—	—	Relay, PLC
			No			5 V,12 V	100 V or less	**A90V**	**A90**	●	—	●	—	—	—	IC circuit	

∗1 Water-resistant type auto switches can be mounted on the models on page 93, but SMC cannot guarantee water resistance. A water-resistant type cylinder (⇨ **Web Catalogue**) is recommended for use in environments which require water resistance.
∗2 The 1 m lead wire is only applicable to the D-A93.

∗ Lead wire length symbols: 0.5 m ····· — (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ

∗ Solid state auto switches marked with a "○" are produced upon receipt of order.
∗ The D-P3DWA type is only available in sizes Ø 25 to Ø 100.

∗ There are applicable auto switches other than those listed above. For details ⇨ **Web Catalogue**

Compact Cylinder: With End Lock

HF1A-CBQ2 Series Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

How to Order

Without auto switch HF1A – CBQ2 B 40 ❑ – 30 D C ❑ – H N

With auto switch HF1A – CDBQ2 B 40 ❑ – 30 D C ❑ – H N – M9BW ❑

With auto switch magnet

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❶ Mounting

B	Through-hole*1	Ø 20 to Ø 100
L	Foot	
LC	Compact foot	
F	Rod flange	
G	Head flange	
D	Double clevis	
A	Both ends tapped	Ø 32 to Ø 100

*1 Ø 20, Ø 25 have both through-hole (B) and both ends tapped (A). At the 75 and 100 mm strokes with Ø 80, Ø 100, both ends tapped (A) is the standard. Through-hole (B) is not available.

* Mounting brackets are shipped together with the product but do not come assembled.

* A through-hole type mounting bolt is available as an option. For details ⇨ **Web Catalogue**

❷ Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

❸ Port thread type

—	M thread	Ø 12, Ø 25
	Rc	Ø 32 to Ø 100
TN	NPT	
TF	G	

❹ Cylinder stroke (For details on the minimum stroke for auto switch mounting ⇨ **Web Catalogue**) [mm]

Bore size	Standard stroke
20, 25, 32, 40, 50, 63	10, 15, 20, 25, 50, 75, 100
80, 100	25, 50, 75, 100

* For the manufacturing of intermediate strokes ⇨ **Web Catalogue**

❺ Action

D	Double acting

❻ Cushion

C	Rubber bumper

❼ Body option

—	Rod end female thread
M	Rod end male thread

❽ Lock position

H	Head end lock
R	Rod end lock

❾ Manual release type

N	Non-lock type
L	Lock type

❿ Auto switch

—	Without auto switch

* For applicable auto switches ⇨ p. 96

⓫ Number of auto switches

—	2
S	1
n	n

Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) HF1A-CDBQ2L32-30DC-RL



For details on **auto switch mounting** ⇨ **Web Catalogue**

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Minimum Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Perpendicular Ø 20, Ø 25	Auto switch model: Perpendicular Ø 32 to Ø 100	Auto switch model: In-line Ø 20, Ø 25	Auto switch model: In-line Ø 32	Auto switch model: In-line Ø 40 to Ø 100	Lead wire length [m] 0.5 (—)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	**M9NV**		**M9N**			●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			**M9PV**		**M9P**			●	●	●	○	—	○		
				2-wire	12 V		**M9BV**		**M9B**			●	●	●	○	—	○	—	
		Connector					—	**J79C**	—			●	—	●	●	●	—		
	Diagnostic indication (2-colour indicator)	Grommet		3-wire (NPN)	5 V, 12 V		**M9NWV**		**M9NW**			●	●	●	○	—	○	IC circuit	
				3-wire (PNP)			**M9PWV**		**M9PW**			●	●	●	○	—	○		
				2-wire	12 V		**M9BWV**		**M9BW**			●	●	●	○	—	○	—	
	Water resistant (2-colour indicator)			3-wire (NPN)	5 V, 12 V		**M9NAV***1		**M9NA***1			○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			**M9PAV***1		**M9PA***1			○	○	●	○	—	○		
				2-wire	12 V		**M9BAV***1		**M9BA***1			○	○	●	○	—	○	—	
	With diagnostic output (2-colour indicator)			4-wire	5 V, 12 V		—		—		**F79F**	●	—	●	○	—	○	IC circuit	
	Magnetic field resistant (2-colour indicator)			2-wire (Non-polar)	—		—		—		**P4DW**	—	—	●	●	—	○	—	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96V**		**A96**		●	—	●	—	—	—	IC circuit	—
				2-wire		—	200 V	—	**A72**	—	**A72H**	●	—	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	**A93V***2		**A93**		●	●	●	●	—	—		
			No			5 V, 12 V	100 V or less	**A90V**		**A90**		●	—	●	—	—	—	IC circuit	
		Connector	Yes			12 V	—	—	**A73C**	—		●	—	●	●	●	—	—	
			No			5 V, 12 V	24 V or less	—	**A80C**	—		●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-colour indicator)	Grommet	Yes			—	—	—	**A79W**	—		●	—	●	—	—	—	—	

∗1 Water-resistant type auto switches can be mounted on the models on page 95, but SMC cannot guarantee water resistance.
∗2 The 1 m lead wire is only applicable to the D-A93.

∗ Lead wire length symbols: 0.5 m ····· — (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ
None ····· N (Example) J79CN

∗ Solid state auto switches marked with a "○" are produced upon receipt of order.
∗ The D-P4DW type is only available in sizes Ø 40 to Ø 100.
∗ Only for the D-P4DW type, an auto switch is assembled and shipped with the cylinder.

∗ There are applicable auto switches other than those listed above. For details ⇨ **Web Catalogue**
∗ When the D-A9□(V)/M9□(V)/M9□W(V)/M9□A(V) types with Ø 32 to Ø 50 are mounted on a surface other than the port side, order auto switch mounting brackets separately. For details ⇨ **Web Catalogue**

Stainless Steel Cylinder / Non-adjustable Air Cushion Type

HF2A-CG5 Series Ø 20, Ø 25, Ø 32, Ø 40 RoHS

How to Order

HF2A- CG5 B C 25 S V-100

HF2A-C D G5 B C 25 S V-100

Built-in auto switch magnet

Mounting type

B	Basic type
E	Integrated clevis type

Type

C	Non-adjustable air cushion

Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm

Port thread type

–	M5 x 0.8	Ø 20, Ø 25
	Rc	Ø 32, Ø 40
TN	NPT	Ø 32, Ø 40
TF	G	Ø 32, Ø 40

Seal material
(Scraper, Cylinder tube gasket)

V	FKM

Cylinder stroke [mm]
Refer to "Standard Strokes".

Accessory Options (To Be Ordered Separately)

Applicable Auto Switches / Refer to the **Web Catalog** for further information on auto switches.

Type	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Auto switch model	Lead wire length [m]*1 0.5 (–)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	Grommet	Yes	3-wire (NPN)	24 V	5 V	D-F6N	●	●	○	○	IC circuit	Relay, PLC
			3-wire (PNP)		12 V	D-F6P	●	●	○	○		
			2-wire		12 V	D-F6B	●	●	○	○	–	

*1 Auto switches are shipped together with the product but do not come assembled.
* Lead wire length symbols 0.5 m……Nil (Example) F6B
3 m…… L (Example) F6BL
5 m…… Z (Example) F6BZ
* Auto switches marked with a "○" are produced upon receipt of order.
· For details on auto switches with pre-wired connectors, refer to the **Web Catalogue**.
* The D-F6□ auto switch has an exterior configuration that reduces residual liquid; it does not feature improved water resistance.

Accessories / Part Nos.

Accessory		Min. order	Bore size [mm] 20	25	32	40	Description
Mounting brackets	Axial foot bracket	2*1	CG-L020SUS	CG-L025SUS	CG-L032SUS	CG-L040SUS	Foot bracket x 2 Bracket mounting bolt x 4
	Flange	1	CG-F020SUS	CG-F025SUS	CG-F032SUS	CG-F040SUS	Flange x 1 Bracket mounting bolt x 4
	Pivot bracket	1	CG-E020SUS		CG-E032SUS		Pivot bracket x 2 Clevis pin x 1 Retaining ring x 2
Plug bolt set		1	HYB-H020SUS	HYB-H025SUS		HYB-H040SUS	Plug bolt x 4
Rail plug*2		1	CG5-RP				Rail plug x 1

*1 When ordering the foot bracket, order 2 pcs. per cylinder.
*2 Order the required number of rail plugs.

Switch Rail Accessories

CG5 B 20 E-100

Mounting type

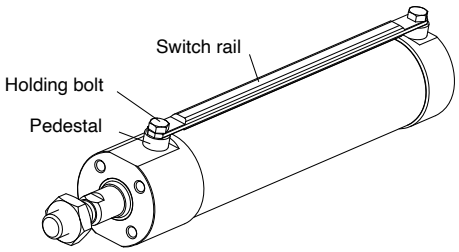
B	Basic
E	Integrated clevis

Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm

Stroke
Refer to "Standard Strokes".
The max. manufacturable stroke is 600 mm.
Select the same mounting type, bore size, and stroke as the cylinder when ordering.

Accessories
· Pedestal 2 pcs.
· Holding bolt 2 pcs.



Stainless Steel Cylinder

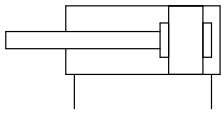
CJ5-S Series Ø 10, Ø 16

The specifications are the same as the "HF1A-" even though there is no "HF1A-" part number prefix.



How to Order

Symbol
Double acting, Single rod, Rubber bumper



		❶	❷		❹								
	CJ5	L	16	S	R	–	60		–				
With auto switch	CDJ5	L	16	S	R	–	60		–	M9BA		–	
					❸		❺			❻	❼		

With auto switch (Built-in magnet)
Stainless steel cylinder
Made to Order

❶ Mounting

B	Basic
L	Foot
F	Rod flange
D	Double clevis

* Foot/Flange brackets are shipped together with the product, but not assembled.

❹ Cylinder stroke [mm]

Bore size [mm]	Standard stroke	Maximum manufacturable stroke
12	15, 30, 45, 60, 75, 100, 125, 150	400
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200	

* Manufacture of intermediate strokes at 1 mm intervals is possible. (Spacers are not used.)
* For the one with auto switch, refer to the minimum stroke for auto switch mounting. (**Web Catalogue**)

Made to Order
(For details, refer to the Web Catalogue.)

Symbol	Specifications
-XA□	Change of rod end shape

❷ Bore size

12	12 mm
16	16 mm

❺ Port location on head cover

—	Perpendicular to axis
R	In-line

* Only perpendicular to the axis for double clevis type.

❻ Auto switch

* For the applicable auto switch model, refer to the table below.
* Only band mounting is applicable to auto switch cylinders.
* If a built-in magnet cylinder without an auto switch is required, refer to the model of built-in magnet cylinder.

❼ Number of auto switches

—	2 pcs.
S	1 pc.
n	"n" pcs.

❸ Seal material

R	NBR seals (Nitrile rubber)
V	FKM seals (Fluororubber

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, suffix the symbol "-B" (Band mounting type) to the end of part number.
(Example) CDJ5B10SV-45R-B

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length [m]*1				Pre-wired connector	Applicable load	
					DC		Band mounting(Ø 10, Ø 16)								
							Perpendicular	In-line	0.5 (—)	1 (M)	3 (L)	5 (Z)			
Solid state auto switch	Water resistant (2-colour indicator)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	**M9NAV**	**M9NA**	○	○	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)			**M9PAV**	**M9PA**	○	○	●	○	○		
				2-wire		12 V	**M9BAV**	**M9BA**	○	○	●	○	○	—	

*1 Lead wire length symbols: 0.5 m ····· — (Example) D-M9NA
1 m ····· M (Example) D-M9NAM
3 m ····· L (Example) D-M9NAL
5 m ····· Z (Example) D-M9NAZ

* Solid state auto switches marked with a "○" are produced upon receipt of order.
* For detail about auto switches with pre-wired connector, refer to the **Web Catalogue**.

Mounting Bracket Part No

Mounting bracket	Bore size [mm]		Description
	10	16	
Foot	CJ-L016 Stainless steel	CJK-L016 Stainless steel	Foot x 1
Flange	CJ-F016 Stainless steel	CJK-F016 Stainless steel	Flange x 1
T-bracket *1	CJ-T010 Stainless steel	CJ-T016 Stainless steel	T-bracket x 1

*1 T-bracket is applicable to the double clevis type (D).

Grease pack for stainless steel cylinders/Part no.: GR-R-010 (10 g)

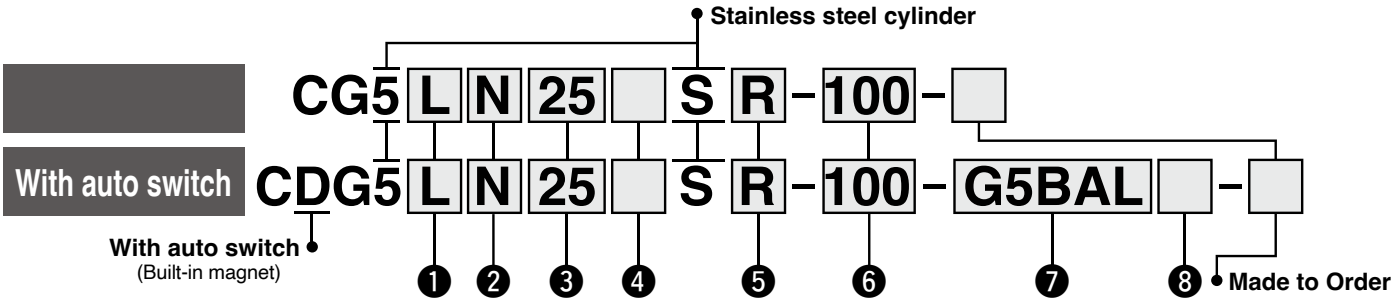
Stainless Steel Cylinder: Standard Type
Double Acting, Single Rod

CG5-S Series Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

RoHS

How to Order

The specifications are the same as the "HF1A-" even though there is no "HF1A-" part number prefix.



❶ Mounting type

B	Basic
L	Foot
F	Rod flange
G	Head flange
E	Integrated clevis

❷ Type

N	Rubber bumper
A	Air cushion

❸ Bore size

20	20 mm	**50**	50 mm
25	25 mm	**63**	63 mm
32	32 mm	**80**	80 mm
40	40 mm	**100**	100 mm

❹ Port thread type

Rubber bumper

–	Rc	Ø 20 to Ø 100
TN	NPT	Ø 20 to Ø 100
TF	M5 x 0.8	Ø 20, Ø 25
	G	Ø 32 to Ø 100

Air cushion

–	M5 x 0.8	Ø 20, Ø 25
	Rc	Ø 32 to Ø 100
TN	M5 x 0.8	Ø 20, Ø 25
	NPT	Ø 32 to Ø 100
TF	M5 x 0.8	Ø 20, Ø 25
	G	Ø 32 to Ø 100

❺ Seal material

R	NBR seals (Nitrile rubber)
V	FKM seals (Fluororubber)

❻ Cylinder stroke [mm]

Refer to "Standard Stroke" on page 100.

❼ Auto switch

–	Without auto switch
G5BAL	D-G5BAL (Water resistant)

Auto switches are available in the bandmounting type only.

❽ Number of auto switches

–	2 pcs.
S	1 pc.
n	"n" pcs.

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) CDG5BA40SV-100

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Auto switch model	Lead wire length (m)*1 3 (L)	Lead wire length (m)*1 5 (Z)	Pre-wired connector	Applicable load
Solid state auto switch	Water resistant (2-colour indicator)	Grommet	Yes	2-wire	24 V	12 V	**G5BA**	●	○	○	Relay, PLC

*1 Lead wire length symbols: 3 m ····· L (Example) G5BAL
5 m ····· Z (Example) G5BAZ

* Solid state auto switches marked with a "○" are produced upon receipt of order.

* For detail about auto switches with pre-wired connector, refer to the **Web Catalogue**.

Mounting Bracket Part No

Mounting bracket	Min. order	Bore size [mm] 20	25	32	40	50	63	80	100	Description
Axial foot	2*1	CG-L020SUS	CG-L025SUS	CG-L032SUS	CG-L040SUS	CG-L050SUS	CG-L063SUS	CG-L080SUS	CG-L100SUS	Foot x 2 Bracket mounting bolt x 4
Flange	1	CG-F020SUS	CG-F025SUS	CG-F032SUS	CG-F040SUS	CG-F050SUS	CG-F063SUS	CG-F080SUS	CG-F100SUS	Flange x 1 Bracket mounting bolt x 4
Pivot bracket	1	CG-E020SUS		CG-E032SUS		CG-E050SUS		CG-E080SUS		Clevis pin x 1 Retaining ring x 2

*1 When ordering the foot bracket, order 2 pcs. per cylinder.



Standard Strokes

(mm)

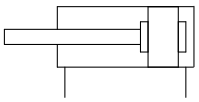
Bore size	Standard stroke*1	Manufacturable stroke*2
20	25, 50, 75, 100, 125, 150, 200	1 to 1500
25	25, 50, 75, 100, 125, 150, 200, 250, 300	1 to 1500
32		
40		
50		
63		
80		
100		

*1 Other intermediate strokes can be manufactured upon receipt of order. Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)

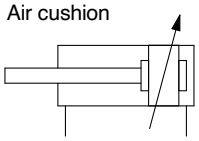
*2 Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on the **Web Catalogue**. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

Symbol

Double acting,
Single rod, Rubber bumper



Air cushion



Made to Order

Made to Order

(For details, refer to the Web Catalogue.)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat resistant cylinder (150 °C)*1

*1 Heat resistant grease (non-food grease) is used.

Refer to the **Web Catalogue** for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Auto switch mounting brackets/Part no.
- Operating range
- Cylinder mounting bracket, by stroke/ Auto switch mounting surfaces

Stainless Steel Cylinder: Standard Type
Double Acting, Double Rod

CG5W-S Series Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

RoHS

How to Order

The specifications are the same as the "HF1A-" even though there is no "HF1A-" part number prefix.

Stainless steel cylinder

	CG5W	L	N	25		S	R	–	100		
With auto switch	CDG5W	L	N	25		S	R	–	100	– G5BAL	
		❶	❷	❸	❹	❺	❻			❼	❽

With auto switch (Built-in magnet)

❶ Mounting type

B	Basic
L	Foot
F	Rod flange

❸ Bore size

20	20 mm	50	50 mm
25	25 mm	63	63 mm
32	32 mm	80	80 mm
40	40 mm	100	100 mm

❹ Port thread type

Rubber bumper

—	Rc	Ø 20 to Ø 100
TN	NPT	Ø 20 to Ø 100
TF	M5 x 0.8	Ø 20, Ø 25
	G	Ø 32 to Ø 100

Air cushion

—	M5 x 0.8	Ø 20, Ø 25
	Rc	Ø 32 to Ø 100
TN	M5 x 0.8	Ø 20, Ø 25
	NPT	Ø 32 to Ø 100
TF	M5 x 0.8	Ø 20, Ø 25
	G	Ø 32 to Ø 100

❷ Type

N	Rubber bumper
A	Air cushion

❻ Cylinder stroke [mm]

Refer to "Standard Stroke" on page 102.

❺ Seal material

R	NBR seals (Nitrile rubber)
V	FKM seals (Fluororubber)

❼ Auto switch

—	Without auto switch
G5BAL	D-G5BAL (Water resistant)

Auto switches are available in the bandmounting type only.

❽ Number of auto switches

—	2 pcs.
S	1 pc.
n	"n" pcs.

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
Example) CDG5WBA40SV-100

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Auto switch model	Lead wire length (m)*1 3 (L)	Lead wire length (m)*1 5 (Z)	Pre-wired connector	Applicable load
Solid state auto switch	Water resistant (2-colour indicator)	Grommet	Yes	2-wire	24 V	12 V	**G5BA**	●	○	○	Relay, PLC

*1 Lead wire length symbols: 3 m ····· L (Example) G5BAL
5 m ····· Z (Example) G5BAZ

* Solid state auto switches marked with a "○" are produced upon receipt of order.

* For detail about auto switches with pre-wired connector, refer to the **Web Catalogue**.

Mounting Bracket Part No

Mounting bracket	Min. order	Bore size [mm] 20	25	32	40	50	63	80	100	Description
Axial foot	2*1	CG-L020SUS	CG-L025SUS	CG-L032SUS	CG-L040SUS	CG-L050SUS	CG-L063SUS	CG-L080SUS	CG-L100SUS	Foot x 2 Bracket mounting bolt x 4
Flange	1	CG-F020SUS	CG-F025SUS	CG-F032SUS	CG-F040SUS	CG-F050SUS	CG-F063SUS	CG-F080SUS	CG-F100SUS	Flange x 1 Bracket mounting bolt x 4

*1 When ordering the foot bracket, order 2 pcs. per cylinder.



Standard Strokes

(mm)

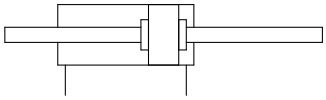
Bore size	Standard stroke*1	Manufacturable stroke*2
20	25, 50, 75, 100, 125, 150, 200	1 to 1500
25	25, 50, 75, 100, 125, 150, 200, 250, 300	1 to 1500
32		
40		
50		
63		
80		
100		

*1 Other intermediate strokes can be manufactured upon receipt of order. Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)

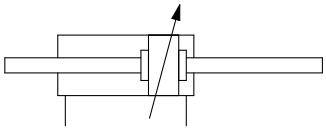
*2 Applicable strokes should be confirmed according to the usage. For details, refer to “Air Cylinders Model Selection” on the **Web Catalogue**. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

Symbol

Rubber bumper



Air cushion



Refer to the **Web Catalogue** for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Auto switch mounting brackets/Part no.
- Operating range
- Cylinder mounting bracket, by stroke/ Auto switch mounting surfaces

Hygienic Design Cylinder
Round Type

HYB Series Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

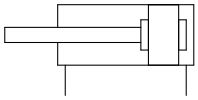
The specifications are the same as the "HF1A-" even though there is no "HF1A-" part number prefix.

RoHS

How to Order



Symbol
Rubber bumper



	HYB 20 ☐ R – 50 F
With auto switch	HYDB 20 ☐ R – 50 F – H7BAL ☐

With auto switch
(Built-in magnet)

❶ ❷ ❸ ❹ ❺ ❻

Grease

F	Grease for food

❶ Bore size

20	20 mm	50	50 mm
25	25 mm	63	63 mm
32	32 mm	80	80 mm
40	40 mm	100	100 mm

❷ Port thread type

–	M5 x 0.8	Ø 20, Ø 25
	Rc	Ø 32 to Ø 100
TN	NPT	
TF	G	

❸ Sealant material

R	NBR
H	External FKM*1

*1 External seal material: Rod scraper, tube gasket, and rod seal are made from FKM.

❹ Cylinder stroke [mm]

Bore size	Standard stroke
20	25, 50, 75, 100, 125, 150, 200
25 to 100	25, 50, 75, 100, 125, 150, 200, 250, 300

* Intermediate strokes of 1 mm each can be produced. (The spacer is not used.)

❺ Auto switch

–	Without auto switch (Built-in magnet)

Refer to table below for selection of applicable auto switch.

❻ Number of auto switches

–	2 pcs.
S	1 pc.
n	"n" pcs.

< Mounting bracket > Foot and flange (Rod end)
< Option parts > Plug bolt
Please place an order for above mentioned parts separately, please refer to the Web Catalogue for details.

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)*1		Pre-wired connector	Applicable load
					DC		Ø 20 to Ø 63	Ø 80, Ø 100	3 (L)	5 (Z)		
Solid state auto switch	Water resistance improvement product (2-colour display)	Grommet	Yes	2-wire	24 V	12 V	**H7BA**	**G5BA**	●	○	○	Relay, PLC

*1 Lead wire length symbols: 3 m ····· L (Example) H7BAL
5 m ····· Z (Example) H7BAZ

* Solid state auto switches marked with a "○" are produced upon receipt of order.

* For detail about auto switches with pre-wired connector, refer to the **Web Catalogue**.

Hygienic Design Cylinder
Basic Type

HYQ Series Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63

The specifications are the same as the "HF1A-" even though there is no "HF1A-" part number prefix.



How to Order

	HYQB 20 ❑ R – 50 F M
With auto switch	HYDQB 20 ❑ R – 50 F M – F6B ❑

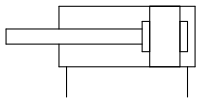
❶ ❷ ❸ ❹ ❺ ❻ ❼

With auto switch
(Built-in magnet and switch rail)

Grease

F	Grease for food

Symbol
Rubber bumper



❶ Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm

❷ Port thread type

—	M thread	Ø 20, Ø 25
	Rc	Ø 32 to Ø 63
TN	NPT	
TF	G	

❸ Sealant material

R	NBR
H	External FKM*1

*1 External seal material: Rod scraper, tube gasket, and rod seal are made from FKM.

❹ Cylinder stroke [mm]

Bore size	Standard stroke
20	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
63	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

* Intermediate strokes of 1 mm each can be produced. (The spacer is not used.)

❺ Type of rod end

—	Female thread
M	Male thread

❻ Auto switch

—	Without auto switch

Refer to table below for selection of applicable auto switch.

❼ Number of auto switches

—	2 pcs.
S	1 pc.
n	"n" pcs.

< Mounting bracket > Foot, flange, single clevis, double clevis, and clevis pin
< Option parts > External cover
Please place an order for above mentioned parts separately, please refer to the Web Catalogue for details.

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Auto switch model	Lead wire length (m)*1 0.5 (—)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	**F6N**	●	●	○	○	IC circuit	Relay, PLC
			3-wire (PNP)			**F6P**	●	●	○	○		
			2-wire		12 V	**F6B**	●	●	○	○	—	

*1 Lead wire length symbols: 0.5 m ····· — (Example) F6B
3 m ····· L (Example) F6BL
5 m ····· Z (Example) F6BL

* Auto switches marked with a "○" symbol are produced upon receipt of order.

* Refer to the **Web Catalogue** for detailed specifications about the auto switch with pre-wired connector.
* Auto switch is shipped not assembled with the cylinder.
* The D-F6□ auto switch has an exterior configuration that reduces residual liquid; it does not feature improved water resistance.

Hygienic Design Cylinder
ISO Standard Type

HYC Series Ø 32, Ø 40, Ø 50, Ø 63

RoHS

The specifications are the same as the "HF1A-" even though there is no "HF1A-" part number prefix.



How to Order

HYCB 32 ☐ R – 500 F

With auto switch **HYDCB 32 ☐ R – 500 F – F6B ☐**

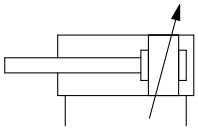
With auto switch
(Built-in magnet and switch rail)

❶ ❷ ❸ ❹ ❺ ❻

Grease

F	Grease for food

Symbol
Air cushion



❶ Bore size

20	20 mm
40	40 mm
50	50 mm
63	63 mm

❷ Port thread type

—	Rc
TN	NPT
TF	G

❸ Sealant material

R	NBR
H	External FKM*1

*1 External seal material: Rod scraper, tube gasket, and rod seal are made from FKM.

❹ Cylinder stroke [mm]

Bore size	Standard stroke
20	25, 50, 75, 100, 125, 150, 200, 250, 300, 400, 500
40	25, 50, 75, 100, 125, 150, 200, 250, 300, 400, 500
50	25, 50, 75, 100, 125, 150, 200, 250, 300, 400, 500, 600
63	25, 50, 75, 100, 125, 150, 200, 250, 300, 400, 500, 600

∗ Intermediate strokes of 1 mm each can be produced. (The spacer is not used.)

❺ Auto switch

—	Without auto switch

Refer to table below for selection of applicable auto switch.

❻ Number of auto switches

—	2 pcs.
S	1 pc.
n	"n" pcs.

< Mounting bracket > Foot, flange, single clevis, double clevis, and clevis pin
< Option parts > Plug bolt
Please place an order for above mentioned parts separately, please refer to the Web Catalogue for details.

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model	Lead wire length (m)*1			Pre-wired connector	Applicable load	
				DC			0.5 (—)	3 (L)	5 (Z)			
Solid state auto switch	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	**F6N**	●	●	○	○	IC circuit	Relay, PLC
			3-wire (PNP)			**F6P**	●	●	○	○		
			2-wire		12 V	**F6B**	●	●	○	○	—	

*1 Lead wire length symbols: 0.5 m ····· — (Example) F6B
3 m ····· L (Example) F6BL
5 m ····· Z (Example) F6BL

∗ Auto switches marked with a "○" symbol are produced upon receipt of order.

∗ Refer to the **Web Catalogue** for detailed specifications about the auto switch with pre-wired connector.
∗ Auto switch is shipped not assembled with the cylinder.
∗ The D-F6☐ auto switch has an exterior configuration that reduces residual liquid; it does not feature improved water resistance.

Hygienic Design Cylinder

HYG Series Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63

The specifications are the same as the "HF1A-" even though there is no "HF1A-" part number prefix.



How to Order

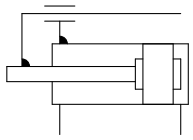
	HYG 20 ❶ R ❷ – 50 ❸ F ❹
With auto switch	HYDG 20 ❶ R ❷ – 50 ❸ F ❹ – F6B ❺ ❻

With auto switch
(Built-in magnet and switch rail)

Grease

F	Grease for food

Symbol
Rubber bumper



❶ Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm

❷ Port thread type

–	M thread	Ø 20, Ø 25
	Rc	Ø 32 to Ø 63
TN	NPT	
TF	G	

❸ Sealant material

R	NBR
H	External FKM*1

*1 External seal material: Rod scraper, tube gasket, and rod seal are made from FKM.

❹ Cylinder stroke [mm]

Bore size	Standard stroke
20	20, 30, 50, 100, 150, 200
25	20, 30, 50, 100, 150, 200
32	25, 50, 100, 150, 200
40	25, 50, 100, 150, 200
50	25, 50, 100, 150, 200
63	25, 50, 100, 150, 200

* Manufacture of Intermediate Stroke
Intermediate strokes of 1 mm each can be produced by using spacers with standard stroke cylinders. However, intermediate strokes of 5 mm each can be produced about Ø 40 to 63.
Example) HYG32R-57 mounts a 43 mm spacer in standard stroke cylinder HYG32R-100.

❺ Auto switch

–	Without auto switch

Refer to table below for selection of applicable auto switch.

❻ Number of auto switches

–	2 pcs.
S	1 pc.
n	"n" pcs.

Optional parts (plug bolt) should be ordered separately.
Please refer to the **Web Catalogue** for details.

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Auto switch model	Lead wire length (m)*1 0.5 (–)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	F6N	●	●	○	○	IC circuit	Relay, PLC
			3-wire (PNP)			F6P	●	●	○	○		
			2-wire		12 V	F6B	●	●	○	○	—	

*1 Lead wire length symbols: 0.5 m ····· — (Example) F6B
3 m ····· L (Example) F6BL
5 m ····· Z (Example) F6BL

* Auto switches marked with a "○" symbol are produced upon receipt of order.

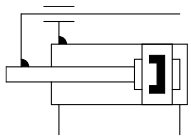
* Refer to the **Web Catalogue** for detailed specifications about the auto switch with pre-wired connector.
* Auto switch is shipped not assembled with the cylinder.
* The D-F6□ auto switch has an exterior configuration that reduces residual liquid; it does not feature improved water resistance.

Compact Guide Cylinder

HF1A-MGP Series Ø 12, Ø 16, Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100



Symbol
Rubber bumper



How to Order

HF1A – MGP ❶M ❷25 ❸ – ❹30 Z – M9BW ❺ ❻

Compact Guide Cylinder

❶ Bearing type

M	Slide bearing
L	Ball bushing
A	High precision ball bushing

❷ Bore size

12	12 mm	**40**	40 mm
16	16 mm	**50**	50 mm
20	20 mm	**63**	63 mm
25	25 mm	**80**	80 mm
32	32 mm	**100**	100 mm

❸ Port thread type

–	M5 x 0.8
	Rc
TN	NPT
TF	G

∗ For bore sizes Ø 12 and Ø 16, only M5 x 0.8 is available.

❹ Cylinder stroke [mm]

Bore size [mm]	Standard stroke [mm]
12, 16	10, 20, 30, 40, 50, 75, 100, 125, 150, 175, 200, 250
20, 25	20, 30, 40, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400
32 to 100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400

❺ Auto switch

–	Without auto switch (Built-in magnet)

∗ For applicable auto switches, refer to the table below.

❻ Number of auto switches

–	2 pcs.
S	1 pc.
n	n pcs.

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model Perpendicular	Auto switch model In-line	Lead wire length [m] 0.5 (–)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	–	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	–	**M9NV**	**M9N**	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9PV**	**M9P**	●	●	●	○	○	IC circuit	
				2-wire		12 V		**M9BV**	**M9B**	●	●	●	○	○	–	
	Diagnostic indication (2-colour indicator)			3-wire (NPN)		5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	○	IC circuit	
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	○	–	
	Water resistant (2-colour indicator)			3-wire (NPN)		5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	○	IC circuit	
				3-wire (PNP)				**M9PAV**∗1	**M9PA**∗1	○	○	●	○	○	IC circuit	
				2-wire		12 V		**M9BAV**∗1	**M9BA**∗1	○	○	●	○	○	–	
	Magnetic field resistant (2-colour indicator)			2-wire (Non-polar)		–		–	**P3DWA**∗2	●	–	●	●	○	–	
Reed auto switch	–	Grommet	Yes	3-wire (NPN equivalent)	–	5 V	–	**A96V**	**A96**	●	–	●	–	–	IC circuit	–
			No	2-wire	24 V	12 V	100 V	**A93V**∗3	**A93**	●	●	●	●	–	–	Relay, PLC
							100 V or less	**A90V**	**A90**	●	–	●	–	–	IC circuit	

∗1 Water resistant type auto switches are mountable on the above models, but in such case SMC cannot guarantee water resistance. A water resistant type cylinder is recommended for use in an environment which requires water resistance.
∗2 The D-P3DWA□ is mountable on bore size Ø 25 to Ø 100.
∗3 1 m type lead wire is only applicable to the D-A93.

∗ Lead wire length symbols: 0.5 m ····· – (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ

∗ Solid state auto switches marked with " ○ " are produced upon receipt of order.

∗ Other than the auto switches listed above, the D-P4DW type can be mounted. Refer to the **Web Catalogue** for details.
∗ For details about auto switches with pre-wired connector, refer to the **Web Catalogue**.
∗ Auto switches are shipped together, (but not assembled).

Compact Guide Cylinder/Compact Type

HF1A-MGPK Series Ø 12, Ø 16, Ø 20, Ø 25, Ø 32, Ø 40, Ø 50



How to Order

HF1A – MGPK [A] [M] [32] [ ] – [50] [ ] – [M9BW] [ ]

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Plate material

A	Aluminium alloy
F	Carbon steel

❷ Bearing type

M	Slide bearing
L∗1	Ball bushing

∗1 For bore sizes 16 and 32 only

❸ Bore size

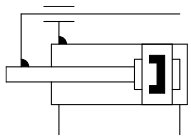
12	12 mm	**32**	32 mm
16	16 mm	**40**	40 mm
20	20 mm	**50**	50 mm
25	25 mm		

❹ Port thread type

–	M5 x 0.8
	Rc
TN	NPT
TF	G

∗ For bore sizes 12 and 16, only M5 x 0.8 is available.

Symbol
Rubber bumper



❺ Cylinder stroke

Bore size [mm]	Standard stroke [mm]
12, 16	10, 20, 30, 40, 50, 75, 100, 125, 150
20, 25	20, 30, 40, 50, 75, 100, 125, 150, 175, 200
32 to 50	25, 50, 75, 100, 125, 150, 175, 200

❻ Piping port location

–	Top/Side ported
P∗1	Top ported

∗1 For bore sizes 12 and 16 only

❼ Auto switch

–	Without auto switch (Built-in magnet)

∗ For applicable auto switches, refer to the table below.

❽ Number of auto switches

–	2
S	1
n	n

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model Perpendicular	Auto switch model In-line	Lead wire length [m] 0.5 (–)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	–	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	–	**M9NV**	**M9N**	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9PV**	**M9P**	●	●	●	○	○	IC circuit	
				2-wire		12 V		**M9BV**	**M9B**	●	●	●	○	○	–	
	Diagnostic indication (2-colour indicator)			3-wire (NPN)		5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	○	IC circuit	
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	○	–	
	Water resistant (2-colour indicator)			3-wire (NPN)		5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	○	IC circuit	
				3-wire (PNP)				**M9PAV**∗1	**M9PA**∗1	○	○	●	○	○	IC circuit	
				2-wire		12 V		**M9BAV**∗1	**M9BA**∗1	○	○	●	○	○	–	
Reed auto switch	–	Grommet	Yes	3-wire (NPN equivalent)	–	5 V	–	**A96V**	**A96**	●	–	●	–	–	IC circuit	–
			Yes	2-wire	24 V	12 V	100 V	**A93V**∗2	**A93**	●	●	●	●	–	–	Relay, PLC
			No				100 V or less	**A90V**	**A90**	●	–	●	–	–	IC circuit	

∗1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance.
∗2 The 1 m lead wire is only applicable to the D-A93.

∗ Lead wire length symbols: 0.5 m..... – (Example) M9NW
1 m..... M (Example) M9NWM
3 m..... L (Example) M9NWL
5 m..... Z (Example) M9NWZ

∗ Solid state auto switches marked with a "○" are produced upon receipt of order.

∗ For details on auto switches with pre-wired connectors, refer to the **Web Catalogue**.
∗ Auto switches are shipped together with the product but do not come assembled.

Dual Rod Cylinder / Compact Type

HF1A-CXSJ Series Ø 6, Ø 10, Ø 15, Ø 20, Ø 25, Ø 32



How to Order

HF1A – CXSJ M 6 ❸ P – 50 – M9BW S ❹

Compact Type ●

❶ ❷ ❺ ❻

❶ Bearing type

M	Slide bearing
L	Ball bushing bearing

❷ Bore size/Stroke [mm]

Bore size	Standard stroke
6	10, 20, 30, 40, 50
10	10, 20, 30, 40, 50, 75
15	10, 20, 30, 40, 50, 75, 100
20	
25	
32	

❸ Port thread type

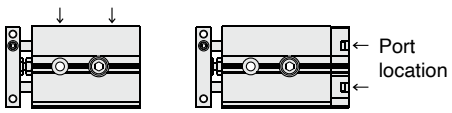
—	M thread	Ø 6 to Ø 25
	Rc 1/8	Ø 32
TN	NPT 1/8	
TF	G 1/8	

❹ Piping port location

—	Standard (Ø 6 to Ø 32)
P	Axial (Ø 6, Ø 10)

Standard piping | Axial piping

Port location



❺ Auto switch

—	Without auto switch (with built-in magnet)

∗ For applicable auto switches, refer to the table below.

❻ Number of auto switches

—	2 pcs.
S	1 pc.
n	n pcs.

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model Perpendicular	Auto switch model In-line	Lead wire length [m] 0.5 (—)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**M9NV**	**M9N**	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9PV**	**M9P**	●	●	●	○	○		
				2-wire		12 V		**M9BV**	**M9B**	●	●	●	○	○	—	
	Diagnostic indication (2-colour indicator)			3-wire (NPN)		5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	○		
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	○	—	
	Water resistant (2-colour indicator)			3-wire (NPN)		5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	○	IC circuit	
				3-wire (PNP)				**M9PAV**∗1	**M9PA**∗1	○	○	●	○	○		
				2-wire		12 V		**M9BAV**∗1	**M9BA**∗1	○	○	●	○	○	—	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96V**	**A96**	●	—	●	—	—	IC circuit	—
			Yes	2-wire	24 V	12 V	100 V	**A93V**∗2	**A93**	●	●	●	●	—	—	Relay, PLC
			No				100 V or less	**A90V**	**A90**	●	—	●	—	—	IC circuit	

∗1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance.
∗2 The 1 m lead wire is only applicable to the D-A93.

∗ Lead wire length symbols: 0.5 m..... — (Example) M9NW
1 m..... M (Example) M9NWM
3 m..... L (Example) M9NWL
5 m..... Z (Example) M9NWZ

∗ Solid state auto switches marked with a "○" are produced upon receipt of order.

∗ Since there are applicable auto switches other than listed, refer to the **Web Catalogue** for details.
∗ For details on auto switches with pre-wired connectors, refer to the **Web Catalogue**.
∗ Auto switches are shipped together with the product but do not come assembled.

Dual Rod Cylinder
Basic Type

HF1A-CXS2 Series Ø 6, Ø 10, Ø 16, Ø 20, Ø 25, Ø 32



How to Order

HF1A-CXS2 M 20 □ - 100 - M9BW □

❶ ❷ ❸ ❹ ❺ ❻

❶ Bearing type

M	Slide bearing
L	Ball bushing bearing

❷ Bore size

6	6 mm
10	10 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm

❸ Thread type

Symbol	Type	Bore size
—	M thread	Ø 6 to Ø 20
	Rc1/8	Ø 25, Ø 32
TN	NPT1/8	
TF	G1/8	

❹ Cylinder stroke [mm]

Model	Stroke range	Standard stroke
CXS2□6	1 to 100	10, 20, 30, 40, 50, 60, 70, 75, 80, 90, 100
CXS2□10	1 to 150	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100, 110, 120, 125, 150
CXS2□16	1 to 200	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100, 110, 120, 125, 150, 175, 200
CXS2□20		10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100, 110, 120, 125, 150, 175, 200
CXS2□25		10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100, 110, 120, 125, 150, 175, 200
CXS2□32		10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100, 110, 120, 125, 150, 175, 200

∗ Intermediate strokes are available as special orders.

❺ Auto switch

—	Without auto switch (Built-in magnet)

∗ For applicable auto switches, refer to the table below.

❻ Number of auto switches

—	2
S	1
n	n

Applicable Auto Switches / Refer to the **Web Catalogue** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model: Perpendicular	Auto switch model: In-line	Lead wire length [m]∗3: 0.5 (—)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**M9NV**	**M9N**	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9PV**	**M9P**	●	●	●	○	○		
				2-wire		12 V		**M9BV**	**M9B**	●	●	●	○	○	—	
	Diagnostic indication (2-colour indicator)			3-wire (NPN)		5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	○		
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	○	—	
	Water resistant (2-colour indicator)			3-wire (NPN)		5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	○	IC circuit	
				3-wire (PNP)				**M9PAV**∗1	**M9PA**∗1	○	○	●	○	○		
				2-wire		12 V		**M9BAV**∗1	**M9BA**∗1	○	○	●	○	○	—	
Reed auto switch	—	Grommet	Yes	3-wire (NPN)	—	5 V	—	**A96V**	**A96**	●	—	●	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	**A93V**∗2	**A93**	●	●	●	●	—	—	Relay, PLC
			None			5 V, 12 V	100 V or less	**A90V**	**A90**	●	—	●	—	—	IC circuit	

∗1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance.
∗2 The 1 m lead wire is only applicable to the D-A93.
∗3 Lead wire length symbols: 0.5 m ····· — (Example) M9NW
1 m ····· M M9NWM
3 m ····· L M9NWL
5 m ····· Z M9NWZ

∗ Solid state auto switches marked with a "○" are produced upon receipt of order.

• Since there are applicable auto switches other than those listed above, refer to the **Web Catalogue** for details.
• For details on auto switches with pre-wired connectors, refer to the **Web Catalogue**.
∗ Auto switches are shipped together with the product but do not come assembled.

ISO Standard (15552)

Air Cylinder: Standard Type
Double Acting, Single/Double Rod

HF1A-C96 Series Ø32, Ø40, Ø50, Ø63, Ø80, Ø100

RoHS



How to Order

HF1A-C96S **B 32 – 100 C J W**

With auto switch: HF1A-C96SD **B 32 – 100 C J W – M9BW S**

❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ With auto switch (Built-in magnet)

❸ Air cushion on both ends + Bumper cushion

❶ Mounting

B	Basic
L	Axial foot
F	Rod flange
G	Head flange
C	Single clevis
D	Double clevis
T	Centre trunnion

∗ Mounting brackets are shipped together, but not assembled. (Excludes the centre trunnion type and the adjustable position trunnion type)

❷ Bore size

32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

❸ Cylinder stroke [mm]

Refer to "Standard Strokes" on page 112.

❹ Rod boot

—	Without rod boot
J	Nylon tarpaulin (One end)
JJ	Nylon tarpaulin (Both ends)
K	Heat-resistant tarpaulin (One end)
KK	Heat-resistant tarpaulin (Both ends)

❺ Rod

—	Single rod
W	Double rod

❻ Auto switch

—	Without auto switch

∗ For applicable auto switches, refer to the table below.

❼ Number of auto switches

—	2	3	3
S	1	n	n

Applicable Auto Switches / Refer to the **Web Catalogue** or Best Pneumatics for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Tie-rod mounting	Auto switch model: Band mounting	Lead wire length [m]: 0.5 (—)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9N	—	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)			M9P	—	●	●	●	○	○		
				2-wire	12 V		M9B	—	●	●	●	○	○	—	
		Terminal conduit		3-wire (NPN)	5 V, 12 V		—	G39	—	—	—	—	—	IC circuit	
				2-wire	12 V		—	K39	—	—	—	—	—	—	
	Diagnostic indication (2-colour indicator)	Grommet		3-wire (NPN)	5 V, 12 V		M9NW	—	●	●	●	○	○	IC circuit	
				3-wire (PNP)			M9PW	—	●	●	●	○	○		
				2-wire	12 V		M9BW	—	●	●	●	○	○	—	
	Water-resistant (2-colour indicator)			3-wire (NPN)	5 V, 12 V		M9NA∗1	—	○	○	●	○	○	IC circuit	
				3-wire (PNP)			M9PA∗1	—	○	○	●	○	○		
				2-wire	12 V		M9BA∗1	—	○	○	●	○	○	—	
	With diagnostic output (2-colour indicator)			4-wire (NPN)	5 V, 12 V		F59F	—	●	—	●	○	○	IC circuit	
	Magnetic field resistant (2-colour indicator)			2-wire (Non-polar)	—		P4DW	—	—	—	●	●	○	—	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	5 V	—	A96	—	●	—	●	—	—	IC circuit	—
			No	2-wire	12 V	100 V	A93	—	●	●	●	●	—	—	Relay, PLC
			Yes			100 V or less	A90	—	●	—	●	—	—	IC circuit	
			No			100 V, 200 V	A54	—	●	—	●	●	—	—	
						200 V or less	A64	—	●	—	●	—	—		
		Terminal conduit	Yes			—	—	A33	—	—	—	—	—	—	PLC
						100 V, 200 V	—	A34	—	—	—	—	—		
		DIN terminal					—	A44	—	—	—	—	—		Relay, PLC
	Diagnostic indication (2-colour indicator)	Grommet				—	A59W	—	●	—	●	—	—		

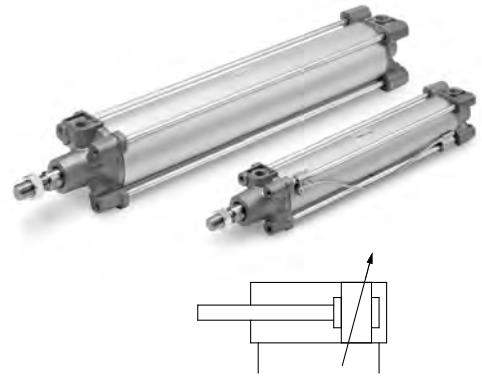
∗1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance.

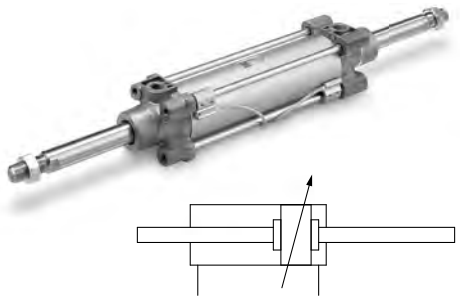
∗ Lead wire length symbols: 0.5 m ····· — (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ

∗ Solid state auto switches marked with "○" are produced upon receipt of order.

∗ Since there are other applicable auto switches than listed above, refer to the **Web Catalogue** for details.

∗ The D-A9□/M9□/M9□W/M9□A auto switches are shipped together, but not assembled. (Only the auto switch mounting brackets are assembled before shipment.)





Standard Strokes

Bore size [mm]	Standard stroke [mm]	Max. manufacturable stroke
32	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	1000
40	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	1900
50	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600	1900
63	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600	1900
80	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600, 700, 800	1900
100	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600, 700, 800	1900

Intermediate strokes are available.

ISO Standard (15552)

Air Cylinder: Standard Type
Double Acting, Single/Double Rod

HF1A-CP96 Series Ø 32, Ø 40, Ø 50, Ø 63, Ø 80, Ø 100

RoHS



How to Order

HF1A-CP96S B 32 – 100 C J W

With auto switch **HF1A-CP96SD** B 32 – 100 C J W – M9BW S

❶ ❷ ❸ ❹ ❺ ❻ ❼

With auto switch (Built-in magnet)

Air cushion on both ends + Bumper cushion

❶ Mounting

B	Basic
L	Axial foot
F	Rod flange
G	Head flange
C	Single clevis
D	Double clevis

∗ Mounting brackets are shipped together, but not assembled.

❷ Bore size

32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

❸ Cylinder stroke [mm]

Refer to "Standard Strokes" on page 114.

❹ Rod boot

—	Without rod boot
J	Nylon tarpaulin (One end)
JJ	Nylon tarpaulin (Both ends)
K	Heat-resistant tarpaulin (One end)
KK	Heat-resistant tarpaulin (Both ends)

❺ Rod

—	Single rod
W	Double rod

❻ Auto switch

—	Without auto switch

∗ For applicable auto switches, refer to the table below.

❼ Number of auto switches

—	2
S	1
3	3
n	n

Applicable Auto Switches / Refer to the **Web Catalogue** or Best Pneumatics for further information on auto switches.

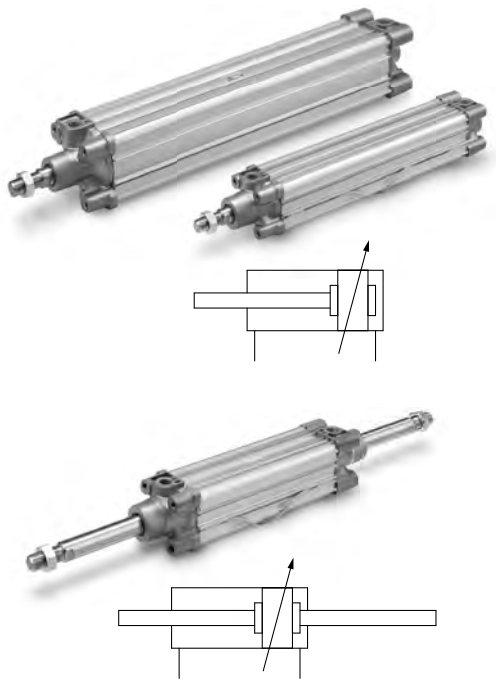
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model	Lead wire length [m] 0.5 (—)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**M9N**	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9P**	●	●	●	○	○	IC circuit	
				2-wire		12 V		**M9B**	●	●	●	○	○	—	
	Diagnostic indication (2-colour indicator)	Grommet		3-wire (NPN)		5 V, 12 V		**M9NW**	●	●	●	○	○	IC circuit	
				3-wire (PNP)				**M9PW**	●	●	●	○	○	IC circuit	
				2-wire		12 V		**M9BW**	●	●	●	○	○	—	
	Water-resistant (2-colour indicator)			3-wire (NPN)		5 V, 12 V		**M9NA**∗1	○	○	●	○	○	IC circuit	
				3-wire (PNP)				**M9PA**∗1	○	○	●	○	○	IC circuit	
				2-wire		12 V		**M9BA**∗1	○	○	●	○	○	—	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96**	●	—	●	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	**A93**	●	●	●	●	—	—	Relay, PLC
			No				100 V or less	**A90**	●	—	●	—	—	IC circuit	

∗1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance.

∗ Lead wire length symbols: 0.5 m ····· — (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ

∗ Solid state auto switches marked with "○" are produced upon receipt of order.

∗ Since there are other applicable auto switches than listed above, refer to the **Web Catalogue** for details.
∗ The D-A9□/M9□/M9□W/M9□A auto switches are shipped together, but not assembled.
∗ The D-Y59A, Y69A, Y7P, Y7□W, Z7□, Z80 cannot be mounted on the CP96 series.
Moreover, the D-M9□□ and A9□ auto switches cannot be mounted on square groove of the CP96 series.



Standard Strokes

Bore size [mm]	Standard stroke [mm]	Max. manufacturable stroke
32	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	2000
40	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	2000
50	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600	2000
63	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600	2000
80	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600, 700, 800	2000
100	25, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500, 600, 700, 800	2000

Intermediate strokes are available.

Floating Joint / Stainless Steel Type

JS Series

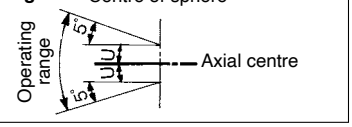
RoHS

The specifications are the same as the "HF1A-" even though there is no "HF1A-" part number prefix.

Specifications

Operating pressure	Pneumatic cylinder: 1 MPa or less
Mounting	Basic type

Operating range





JS series

Specifications

Model	Applicable bore size [mm]*1	Applicable cylinder nominal thread size	Maximum operating tension and compression force [N]	Allowable eccentricity U [mm]	Operating pressure: Pneumatic cylinder	Ambient temperature
JS10-4-070	10	M4 x 0.7	80	0.5	1 MPa or less	-5 to 60 °C
JS16-5-080	10, 16	M5 x 0.8	210	0.5		
JS20-8-125	20	M8 x 1.25	1100	0.5		
JS32-10-125	25, 32	M10 x 1.25	2500	0.5		
JS40-14-150	40	M14 x 1.5	6000	0.75		
JS63-18-150	50, 63	M18 x 1.5	11000	1		

*1 Think of applicable bore size as a guide. For details, confirm the rod end thread diameter of a cylinder to be used in the catalogue.

How to Order

J S 32 – 10-125 ☐

Stainless steel type

Applicable bore size

Symbol	Applicable bore size [mm]
10	10
18	10, 18
20	20
32	25, 32
40	40
63	50, 63
*1	
80	80
100	100

Nominal thread size

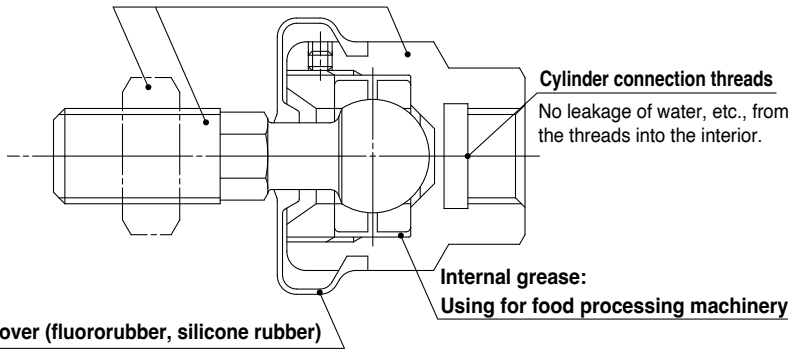
Symbol	Applicable cylinder nominal thread size
4-070	M4 x 0.7
5-080	M5 x 0.8
8-125	M8 x 1.25
10-125	M10 x 1.25
14-150	M14 x 1.5
18-150	M18 x 1.5

Dust cover material

Symbol	Material
—	Fluororubber
S	Silicone rubber

Made to Order: Individual Specifications -X530

* For details, refer to the **Web Catalogue**.



* The shape of the cover prevents residual liquid.
* Improved sealing

⚠ Precautions

Be sure to read this before handling the products. Refer to the Web Catalogue for safety instructions.

Mounting

⚠Warning

1. For the screw-in depth of the female threads, refer to the dimensions (Web Catalogue).
2. The dust cover may adhere to the stud. In this case, move the dust cover at the neck of the stud by the finger or twist the stud slightly left or right to break in the dust cover before use. Additionally, when screwing the stud and socket or the case into a driven body, screw in such parts with the dust cover removed. When screwing in such parts without removing the dust cover, this may cause damage to the dust cover.
3. To use a floating joint to connect the cylinder rod to a driven body, secure it in place by applying a torque that is appropriate for the thread size. Also, if there is a risk of loosening during operation, take measures to prevent loosening, such as using a locking pin or thread adhesive.
   In the event that the connected portion becomes loose, the driven body might lose control or fall off, leading to equipment damage or injury to personnel.
4. This product is not a rotary joint. So, the product cannot be used for rotational or rotation acting applications.
5. Be sure to use the cushion mechanism of the cylinder or the buffer mechanism, such as the shock absorber so that any impact force is not applied to the floating joint when stopping a driven body. If there is no buffer mechanism, an excessive impact force is generated. As a result, the tensile compression force of the floating joint may exceed its maximum level.

Maintenance

⚠Warning

1. Do not reuse if disassembled.
   High strength adhesive is applied to the portion of the connection that is threaded to prevent it from loosening, and it must not be disassembled. If it is forcefully disassembled, it could lead to damage.

Design

⚠Warning

1. JS series has play in the axial direction. (Default: 0.06 mm or less) When positioning the driven object, avoid the influence of play using a knock pin or external stopper.

Ejector System Vacuum Unit

HF1-ZK2□A Series

RoHS

Single Unit

Ejector + With Valve + Without Energy Saving Function

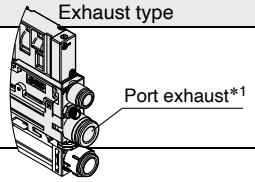
How to Order

HF1-ZK2 B 12 K 5 A L A – 08 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Body/Exhaust type

Symbol	Body	Exhaust type
B	Single unit	Port exhaust



⚠ To prevent exhaust from leaking into the surrounding environment

∗1 Connect piping to the exhaust port and ensure that the exhaust is released outside. (A silencer cannot be connected.)

❷ Nominal nozzle size*2

Symbol	Nominal nozzle size
07	Ø 0.7
10	Ø 1.0
12	Ø 1.2
15	Ø 1.5

∗2 Refer to the **Web Catalogue** for the standard supply pressure per nozzle diameter.

❸ Combination of supply valve and release valve

Symbol	Supply valve		Release valve
	N.C.	Self-holding	N.C.
K	●	–	●
J	●	–	–
R	–	●*3	●

∗3 Supply valve maintains vacuum by energisation (20 ms or more). Stopping the vacuum turns on the release valve.

❹ Rated voltage (Supply valve/Release valve)

Symbol	Voltage
5	24 VDC
6	12 VDC

❺ Pressure switch for vacuum/Pressure sensor

Symbol	Type	Pressure range [kPa]	Specifications		
			NPN	PNP	With unit selection function*4
			2 outputs		
A	Pressure switch for vacuum	0 to –101	●	–	●
B			●	–	None (SI unit only)
C			–	●	●
D			–	●	None (SI unit only)
E		–100 to 100	●	–	●
F			●	–	None (SI unit only)
H			–	●	●
J			–	●	None (SI unit only)
P	Pressure sensor	0 to –101	Analogue output 1 to 5 V		
T		–100 to 100			
N	Without pressure switch for vacuum/pressure sensor				

∗4 The unit selection function is not available in Japan due to the New Measurement Law. The unit for the type without the unit selection function is fixed as kPa.

❻ Connector (Supply valve/Release valve/Pressure switch for vacuum)

Symbol	For supply valve/ release valve: 300 mm (Connector assembly)*5	For pressure switch for vacuum: 2 m (Lead wire with connector)	Pressure sensor assembly: 3 m (With lead wire)	Note
L	●	●		Cannot be selected when ❺ is N
L1	None	●		
L2	●	None		Cannot be selected when ❺ is P or T
L3	None	None		

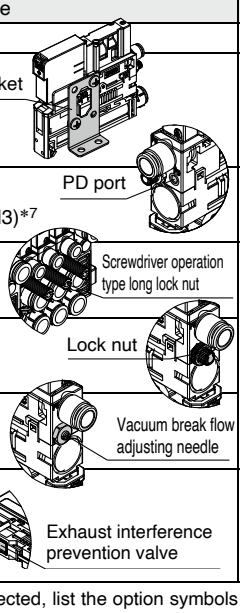
∗5 For the connector length other than 300 mm, order the connector assembly on the **Web Catalogue** separately.

❼ Vacuum (V) port

Symbol	Vacuum (V) port
06	Ø 6
08	Ø 8

❽ Option*6 (For details on the Function/Application, refer to the **Web Catalogue**.)

Symbol	Type	Note
—	Without option	—
B	Mounting bracket for single unit (nuts and bolts are included)	—
D	With individual release pressure supply (PD) port (M3)*7	Cannot be selected when ❸ is J
E	Vacuum release flow adjustment needle*8: Screwdriver operation type long lock nut	Cannot be selected when ❸ is J Can be selected only for the combination of J and K
J	Vacuum release flow adjustment needle*8: Round lock nut	
K	Vacuum release flow adjustment needle*8: Screwdriver operation type	
W	With exhaust interference prevention valve	When J is selected for ❸, install the atmospheric release valve or vacuum release valve in the middle of the vacuum piping.



∗6 When more than one option is selected, list the option symbols in alphabetical order. (Example -BJ)

∗7 Use a One-touch fitting or barb fitting (M-3AU-4) for piping. (O.D.: Within Ø 6.2)

∗8 When "K," "R," or "E" is selected for ❸, a vacuum release flow adjustment needle is installed as standard. However, select it when improved operability is required.

Ejector System Vacuum Unit

HF1-ZK2□A Series

RoHS

Single Unit

Ejector + With Valve + With Energy Saving Function

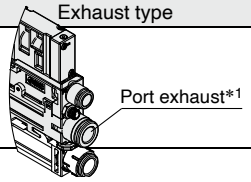
How to Order

HF1-ZK2 B 12 K 5 K W A – 08 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Body/Exhaust type

Symbol	Body	Exhaust type
B	Single unit	Port exhaust



⚠ **To prevent exhaust from leaking into the surrounding environment**

∗1 Connect piping to the exhaust port and ensure that the exhaust is released outside. (A silencer cannot be connected.)

❷ Nominal nozzle size∗2

Symbol	Nominal nozzle size
07	Ø 0.7
10	Ø 1.0
12	Ø 1.2
15	Ø 1.5

∗2 Refer to the **Web Catalogue** for the standard supply pressure per nozzle diameter.

❸ Combination of supply valve and release valve

Symbol	Supply valve	Release valve
	N.C.	N.C.
K	●	●

❹ Rated voltage (Supply valve/Release valve)

Symbol	Voltage
5	24 VDC
6	12 VDC

❺ Pressure switch for vacuum with energy saving function

Symbol	Pressure range [kPa]	Specifications		
		NPN	PNP	With unit selection function∗3
		1 output		
K	−100 to 100	●	–	●
Q		●	–	None (SI unit only)
R		–	●	●
S		–	●	None (SI unit only)

∗3 The unit selection function is not available in Japan due to the New Measurement Law. The unit for the type without the unit selection function is fixed as kPa.

❻ Connector

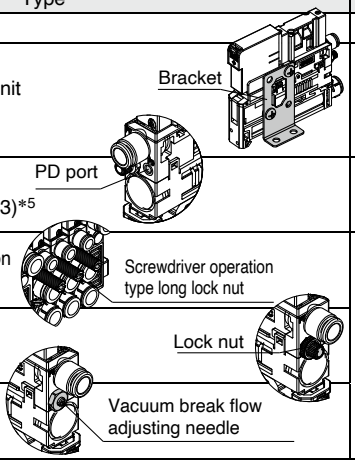
Symbol	For pressure switch for vacuum with energy saving function: 2 m (Lead wire with connector)
W	●
L3	None

❼ Vacuum (V) port

Symbol	Vacuum (V) port
06	Ø 6
08	Ø 8

❽ Option∗4 (For details on the Function/Application, refer to the **Web Catalogue**.)

Symbol	Type		Note
—	Without option		–
B	Mounting bracket for single unit (nuts and bolts are included)		–
D	With individual release pressure supply (PD) port (M3)∗5		–
E	Vacuum release flow adjustment needle∗6	Screwdriver operation type long lock nut	Can be selected only for the combination of J and K
J		Round lock nut	
K		Screwdriver operation type	



∗4 When more than one option is selected, list the option symbols in alphabetical order. (Example -BJ)
∗5 Use a One-touch fitting or barb fitting (M-3AU-4) for piping. (O.D.: Within Ø 6.2)
∗6 A vacuum release flow adjustment needle is installed as standard. However, select it when improved operability is required.

Ejector System Vacuum Unit

HF1-ZK2□A Series

CE UKCA RoHS

For Manifold

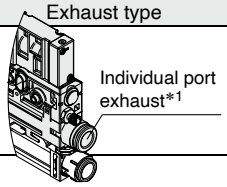
Ejector + With Valve + Without Energy Saving Function

How to Order

HF1-ZK2 F 12 K 5 A L A – 08 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Body/Exhaust type

Symbol	Body	Exhaust type
F	For Manifold	Individual port exhaust  Individual port exhaust*1

⚠ To prevent exhaust from leaking into the surrounding environment

∗1 Connect piping to the exhaust port and ensure that the exhaust is released outside. (A silencer cannot be connected.)

❷ Nominal nozzle size*2

Symbol	Nominal nozzle size
07	Ø 0.7
10	Ø 1.0
12	Ø 1.2
15	Ø 1.5

∗2 Refer to the **Web Catalogue** for the standard supply pressure per nozzle diameter.

❸ Combination of supply valve and release valve

Symbol	Supply valve		Release valve
	N.C.	Self-holding	N.C.
K	●	–	●
J	●	–	–
R	–	●*3	●

∗3 Supply valve maintains vacuum by energisation (20 ms or more). Stopping the vacuum turns on the release valve.

❹ Rated voltage (Supply valve/Release valve)

Symbol	Voltage
5	24 VDC
6	12 VDC

❺ Pressure switch for vacuum/Pressure sensor

Symbol	Type	Pressure range [kPa]	Specifications		
			NPN	PNP	With unit selection function*4
			2 outputs		
A	Pressure switch for vacuum	0 to –101	●	–	●
B			●	–	None (SI unit only)
C			–	●	●
D			–	●	None (SI unit only)
E		–100 to 100	●	–	●
F			●	–	None (SI unit only)
H			–	●	●
J			–	●	None (SI unit only)
P	Pressure sensor	0 to –101	Analogue output 1 to 5 V		
T		–100 to 100			
N	Without pressure switch for vacuum/pressure sensor				

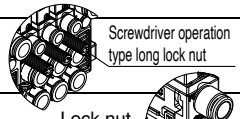
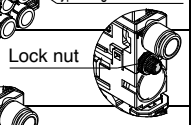
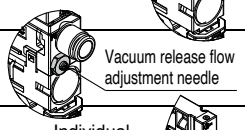
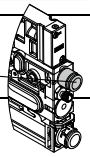
∗4 The unit selection function is not available in Japan due to the New Measurement Law. The unit for the type without the unit selection function is fixed as kPa.

❻ Connector (Supply valve/Release valve/Pressure switch for vacuum)

Symbol	For supply valve/release valve		For pressure switch for vacuum: 2 m (Lead wire with connector)	Pressure sensor assembly: 3 m (With lead wire)	Note
	Common wiring specification (Plug-in)	Individual wiring specification: 300 mm (Connector assembly)*5			
C	●	None	●		Cannot be selected when ❺ is N
C1	●	None	None		Cannot be selected when ❺ is P or T
L	None	●	●		Cannot be selected when ❺ is N
L1	None	None	●		
L2	None	●	None		Cannot be selected when ❺ is P or T
L3	None	None	None		

∗5 For the connector length other than 300 mm, order the connector assembly on the **Web Catalogue** separately.

❽ Option*6 (For details on the Function/Application, refer to the **Web Catalogue**.)

Symbol	Type	Note
—	Without option	—
E	Vacuum release flow adjustment needle*7: Screwdriver operation type long lock nut  Screwdriver operation type long lock nut	Cannot be selected when ❸ is J Can be selected only for the combination of J and K
J	Round lock nut  Lock nut	
K	Screwdriver operation type  Vacuum release flow adjustment needle	
L	Manifold individual supply specification*8  Individual supply port	—
P	With manifold common release pressure supply (PD) port	Cannot be selected when ❸ is J
W	With exhaust interference prevention valve  Exhaust interference prevention valve	When J is selected for ❸, install the atmospheric release valve or vacuum release valve in the middle of the vacuum piping.

∗6 When more than one option is selected, list the option symbols in alphabetical order. (Example -EL)

∗7 When "K," "R," or "E" is selected for ❸, a vacuum release flow adjustment needle is installed as standard. However, select it when improved operability is required.

∗8 When F or H is selected for ❶ and L is selected for the option, the space for adjusting the needle is reduced. Products which can be operated more easily can be specified by option E.

❼ Vacuum (V) port

Symbol	Vacuum (V) port
06	Ø 6
08	Ø 8

Ejector System Vacuum Unit

HF1-ZK2□A Series

CE UKCA RoHS

For Manifold

Ejector + With Valve + With Energy Saving Function

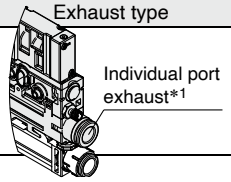
How to Order

HF1-ZK2 F 12 K 5 K W A – 08 – □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Body/Exhaust type

Symbol	Body	Exhaust type
F	For Manifold	Individual port exhaust



⚠ To prevent exhaust from leaking into the surrounding environment

∗1 Connect piping to the exhaust port and ensure that the exhaust is released outside. (A silencer cannot be connected.)

❷ Nominal nozzle size∗2

Symbol	Nominal nozzle size
07	Ø 0.7
10	Ø 1.0
12	Ø 1.2
15	Ø 1.5

∗2 Refer to the **Web Catalogue** for the standard supply pressure per nozzle diameter.

❸ Combination of supply valve and release valve

Symbol	Supply valve	Release valve
	N.C.	N.C.
K	●	●

❹ Rated voltage (Supply valve/Release valve)

Symbol	Voltage
5	24 VDC
6	12 VDC

❺ Pressure switch for vacuum with energy saving function

Symbol	Pressure range [kPa]	Specifications		
		NPN	PNP	With unit selection function∗3
		1 output		
K	−100 to 100	●	–	●
Q		●	–	None (SI unit only)
R		–	●	●
S		–	●	None (SI unit only)

∗3 The unit selection function is not available in Japan due to the New Measurement Law. The unit for the type without the unit selection function is fixed as kPa.

❻ Connector

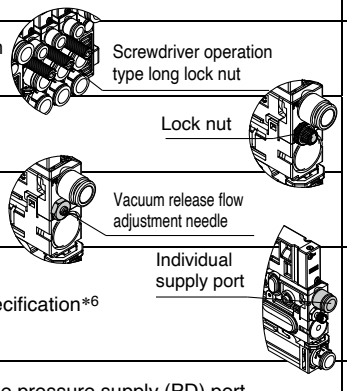
Symbol	For pressure switch for vacuum with energy saving function: 2 m (Lead wire with connector)
W	●
L3	None

❼ Vacuum (V) port

Symbol	Vacuum (V) port
06	Ø 6
08	Ø 8

❽ Option∗4 (For details on the Function/Application, refer to the **Web Catalogue**.)

Symbol	Type	Note
–	Without option	–
E	Vacuum release flow adjustment needle∗5: Screwdriver operation type long lock nut	Can be selected only for the combination of J and K
J	Vacuum release flow adjustment needle∗5: Round lock nut	
K	Vacuum release flow adjustment needle∗5: Screwdriver operation type	
L	Manifold individual supply specification∗6	–
P	With manifold common release pressure supply (PD) port	–



∗4 When more than one option is selected, list the option symbols in alphabetical order. (Example -EL)
∗5 A vacuum release flow adjustment needle is installed as standard. However, select it when improved operability is required.
∗6 When F or H is selected for ❶ and L is selected for the option, the space for adjusting the needle is reduced. Products which can be operated more easily can be specified by option E.

Ejector System Vacuum Unit

HF1-ZK2□A Series

RoHS

Single Unit **For Manifold**

Ejector + Without Valve + Without Energy Saving Function

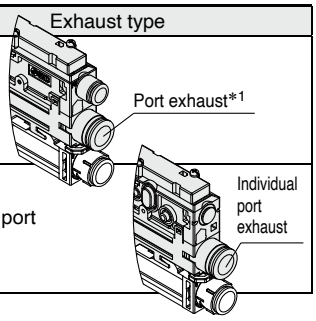
How to Order

HF1-ZK2 B 12 N 0 N N A – 08 – □

❶ ❷ ❸ ❹ ❺ ❻

❶ Body/Exhaust type

Symbol	Body	Exhaust type
B	Single unit	Port exhaust
F	For Manifold	Individual port exhaust



⚠ **To prevent exhaust from leaking into the surrounding environment**

∗1 Connect piping to the exhaust port and ensure that the exhaust is released outside. (A silencer cannot be connected.)

❷ Nominal nozzle size*2

Symbol	Nominal nozzle size
07	Ø 0.7
10	Ø 1.0
12	Ø 1.2
15	Ø 1.5

∗2 Refer to the **Web Catalogue** for the standard supply pressure per nozzle diameter.

❹ Connector

Symbol	For pressure switch for vacuum: 2 m (Lead wire with connector)	Pressure sensor assembly: 3 m (With lead wire)	Note
Y	●		Cannot be selected when ❸ is N
Y1	None		Cannot be selected when ❸ is P, T, or N
N	None		When "N" is selected for ❸

❸ Pressure switch for vacuum/Pressure sensor

Symbol	Type	Pressure range [kPa]	Specifications: NPN (2 outputs)	Specifications: PNP (2 outputs)	Specifications: With unit selection function*3
A	Pressure switch for vacuum	0 to –101	●	–	●
B			●	–	None (SI unit only)
C			–	●	●
D			–	●	None (SI unit only)
E		–100 to 100	●	–	●
F			●	–	None (SI unit only)
H			–	●	●
J			–	●	None (SI unit only)
P	Pressure sensor	0 to –101	Analogue output 1 to 5 V		
T		–100 to 100			
N	Without pressure switch for vacuum/pressure sensor				

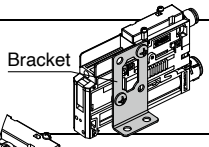
∗3 The unit selection function is not available in Japan due to the New Measurement Law. The unit for the type without the unit selection function is fixed as kPa.

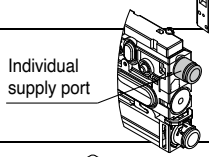
❺ Vacuum (V) port

Symbol	Vacuum (V) port
06	Ø 6
08	Ø 8

❻ Option*4 (For details on the Function/Application, refer to the **Web Catalogue**.)

Symbol	Type	Note
–	Without option	–
B	Mounting bracket for single unit (nuts and bolts are included)	Cannot be selected when ❶ is C, F, or H
L	Manifold individual supply specification	Cannot be selected when ❶ is A, B, or G
W	With exhaust interference prevention valve	Install the atmospheric release valve or vacuum release valve in the middle of the vacuum piping.







∗4 When more than one option is selected, list the option symbols in alphabetical order. (Example -BW)

Ejector System Vacuum Unit

HF1-ZK2□A Series

Manifold

CE UKCA RoHS

How to Order Manifold

HF1-ZZK2 [04] A− [A] [2] [L] − [ ]

❶ ❷ ❸ ❹ ❺

If the manifold parts (set of end plates for both ends and tension bolts) are shipped unassembled, please refer to the **Web Catalogue**.

❶ Stations*1

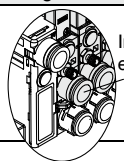
Symbol	Stations
01	1 station
02	2 stations
⋮	⋮
10	10 stations

*1 For adequate performance, the number of stations that can be operated simultaneously depends on the nozzle diameter. Refer to the Max. Number of Manifold Stations that can be Operated Simultaneously on the **Web Catalogue**.

❷ System/Port

Symbol	System	Port
A	Ejector system	Ø 8 (Common PV)
AN		Ø 5/16" (Common PV)

❸ Exhaust

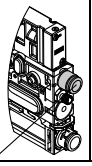
Symbol	Exhaust	Selectable single unit number
2	Individual exhaust	HF1-ZK2F  Individual port exhaust

❹ Supply valve and release valve wiring*2

Symbol	Wiring	Selectable wiring for manifold (Refer to ❻ on pages 15 to 17 and ❹ on page 18.)										
		C	C1	L	L1	L2	L3	W	H	Y	Y1	N
L	Individual wiring	–	–	●	●	●	●	●	●	–	–	–
F	D-sub connector	●	●	–	–	–	–	–	–	–	–	–
P	Flat ribbon cable connector	●	●	–	–	–	–	–	–	–	–	–
N	No wiring (No valve)	–	–	–	–	–	–	–	–	●	●	●

*2 Common wiring F/P is available only for solenoid valve wiring. Individual wiring is specified for vacuum switches and sensors.

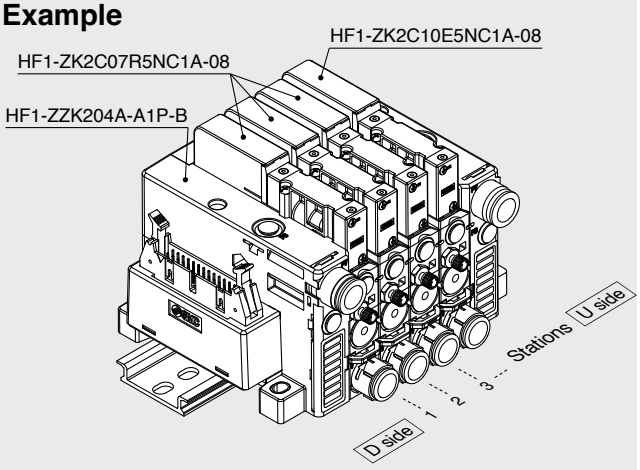
❺ Option*3 (For details on the Function/Application, refer to the **Web Catalogue**.)

Symbol	Type	Selectable option for manifold (Refer to ❽ on pages 119, 120 and ❻ on page 121.)						Note
		E	J	K	L	P	W	
—	Without option	●	●	●	–	–	●	–
B	With DIN rail mounting bracket*4	●	●	●	●	●	●	–
D	With common release pressure supply (PD) port	●	●	●	–	◎*5	●	Cannot be selected when ❹ is N
L	Manifold individual supply specification Individual supply port 	●	●	●	◎*5	–	●	–

*3 When more than one option is selected, list the option symbols in alphabetical order. (Example -BD)
*4 The DIN rail should be ordered separately.
*5 When the option D is selected, select P for single unit for manifold. When the option L is selected, select L for single unit for manifold. (◎ must be selected.)

How to Order Valve Manifold Assembly

Example



HF1-ZZK204A-A1P-B ····· 1 set (Manifold part number)
∗ HF1-ZK2C07R5NC1A-08 ····· 3 sets
∗ HF1-ZK2C10E5NC1A-08 ····· 1 set
∗ The asterisk denotes the symbol for the assembly.
∗ Prefix to the single unit part number.

· When the manifold is viewed from V port, the first station starts from the left (D side).
· After the manifold part number, specify the installed single unit from the first station.
· The DIN rail should be ordered separately.

Multistage Ejector

Max. suction flow rate: 100 l/min (ANR)

HF1B-ZL1 Series

Only for the models with a pressure switch.

How to Order

Without valve **HF1B-ZL 1 12A □□ – □□□□ – □**

Max. suction flow rate: 100 l/min (ANR)

❶❷ Ejector ❸❹❺❻ Vacuum pressure sensor ❼

❶ Supply (P), Vacuum (V) port/ One-touch fitting connection size

Symbol	Supply (P) port	Vacuum (V) port	Pressure gauge unit
—	Ø 6 (Metric)	Ø 12 (Metric)	kPa

❷ Exhaust method

—	Silencer exhaust
P	Rc1/2 port exhaust
PF	G1/2 port exhaust*1

*1 The thread ridge shape is in compliance with G thread standard ISO 228-1, but the other shapes are not in compliance with ISO 16030 or ISO 1179.

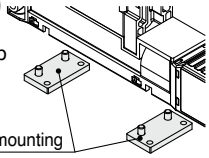
❸ Vacuum pressure sensor

—	None
GN	With vacuum pressure detection port (Rc1/8)
G	Pressure gauge
D	Vacuum pressure switch

❼ Option (Included)

—	None
B	Adapter assembly for bottom mounting (ZL-112A-AD1-A)

* Bottom mounting screw pitch = 28 mm (Interchangeable with the previous ZL112 model)
* 2 pcs./set, with 4 bolts
* The mounting holes on the top and on the side are interchangeable as standard.



Adapter assembly for bottom mounting

Applicable only when "D" is selected for ❸ Vacuum pressure sensor

❹ Output

N	NPN open collector 1 output
P	PNP open collector 1 output
A	NPN open collector 2 outputs
B	PNP open collector 2 outputs
C	NPN open collector 1 output + Analogue voltage output
D	NPN open collector 1 output + Analogue current output
E	PNP open collector 1 output + Analogue voltage output
F	PNP open collector 1 output + Analogue current output

❺ Unit

—	With unit switching function*2
M	SI unit only (kPa)
P	With unit switching function (Initial value psi)*2

*2 Under the New Measurement Act, switches with the unit switching function are not permitted for use in Japan.

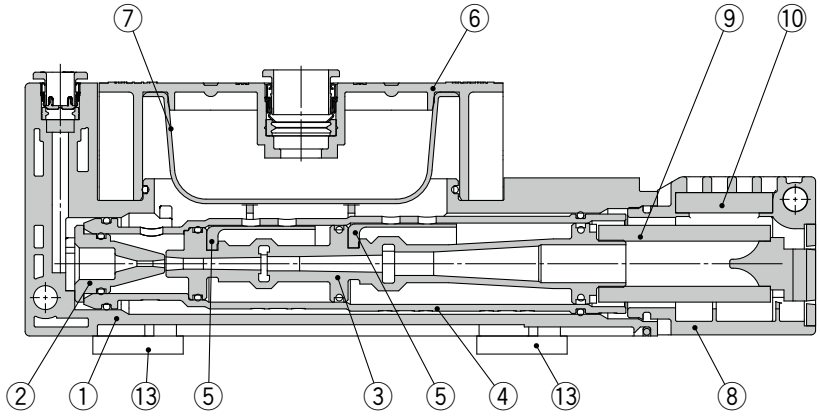
❻ Lead wire

—	Without lead wire
L	Lead wire with connector (2 m)

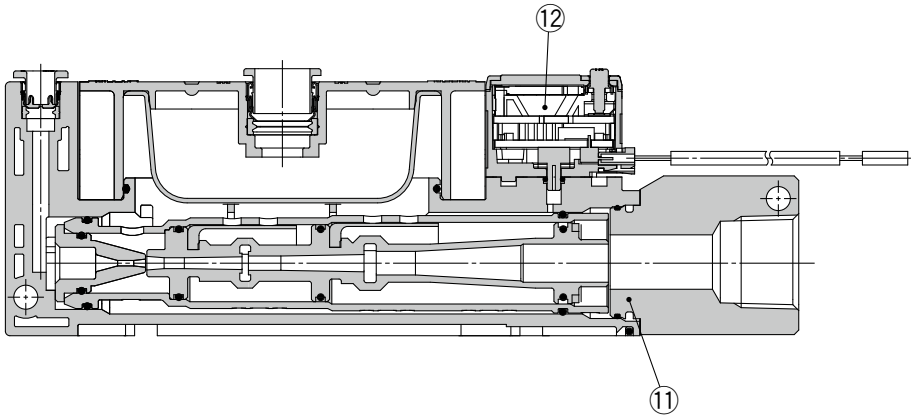
* For output types "N" and "P," a 3-core lead wire is included. For other output types, a 4-core lead wire is included.

Construction

Without vacuum pressure switch, Silencer exhaust



With vacuum pressure switch, Port exhaust



Component Parts

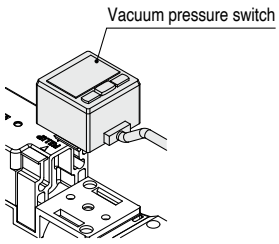
No.	Description	Material	Note
1	**Body**	PBT	–
2	**Nozzle**	POM	Refer to 4 on page 125 for replacement parts.
3	**Diffuser**	PBT	
4	**Attachment**	POM	
5	**Check valve**	FKM	
6	**Suction cover**	PBT	Refer to 2 on page 125 for replacement parts.
7	**Filter element**	Non-woven fabric	Same as the standard product (Refer to the **Web Catalogue**.)
8	**Silencer case assembly**	PBT/Stainless steel	Same as the standard product (Refer to the **Web Catalogue**.)
9	**Sound absorbing material 1**	Resin	Same as the standard product (Refer to the **Web Catalogue**.)
10	**Sound absorbing material 2**	Resin	
11	**Port block assembly**	Aluminium alloy/NBR/Stainless steel	Refer to 3 on page 125 for replacement parts.
12	**Vacuum pressure switch**	—	Refer to 1 on page 125 for replacement parts.
13	**Adapter assembly for bottom mounting**	Brass (Electroless nickel plating)	Same as the standard product (Refer to the **Web Catalogue**.)
—	**Seal material (O-ring, etc.)**	HNBR/NBR	–
—	**Screws for assembly**	Steel	–

How to Order Replacement Parts (Replacement parts other than those shown below are the same as those for the standard product.)

1 How to Order Vacuum Pressure Switch

HF1B – ZL – ZSE30A – 00 – A – M L

❶ ❷ ❸



❶ Output

N	NPN open collector 1 output
P	PNP open collector 1 output
A	NPN open collector 2 outputs
B	PNP open collector 2 outputs
C	NPN open collector 1 output + Analogue voltage output
D	NPN open collector 1 output + Analogue current output
E	PNP open collector 1 output + Analogue voltage output
F	PNP open collector 1 output + Analogue current output

❷ Unit

—	With unit switching function*1
M	SI unit only*2
P	With unit switching function (Initial value psi)*1

*1 Under the New Measurement Act, switches with the unit switching function are not permitted for use in Japan.

*2 Fixed unit: kPa

❸ Connector/Lead wire

—	Without lead wire
L	Lead wire with connector (Length: 2 m)

* For output types "N" and "P," a 3-core lead wire is included. For other output types, a 4-core lead wire is included.

How to Order Lead Wire Assembly with Connector

ZS – 38 – 3 L

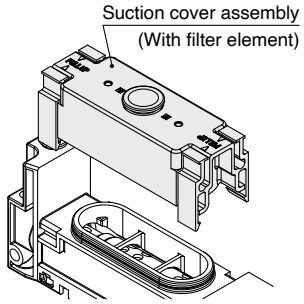
❶

❶ Number of cores

3	3 cores, 1 output
4	4 cores, 2 outputs

2 How to Order Suction Cover Assembly

HF1B – ZL112A – FC1 – A



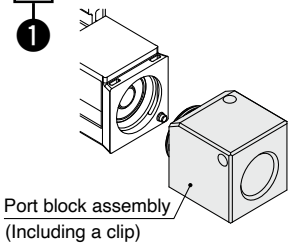
3 How to Order Port Block Assembly

HF1B – ZL112A – EP1 □ – A

❶

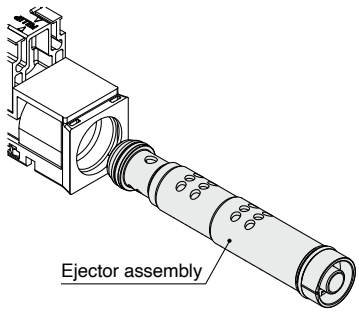
❶ Thread type

—	Rc thread
F	G thread



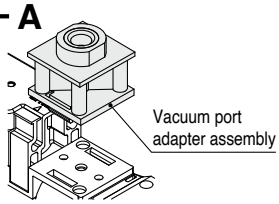
4 How to Order Ejector Assembly

HF1B – ZL112A – EJ1 – A



How to Order Vacuum Port Adapter Assembly*1

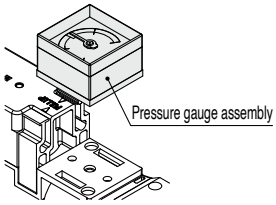
HF1B – ZL112A – AD2 – A



*1 A vacuum port adapter cannot be installed when "—" is selected for the pressure sensor.

How to Order Pressure Gauge Assembly*2

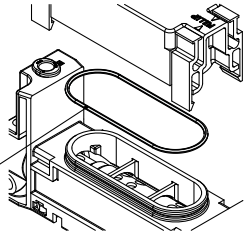
HF1B – ZL112A – PG1 – A



*2 A pressure gauge cannot be installed when "—" is selected for the pressure sensor.

How to Order O-ring for Suction Cover

HF1B – ZL112A – OR1 – A



Multistage Ejector

Max. suction flow rate: 300 l/min (ANR) **Max. suction flow rate: 600 l/min (ANR)**

HF1B-ZL3/ZL6 Series

Only for the models with a pressure switch.

How to Order

Without valve **HF1B-ZL 3 M 06 □ - □ □ □ □ - □**

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

Ejector: ❶ ❷ ❸ ❹ — Vacuum pressure sensor: ❺ ❻ ❼ ❽ — ZL3 only: ❾

❶ Max. suction flow rate

3	300 l/min (ANR)*1
6	600 l/min (ANR)*1

*1 Branch specification + Port exhaust

❷ Standard supply pressure

M	0.35 MPa
H	0.50 MPa

❸ Vacuum (2/V) port size/ Supply (1/P) port applicable tubing O.D.

Symbol	Vacuum (2/V) port	Supply (1/P) port
06	Rc3/4	8 (Metric)
04	2 x Rc1/2 (Branch specification)	
F06	G3/4*2	
F04	2 x G1/2*2 (Branch specification)	

*2 The thread ridge shape is in compliance with G thread standard ISO 228-1, but the other shapes are not in compliance with ISO 16030 or ISO 1179.

❹ Exhaust method

—	Silencer exhaust
P	Port exhaust (Rc1, G1)*3

*3 The same thread type selected for ❸ is used for the port.

❺ Vacuum pressure sensor

—	None
GN	With vacuum pressure detection (G) port (Rc1/8, G1/8, NPT1/8)*4
G	Pressure gauge*5
E	Vacuum pressure switch (Vacuum 2 outputs)
F	Vacuum pressure switch (Compound pressure 2 outputs)

*4 The same thread type selected for ❸ is used for the port.

*5 Not selectable when "F06" or "F04" is selected for ❸ When "06" or "04" is selected for ❸, the units of the pressure gauge are displayed in kPa.

Applicable only when "E" or "F" is selected for ❺ Vacuum pressure sensor

❻ Output

A	NPN open collector
B	PNP open collector

❼ Unit

—	With unit switching function*6
M	SI unit only (kPa)
P	With unit switching function (Initial value psi)*6

*6 Under the New Measurement Act, switches with the unit switching function are not permitted for use in Japan (implemented October 1999).

❽ Lead wire

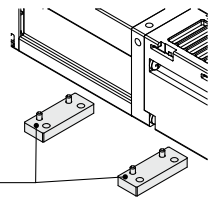
—	Without lead wire with connector
G	Lead wire with connector (Length: 2 m) (Included)

Only applicable to ZL3

❾ Option

—	None
B	Adapter assembly for bottom mounting*7 (Included)

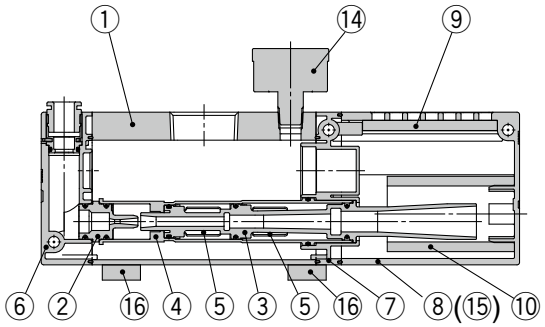
*7 This adapter assembly is for adjusting the product to the 27 mm pitch of the bottom mounting thread of the previous ZL212 series model.
This is required when replacing a previous bottom-mounted ZL212 series model. (2 pcs./set, with 4 bolts)
The mounting holes on the side are interchangeable as standard.



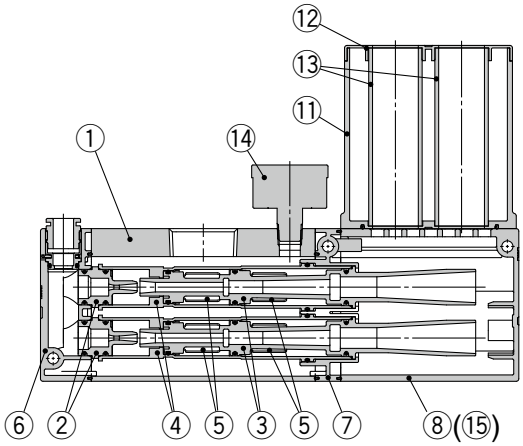
Adapter assembly for bottom mounting

Construction

HF1B-ZL3



HF1B-ZL6



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminium alloy (Anodised)	—
2	**Nozzle**	POM	Refer to ❶ below for replacement parts
3	**Diffuser**	PBT	
4	**Attachment**	POM	
5	**Check valve**	FKM	
6	**Front adapter**	PBT	—
7	**End adapter**	PBT	—
8	**Silencer case 1**	PBT	Same as the standard product
9	**Sound absorbing material 1**	Resin	Same as the standard product
10	**Sound absorbing material 2**	Non-woven fabric	
11	**Silencer case 2**	PBT	Same as the standard product
12	**Silencer cap**	POM	
13	**Sound absorbing material 3**	Non-woven fabric	(Disassembly is not possible. The silencer assembly must be replaced.)

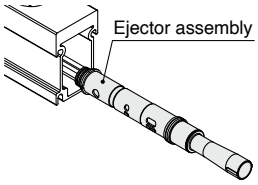
No.	Description	Material	Note
14	**Pressure gauge**	—	Same as the standard product
15	**Exhaust block**	Aluminium alloy (Chromated, Painted)	Same as the standard product
16	**Adapter assembly for bottom mounting**	Brass (Electroless nickel plating)	Same as the standard product
—	**Seal material (O-ring, etc.)**	HNBR/NBR	—
—	**Screws for assembly**	Steel (Trivalent chromated)	—

How to Order Replacement Parts (Replacement parts other than those shown below are the same as those for the standard product.)

❶ How to Order Ejector Assembly (For ZL3/ZL6)

HF1B – ZL3 – EJ1 – □ – A

❶



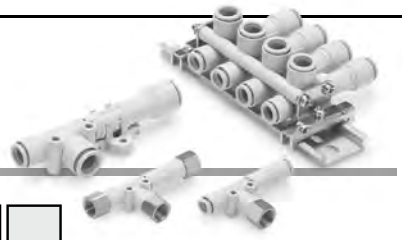
❶ Standard supply pressure

M	0.35 MPa
H	0.50 MPa

Body Ported Type Vacuum Ejector

HF1B-ZH Series

RoHS



Body ported

How to Order

Body ported **HF1B-ZH** **10** **D** **S** **A-** **06** **-06** **-08** ❹

❶ ❷ ❸

(SUP port) (VAC port) (EXH port)

❶ Body ported type

❸ Note: Refer to "Table 1" for the combination available for SUP, VAC, and EXH port connection.

❶ Nozzle size

	Nozzle size
05	Ø 0.5
07	Ø 0.7
10	Ø 1.0
13	Ø 1.3
15	Ø 1.5
18	Ø 1.8
20	Ø 2.0

❷ Vacuum pressure reached

	Vacuum pressure reached	Note
S	–90 kPa	ZH05 to 20
L	–48 kPa	ZH05 to 13
	–66 kPa	ZH15 to 20

❸ Port (SUP/VAC/EXH) size

One-touch fittings
Metric size

06	Ø 6
08	Ø 8
10	Ø 10
12	Ø 12

Female threads
Metric size

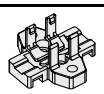
01	Rc1/8
02	Rc1/4
03	Rc3/8
04	Rc1/2
F01	G1/8
F02	G1/4
F03	G3/8
F04	G1/2

❹ Accessories (Standard bracket/Silencer)*2

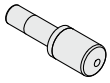
Symbol	Standard bracket	Silencer
—	●	x
N	x	x
S*1	●	●
NS*1	x	●

*1 Options S and NS are not available for EXH port with a screw-in connection.
*2 Each accessory is not assembled with the product but shipped together.
*3 When using the ejector with a clamp mount, order the L-bracket/DIN rail mounting bracket in the ZH series **Web Catalogue** separately.

Standard bracket

Applicable model			
	ZH05 to 10D□A	**ZH13/15D□A**	**ZH18/20D□A**
Model	ZH2-BK1A-1-A	ZH2-BK1A-2-A	ZH2-BK1A-3-A

Silencer



· Silencer can only be selected for EXH port with One-touch fitting.
· The silencer part number depends on the size of the EXH port.

For details about silencers, refer to the **Web Catalogue**.

EXH port	Silencer part no.
06	AN10-C06
07	AN10-C07
08	AN15-C08
09	AN15-C08
10	AN20-C10
11	AN20-C11
12	AN30-C12

Table 1 Body ported SUP/VAC/EXH port size

Metric Size *4

Model	SUP – VAC – EXH	SUP	VAC	EXH
HF1B-ZH05D□A-	06 – 06 – 06	Ø 6	Ø 6	Ø 6
	06 – 01 – 06	Ø 6	Rc1/8	Ø 6
	06 – F01 – 06	Ø 6	G1/8	Ø 6
	01 – 01 – 01	Rc1/8	Rc1/8	Rc1/8
	F01 – F01 – F01	G1/8	G1/8	G1/8
HF1B-ZH07D□A-	06 – 06 – 06	Ø 6	Ø 6	Ø 6
	06 – 01 – 06	Ø 6	Rc1/8	Ø 6
	06 – F01 – 06	Ø 6	G1/8	Ø 6
	01 – 01 – 01	Rc1/8	Rc1/8	Rc1/8
	F01 – F01 – F01	G1/8	G1/8	G1/8
HF1B-ZH10D□A-	06 – 06 – 08	Ø 6	Ø 6	Ø 8
	06 – 01 – 08	Ø 6	Rc1/8	Ø 8
	06 – F01 – 08	Ø 6	G1/8	Ø 8
	01 – 01 – 01	Rc1/8	Rc1/8	Rc1/8
	F01 – F01 – F01	G1/8	G1/8	G1/8
HF1B-ZH13D□A-	08 – 10 – 10	Ø 8	Ø 10	Ø 10
	08 – 02 – 10	Ø 8	Rc1/4	Ø 10
	08 – F02 – 10	Ø 8	G1/4	Ø 10
	01 – 02 – 02	Rc1/8	Rc1/4	Rc1/4
	F01 – F02 – F02	G1/8	G1/4	G1/4
HF1B-ZH15D□A-	08 – 10 – 10	Ø 8	Ø 10	Ø 10
	08 – 03 – 10	Ø 8	Rc3/8	Ø 10
	08 – F03 – 10	Ø 8	G3/8	Ø 10
	02 – 03 – 03	Rc1/4	Rc3/8	Rc3/8
	F02 – F03 – F03	G1/4	G3/8	G3/8
HF1B-ZH18D□A-	10 – 12 – 12	Ø 10	Ø 12	Ø 12
	10 – 03 – 12	Ø 10	Rc3/8	Ø 12
	10 – F03 – 12	Ø 10	G3/8	Ø 12
	03 – 03 – 03	Rc3/8	Rc3/8	Rc3/8
	F03 – F03 – F03	G3/8	G3/8	G3/8
HF1B-ZH20D□A-	10 – 12 – 12	Ø 10	Ø 12	Ø 12
	10 – 04 – 12	Ø 10	Rc1/2	Ø 12
	10 – F04 – 12	Ø 10	G1/2	Ø 12
	03 – 04 – 04	Rc3/8	Rc1/2	Rc1/2
	F03 – F04 – F04	G3/8	G1/2	G1/2

*4 Screw-in: Rc and G female threads

Box Type (Built-in Silencer) Vacuum Ejector

HF1B-ZH Series

RoHS



Box type (Built-in silencer)

How to Order

Box type **HF1B-ZH 10 B S A-06-06**

❶ Box type

❷

(SUP port) (VAC port)

❸

Note Refer to "Table 1 " for the combination available for SUP and VAC port connection.

❶ Nozzle size

	Nozzle size
05	Ø 0.5
07	Ø 0.7
10	Ø 1.0
13	Ø 1.3
15	Ø 1.5
18	Ø 1.8
20	Ø 2.0

❷ Vacuum pressure reached

S	–89 kPa	ZH05 to 13
	–90 kPa	ZH15 to 20
L	–48 kPa	ZH05 to 13
	–66 kPa	ZH15 to 18
	–62 kPa	ZH20

❸ Port (SUP/VAC) size

One-touch fittings
Metric size

06	Ø 6
08	Ø 8
10	Ø 10
12	Ø 12

Female threads
Metric size

01	Rc1/8
02	Rc1/4
03	Rc3/8
04	Rc1/2
F01	G1/8
F02	G1/4
F03	G3/8
F04	G1/2

Table 1 Box type (Built-in silencer) SUP/VAC port size

Metric size *1, *2

Model	SUP		VAC	SUP	VAC
HF1B-ZH05B□A-	06	–	06	Ø 6	Ø 6
	06	–	01	Ø 6	Rc1/8
	06	–	F01	Ø 6	G1/8
	01	–	01	Rc1/8	Rc1/8
	F01	–	F01	G1/8	G1/8
HF1B-ZH07B□A-	06	–	06	Ø 6	Ø 6
	06	–	01	Ø 6	Rc1/8
	06	–	F01	Ø 6	G1/8
	01	–	01	Rc1/8	Rc1/8
	F01	–	F01	G1/8	G1/8
HF1B-ZH10B□A-	06	–	06	Ø 6	Ø 6
	06	–	01	Ø 6	Rc1/8
	06	–	F01	Ø 6	G1/8
	01	–	01	Rc1/8	Rc1/8
	F01	–	F01	G1/8	G1/8
HF1B-ZH13B□A-	08	–	10	Ø 8	Ø 10
	08	–	02	Ø 8	Rc1/4
	08	–	F02	Ø 8	G1/4
	01	–	02	Rc1/8	Rc1/4
	F01	–	F02	G1/8	G1/4
HF1B-ZH15B□A-	08	–	10	Ø 8	Ø 10
	08	–	03	Ø 8	Rc3/8
	08	–	F03	Ø 8	G3/8
	02	–	03	Rc1/4	Rc3/8
	F02	–	F03	G1/4	G3/8
HF1B-ZH18B□A-	10	–	12	Ø 10	Ø 12
	10	–	03	Ø 10	Rc3/8
	10	–	F03	Ø 10	G3/8
	03	–	03	Rc3/8	Rc3/8
	F03	–	F03	G3/8	G3/8
HF1B-ZH20B□A-	10	–	12	Ø 10	Ø 12
	10	–	04	Ø 10	Rc1/2
	10	–	F04	Ø 10	G1/2
	03	–	04	Rc3/8	Rc1/2
	F03	–	F04	G3/8	G1/2

*1 Screw-in: Rc and G female threads

*2 When using the ejector with a clamp mount, order the L-bracket/DIN rail mounting bracket in the ZH series **Web Catalogue** separately.

In-line Type Vacuum Ejector

HF1B-ZU□A Series

RoHS



How to Order

HF1B – ZU 05 S A □

Nozzle diameter

05	0.5 mm
07	0.7 mm

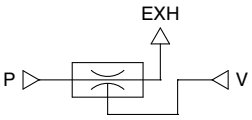
Port size

Symbol	Port size	HF1B-ZU05/07
—	Ø 6 One-touch fitting	●
01	Rc1/8 female thread	●

Ultimate vacuum pressure

Symbol	Ultimate vacuum pressure	HF1B-ZU05/07
S	–90 kPa	●
L	–48 kPa	●

Symbol



Specifications

Operating temperature range	–5 to 50 °C (No freezing)
Fluid	Air
Applicable tubing material	FEP, PFA, Nylon, Soft nylon, Polyurethane
Operating pressure range	0.1 to 0.6 MPa
Standard supply pressure	0.45 MPa

Ejector Specifications*1

Model	Nozzle diameter [mm]	Ultimate vacuum pressure*2 [kPa]		Maximum suction flow rate*2 [l/min (ANR)]		Air consumption*2 [l/min (ANR)]	Weight [g]	
		Type S	Type L	Type S	Type L		One-touch connection	Screw-in connection
HF1-ZU05□A	0.5	–90	–48	7	13	14	3.9	18.6
HF1-ZU07□A	0.7			11	16	28	4.3	19.1

∗1 The values indicating characteristics are representative values, and may vary depending on the atmospheric pressure (weather, altitude, etc.) and measurement method.
∗2 Standard supply pressure

Suction Cup/Compatible with Metal Detectors

HF3A-ZP3F Series



How to Order

Cup unit HF3A-ZP3F - 40 ZJ MS

With retainer HF3A-ZP3F - D 40 ZJ MS

With adapter HF3A-ZP3F S - T 40 ZJ MS - AG03

❶ ❷ ❸ ❹ ❺ ❻

❶ Adapter material

Symbol	Material
S	Stainless steel

❷ Mounting

Symbol	Mounting
D	Retainer
T	Vertical adapter

❸ Cup diameter

Symbol	Cup diameter
40	Ø 40

❹ Cup form

Symbol	Form
ZJ	Bellows type (4.5-stage)

❺ Cup material

Symbol	Material	Colour
MS∗1, ∗2, ∗3	Silicone rubber (Compatible with metal detectors)	Blue

∗1 Uses a material compliant with a dissolution test of the FDA (USA Food and Drug Administration) regulation 21CFR§177.2600 for "Rubber articles intended for repeated use."

∗2 Uses a material compliant with the standards for "Rubber apparatus (excluding baby drinking apparatus) and containers/packaging" (D3) (Partial revision: Japanese Ministry of Health, Labour, and Welfare Notification No. 595, 2012) in Section 3 "Apparatus and Containers/Packaging" of the Japan Food Sanitation Act, Article 18 "Specifications and Standards for Food and Food Additives, etc." (Japanese Ministry of Health and Welfare Notification No. 370, 1959)

∗3 Compliant with Regulation (EC) No. 1935/2004 (regulation on materials and articles intended to come into contact with food)

❻ Connection thread

Symbol	Type	Size
AG03	Male thread	G3/8
AG04		G1/2

Bernoulli Gripper

ZNC Series

The specifications are the same as the "HF3A-" even though there is no "HF3A-" part number prefix.

How to Order



Size 20 ZNC 20 S □ – □

Sizes 30 to 80 ZNC 40 S □ – □

❶ ❷ ❸ ❹

❶ Body size

20	Ø 20 mm
30	Ø 30 mm
40	Ø 40 mm
60	Ø 60 mm
80	Ø 80 mm

❷ Body material

S	Stainless steel	

❸ Mounting plate (Size 20)

—	Without mounting plate	
TS	With mounting plate	Stainless steel



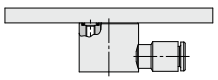
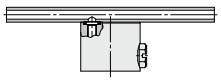
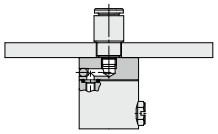
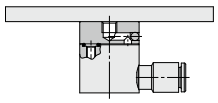
∗ The mounting plate is shipped together with the product but does not come assembled. Single unit part nos. ⇒ Refer to the **Web Catalogue**.
∗ The piping methods for types with and without a mounting plate are shown in Table 1 below.

❹ Attachment

—	Basic type (Without attachment)	
PS	With stoppers	Silicone rubber (White)
VS	With vibration suppression cover	Stainless steel

∗ Stoppers cannot be retrofitted.
∗ Vibration suppression cover can be retrofitted to the basic type.
∗ The vibration suppression cover cannot be used with the type with stoppers.

Table 1. Size 20 Piping (Refer to the **Web Catalogue** for details on how to mount the product.)

	Side ported	Body ported (Requires no piping)
Without mounting plate	 Can be used by blocking the supply port on the top surface of the product with the mounting surface and connecting from the side port	 Can be used by connecting the piping inside the mounting surface with the supply port on the top surface of the product
	Top ported	**Side ported**
With mounting plate	 Can be used by mounting a fitting on the supply port on the top surface of the product and connecting	 Can be used by blocking the supply port on the top surface of the product with the mounting plate and connecting from the side port

∗ An O-ring (5.7 x 3.7 x 1) and a plug are shipped together with the product as accessories.

Attachments/Part Nos.

Stopper ZNCM – PS 2

Material

PS	Silicone rubber (White)

Stopper size

Symbol	Body size
1	20, 30
2	40, 60, 80

∗ Stopper size 1: With 3 stoppers
Stopper size 2: With 3 stoppers and 3 spring pins
For replacement instructions ⇒ Refer to the **Web Catalogue**.

Vibration suppression cover ZNCM – 40 VS

Body size

20	Ø 20 mm	**60**	Ø 60 mm
30	Ø 30 mm	**80**	Ø 80 mm
40	Ø 40 mm		

Material

VS	Stainless steel

∗ For stainless steel:
Body sizes Ø 20 mm and Ø 30 mm: With 2 mounting screws
Body sizes Ø 40 mm, Ø 60 mm, and Ø 80 mm: With 3 mounting screws

Bernoulli Gripper With Coanda Grip

ZNC-C Series

The specifications are the same as the "HF3A-" even though there is no "HF3A-" part number prefix.



How to Order

Size 20 ZNC 20 S □ – C □

Sizes 30 to 80 ZNC 40 S □ – C □

❶ ❷ ❸ ❹

❶ Body size

20	Ø 20 mm
30	Ø 30 mm
40	Ø 40 mm
60	Ø 60 mm
80	Ø 80 mm

❷ Body material

S	Stainless steel

❸ Mounting plate

—	None
TS	Stainless steel

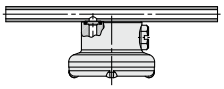
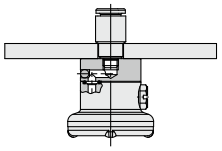
* The mounting plate is shipped together with the product but does not come assembled.
* The piping methods for types with and without a mounting plate are shown in Table 1 below.

❹ Attachment

—	Without vibration suppression cover
V	With vibration suppression cover

* It is not possible to additionally install or remove the vibration suppression cover.

Table 1. Piping

Without mounting plate	Body ported (Requires no piping)  Can be used by connecting the piping inside the mounting surface with the supply port on the top surface of the product
With mounting plate	Top ported  Can be used by mounting a fitting on the supply port on the top surface of the product and connecting

Coanda Grip Only / Part No.

ZNCM – 40 C

Body size

20	Ø 20 mm	**60**	Ø 60 mm
30	Ø 30 mm	**80**	Ø 80 mm
40	Ø 40 mm		

Battery-less Absolute (Step Motor 24 VDC)

Slider Type/Ball Screw Drive

CE UK CA
* For details, refer to the **Web Catalogue**.
RoHS

HF1A-LEFS Series HF1A-LEFS16, 25, 32, 40



How to Order

HF1A-LEFS H 25 R E B-200 ☐ C K-R1
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Accuracy

—	Basic type
H	High-precision type

❷ Size

16
25
32
40

❸ Motor mounting position

—	In-line
R	Right side parallel
L	Left side parallel

❹ Motor type

E	Battery-less absolute (Step motor 24 VDC)

❺ Lead [mm]

Symbol	HF1A-LEFS16	HF1A-LEFS25	HF1A-LEFS32	HF1A-LEFS40
H	—	20	24	30
A	10	12	16	20
B	5	6	8	10

❻ Stroke*1 [mm]

Stroke	Note	
	Size	Applicable stroke
50 to 500	16	50, 100, 150, 200, 250, 300, 350, 400, 450, 500
50 to 800	25	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800
50 to 1000	32	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000
150 to 1200	40	150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000, 1100, 1200

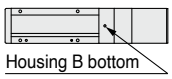
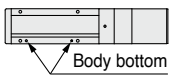
❼ Motor option

—	Without option
B	With lock

❽ Auto switch compatibility (In-line only)*2 *3 *4 *5

—	None
C	With (Includes 1 mounting bracket)

❾ Positioning pin hole

—	Housing B bottom*6	 Housing B bottom
K	Body bottom 2 locations	 Body bottom

❿ Actuator cable type/length

Robotic cable [m]

—	None	R8	8*7
R1	1.5	RA	10*7
R3	3	RB	15*7
R5	5	RC	20*7

⚠Caution
The type with a controller/driver cannot be selected. Order it separately.
(Example of model number displayed on controller/driver)
When the model number reads "**HF1A-LEFS25EB-300B-R1**," the actuator model is as shown below:
"**LEFS25EB-300**" (Excludes the "**HF1A-**" prefix)

For details on auto switches, refer to the **Web Catalogue**.

∗1 Please contact SMC for non-standard strokes as they are produced as special orders.
∗2 Excludes the HF1A-LEF16
∗3 If 2 or more are required, please order them separately. (Part no.: LEF-D-2-1 For details, refer to the **Web Catalogue**.)
∗4 Order auto switches separately. (For details, refer to the **Web Catalogue**.)
∗5 When "—" is selected, the product will not come with a built-in magnet for an auto switch, and so a mounting bracket cannot be secured. Be sure to select an appropriate model initially as the product cannot be changed to have auto switch compatibility after purchase.
∗6 Refer to the body mounting example on the **Web Catalogue** for the mounting method.
∗7 Produced upon receipt of order

⚠Caution

[CE/UKCA-compliant products]
EMC compliance was tested by combining the electric actuator HF 1 A-LEF series and the controller JXC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

[Precautions relating to differences in controller versions]
When the JXC series is to be used in combination with the battery-less absolute encoder, use a controller that is version V3.4 or S3.4 or higher. For details, refer to the **Web Catalogue**.

Compatible Controllers (Order it separately.)

Type	Step data input type	EtherCAT direct input type	EtherCAT direct input type with STO sub-function	EtherNet/IP™ direct input type	EtherNet/IP™ direct input type with STO sub-function	PROFINET direct input type	PROFINET direct input type with STO sub-function	DeviceNet® direct input type	IO-Link direct input type	IO-Link direct input type with STO sub-function	CC-Link direct input type
											
Series	**JXC51 JXC61**	**JXCE1**	**JXCEF**	**JXC91**	**JXC9F**	**JXCP1**	**JXCPF**	**JXCD1**	**JXCL1**	**JXCLF**	**JXCM1**
Features	Parallel I/O	EtherCAT direct input	EtherCAT direct input with STO sub-function	EtherNet/IP™ direct input	EtherNet/IP™ direct input with STO sub-function	PROFINET direct input	PROFINET direct input with STO sub-function	DeviceNet® direct input	IO-Link direct input	IO-Link direct input with STO sub-function	CC-Link direct input
Compatible motor	Battery-less absolute (Step motor 24 VDC)										
Max. number of step data	64 points										
Power supply voltage	24 VDC										
Reference page	**Web Catalogue**										

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

Slider Type/Ball Screw Drive

CE UK CA
* For details, refer to the Web Catalogue.
RoHS

HF1A-LEFS Series HF1A-LEFS16, 25, 32, 40



How to Order

HF1A-LEFS H 25 R ☐ B-200 ☐ C K-S1
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Accuracy

—	Basic type
H	High-precision type

❷ Size

16
25
32
40

❸ Motor mounting position

—	In-line
R	Right side parallel
L	Left side parallel

❹ Motor type

Symbol	Type	Applicable size				Compatible controllers/drivers
		HF1A-LEFS16	HF1A-LEFS25	HF1A-LEFS32	HF1A-LEFS40	
—	Step motor (Servo/24 VDC)	●	●	●	●	JXC51 JXCEF JXC61 JXC9F JXCE1 JXCPF JXC91 JXCLF JXCP1 JXCD1 JXCL1 LECPA JXCM1
A	Servo motor (24 VDC)	●	●	—	—	LECA6

❺ Lead [mm]

Symbol	HF1A-LEFS16	HF1A-LEFS25	HF1A-LEFS32	HF1A-LEFS40
H	—	20	24	30
A	10	12	16	20
B	5	6	8	10

❻ Stroke*1 [mm]

Stroke	Note	
	Size	Applicable stroke
50 to 500	16	50, 100, 150, 200, 250, 300, 350, 400, 450, 500
50 to 800	25	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800
50 to 1000	32	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000
150 to 1200	40	150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000, 1100, 1200

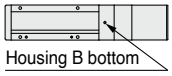
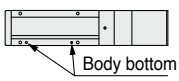
❼ Motor option

—	Without option
B	With lock

❽ Auto switch compatibility*2 *3 *4 *5

—	None
C	With (Includes 1 mounting bracket)

❾ Positioning pin hole

—	Housing B bottom*6	 Housing B bottom
K	Body bottom 2 locations	 Body bottom

❿ Actuator cable type/length*8

Standard cable [m]

—	None
S1	1.5*9
S3	3*9
S5	5*9

Robotic cable [m]

R1	1.5	RA	10*7
R3	3	RB	15*7
R5	5	RC	20*7
R8	8*7		

⚠Caution
The type with a controller/driver cannot be selected. Order it separately.
(Example of model number displayed on controller/driver)
When the model number reads "**HF1A-LEFS25B-300B-R1**," the actuator model is as shown below:
"**LEFS25B-300**" (Excludes the "**HF1A-**" prefix)

For details on auto switches, refer to the Web Catalogue.

∗1 Please contact SMC for non-standard strokes as they are produced as special orders.
∗2 Excluding the HF1A-LEF16
∗3 If 2 or more are required, please order them separately. (Part no.: LEF-D-2-1 For details, refer to the **Web Catalogue**.)
∗4 Order auto switches separately. (For details, refer to the **Web Catalogue**.)
∗5 When "—" is selected, the product will not come with a built-in magnet for an auto switch, and so a mounting bracket cannot be secured. Be sure to select an appropriate model initially as the product cannot be changed to have auto switch compatibility after purchase.
∗6 Refer to the body mounting example on the **Web Catalogue** for the mounting method.
∗7 Produced upon receipt of order (Robotic cable only)
∗8 The standard cable should only be used on fixed parts. For use on moving parts, select the robotic cable. Refer to the **Web Catalogue** if only the actuator cable is required.
∗9 Only available for the motor type "Step motor"

Compatible Controllers/Drivers (Order it separately.)

Type	**Step data input type** 	**Step data input type** 	**Pulse input type** 
Series	**JXC51 JXC61**	**LECA6**	**LECPA**
Features	Parallel I/O	Parallel I/O	Operation by pulse signals
Compatible motor	Step motor (Servo/24 VDC)	Servo motor (24 VDC)	Step motor (Servo/24 VDC)
Max. number of step data	64 points		—
Power supply voltage	24 VDC		
Reference page	**Web Catalogue**		

⚠Caution

[CE/UKCA-compliant products]

① EMC compliance was tested by combining the electric actuator HF1A-LEF series and the controller LEC/JXC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

② For the incremental (servo motor 24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to the **Web Catalogue** for the noise filter set. Refer to the LECA series Operation Manual for installation.

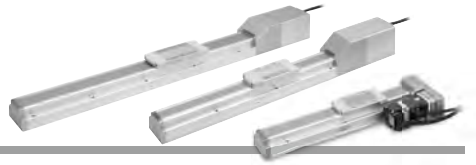
Type	**EtherCAT direct input type** 	**EtherCAT direct input type with STO sub-function** 	**EtherNet/IP™ direct input type** 	**EtherNet/IP™ direct input type with STO sub-function** 	**PROFINET direct input type** 	**PROFINET direct input type with STO sub-function** 	**DeviceNet® direct input type** 	**IO-Link direct input type** 	**IO-Link direct input type with STO sub-function** 	**CC-Link direct input type** 
Series	**JXCE1**	**JXCEF**	**JXC91**	**JXC9F**	**JXCP1**	**JXCPF**	**JXCD1**	**JXCL1**	**JXCLF**	**JXCM1**
Features	EtherCAT direct input	EtherCAT direct input with STO sub-function	EtherNet/IP™ direct input	EtherNet/IP™ direct input with STO sub-function	PROFINET direct input	PROFINET direct input with STO sub-function	DeviceNet® direct input	IO-Link direct input	IO-Link direct input with STO sub-function	CC-Link direct input
Compatible motor	Step motor (Servo/24 VDC)									
Max. number of step data	64 points									
Power supply voltage	24 VDC									
Reference page	**Web Catalogue**									

AC Servo Motor ***LECS□ Series***

Slider Type/Ball Screw Drive

CE UK CA
* For details, refer to the **Web Catalogue**.
RoHS

HF1A-LEFS Series HF1A-LEFS25, 32, 40



How to Order

HF1A-LEFS H 32 R S3 B-200 □ C K-S 2

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❶ Accuracy

–	Basic type
H	High-precision type

❷ Size

25
32
40

❸ Motor mounting position

–	In-line
R	Right side parallel
L	Left side parallel

❺ Lead [mm]

Symbol	HF1A-LEFS25	HF1A-LEFS32	HF1A-LEFS40
H	20	24	30
A	12	16	20
B	6	8	10

❻ Stroke [mm]

50	50
to	to
1200	1200

* For details, refer to the applicable stroke table below.

❼ Motor option

–	Without option
B	With lock

❹ Motor type

Symbol	Type	Output [W]	❷ Size	⓬ Driver type	Compatible drivers
*1 **S2**	AC servo motor (Incremental encoder)	100	25	A1/A2	LECSA□-S1
S3		200	32	A1/A2	LECSA□-S3
S4		400	40	A2	LECSA2-S4
*2 **T6**	AC servo motor (Absolute encoder)	100	25	B2	LECSB2-T5
				C2	LECSC2-T5
				S2	LECSS2-T5
T7		200	32	B2	LECSB2-T7
				C2	LECSC2-T7
				S2	LECSS2-T7
T8		400	40	B2	LECSB2-T8
				C2	LECSC2-T8
				S2	LECSS2-T8

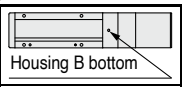
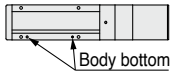
*1 For motor type S2, the compatible driver part number suffix is S1.
*2 For motor type T6, the compatible driver part number is LECS□2-T5.

❽ Auto switch compatibility

–	None
C	With (Includes 1 mounting bracket)

* If 2 or more are required, please order them separately. (Part no.: LEF-D-2-1 For details, refer to the **Web Catalogue**.)
* Order auto switches separately. (For details, refer to the **Web Catalogue**.)
* When "–" is selected, the product will not come with a built-in magnet for an auto switch, and so a mounting bracket cannot be secured. Be sure to select an appropriate model initially as the product cannot be changed to have auto switch compatibility after purchase.

❾ Positioning pin hole

–	Housing B bottom*1	 Housing B bottom
K	Body bottom 2 locations	 Body bottom

*1 Refer to the body mounting example on the **Web Catalogue** for the mounting method.

❿ Cable type*1 *2

–	Without cable
S	Standard cable
R	Robotic cable

*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)
*2 Standard cable entry direction is "(B) Counter axis side." For motor parallel type of the ball screw drive, the cable entry direction is "(A) Axis side." (For details, refer to the **Web Catalogue**.)

⓫ Cable length*1 [m]

–	Without cable
2	2
5	5
A	10

*1 The length of the motor, encoder, and lock cables are the same.

⚠Caution
The type with a driver cannot be selected.
Order it separately.

Applicable Stroke Table

●: Standard

Model \ Stroke [mm]	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1100	1200
HF1A-LEFS25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	–	–	–	–	–	–
HF1A-LEFS32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	–	–
HF1A-LEFS40	–	–	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

* Please contact SMC for non-standard strokes as they are produced as special orders.

For details on auto switches, refer to the Web Catalogue.

Compatible Drivers (Order it separately.)

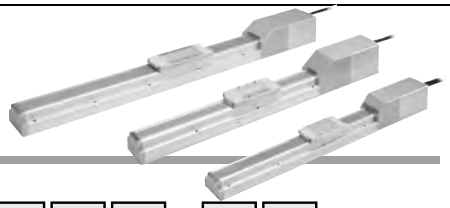
Driver type	Pulse input type/ Positioning type	Pulse input type	CC-Link direct input type	SSCNET Ⅲ/H type
				
Series	**LECSA**	**LECSB-T**	**LECSC-T**	**LECSS-T**
Number of point tables	Up to 7	Up to 255	Up to 255 (2 stations occupied)	–
Pulse input	○	○	–	–
Applicable network	–	–	CC-Link	SSCNET Ⅲ/H
Control encoder	Incremental 17-bit encoder	Absolute 22-bit encoder	Absolute 18-bit encoder	Absolute 22-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication
Power supply voltage [V]	100 to 120 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz)	200 to 240 VAC (50/60 Hz)	200 to 230 VAC (50/60 Hz)	200 to 240 VAC (50/60 Hz)
Reference page	**Web Catalogue**			

AC Servo Motor *LECY□ Series*

Slider Type/Ball Screw Drive

CE UK CA
* For details, refer to the **Web Catalogue**.
RoHS

HF1A-LEFS Series HF1A-LEFS25, 32, 40



How to Order

HF1A-LEFS H 32 R V7 B-200 B C K-S 3
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❶ Accuracy

—	Basic type
H	High-precision type

❷ Size

25
32
40

❸ Motor mounting position

—	In-line
R	Right side parallel
L	Left side parallel

❹ Motor type

Symbol	Type	Output [W]	❷Size	⓬Driver type	Compatible drivers
*1 V6	AC servo motor (Absolute encoder)	100	25	M2	LECYM2-V5
				U2	LECYU2-V5
V7		200	32	M2	LECYM2-V7
				U2	LECYU2-V7
V8		400	40	M2	LECYM2-V8
				U2	LECYU2-V8

*1 For motor type V6, the compatible driver part number suffix is V5.

❺ Lead [mm]

Symbol	HF1A-LEFS25	HF1A-LEFS32	HF1A-LEFS40
H	20	24	30
A	12	16	20
B	6	8	10

❻ Stroke [mm]

50	50
to	to
1200	1200

❼ Motor option

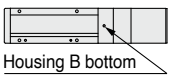
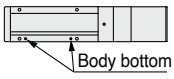
—	Without option
B	With lock

❽ Auto switch compatibility

—	None
C	With (Includes 1 mounting bracket)

* If 2 or more are required, please order them separately. (Part no.: LEF-D-2-1 For details, refer to the **Web Catalogue**.)
* Order auto switches separately. (For details, refer to the **Web Catalogue**.)
* When "—" is selected, the product will not come with a built-in magnet for an auto switch, and so a mounting bracket cannot be secured. Be sure to select an appropriate model initially as the product cannot be changed to have auto switch compatibility after purchase.

❾ Positioning pin hole

—	Housing B bottom*1	 Housing B bottom
K	Body bottom 2 locations	 Body bottom

*1 Refer to the body mounting example on the **Web Catalogue** for the mounting method.

❿ Cable type

—	Without cable
S	Standard cable
R	Robotic cable

⓫ Actuator cable length [m]

—	Without cable
3	3
5	5
A	10
C	20

⚠Caution
The type with a driver cannot be selected.
Order it separately.

Applicable Stroke Table

●: Standard

Model \ Stroke [mm]	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1100	1200
HF1A-LEFS25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—
HF1A-LEFS32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	—	—
HF1A-LEFS40	—	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

* Please contact SMC for non-standard strokes as they are produced as special orders.

Compatible Drivers (Order it separately.)

For details on auto switches, refer to the Web Catalogue.

Driver type	MECHATROLINK-Ⅱ type	MECHATROLINK-Ⅲ type
		
Series	LECYM	LECYU
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage [V]	200 to 230 VAC (50/60 Hz)	
Reference page	**Web Catalogue**	

CE UK CA
* For details, refer to the Web Catalogue.

RoHS

High Performance Slider Type/Ball Screw Drive

HF1A-LEFS□G Series HF1A-LEFS16, 25, 32, 40



How to Order

HF1A- LEFS H 25 □ G B - 200 □ C K - R1

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Accuracy

—	Basic type
H	High-precision type

❷ Size

16
25
32
40

❸ Motor mounting position

—	In-line
R	Right side parallel
L	Left side parallel

❹ Motor type

Symbol	Type	Applicable size				Compatible controllers
		HF1A-LEFS16	HF1A-LEFS25	HF1A-LEFS32	HF1A-LEFS40	
G	High performance (Battery-less absolute)	●	●	●	●	JXC5H JXC6H JXCEH JXC9H JXCPH

❺ Lead [mm]

Symbol	HF1A-LEFS16	HF1A-LEFS25	HF1A-LEFS32	HF1A-LEFS40
H	—	20	24	30
A	10	12	16	20
B	5	6	8	10

❻ Stroke*1 [mm]

Stroke	Note	
	Size	Applicable stroke
50 to 500	16	50, 100, 150, 200, 250, 300, 350, 400, 450, 500
50 to 800	25	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800
50 to 1000	32	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000
150 to 1200	40	150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000, 1100, 1200

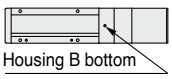
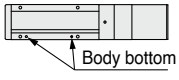
❼ Motor option

—	Without option
B	With lock

❽ Auto switch compatibility (In-line only)*2 *3 *4 *5

—	None
C	With (Includes 1 mounting bracket)

❾ Positioning pin hole

—	Housing B bottom*6	
K	Body bottom 2 locations	

❿ Actuator cable type/length

Robotic cable [m]

R1	1.5	RA	10*7
R3	3	RB	15*7
R5	5	RC	20*7
R8	8*7		

⚠Caution

The type with a controller/driver cannot be selected. Order it separately.
(Example of model number displayed on controller/driver)
When the model number reads "**HF1A-LEFS25GB-300B-R1**,"
the actuator model is as shown below:
"**LEFS25GB-300**" (Excludes the "**HF1A-**" prefix)

For details on auto switches, refer to the Web Catalogue.

SMC

∗1 Please contact SMC for non-standard strokes as they are produced as special orders.
∗2 Excluding the HF1A-LEFS16
∗3 If 2 or more are required, please order them separately. (Part no.: LEF-D-2-1 For details, refer to the **Web Catalogue**.)
∗4 The auto switches must be ordered separately. (For details, refer to the **Web Catalogue**.)
∗5 When "—" is selected, the product will not come with a built-in magnet for an auto switch, and so a mounting bracket cannot be secured. Be sure to select an appropriate model initially as the product cannot be changed to have auto switch compatibility after purchase.
∗6 For details on the mounting method, refer to the **Web Catalogue**.
∗7 Produced upon receipt of order

⚠Caution

[CE/UKCA-compliant products]
EMC compliance was tested by combining the electric actuator HF1A-LEF series and the controller JXC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

■Trademark

EtherNet/IP® is a registered trademark of ODVA, Inc.
EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Compatible Controllers (Order it separately.)

Type	Step data input type	EtherCAT direct input type	EtherNet/IP™ direct input type	PROFINET direct input type
				
Series	**JXC5H JXC6H**	**JXCEH**	**JXC9H**	**JXCPH**
Features	Parallel I/O	EtherCAT direct input	EtherNet/IP™ direct input	PROFINET direct input
Compatible motor	Step motor 24 VDC			
Max. number of step data	64 points			
Power supply voltage	24 VDC			
Reference page	**Web Catalogue**			

CE UK CA

* For details, refer to the Web Catalogue.

High Performance Slider Type/Ball Screw Drive

RoHS

HF1A-LEFS□F Series HF1A-LEFS16, 25, 32, 40



How to Order

HF1A – LEFS H 25 □ F B – 200 □ C K – S1

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Accuracy

—	Basic type
H	High-precision type

❷ Size

16
25
32
40

❸ Motor mounting position

—	In-line

❹ Motor type

Symbol	Type	Applicable size				Compatible controllers
		HF1A-LEFS16	HF1A-LEFS25	HF1A-LEFS32	HF1A-LEFS40	
F	High performance (Step motor 24 VDC)	●	●	●	●	JXC5H JXC6H JXCEH JXC9H JXCPH

❺ Lead [mm]

Symbol	HF1A-LEFS16	HF1A-LEFS25	HF1A-LEFS32	HF1A-LEFS40
H	—	20	24	30
A	10	12	16	20
B	5	6	8	10

❻ Stroke*1 [mm]

Stroke	Note	
	Size	Applicable stroke
50 to 500	16	50, 100, 150, 200, 250, 300, 350, 400, 450, 500
50 to 800	25	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800
50 to 1000	32	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000
150 to 1200	40	150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000, 1100, 1200

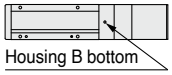
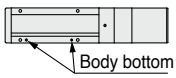
❼ Motor option

—	Without option
B	With lock

❽ Auto switch compatibility*2 *3 *4 *5

—	None
C	With (Includes 1 mounting bracket)

❾ Positioning pin hole

—	Housing B bottom*6	
K	Body bottom 2 locations	

❿ Actuator cable type/length*8

Standard cable [m]	
—	None
S1	1.5
S3	3
S5	5

Robotic cable [m]			
R1	1.5	RA	10*7
R3	3	RB	15*7
R5	5	RC	20*7
R8	8*7		

⚠Caution

The type with a controller/driver cannot be selected. Order it separately.
(Example of model number displayed on controller/driver)
When the model number reads "**HF1A-LEFS25FB-300B-R1**,"
the actuator model is as shown below:
"**LEFS25FB-300**" (Excludes the "**HF1A-**" prefix)

For details on auto switches, refer to the Web Catalogue.

∗1 Please contact SMC for non-standard strokes as they are produced as special orders.
∗2 Excluding the HF1A-LEFS16
∗3 If 2 or more are required, please order them separately. (Part no.: LEF-D-2-1 For details, refer to the **Web Catalogue**.)
∗4 The auto switches must be ordered separately. (For details, refer to the **Web Catalogue**.)
∗5 When "—" is selected, the product will not come with a built-in magnet for an auto switch, and so a mounting bracket cannot be secured. Be sure to select an appropriate model initially as the product cannot be changed to have auto switch compatibility after purchase.
∗6 For details on the mounting method, refer to the **Web Catalogue**.
∗7 Produced upon receipt of order (Robotic cable only)
∗8 The standard cable should only be used on fixed parts. For use on moving parts, select the robotic cable.

⚠Caution

[CE/UKCA-compliant products]
EMC compliance was tested by combining the electric actuator HF 1 A-LEF series and the controller JXC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

■Trademark

EtherNet/IP® is a registered trademark of ODVA, Inc.
EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Compatible Controllers (Order it separately.)

Type	Step data input type 	EtherCAT direct input type 	EtherNet/IP™ direct input type 	PROFINET direct input type 
Series	**JXC5H JXC6H**	**JXCEH**	**JXC9H**	**JXCPH**
Features	Parallel I/O	EtherCAT direct input	EtherNet/IP™ direct input	PROFINET direct input
Compatible motor	Step motor 24 VDC	Step motor (Servo/24 VDC)		
Max. number of step data	64 points	64 points		
Power supply voltage	24 VDC	24 VDC		
Reference page	**Web Catalogue**			

Motorless Type

Electric Actuator/Slider Type
Ball Screw Drive

HF1A-LEFS Series HF1A-LEFS25, 32, 40 RoHS



How to Order

HF1A-LEFS H 25 R NZ A-100 C K
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Accuracy

—	Basic type
H	High-precision type

❷ Size

25
32
40

❸ Motor mounting position

—	In-line
R	Right side parallel
L	Left side parallel

❹ Mounting type

NZ	NV	NM2
NY	NU	NM3
NX	NT	
NW	NM1	

❺ Lead [mm]

Symbol	HF1A-LEFS25	HF1A-LEFS32	HF1A-LEFS40
H	20	24	30
A	12	16	20
B	6	8	10

❻ Stroke [mm]

50	50
to	to
1200	1200

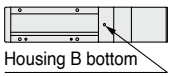
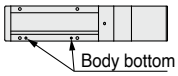
∗ Refer to the applicable stroke table.

❼ Auto switch compatibility

—	None
C	With (Includes 1 mounting bracket)

∗ If 2 or more are required, please order them separately. (Part no.: LEF-D-2-1 For details, refer to the **Web Catalogue**.)
∗ Order auto switches separately. (For details, refer to the **Web Catalogue**.)
∗ When "–" is selected, the product will not come with a built-in magnet for an auto switch, and so a mounting bracket cannot be secured. Be sure to select an appropriate model initially as the product cannot be changed to have auto switch compatibility after purchase.

❽ Positioning pin hole

—	Housing B bottom∗1	 Housing B bottom
K	Body bottom 2 locations	 Body bottom

∗1 Refer to the body mounting example on the **Web Catalogue** for the mounting method.

Applicable Stroke Table

●: Standard

Model \ Stroke [mm]	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1100	1200
HF1A-LEFS25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	–	–	–	–	–	–
HF1A-LEFS32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	–	–
HF1A-LEFS40	–	–	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

∗ Please contact SMC for non-standard strokes as they are produced as special orders.

Compatible Motors and Mounting Types

Applicable motor model		Size/Mounting type														
Manufacturer	Series	25						32/40								
		NZ	NY	NX	NM1	NM2	NM3	NZ	NY	NX	NW	NV	NU	NT	NM1	NM2
Mitsubishi Electric Corporation	MELSERVO JN/J4/J5	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
YASKAWA Electric Corporation	Σ-V/7/X	●∗4	–	–	–	–	–	●	–	–	–	–	–	–	–	–
SANYO DENKI CO., LTD.	SANMOTION R	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
OMRON Corporation	OMNUC G5/1S	●	–	–	–	–	–	–	●	–	–	–	–	–	–	–
Panasonic Corporation	MINAS A5/A6	● (MHMF only)	●	–	–	–	–	–	●	–	–	–	–	–	–	–
FANUC CORPORATION	βis (-B)	●	–	–	–	–	–	● (β1 only)	–	–	●	–	–	–	–	–
NIDEC SANKYO CORPORATION	S-FLAG	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
KEYENCE CORPORATION	SV/SV2	●∗4	–	–	–	–	–	●	–	–	–	–	–	–	–	–
FUJI ELECTRIC CO., LTD.	ALPHA7	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
MinebeaMitsumi Inc.	Hybrid stepping motors	–	–	–	●∗1	–	●∗3	–	–	–	–	–	–	–	●∗2	–
Shinano Kenshi Co., Ltd.	CSB-BZ	–	–	–	●∗1	–	●∗3	–	–	–	–	–	–	–	–	–
ORIENTAL MOTOR Co., Ltd.	α STEP AR/AZ	–	–	–	–	● (46 only)	–	–	–	–	–	–	–	–	–	●∗2
FASTECH Co., Ltd.	Ezi-SERVO	–	–	–	●	–	–	–	–	–	–	–	–	–	●∗2	–
Rockwell Automation, Inc. (Allen-Bradley)	Kinetix MP/VP/TL	● (TL only)	–	–	–	–	–	–	–	●∗1 (MP/VP only)	–	–	–	● (TL only)	–	–
Beckhoff Automation GmbH	AM 30/31/80/81	●	–	–	–	–	–	–	–	●∗1 (80/81 only)	–	●∗1 (30 only)	●∗2 (31 only)	–	–	–
Siemens AG	SIMOTICS S-1FK7	–	–	●	–	–	–	–	–	●∗1	–	–	–	–	–	–
Delta Electronics, Inc.	ASDA-A2	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
ANCA Motion	AMD2000	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–

∗1 Motor mounting position: In-line only ∗2 Only size 32 is available when the motor mounting position is right (or left) side parallel. ∗3 Motor mounting position: Right (or left) side parallel only
∗4 For some motors, the connector may protrude from the motor body. Be sure to check for interference with the mounting surface before selecting a motor.

Battery-less Absolute (Step Motor 24 VDC)

High Rigidity and High Precision Slider Type

CE UK CA
* For details, refer to the Web Catalogue.
RoHS

HF1A-LEKFS Series HF1A-LEKFS16, 25, 32, 40



How to Order

HF1A-LEKFS 32 ❶ E ❸ A ❹ - 300 ❺ ❻ - R1 ❼

❶ Size

16
25
32
40

❷ Motor mounting position

—	In-line
R	Right side parallel
L	Left side parallel

❸ Motor type

E	Battery-less absolute (Step motor 24 VDC)

❹ Lead [mm]

Symbol	HF1A-LEKFS16	HF1A-LEKFS25	HF1A-LEKFS32	HF1A-LEKFS40
H	—	20	24	30
A	10	12	16	20
B	5	6	8	10

❺ Stroke*1

Size	Stroke																
	50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	1100	1200
16	●	●	●	●	●	●	●	●	●	●	–	–	–	–	–	–	–
25	●	●	●	●	●	●	●	●	●	●	●	●	●	–	–	–	–
32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	–	–
40	–	–	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

❻ Motor option

—	Without option
B	With lock

❼ Actuator cable type/length

Robotic cable [m]

—	None	R8	8*2
R1	1.5	RA	10*2
R3	3	RB	15*2
R5	5	RC	20*2

⚠Caution

The type with a controller/driver cannot be selected.
Order it separately.
(Example of model number displayed on controller/driver)
When the model number reads "**HF1A-LEKFS25EB-300B-R1**," the actuator model is as shown below:
"**LEKFS25EB-300**" (Excludes the "**HF1A-**" prefix)

For details on auto switches, refer to the **Web Catalogue**.

∗1 Please contact SMC for non-standard strokes as they are produced as special orders.
∗2 Produced upon receipt of order

⚠Caution

[CE/UKCA-compliant products]
EMC compliance was tested by combining the electric actuator HF 1 A-LEKFS series and the controller JXC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

[Precautions relating to differences in controller versions]
When the JXC series is to be used in combination with the battery-less absolute encoder, use a controller that is version V3.4 or S3.4 or higher. For details, refer to the **Web Catalogue**.

■Trademark
EtherNet/IP® is a registered trademark of ODVA, Inc.
DeviceNet® is a registered trademark of ODVA, Inc.
EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Compatible Controllers (Order it separately.)

Type	Step data input type	EtherCAT direct input type	EtherCAT direct input type with STO sub-function	EtherNet/IP™ direct input type	EtherNet/IP™ direct input type with STO sub-function	PROFINET direct input type	PROFINET direct input type with STO sub-function	DeviceNet® direct input type	IO-Link direct input type	IO-Link direct input type with STO sub-function	CC-Link direct input type
											
Series	**JXC51 JXC61**	**JXCE1**	**JXCEF**	**JXC91**	**JXC9F**	**JXCP1**	**JXCPF**	**JXCD1**	**JXCL1**	**JXCLF**	**JXCM1**
Features	Parallel I/O	EtherCAT direct input	EtherCAT direct input with STO sub-function	EtherNet/IP™ direct input	EtherNet/IP™ direct input with STO sub-function	PROFINET direct input	PROFINET direct input with STO sub-function	DeviceNet® direct input	IO-Link direct input	IO-Link direct input with STO sub-function	CC-Link direct input
Compatible motor	Battery-less absolute (Step motor 24 VDC)										
Max. number of step data	64 points										
Power supply voltage	24 VDC										
Reference page	**Web Catalogue**										

AC Servo Motor ***LECS□ Series***

High Rigidity and High Precision

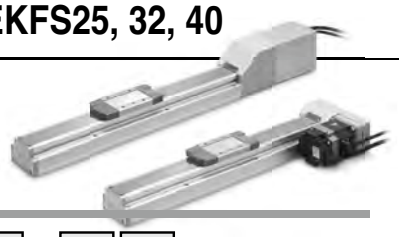
Slider Type/Ball Screw Drive

CE UK CA

* For details, refer to the **Web Catalogue**.

RoHS

HF1A-LEKFS Series HF1A-LEKFS25, 32, 40



How to Order

HF1A-LEKFS 32 R S3 B-200 □-S 2

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Size

25
32
40

❷ Motor mounting position

—	In-line
R	Right side parallel
L	Left side parallel

❹ Lead [mm]

Symbol	HF1A-LEKFS25	HF1A-LEKFS32	HF1A-LEKFS40
H	20	24	30
A	12	16	20
B	6	8	10

❺ Stroke [mm]

50	50
to	to
1200	1200

* For details, refer to the applicable stroke table below.

❻ Motor option

—	Without option
B	With lock

❸ Motor type

Symbol	Type	Output [W]	❶ Size	❿ Driver type	Compatible drivers
S2*1	AC servo motor (Incremental encoder)	100	25	A1/A2	LECSA□-S1
S3		200	32	A1/A2	LECSA□-S3
S4		400	40	A2	LECSA2-S4
T6*2	AC servo motor (Absolute encoder)	100	25	B2	LECSB2-T5
				C2	LECSC2-T5
				S2	LECSS2-T5
T7		200	32	B2	LECSB2-T7
				C2	LECSC2-T7
				S2	LECSS2-T7
T8		400	40	B2	LECSB2-T8
				C2	LECSC2-T8
				S2	LECSS2-T8

*1 For motor type S2, the compatible driver part number suffix is S1.

*2 For motor type T6, the compatible driver part number is LECS□2-T5.

❼ Cable type*1 *2

—	Without cable
S	Standard cable
R	Robotic cable (Flexible cable)

*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)

*2 Standard cable entry direction is "(B) Counter axis side." For the right/left side parallel motor types of the ball screw drive, the cable entry direction is "(A) Axis side." (For details, refer to the **Web Catalogue**.)

❽ Cable length*1 [m]

—	Without cable
2	2
5	5
A	10

*1 The length of the encoder, motor and lock cables are the same.

⚠Caution

The type with a driver cannot be selected.
Order it separately.

Applicable Stroke Table

●: Standard

Size	Stroke																
	50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	1100	1200
25	●	●	●	●	●	●	●	●	●	●	●	●	●	—	—	—	—
32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	—	—
40	—	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

* Please contact SMC for non-standard strokes as they are produced as special orders.

For details on auto switches, refer to the Web Catalogue.

Compatible Drivers (Order it separately.)

Driver type	Pulse input type/ Positioning type	Pulse input type	CC-Link direct input type	SSCNETⅢ/H type
				
Series	**LECSA**	**LECSB-T**	**LECSC-T**	**LECSS-T**
Number of point tables	Up to 7	Up to 255	Up to 255 (2 stations occupied)	—
Pulse input	○	○	—	—
Applicable network	—	—	CC-Link	SSCNETⅢ/H
Control encoder	Incremental 17-bit encoder	Absolute 22-bit encoder	Absolute 18-bit encoder	Absolute 22-bit encoder
Communication function	USB communication	USB communication, RS422 communication		USB communication
Power supply voltage [V]	100 to 120 VAC (50/60 Hz), 200 to 230 VAC (50/60 Hz)	200 to 240 VAC (50/60 Hz)	200 to 230 VAC (50/60 Hz)	200 to 240 VAC (50/60 Hz)
Reference page	**Web Catalogue**			

AC Servo Motor ***LECY□ Series***

High Rigidity and High Precision

Slider Type/Ball Screw Drive

CE UK CA
* For details, refer to the **Web Catalogue**.
RoHS

HF1A-LEKFS Series HF1A-LEKFS25, 32, 40



How to Order

HF1A – LEKFS 32 R V7 B – 200 B – S 3

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Size

25
32
40

❷ Motor mounting position

—	In-line
R	Right side parallel
L	Left side parallel

❸ Motor type

Symbol	Type	Output [W]	❶ Size	❾ Driver type	Compatible drivers
V6*1	AC servo motor (Absolute encoder)	100	25	M2	LECYM2-V5
				U2	LECYU2-V5
V7		200	32	M2	LECYM2-V7
				U2	LECYU2-V7
V8		400	40	M2	LECYM2-V8
				U2	LECYU2-V8

*1 For motor type V6, the compatible driver part number suffix is V5.

❹ Lead [mm]

Symbol	HF1A-LEKFS25	HF1A-LEKFS32	HF1A-LEKFS40
H	20	24	30
A	12	16	20
B	6	8	10

❺ Stroke [mm]

50	50
to	to
1200	1200

❻ Motor option

—	Without option
B	With lock

❼ Cable type

—	Without cable
S	Standard cable
R	Robotic cable (Flexible cable)

❽ Actuator cable length [m]

—	Without cable
3	3
5	5
A	10
C	20

⚠Caution
The type with a driver cannot be selected.
Order it separately.

Applicable Stroke Table

●: Standard

Size	Stroke																
	50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	1100	1200
25	●	●	●	●	●	●	●	●	●	●	●	●	●	–	–	–	–
32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	–	–
40	–	–	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

* Please contact SMC for non-standard strokes as they are produced as special orders.

For details on auto switches, refer to the Web Catalogue.

Compatible Drivers (Order it separately.)

Driver type	MECHATROLINK-Ⅱ type	MECHATROLINK-Ⅲ type
		
Series	**LECYM**	**LECYU**
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage [V]	200 to 230 VAC (50/60 Hz)	
Reference page	**Web Catalogue**	

Battery-less Absolute (Step Motor 24 VDC)

High Performance

High Rigidity and High Precision Slider Type

CE UK CA
* For details, refer to the **Web Catalogue**.
RoHS

HF1A-LEKFS□G Series HF1A-LEKFS25, 32, 40



How to Order

HF1A-LEKFS 32 □ G A - 300 □ - R1

❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Size

25
32
40

❷ Motor mounting position

—	In-line
R	Right side parallel
L	Left side parallel

❸ Motor type

G	High performance Battery-less absolute (Step motor 24 VDC)

❹ Lead [mm]

Symbol	HF1A-LEKFS25	HF1A-LEKFS32	HF1A-LEKFS40
H	20	24	30
A	12	16	20
B	6	8	10

❺ Stroke*1

50	50
to	to
1200	1200

* For details, refer to the applicable stroke table below.

❻ Motor option

—	Without option
B	With lock

❼ Actuator cable type/length

Robotic cable [m]

—	None	**R8**	8*2
R1	1.5	**RA**	10*2
R3	3	**RB**	15*2
R5	5	**RC**	20*2

Applicable Stroke Table

Size	Stroke																
	50	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**600**	**700**	**800**	**900**	**1000**	**1100**	**1200**
25	●	●	●	●	●	●	●	●	●	●	●	●	●	–	–	–	–
32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	–	–
40	–	–	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

⚠Caution

The type with a controller/driver cannot be selected. Order it separately.
(Example of model number displayed on controller/driver)
When the model number reads "**HF1A-LEKFS25GB-300B-R1**,"
the actuator model is as shown below:
"**LEKFS25GB-300**" (Excludes the "**HF1A-**" prefix)

For details on auto switches, refer to the Web Catalogue.

∗1 Please contact SMC for non-standard strokes as they are produced as special orders.
∗2 Produced upon receipt of order

⚠Caution

[CE/UKCA-compliant products]
EMC compliance was tested by combining the electric actuator HF 1 A-LEF series and the controller JXC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

■Trademark

EtherNet/IP® is a registered trademark of ODVA, Inc.
EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Compatible Controllers (Order it separately.)

Type	Step data input type	EtherCAT direct input type	EtherNet/IP™ direct input type	PROFINET direct input type
				
Series	**JXC5H JXC6H**	**JXCEH**	**JXC9H**	**JXCPH**
Features	Parallel I/O	EtherCAT direct input	EtherNet/IP™ direct input	PROFINET direct input
Compatible motor	Step motor 24 VDC			
Max. number of step data	64 points			
Power supply voltage	24 VDC			
Reference page	**Web Catalogue**			

Motorless Type

Electric Actuator/High Rigidity and High Precision Slider Type Ball Screw Drive

HF1A-LEKFS Series HF1A-LEKFS25, 32, 40 RoHS



How to Order

HF1A-LEKFS 32 ❶ ❷ NZ ❸ A ❹ - 300 ❺

❶ Size

25
32
40

❷ Motor mounting position

—	In-line
R	Right side parallel
L	Left side parallel

❸ Mounting type

NZ
NY
NX
NW
NV
NU
NT
NM1
NM2
NM3

❹ Lead [mm]

Symbol	HF1A-LEKFS25	HF1A-LEKFS32	HF1A-LEKFS40
H	20	24	30
A	12	16	20
B	6	8	10

❺ Stroke [mm]

50	50
to	to
1200	1200

∗ Refer to the applicable stroke table.

Applicable Stroke Table

●: Standard

Size	Stroke																
	50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	1100	1200
25	●	●	●	●	●	●	●	●	●	●	●	●	●	–	–	–	–
32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	–	–
40	–	–	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Compatible Motors and Mounting Types

Applicable motor model		Size/Mounting type														
Manufacturer	Series	25						32/40								
		NZ	NY	NX	NM1	NM2	NM3	NZ	NY	NX	NW	NV	NU	NT	NM1	NM2
Mitsubishi Electric Corporation	MELSERVO JN/J4/J5	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
YASKAWA Electric Corporation	Σ-V/7/X	●∗4	–	–	–	–	–	●	–	–	–	–	–	–	–	–
SANYO DENKI CO., LTD.	SANMOTION R	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
OMRON Corporation	OMNUC G5/1S	●	–	–	–	–	–	–	●	–	–	–	–	–	–	–
Panasonic Corporation	MINAS A5/A6	● (MHMF only)	●	–	–	–	–	–	●	–	–	–	–	–	–	–
FANUC CORPORATION	βis (-B)	●	–	–	–	–	–	● (β1 only)	–	–	●	–	–	–	–	–
NIDEC SANKYO CORPORATION	S-FLAG	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
KEYENCE CORPORATION	SV/SV2	●∗4	–	–	–	–	–	●	–	–	–	–	–	–	–	–
FUJI ELECTRIC CO., LTD.	ALPHA7	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
MinebeaMitsumi Inc.	Hybrid stepping motors	–	–	–	●∗1	–	●∗3	–	–	–	–	–	–	–	●∗2	–
Shinano Kenshi Co., Ltd.	CSB-BZ	–	–	–	●∗1	–	●∗3	–	–	–	–	–	–	–	–	–
ORIENTAL MOTOR Co., Ltd.	α STEP AR/AZ	–	–	–	–	● (46 only)	–	–	–	–	–	–	–	–	–	●∗2
FASTECH Co., Ltd.	Ezi-SERVO	–	–	–	●	–	–	–	–	–	–	–	–	–	●∗2	–
Rockwell Automation, Inc. (Allen-Bradley)	Kinetix MP/VP/TL	● (TL only)	–	–	–	–	–	–	–	●∗1 (MP/VP only)	–	–	–	● (TL only)	–	–
Beckhoff Automation GmbH	AM 30/31/80/81	●	–	–	–	–	–	–	–	●∗1 (80/81 only)	–	●∗1 (30 only)	●∗2 (31 only)	–	–	–
Siemens AG	SIMOTICS S-1FK7	–	–	●	–	–	–	–	–	●∗1	–	–	–	–	–	–
Delta Electronics, Inc.	ASDA-A2	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
ANCA Motion	AMD2000	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–

∗1 Motor mounting position: In-line only ∗2 Only size 32 is available when the motor mounting position is right (or left) side parallel. ∗3 Motor mounting position: Right (or left) side parallel only
∗4 For some motors, the connector may protrude from the motor body. Be sure to check for interference with the mounting surface before selecting a motor.

Battery-less Absolute (Step Motor 24 VDC)

Rod Type

CE UK CA
* For details, refer to the Web Catalogue.
RoHS

HF1A-LEY Series HF1A-LEY16, 25, 32, 40

How to Order



Motor mounting position: Parallel

Motor mounting position: In-line

HF1A-LEY 25 ❶ ❷ E ❸ B ❹ – 30 ❺ C ❻ ❼ ❽ – R1 ❾

❶ Size

16
25
32
40

❷ Motor mounting position/Motor cover direction

Symbol	Motor mounting position	Motor cover direction
—	Top side parallel	—
D	In-line	—*1
D1		Left*2
D2		Right*2
D3		Top*2
D4		Bottom*2

❸ Motor type

E	Battery-less absolute (Step motor 24 VDC)

❹ Lead [mm]

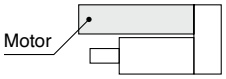
Symbol	HF1A-LEY16	HF1A-LEY25	HF1A-LEY32/40
A	10	12	16
B	5	6	8
C	2.5	3	4

❺ Stroke*3 [mm]

Stroke	Note	
	Size	Applicable stroke
30 to 300	16	30, 50, 100, 150, 200, 250, 300
30 to 400	25	30, 50, 100, 150, 200, 250, 300, 350, 400
30 to 500	32/40	30, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500

❻ Motor option*4

C	With motor cover
W	With lock/motor cover



❼ Rod end thread

—	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

❽ Mounting*5

Symbol	Type	Motor mounting position	
		Parallel	In-line
—	Ends tapped/ Body bottom tapped*6	●	●
L	Foot	●	—
F	Rod flange*6	●*8	●
G	Head flange*6	●*9	—
D	Double clevis*7	●	—

❾ Actuator cable type/length

Robotic cable [m]

—	None	R8	8*10
R1	1.5	RA	10*10
R3	3	RB	15*10
R5	5	RC	20*10

⚠Caution

The type with a controller/driver cannot be selected. Order it separately.

(Example of model number displayed on controller/driver)

When the model number reads "**HF1A-LEY25EB-30C-R1**," the actuator model is as shown below:

"**LEY25EB-30**" (Excludes the "**HF1A-**" prefix)

∗1 Sizes 25, 32, and 40 only
∗2 Size 16 only
∗3 Please contact SMC for non-standard strokes as they are produced as special orders.
∗4 When "With lock/motor cover" is selected for the top side parallel motor type, the motor body will stick out from the end of the body for size 16 with strokes of 50 mm or less and size 40 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.
∗5 The mounting bracket is shipped together with the product but does not come assembled.
∗6 For the horizontal cantilever mounting of the rod flange, head flange, or ends tapped types, use the actuator within the following stroke range.
· HF1A-LEY25: 200 or less · HF1A-LEY32/40: 100 or less
∗7 For the mounting of the double clevis type, use the actuator within the following stroke range.
· HF1A-LEY16: 100 or less · HF1A-LEY25: 200 or less
· HF1A-LEY32/40: 200 or less
∗8 The rod flange type is not available for the HF1A-LEY16 with strokes of 50 mm or less and HF1A-LEY40 with strokes of 30 mm or less, and motor option "With lock/motor cover."
∗9 The head flange type is not available for the HF1A-LEY32/40.
∗10 Produced upon receipt of order

⚠Caution

[CE/UKCA-compliant products]
EMC compliance was tested by combining the electric actuator HF1A-LEY series and the controller JXC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

[Precautions relating to differences in controller versions]
When the JXC series is to be used in combination with the battery-less absolute encoder, use a controller that is version V3.4 or S3.4 or higher. For details, refer to the **Web Catalogue**.

Compatible Controllers (Order it separately.)

Type	Step data input type	EtherCAT direct input type	EtherCAT direct input type with STO sub-function	EtherNet/IP™ direct input type	EtherNet/IP™ direct input type with STO sub-function	PROFINET direct input type	PROFINET direct input type with STO sub-function	DeviceNet® direct input type	IO-Link direct input type	IO-Link direct input type with STO sub-function	CC-Link direct input type
											
Series	**JXC51 JXC61**	**JXCE1**	**JXCEF**	**JXC91**	**JXC9F**	**JXCP1**	**JXCPF**	**JXCD1**	**JXCL1**	**JXCLF**	**JXCM1**
Features	Parallel I/O	EtherCAT direct input	EtherCAT direct input with STO sub-function	EtherNet/IP™ direct input	EtherNet/IP™ direct input with STO sub-function	PROFINET direct input	PROFINET direct input with STO sub-function	DeviceNet® direct input	IO-Link direct input	IO-Link direct input with STO sub-function	CC-Link direct input
Compatible motor	Battery-less absolute (Step motor 24 VDC)										
Max. number of step data	64 points										
Power supply voltage	24 VDC										
Reference page	**Web Catalogue**										

CE UK CA
* For details, refer to the Web Catalogue.
RoHS

Rod Type

HF1A-LEY Series HF1A-LEY16, 25, 32, 40

How to Order



Motor mounting position: Parallel Motor mounting position: In-line

HF1A-LEY 16 ❶ ❷ ❸ B ❹ – 30 ❺ ❻ ❼ ❽ – S1 ❾

❶ Size

16
25
32
40

❷ Motor mounting position

—	Top side parallel
R	Right side parallel
L	Left side parallel
D	In-line

❸ Motor type

Symbol	Type	Applicable size			Compatible controllers/drivers
		HF1A-LEY16	HF1A-LEY25	HF1A-LEY32/40	
—	Step motor (Servo/24 VDC)	●	●	●	JXC51 JXCEF JXC61 JXC9F JXCE1 JXCPF JXC91 JXCLF JXCP1 JXCD1 JXCL1 LECPA JXCM1
A	Servo motor (24 VDC)	●	●	—	LECA6

❹ Lead [mm]

Symbol	HF1A-LEY16	HF1A-LEY25	HF1A-LEY32/40
A	10	12	16
B	5	6	8
C	2.5	3	4

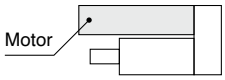
❺ Stroke [mm]

30	30
to	to
500	500

* For details, refer to the applicable stroke table below.

❻ Motor option*2

—	Without option
C	With motor cover
B	With lock
W	With lock/motor cover



❼ Rod end thread

—	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

❽ Mounting*3

Symbol	Type	Motor mounting position	
		Parallel	In-line
—	Ends tapped/Body bottom tapped*4	●	●
L	Foot bracket	●	—
F	Rod flange*4	●*6	●
G	Head flange*4	●*7	—
D	Double clevis*5	●	—

❾ Actuator cable type/length*9

Standard cable [m]

—	None
S1	1.5*10
S3	3*10
S5	5*10

Robotic cable [m]

R1	1.5	RA	10*8
R3	3	RB	15*8
R5	5	RC	20*8
R8	8*8		

Applicable Stroke Table*1

●: Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	350	400	450	500	Manufacturable stroke range
HF1A-LEY16	●	●	●	●	●	●	●	—	—	—	—	10 to 300
HF1A-LEY25	●	●	●	●	●	●	●	●	●	—	—	15 to 400
HF1A-LEY32/40	●	●	●	●	●	●	●	●	●	●	●	20 to 500

⚠Caution

The type with a controller/driver cannot be selected. Order it separately.
(Example of model number displayed on controller/driver)
When the model number reads "**HF1A-LEY25B-50C-R1**,"
the actuator model is as shown below:
"**LEY25B-50**" (Excludes the "**HF1A-**" prefix)

For details on auto switches, refer to the Web Catalogue.

∗1 Please contact SMC for non-standard strokes as they are produced as special orders.
∗2 When "With lock" or "With lock/motor cover" is selected for the top/right/left side parallel motor types, the motor body will stick out from the end of the body for size 1 6 / 4 0 with strokes of 3 0 mm or less. Check for interference with workpieces before selecting a model.
∗3 The mounting bracket is shipped together with the product but does not come assembled.
∗4 For the horizontal cantilever mounting of the rod flange, head flange, or ends tapped types, use the actuator within the following stroke range.
·HF1A-LEY25: 200 mm or less ·HF1A-LEY32/40: 100 mm or less
∗5 For the mounting of the double clevis type, use the actuator within the following stroke range.
·HF1A-LEY16: 100 mm or less ·HF1A-LEY25: 200 mm or less
·HF1A-LEY32/40: 200 mm or less
∗6 The rod flange type is not available for the HF1A-LEY16/40 with a 30 mm stroke and motor option "With lock," "With lock/motor cover."
∗7 The head flange type is not available for the HF1A-LEY32/40.
∗8 Produced upon receipt of order (Robotic cable only)
∗9 The standard cable should only be used on fixed parts.
For use on moving parts, select the robotic cable.
Refer to the **Web Catalogue** if only the actuator cable is required.
∗10 Only available for the motor type "Step motor"

Compatible Controllers/Drivers (Order it separately.)

Type	Step data input type	Step data input type	Pulse input type
			
Series	**JXC51 JXC61**	**LECA6**	**LECPA**
Features	Parallel I/O	Parallel I/O	Operation by pulse signals
Compatible motor	Step motor (Servo/24 VDC)	Servo motor (24 VDC)	Step motor (Servo/24 VDC)
Max. number of step data	64 points		—
Power supply voltage	24 VDC		
Reference page	**Web Catalogue**		

⚠Caution

[CE/UKCA-compliant products]

① EMC compliance was tested by combining the electric actuator HF1A-LEY series and the controller LE C/JXC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

② For the incremental (servo motor 2 4 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to the **Web Catalogue** for the noise filter set. Refer to the LECA series Operation Manual for installation.

Type	EtherCAT direct input type	EtherCAT direct input type with STO sub-function	EtherNet/IP™ direct input type	EtherNet/IP™ direct input type with STO sub-function	PROFINET direct input type	PROFINET direct input type with STO sub-function	DeviceNet® direct input type	IO-Link direct input type	IO-Link direct input type with STO sub-function	CC-Link direct input type
										
Series	**JXCE1**	**JXCEF**	**JXC91**	**JXC9F**	**JXCP1**	**JXCPF**	**JXCD1**	**JXCL1**	**JXCLF**	**JXCM1**
Features	EtherCAT direct input	EtherCAT direct input with STO sub-function	EtherNet/IP™ direct input	EtherNet/IP™ direct input with STO sub-function	PROFINET direct input	PROFINET direct input with STO sub-function	DeviceNet® direct input	IO-Link direct input	IO-Link direct input with STO sub-function	CC-Link direct input
Compatible motor	Step motor (Servo/24 VDC)									
Max. number of step data	64 points									
Power supply voltage	24 VDC									
Reference page	**Web Catalogue**									

Rod Type

* For details, refer to the **Web Catalogue**.

HF1A-LEY Series HF1A-LEY25, 32, 63

How to Order

HF1A-LEY **H** **25** **□** **S2** **B** – **100** **□** **□** **□** – **S** **2**

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❶ Accuracy

—	Basic type
H	High-precision type

❷ Size

25
32
63

❸ Motor mounting position

—	Top side parallel
R	Right side parallel
L	Left side parallel
D	In-line

❹ Motor type

Symbol	Type	Output [W]	❷ Size	⓬ Driver type	Compatible drivers*3
S2*1	AC servo motor (Incremental encoder)	100	25	A1/A2	LECSA□-S1
S3		200	32	A1/A2	LECSA□-S3
S4		400	63	A2	LECSA2-S4
T6*2	AC servo motor (Absolute encoder)	100	25	B2	LECSB2-T5
				C2	LECSC2-T5
				S2	LECSS2-T5
T7		200	32	B2	LECSB2-T7
				C2	LECSC2-T7
				S2	LECSS2-T7
T8		400	63	B2	LECSB2-T8
				C2	LECSC2-T8
				S2	LECSS2-T8

*1 For motor type S2, the compatible driver part number suffix is S1.
*2 For motor type T6, the compatible driver part number is LECS□2-T5.
*3 For details on the driver, refer to the **Web Catalogue**.

❺ Lead [mm]

Symbol	HF1A-LEY25	HF1A-LEY32*1	HF1A-LEY63
A	12	16 (20)	20
B	6	8 (10)	10
C	3	4 (5)	5
L	—	—	2.86*2

*1 The values shown in ( ) are the leads for the size 32 top/right/left side parallel motor types. (Equivalent leads which include the pulley ratio [1.25:1])
*2 Only available for top/right/left side parallel motor types (Equivalent leads which include the pulley ratio [4:7])

❻ Stroke [mm]

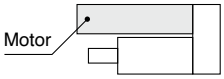
30	30
to	to
800	800

* For details, refer to the applicable stroke table below.

❼ Motor option

—	Without option
B	With lock*1

*1 When "With lock" is selected for the top/right/left side parallel motor types, the motor body will stick out from the end of the body for size 25 with strokes of 30 mm or less.
Check for interference with workpieces before selecting a model.



❽ Rod end thread

—	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

⚠Caution
The type with a driver cannot be selected.
Order it separately.

Applicable Stroke Table

●: Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	350	400	450	500	600	700	800	Manufacturable stroke range
HF1A-LEY25	●	●	●	●	●	●	●	●	●	—	—	—	—	—	15 to 400
HF1A-LEY32	●	●	●	●	●	●	●	●	●	●	●	—	—	—	20 to 500
HF1A-LEY63	—	●	●	●	●	●	●	●	●	●	●	●	●	●	50 to 800

* Please contact SMC for non-standard strokes as they are produced as special orders.

For details on auto switches, refer to the **Web Catalogue**.



Motor mounting position: Parallel



Motor mounting position: In-line

⑨ Mounting*1

Symbol	Type	Motor mounting position	
		Parallel	In-line
—	Ends tapped/ Body bottom tapped*2	●	●
L	Foot bracket	●	—
F	Rod flange*2	●*4	●
G	Head flange*2	●*5	—
D	Double clevis*2	●	—

*1 The mounting bracket is shipped together with the product but does not come assembled.
*2 For the horizontal cantilever mounting of the rod flange, head flange, or ends tapped types, use the actuator within the following stroke range.
· HF1A-LEY25: 200 mm or less
· HF1A-LEY32: 100 mm or less
· HF1A-LEY63: 400 mm or less
*3 For the mounting of the double clevis type, use the actuator within the following stroke range.
· HF1A-LEY25: 200 mm or less
· HF1A-LEY32: 200 mm or less
· HF1A-LEY63: 300 mm or less
*4 The rod flange type is not available for the HF1A-LEY25 with a 30 mm stroke and motor option "With lock."
*5 The head flange type is not available for the HF1A-LEY32/63.

⑩ Cable type*1 *2

—	Without cable
S	Standard cable
R	Robotic cable

*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)
*2 Standard cable entry direction is
• Parallel: (A) Axis side
• In-line: (B) Counter axis side
(Refer to the **Web Catalogue** for details.)

⑪ Cable length*1 [m]

—	Without cable
2	2
5	5
A	10

*1 The length of the motor, encoder, and lock cables are the same.

Compatible Drivers (Order it separately.)

Driver type	Pulse input type/ Positioning type	Pulse input type	CC-Link direct input type	SSCNETⅢ/H type
				
Series	**LECSA**	**LECSB-T**	**LECSC-T**	**LECSS-T**
Number of point tables	Up to 7	Up to 255	Up to 255 (2 stations occupied)	—
Pulse input	○	○	—	—
Applicable network	—	—	CC-Link	SSCNETⅢ/H
Control encoder	Incremental 17-bit encoder	Absolute 22-bit encoder	Absolute 18-bit encoder	Absolute 22-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication
Power supply voltage [V]	100 to 120 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz)	200 to 240 VAC (50/60 Hz)	200 to 230 VAC (50/60 Hz)	200 to 240 VAC (50/60 Hz)
Reference page	**Web Catalogue**			

Rod Type

HF1A-LEY Series HF1A-LEY25, 32, 63

CE UKCA RoHS

∗ For details, refer to the **Web Catalogue**.

How to Order

HF1A-LEY H | 25 | | V6 | B | – | 200 | | | | – | S | 3

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❶ Accuracy

—	Basic type
H	High-precision type

❷ Size

25
32
63

❸ Motor mounting position

—	Top side parallel
R	Right side parallel
L	Left side parallel
D	In-line

❹ Motor type

Symbol	Type	Output [W]	❷ Size	⓬ Driver type	Compatible drivers
V6∗1	AC servo motor (Absolute encoder)	100	25	M2	LECYM2-V5
				U2	LECYU2-V5
V7		200	32	M2	LECYM2-V7
				U2	LECYU2-V7
V8		400	63	M2	LECYM2-V8
				U2	LECYU2-V8

∗1 For motor type V6, the compatible driver part number suffix is V5.

❺ Lead [mm]

Symbol	HF1A-LEY25	HF1A-LEY32∗1	HF1A-LEY63
A	12	16 (20)	20
B	6	8 (10)	10
C	3	4 (5)	5
L	—	—	2.86∗2

∗1 The values shown in ( ) are the leads for the top/right/left side parallel motor types. (Equivalent leads which include the pulley ratio [1.25:1])

∗2 Only available for top/right/left side parallel motor types (Equivalent leads which include the pulley ratio [4:7])

❻ Stroke [mm]

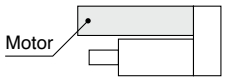
30	30
to	to
800	800

∗ For details, refer to the applicable stroke table below.

❼ Motor option

—	Without option
B	With lock

∗ When "With lock" is selected for the top/right/left side parallel motor types, the motor body will stick out from the end of the body for size 25 with strokes of 30 mm or less.
Check for interference with workpieces before selecting a model.



❽ Rod end thread

—	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

⚠ Caution
The type with a driver cannot be selected.
Order it separately.

Applicable Stroke Table

●: Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	350	400	450	500	600	700	800	Manufacturable stroke range
HF1A-LEY25	●	●	●	●	●	●	●	●	●	—	—	—	—	—	15 to 400
HF1A-LEY32	●	●	●	●	●	●	●	●	●	●	●	—	—	—	20 to 500
HF1A-LEY63	—	●	●	●	●	●	●	●	●	●	●	●	●	●	50 to 800

∗ Please contact SMC for non-standard strokes as they are produced as special orders.

For details on auto switches, refer to the **Web Catalogue**.

SMC



Motor mounting position: Parallel



Motor mounting position: In-line

⑨ Mounting*1

Symbol	Type	Motor mounting position	
		Parallel	In-line
—	Ends tapped/ Body bottom tapped*2	●	●
L	Foot bracket	●	—
F	Rod flange*2	●*4	●
G	Head flange*2	●*5	—
D	Double clevis*3	●	—

*1 The mounting bracket is shipped together with the product but does not come assembled.
*2 For the horizontal cantilever mounting of the ends tapped, rod flange, or head flange types, use the actuator within the following stroke range.
· HF1A-LEY25: 200 mm or less · HF1A-LEY32: 100 mm or less · HF1A-LEY63: 400 mm or less
*3 For the mounting of the double clevis type, use the actuator within the following stroke range.
· HF1A-LEY25: 200 mm or less · HF1A-LEY32: 200 mm or less · HF1A-LEY63: 300 mm or less
*4 The rod flange type is not available for the HF1A-LEY25 with a 30 mm stroke and motor option "With lock."
*5 The head flange type is not available for the HF1A-LEY32/LEY63.

⑩ Cable type*1

—	Without cable
S	Standard cable
R	Robotic cable

*1 A motor cable and encoder cable are included with the product.
The motor cable for lock option is included when the motor with lock option is selected.

⑪ Cable length [m]*1

—	Without cable
3	3
5	5
A	10
C	20

*1 The length of the motor and encoder cables are the same. (For with lock)

Compatible Drivers (Order it separately.)

Driver type	MECHATROLINK-Ⅱ type 	MECHATROLINK-Ⅲ type 
Series	**LECYM**	**LECYU**
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage [V]	200 to 230 VAC (50/60 Hz)	
Reference page	**Web Catalogue**	

High Performance Rod Type

* For details, refer to the Web Catalogue.

RoHS

HF1A-LEY□G Series HF1A-LEY16, 25, 40

How to Order



Motor mounting position: Parallel

Motor mounting position: In-line

HF1A-LEY 25 □ G B – 50 C □ □ – R1

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Size

16
25
40

❷ Motor mounting position/Motor cover direction

Symbol	Motor mounting position	Motor cover direction
—	Top side parallel	—
D	In-line	—*1
D1		Left side*2
D2		Right side*2
D3		Top side*2
D4		Bottom side*2

❸ Motor type

Symbol	Type	Compatible controllers	
G	High performance Battery-less absolute (Step motor 24 VDC)	JXC5H JXC6H	JXCEH JXC9H JXCPH

❹ Lead [mm]

Symbol	HF1A-LEY16	HF1A-LEY25	HF1A-LEY40
A	10	12	16
B	5	6	8
C	2.5	3	4

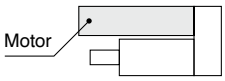
❺ Stroke*3 [mm]

30	30
to	to
500	500

* For details, refer to the applicable stroke table below.

❻ Motor option*4

C	With motor cover
W	With lock/motor cover



❼ Rod end thread

—	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

❽ Mounting*5

Symbol	Type	Motor mounting position	
		Parallel	In-line
—	Ends tapped/ Body bottom tapped*6	●	●
L	Foot bracket	●	—
F	Rod flange*6	●*8	●
G	Head flange*6	●*9	—
D	Double clevis*7	●	—

❾ Actuator cable type/length

Robotic cable [m]

—	None	R8	8*10
R1	1.5	RA	10*10
R3	3	RB	15*10
R5	5	RC	20*10

Applicable Stroke Table

Size	Stroke [mm]											
	30	50	100	150	200	250	300	350	400	450	500	Manufacturable stroke range
16	●	●	●	●	●	●	●	—	—	—	—	10 to 300
25	●	●	●	●	●	●	●	●	●	—	—	15 to 400
40	●	●	●	●	●	●	●	●	●	●	●	20 to 500

⚠Caution

The type with a controller/driver cannot be selected. Order it separately.

(Example of model number displayed on controller/driver)

When the model number reads "**HF1A-LEY25GB-50C-R1**," the actuator model is as shown below:

"**LEY25GB-50**" (Excludes the "**HF1A-**" prefix)

For details on auto switches, refer to the Web Catalogue.

∗1 Sizes 25 and 40 only
∗2 Size 16 only
∗3 Please contact SMC for non-standard strokes as they are produced as special orders.
∗4 When "With lock/motor cover" is selected for the top side parallel motor type, the motor body will stick out from the end of the body for size 16 with strokes of 50 mm or less and size 40 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.
∗5 The mounting bracket is shipped together with the product but does not come assembled.
∗6 For the horizontal cantilever mounting of the rod flange, head flange, or ends tapped types, use the actuator within the following stroke range.
· HF1A-LEY25: 200 or less · HF1A-LEY40: 100 or less
∗7 For the mounting of the double clevis type, use the actuator within the following stroke range.
· HF1A-LEY16: 100 or less · HF1A-LEY25: 200 or less
· HF1A-LEY40: 200 or less
∗8 The rod flange type is not available for the HF1A-LEY16 with strokes of 50 mm or less and HF1A-LEY40 with strokes of 30 mm or less, and motor option "With lock/motor cover."
∗9 The head flange type is not available for the HF1A-LEY40.
∗10 Produced upon receipt of order

⚠Caution

[CE/UKCA-compliant products]
EMC compliance was tested by combining the electric actuator HF 1 A-LEY series and the controller JXC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

■Trademark

EtherNet/IP® is a registered trademark of ODVA, Inc.
EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Compatible Controllers (Order it separately.)

Type	Step data input type	EtherCAT direct input type	EtherNet/IP™ direct input type	PROFINET direct input type
				
Series	**JXC5H JXC6H**	**JXCEH**	**JXC9H**	**JXCPH**
Features	Parallel I/O	EtherCAT direct input	EtherNet/IP™ direct input	PROFINET direct input
Compatible motor	Battery-less absolute (Step motor 24 VDC)			
Max. number of step data	64 points			
Power supply voltage	24 VDC			
Reference page	**Web Catalogue**			

Incremental (Step Motor 24 VDC)

High Performance Rod Type

* For details, refer to the **Web Catalogue**.

RoHS

HF1A-LEY□F Series HF1A-LEY16, 25, 40

How to Order



Motor mounting position: Parallel | **Motor mounting position: In-line**

HF1A-LEY 25 □ F B – 50 C □ □ – S1

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Size

16
25
40

❷ Motor mounting position/Motor cover direction

Symbol	Motor mounting position	Motor cover direction
—	Top side parallel	—
R	Right side parallel	—
L	Left side parallel	—
D	In-line	—*1
D1		Left side*2
D2		Right side*2
D3		Top side*2
D4		Bottom side*2

❸ Motor type

Symbol	Type	Compatible controllers
F	High performance (Step motor 24 VDC)	JXC5H JXCEH JXC6H JXC9H JXCPH

❹ Lead [mm]

Symbol	HF1A-LEY16	HF1A-LEY25	HF1A-LEY40
A	10	12	16
B	5	6	8
C	2.5	3	4

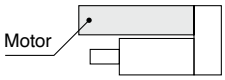
❺ Stroke*3 [mm]

30	30
to	to
500	500

* For details, refer to the applicable stroke table below.

❻ Motor option*4

C	With motor cover
W	With lock/motor cover



❼ Rod end thread

—	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

❽ Mounting*5

Symbol	Type	Motor mounting position	
		Parallel	In-line
—	Ends tapped/ Body bottom tapped*6	●	●
L	Foot bracket	●	—
F	Rod flange*6	●*8	●
G	Head flange*6	●*9	—
D	Double clevis*7	●	—

❾ Actuator cable type/length

Standard cable [m]

—	None
S1	1.5
S3	3
S5	5

Robotic cable [m]

R1	1.5	**RA**	10*10
R3	3	**RB**	15*10
R5	5	**RC**	20*10
R8	8*10		

Applicable Stroke Table

Size	Stroke [mm]											
	30	50	100	150	200	250	300	350	400	450	500	Manufacturable stroke range
16	●	●	●	●	●	●	●	—	—	—	—	10 to 300
25	●	●	●	●	●	●	●	●	●	—	—	15 to 400
40	●	●	●	●	●	●	●	●	●	●	●	20 to 500

⚠Caution

The type with a controller/driver cannot be selected. Order it separately.

(Example of model number displayed on controller/driver)

When the model number reads "**HF1A-LEY25FB-50C-R1**," the actuator model is as shown below:

"**LEY25FB-50**" (Excludes the "**HF1A-**" prefix)

For details on auto switches, refer to the **Web Catalogue**.

∗1 Sizes 25 and 40 only
∗2 Size 16 only
∗3 Please contact SMC for non-standard strokes as they are produced as special orders.
∗4 When "With lock/motor cover" is selected for the top/right/left side parallel motor types, the motor body will stick out from the end of the body for size 16 with strokes of 50 mm or less and size 40 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.
∗5 The mounting bracket is shipped together with the product but does not come assembled.
∗6 For the horizontal cantilever mounting of the rod flange, head flange, or ends tapped types, use the actuator within the following stroke range.
· HF1A-LEY25: 200 or less · HF1A-LEY40: 100 or less
∗7 For the mounting of the double clevis type, use the actuator within the following stroke range.
· HF1A-LEY16: 100 or less · HF1A-LEY25: 200 or less
· HF1A-LEY40: 200 or less
∗8 The rod flange type is not available for the HF1A-LEY16 with strokes of 50 mm or less and HF1A-LEY40 with strokes of 30 mm or less, and motor option "With lock/motor cover."
∗9 The head flange type is not available for the HF1A-LEY40.
∗10 Produced upon receipt of order

⚠Caution

[CE/UKCA-compliant products]
EMC compliance was tested by combining the electric actuator HF 1 A-LEY series and the controller JXC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

■Trademark
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EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

Compatible Controllers (Order it separately.)

Type	Step data input type	EtherCAT direct input type	EtherNet/IP™ direct input type	PROFINET direct input type
				
Series	**JXC5H JXC6H**	**JXCEH**	**JXC9H**	**JXCPH**
Features	Parallel I/O	EtherCAT direct input	EtherNet/IP™ direct input	PROFINET direct input
Compatible motor	Step motor 24 VDC	Step motor (Servo/24 VDC)		
Max. number of step data	64 points	64 points		
Power supply voltage	24 VDC	24 VDC		
Reference page	**Web Catalogue**			

Motorless Type

Electric Actuator/Rod Type



HF1A-LEY Series HF1A-LEY25, 32, 63

RoHS

How to Order

HF1A-LEY **H** **25** **□** **NZ** **B** **–** **100** **□** **□** **□**

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Accuracy

—	Basic type
H	High-precision type

❷ Size

25
32
63

❸ Motor mounting position

—	Top side parallel
R	Right side parallel
L	Left side parallel
D	In-line

❹ Mounting type

NZ	NU
NY	NT
NX	NM1
NW	NM2
NV	NM3

❺ Lead [mm]

Symbol	HF1A-LEY25	HF1A-LEY32	HF1A-LEY63
A	12	16 (20)	20
B	6	8 (10)	10
C	3	4 (5)	5
L	—	—	2.86*1

*1 Only available for top/right/left side parallel motor types (Equivalent leads which include the pulley ratio [4:7])

* The values shown in ( ) are the leads for the top/right/left side parallel motor types. Except mounting type NM1 (Equivalent leads which include the pulley ratio [1.25:1])

❻ Stroke [mm]

30	30
to	to
800	800

* Refer to the applicable stroke table.

❽ Rod end thread

—	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

❼ Dust-tight/Water-jet-proof <Only available for HF1A-LEY63>

Symbol	HF1A-LEY63
—	IP5x equivalent (Dust protected)
P	IP65 equivalent (Dust-tight/Water-jet-proof)/With vent hole tap

* When using the dust-tight/water-jet-proof (IP65 equivalent), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water.
* The fitting and tubing should be provided separately by the customer. Select [Applicable tubing O.D.: Ø 4 or more, Connection thread: Rc1/8].
* Cannot be used in environments exposed to cutting oil, etc. Take appropriate protective measures.
* For details on enclosure, refer to the "Enclosure" on the **Web Catalogue**.

❾ Mounting*1

Symbol	Type	Motor mounting position: Parallel	Motor mounting position: In-line
—	Ends tapped/Body bottom tapped*2	●	●
L	Foot	●	—
F	Rod flange*2	●*4	●
G	Head flange*2	●*5	—
D	Double clevis*3	●	—

*1 The mounting bracket is shipped together with the product but does not come assembled.

*2 For the horizontal cantilever mounting with the ends tapped, rod flange, or head flange types, use the actuator within the following stroke range.
· HF1A-LEY25: 200 mm or less, HF1A-LEY32: 100 mm or less, HF1A-LEY63: 400 mm or less

*3 For the mounting with the double clevis type, use the actuator within the following stroke range.
· HF1A-LEY25: 200 mm or less, HF1A-LEY32: 200 mm or less

*4 If the stroke of the HF1A-LEY25 is 30 mm or less, the rod flange may interfere with the motor.

*5 The head flange type is not available for the in-line type and the HF1A-LEY32/63.

Applicable Stroke Table

●: Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	350	400	450	500	600	700	800	Manufacturable stroke range
HF1A-LEY25	●	●	●	●	●	●	●	●	●	—	—	—	—	—	15 to 400
HF1A-LEY32	●	●	●	●	●	●	●	●	●	●	●	—	—	—	20 to 500
HF1A-LEY63	—	●	●	●	●	●	●	●	●	●	●	●	●	●	50 to 800

* Please contact SMC for non-standard strokes as they are produced as special orders.

Compatible Motors and Mounting Types*4

Applicable motor model: Manufacturer	Applicable motor model: Series	Size/Mounting type: 25 NZ	25 NY	25 NX	25 NM1	25 NM2	25 NM3	32 NZ	32 NY	32 NX	32 NW	32 NV	32 NU	32 NT	32 NM1	32 NM2	63 NZ	63 NY	63 NX	63 NW	63 NV	63 NU	63 NT
Mitsubishi Electric Corporation	MELSERVO JN/J4/J5	●	—	—	—	—	—	●	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—
YASKAWA Electric Corporation	Σ-V/7/X	●*3	—	—	—	—	—	●	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—
SANYO DENKI CO., LTD.	SANMOTION R	●	—	—	—	—	—	●	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—
OMRON Corporation	OMNUC G5/1S	●	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—	●	—	—	—	—	—
Panasonic Corporation	MINAS A5/A6	● (MHMF only)	●	—	—	—	—	—	●	—	—	—	—	—	—	—	—	●	—	—	—	—	—
FANUC CORPORATION	βis (-B)	●	—	—	—	—	—	● (β1 only)	—	—	●	—	—	—	—	—	● (β1 only)	—	—	●	—	—	—
NIDEC SANKYO CORPORATION	S-FLAG	●	—	—	—	—	—	●	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—
KEYENCE CORPORATION	SV/SV2	●*3	—	—	—	—	—	●	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—
FUJI ELECTRIC CO., LTD.	ALPHA7	●	—	—	—	—	—	●	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—
MinebeaMitsumi Inc.	Hybrid stepping motors	—	—	—	●*1	—	●*2	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—
Shinano Kenshi Co., Ltd.	CSB-BZ	—	—	—	●*1	—	●*2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ORIENTAL MOTOR Co., Ltd.	α STEP AR/AZ	—	—	—	—	● AR/AZ (46 only)	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—
FASTECH Co., Ltd.	Ezi-SERVO	—	—	—	●	—	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—	—	—
Rockwell Automation, Inc. (Allen-Bradley)	Kinetix MP/VP/TL	● (TL only)	—	—	—	—	—	—	—	●*1 (MP/VP only)	—	—	—	● (TL only)	—	—	—	—	●*1 (MPVP only)	—	—	—	● (TL only)
Beckhoff Automation GmbH	AM 30/31/80/81	●	—	—	—	—	—	—	—	●*1 (AM80/AM81 only)	—	●*1 (AM30 only)	● (AM31 only)	—	—	—	—	—	●*1 (AM80/AM81 only)	—	●*1 (AM30 only)	●*1 (AM31 only)	—
Siemens AG	SIMOTICS S-1FK7	—	—	●	—	—	—	—	—	●*1	—	—	—	—	—	—	—	—	●*1	—	—	—	—
Delta Electronics, Inc.	ASDA-A2	●	—	—	—	—	—	●	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—
ANCA Motion	AMD2000	●	—	—	—	—	—	●	—	—	—	—	—	—	—	—	●	—	—	—	—	—	—

*1 Motor mounting position: In-line only *2 Motor mounting position: Parallel only

*3 For some motors, the connector may protrude from the motor body. Be sure to check for interference with the mounting surface before selecting a motor.

For details on auto switches, refer to the **Web Catalogue**.

Battery-less Absolute (Step Motor 24 VDC)

Guide Rod Type

CE UK CA
* For details, refer to the **Web Catalogue**.
RoHS

HF1A-LEYG Series HF1A-LEYG16, 25, 32, 40

How to Order



HF1A-LEYG ❶**25** ❷**M** ❸**□** ❹**E** ❺**B** – ❻**50** ❼**C** ❽**□** – ❾**R1**

❶ Size

16
25
32
40

❷ Bearing type*1

M	Sliding bearing
L	Ball bushing bearing

❸ Motor mounting position/Motor cover direction

Symbol	Motor mounting position	Motor cover direction
—	Top side parallel	—
D	In-line	—*2
D1		Left*3
D2		Right*3
D3		Top*3
D4		Bottom*3

❹ Motor type

E	Battery-less absolute (Step motor 24 VDC)

❺ Lead [mm]

Symbol	HF1A-LEYG16	HF1A-LEYG25	HF1A-LEYG32/40
A	10	12	16
B	5	6	8
C	2.5	3	4

❻ Stroke*4 *5 [mm]

Stroke	Note	
	Size	Applicable stroke
30 to 200	16	30, 50, 100, 150, 200
30 to 300	25/32/40	30, 50, 100, 150, 200, 250, 300

❼ Motor option*6

C	With motor cover
W	With lock/motor cover

❽ Guide option*7

—	Without option
F	With grease retaining function

❾ Actuator cable type/length

Robotic cable [m]

—	None	**R8**	8*8
R1	1.5	**RA**	10*8
R3	3	**RB**	15*8
R5	5	**RC**	20*8

For details on auto switches, refer to the **Web Catalogue**.

Use of auto switches for the guide rod type HF1A-LEYG series
- Auto switches must be inserted from the front side with the rod (plate) sticking out.
- Auto switches cannot be fixed with the parts hidden behind the guide attachment (the side of the rod that sticks out).
- Please consult with SMC when using auto switches on the side of the rod that sticks out, as it is produced as a special order.

⚠Caution

The type with a controller/driver cannot be selected. Order it separately.
(Example of model number displayed on controller/driver)
When the model number reads "**HF1A-LEYG25EB-50C-R1**," the actuator model is as shown below:
"**LEYG25EB-50**" (Excludes the "**HF1A-**" prefix)

∗1 When [M: Sliding bearing] is selected, the maximum speed of lead [A] is 400 mm/s (at no-load, horizontal mounting). The speed is also restricted with a horizontal/moment load. Refer to the "Model Selection" on the **Web Catalogue**.
∗2 Sizes 25, 32, and 40 only
∗3 Size 16 only
∗4 Please contact SMC for non-standard strokes as they are produced as special orders.
∗5 There is a limit for mounting size 16/32/40 top side parallel motor types and strokes of 50 mm or less. Refer to the dimensions.
∗6 When "With lock/motor cover" is selected for the top side parallel motor type, the motor body will stick out from the end of the body for size 16 with strokes of 50 mm or less and size 40 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.
∗7 Only available for size 25, 32, and 40 sliding bearings (Refer to the "Construction" on the **Web Catalogue**.)
∗8 Produced upon receipt of order

⚠ Caution

[CE/UKCA-compliant products]
EMC compliance was tested by combining the electric actuator HF1A-LEY series and the controller JXC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

[Precautions relating to differences in controller versions]
When the JXC series is to be used in combination with the battery-less absolute encoder, use a controller that is version V3.4 or S3.4 or higher. For details, refer to the **Web Catalogue**.

Compatible Controllers (Order it separately.)

Type	Step data input type	EtherCAT direct input type	EtherCAT direct input type with STO sub-function	EtherNet/IP™ direct input type	EtherNet/IP™ direct input type with STO sub-function	PROFINET direct input type	PROFINET direct input type with STO sub-function	DeviceNet® direct input type	IO-Link direct input type	IO-Link direct input type with STO sub-function	CC-Link direct input type
											
Series	**JXC51 JXC61**	**JXCE1**	**JXCEF**	**JXC91**	**JXC9F**	**JXCP1**	**JXCPF**	**JXCD1**	**JXCL1**	**JXCLF**	**JXCM1**
Features	Parallel I/O	EtherCAT direct input	EtherCAT direct input with STO sub-function	EtherNet/IP™ direct input	EtherNet/IP™ direct input with STO sub-function	PROFINET direct input	PROFINET direct input with STO sub-function	DeviceNet® direct input	IO-Link direct input	IO-Link direct input with STO sub-function	CC-Link direct input
Compatible motor	Battery-less absolute (Step motor 24 VDC)										
Max. number of step data	64 points										
Power supply voltage	24 VDC										
Reference page	**Web Catalogue**										

CE UK CA
* For details, refer to the Web Catalogue.
RoHS

Guide Rod Type

HF1A-LEYG Series HF1A-LEYG16, 25, 32, 40

How to Order



Motor mounting position: Parallel



Motor mounting position: In-line

HF1A-LEYG **16** **M** **□** **□** **B** – **50** **□** **□** – **S1**

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Size

16
25
32
40

❷ Bearing type*1

M	Sliding bearing
L	Ball bushing bearing

❸ Motor mounting position

—	Top side parallel
D	In-line

❹ Motor type

Symbol	Type	Applicable size			Compatible controllers/ drivers
		HF1A-LEYG16	HF1A-LEYG25	HF1A-LEYG32/40	
—	Step motor (Servo/24 VDC)	●	●	●	JXC51 JXCD1 JXCPF JXC61 JXCL1 JXCLF JXCE1 JXCM1 JXC91 JXCEF JXCP1 JXC9F LECPA
A	Servo motor (24 VDC)	●	●	–	LECA6

❺ Lead [mm]

Symbol	HF1A-LEYG16	HF1A-LEYG25	HF1A-LEYG32/40
A	10	12	16
B	5	6	8
C	2.5	3	4

❻ Stroke*2 *3 [mm]

30	30
to	to
300	300

* For details, refer to the applicable stroke table below.

❼ Motor option*4

—	Without option
C	With motor cover
B	With lock
W	With lock/motor cover

❽ Guide option*5

—	Without option
F	With grease retaining function

❾ Actuator cable type/length*7

Standard cable [m]

—	None
S1	1.5*8
S3	3*8
S5	5*8

Robotic cable [m]

R1	1.5	**RA**	10*6
R3	3	**RB**	15*6
R5	5	**RC**	20*6
R8	8*6		

Applicable Stroke Table*2

●: Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	Manufacturable stroke range [mm]
HF1A-LEYG16	●	●	●	●	●	–	–	10 to 200
HF1A-LEYG25	●	●	●	●	●	●	●	15 to 300
HF1A-LEYG32/40	●	●	●	●	●	●	●	20 to 300

⚠Caution

The type with a controller/driver cannot be selected. Order it separately.

(Example of model number displayed on controller/driver)

When the model number reads "**HF1A-LEYG25MB-50C-R1**," the actuator model is as shown below:

"**LEYG25MB-50C**" (Excludes the "**HF1A-**" prefix)

For details on auto switches, refer to the **Web Catalogue**.

Use of auto switches for the guide rod type HF1A-LEYG series

· Auto switches must be inserted from the front side with the rod (plate) sticking out.
· Auto switches cannot be fixed with the parts hidden behind the guide attachment (the side of the rod that sticks out).
· Please contact SMC when using auto switches on the side of the rod that sticks out, as it is produced as a special order.

∗1 When [M: Sliding bearing] is selected, the max. speed of lead [A] is 400 mm/s (at no-load, horizontal mounting). The speed is also restricted with a horizontal/moment load. Refer to the "Model Selection" on the **Web Catalogue**.
∗2 Please contact SMC for non-standard strokes as they are produced as special orders.
∗3 There is a limit for mounting the size 32/40 top side parallel motor types and strokes of 50 mm or less. Refer to the dimensions.
∗4 When "With lock" or "With lock/motor cover" is selected for the top side parallel motor type, the motor body will stick out from the end of the body for size 16/40 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.
∗5 Only available for size 25, 32, and 40 sliding bearings (Refer to the "Construction" on the **Web Catalogue**.)
∗6 Produced upon receipt of order (Robotic cable only)
∗7 The standard cable should only be used on fixed parts. For use on moving parts, select the robotic cable. Refer to the **Web Catalogue** if only the actuator cable is required.
∗8 Only available for the motor type "Step motor"

Compatible Controllers/Drivers (Order it separately.)

Type	Step data input type	Step data input type	Pulse input type
			
Series	**JXC51 JXC61**	**LECA6**	**LECPA**
Features	Parallel I/O	Parallel I/O	Operation by pulse signals
Compatible motor	Step motor (Servo/24 VDC)	Servo motor (24 VDC)	Step motor (Servo/24 VDC)
Max. number of step data	64 points		—
Power supply voltage	24 VDC		
Reference page	**Web Catalogue**		

⚠Caution

[CE/UKCA-compliant products]

① EMC compliance was tested by combining the electric actuator HF1A-LEY series and the controller LEC/JXC series. The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

② For the incremental (servo motor 2 4 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to the **Web Catalogue** for the noise filter set. Refer to the LECA series Operation Manual for installation.

Type	EtherCAT direct input type	EtherCAT direct input type with STO sub-function	EtherNet/IP™ direct input type	EtherNet/IP™ direct input type with STO sub-function	PROFINET direct input type	PROFINET direct input type with STO sub-function	DeviceNet® direct input type	IO-Link direct input type	IO-Link direct input type with STO sub-function	CC-Link direct input type
										
Series	**JXCE1**	**JXCEF**	**JXC91**	**JXC9F**	**JXCP1**	**JXCPF**	**JXCD1**	**JXCL1**	**JXCLF**	**JXCM1**
Features	EtherCAT direct input	EtherCAT direct input with STO sub-function	EtherNet/IP™ direct input	EtherNet/IP™ direct input with STO sub-function	PROFINET direct input	PROFINET direct input with STO sub-function	DeviceNet® direct input	IO-Link direct input	IO-Link direct input with STO sub-function	CC-Link direct input
Compatible motor	Step motor (Servo/24 VDC)									
Max. number of step data	64 points									
Power supply voltage	24 VDC									
Reference page	**Web Catalogue**									

Guide Rod Type

CE UK CA
* For details, refer to the Web Catalogue.
RoHS

HF1A-LEYG Series HF1A-LEYG25, 32

How to Order

HF1A-LEY H G 25 M □ S2 B – 100 □ □ – S 2

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❶ Accuracy

—	Basic type
H	High-precision type

❷ Size

25
32

❸ Bearing type

M	Sliding bearing
L	Ball bushing bearing

❹ Motor mounting position

—	Top side parallel
D	In-line

❺ Motor type*1

Symbol	Type	Output [W]	❷ Size	⓬ Driver type	Compatible drivers*3
S2*1	AC servo motor (Incremental encoder)	100	25	A1/A2	LECSA□-S1
S3		200	32	A1/A2	LECSA□-S3
T6*2	AC servo motor (Absolute encoder)	100	25	B2	LECSB2-T5
				C2	LECSC2-T5
				S2	LECSS2-T5
T7		200	32	B2	LECSB2-T7
				C2	LECSC2-T7
				S2	LECSS2-T7

*1 For motor type S2, the compatible driver part number suffix is S1.
*2 For motor type T6, the compatible driver part number is LECS□2-T5.
*3 For details on the driver, refer to the **Web Catalogue**.

❻ Lead [mm]

Symbol	HF1A-LEYG25	HF1A-LEYG32*1
A	12	16 (20)
B	6	8 (10)
C	3	4 (5)

*1 The values shown in ( ) are the leads for the size 32 top side parallel motor type. (Equivalent leads which include the pulley ratio [1.25:1])

❼ Stroke [mm]

30	30
to	to
300	300

* For details, refer to the applicable stroke table below.
* There is a limit for mounting the size 3 2 top side parallel motor type and strokes of 50 mm or less. Refer to the dimensions.

❽ Motor option

—	Without option
B	With lock

❾ Guide option

—	Without option
F	With grease retaining function

* Only available for size 25 and 32 sliding bearings (Refer to the "Construction" on the **Web Catalogue**.)

❿ Cable type*1 *2

—	Without cable
S	Standard cable
R	Robotic cable

*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)
*2 Standard cable entry direction is
• Top side parallel: (A) Axis side
• In-line: (B) Counter axis side
(Refer to the **Web Catalogue** for details.)

⓫ Cable length*1 [m]

—	Without cable
2	2
5	5
A	10

*1 The length of the motor, encoder, and lock cables are the same.

Applicable Stroke Table

●: Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	Manufacturable stroke range
HF1A-LEYG25	●	●	●	●	●	●	●	15 to 300
HF1A-LEYG32	●	●	●	●	●	●	●	20 to 300

* Please contact SMC for non-standard strokes as they are produced as special orders.

⚠Caution
The type with a driver cannot be selected.
Order it separately.

For details on auto switches, refer to the **Web Catalogue**.



Motor mounting position: Parallel



Motor mounting position: In-line

Use of auto switches for the guide rod type HF1A-LEYG series
- Auto switches must be inserted from the front side with the rod (plate) sticking out.
- Auto switches cannot be fixed with the parts hidden behind the guide attachment (the side of the rod that sticks out).
- Please contact SMC when using auto switches on the side of the rod that sticks out, as it is produced as a special order.

Compatible Drivers (Order it separately.)

Driver type	Pulse input type/ Positioning type 	Pulse input type 	CC-Link direct input type 	SSCNETⅢ/H type 
Series	**LECSA**	**LECSB-T**	**LECSC-T**	**LECSS-T**
Number of point tables	Up to 7	Up to 255	Up to 255 (2 stations occupied)	—
Pulse input	○	○	—	—
Applicable network	—	—	CC-Link	SSCNETⅢ/H
Control encoder	Incremental 17-bit encoder	Absolute 22-bit encoder	Absolute 18-bit encoder	Absolute 22-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication
Power supply voltage [V]	100 to 120 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz)	200 to 240 VAC (50/60 Hz)	200 to 230 VAC (50/60 Hz)	200 to 240 VAC (50/60 Hz)
Reference page	**Web Catalogue**			

AC Servo Motor ***LECY□ Series***

Guide Rod Type

CE UK CA
* For details, refer to the Web Catalogue.
RoHS

HF1A-LEYG Series HF1A-LEYG25, 32

How to Order

HF1A-LEY H G 25 M □ V6 B – 200 □ □ – S 3
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❶ Accuracy

—	Basic type
H	High-precision type

❷ Size

25	
32	

❸ Bearing type

M	Sliding bearing
L	Ball bushing bearing

❹ Motor mounting position

—	Top side parallel
D	In-line

❺ Motor type

Symbol	Type	Output [W]	❷ Size	⓬ Driver type	Compatible drivers
V6*1	AC servo motor (Absolute encoder)	100	25	M2	LECYM2-V5
				U2	LECYU2-V5
V7		200	32	M2	LECYM2-V7
				U2	LECYU2-V7

*1 For motor type V6, the compatible driver part number suffix is V5.

❻ Lead [mm]

Symbol	HF1A-LEYG25	HF1A-LEYG32*1
A	12	16 (20)
B	6	8 (10)
C	3	4 (5)

*1 The values shown in ( ) are the leads for the top side parallel motor type. (Equivalent leads which include the pulley ratio [1.25:1])

❼ Stroke [mm]

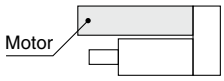
30	30
to	to
300	300

* For details, refer to the applicable stroke table below.
* There is a limit for mounting the size 3 2 top side parallel motor type and strokes of 50 mm or less. Refer to the dimensions.

❽ Motor option

—	Without option
B	With lock

* When "With lock" is selected for the top side parallel motor type, the motor body will stick out from the end of the body for size 25 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.



❾ Guide option

—	Without option
F	With grease retaining function

* Only available for the sliding bearing

❿ Cable type*1

—	Without cable
S	Standard cable
R	Robotic cable

*1 A motor cable and encoder cable are included with the product.
The motor cable for lock option is included when the motor with lock option is selected.

⓫ Cable length [m]*1

—	Without cable
3	3
5	5
A	10
C	20

*1 The length of the motor and encoder cables are the same. (For with lock)

Applicable Stroke Table

●: Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	Manufacturable stroke range
HF1A-LEYG25	●	●	●	●	●	●	●	15 to 300
HF1A-LEYG32	●	●	●	●	●	●	●	20 to 300

* Please contact SMC for non-standard strokes as they are produced as special orders.

⚠Caution
The type with a driver cannot be selected.
Order it separately.

For details on auto switches, refer to the **Web Catalogue**.



Motor mounting position: Parallel



Motor mounting position: In-line

Use of auto switches for the guide rod type HF1A-LEYG series
· Auto switches must be inserted from the front side with the rod (plate) sticking out.
· Auto switches cannot be fixed with the parts hidden behind the guide attachment (the side of the rod that sticks out).
· Please contact SMC when using auto switches on the side of the rod that sticks out, as it is produced as a special order.

Compatible Drivers (Order it separately.)

Driver type	MECHATROLINK-Ⅱ type 	MECHATROLINK-Ⅲ type 
Series	**LECYM**	**LECYU**
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage [V]	200 to 230 VAC (50/60 Hz)	
Reference page	**Web Catalogue**	

Motorless Type

Electric Actuator/Guide Rod Type

HF1A-LEYG Series HF1A-LEYG25, 32

RoHS



How to Order

HF1A-LEY H G 25 M □ NZ B – 200 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Accuracy

—	Basic type
H	High-precision type

❷ Size

25
32

❸ Bearing type

M	Sliding bearing
L	Ball bushing bearing

❹ Motor mounting position

—	Top side parallel
D	In-line

❺ Mounting type

NZ
NY
NX
NW
NV
NU
NT
NM1
NM2
NM3

∗ Refer to the "Compatible Motors."

❻ Lead [mm]

Symbol	HF1A-LEYG25	HF1A-LEYG32∗1
A	12	16 (20)
B	6	8 (10)
C	3	4 (5)

∗1 The values shown in ( ) are the leads for the size 32 top side parallel motor type. Except mounting type NM 1 (Equivalent leads which include the pulley ratio [1.25:1])

❼ Stroke [mm]

30	30
to	to
300	300

∗ Refer to the applicable stroke table.

❽ Guide option

—	Without option
F	With grease retaining function

∗ Only available for sliding bearing

Applicable Stroke Table

●: Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	Manufacturable stroke range
HF1A-LEYG25	●	●	●	●	●	●	●	15 to 300
HF1A-LEYG32	●	●	●	●	●	●	●	20 to 300

∗ Please contact SMC for non-standard strokes as they are produced as special orders.

Use of auto switches for the guide rod type LEYG series

· Auto switches must be inserted from the front side with the rod (plate) sticking out.
· Auto switches cannot be fixed with the parts hidden behind the guide attachment (the side of the rod that sticks out).
· Please contact SMC when using auto switches on the side of the rod that sticks out, as it is produced as a special order.

For details on auto switches, refer to the **Web Catalogue**.

Compatible Motors and Mounting Types∗4

Applicable motor model		Size/Mounting type														
Manufacturer	Series	25						32								
		NZ	NY	NX	NM1	NM2	NM3	NZ	NY	NX	NW	NV	NU	NT	NM1	NM2
Mitsubishi Electric Corporation	MELSERVO JN/J4/J5	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
YASKAWA Electric Corporation	Σ-V/7/X	●∗3	–	–	–	–	–	●	–	–	–	–	–	–	–	–
SANYO DENKI CO., LTD.	SANMOTION R	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
OMRON Corporation	OMNUC G5/1S	●	–	–	–	–	–	–	●	–	–	–	–	–	–	–
Panasonic Corporation	MINAS A5/A6	● (MHMF only)	●	–	–	–	–	–	●	–	–	–	–	–	–	–
FANUC CORPORATION	βis (-B)	●	–	–	–	–	–	● (β1 only)	–	–	●	–	–	–	–	–
NIDEC SANKYO CORPORATION	S-FLAG	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
KEYENCE CORPORATION	SV/SV2	●∗3	–	–	–	–	–	●	–	–	–	–	–	–	–	–
FUJI ELECTRIC CO., LTD.	ALPHA7	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
MinebeaMitsumi Inc.	Hybrid stepping motors	–	–	–	●∗1	–	●∗2	–	–	–	–	–	–	–	●	–
Shinano Kenshi Co., Ltd.	CSB-BZ	–	–	–	●∗1	–	●∗2	–	–	–	–	–	–	–	–	–
ORIENTAL MOTOR Co., Ltd.	α STEP AR/AZ	–	–	–	–	● AR/AZ (46 only)	–	–	–	–	–	–	–	–	–	●
FASTECH Co., Ltd.	Ezi-SERVO	–	–	–	●	–	–	–	–	–	–	–	–	–	●	–
Rockwell Automation, Inc. (Allen-Bradley)	Kinetix MP/VP/TL	● (TL only)	–	–	–	–	–	–	–	●∗1 (MP/VP only)	–	–	–	● (TL only)	–	–
Beckhoff Automation GmbH	AM 30/31/80/81	●	–	–	–	–	–	–	–	●∗1 (AM80/AM81 only)	–	●∗1 (AM30 only)	● (AM31 only)	–	–	–
Siemens AG	SIMOTICS S-1FK7	–	–	●	–	–	–	–	–	●∗1	–	–	–	–	–	–
Delta Electronics, Inc.	ASDA-A2	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–
ANCA Motion	AMD2000	●	–	–	–	–	–	●	–	–	–	–	–	–	–	–

∗1 Motor mounting position: In-line only ∗2 Motor mounting position: Parallel only
∗3 For some motors, the connector may protrude from the motor body. Be sure to check for interference with the mounting surface before selecting a motor.

AC Servo Motor

Electric Actuator/Rod Type

HF2A-LEY Series HF2A-LEY25, 32, 63

RoHS



How to Order

HF2A-LEY 25 D S2 B - 100 ❑ ❑ L - R 2

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

Grease for food
US FDA compliant material

❶ Size

25
32
63

❷ Motor mounting position

D	In-line

❸ Motor type

Symbol	Type	Output [W]	Size	Compatible drivers*3
S2*1	AC servo motor (Incremental encoder)	100	25	LECSA□-S1
S3		200	32	LECSA□-S3
S4		400	63	LECSA2-S4
T6*2	AC servo motor (Absolute encoder)	100	25	LECS□2-T5
T7		200	32	LECS□2-T7
T8		400	63	LECS□2-T8

*1 For motor type S2, the compatible driver part number suffix is S1.
*2 For motor type T6, the compatible driver part number suffix is T5.
*3 For details on the driver, refer to the **Web Catalogue**. The driver should be ordered separately.

❹ Lead [mm]

Symbol \ Size	25	32	63
A	12	20	20
B	6	10	10
C	3	5	5

❺ Stroke [mm]

50	50
to	to
800	800

* For details, refer to the applicable stroke table below.

❻ Motor option

—	Without option
B	With lock

❼ Rod end thread

—	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

❽ Mounting

L	Foot bracket
F	Rod flange

* Do not mount the product using a rod flange when mounting horizontally and fixed at one end.

❾ Cable type*1

R	Robotic cable

*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)

❿ Cable length*1 [m]

2	2
5	5
A	10

*1 The length of the motor, encoder, and lock cables are the same.

Applicable Stroke Table

●: Standard

Size \ Stroke [mm]	50	100	150	200	250	300	350	400	450	500	600	700	800	Manufacturable stroke range
25	●	●	●	●	●	●	●	●	—	—	—	—	—	50 to 400
32	●	●	●	●	●	●	●	●	●	●	—	—	—	50 to 500
63	●	●	●	●	●	●	●	●	●	●	●	●	●	50 to 800

* Please contact SMC for non-standard strokes as they are produced as special orders.

Compatible Drivers

Driver type	Pulse input type/ Positioning type	Pulse input type	CC-Link direct input type	SSCNET Ⅲ/H type	Network card type
					
Series	**LECSA**	**LECSB-T**	**LECSC-T**	**LECSS-T**	**LECSND-T**
Number of point tables*1	Up to 7	Up to 255	Up to 255 (2 stations occupied)	—	Up to 255
Pulse input	○	○	—	—	—
Applicable network	—	—	CC-Link	SSCNET Ⅲ/H	PROFINET EtherCAT EtherNet/IP™
Control encoder	Incremental 17-bit encoder	Absolute 22-bit encoder	Absolute 18-bit encoder	Absolute 22-bit encoder	Absolute 22-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication	USB communication
Power supply voltage [V]	100 to 120 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz)	200 to 240 VAC (50/60 Hz)	200 to 230 VAC (50/60 Hz)	200 to 240 VAC (50/60 Hz)	200 to 240 VAC (50/60 Hz)

*1 For the LECSND-T, only PROFINET and EtherCAT are available.

Membrane Air Dryer

IDG-D Series

RoHS

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.



How to Order

IDG 30 – ❶ ❷ 03 ❸ ❹ – ❺ – D

· Option/Semi-standard: Select one each for **a** and **b**.
· Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) IDG30-N03B-RZ-D

		Symbol	Description	❶ Body size 20	❶ Body size 30	❶ Body size 40
❷	Thread type	—	Rc	●	●	●
		N	NPT	●	●	●
		F	G	●	●	●
		+				
❸	Port size	**01**	1/8	●	–	–
		02	1/4	●	●	●
		03	3/8	–	●	●
		04	1/2	–	–	●
		+				
❹	Option	—	Without mounting option	●	●	●
		B∗1	With bracket	●	●	●
		+				
❺	Semi-standard **a** Flow direction	—	Flow direction: Left to right	●	●	●
		R	Flow direction: Right to left	●	●	●
		+				
	Semi-standard **b** Unit	—	Product label in SI units: MPa	●	●	●
		Z∗2	Product label in imperial units: psi	●	●	●

∗1 A bracket is not assembled.
Two screws are provided as accessories for mounting a bracket to the product. It is not permitted to install both a spacer with bracket and a spacer for modular connection at the same time.

∗2 For pipe thread type: NPT
This product is for overseas use only according to the new Measurement Act. (The SI unit type is provided for use in Japan.)

Membrane Air Dryer/Single Unit Type

Reduced purge IDG□A Series

Standard dew point -20 °C, -15 °C, -40 °C, -60 °C

RoHS

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.



How to Order

Reduced purge IDG□A Series

IDG 30 □ A – □ 03 □ – □

Size

30
50
60
75
100

Standard dew point temperature/Outlet air flow rate

Symbol	Standard dew point [°C]	Flow rate by size, Outlet air flow rate [l/min (ANR)]				
		30	**50**	**60**	**75**	**100**
—	-20	300	500	Select from **IDG Series** (**Web Catalogue**)		
H	-15	300	500			
L	-40	75	110	170	240	300
S	-60	—	—	50	100	150

Thread type

Symbol	Type
—	Rc
N	NPT
F	G

Port size

Symbol	Port size	Size				
		30	**50**	**60**	**75**	**100**
02	1/4	●	●	—	—	—
03	3/8	●	●	●	●	●
04	1/2	—	—	●	●	●

Accessory

Symbol	Specifications
—	None (Standard)
B	With bracket

* When symbol: B is indicated, a bracket assembly with a part number shown to the left below is included as an accessory.

Semi-standard

Symbol	Specifications
—	None (Standard)
R	Flow direction (Right → Left)

Bracket Assembly (Accessory)/Part No.

Part no.	Applicable model
BM64	IDG30□A, IDG50□A
BM65	IDG60□A, IDG75□A, IDG100□A

* With hexagon socket head cap screws (2 pcs.) and spring washers (2 pcs.)

Membrane Air Dryer/Single Unit Type

IDG Series

Standard dew point -20 °C, -15 °C

RoHS

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.



How to Order

IDG 10 □ – □ 02 □ – □

Size

3
5
10
20
60
75
100

Standard dew point temperature/Outlet air flow rate

Symbol	Standard dew point [°C]	Flow rate by size, Outlet air flow rate [l/min (ANR)]						
		3	5	10	20	60	75	100
—	-20	25	50	100	200	600	750	1000
H	-15	25	50	100	200	600	750	1000
L	-40	—	—	—	—	Select from **IDG□A Series (Web Catalogue)**		
S	-60	—	—	—	—			

Accessory

Symbol	Specifications
—	None (Standard)
B	With bracket (Excludes the IDG1)

∗ When symbol: B is indicated, a bracket assembly with a part number shown to the left below is included as an accessory.

Thread type/One-touch fitting

Symbol	Type
—	Rc
N	NPT
F	G

Port size/Applicable tubing O.D.

Symbol	Port size	Piping type	Size						
			3	5	10	20	60	75	100
01	1/8	Thread	●	●	—	—	—	—	—
02	1/4		●	●	●	●	—	—	—
03	3/8		—	—	●	●	●	—	—
04	1/2		—	—	—	—	●	●	●

Semi-standard

Symbol	Specifications	Size						
		3	5	10	20	60	75	100
—	None (Standard)	●	●	●	●	●	●	●
R	Flow direction (Right → Left)	●	●	●	●	●	●	●
S	With dew point indicator	●	●	Standard equipment				

∗ In the case of more than one symbol, indicate them alphabetically.

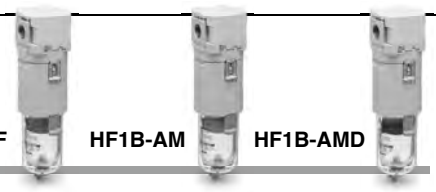
Bracket Assembly (Accessory)/Part No.

Part no.	Applicable model
BM59	IDG3, 5
BM61	IDG10
BM63	IDG20
BM65	IDG60, 75, 100

∗ With hexagon socket head cap screws (2 pcs.) and spring washers (2 pcs.)

Line Filter/Mist Separator/ Micro Mist Separator

HF1B-AFF/AM/AMD Series RoHS



How to Order

HF1B – ❶AFF ❷30 – ❸ ❹03 ❺BD – ❻ – D

· Option/Semi-standard: Select one each for **a** to **g**.
· Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) HF1B-AM30-N03BD-6RZ-D

			Symbol	Description	❷ Body size 20	30	40	50	60
❶	Filter type		**AFF**	Nominal filtration rating: 1 μm Water droplet removal ratio: 99 %	●	●	●	●	●
			AM	Nominal filtration rating: 0.1 μm Oil mist concentration on the outlet side: 1 mg/m^3	●	●	●	●	●
			AMD	Nominal filtration rating: 0.01 μm Oil mist concentration on the outlet side: 0.1 mg/m^3	●	●	●	●	●
			+						
❸	Thread type		**—**	Rc	●	●	●	●	●
			N∗1	NPT	●	●	●	●	●
			F∗2	G	●	●	●	●	●
			+						
❹	Port size		**01**	1/8	●	–	–	–	–
			02	1/4	●	●	●	–	–
			03	3/8	–	●	●	–	–
			04	1/2	–	–	●	–	–
			06	3/4	–	–	–	●	–
			10	1	–	–	–	●	●
			+						
❺	Option	**a** Mounting	**—**	Without mounting option	●	●	●	●	●
			B∗3	With bracket	●	●	●	●	●
			+						
		b Float type auto drain	**—**	Without auto drain	●	●	●	●	●
			C∗4	N.C. (Normally closed)	●	●	●	●	●
			D∗5	N.O. (Normally open)	–	●	●	●	●
			+						
❻	Semi-standard	**c** Bowl∗6	**—**	Polycarbonate bowl	●	●	●	–	–
				Stainless steel bowl	–	–	–	●	●
			2	Metal bowl	●	●	●	–	–
			6	Nylon bowl	●	●	●	–	–
			8	Metal bowl with level gauge	–	●	●	–	–
			C	With bowl guard	●	—∗7	—∗7	–	–
			6C	With bowl guard (Nylon bowl)	●	—∗8	—∗8	–	–
			+						
		d Drain port∗9	**—**	With drain cock	●	●	●	●	●
			J∗10	Drain guide 1/8	●	–	–	–	–
				Drain guide 1/4	–	●	●	●	●
			W∗11	Drain cock, Barb fitting (Ø 6)	–	●	●	●	●
			+						
		e Indicator∗12	**—**	Without indicator	●	●	●	●	●
			L	With element service indicator	●	●	●	●	●
			+						
		f Flow direction	**—**	Flow direction: Left to right	●	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●	●
			+						
		g Unit	**—**	Name plate and caution plate for bowl in SI units: MPa, °C	●	●	●	●	●
			Z∗13	Name plate and caution plate for bowl in imperial units: psi, °F	○∗14	○∗14	○∗14	○∗14	○∗14

∗1 Drain guide is NPT1/8 (applicable to the HF1B-AFF20, HF1B-AM20, and HF1B-AMD20) and NPT1/4 (applicable to the HF1B-AFF30 to HF1B-AFF60, HF1B-AM30 to HF1B-AM60, and HF1B-AMD30 to HF1B-AMD60). The auto drain port comes with a Ø 3/8" One-touch fitting (applicable to the HF1B-AFF30 to HF1B-AFF60, HF1B-AM30 to HF1B-AM60, and HF1B-AMD30 to HF1B-AMD60).
∗2 Drain guide is G1/8 (applicable to the HF1B-AFF20, HF1B-AM20, and HF1B-AMD20) and G1/4 (applicable to the HF1B-AFF30 to HF1-AFF60, HF1B-AM30 to HF1B-AM60, and HF1B-AMD30 to HF1B-AMD60).
∗3 The assembly consists of 2 types of the bracket and 2 mounting screws.
∗4 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
∗5 If the compressor is small (0.75 kW, discharge flow is less than 100 l/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
∗6 Refer to the chemical data in the **Web Catalogue** for chemical resistance of the bowl.
∗7 A bowl guard is provided as standard equipment (polycarbonate).
∗8 A bowl guard is provided as standard equipment (nylon).
∗9 The combination of float type auto drain C and D is not available.
∗10 Without a valve function
The mounting screws are the same as the thread of ❸.
∗11 The combination of metal bowl 2 and 8 is not available.
∗12 After purchase, option "—" (Without indicator) cannot be changed to option "L" (With element service indicator).
∗13 For pipe thread type: NPT
This product is for overseas use only according to the new Measurement Act. (The SI unit type is provided for use in Japan.)
∗14 ○: For pipe thread type: NPT only
∗15 Replacement parts other than the bowl assembly have the same part numbers as those of the standard product.
For the bowl assembly, add the "HF 1 B-" prefix to any of the standard product bowl assembly part numbers.
Example) HF1B-C3SF-D, HF1B-AD37-D

Activated Carbon Filter

HF1B-AMK Series

RoHS



HF1B-AMK

How to Order

HF1B – AMK 30 – F 03 B – ☐ – D

❶ ❷ ❸ ❹ ❺ ❻

· Option/Semi-standard: Select one each for **a** to **d**.
· Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) HF1B-AMK30-N03B-6RZ-D

				Symbol	Description	❷ Body size 20	30	40	50	60
❶	Filter type			**AMK**	Activated carbon filter	●	●	●	●	●
				+						
❸	Thread type			**–**	Rc	●	●	●	●	●
				N	NPT	●	●	●	●	●
				F	G	●	●	●	●	●
				+						
❹	Port size			**01**	1/8	●	–	–	–	–
				02	1/4	●	●	●	–	–
				03	3/8	–	●	●	–	–
				04	1/2	–	–	●	–	–
				06	3/4	–	–	–	●	–
				10	1	–	–	–	●	●
				+						
❺	Option	**a**	Mounting	**–**	Without mounting option	●	●	●	●	●
				B∗1	With bracket	●	●	●	●	●
				+						
❻	Semi-standard	**b**	Bowl∗2	**–**	Polycarbonate bowl	●	●	●	–	–
					Stainless steel bowl	–	–	–	●	●
				2	Metal bowl	●	●	●	–	–
				6	Nylon bowl	●	●	●	–	–
				C	With bowl guard	●	–∗3	–∗3	–	–
				6C	With bowl guard (Nylon bowl)	●	–∗4	–∗4	–	–
				+						
		c	Flow direction	**–**	Flow direction: Left to right	●	●	●	●	●
				R	Flow direction: Right to left	●	●	●	●	●
				+						
		d	Pressure unit	**–**	Name plate and caution plate in SI units: MPa/°C	●	●	●	●	●
				Z∗5	Name plate and caution plate in imperial units: psi/°F	○∗6	○∗6	○∗6	○∗6	○∗6

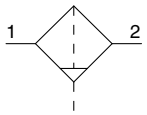
∗1 The assembly consists of 2 types of the bracket and 2 mounting screws.
∗2 Refer to the chemical data in the **Web Catalogue** for chemical resistance of the bowl.
∗3 A bowl guard is provided as standard equipment (polycarbonate).
∗4 A bowl guard is provided as standard equipment (nylon).
∗5 For pipe thread type: NPT
This product is for overseas use only according to the new Measurement Act. (The SI unit type is provided for use in Japan.)
∗6 ○: For pipe thread type: NPT only
∗7 Replacement parts other than those listed below have the same part numbers as those of the standard product.
Use the part numbers below for the metal bowls for sizes 30 and 40.
Size 30 (metal bowl): HF1B-C3SF-2-A-X401
Size 40 (metal bowl): HF1B-C4SF-2-A-X401

Antibacterial Filter | Odor Removal Filter | Bacteria Removal Filter

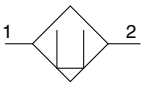
HF2-BF□30 to 40

Symbol

Antibacterial Filter/ Bacteria Removal Filter



Odor Removal Filter





HF2-BFA HF2-BFB HF2-BFC HF2-BFD

How to Order

HF2 – BFA 30 – □ 02 – □

❶ ❷ ❸ ❹ ❺

			Symbol	Description	❷ Body size 30	❷ Body size 40
❶	Filter type	Antibacterial filter	**BFA**	Nominal filtration rating: 5 μm (Antibacterial activation value of 4 or above)	●	●
			BFB	Nominal filtration rating: 0.1 μm (Antibacterial activation value of 4 or above)	●	●
		Odor removal filter	**BFC**	Odor removal filter	●	●
		Bacteria removal filter	**BFD**	Nominal filtration rating: 0.01 μm (Bacteria capture performance LRV ≥ 9)	●	●
			+			
❸	Pipe thread type*1		**—**	Rc	●	●
			N	NPT	●	●
			F	G	●	●
			+			
❹	Port size		**02**	1/4	●	●
			03	3/8	●	●
			04	1/2	—	●
			+			
❺	Semi-standard	Flow direction	**—**	Flow direction: Left to right	●	●
			R	Flow direction: Right to left	●	●

*1 The drain ports are Rc1/8 (❸ thread type: Rc thread), NPT1/8 female thread (❸ thread type: N), and G1/8 female thread (❸ thread type: G).

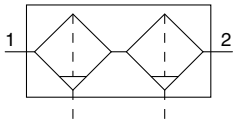
* Pressure and temperature are represented in the following units. Pressure: MPa (psi), Temperature: °C (°F)

Air Combination

Antibacterial Filter (5 μm) + Antibacterial Filter (0.1 μm)

HF2-BAC30A to HF2-BAC40A

Symbol





How to Order

HF2 – BAC 30 A – ❷ 02 – ❹

❶ ❷ ❸ ❹

		Symbol	Description	❶ Body size 30	❶ Body size 40
		+			
❷	Pipe thread type*1	—	Rc	●	●
		N	NPT	●	●
		F	G	●	●
		+			
❸	Port size	02	1/4	●	●
		03	3/8	●	●
		04	1/2	—	●
		+			
❹	Semi-standard	—	Flow direction: Left to right	●	●
		R	Flow direction: Right to left	●	●

*1 The drain ports are Rc1/8 (❷ thread type: Rc thread), NPT1/8 female thread (❷ thread type: N), and G1/8 female thread (❷ thread type: G).
* Pressure and temperature are represented in the following units. Pressure: MPa (psi), Temperature: °C (°F)

Standard Specifications

Model		HF2-BAC30A	HF2-BAC40A
Component	Antibacterial filter [HF2-BFA]	HF2-BFA30	HF2-BFA40
	Antibacterial filter [HF2-BFB]	HF2-BFB30	HF2-BFB40
Port size		1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air, Nitrogen, Carbon dioxide (Gas)	
Ambient and fluid temperatures		–5 to 60 °C (23 to 140°F) No freezing	
Proof pressure		1.5 MPa (225 psi)	
Max. operating pressure*1		1.0 MPa (150 psi)	
Rated flow*2		400 l/min (ANR)	800 l/min (ANR)
Nominal filtration rating*3		0.1 μm	
Antibacterial performance (Antibacterial activation value)*4		4 or higher	
Materials of parts in contact with fluid	Metal parts	Aluminium alloy, Brass (Electroless nickel plating)	
	Bowl	Nylon (US FDA / Japan Food Sanitation Act compliant materials)	
	Rubber parts	Fluororubber (US FDA compliant material)	
	Lubricant	NSF-H1 grade	
Bowl guard		Nylon (Antibacterial specification)	
Weight		0.60 kg	1.02 kg

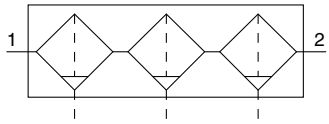
*1 For Nitrogen and Carbon dioxide (Gas): 0.99 MPa (145 psi)
*2 This value is achieved when the inlet pressure is 0.7 MPa.
*3 Based on SMC's measurement conditions
*4 This data is achieved from the evaluation of the filter media (fiber) in accordance with JIS L 1902.

Air Combination

Antibacterial Filter (5 μm) + Antibacterial Filter (0.1 μm) + Bacteria Removal Filter (0.01 μm)

HF2-BAC30B to HF2-BAC40B

Symbol





How to Order

HF2 – BAC 30 B – ❶ ❷ 02 ❸ – ❹

	Symbol	Description	❶ Body size 30	❶ Body size 40
	+			
❷ Pipe thread type*1	—	Rc	●	●
	N	NPT	●	●
	F	G	●	●
	+			
❸ Port size	02	1/4	●	●
	03	3/8	●	●
	04	1/2	—	●
	+			
❹ Semi-standard: Flow direction	—	Flow direction: Left to right	●	●
	R	Flow direction: Right to left	●	●

*1 The drain ports are Rc1/8 (❷ thread type: Rc thread), NPT1/8 female thread (❷ thread type: N), and G1/8 female thread (❷ thread type: G).
* Pressure and temperature are represented in the following units. Pressure: MPa (psi), Temperature: °C (°F)

Standard Specifications

Model		HF2-BAC30B	HF2-BAC40B
Component	Antibacterial filter [HF2-BFA]	HF2-BFA30	HF2-BFA40
	Antibacterial filter [HF2-BFB]	HF2-BFB30	HF2-BFB40
	Bacteria removal filter [HF2-BFD]	HF2-BFD30	HF2-BFD40
Port size		1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air, Nitrogen, Carbon dioxide (Gas)	
Ambient and fluid temperatures		5 to 45 °C (41 to 113°F)	
Proof pressure		1.5 MPa (225 psi)	
Max. operating pressure*1		1.0 MPa (150 psi)	
Rated flow*2		400 l/min (ANR)	800 l/min (ANR)
Nominal filtration rating*3		0.01 μm	
Antibacterial performance (Antibacterial activation value)*4		4 or higher	
Bacteria removal performance (Bacteria capture performance)*5		LRV ≥ 9	
Materials of parts in contact with fluid	Metal parts	Aluminium alloy, Brass (Electroless nickel plating)	
	Bowl	Nylon (US FDA / Japan Food Sanitation Act compliant material)	
	Rubber parts	Fluororubber (US FDA compliant materials)	
	Lubricant	NSF-H1 grade	
Bowl guard		Nylon (Antibacterial specification)	
Weight		0.94 kg	1.63 kg

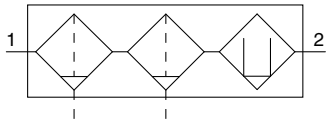
*1 For Nitrogen and Carbon dioxide (Gas): 0.99 MPa (145 psi)
*2 This value is achieved when the inlet pressure is 0.7 MPa.
*3 Based on SMC's measurement conditions
*4 This data is achieved from the evaluation of the filter media (fiber) in accordance with JIS L 1902.
*5 This data is achieved from the evaluation of the filter media in accordance with JIS K 3835.

Air Combination

Antibacterial Filter (5 μm) + Antibacterial Filter (0.1 μm) + Odor Removal Filter

HF2-BAC30C to HF2-BAC40C

Symbol





How to Order

HF2 – BAC 30 C – ❑ 02 – ❑

❶ ❷ ❸ ❹

		Symbol	Description	❶ Body size 30	❶ Body size 40
		+			
❷	Pipe thread type*1	—	Rc	●	●
		N	NPT	●	●
		F	G	●	●
		+			
❸	Port size	02	1/4	●	●
		03	3/8	●	●
		04	1/2	—	●
		+			
❹	Semi-standard	—	Flow direction: Left to right	●	●
		R	Flow direction: Right to left	●	●

*1 The drain ports are Rc1/8 (❷ thread type: Rc thread), NPT1/8 female thread (❷ thread type: N), and G1/8 female thread (❷ thread type: G).
* Pressure and temperature are represented in the following units. Pressure: MPa (psi), Temperature: °C (°F)

Standard Specifications

Model		HF2-BAC30C	HF2-BAC40C
Component	Antibacterial filter [HF2-BFA]	HF2-BFA30	HF2-BFA40
	Antibacterial filter [HF2-BFB]	HF2-BFB30	HF2-BFB40
	Odor removal filter [HF2-BFC]	HF2-BFC30	HF2-BFC40
Port size		1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air, Nitrogen, Carbon dioxide (Gas)	
Ambient and fluid temperatures		–5 to 60 °C (23 to 140°F) No freezing	
Proof pressure		1.5 MPa (225 psi)	
Max. operating pressure*1		1.0 MPa (150 psi)	
Rated flow*2		400 l/min (ANR)	800 l/min (ANR)
Nominal filtration rating*3		0.1 μm	
Antibacterial performance (Antibacterial activation value)*4		4 or higher	
Deodorization performance (Oil concentration on the outlet side)*3		0.003 mg/m^3 or less	
Materials of parts in contact with fluid	Metal parts	Aluminium alloy, Brass (Electroless nickel plating), Stainless steel	
	Bowl	Nylon (US FDA / Japan Food Sanitation Act compliant materials)	
	Rubber parts	Fluororubber (US FDA compliant material)	
	Lubricant	NSF-H1 grade	
Bowl guard		Nylon (Antibacterial specification)	
Weight		0.89 kg	1.57 kg

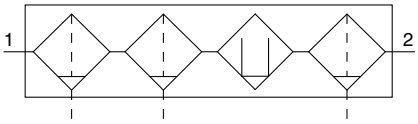
*1 For Nitrogen and Carbon dioxide (Gas): 0.99 MPa (145 psi)
*2 This value is achieved when the inlet pressure is 0.7 MPa.
*3 Based on SMC's measurement conditions
*4 This data is achieved from the evaluation of the filter media (fiber) in accordance with JIS L 1902.

Air Combination

Antibacterial Filter (5 μm) + Antibacterial Filter (0.1 μm) + Odor Removal Filter + Bacteria Removal Filter (0.01 μm)

HF2-BAC30D to HF2-BAC40D

Symbol





How to Order

HF2 – BAC 30 D – ❶ ❷ 02 ❸ – ❹

	Symbol	Description	❶ Body size 30	❶ Body size 40
	+			
❷ Pipe thread type*1	—	Rc	●	●
	N	NPT	●	●
	F	G	●	●
	+			
❸ Port size	02	1/4	●	●
	03	3/8	●	●
	04	1/2	—	●
	+			
❹ Semi-standard / Flow direction	—	Flow direction: Left to right	●	●
	R	Flow direction: Right to left	●	●

*1 The drain ports are Rc1/8 (❷ thread type: Rc thread), NPT1/8 female thread (❷ thread type: N), and G1/8 female thread (❷ thread type: G).
* Pressure and temperature are represented in the following units. Pressure: MPa (psi), Temperature: °C (°F)

Standard Specifications

Model		HF2-BAC30D	HF2-BAC40D
Component	Antibacterial filter [HF2-BFA]	HF2-BFA30	HF2-BFA40
	Antibacterial filter [HF2-BFB]	HF2-BFB30	HF2-BFB40
	Odor removal filter [HF2-BFC]	HF2-BFC30	HF2-BFC40
	Bacteria removal filter [HF2-BFD]	HF2-BFD30	HF2-BFD40
Port size		1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air, Nitrogen, Carbon dioxide (Gas)	
Ambient and fluid temperatures		5 to 45 °C (41 to 113°F)	
Proof pressure		1.5 MPa (225 psi)	
Max. operating pressure*1		1.0 MPa (150 psi)	
Rated flow*2		400 l/min (ANR)	800 l/min (ANR)
Nominal filtration rating*3		0.01 μm	
Antibacterial performance (Antibacterial activation value)*4		4 or higher	
Deodorization performance (Oil concentration on the outlet side)*3		0.003 mg/m^3 or less	
Bacteria removal performance (Bacteria capture performance)*5		LRV ≥ 9	
Materials of parts in contact with fluid	Metal parts	Aluminium alloy, Brass (Electroless nickel plating), Stainless steel	
	Bowl	Nylon (US FDA / Japan Food Sanitation Act compliant materials)	
	Rubber parts	Fluororubber (US FDA compliant material)	
	Lubricant	NSF-H1 grade	
Bowl guard		Nylon (Antibacterial specification)	
Weight		1.23 kg	2.18 kg

*1 For Nitrogen and Carbon dioxide (Gas): 0.99 MPa (145 psi)
*2 This value is achieved when the inlet pressure is 0.7 MPa.
*3 Based on SMC's measurement conditions
*4 This data is achieved from the evaluation of the filter media (fiber) in accordance with JIS L 1902.
*5 This data is achieved from the evaluation of the filter media in accordance with JIS K 3835.

Bacteria Removal Filter Hollow Fiber Element

HF2B-SFDA Series

RoHS



How to Order

HF2B-SFDA 2 0 3 – □ 02

Bacteria Removal Filter
(Bacteria removal performance LRV ≥ 9)

Size

Symbol	Max. flow rate
2	500 l/min

Case material

Symbol	Case material
3	Stainless steel

Thread type

Symbol	Type
—	Rc
F	G
N	NPT

Port size

Symbol	Size
02	1/4
03	3/8

∗ The bracket is equipped as standard.
(Single unit: SFD-BR200)

Air Filter

HF1B-AF20-D to HF1B-AF60-D RoHS



HF1B-AF30-D

How to Order

HF1B − AF ❶ **30** − ❷ **□** ❸ **03** ❹ **BD** − ❺ **□** **−D**

· Option/Semi-standard: Select one each for **a** to **g**.
· Option/Semi-standard symbol:
When more than one specification is required, indicate in alphanumeric order.
Example) HF1B-AF30-03BD-R-D

			Symbol	Description	❶ Body size 20	30	40	50	60
❷	Pipe thread type		—	Rc	●	●	●	●	●
			N	NPT	●	●	●	●	●
			F	G	●	●	●	●	●
			+						
❸	Port size		01	1/8	●	—	—	—	—
			02	1/4	●	●	●	—	—
			03	3/8	—	●	●	—	—
			04	1/2	—	—	●	—	—
			06	3/4	—	—	●	●	—
			10	1	—	—	—	●	●
			+						
❹	Option	a Mounting	—	Without mounting option	●	●	●	●	●
			B*1	With bracket	●	●	●	●	●
			+						
		b Float type auto drain*2	—	Without auto drain	●	●	●	●	●
			C*3	N.C. (Normally closed) Drain port is closed when pressure is not applied.	●	●	●	●	●
			D*4	N.O. (Normally open) Drain port is open when pressure is not applied.	—	●	●	●	●
			+						
❺	Semi-standard	c Bowl*5	—	Polycarbonate bowl	●	●	●	●	●
			2	Metal bowl	●	●	●	●	●
			6	Nylon bowl	●	●	●	●	●
			8	Metal bowl with level gauge	—	●	●	●	●
			C	With bowl guard	●	—*6	—*6	—*6	—*6
			6C	With bowl guard (Nylon bowl)	●	—*7	—*7	—*7	—*7
			+						
		d Indicator	—	Without indicator	●	●	●	●	●
			L	With element service indicator*14	●	●	●*12	●	●
			+						
		e Drain port*8	—	With drain cock	●	●	●	●	●
			J*9	Drain guide 1/8	●	—	—	—	—
				Drain guide 1/4	—	●	●	●	●
			W*10	Drain cock with barb fitting	—	●	●	●	●
			+						
		f Flow direction	—	Flow direction: Left to right	●	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●	●
			+						
		g Unit	—	Unit on product label: MPa, °C	●	●	●	●	●
			Z*11	Unit on product label: psi, °F	○*13	○*13	○*13	○*13	○*13

*1 Option B is included in the package with the product but does not come assembled. The assembly consists of 2 types of the bracket and 2 mounting screws.
*2 The auto drain port is Ø 10 One-touch fitting (❷ Pipe thread type: Rc, G) or Ø 3/8" One-touch fitting (❷ Pipe thread type: NPT)
*3 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
*4 If the compressor is small (0.75 kW, discharge flow is less than 100 l/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
*5 Refer to chemical data in the **Web Catalogue** for chemical resistance of the bowl.
*6 A bowl guard is provided as standard equipment (polycarbonate).
*7 A bowl guard is provided as standard equipment (nylon).
*8 The combination of float type auto drain C and D is not available.
*9 Without a valve function. The mounting screws are the same as the thread of ❷.
*10 The combination of metal bowl 2 and 8 is not available.
*11 For the pipe thread type: NPT. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
*12 Excludes port size "06"
*13 ○: For the pipe thread type: NPT only
*14 A special body type is required to mount the element service indicator. It cannot be mounted on a standard body.
*15 The bracket assembly and replacement part part numbers are the same as those of the standard product.
To order the bowl assembly, add the "HF1B-" prefix to the standard product bowl part number.
Example) HF1B-C3SF-D, HF1B-AD37-D

Mist Separator
HF1B-AFM20-D to HF1B-AFM40-D RoHS

Micro Mist Separator
HF1B-AFD20-D to HF1B-AFD40-D RoHS


HF1B-AFM30-D


HF1B-AFD30-D

How to Order

HF1B-AFM 30 – ❷ 03 BD – ❺ –D
HF1B-AFD 30 – ❷ 03 BD – ❺ –D
❶ ❷ ❸ ❹ ❺

· Option/Semi-standard: Select one each for **a** to **g**.
· Option/Semi-standard symbol:
When more than one specification is required, indicate in alphanumeric order.
Example) HF1B-AFM30-03BD-R-D

				Symbol	Description	❶ Body size 20	30	40
❷	Pipe thread type			—	Rc	●	●	●
				N	NPT	●	●	●
				F	G	●	●	●
				+				
❸	Port size			01	1/8	●	—	—
				02	1/4	●	●	●
				03	3/8	—	●	●
				04	1/2	—	—	●
				06	3/4	—	—	●
				+				
❹	Option	a	Mounting	—	Without mounting option	●	●	●
				B*1	With bracket	●	●	●
				+				
		b	Float type auto drain*2	—	Without auto drain	●	●	●
				C*3	N.C. (Normally closed) Drain port is closed when pressure is not applied.	●	●	●
				D*4	N.O. (Normally open) Drain port is open when pressure is not applied.	—	●	●
				+				
❺	Semi-standard	c	Bowl*5	—	Polycarbonate bowl	●	●	●
				2	Metal bowl	●	●	●
				6	Nylon bowl	●	●	●
				8	Metal bowl with level gauge	—	●	●
				C	With bowl guard	●	—*6	—*6
				6C	With bowl guard (Nylon bowl)	●	—*7	—*7
				+				
		d	Indicator	—	Without indicator	●	●	●
				L	With element service indicator*8, 9	●	●	●*11
				M	With clogging switch (1 point)*8, *10	●	●	●*11
				MM	With clogging switch (2 points)*8, *10	●	●	●*11
				+				
		e	Drain port*12	—	With drain cock	●	●	●
				J*13	Drain guide 1/8	●	—	—
					Drain guide 1/4	—	●	●
				W*14	Drain cock with barb fitting	—	●	●
				+				
		f	Flow direction	—	Flow direction: Left to right	●	●	●
				R	Flow direction: Right to left	●	●	●
				+				
		g	Unit	—	Unit on product label: MPa, °C	●	●	●
				Z*15	Unit on product label: psi, °F	○*16	○*16	○*16

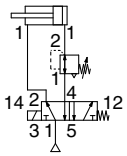
*1 Option B is included in the package with the product but does not come assembled. The assembly consists of 2 types of the bracket and 2 mounting screws.
*2 The auto drain port is Ø 10 One-touch fitting (❷ Pipe thread type: Rc, G) or Ø 3/8" One-touch fitting (❷ Pipe thread type: NPT)
*3 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
*4 If the compressor is small (0.75 kW, discharge flow is less than 100 l/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
*5 Refer to chemical data in the **Web Catalogue** for chemical resistance of the bowl.
*6 A bowl guard is provided as standard equipment (polycarbonate).
*7 A bowl guard is provided as standard equipment (nylon).
*8 A special body type is required to mount the element service indicator or clogging switch. It cannot be mounted on a standard body.
*9 An auto switch cannot be installed with this option.
*10 This option is equipped with a reed auto switch (model: D-A93VL).
*11 Excludes port size "06"
*12 The combination of float type auto drain C and D is not available.
*13 Without a valve function. The mounting screws are the same as the thread of ❷.
*14 The combination of metal bowl 2 and 8 is not available.
*15 For the pipe thread type: NPT. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
*16 ○: For the pipe thread type: NPT only
*17 The bracket assembly and replacement part part numbers are the same as those of the standard product.
To order the bowl assembly, add the "HF1B-" prefix to the standard product bowl part number.
Example) HF1B-C3SF-D, HF1B-AD37-D

Regulator
HF1B-AR20-D to HF1B-AR60-D RoHS

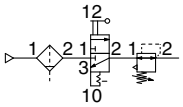
Regulator with Backflow Function
HF1B-AR20K-D to HF1B-AR60K-D RoHS

· Models with the backflow function include a mechanism which allows for the air pressure in the outlet side to be released to the inlet side.

Example 1)
When the pressure in the rear and the front of the cylinder differs:



Example 2)
When the air supply is cut off and releasing the inlet pressure to the atmosphere, the residual pressure release of the outlet side can be ensured.



How to Order

HF1B-AR ❶ ❷ – ❸ ❹ ❺ – ❻ – D

· Option/Semi-standard: Select one each for **a** to **g**.
· Option/Semi-standard symbol:
When more than one specification is required, indicate in alphanumeric order.
Example) HF1B-AR30K-03BE-1NR-D

			Symbol	Description	❶ Body size 20	30	40	50	60
❷	With backflow function		—	Without backflow function	●	●	●	●	●
			K[*1]	With backflow function	●	●	●	●	●
			+						
❸	Pipe thread type		—	Rc	●	●	●	●	●
			N	NPT	●	●	●	●	●
			F	G	●	●	●	●	●
			+						
❹	Port size		**01**	1/8	●	–	–	–	–
			02	1/4	●	●	●	–	–
			03	3/8	–	●	●	–	–
			04	1/2	–	–	●	–	–
			06	3/4	–	–	●	●	–
			10	1	–	–	–	●	●
			+						
❺	Option[*2]	**a** Mounting	—	Without mounting option	●	●	●	●	●
			B[*3]	With bracket	●	●	●	●	●
			H	With set nut (for panel mount)	●	●	●	–	–
			+						
		b Pressure gauge[*4]	—	Without pressure gauge	●	●	●	●	●
			E	Square embedded type pressure gauge (with limit indicator)	●	●	●	●	●
			G	Round type pressure gauge (with limit indicator)	●	●	●	●	●
			M	Round type pressure gauge (with colour zone)	●	●	●	●	●
		b Digital pressure switch[*5]	**E1**	Output: NPN output, Electrical entry: Wiring bottom entry	●	●	●	●	●
			E2	Output: NPN output, Electrical entry: Wiring top entry	●	●	●	●	●
			E3	Output: PNP output, Electrical entry: Wiring bottom entry	●	●	●	●	●
			E4	Output: PNP output, Electrical entry: Wiring top entry	●	●	●	●	●



HF1B-AR30-D

⚠ Caution

Round type pressure gauge and square embedded type pressure gauge are standard. Refer to the Web Catalogue.
Please refer to the Web Catalogue for non-grease type.
ISE35-X528 is used as the digital pressure switch. Refer to the Web Catalogue.

			Symbol	Description	❶ Body size 20	30	40	50	60
❻ Semi-standard	c	Set pressure*6	—	0.05 to 0.85 MPa setting	●	●	●	●	●
			1	0.02 to 0.2 MPa setting	●	●	●	●	●
			+						
	d	Exhaust mechanism	—	Relieving type	●	●	●	●	●
			N	Non-relieving type	●	●	●	●	●
			+						
	e	Flow direction	—	Flow direction: Left to right	●	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●	●
			+						
	f	Knob	—	Downward	●	●	●	●	●
			Y	Upward	●	●	●	●	●
			+						
	g	Unit	—	Unit on product label: MPa, Pressure gauge in SI units: MPa	●	●	●	●	●
			Z*7	Unit on product label: psi, Pressure gauge: MPa/psi dual scale	○*9	○*9	○*9	○*9	○*9
			ZA*8	Digital pressure switch: With unit selection function	△*10	△*10	△*10	△*10	△*10

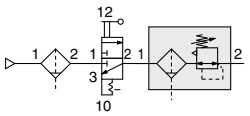
∗1 Set the inlet pressure to at least 0.05 MPa higher than the set pressure.
∗2 Options B, G, H, and M are not assembled and supplied loose at the time of shipment.
∗3 The assembly consists of a bracket and set nuts (applicable to the HF1B-AR20(K)-D to HF1B-AR40(K)-D).
For the HF1B-AR50(K)-D and HF1B-AR60(K)-D, the assembly consists of 2 types of the bracket and 2 mounting screws.
∗4 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.
∗5 When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select “wiring top entry” for the electrical entry. (Select “wiring bottom entry” when the semi-standard Y is chosen simultaneously.)
∗6 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
∗7 For the pipe thread type: NPT
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.) Cannot be used with M: Round type pressure gauge (with colour zone). Available by request for special. The digital pressure switch will be equipped with the unit selection function, setting to psi initially.
∗8 For options: E1, E2, E3, E4
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
∗9 ○: For the pipe thread type: NPT only
∗10 △: Select with options: E1, E2, E3, E4.
∗11 The bracket assembly, set nut, and replacement part part numbers are the same as those of the standard product.

Filter Regulator
HF1B-AW20-D to HF1B-AW60-D RoHS

Filter Regulator with Backflow Function
HF1B-AW20K-D to HF1B-AW60K-D RoHS

- **Integrated filter and regulator units save space and require less piping.**
- **Models with the backflow function include a mechanism which allows for the air pressure in the outlet side to be released to the inlet side.**

Example)
When the air supply is cut off and releasing the inlet pressure to the atmosphere, the residual pressure release of the outlet side can be ensured.



How to Order

HF1B-AW ❶ ❷ - ❸ ❹ ❺ - ❻ - D

- Option/Semi-standard: Select one each for **a** to **i**.
- Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.

Example) HF1B-AW30K-03BE-1NR-D

			Symbol	Description	❶ Body size 20	30	40	60
❷	With backflow function		—	Without backflow function	●	●	●	●
			K*1	With backflow function	●	●	●	●
			+					
❸	Pipe thread type		—	Rc	●	●	●	●
			N	NPT	●	●	●	●
			F	G	●	●	●	●
			+					
❹	Port size		01	1/8	●	—	—	—
			02	1/4	●	●	●	—
			03	3/8	—	●	●	—
			04	1/2	—	—	●	—
			06	3/4	—	—	●	●
			10	1	—	—	—	●
			+					
❺	Option*2	a	Mounting	—	Without mounting option	●	●	●	●
				B*3	With bracket	●	●	●	●
				H	With set nut (for panel mount)	●	●	●	—
			+					
		b	Float type auto drain*4	—	Without auto drain	●	●	●	●
				C*5	N.C. (Normally closed) Drain port is closed when pressure is not applied.	●	●	●	●
				D*6	N.O. (Normally open) Drain port is open when pressure is not applied.	—	●	●	●
			+					
		c	Pressure gauge*7	—	Without pressure gauge	●	●	●	●
				E	Square embedded type pressure gauge (with limit indicator)	●	●	●	●
				G	Round type pressure gauge (with limit indicator)	●	●	●	●
				M	Round type pressure gauge (with colour zone)	●	●	●	●
			Digital pressure switch*8	E1	Output: NPN output, Electrical entry: Wiring bottom entry	●	●	●	●
				E2	Output: NPN output, Electrical entry: Wiring top entry	●	●	●	●
				E3	Output: PNP output, Electrical entry: Wiring bottom entry	●	●	●	●
				E4	Output: PNP output, Electrical entry: Wiring top entry	●	●	●	●
			+					
❻	Semi-standard	d	Set pressure*9	—	0.05 to 0.85 MPa setting	●	●	●	●
				1	0.02 to 0.2 MPa setting	●	●	●	●
			+					
		e	Bowl*10	—	Polycarbonate bowl	●	●	●	●
				2	Metal bowl	●	●	●	●
				6	Nylon bowl	●	●	●	●
				8	Metal bowl with level gauge	—	●	●	●
				C	With bowl guard	●	—*11	—*11	—*11
				6C	With bowl guard (Nylon bowl)	●	—*12	—*12	—*12
			+					
		f	Drain port*13	—	With drain cock	●	●	●	●
				J*14	Drain guide 1/8	●	—	—	—
					Drain guide 1/4	—	●	●	●
				W*15	Drain cock with barb fitting	—	●	●	●

⚠ Caution

Round type pressure gauge and square embedded type pressure gauge are standard. Refer to the Web Catalogue.
Please refer to the Web Catalogue for non-grease type.
ISE35-X528 is used as the digital pressure switch. Refer to the Web Catalogue.



HF1B-AW30-D

			Symbol	Description	❶ Body size 20	30	40	60
❻	Semi-standard	g Exhaust mechanism	—	Relieving type	●	●	●	●
			N	Non-relieving type	●	●	●	●
			+					
		h Flow direction	—	Flow direction: Left to right	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●
			+					
		i Unit	—	Unit on product label: MPa, °C, Pressure gauge in SI units: MPa	●	●	●	●
			Z∗16	Unit on product label: psi, °F, Pressure gauge: MPa/psi dual scale	○∗18	○∗18	○∗18	○∗18
			ZA∗17	Digital pressure switch: With unit selection function	△∗19	△∗19	△∗19	△∗19

∗1 Set the inlet pressure to at least 0.05 MPa higher than the set pressure.
∗2 Options B, G, H, and M are not assembled and supplied loose at the time of shipment.
∗3 The assembly consists of a bracket and set nuts (applicable to the HF1B-AW20(K)-D to HF1B-AW40(K)-D).
For the HF1B-AW60(K)-D, the assembly consists of 2 types of the bracket and 2 mounting screws.
∗4 The auto drain port is Ø 10 One-touch fitting (❷ Pipe thread type: Rc, G) or Ø 3/8" One-touch fitting (❷ Pipe thread type: NPT)
∗5 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
∗6 If the compressor is small (0.75 kW, discharge flow is less than 100 l/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
∗7 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.
∗8 When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring bottom entry" for the electrical entry.
∗9 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
∗10 Refer to chemical data in the **Web Catalogue** for chemical resistance of the bowl.
∗11 A bowl guard is provided as standard equipment (polycarbonate).
∗12 A bowl guard is provided as standard equipment (nylon).
∗13 The combination of float type auto drain C and D is not available.
∗14 Without a valve function. The mounting screws are the same as the thread of ❷.
∗15 The combination of metal bowl 2 and 8 is not available.
∗16 For the pipe thread type: NPT. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
Cannot be used with M: Round type pressure gauge (with colour zone). Available by request for special. The digital pressure switch will be equipped with the unit selection function, setting to psi initially.
∗17 For options: E1, E2, E3, E4
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
∗18 ○: For the pipe thread type: NPT only
∗19 △: Select with options: E1, E2, E3, E4.
∗20 The bracket assembly, set nut, and replacement part part numbers are the same as those of the standard product.
To order the bowl assembly, add the "HF1B-" prefix to the standard product bowl part number.
Example) HF1B-C3SF-D, HF1B-AD37-D

Precision Regulator

HF1-IR1000-A/2000-A/3000-A

RoHS



How to Order

HF1 – IR ❶ 0 ❷ ❸ – ❹ ❺ ❻ – ❼ – A

- Option/Semi-standard: Select one each for **a** to **d**.
- Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.

			Symbol	Description	❶ Body size 1	2	3
❷	Set pressure range		**0**	0.005 to 0.2 MPa	●	●	–
				0.01 to 0.2 MPa	–	–	●
			1	0.01 to 0.4 MPa	●	●	●
			2	0.01 to 0.8 MPa	●	●	●
+							
❸	Exhaust direction		**0**	Bottom exhaust	●	●	●
			1	Front exhaust	–	–	●
			2	Rear exhaust	–	–	●
+							
❹	Pipe thread type		**–**	Rc	●	●	●
			N	NPT	●	●	●
			F	G	●	●	●
+							
❺	Port size		**01**	1/8	●	–	–
			02	1/4	–	●	●
			03	3/8	–	–	●
			04	1/2	–	–	●
+							
❻	Option*1	**a** Mounting	**–**	Without mounting option	●	●	●
			B*2	With bracket	●	●	●
			H	With hexagon panel nut (for panel mount)	●	●	●
+							
		b Pressure gauge	**–**	Without pressure gauge	●	●	●
			G	Round type pressure gauge	●	●	●
		b With digital pressure switch	**EA**	NPN open collector 1 output	●	●	●
			EB	PNP open collector 1 output	●	●	●
			EC	NPN open collector 2 outputs + Analogue voltage output	●	●	●
			ED	NPN open collector 2 outputs + Analogue current output	●	●	●
+							
❼	Semi-standard	**c** Flow direction	**–**	Flow direction: Left to right	●	●	●
			R	Flow direction: Right to left	●	●	●
+							
		d Knob	**–**	Upward	●	●	●
			V	Downward	●	●	●

*1 Options are not assembled and supplied loose at the time of shipment. B and H cannot be selected at the same time. The previous bracket cannot be used for this product.

*2 The assembly consists of a bracket and set nuts.

Electro-Pneumatic Regulator

ITV1000 Series

HF1-ITV2000/3000 Series

Only the standard product of the ITV1000 series complies with HF1.



How to Order

1000 type ITV 1 0 1 0 – 0 1 ☐ 1 ☐ S ☐

2000/3000 type HF1 – ITV 2 0 1 0 – 0 1 ☐ 2 ☐ S ☐

∗ Since the ITV1000 series features a grease-free structure, the standard product complies with HF1. Therefore, the ITV1000 series product does not require the "HF1-" part number prefix.

Model

2	2000 type
3	3000 type

Pressure range

1	0.1 MPa
3	0.5 MPa
5	0.9 MPa

Power supply voltage

0	24 VDC
1	12 to 15 VDC

Input signal

0	Current type 4 to 20 mADC (Sink type)
1	Current type 0 to 20 mADC (Sink type)
2	Voltage type 0 to 5 VDC
3	Voltage type 0 to 10 VDC
40	4 points preset input

Monitor output

1	Analogue output 1 to 5 VDC
2	Switch output/NPN output
3	Switch output/PNP output
4	Analogue output 4 to 20 mADC (Sink type)
–	None (For 4 points preset input)

Thread type

–	Rc
N	NPT
T	NPTF
F	G

Port size

1	1/8 (1000 type)
2	1/4 (1000, 2000, 3000 type)
3	3/8 (2000, 3000 type)
4	1/2 (3000 type)

Bracket

–	Without bracket
B	Flat bracket
C	L-bracket

Cable connector type

S	Straight type 3 m
L	Right angle type 3 m
N	Without cable connector

Pressure display unit

–	MPa
2∗2	kgf/cm²
3	bar
4∗2	psi
5	kPa

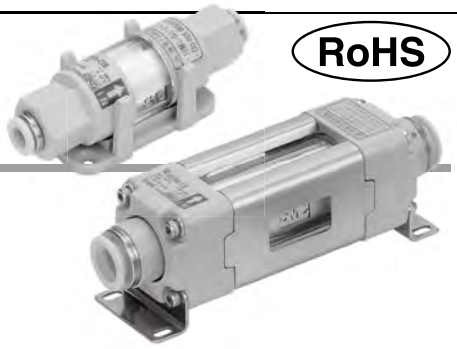
∗2 This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

∗ This product uses grease for food processing equipment (certified by NSF-H1) for fluid contact parts.
∗ The grease used for the built-in solenoid valve is not grease for food processing equipment. The solenoid valve exhaust may be discharged from EXH to the outside of the unit. If required, connect a pipe outside the area.
∗ Due to the structure of this product, wear debris and lubricant may flow to the OUT side of the product, so be sure to connect the required air preparation equipment, such as an air filter. Decide the specifications of the devices according to the equipment on the OUT side of this product.

Clean Air Filter

SFD Series

RoHS



How to Order

SFD 10 0 – C08 □

Clean air filter
(Bacteria removal performance LRV ≥ 9)

Size

Symbol	Max. flow rate
10	100 l/min (ANR)
11	120 l/min (ANR)
20	500 l/min (ANR)

Case material

Symbol	Material
0	Resin
1	Aluminium
2	Stainless steel

Symbol 1 and 2 are made to order.
For details, refer to the **Web Catalogue**.

Option

Symbol	Option
–	None
B	Bracket (SFD100 and 110 only)

* The brackets are provided with the SFD200 series as a standard product. (–)

Port size

Symbol	Connection size		Applicable size	
			SFD100, 110	**SFD200**
C04	Ø 4	Clean One-touch fittings (KP series)	●	–
C06	Ø 6		●	–
C08	Ø 8		●	●
C10	Ø 10		–	●
C12	Ø 12		–	●
02	Rc 1/4		●	●
N02	NPT 1/4		●	●
F02	G 1/4		●	●

Made to Order
Different diameters for IN and OUT ports are Made to Order.
For details, refer to the **Web Catalogue**.

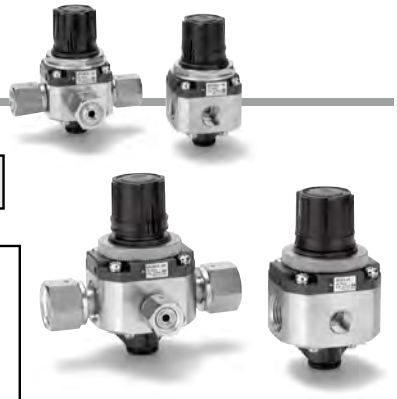
Clean Regulator

SRH Series

RoHS

∗ Excludes the pressure gauge (option)

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.



How to Order

SRH 3 0 0 0 — □ 02 — □ — □

Body size

3	1/4
4	3/8

Washing grade

0	Grade A
1	Grade B

Set pressure

0	0.02 to 0.2 MPa
1	0.05 to 0.7 MPa

Relief mechanism

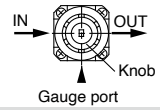
0	Non-relief
1	Relief

Thread type

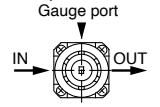
—	Rc
N	NPT

Gauge port orientation

—: Standard



R: R Specification



∗ There is only one gauge port.

Port size

Symbol	Piping port size	SRH3000	SRH4000
01	1/8	●	–
02	1/4	●	●
03	3/8	–	●
04	1/2	–	●
A2	With metal gasket seal fitting	URJF 1/4	–
A3	With metal gasket seal fitting	–	URJF 3/8

Made to Order

Refer to the **Web Catalogue** for details.

X210	EPDM seals
X211	With relief port fittings (Applicable tube O.D.: Ø 4)
X216	Machined relief port M5 thread
X233	Knob operation product with reduced torque
X234	Aluminium body
X328	Pressure gauge included

∗ Refer to the **Web Catalogue** or the option specifications below for details on the pressure gauge.
Note that the products used for the port size A2 or A3 are not available at SMC.

Options

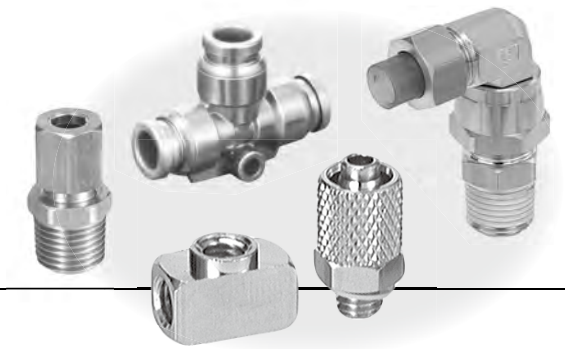
Pressure Gauge

∗ This is an HF1 compliant product.

Specifications

Item \ Model		G46-□-02-SRA	G46-□-02-SRB
Port size		R1/4	
Operating temperature range		0 to 60 °C (No freezing)	
Accuracy		± 3%F.S.	
Scale range		270°	
Parts washing (fluid-contact parts)		Precision wash	General degrease
Assembly and adjustment environment		Clean room	General production line
Oil free/Water free		Non-lube / Non-wet	
Materials	**Fluid-contact parts**	Stainless steel 316	
	Case	Stainless steel 304 (Black melamine coating)	
	Clear cover	Polycarbonate (Hard coated) Part No. G46-00-00-2	
	Internal parts	Brass	
Weight		80 g	

Fittings



The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

Insert Fittings KF

RoHS



- –101.3 kPa applicable
- Piping can be done without removing the nut.
- Fluid temperature: –5 to 150 °C (Brass sleeve)
  –5 to 60 °C (Resin sleeve)
- Steam can be used.
- Grease-free

Series	Applicable tubing O.D.	Connection thread
KF	Ø 4, Ø 6, Ø 8, Ø 10, Ø 12	1/8, 1/4, 3/8, 1/2

Miniature Fittings M

RoHS



- Compact and doesn't require tools for connection
- Compact piping space
- Hose nipple, Hose elbow, Barb

Series	Applicable tubing O.D.	Connection thread
M-□□-2∗1	Ø 2	M3, M5
M∗1	Ø 3.2, Ø 4, Ø 6	M3, M5, 1/8

∗1 Barb One-touch: M-32F-2, M-04F-2, Universal nipple: M-5UN are not available.

Self-align Fittings H/DL/L/LL

RoHS



- Applicable for use on soft copper steel pipes
- Flared ridge metal ferrule

Series	Applicable tubing O.D.	Connection thread
H	Ø 4, Ø 6, Ø 8, Ø 10, Ø 12	1/8, 1/4, 3/8, 1/2
DL	Ø 4, Ø 6, Ø 8, Ø 10, Ø 12	1/8, 1/4, 3/8, 1/2
L	Ø 4, Ø 6, Ø 8, Ø 10, Ø 12	1/8, 1/4, 3/8, 1/2
LL	Ø 4, Ø 6, Ø 8, Ø 10, Ø 12	1/8, 1/4, 3/8, 1/2

Stainless Steel 316 One-touch Fittings KQG2

RoHS



- Compact and lightweight
- Fluid temperature: –5 to 150 °C
- Materials: Metal parts stainless steel 316, seal parts special FKM
- Grease-free/Can be used with steam
  Certified to meet current Japan Food Sanitation Law standards

Series	Size	Applicable tubing O.D.	Connection thread
KQG2	Metric	Ø 3.2, Ø 4, Ø 6, Ø 8, Ø 10, Ø 12, Ø 16	M5 R, Rc 1/8, 1/4, 3/8, 1/2
KQG2	Inch	Ø 1/8", Ø 5/32", Ø 1/4", Ø 5/16", Ø 3/8", Ø 1/2"	UNF10-32 NPT1/8, 1/4, 3/8, 1/2

HF1 (compatible) | HF1A (compatible) | **HF1B (compatible)**

HF2 | HF2A compatible | **HF2B (compatible)** *1

HF3 | HF3A compatible

Fittings



*1 Only EHEDG compliant/Clean design/US FDA compliant fittings

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

Stainless Steel 316 Insert Fittings KFG2

RoHS



- Compact and lightweight
- Fluid temperature: –65 to 260 °C (Swivel elbow: –5 to 150 °C)
- Material: Stainless steel 316 Rubber materials are not used. (Excluding the swivel elbow)
- Grease-free/Can be used with steam
  Certified to meet current Japan Food Sanitation Law standards

Series	Size	Tubing O.D. x I.D.	Connection thread
KFG2	Metric	Ø 4 x Ø 2.5, Ø 4 x Ø 3, Ø 6 x Ø 4, Ø 8 x Ø 6, Ø 10 x Ø 7.5, Ø 10 x Ø 8, Ø 12 x Ø 9, Ø 12 x Ø 10, Ø 16 x Ø 13	R, Rc 1/8, 1/4, 3/8, 1/2
KFG2	Inch	Ø 1/8" x Ø 0.086", Ø 5/32" x 0.098", Ø 1/4" x Ø 5/32", Ø 5/16" x 0.236", Ø 3/8" x Ø 1/4", Ø 1/2" x Ø 3/8"	NPT1/8, 1/4, 3/8, 1/2

Miniature Fittings Stainless Steel 316 MS

RoHS



- Can be used in corrosive conditions
- Compact piping space
- Hose nipple, Hose elbow, Barb

Series	Applicable tubing O.D.	Connection thread
MS*1	Ø 3.2, Ø 4, Ø 6	M5

*1 Universal nipple: MS-5UN is not available.

EHEDG Compliant/Clean Design/US FDA Compliant Fittings KFG2H□-E/KFG2H□-C/KQ□2-F KFG2-F

RoHS

The specifications are the same as the "HF2B-" even though there is no "HF2B-" part number prefix.



- Hygienic design prevents liquid from accumulating after cleaning (EHEDG compliant, Clean design fittings)
- US FDA compliant materials

Type	Series	Description	Thread type
EHEDG compliant	**KFG2H□-E**	Stainless steel 316 insert fittings	M, G thread
Clean design	**KFG2H□-C**	Stainless steel 316 insert fittings	M, G thread
US FDA compliant	**KQG2-F**	Stainless steel 316 One-touch fittings	M, R, Rc, UNF, NPT, G
US FDA compliant	**KQB2-F**	Metal One-touch fittings	M, R, Rc, UNF, NPT, G
US FDA compliant	**KFG2-F**	Stainless steel 316 insert fittings	R, Rc, NPT, G

Clean One-touch Fittings for Driving Air Piping KPQ/KPG

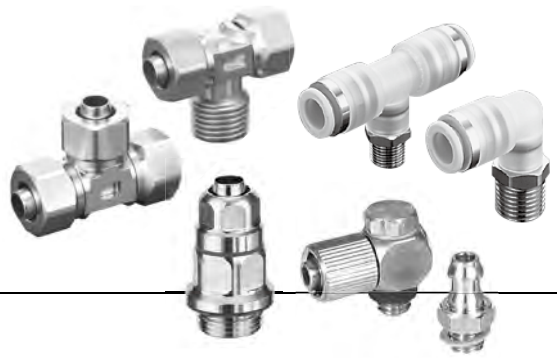
RoHS



- One-touch fittings suitable for driveline air systems in clean room environments
- Resin parts: Polypropylene
- All metal portions: Brass (Electroless nickel-plated) KPQ
  Stainless steel (Stainless steel 304) KPG

Series	Applicable tubing O.D.	Connection thread
KPQ	Ø 4, Ø 6, Ø 8, Ø 10, Ø 12	M5, 1/8, 1/4, 3/8, 1/2
KPG	Ø 4, Ø 6, Ø 8, Ø 10, Ø 12	M5, 1/8, 1/4, 3/8, 1/2

Fittings



The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

S Couplers Stainless Steel Type KKA

RoHS



- Body material: Stainless steel 304
- Seal material: Fluoropolymer (Special FKM) is employed.
- Grease-free
- Check valve built in to both plug and socket

Series	Connection thread
KKA	1/8, 1/4, 3/8, 1/2, 3/4, 1, 1 1/4, 1 1/2

Nylon Tubing

T/TIA Series





RoHS

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

Model

● — 20 m roll □ — 100 m roll (T1613 is reel.)

	Tubing size												
	Metric size (T series)								Inch size (TIA series)				
Model	T0425	T0403	T0604	T0645	T0806	T1075	T1209	T1613	TIA01	TIA05	TIA07	TIA11	TIA13
Tubing O.D. [mm]	4	4	6	6	8	10	12	16	3.18	4.76	6.35	9.53	12.7
Tubing I.D. [mm]	2.5	3	4	4.5	6	7.5	9	13	2.18	3.48	4.57	6.99	9.56
Black (B)	●	●	●	●	●	●	●	●	●	●	●	●	●
White (W)	●	●	●	●	●	●	●	●	●	●	●	●	●
Red (R)			●		●	●	●						
Blue (BU)			●		●	●	●						
Yellow (Y)			●		●	●	●						
Green (G)			●		●	●	●						
	5/32"				5/16"				Nominal size (inch)				
									1/8"	3/16"	1/4"	3/8"	1/2"
									Nominal size (mm)				
									3.2				

How to Order

T0425 B – 20

Tubing model

Colour

Symbol	Colour
B	Black (Opaque)
W	White (Material colour)
R	Red (Opaque)
BU	Blue (Opaque)
Y	Yellow (Opaque)
G	Green (Opaque)

Length per roll

Symbol	Length
20	20 m roll
100	100 m roll (Black and white only)

Soft Nylon Tubing

TS/TISA Series



RoHS

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

Model

● — 20 m roll □ — 100 m roll (TS1612 is reel.)

	Tubing size										
	Metric size (TS series)						Inch size (TISA series)				
Model	TS0425	TS0604	TS0806	TS1075	TS1209	TS1612	TISA01	TISA05	TISA07	TISA11	TISA13
Tubing O.D. [mm]	4	6	8	10	12	16	3.18	4.76	6.35	9.53	12.7
Tubing I.D. [mm]	2.5	4	6	7.5	9	12	2.18	3.48	4.57	6.99	9.56
Black (B)	●	●	●	●	●	●	●	●	●	●	●
White (W)	●	●	●	●	●	●	●	●	●	●	●
Red (R)	●	●	●	●	●						
Blue (BU)	●	●	●	●	●						
Yellow (Y)	●	●	●	●	●						
Green (G)	●	●	●	●	●						
	5/32"		5/16"				Nominal size (inch)				
							1/8"	3/16"	1/4"	3/8"	1/2"
							Nominal size (mm) 3.2				

How to Order

TS0604 W – 20

Tubing model

Colour

Symbol	Colour
B	Black (Opaque)
W	White (Material colour)
R	Red (Opaque)
BU	Blue (Opaque)
Y	Yellow (Opaque)
G	Green (Opaque)

Length per roll

Symbol	Length
20	20 m roll
100	100 m roll (Black and white only)

Polyurethane Tubing

TU/TIUB Series

RoHS

Model/Specifications

● – 20 m roll □ – 100 m roll (TU1610 is reel.) ◇ – 100 m roll, 200 m roll
△ – Option ■ – Manufactured upon receipt of order (Please consult with SMC.)

	Tubing size												
	Metric size (TU series)							Inch size (TIUB series)					
Model	TU0212	TU0425	TU0604	TU0805	TU1065	TU1208	TU1610	TIUB01	TIUB05	TIUB07	TIUB11	TIUB13	
Tubing O.D. [mm]	2	4	6	8	10	12	16	3.18	4.76	6.35	9.53	12.7	
Tubing I.D. [mm]	1.2	2.5	4	5	6.5	8	10	2	3.18	4.23	6.35	8.46	
Black (B)	●	◇	◇	●	●	●	●	●	●	●	●	●	
White (W)	●	◇	◇	●	●	●	●	●	△	△	△	△	
Red (R)	●	◇	◇	●	●	●	■	●	△	△	△	△	
Blue (BU)	●	◇	◇	●	●	●	●	●	●	●	●	●	
Yellow (Y)	●	◇	◇	●	●	●	■	●	△	△	△	△	
Green (G)	●	◇	◇	●	●	●	■	●	△	△	△	△	
Clear (C)	●	◇	◇	●	●	●	●	●	△	△	△	△	
Orange (YR)	●	◇	◇	●	●	●	■	●	△	△	△	△	
Solid blue (BU1)	■	●	●	●	●	●	■	●	■	■	■	■	
Clear blue (BU2)	■	●	●	●	●	●	■	●	■	■	■	■	
Medium blue (BU3)	■	●	●	●	●	●	■	●	■	■	■	■	
Brown (BR1)	■	●	●	●	●	●	■	●	■	■	■	■	
Solid green (G1)	■	●	●	●	●	●	■	●	■	■	■	■	
Clear green (G2)	■	●	●	●	●	●	■	●	■	■	■	■	
Neon green (G3)	■	●	●	●	●	●	■	●	■	■	■	■	
Dark green (G4)	■	●	●	●	●	●	■	●	■	■	■	■	
Grey (GR1)	■	●	●	●	●	●	■	●	■	■	■	■	
Light grey (GR2)	■	●	●	●	●	●	■	●	■	■	■	■	
Neon pink (P1)	■	●	●	●	●	●	■	●	■	■	■	■	
Solid purple (PU1)	■	●	●	●	●	●	■	●	■	■	■	■	
Clear purple (PU2)	■	●	●	●	●	●	■	●	■	■	■	■	
Solid red (R1)	■	●	●	●	●	●	■	●	■	■	■	■	
Clear red (R2)	■	●	●	●	●	●	■	●	■	■	■	■	
Silver (S1)	■	●	●	●	●	●	■	●	■	■	■	■	
Solid yellow (Y1)	■	●	●	●	●	●	■	●	■	■	■	■	
Clear yellow (Y2)	■	●	●	●	●	●	■	●	■	■	■	■	
Neon yellow (Y3)	■	●	●	●	●	●	■	●	■	■	■	■	
Clear orange (YR1)	■	●	●	●	●	●	■	●	■	■	■	■	
Neon orange (YR2)	■	●	●	●	●	●	■	●	■	■	■	■	
		5/32"		5/16"				Nominal size (inch)					
								1/8"	3/16"	1/4"	3/8"	1/2"	
								Nominal size (mm)					
								3.2					



SMC

The specifications are the same as the "HF 1 B-" even though there is no "HF1B-" part number prefix.

How to Order

TU0425 BU – 20

Tubing model

Length per roll

Symbol	Length
20	20 m roll
100	100 m roll
200	200 m roll

Colour

Symbol	Colour
B	Black (Opaque)
W	White (Opaque)
R	Red (Translucent)
BU	Blue (Translucent)
Y	Yellow (Opaque)
G	Green (Opaque)
C	Clear (Material colour)
YR	Orange (Opaque)
BU1	Solid blue (Opaque)
BU2	Clear blue (Translucent)
BU3	Medium blue (Opaque)
BR1	Brown (Opaque)
G1	Solid green (Opaque)
G2	Clear green (Translucent)
G3	Neon green (Opaque)
G4	Dark green (Opaque)

Symbol	Colour
GR1	Grey (Opaque)
GR2	Light grey (Opaque)
P1	Neon pink (Opaque)
PU1	Solid purple (Opaque)
PU2	Clear purple (Translucent)
R1	Solid red (Opaque)
R2	Clear red (Translucent)
S1	Silver (Opaque)
Y1	Solid yellow (Opaque)
Y2	Clear yellow (Translucent)
Y3	Neon yellow (Opaque)
YR1	Clear orange (Translucent)
YR2	Neon orange (Opaque)

FDA (U.S. Food and Drug Administration) and (EU) No 10/2011 Compliant Polyurethane Tubing

RoHS

In compliance with the FDA (U.S. Food and Drug Administration) § 177.2600 dissolution test and the (EU) No 10/2011 dissolution test

The specifications are the same as the "HF2B-" even though there is no "HF2B-" part number prefix.

Model

● – 20 m roll

	Tubing size (Metric size)				
Model	**TU0425**	**TU0604**	**TU0805**	**TU1065**	**TU1208**
O.D. [mm]	4	6	8	10	12
I.D. [mm]	2.5	4	5	6.5	8
Black (B)	●	●	●	●	●
White (W)	●	●	●	●	●
Red (R)	●	●	●	●	●
Blue (BU)	●	●	●	●	●
Yellow (Y)	●	●	●	●	●
Green (G)	●	●	●	●	●
Clear (C)	●	●	●	●	●
Orange (YR)	●	●	●	●	●



How to Order

TU0425 **BU** – **20** – **X214**

Tubing model

Model	O.D. x I.D. [mm]
TU0425	4 x 2.5
TU0604	6 x 4
TU0805	8 x 5
TU1065	10 x 6.5
TU1208	12 x 8

FDA (U.S. Food and Drug Administration) and (EU) No 10/2011 compliant

20 m roll

Colour

Symbol	Colour	Symbol	Colour
B	Black (Opaque)	**Y**	Yellow (Opaque)
W	White (Opaque)	**G**	Green (Opaque)
R	Red (Translucent)	**C**	Clear (Material colour)
BU	Blue (Translucent)	**YR**	Orange (Opaque)

∗ Note that the model number is not printed on the tube body.

Polyurethane Flat Tubing
Multi-core, Multi-colour Specification

TU Series

RoHS

Specifications



Model	TU0212	TU0425	TU0604	TU0805	TU1065	TU1208
Tubing O.D. [mm]	2	4	6	8	10	12
Tubing I.D. [mm]	1.2	2.5	4	5	6.5	8
Black (B)	●	●	●	●	●	●
White (W)	●	●	●	●	●	●
Red (R)	●	●	●	●	●	●
Blue (BU)	●	●	●	●	●	●
Yellow (Y)	●	●	●	●	●	●
Green (G)	●	●	●	●	●	●
Clear (C)	●	●	●	●	●	●
Orange (YR)		●	●	●	●	●

Number of cores	2 cores	X169 (Roll)/X200 (Reel)
	3 cores	X170 (Roll)/X201 (Reel)
	4 cores	X171 (Roll)/X202 (Reel)
	5 cores	X172 (Roll)/X203 (Reel)
	6 cores	X204 (Roll)/X207 (Reel)

How to Order

The specifications are the same as the "HF 1 B-" even though there is no "HF1B-" part number prefix.

Please contact SMC for delivery times.

Roll

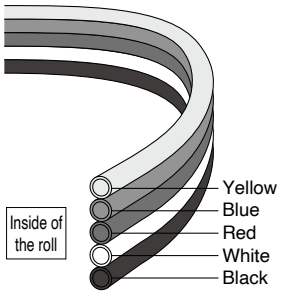
Tube length per roll: 1, 2, 3, 4, 5, 10, 20 m

TU 0425 – 12345 A – X172

Tubing model

Tubing size

Symbol	O.D. x I.D.
0212	Ø 2 x Ø 1.2
0425	Ø 4 x Ø 2.5
0604	Ø 6 x Ø 4
0805	Ø 8 x Ø 5
1065	Ø 10 x Ø 6.5
1208	Ø 12 x Ø 8



Colour∗1

Symbol	Colour	Symbol	Colour
1	Black	**5**	Yellow
2	White	**6**	Green
3	Red	**7**	Clear
4	Blue	**8**	Orange∗2

∗1 Colours of the example (12345)
∗2 Excludes the TU0212

Multi-core, multi-colour specification

Symbol	Number of cores
X169	2 cores
X170	3 cores
X171	4 cores
X172	5 cores
X204	6 cores

Tube length per roll [m]

Symbol	Length	Symbol	Length
A	1	**E**	5
B	2	**F**	10
C	3	**G**	20
D	4		

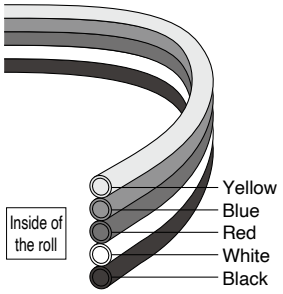
Tube length per roll: 50 m

TU 0425 – 12345 H – X172

Tubing model

Tubing size

Symbol	O.D. x I.D.
0425	Ø 4 x Ø 2.5
0604	Ø 6 x Ø 4
0805	Ø 8 x Ø 5
1065	Ø 10 x Ø 6.5
1208	Ø 12 x Ø 8



Colour∗1

Symbol	Colour	Symbol	Colour
1	Black	**5**	Yellow
2	White	**6**	Green
3	Red	**7**	Clear
4	Blue	**8**	Orange

∗1 Colours of the example (12345)

Multi-core, multi-colour specification

Symbol	Number of cores	Applicable tubing O.D.				
		Ø 4	**Ø 6**	**Ø 8**	**Ø 10**	**Ø 12**
X169	2 cores	●	●	●	●	●
X170	3 cores	●	●	●	●	
X171	4 cores	●	●	●		
X172	5 cores	●	●	●		
X204	6 cores	●	●			

Tube length per roll [m]

Symbol	Length
H	50

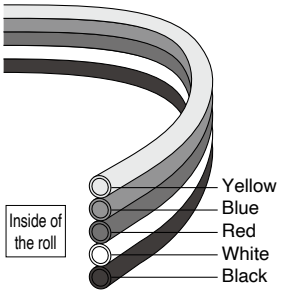
Tube length per roll: 100 m

TU 0425 – 12345 J – X172

Tubing model

Tubing size

Symbol	O.D. x I.D.
0425	Ø 4 x Ø 2.5
0604	Ø 6 x Ø 4
0805	Ø 8 x Ø 5



Colour∗1

Symbol	Colour	Symbol	Colour
1	Black	**5**	Yellow
2	White	**6**	Green
3	Red	**7**	Clear
4	Blue	**8**	Orange

∗1 Colours of the example (12345)

Multi-core, multi-colour specification

Symbol	Number of cores	Applicable tubing O.D.		
		Ø 4	**Ø 6**	**Ø 8**
X169	2 cores	●	●	●
X170	3 cores	●	●	
X171	4 cores	●	●	
X172	5 cores	●	●	
X204	6 cores	●		

Tube length per roll [m]

Symbol	Length
J	100

How to Order

The specifications are the same as the "HF 1 B-" even though there is no "HF1B-" part number prefix.

Please contact SMC for delivery times.

Reel

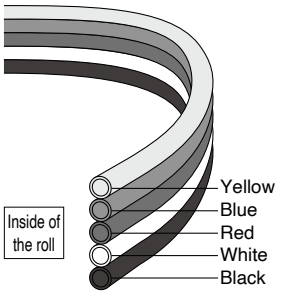
Tube length per roll: 10, 20 m

TU 0212 – 12345 F – X203

Tubing model

Tubing size

Symbol	O.D. x I.D.
0212	Ø 2 x Ø 1.2
0425	Ø 4 x Ø 2.5
0604	Ø 6 x Ø 4
0805	Ø 8 x Ø 5
1065	Ø 10 x Ø 6.5
1208	Ø 12 x Ø 8



Colour[*1]

Symbol	Colour	Symbol	Colour
1	Black	**5**	Yellow
2	White	**6**	Green
3	Red	**7**	Clear
4	Blue	**8**	Orange[*2]

*1 Colours of the example (12345)
*2 Excludes the TU0212

Multi-core, multi-colour specification

Symbol	Number of cores	Applicable tubing O.D.					
		Ø **2**	Ø **4**	Ø **6**	Ø **8**	Ø **10**	Ø **12**
X200	2 cores	●	●	●	●	●	●
X201	3 cores	●	●	●	●		
X202	4 cores	●	●	●	●		
X203	5 cores	●	●	●			
X207	6 cores	●	●	●			

Tube length per roll [m]

Symbol	Length
F	10
G	20

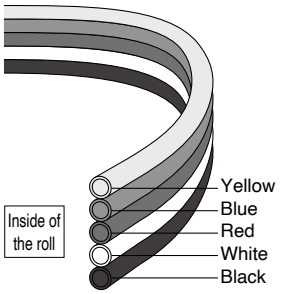
Tube length per roll: 50 m

TU 0425 – 12345 H – X203

Tubing model

Tubing size

Symbol	O.D. x I.D.
0425	Ø 4 x Ø 2.5
0604	Ø 6 x Ø 4
0805	Ø 8 x Ø 5
1065	Ø 10 x Ø 6.5



Colour[*1]

Symbol	Colour	Symbol	Colour
1	Black	**5**	Yellow
2	White	**6**	Green
3	Red	**7**	Clear
4	Blue	**8**	Orange

*1 Colours of the example (12345)

Multi-core, multi-colour specification

Symbol	Number of cores	Applicable tubing O.D.			
		Ø **4**	Ø **6**	Ø **8**	Ø **10**
X200	2 cores	●	●	●	●
X201	3 cores	●	●	●	
X202	4 cores	●	●		
X203	5 cores	●	●		
X207	6 cores	●	●		

Tube length per roll [m]

Symbol	Length
H	50

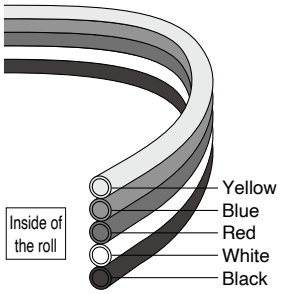
Tube length per roll: 100 m

TU 0425 – 12345 J – X203

Tubing model

Tubing size

Symbol	O.D. x I.D.
0425	Ø 4 x Ø 2.5
0604	Ø 6 x Ø 4
0805	Ø 8 x Ø 5



Colour[*1]

Symbol	Colour	Symbol	Colour
1	Black	**5**	Yellow
2	White	**6**	Green
3	Red	**7**	Clear
4	Blue	**8**	Orange

*1 Colours of the example (12345)

Multi-core, multi-colour specification

Symbol	Number of cores	Applicable tubing O.D.		
		Ø **4**	Ø **6**	Ø **8**
X200	2 cores	●	●	●
X201	3 cores	●	●	
X202	4 cores	●	●	
X203	5 cores	●		
X207	6 cores	●		

Tube length per roll [m]

Symbol	Length
J	100

Soft Polyurethane Tubing

TUS Series

RoHS

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

Model/Specifications

● — 20 m roll □ — 100 m reel

Model	TUS0425	TUS0604	TUS0805	TUS1065	TUS1208
Tubing O.D. [mm]	4	6	8	10	12
Tubing I.D. [mm]	2.5	4	5	6.5	8
Black (B)	●	●	●	●	●
White (W)	●	●	●	●	●
Red (R)	●	●	●	●	●
Blue (BU)	●	●	●	●	●
Yellow (Y)	●	●	●	●	●
Green (G)	●	●	●	●	●
Translucent (N)	●	●	●	●	●
Yellow brown (YB)	●	●	●	●	●



How to Order

TUS1065 **B** – **100**

Tubing model

Length per roll

Symbol	Length
20	20 m roll
100	100 m reel

Colour

Symbol	Colour	Symbol	Colour
B	Black (Opaque)	**Y**	Yellow (Opaque)
W	White (Opaque)	**G**	Green (Opaque)
R	Red (Opaque)	**N**	Translucent (Material colour)
BU	Blue (Opaque)	**YB**	Yellow brown (Opaque)

Made to Order

Multi-core, Multi-colour Specification Flat Tubing

Refer to the **Web Catalogue** for details.

Soft Polyurethane Flat Tubing
Multi-core, Multi-colour Specification

TUS Series

RoHS

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

Specifications



Model	TUS0425	TUS0604	TUS0805	TUS1065	TUS1208
Tubing O.D. [mm]	4	6	8	10	12
Tubing I.D. [mm]	2.5	4	5	6.5	8
Black (B)	●	●	●	●	●
White (W)	●	●	●	●	●
Red (R)	●	●	●	●	●
Blue (BU)	●	●	●	●	●
Yellow (Y)	●	●	●	●	●
Green (G)	●	●	●	●	●
Translucent (N)	●	●	●	●	●
Yellow brown (YB)	●	●	●	●	●

How to Order

Please contact SMC for delivery times.

TUS □ – □ □ – □

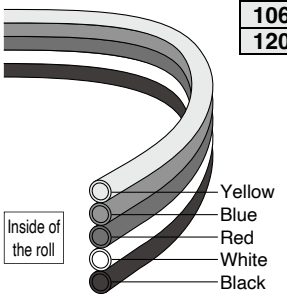
Tubing model

Tubing size

Symbol	O.D. x I.D.
0425	Ø 4 x Ø 2.5
0604	Ø 6 x Ø 4
0805	Ø 8 x Ø 5
1065	Ø 10 x Ø 6.5
1208	Ø 12 x Ø 8

Multi-core, multi-colour specification

Symbol	Number of cores
X169	2 cores
X170	3 cores
X171	4 cores
X172	5 cores



Colour[*1]

Symbol	Colour	Symbol	Colour
1	Black	**5**	Yellow
2	White	**6**	Green
3	Red	**7**	Translucent[*2]
4	Blue	**8**	Yellow brown

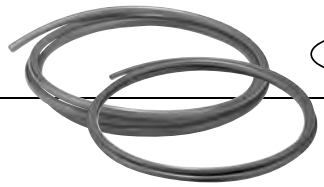
∗1 Colours of the example (12345)
∗2 Not clear, but translucent due to material.

Tube length per roll [m]

Symbol	Length
A	1
B	2
C	3
D	4
E	5
F	10
G	20

Hard Polyurethane Tubing/ Standard Type

TUH Series



RoHS

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

Model/Specifications

● — 20 m roll □ — 100 m roll

Model	TUH0428	TUH0644	TUH0858	TUH1073	TUH1288
O.D. [mm]	4	6	8	10	12
I.D. [mm]	2.8	4.4	5.8	7.3	8.8
Black (B)	●	●	●	●	●
White (W)	●	●	●	●	●
Blue (BU)	●	●	●	●	●
Translucent (N)	●	●	●	●	●

How to Order

TUH0644 B – 20

Tubing model

Colour

Symbol	Colour
B	Black (Opaque)
W	White (Opaque)
BU	Blue (Translucent)
N	Translucent (Material colour)

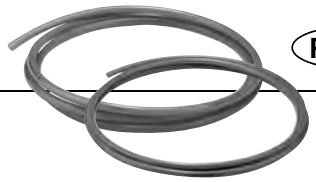
Length per roll

Symbol	Length
20	20 m roll
100	100 m roll

HF1 (compatible) HF1A (compatible) HF1B (compatible)
HF2 HF2A compatible HF2B (compatible)
HF3 HF3A compatible

Hard Polyurethane Tubing/ High Pressure Type

TUH Series



RoHS

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

Model/Specifications

● — 20 m roll □ — 100 m roll

Model	TUH0425	TUH0604	TUH0805	TUH1065	TUH1208
O.D. [mm]	4	6	8	10	12
I.D. [mm]	2.5	4	5	6.5	8
Black (B)	●	●	●	●	●
White (W)	●	●	●	●	●
Blue (BU)	●	●	●	●	●
Translucent (N)	●	●	●	●	●

How to Order

TUH0604 B – 20

Tubing model

Colour

Symbol	Colour
B	Black (Opaque)
W	White (Opaque)
BU	Blue (Translucent)
N	Translucent (Material colour)

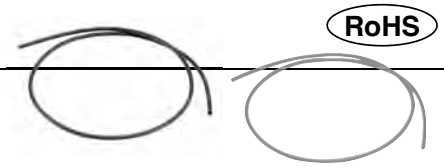
Length per roll

Symbol	Length
20	20 m roll
100	100 m roll

Wear Resistant Tubing

TUZ/TIUZB Series

RoHS



The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

Model

● — 20 m roll □ — 100 m roll

	Tubing size										
	Metric size (TUZ series)								Inch size (TIUZB series)		
Model	TUZ0212	TUZ3220	TUZ0425	TUZ0604	TUZ0805	TUZ1065	TUZ1208	TUZ1610	TIUZB07	TIUZB11	TIUZB13
Tubing O.D. [mm]	2	3.2	4	6	8	10	12	16	6.35	9.53	12.7
Tubing I.D. [mm]	1.2	2	2.5	4	5	6.5	8	10	4.23	6.35	8.46
Black (B)	□	●	●	●	●	●	●	□	●	●	●
White (W)		●	●	●	●	●	●		●	●	●
Red (R)			●	●	●	●	●		●	●	●
Blue (BU)		●	●	●	●	●	●		●	●	●
Yellow (Y)			●	●	●	●	●		●	●	●
Green (G)			●	●	●	●	●		●	●	●

How to Order

TUZ0425 BU – 20

Tubing model

Colour

Symbol	Colour
B	Black
W	White
R	Red
BU	Blue
Y	Yellow
G	Green

∗ Not clear, but opaque due to material.

Length per roll

Symbol	Length
20	20 m roll
100	100 m roll

Made to Order

Multi-core, same colour specification
TFU-X73
Flat type of the TUZ series
Number of cores: 2 to 12 cores
Specification: **Same colour**

Multi-core, multi-colour specification
TUZ-X169 to X172, -X204
Number of cores: 2 to 6 cores
Specification: **Multi-colour**
Refer to the **Web Catalogue** for details.

The identification line is not shown.
Please contact SMC for detailed specifications, dimensions, and delivery times.

How to Order

TFU0425 BU – 2 – 20 – X73

Tubing model

Model	O.D. x I.D. [mm]
TFU0425	4 x 2.5
TFU0604	6 x 4
TFU0805	8 x 5
TFU1065	10 x 6.5
TFU1208	12 x 8

Number of cores
2 to 12

Length per roll

–	10 m
n	n m∗1

∗1 It is also available in lengths other than 10 m. Enter the length you need (1, 2, 3, 4, 5, 20).
Example) **TFU0425BU-2-20-X73**
20 m

Colour

Symbol	Colour
B	Black
W	White
R	Red
BU	Blue
Y	Yellow
G	Green

∗ Not clear, but opaque due to material.

Special polyurethane (Multi-core, same colour specification)

Polyurethane Coil Tubing

TCU Series

RoHS

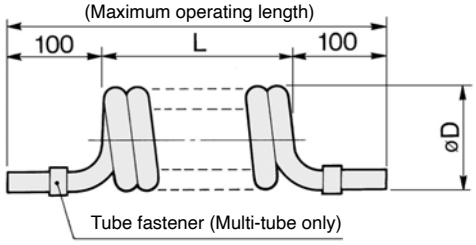
The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

Model/Specifications

Model	TCU 0425B-1	TCU 0425B-2	TCU 0425B-3	TCU 0604B-1	TCU 0604B-2	TCU 0604B-3	TCU 0805B-1
Number of cores	1 core	2 cores	3 cores	1 core	2 cores	3 cores	1 core
Tubing O.D. [mm]	4			6			8
Tubing I.D. [mm]	2.5			4			5
Colour	Black (Opaque)						



Dimensions



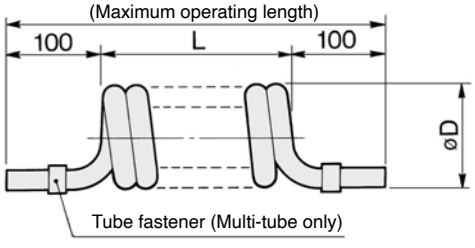
Specifications / Model	Tubing size [mm] O.D.	Tubing size [mm] I.D.	Coil [mm] L	Coil [mm] Ø D	No. of cores	No. of coil windings per tube length	Max. operating length [m]	Standard unit of packing
TCU0425B-1	4	2.5	210	18	1	52 ± 2	1.5	5 tubes/case
TCU0425B-2			280	28	2	35 ± 1		
TCU0425B-3			265		3	22 ± 1	1	
TCU0604B-1	6	4	325	24	1	54 ± 2	2	
TCU0604B-2				37	2	27 ± 1	1.5	
TCU0604B-3			305		3	17 ± 1	1	
TCU0805B-1	8	5	330	31	1	41 ± 2	2	

∗ The number of coil windings per tube length and dimensions are changeable due to material.

Made to Order

Change of coil turns, Change of colour

(Please contact SMC for detailed specifications, dimensions, and delivery times.)



Specifications / Model	Tubing size [mm] O.D.	Tubing size [mm] I.D.	Coil [mm] L	Coil [mm] Ø D	No. of cores	No. of coil windings per tube length (N)	Max. operating length [mm]
TCU0425□-1-N-X6	4	2.5	N x 4	18	1	3 to 90	L x 5.9 + 200
TCU0425□-2-N-X6			N x 8	28	2	3 to 90	L x 4.4 + 200
TCU0425□-3-N-X6			N x 12	28	3	3 to 63	L x 2.9 + 200
TCU0604□-1-N-X6	6	4	N x 6	24	1	3 to 90	L x 5.3 + 200
TCU0604□-2-N-X6			N x 12	37	2	3 to 66	L x 3.8 + 200
TCU0604□-3-N-X6			N x 18	37	3	3 to 44	L x 2.5 + 200

Specifications / Model	Tubing size [mm] O.D.	Tubing size [mm] I.D.	Coil [mm] L	Coil [mm] Ø D	No. of cores	No. of coil windings per tube length (N)	Max. operating length [mm]
TCU0805□-1-N-X6	8	5	N x 8	31	1	3 to 90	L x 5.2 + 200
TCU0805□-2-N-X6			N x 16	42	2	3 to 40	L x 3 + 200
TCU1065□-1-N-X6	10	6.5	N x 10	52	1	3 to 45	L x 5 + 200
TCU1065□-2-N-X6			N x 20	52	2	3 to 35	L x 3 + 200
TCU1208□-1-N-X6	12	8	N x 12	67	1	3 to 35	L x 5 + 200
TCU1208□-2-N-X6			N x 24	67	2	3 to 30	L x 3 + 200

∗ □: B (Black), W (White), R (Red), BU (Blue), Y (Yellow), G (Green), C (Clear), YR (Orange)

Polyurethane Flat Tubing

TFU Series

RoHS

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

Specifications

Model	TFU 0425B-2	TFU 0425B-3	TFU 0604B-2	TFU 0604B-3	TFU 0805B-2	TFU 0805B-3
No. of cores	2 cores	3 cores	2 cores	3 cores	2 cores	3 cores
Tubing O.D. [mm]	4		6		8	
Tubing I.D. [mm]	2.5		4		5	
Colour	Black					



How to Order

TFU0425 B – 2

Tubing model

Colour

Symbol	Colour
B	Black (Opaque)

No. of tubes

Symbol	No. of cores
2	2 cores
3	3 cores

Polyethylene Tubing

TX/TIX Series

RoHS

The specifications are the same as the "HF2B-" even though there is no "HF2B-" part number prefix.

Using materials compliant with Japan Food Sanitation Act, US FDA, and Regulation (EU) No. 10/2011[*1]

*1 Using materials posted in the positive list

Model

●–20 m roll ☐–100 m roll

		Metric size: TX Series					Inch size: TIX Series		
Model		TX0425	TX0604	TX0806	TX1008	TX1209	TIX07	TIX11	TIX13
O.D. [mm]		4	6	8	10	12	6.35	9.53	12.7
I.D. [mm]		2.5	4	6	8	9	3.95	6.33	9.5
Colour	Black (B)	●	●	●	●	●	●	●	●
	White (W)	●	●	●	●	●	●	●	●
	Red (R)	●	●	●	●	●	●	●	●
	Blue (BU)	●	●	●	●	●	●	●	●
	Yellow (Y)	●	●	●	●	●	●	●	●
	Green (G)	●	●	●	●	●	●	●	●



How to Order

TX0604 B – 20

Tubing model

Colour

Symbol	Colour
B	Black (Opaque)
W	White (Material colour)
R	Red (Opaque)
BU	Blue (Opaque)
Y	Yellow (Opaque)
G	Green (Opaque)

Length per roll

Symbol	Length
20	20 m roll
100	100 m roll

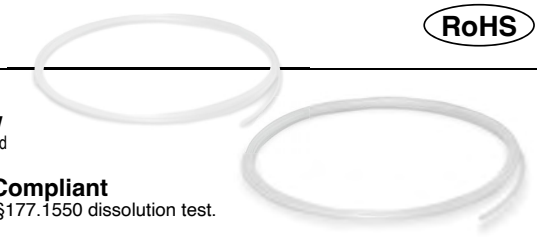
Applicable Fluid List

Refer to the **SMC website** for chemical resistance of polyethylene resin.

High Purity Fluoropolymer Tubing

TL/TIL Series

RoHS



Material: Super PFA

Compatible with the Japan Food Sanitation Law

• Compatible with the test conforming to the Japan Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.

FDA (U.S. Food and Drug Administration) Compliant

• Complies with FDA (U.S. Food and Drug Administration) §177.1550 dissolution test.

The specifications are the same as the "HF2B-" even though there is no "HF2B-" part number prefix.

Series

		Metric sizes (TL series)						Inch sizes (TIL series)							
Tubing model		**TL0403**	**TL0604**	**TL0806**	**TL1008**	**TL1210**	**TL1916**	**TIL01**	**TILB01**	**TIL05**	**TIL07**	**TIL11**	**TIL13**	**TIL19**	**TIL25**
Nominal diameter		–	–	–	–	–	–	1/8"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"
Tubing size		Ø 4 x Ø 3	Ø 6 x Ø 4	Ø 8 x Ø 6	Ø 10 x Ø 8	Ø 12 x Ø 10	Ø 19 x Ø 16	1/8" x 0.086"	1/8" x 1/16"	3/16" x 1/8"	1/4" x 5/32"	3/8" x 1/4"	1/2" x 3/8"	3/4" x 5/8"	1" x 7/8"
O.D. [mm]	Basic diameter	4	6	8	10	12	19	3.18	3.18	4.75	6.35	9.53	12.7	19.05	25.4
	Tolerance	±0.1				$^{+0.2}_{-0.1}$		±0.1					$^{+0.2}_{-0.1}$		
Thickness [mm]	Basic diameter	0.5	1				1.5	0.5	0.8	0.8	1.2	1.6			
	Tolerance	±0.05	±0.1				±0.15	±0.05	±0.08	±0.08	±0.12	±0.15			
Bundle	**10 m**	–	–	–	●	●	●	–	–	–	–	●	●	–	–
	20 m	●	●	●	●	●	●	●	–	●	●	●	●	●	●
	50 m	●	●	●	●	●	●	●	–	●	●	●	●	●	●
	100 m	●	●	●	●	●	●	●	–	●	●	●	●	●	–
	16 m (50 ft)	–	–	–	–	–	–	●	●	●	●	●	●	●	●
	33 m (100 ft)	–	–	–	–	–	–	●	●	●	●	●	●	●	●
Straight pipe	**2 m**	●	●	●	●	●	●	●	–	●	●	●	●	●	●
Colour		Translucent (colour of material)													

How to Order

Metric sizes **TL0604** – **20**

Inch sizes **TIL01** – **20**

Tubing model

Length **Applicable to both metric and inch size**

Symbol	Type	Length
10	Roll	10 m
20		20 m
50		50 m
100		100 m
2S	Straight	2 m

Length **Applicable to inch size only**

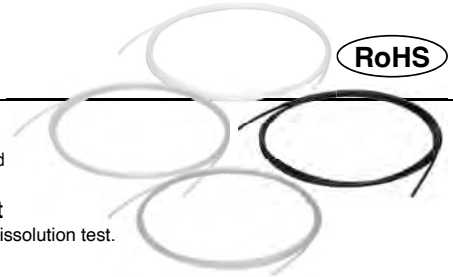
Symbol	Type	Length
16	Roll	16 m (50 ft)
33		33 m (100 ft)

Refer to the table "Series and Specifications" above, as the tubing length differs depending on each size.

Fluoropolymer Tubing (PFA)
Metric Size

TLM Series

RoHS



Compatible with the Japan Food Sanitation Law
- Compatible with the test conforming to the Japan Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.

FDA (U.S. Food and Drug Administration) Compliant
- Complies with FDA (U.S. Food and Drug Administration) §177.1550 dissolution test.

The specifications are the same as the "HF2B-" even though there is no "HF2B-" part number prefix.

Series

Size				Metric size												
Model				TLM0201	TLM0302	TLM0425	TLM0403	TLM0604	TLM0806	TLM1075	TLM1008	TLM1209	TLM1210	TLM1613	TLM1916	TLM2522
Tubing size				Ø 2 x Ø 1	Ø 3 x Ø 2	Ø 4 x Ø 2.5	Ø 4 x Ø 3	Ø 6 x Ø 4	Ø 8 x Ø 6	Ø 10 x Ø 7.5	Ø 10 x Ø 8	Ø 12 x Ø 9	Ø 12 x Ø 10	Ø 16 x Ø 13	Ø 19 x Ø 16	Ø 25 x Ø 22
O.D. [mm]				2	3	4	4	6	8	10	10	12	12	16	19	25
I.D. [mm]				1	2	2.5	3	4	6	7.5	8	9	10	13	16	22
Length per roll		Colour	Symbol													
Roll	10 m	Translucent	N							●	●	●	●	●	●	
	20 m	Translucent	N	●	●	●	●	●	●	●	●	●	●	●	●	●
		Red	R	●	●	●	●	●	●	●	●	●	●	●	●	●
		Blue	BU	●	●	●	●	●	●	●	●	●	●	●	●	●
		Black	B	●	●	●	●	●	●	●	●	●	●	●	●	●
	50 m	Translucent	N	●	●	●	●	●	●	●	●	●	●	●	●	●
	100 m	Translucent	N	●	●	●	●	●	●	●	●	●	●	●	●	
Straight	2 m	Translucent	N	●	●	●	●	●	●	●	●	●	●	●	●	●

Inch O.D. size: 5/32" (TLM0425, TLM0403)

Inch O.D. size: 5/16" (TLM0806)

O.D. 3.2 mm is available in Ø 1/8 inch (3.18 mm) tubing. For details, refer to the table "Series" in the **Web Catalogue**.

How to Order

Metric size

TLM0425 N – 20

Tubing designation

Colour indication

Symbol	Colour
N	Translucent (Material colour)
R	Red (Translucent)
BU	Blue (Translucent)
B	Black (Opaque)

Length per roll

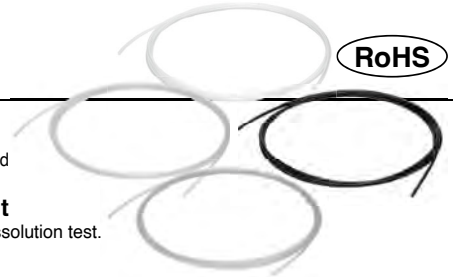
Symbol	Type	Length
10	Roll	10 m
20		20 m
50		50 m
100		100 m
2S	Straight	2 m

∗ Refer to the table "Series" above, as the tubing length differs depending on each size.

Fluoropolymer Tubing (PFA)
Inch Size

TILM Series

RoHS



Compatible with the Japan Food Sanitation Law
- Compatible with the test conforming to the Japan Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.

FDA (U.S. Food and Drug Administration) Compliant
- Complies with FDA (U.S. Food and Drug Administration) §177.1550 dissolution test.

The specifications are the same as the "HF2B-" even though there is no "HF2B-" part number prefix.

Series

Size				Inch size								
Model				TILM01	TILMB01	TILM05	TILM07	TILM11	TILM13	TILM19	TILM25	TILM32
Tubing size				1/8" x 0.086"	1/8" x 1/16"	3/16" x 1/8"	1/4" x 5/32"	3/8" x 1/4"	1/2" x 3/8"	3/4" x 5/8"	1" x 7/8"	$1\frac{1}{4}$" x $1\frac{1}{10}$"
O.D.	inch			1/8"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"	$1\frac{1}{4}$"
	mm			3.18		4.75	6.35	9.53	12.7	19.05	25.4	31.75
I.D.	inch			0.086"	1/16"	1/8"	5/32"	1/4"	3/8"	5/8"	7/8"	$1\frac{1}{10}$"
	mm			2.18	1.58	3.15	3.95	6.33	9.5	15.85	22.2	27.95
Length per roll		Colour	Symbol									
Roll	10 m	Translucent	N					●	●			
	20 m	Translucent	N	●	●	●	●	●	●	●	●	●
		Red	R	●	●	●	●	●	●	●	●	●
		Blue	BU	●	●	●	●	●	●	●	●	●
		Black	B	●	●	●	●	●	●	●	●	●
	50 m	Translucent	N	●		●	●	●	●	●	●	●
	100 m	Translucent	N	●		●	●	●	●	●		
	16 m (50 ft)	Translucent	N	●	●	●	●	●	●	●	●	●
	33 m (100 ft)	Translucent	N	●	●	●	●	●	●	●	●	●
Straight	2 m	Translucent	N	●		●	●	●	●	●	●	●

Metric O.D. size
3.2

O.D. 5/32" is available in Ø 4 metric tubing, and O.D. 5/16" is available in Ø 8 metric tubing. For details, refer to the table "Series" in the **Web Catalogue**.

How to Order

Inch size

TILM01 N – 20

Tubing designation

Colour indication

Symbol	Colour
N	Translucent (Material colour)
R	Red (Translucent)
BU	Blue (Translucent)
B	Black (Opaque)

Length per roll

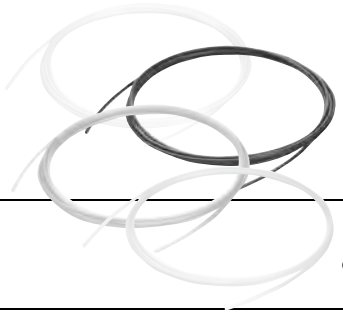
Symbol	Type	Length
10	Roll	10 m
20		20 m
50		50 m
100		100 m
16		16 m (50 ft)
33		33 m (100 ft)
2S	Straight	2 m

∗ Refer to the table "Series" above, as the tubing length differs depending on each size.

HF1 (compatible) | HF1A (compatible) | HF1B (compatible)
HF2 | HF2A compatible | **HF2B (compatible)**
HF3 | HF3A compatible

FEP Tubing (Fluoropolymer) Metric Size

TH Series



RoHS

The specifications are the same as the "HF2B-" even though there is no "HF2B-" part number prefix.

Compatible with the Japan Food Sanitation Law
• Compatible with the test conforming to the Japan Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.

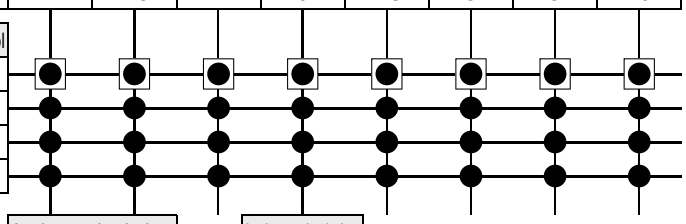
FDA (U.S. Food and Drug Administration) Compliant
• Complies with FDA (U.S. Food and Drug Administration) §177.1550 dissolution test.

Series

●-20 m roll □-100 m roll

	Metric size							
Model	**TH0402**	**TH0425**	**TH0604**	**TH0806**	**TH1075**	**TH1008**	**TH1209**	**TH1210**
Tubing O.D. [mm]	4	4	6	8	10	10	12	12
Tubing I.D. [mm]	2	2.5	4	6	7.5	8	9	10

Colour	Symbol
Translucent	**N**
Red	**R**
Blue	**BU**
Black	**B**



Inch nominal size
5/32"

Inch nominal size
5/16"

How to Order

Metric size

TH0604 N – 20

Indication of tubing model

Colour indication

Symbol	Colour
N	Translucent (Material colour)
R	Red (Translucent)
BU	Blue (Translucent)
B	Black (Opaque)

Length per roll

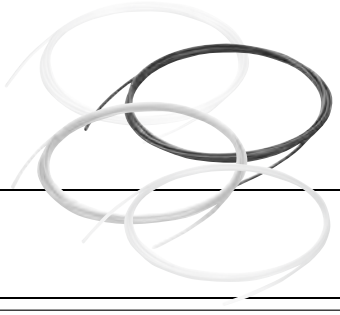
Symbol	Roll size
20	20 m roll
100∗1	100 m roll

∗1 100 m roll is available with translucent (colour indication: N) only.

HF1 (compatible) | HF1A (compatible) | HF1B (compatible)
HF2 | HF2A compatible | **HF2B (compatible)**
HF3 | HF3A compatible

FEP Tubing (Fluoropolymer) Inch Size

TIH Series



RoHS

The specifications are the same as the "HF2B-" even though there is no "HF2B-" part number prefix.

Compatible with the Japan Food Sanitation Law
• Compatible with the test conforming to the Japan Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.

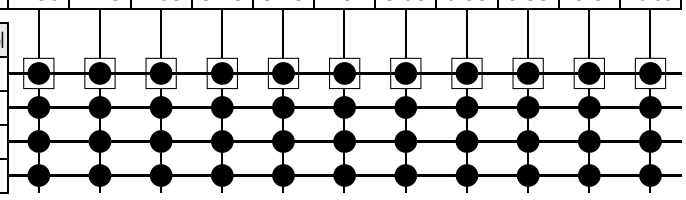
FDA (U.S. Food and Drug Administration) Compliant
• Complies with FDA (U.S. Food and Drug Administration) §177.1550 dissolution test.

Series

●-16 m (50 ft) roll □-33 m (100 ft) roll

		Inch size										
Model		**TIHA01**	**TIHB01**	**TIHC01**	**TIHA05**	**TIHB05**	**TIHA07**	**TIHB07**	**TIHA11**	**TIHB11**	**TIH13**	**TIH19**
Tubing O.D.	inch	1/8"			3/16"		1/4"		3/8"		1/2"	3/4"
	mm	3.18			4.75		6.35		9.53		12.7	19.05
Tubing I.D.	inch	0.093"	0.086"	0.065"	0.137"	0.124" (1/8")	0.18"	0.156" (5/32")	0.275"	0.25" (1/4")	0.374" (3/8")	0.624" (5/8")
	mm	2.36	2.18	1.65	3.48	3.15	4.57	3.95	6.99	6.33	9.5	15.85

Colour	Symbol
Translucent	**N**
Red	**R**
Blue	**BU**
Black	**B**



How to Order

Inch size

TIHA01 N – 16

Indication of tubing model

Colour indication

Symbol	Colour
N	Translucent (Material colour)
R	Red (Translucent)
BU	Blue (Translucent)
B	Black (Opaque)

Length per roll

Symbol	Roll size
16	16 m (50 ft) roll
33∗1	33 m (100 ft) roll

∗1 33 m (100 ft) roll is available with translucent (colour indication: N) only.

Soft Fluoropolymer Tubing Metric Size

TD Series

RoHS

The specifications are the same as the "HF2B-" even though there is no "HF2B-" part number prefix.

Compatible with the Japan Food Sanitation Law
• Compatible with the test conforming to the Japan Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.

FDA (U.S. Food and Drug Administration) Compliant
• Complies with FDA (U.S. Food and Drug Administration) §177.1550 dissolution test.

Model/Specifications

Size		Metric size				
Model		**TD0425**	**TD0604**	**TD0806**	**TD1075**	**TD1209**
Tubing O.D. [mm]		4	6	8	10	12
Tubing I.D. [mm]		2.5	4	6	7.5	9
Roll	**10 m**	●	●	●	●	●
	20 m	●	●	●	●	●
Colour		Translucent (material colour)				

How to Order

Metric size

TD0425 – 10

Tubing model

Length per roll

Symbol	Length
10	10 m roll
20	20 m roll

HF1 (compatible) HF1A (compatible) HF1B (compatible)
HF2 HF2A compatible HF2B (compatible)
HF3 HF3A compatible

Soft Fluoropolymer Tubing Inch Size

TID Series

RoHS

The specifications are the same as the "HF2B-" even though there is no "HF2B-" part number prefix.

Compatible with the Japan Food Sanitation Law
• Compatible with the test conforming to the Japan Food Sanitation Law based on the 370th notice given by the Ministry of Health and Welfare in 1959.

FDA (U.S. Food and Drug Administration) Compliant
• Complies with FDA (U.S. Food and Drug Administration) §177.1550 dissolution test.

Model/Specifications

Size		Inch size				
Model		**TID01**	**TID05**	**TID07**	**TID11**	**TID13**
Tubing O.D.	**inch**	1/8"	3/16"	1/4"	3/8"	1/2"
	mm	3.18	4.75	6.35	9.53	12.7
Tubing I.D.	**inch**	0.086"	0.124" (1/8")	0.156" (5/32")	0.25" (1/4")	0.374" (3/8")
	mm	2.18	3.15	3.95	6.33	9.5
Roll	**8 m (25 ft)**	●	●	●	●	●
	16 m (50 ft)	●	●	●	●	●
Colour		Translucent (material colour)				

How to Order

Inch size

TID01 – 8

Tubing model

Length per roll

Symbol	Length
8	8 m (25 ft) roll
16	16 m (50 ft) roll

HF1 (compatible) HF1A (compatible) HF1B (compatible)
HF2 HF2A compatible **HF2B (compatible)**
HF3 HF3A compatible

Clean Tubing: Polyolefin Tubing

TPH Series

RoHS

The specifications are the same as the "HF2B-" even though there is no "HF2B-" part number prefix.

Complies with FDA (U.S. Food and Drug Administration) §175.300 dissolution test

Model/Specifications

● — 20 m roll □ — 100 m roll

Model	TPH0425	TPH0604	TPH0806	TPH1075	TPH1209
O.D. [mm]	4	6	8	10	12
I.D. [mm]	2.5	4	6	7.5	9
White (W)	●	●	●	●	●
Blue (BU)	●	●	●	●	●
Yellow (Y)	●	●	●	●	●

How to Order

TPH0604 W – 20

Tubing model

Colour

Symbol	Colour
W	White (Material colour)
BU	Blue (Opaque)
Y	Yellow (Opaque)

Length per roll

Symbol	Length
20	20 m roll
100	100 m roll

HF1 (compatible) HF1A (compatible) HF1B (compatible)
HF2 HF2A compatible **HF2B (compatible)**
HF3 HF3A compatible

Clean Tubing: Soft Polyolefin Tubing

TPS Series

RoHS

The specifications are the same as the "HF2B-" even though there is no "HF2B-" part number prefix.

Complies with FDA (U.S. Food and Drug Administration) §175.300 dissolution test

Model/Specifications

● — 20 m roll □ — 100 m roll

Model	TPS0425	TPS0604	TPS0805	TPS1065	TPS1208
O.D. [mm]	4	6	8	10	12
I.D. [mm]	2.5	4	5	6.5	8
White (W)	●	●	●	●	●
Blue (BU)	●	●	●	●	●
Yellow (Y)	●	●	●	●	●

How to Order

TPS0604 W – 20

Tubing model

Colour

Symbol	Colour
W	White (Material colour)
BU	Blue (Opaque)
Y	Yellow (Opaque)

Length per roll

Symbol	Length
20	20 m roll
100	100 m roll

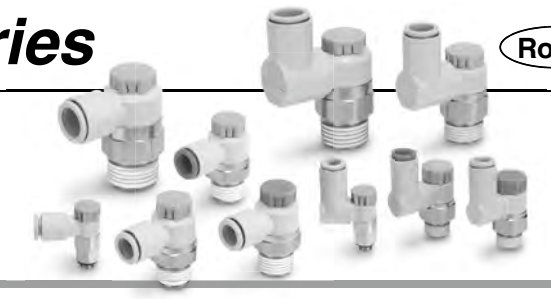
Speed Controller with One-touch Fitting

Push-lock Type **Lock Nut Type (Metal Knob)**

Elbow Type/Universal Type

HF1B-AS Series

RoHS



Model

Model		Port size		Seal method	Applicable tubing O.D.													
					Metric size								Inch size					
Elbow type	Universal type				2*2	3.2	4	6	8	10	12	16	1/8"	5/32"	1/4"	5/16"	3/8"	1/2"
HF1B-AS12□1F-M5□	HF1B-AS13□1F-M5□	M5 x 0.8		Gasket seal	●*3	●	●	●					●	●	●			
HF1B-AS12□1F-U10/32□	HF1B-AS13□1F-U10/32□	10-32UNF			●*3	●	●	●					●	●	●			
HF1B-AS22□1F-□01	HF1B-AS23□1F-□01	R NPT	1/8	Sealant*1		●	●	●	●	●*3			●	●	●	●		
HF1B-AS22□1F-□02	HF1B-AS23□1F-□02		1/4			●*3	●	●	●	●			●*3	●	●	●	●	
HF1B-AS32□1F-□02	HF1B-AS33□1F-□02		1/4					●	●	●	●				●	●	●	
HF1B-AS32□1F-□03	HF1B-AS33□1F-□03		3/8					●	●	●	●				●	●	●	
HF1B-AS42□1F-□04	HF1B-AS43□1F-□04		1/2							●	●	●*3					●	●

*1 "Without sealant" type can be selected as a standard option. *2 Only polyurethane tubing is applicable for Ø 2. *3 Universal type is not available.

Flow Direction Symbols on Body

	Meter-out	Meter-in
Symbol		

⚠ Caution

Be sure to read this before handling the products.
For safety instructions, flow control equipment precautions, and specific product precautions, refer to the Web Catalogue.

How to Order

Applicable tubing O.D.*3

Metric size		Inch size	
02	Ø 2	01	Ø 1/8"
23	Ø 3.2*4	03	Ø 5/32"
04	Ø 4	07	Ø 1/4"
06	Ø 6		

*3 For selecting applicable tubing O.D., refer to the "Model" shown above.
Metric size and inch size types can be visually identified by colour of the release button.
Metric size: Light grey
Inch size: Orange
*4 Use Ø 1/8" tube.

Width across flats (H)

E*2	8 mm
—	9 mm

*2 Push-lock type only

Body size

1	M5 x 0.8 10-32UNF

Port size

M5	M5 x 0.8
U10/32	10-32UNF

HF1B-AS 1 □ □ 1F- □ □ - □ □ - □

HF1B-AS □ □ □ 1F- □ □ - □ □ - □

Body size

2	1/8, 1/4
3	3/8
4	1/2

Type

2	Elbow
3	Universal

Control type*1

0	Meter-out
1	Meter-in

*1 Meter-out and meter-in types can be visually identified by colour of the knob.
Meter-out: Grey
Meter-in: Light blue

Thread type

—	R
N	NPT

Applicable tubing O.D.*5

Metric size		Inch size	
23	Ø 3.2*6	01	Ø 1/8"
04	Ø 4	03	Ø 5/32"
06	Ø 6	07	Ø 1/4"
08	Ø 8	09	Ø 5/16"
10	Ø 10	11	Ø 3/8"
12	Ø 12	13	Ø 1/2"
16	Ø 16		

*5 For selecting applicable tubing O.D., refer to the "Model" shown above.
*6 Use Ø 1/8" tube.

Port size

01	1/8
02	1/4
03	3/8
04	1/2

Seal method

—	Without sealant
S	With sealant

Suffix

—	Speed controller
X214	Restrictor (Without check valve)

· Use the restrictor for air blow.
· Meter-out speed controller is applicable as a restrictor.

Knob locking method

A	Push-lock
—	Lock nut (Metal knob)

SMC

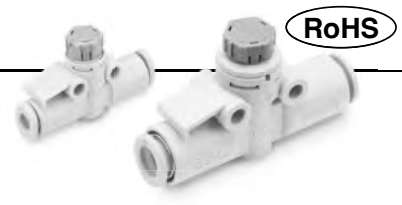
Speed Controller with One-touch Fittings

Push-lock Type **Lock Nut Type (Metal Knob)**

In-line Type

HF1B-AS Series

RoHS



Model

Model	Applicable tubing O.D.											
	Metric size						Inch size					
	3.2	4	6	8	10	12	1/8"	5/32"	1/4"	5/16"	3/8"	1/2"
HF1B-AS1002F	●	●	●				●	●	●			
HF1B-AS2002F		●	●					●	●			
HF1B-AS2052F			●	●					●	●		
HF1B-AS3002F			●	●	●	●			●	●	●	
HF1B-AS4002F					●	●					●	●

Flow Direction Symbol on Body

Symbol


⚠ Caution

Be sure to read this before handling the products. For safety instructions, flow control equipment precautions, and specific product precautions, refer to the Web Catalogue.

How to Order

HF1B – AS □ 2 F – □ A – □

Body size

100	M5 standard
200	1/8 standard
205	1/4 standard
300	3/8 standard
400	1/2 standard

With One-touch fittings

Suffix

—	Speed controller
X214	Restrictor (Without check valve)

Use the restrictor for air blow.

Knob locking method

A	Push-lock
—	Lock nut (Metal knob)

Applicable tubing O.D.[*1]

Metric size		Inch size	
23	Ø 3.2[*2]	**01**	Ø 1/8"
04	Ø 4	**03**	Ø 5/32"
06	Ø 6	**07**	Ø 1/4"
08	Ø 8	**09**	Ø 5/16"
10	Ø 10	**11**	Ø 3/8"
12	Ø 12	**13**	Ø 1/2"

*1 For selecting applicable tubing O.D., refer to the "Model" shown above.

*2 Use Ø 1/8" tubing.

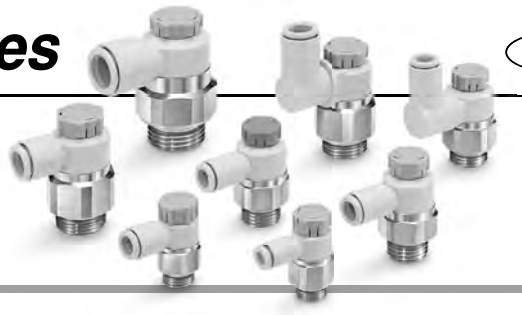
Speed Controller with One-touch Fitting

Push-lock Type **Face Seal**

Elbow Type/Universal Type

HF1B-AS Series

RoHS



Model

Model		Port size		Seal method	Applicable tubing O.D.												
					Metric size							Inch size					
Elbow type	Universal type				3.2	4	6	8	10	12	16	1/8"	5/32"	1/4"	5/16"	3/8"	1/2"
HF1B-AS22□1F-G01	HF1B-AS23□1F-G01	G	1/8	Face seal	●	●	●	●	●*1								
HF1B-AS22□1F-G02	HF1B-AS23□1F-G02		1/4		●*1	●	●	●	●								
HF1B-AS32□1F-G02	HF1B-AS33□1F-G02		1/4				●	●	●	●							
HF1B-AS32□1F-G03	HF1B-AS33□1F-G03		3/8				●	●	●	●							
HF1B-AS42□1F-G04	HF1B-AS43□1F-G04		1/2						●	●	●*1						
HF1B-AS22□1F-01-□PA	—	R NPT	1/8	Face seal	●	●	●	●	●			●	●	●	●		
HF1B-AS22□1F-02-□PA	—		1/4		●	●	●	●	●			●	●	●	●	●	
HF1B-AS32□1F-03-□PA	—		3/8				●	●	●	●				●	●	●	
HF1B-AS42□1F-04-□PA	—		1/2						●	●						●	●

∗1 Universal type is not available.

Flow Direction Symbols on Body

	Meter-out	Meter-in
Symbol		

⚠ Caution

Be sure to read this before handling the products.
For safety instructions, flow control equipment precautions, and specific product precautions, refer to the Web Catalogue.

How to Order

Type

2	Elbow
3	Universal

Thread type

G	G

HF1B-AS □ □ □ 1F-G □ □-□ A-□

HF1B-AS □ 2 □ 1F-□ □ □-□ P A-□

Body size

2	1/8, 1/4
3	3/8
4	1/2

Type

2	Elbow

Thread type

—	R
N	NPT

Control type

0	Meter-out
1	Meter-in

Port size

01	1/8
02	1/4
03	3/8
04	1/2

Applicable tubing O.D.∗1

Metric size		Inch size∗3	
23	Ø 3.2∗2	01	Ø 1/8"
04	Ø 4	03	Ø 5/32"
06	Ø 6	07	Ø 1/4"
08	Ø 8	09	Ø 5/16"
10	Ø 10	11	Ø 3/8"
12	Ø 12	13	Ø 1/2"
16	Ø 16∗4		

Seal method

P	Face seal

Push-lock type

Suffix

—	Speed controller
X214	Restrictor (Without check valve)

· Use the restrictor for air blow.
· Meter-out speed controller is applicable as a restrictor.

⚠ Caution

Cylinders with a level bearing surface are suitable for the R thread or NPT thread face seal type.
The R-shaped bearing surface of CG1 cylinders is not suitable.

∗1 For selecting applicable tubing O.D., refer to the "Model" shown above.
∗2 Use Ø 1/8" tubing.
∗3 Only the metric size is available for the G thread type.
∗4 Only G thread

Stainless Steel Speed Controller (Elbow Type)

ASG Series

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

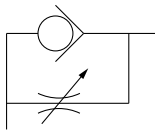
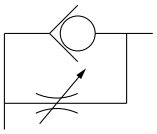
<Food Sanitation Law compliant (Component materials have met apparatus and container-package standards)>



Model

Elbow type	Port size	Applicable tubing O.D. [mm]				
		4	6	8	10	12
ASG22□F-M5	M5 x 0.8	●	●			
ASG32□F-01	R1/8	●	●	●		
ASG42□F-02	R1/4		●	●	●	
ASG52□F-03	R3/8			●	●	●
ASG62□F-04	R1/2					●

Symbol

Meter-out	Meter-in
	

How to Order

AS G 3 2 0 F – 01 – 06 S

Speed controller

Body material

G	Stainless steel

Body size

2	M5
3	1/8
4	1/4
5	3/8
6	1/2

Type

2	Elbow

Control type

0	Meter-out
1	Meter-in

With One-touch fittings

Port size

M5	M5 x 0.8
01	R1/8
02	R1/4
03	R3/8
04	R1/2

Applicable tubing O.D.

04	Ø 4
06	Ø 6
08	Ø 8
10	Ø 10
12	Ø 12

With sealant

* The M5 is not available with sealant.

Water Resistant Stainless Steel Speed Controller

HF2A-ASG-□V Series

RoHS

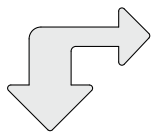
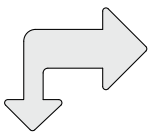
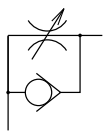
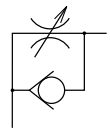


Model

Model (Standard)	Port size		Seal method	Applicable tubing O.D.									
				Metric size (Applicable thread: R, G)					Inch size (Applicable thread: NPT)				
				4	6	8	10	12	5/32"	1/4"	5/16"	3/8"	1/2"
HF2A-ASG12□1-M5-□	M5 x 0.8		Gasket seal	●	●								
HF2A-ASG12□1-U10/32-□	10-32UNF								●	●			
HF2A-ASG22□1-□01-□	R G NPT	1/8	Sealant (R/NPT) Face seal (G)		●	●				●	●		
HF2A-ASG22□1-□02-□		1/4			●	●	●			●	●	●	
HF2A-ASG32□1-□03-□		3/8				●	●				●	●	
HF2A-ASG42□1-□04-□		1/2					●	●				●	●

∗1 "Without sealant" type can be selected as a standard option.
∗2 Meter-out and meter-in types can be visually differentiated by the flow direction symbol on the body.
∗3 Lubricants and rust-proof agents for food machinery are used on the fluid contact parts of this product.

Flow Direction Symbols on Body

	Meter-out	Meter-in
Indication symbol		
Symbol		

⚠ Caution

Be sure to read this before handling the products.
For safety instructions, flow control equipment precautions, and specific product precautions, refer to the Web Catalogue.

How to Order

HF2A-ASG 2 2 0 1- □ 01- 06 S V

Body size

1	M5 standard
2	01, 02 standard
3	03 standard
4	04 standard

Elbow

Control type

0	Meter-out
1	Meter-in

Thread type

—	R
N	NPT
G	G

Port size

M5	M5 x 0.8
U10/32	10-32UNF
01	1/8
02	1/4
03	3/8
04	1/2

Applicable tubing O.D.

Metric size		Inch size	
04	Ø 4	**03**	Ø 5/32"
06	Ø 6	**07**	Ø 1/4"
08	Ø 8	**09**	Ø 5/16"
10	Ø 10	**11**	Ø 3/8"
12	Ø 12	**13**	Ø 1/2"

Option

—	Without sealant
S	With sealant

∗ Select — (Without sealant) for M5 and G thread.

Water resistant

Stainless Steel Throttle Valve with One-touch Fittings

HF2B-ASG-□TV Series

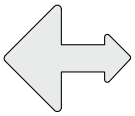
RoHS



Model

Model	Applicable tubing O.D.									
	Metric size					Inch size				
	Ø 4	Ø 6	Ø 8	Ø 10	Ø 12	Ø 5/32"	Ø 1/4"	Ø 5/16"	Ø 3/8"	Ø 1/2"
HF2B-ASG1002-□TV	●					●				
HF2B-ASG2002-□TV		●					●			
HF2B-ASG2052-□TV			●					●		
HF2B-ASG3002-□TV				●					●	
HF2B-ASG4002-□TV					●					●

Flow Direction Symbols on Body

Indication symbol	

⚠ Caution

Be sure to read this before handling the products.
For safety instructions, flow control equipment precautions, and specific product precautions, refer to the Web Catalogue.

How to Order

HF2B – ASG [200] 2 – [06] TV

Body size

100	M5 standard
200	1/8 standard
205	1/4 standard
300	3/8 standard
400	1/2 standard

Throttle valve

Applicable tubing O.D.

Metric size

04	Ø 4
06	Ø 6
08	Ø 8
10	Ø 10
12	Ø 12

Inch size

03	Ø 5/32"
07	Ø 1/4"
09	Ø 5/16"
11	Ø 3/8"
13	Ø 1/2"

Nozzles for Blowing

KN Series

RoHS

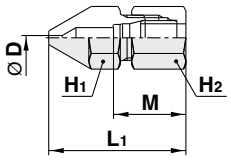
The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

Nozzle with self-align fitting/KN

[mm]



Model	Nozzle dia. Ø D	Applicable tubing O.D.	Width across flats H_1	Width across flats H_2	L_1	M	Weight [g]
KN-04-100	Ø 1	Ø 4	10	10	27	15	13
KN-04-150	Ø 1.5	Ø 4	10	10	27.7	15	14
KN-06-100	Ø 1	Ø 6	12	12	30.1	16	19
KN-06-150	Ø 1.5	Ø 6	12	12	30.8	16	20
KN-06-200	Ø 2	Ø 6	12	12	31.5	16	22
KN-08-150	Ø 1.5	Ø 8	14	14	33.8	16	28
KN-08-200	Ø 2	Ø 8	14	14	34.6	16	30
KN-10-250	Ø 2.5	Ø 10	14	17	35.6	17	35
KN-10-300	Ø 3	Ø 10	14	17	36.3	17	36
KN-10-350	Ø 3.5	Ø 10	14	17	37.1	17	37
KN-10-400	Ø 4	Ø 10	14	17	29.5	17	30
KN-10-600	Ø 6	Ø 10	14	17	27.7	17	28
KN-12-350	Ø 3.5	Ø 12	17	19	40.4	17	54
KN-12-400	Ø 4	Ø 12	17	19	41.3	17	55
KN-12-600	Ø 6	Ø 12	17	19	31.2	17	40
KN-16-400	Ø 4	Ø 16	22	24	40.1	17	77
KN-16-600	Ø 6	Ø 16	22	24	38.4	17	79
KN-20-400	Ø 4	Ø 20	26	27	45.6	17	117
KN-20-600	Ø 6	Ø 20	26	27	43.9	17	112



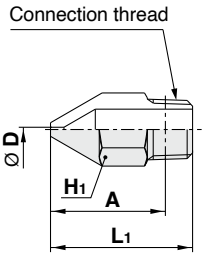
Nozzle with male thread/KN

[mm]



Model	Nozzle dia. Ø D	Connection thread	Width across flats H_1	L_1	A*1	Weight [g]
KN-R01-100	Ø 1	R1/8	10	21.4	17.4	8
KN-R01-150	Ø 1.5	R1/8	10	21	17	8
KN-R02-100	Ø 1	R1/4	14	31.4	25.4	19
KN-R02-150	Ø 1.5	R1/4	14	31	25	20
KN-R02-200	Ø 2	R1/4	14	30.5	24.5	21
KN-R02-250	Ø 2.5	R1/4	14	30.1	24.1	21
KN-R02-600	Ø 6	R1/4	14	27.1	21.1	22
KN-R03-400	Ø 4	R3/8	17	31.8	25.4	36
KN-R03-600	Ø 6	R3/8	17	30.1	23.7	37
KN-R04-400	Ø 4	R1/2	22	41.8	33.6	75
KN-R04-600	Ø 6	R1/2	22	40.1	31.8	76
KN-R06-600	Ø 6	R3/4	27	49.6	40.1	149
KN-R06-800	Ø 8	R3/4	27	47.8	38	152
KN-R10-800	Ø 8	R1	36	62.8	52.4	328

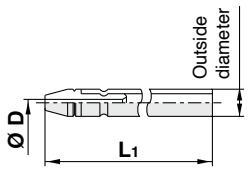
*1 Reference dimensions after R thread installation



Copper extension nozzle/KNL

[mm]

Model	Nozzle dia. Ø D	Outside diameter	L_1	Weight [g]
KNL3-06-150	Ø 1.5	Ø 6	300	43
KNL3-06-200	Ø 2	Ø 6	300	43
KNL3-08-200	Ø 2	Ø 8	300	61
KNL3-08-250	Ø 2.5	Ø 8	300	61
KNL3-10-250	Ø 2.5	Ø 10	300	94
KNL3-10-300	Ø 3	Ø 10	300	94
KNL6-06-150	Ø 1.5	Ø 6	600	84
KNL6-06-200	Ø 2	Ø 6	600	84
KNL6-08-200	Ø 2	Ø 8	600	117
KNL6-08-250	Ø 2.5	Ø 8	600	117
KNL6-10-250	Ø 2.5	Ø 10	600	183
KNL6-10-300	Ø 3	Ø 10	600	183

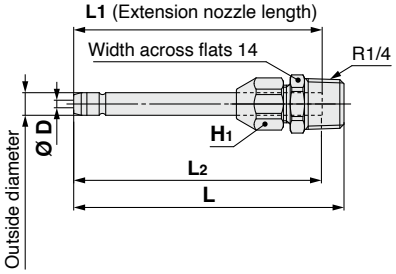


Copper extension nozzle set/VMG

[mm]



Model	Nozzle dia. D	Outside diameter	L_1	L_2*1	L*1	Width across flats H_1
VMG1-06-150-100	Ø 1.5	Ø 6	100	100	106	12
VMG1-06-200-100	Ø 2					
VMG1-06-150-150	Ø 1.5		150	150	156	
VMG1-06-200-150	Ø 2					
VMG1-06-150-300	Ø 1.5		300	300	306	
VMG1-06-200-300	Ø 2					
VMG1-06-150-600	Ø 1.5		600	600	606	
VMG1-06-200-600	Ø 2					
VMG1-08-250-100	Ø 2.5	Ø 8	100	100	106	14
VMG1-08-300-100	Ø 3					
VMG1-08-350-100	Ø 3.5					
VMG1-08-250-150	Ø 2.5		150	150	156	
VMG1-08-300-150	Ø 3					
VMG1-08-350-150	Ø 3.5					
VMG1-08-250-300	Ø 2.5		300	300	306	
VMG1-08-300-300	Ø 3					
VMG1-08-350-300	Ø 3.5					
VMG1-08-250-600	Ø 2.5		600	600	606	
VMG1-08-300-600	Ø 3					
VMG1-08-350-600	Ø 3.5					



*1 Reference dimensions after installation

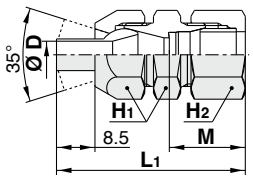
* Copper extension nozzle and self-align fitting are included in the same package but do not come assembled. Refer to "How to attach extension nozzle" in the VMG series operation manual for assembly procedures.

Pivoting nozzle with self-align fitting/KNK

[mm]



Model	Nozzle dia. Ø D	Applicable tubing O.D.	Width across flats H_1	Width across flats H_2	L_1	M	Weight [g]
KNK-10-400	Ø 4	Ø 10	17	17	41.7	17	44
KNK-10-600	Ø 6	Ø 10	17	17	41.7	17	44
KNK-12-400	Ø 4	Ø 12	17	19	41.2	17	44
KNK-12-600	Ø 6	Ø 12	17	19	41.2	17	44
KNK-16-400	Ø 4	Ø 16	17	24	41.8	17	64
KNK-16-600	Ø 6	Ø 16	17	24	41.8	17	64
KNK-20-400	Ø 4	Ø 20	17	27	43.8	17	77
KNK-20-600	Ø 6	Ø 20	17	27	43.8	17	77



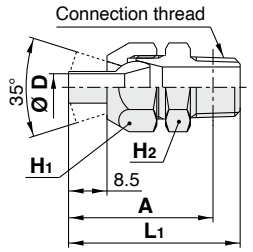
Pivoting nozzle with male thread/KNK

[mm]



Model	Nozzle dia. Ø D	Connection thread	Width across flats H_1	Width across flats H_2	L_1	A*1	Weight [g]
KNK-R02-400	Ø 4	R1/4	17	17	38	31.9	32
KNK-R02-600	Ø 6	R1/4	17	17	38	31.9	32
KNK-R03-400	Ø 4	R3/8	17	17	39	32.4	40
KNK-R03-600	Ø 6	R3/8	17	17	39	32.4	40
KNK-R04-400	Ø 4	R1/2	17	22	42.2	34.1	54
KNK-R04-600	Ø 6	R1/2	17	22	42.2	34.1	54

*1 Reference dimensions after R thread installation



High efficiency nozzle/KNH (OSHA compliant: Operate at 0.5 MPa or less.)

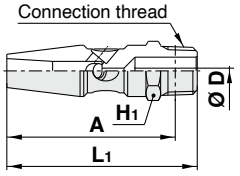
[mm]

Amplifies the air blow flow rate (When operated at 0.5 MPa: amplifies by 2 to 3 times)



Model	Nozzle dia. Ø D	Connection thread	Width across flats H_1	L_1	A*1	Weight [g]
KNH-R02-100	Ø 1	R1/4	14	52	46	38
KNH-R02-150	Ø 1.5	R1/4	14	52	46	38
KNH-R02-200	Ø 2	R1/4	14	52	46	38

*1 Reference dimensions after R thread installation

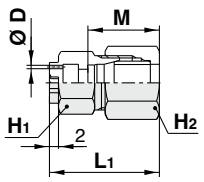


Low noise nozzle with self-align fitting/KNS

[mm]



Model	Nozzle dia. Ø D	Applicable tubing O.D.	Width across flats H_1	Width across flats H_2	L_1	M	Weight [g]
KNS-08-075-4	Ø 0.75 x 4	Ø 8	12	14	24.3	16	17
KNS-08-100-4	Ø 1 x 4	Ø 8	12	14	24.3	16	17
KNS-10-075-4	Ø 0.75 x 4	Ø 10	14	17	24	17	24
KNS-10-090-8	Ø 0.9 x 8	Ø 10	14	17	24	17	24
KNS-10-100-4	Ø 1 x 4	Ø 10	14	17	24	17	24



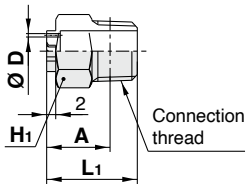
Low noise nozzle with male thread/KNS

[mm]



Model	Nozzle dia. Ø D	Connection thread	Width across flats H_1	L_1	A*1	Weight [g]
KNS-R01-075-4	Ø 0.75 x 4	R1/8	12	18	14	9
KNS-R01-100-4	Ø 1 x 4	R1/8	12	18	14	9
KNS-R01-090-8	Ø 0.9 x 8	R1/8	12	18	14	9
KNS-R02-075-4	Ø 0.75 x 4	R1/4	14	20	14	13
KNS-R02-090-8	Ø 0.9 x 8	R1/4	14	20	14	13
KNS-R02-100-4	Ø 1 x 4	R1/4	14	20	14	13
KNS-R02-110-8	Ø 1.1 x 8	R1/4	14	20	14	13

*1 Reference dimensions after R thread installation



Made to Order

Made to Order
(For details, refer to the Web Catalogue.)

Description	
Blower nozzle	Web Catalogue
Bender tube	Web Catalogue
Stainless steel nozzles	p. 228

Made to Order

Contact our sales office for delivery dates and prices as this is a special model.

Made to Order

1 Stainless Steel Nozzles

- Use stainless steel nozzles for excellent anti-corrosion and chemical resistance properties
- Can be used in environments where contact with water or chemicals occurs

With male thread

Connection thread	R1/8
Nozzle dia.	Ø 1.5

Material: Stainless steel 303



KN-R01-150-X13

Connection thread	R1/4
Nozzle dia.	Ø 2.5

Material: Stainless steel 303



KN-R02-250-X13

Material: Stainless steel 304



KN-R02-250-X49

With self-align fitting

Applicable tubing O.D.	Ø 6
Nozzle diameter	Ø 2.0

Material: Stainless steel 303



KN06-200-DPI00713

Pivoting nozzle with male thread

Connection thread	R1/4
Nozzle dia.	Ø 2.0

Material: Stainless steel 303



KNK-R02-200-X1524

High efficiency

Connection thread	R1/4
Nozzle dia.	Ø 2.0

Material: Stainless steel 303



KNH-R02-200-X13

Material: Stainless steel 304



KNH-R02-200-X49

High noise reduction

Connection thread	R1/4
Nozzle dia.	Ø 1.1 x 8

Material: Stainless steel 303



KNS-R02-110-8-X13

2-port/3-port nozzle

Connection thread	R1/8
Nozzle dia.	Ø 1.5 x 2

Material: Stainless steel 304



KN-DPW00079

Connection thread	R1/4
Nozzle dia.	Ø 1.5 x 3

Material: Stainless steel 304



KN-DPZ00022

Please contact SMC for information on size options.

Pressure Gauge for General Purpose/ With Limit Indicator

G36

RoHS

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.



G36-10-01

How to Order

G 36 – 10 – 01 ❶ ❷ ❸ ❹

Pressure gauge

		Symbol	Description	Type G36 Back side thread
		+		
❶	Max. display pressure	**2**	0.2 MPa	●
		4	0.4 MPa	●
		7	0.7 MPa	●
		10	1.0 MPa	●
		15	1.5 MPa	●
		P2∗1	0.2 MPa, 30 psi	○∗2
		P4∗1	0.4 MPa, 60 psi	○∗2
		P7∗1	0.7 MPa, 100 psi	○∗2
		P10∗1	1.0 MPa, 150 psi	○∗2
		P15∗1	1.5 MPa, 220 psi	○∗2
		+		
❷	Connection thread	**01**	R1/8	●
		+		
❸	Option	**–**	–	●
		M∗3	With M5 (Female thread)	●
		+		
❹	Special specification∗4	**–**	–	●
		X2	Stud parts nickel plated	–∗5
		X30	Both MPa and psi	○∗2

· Please read the Caution of HF- Series (p. 252) before use.

∗1 This symbol must be used with Special specification "X30."
∗2 Under the New Measurement Act, products for overseas use only (SI unit type for use in Japan)
∗3 To use the pressure gauge with M 5 (female thread), attach the joint when piping the tube. For combinations with the special specification products, please consult SMC separately.
∗4 Wetted parts stainless steel specifications are not available.
∗5 When necessary, please contact SMC.

Pressure Gauge for General Purpose/ With Limit Indicator

G46

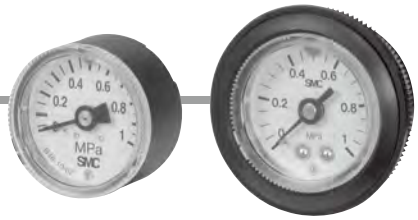
RoHS

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

How to Order

G 46 – 10 – 01 ☐ – ☐ – ☐

Pressure gauge ● ❶ ❷ ❸ ❹ ❺



G46-10-02M-C

		Symbol	Description	Type G46 Back side thread
		+		
❶	Max. display pressure	**2**	0.2 MPa	●
		4	0.4 MPa	●
		7	0.7 MPa	●
		10	1.0 MPa	●
		15	1.5 MPa	●
		P2∗1	0.2 MPa, 30 psi	○∗2
		P4∗1	0.4 MPa, 60 psi	○∗2
		P7∗1	0.7 MPa, 100 psi	○∗2
		P10∗1	1.0 MPa, 150 psi	○∗2
		P15∗1	1.5 MPa, 220 psi	○∗2
		+		
❷	Connection thread	**01**	R1/8	●
		02	R1/4	●
		+		
❸	Option	**—**	—	●
		M∗3	With M5 (Female thread)	●
		+		
❹	Attachment	**—**	Without cover ring assembly	●
		C	Clear cover has no protrusion. (Clear cover is irremovable.)	●
		C2	Clear cover has protrusion. (Clear cover is removable.) The wrench flats protrude.	●
		+		
❺	Special specification	**—**	—	●
		X2	Stud parts Nickel plated	—∗4
		X30	Both MPa and psi	○∗2

∗1 This symbol must be used with Special specification "X30."
∗2 ○: Under the New Measurement Act, products for overseas use only (SI unit type for use in Japan).
∗3 To use the pressure gauge with M5 (female thread), attach the joint when piping the tube. For combinations with the special specification products, please consult SMC separately.
∗4 When necessary, please contact SMC.
∗ When wetted parts with the stainless steel specifications are needed, use the G46-☐-☐-SRB.

· Please read the Caution of HF- Series (p. 252) before use.

Pressure Gauge for General Purpose/ With Limit Indicator

G36-X4/GA36-X4

RoHS

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.



G36-10-01-X4

How to Order

G ❶ **36** – **10** – **01** ❹ – **X4**

Pressure gauge ❶ ❷ ❸ ❹ ❺

		Symbol	Description	❶ Type G36 Back side thread	❶ Type GA36 Vertical side thread
		+			
❷	Max. display pressure	**2**	0.2 MPa	●	●
		4	0.4 MPa	●	●
		7	0.7 MPa	●	●
		10	1.0 MPa	●	●
		15	1.5 MPa	●	●
		+			
❸	Connection thread	**01**	R1/8	●	●
		+			
❹	Option	**–**	–	●	●
		M∗1	With M5 (Female thread)	●	–
		+			
❺	Special specification∗2	**X4**	Oil-free (Wetted parts degrease washing)	●	●

· Please read the Caution of HF- Series (p. 252) before use.

∗1 To use the pressure gauge with M 5 (female thread), attach the joint when piping the tube. For combinations with the special specification products, please consult SMC separately.

∗2 Wetted parts stainless steel specifications are not available.

Oil-free/External Parts Copper-free Pressure Gauge/ With Limit Indicator

G46E

RoHS

The specifications are the same as the "HF1-" even though there is no "HF1-" part number prefix.

How to Order

G 46 E – 10 – 01 ❑ – ❑ – ❑

❶ ❷ ❸ ❹ ❺

Pressure gauge

Oil-free, external parts copper-free



G46E-10-02M



G46E-10-02M-C

		Symbol	Description	G46E
		+		
❶	Max. display pressure	**2**	0.2 MPa	●
		4	0.4 MPa	●
		7	0.7 MPa	●
		10	1.0 MPa	●
		15	1.5 MPa	●
		P2∗1	0.2 MPa, 30 psi	○∗2
		P7∗1	0.7 MPa, 100 psi	○∗2
		P10∗1	1.0 MPa, 150 psi	○∗2
		+		
❷	Connection thread	**01**	R1/8	●
		02	R1/4	●
		+		
❸	Option	**–**	–	●
		M∗3	With M5 (Female thread)	●
		+		
❹	Attachment	**–**	Without cover ring assembly	●
		C	Clear cover has no protrusion. (Clear cover is irremovable.)	●
		C2	Clear cover has protrusion. (Clear cover is removable.) The wrench flats protrude.	●
		+		
❺	Special specification	**–**	–	●
		X30	Both MPa and psi	○∗2

∗1 This symbol must be used with Special specification "X30."
∗2 Under the New Measurement Act, products for overseas use only (SI unit type for use in Japan)
∗3 To use the pressure gauge with M5 (female thread), attach the joint when piping the tube.

· Please read the Caution of HF- Series (p. 252) before use.

Pressure Gauge for Clean Regulator/ With Limit Indicator

G46-SRA/B

RoHS

The specifications are the same as the "HF1-" even though there is no "HF1-" part number prefix.



G46-10-02-SRA/B

How to Order

G46 – 10 – 01 ☐ – SRA – ☐ – ☐

Pressure gauge ● ❶ ❷ ❸ ❹ ❺ ❻

		Symbol	Description	G46
		+		
❶	Max. display pressure	**2**	0.2 MPa	●
		4	0.4 MPa	●
		7	0.7 MPa	●
		10	1.0 MPa	●
		P2∗1	0.2 MPa, 30 psi	○∗2
		P10∗1	1.0 MPa, 150 psi	○∗2
		+		
❷	Connection thread	**01**	R1/8	●
		02	R1/4	●
		+		
❸	Option	**—**	—	●
		M∗3	With M5 (Female thread)	●
		+		
❹	Grade	**SRA**	Component parts: Precision cleaning Assembly: Clean room M5.5 (Class 10000)	●
		SRB	Component parts: General degreasing Assembly: General production line	●
		+		
❺	Attachment	**—**	Without cover ring assembly	●
		C	Clear cover has no protrusion. (Clear cover is irremovable.)	●
		C2	Clear cover has protrusion. (Clear cover is removable.) The wrench flats protrude.	●
		+		
❻	Special specification	**—**	—	●
		X30	Both MPa and psi	○∗2

∗1 This symbol must be used with Special specification "X30."
∗2 Under the New Measurement Act, products for overseas use only (SI unit type for use in Japan)
∗3 To use the pressure gauge with M5 (female thread), attach the joint when piping the tube. For combinations with the special specification products, please consult SMC separately.

· Please read the Caution of HF- Series (p. 252) before use.

1 Output

3-Screen Display High-Precision Digital Pressure Switch

IP40

ZSE20(F)/ISE20-X2

RoHS

The specifications are the same as the "HF1-" even though there is no "HF1-" part number prefix.



How to Order

Rated pressure range

ISE20	–0.1 to 1 MPa

For Positive Pressure	ISE20	– N	– M	– M5	–			– X2
For Vacuum/ Compound Pressure	ZSE20	– N	– M	– M5	–			– X2
	❶	❷	❸	❹	❺	❻	❼	

Fluid contact parts: Grease-free

❶ Rated pressure range

ZSE20	0 to –101 kPa
ZSE20F	–100 to 100 kPa

❷ Output specification

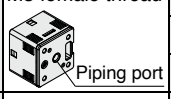
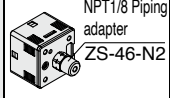
Symbol	Description
N	NPN open collector 1 output
P	PNP open collector 1 output

❸ Unit specification

Symbol	Description
—	Unit selection function
M	SI units only*1
P	Unit selection function (Initial value psi)*1

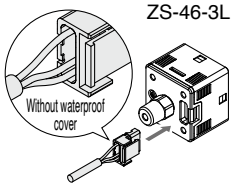
*1 Fixed units: kPa, MPa

❹ Piping specification

Symbol	Description	Symbol	Description	
M5	M5 female thread  Piping port	C4H	One-touch fitting Ø 4 mm	Straight type 
		C6H	One-touch fitting Ø 6 mm	
		N7H	One-touch fitting Ø 1/4 inch	
01	R1/8  R1/8 Piping adapter ZS-46-N1	C4L	One-touch fitting Ø 4 mm	Elbow type 
		C6L	One-touch fitting Ø 6 mm	
		N7L	One-touch fitting Ø 1/4 inch	
N01	NPT1/8  NPT1/8 Piping adapter ZS-46-N2			

* One-touch fitting is shipped together with the product.

❺ Option 1

Symbol	Description	
—	Without lead wire	
L	Lead wire with connector (3-core, 2 m lead wire)	ZS-46-3L  Without waterproof cover

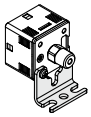
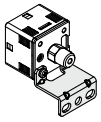
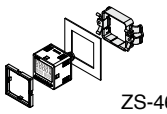
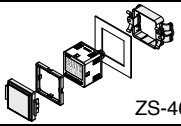
* For the **lead wire with M12 connector**, refer to the **Web Catalogue**.

❼ Option 3

Symbol	Operation manual*1	Calibration certificate*1
—	○	—
Y	—	—
K	○	○
T	—	○

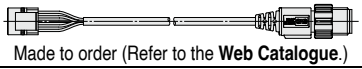
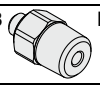
*1 All texts are in both English and Japanese.

❻ Option 2

Symbol	Description	
—	None	
A1	Bracket A (Vertical mounting)	ZS-46-A1 
A2	Bracket B (Horizontal mounting)	ZS-46-A2 
B	Panel mount adapter	 ZS-46-B
D	Panel mount adapter + Front protection cover	 ZS-46-D

Options/Part Nos.

When only optional parts are required, order with the part numbers listed below.

Description	Part no.	Note
Bracket A	ZS-46-A1	Tapping screw: Nominal size 3 x 8 L (2 pcs.)
Bracket B	ZS-46-A2	Tapping screw: Nominal size 3 x 8 L (2 pcs.)
Panel mount adapter	ZS-46-B	—
Panel mount adapter + Front protection cover	ZS-46-D	—
Lead wire with connector	ZS-46-3L	3-core, 2 m, Non-waterproof (Without waterproof cover)
Lead wire with M12 connector	ZS-46-5LM12	 Made to order (Refer to the **Web Catalogue**.)
Front protection cover	ZS-27-01	—
R1/8 Piping adapter	ZS-46-N1	R1/8  NPT1/8 
NPT1/8 Piping adapter	ZS-46-N2	

2 Outputs + Analogue Output (Voltage/Current)

3-Screen Display High-Precision Digital Pressure Switch

IP40

ZSE20A(F)/ISE20A-X2

RoHS

The specifications are the same as the "HF1-" even though there is no "HF1-" part number prefix.



How to Order

Rated pressure range

ISE20A	–0.1 to 1 MPa

For Positive Pressure ISE20A – X – M – M5 – ❑❑❑ – X2

For Vacuum/ Compound Pressure ZSE20A – X – M – M5 – ❑❑❑ – X2

❶ ❷ ❸ ❹ ❺ ❻ ❼

Fluid contact parts: Grease-free

❶ Rated pressure range

ZSE20A	0 to –101 kPa
ZSE20AF	–100 to 100 kPa

❷ Output specification

Symbol	Description
R	NPN open collector 2 outputs + Analogue voltage output *1
S	NPN open collector 2 outputs + Analogue current output *1
T	PNP open collector 2 outputs + Analogue voltage output *1
V	PNP open collector 2 outputs + Analogue current output *1
X	NPN open collector 2 outputs + Copy function
Y	PNP open collector 2 outputs + Copy function

*1 Can be switched to auto-shift or copy function

❸ Unit specification

Symbol	Description
—	Unit selection function
M	SI units only*2
P	Unit selection function (Initial value psi)*1

*1 Fixed units: kPa, MPa

❹ Piping specification

Symbol	Description	Symbol	Description	
M5	M5 female thread (Piping port)	C4H	One-touch fitting Ø 4 mm	Straight type
		C6H	One-touch fitting Ø 6 mm	
		N7H	One-touch fitting Ø 1/4 inch	
01	R1/8 (R1/8 Piping adapter ZS-46-N1)	C4L	One-touch fitting Ø 4 mm	Elbow type
		C6L	One-touch fitting Ø 6 mm	
		N7L	One-touch fitting Ø 1/4 inch	
N01	NPT1/8 (NPT1/8 Piping adapter ZS-46-N2)			

* One-touch fitting is shipped together with the product.

❺ Option 1

Symbol	Description
—	Without lead wire
J	Lead wire with connector (5-core, 2 m lead wire) (ZS-46-5L; Without waterproof cover)

* For the **lead wire with M12 connector**, refer to the **Web Catalogue**.

❼ Option 3

Symbol	Operation manual*1	Calibration certificate*1
—	○	—
Y	—	—
K	○	○
T	—	○

*1 All texts are in both English and Japanese.

❻ Option 2

Symbol	Description	
—	None	
A1	Bracket A (Vertical mounting)	ZS-46-A1
A2	Bracket B (Horizontal mounting)	ZS-46-A2
B	Panel mount adapter	ZS-46-B
D	Panel mount adapter + Front protection cover	ZS-46-D

Options/Part Nos.

When only optional parts are required, order with the part numbers listed below.

Description	Part no.	Note
Bracket A	ZS-46-A1	Tapping screw: Nominal size 3 x 8 L (2 pcs.)
Bracket B	ZS-46-A2	Tapping screw: Nominal size 3 x 8 L (2 pcs.)
Panel mount adapter	ZS-46-B	—
Panel mount adapter + Front protection cover	ZS-46-D	—
Lead wire with connector	ZS-46-5L	5-core, 2 m, Non-waterproof (Without waterproof cover)
Lead wire with M12 connector	ZS-46-5LM12	Made to order (Refer to the **Web Catalogue**.)
Front protection cover	ZS-27-01	—
R1/8 Piping adapter	ZS-46-N1	R1/8, NPT1/8
NPT1/8 Piping adapter	ZS-46-N2	

2 Outputs + Analogue Output (Voltage/Current)

3-Screen Display High-Precision Digital Pressure Switch for General Fluids IP65

ZSE20C(F)/ISE20C(H) Series

The specifications are the same as the "HF1-" even though there is no "HF1-" part number prefix.



How to Order

Rated pressure range

ISE20C	–0.1 to 1 MPa
ISE20CH	–0.1 to 2 MPa

For Positive Pressure: **ISE20C – X – M – 02 □ – □ □ □**

For Vacuum/ Compound Pressure: **ZSE20C – X – M – 02 □ – □ □ □**

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Rated pressure range

ZSE20C	0 to –101 kPa
ZSE20CF	–100 to 100 kPa

❷ Output specification

Symbol	Description
R	NPN open collector 2 outputs + Analogue voltage output*1
S	NPN open collector 2 outputs + Analogue current output*1
T	PNP open collector 2 outputs + Analogue voltage output*1
V	PNP open collector 2 outputs + Analogue current output*1
X	NPN open collector 2 outputs + Copy function
Y	PNP open collector 2 outputs + Copy function

*1 Can be switched to auto-shift or copy function

❸ Unit specification

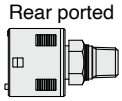
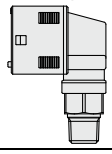
Symbol	Description
—	Unit selection function
M	SI units only*2
P	Unit selection function (Initial value psi)*2

*2 Fixed units: kPa, MPa

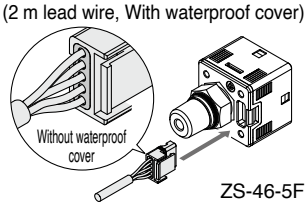
❹ Piping specification

Symbol	Description
02	R1/4 (M5 female threaded)
N02	NPT1/4 (M5 female threaded)
F02	G1/4 (M5 female threaded)
C01	Rc1/8
A2	URJ1/4 (Face seal fitting)
B2	TSJ1/4 (Compression fitting)

❺ Piping direction

—	Rear ported 
L	Bottom ported 

❻ Option 1

Symbol	Description
—	Without lead wire
W	Lead wire with connector, 5-core (2 m lead wire, With waterproof cover)  ZS-46-5F

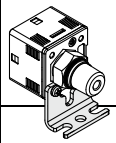
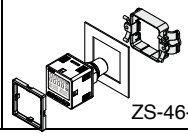
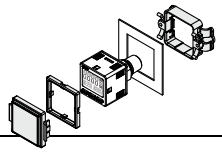
* For the **lead wire with M12 connector**, refer to the **Web Catalogue**.

❼ Option 2

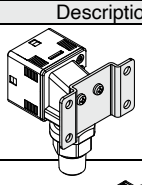
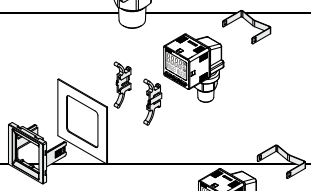
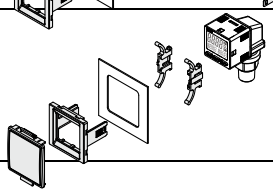
* Note that the optional parts that can be used vary depending on the piping direction.

Symbol	Description
—	None

Rear ported (❺ Piping direction: —)

Symbol	Description		Symbol	Description	
A1	Bracket A	ZS-46-A1 	B	Panel mount adapter	 ZS-46-B
D	Panel mount adapter + Front protection cover	 ZS-46-D			

Bottom ported (❺ Piping direction: L)

Symbol	Description	
A3	Bracket C	 ZS-46-E
E	Panel mount adapter	 ZS-35-B
F	Panel mount adapter + Front protection cover	 ZS-35-E

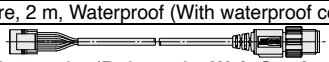
❽ Option 3

Symbol	Operation manual*3	Calibration certificate*3
—	○	—
Y	—	—
K	○	○
T	—	○

*3 All texts are in both English and Japanese.

Options/Part Nos.

When only optional parts are required, order with the part numbers listed below.

Description	Part no.	Note
Bracket A	ZS-46-A1	For rear ported/Tapping screw: Nominal size 3 x 8 L (2 pcs.)
Bracket C	ZS-46-E	For bottom ported/Tapping screw: Nominal size 3 x 10 L (2 pcs.)
Panel mount adapter	ZS-46-B	Rear ported
	ZS-35-B	Bottom ported
Panel mount adapter + Front protection cover	ZS-46-D	Rear ported
	ZS-35-E	Bottom ported
Panel mount adapter (Compatible with the panel holes of the Z/ISE80)	ZS-46-F	Rear ported, Made to order (Refer to the **Web Catalogue**.)
Panel mount adapter + Front protection cover (Compatible with the panel holes of the Z/ISE80)	ZS-46-G	Rear ported, Made to order (Refer to the **Web Catalogue**.)
Lead wire with connector	ZS-46-5F	5-core, 2 m, Waterproof (With waterproof cover)
Lead wire with M12 connector	ZS-46-5FM12	 Made to order (Refer to the **Web Catalogue**.)
Front protection cover	ZS-27-01	Rear ported
	ZS-35-01	Bottom ported

3-Screen Display

High-Precision Digital Pressure Switch: For Air

ISE70/71-X2

IO-Link CE cULus RoHS

The specifications are the same as the "HF1-" even though there is no "HF1-" part number prefix.



How to Order

ISE70 – 02 – L2 – M □ □ □ – X2

Pressure range

Symbol	Description
ISE70	0 to 1 MPa
ISE71	0 to 1.6 MPa

Piping specification

Symbol	Description
02	Rc1/4
N02	NPT1/4
F02	G1/4*1

*1 ISO 1179-1 compliant

Output specification*1

Symbol	Description
L2	IO-Link: Switch output 1 + Switch output 2 (Switch output: NPN or PNP switching type)
AB	Switch output 1 + Switch output 2 (NPN or PNP switching type)

*1 Refer to the **Web Catalogue** for details.

Unit specification

Symbol	Description
—	Unit selection function
M	SI unit only*2

*2 Fixed unit: MPa, kPa

Option 1

Symbol	Description
—	None
S	Lead wire with M12 connector (Straight, 5 m)
L	Lead wire with M12 connector (Right-angled, 5 m)

Option 2

Symbol	Description
—	None
A	Bracket A (Interchangeable with ISE70)
B	Bracket B

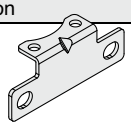
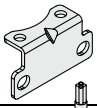
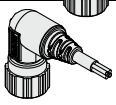
Option 3

Symbol	Description
—	Operation manual
Y	None
K	Operation manual + Calibration certificate
T	Calibration certificate

Fluid contact parts: Grease-free

Options/Part Nos.

When only optional parts are required, order with the part numbers listed below.

Description	Part no.	Note
Bracket A 	**ZS-50-A**	Interchangeable with ISE70 With 2 mounting screws (M4 x 6L)
Bracket B 	**ZS-50-B**	With 2 mounting screws (M4 x 6L)
Lead wire with M12 connector: Straight 	**ZS-31-B**	Lead wire length: 5 m
Lead wire with M12 connector: Right-angled 	**ZS-31-C**	Lead wire length: 5 m

Digital Pressure Switch
(Built-in Regulator Type)

ISE35-X528

CE cULus RoHS

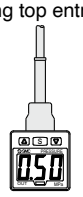
The specifications are the same as the "HF1-" even though there is no "HF1-" part number prefix.



How to Order

ISE35 – [N] – [25] – [M] [L] [A] – [X528]

Electrical entry

N	Wiring bottom entry 
R	Wiring top entry 

Output specifications

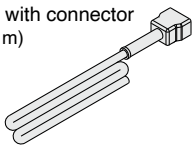
25	NPN output
65	PNP output

Unit specifications

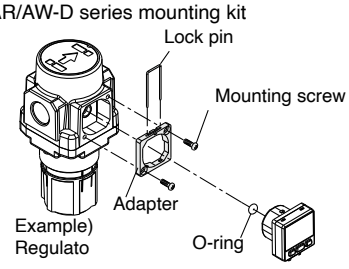
–	With unit selection function
M	Fixed SI unit*1
P	Pressure unit: psi (Initial value), with unit selection function

*1 Fixed unit: MPa

Option 1

–	None
L	Lead wire with connector (Length: 2 m) 

Option 2

A	AR/AW-D series mounting kit 

Fluid contact parts: Grease-free (For AR/AW-D series)

· Please read the Caution of HF- Series (p. 252) before use.

Option/Part No.

When optional parts are required separately, use the following part numbers to place an order.

Name	Part No.	Note
Lead wire with connector	ZS-32-A	Length: 2 m (With rubber cover)
Mounting kit	ZS-32-C-X527	For ISE35-□-A-X528 (AR/AW-D series) Mounting screw, adapter, lock pin, O-ring are attached

Applicable series

Product series that this product can be installed in.

Product series	Model
Regulator	AR20(K)-D/AR30(K)-D/AR40(K)-D/ AR50(K)-D/AR60(K)-D
Filter regulator	AW20(K)-D/AW30(K)-D/AW40(K)-D/ AW60(K)-D

Pressure Switch/Reed Switch Type

HF1B-IS10



How to Order

HF1B-IS10-□01□-□

❶ ❷ ❸

Semi-standard: Select one each for **a** to **c**.
When more than one specification is required, indicate in alphanumeric order.
Example) HF1B-IS10-N01-6PZ

			Symbol	Description
❶	Thread type		**—**	R
			N	NPT
			+	
❷	Seal		**—**	None
			S	With seal
			+	
❸ Semi-standard	**a**	Set pressure range	**—**	0.1 to 0.4 MPa
			6∗1	0.1 to 0.6 MPa
			+	
	b	Lead wire length	**—**	0.5 m
			L	3 m
			Z	5 m
			+	
	c	Scale plate pressure unit	**—**	MPa
			P∗2	Both MPa and psi

∗1 Set pressure range of 6P(L, Z) is 0.2 to 0.6 MPa (30 to 90 psi).
∗2 This product is for overseas use only according to the new Measurement Act. (The SI unit type is provided for use in Japan.)

2-Colour Display

Digital Flow Switch

PF2M7 Series

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.



How to Order

PF2M7 ❶10 ❷ – ❸C6 – ❹A ❺ – ❻M ❼ ❽

Integrated display

❶ Rated flow range

01	0.01 to 1 l/min	**25**	0.2 to 25 l/min
02	0.02 to 2 l/min	**50**	0.5 to 50 l/min
05	0.05 to 5 l/min	**11**	1 to 100 l/min
10	0.1 to 10 l/min	**21**	2 to 200 l/min

❷ Flow adjustment valve/Piping entry direction

Symbol	Flow adjustment valve	Piping entry direction	Rated flow range 1	2	5	10	25	50	100	200
—	None	Straight	●	●	●	●	●	●	●	●
S	Yes	Straight	—	—	●	●	●	●	●	●
L	None	Rear ported	●	●	●	●	●	●	●	●
W	Yes	Rear ported	—	—	●	●	●	●	●	●

∗ 1 and 2 l/min type products are not available with a flow adjustment valve.

❸ Port size

Symbol	Port size	Rated flow range 1	2	5	10	25	50	100	200
01	Rc1/8	●	●	●	●	●	●	—	—
N1	NPT1/8	●	●	●	●	●	●	—	—
F1	G1/8	●	●	●	●	●	●	—	—
02	Rc1/4	—	—	—	—	—	—	●	●
N2	NPT1/4	—	—	—	—	—	—	●	●
F2	G1/4	—	—	—	—	—	—	●	●
C4∗1	Ø 4	●	●	●	●	—	—	—	—
C6	Ø 6	●	●	●	●	●	●	—	—
C8	Ø 8	—	—	—	—	—	—	●	●
N7	Ø 1/4"	—	—	—	—	●	●	●	●

∗1 Made to order (Produced upon receipt of order)

Piping variations

With One-touch fitting	Female thread
C4∗2**, C6, C8, N7**	**01, 02, N1, N2, F1, F2**
Straight	Straight
Rear ported	Rear ported

∗2 Made to order (Produced upon receipt of order)

❹ Output specification

Symbol	OUT1	OUT2
A	NPN	NPN
B	PNP	PNP
C	NPN	Analogue 1 to 5 V ⇔ Analogue 0 to 10 V∗3
D	NPN	Analogue 4 to 20 mA
E	PNP	Analogue 1 to 5 V ⇔ Analogue 0 to 10 V∗3
F	PNP	Analogue 4 to 20 mA

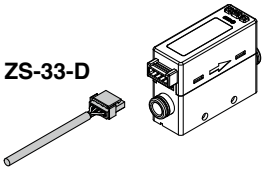
∗3 1 to 5 V or 0 to 10 V can be selected by pressing the button. The default setting is 1 to 5 V.

❺ Option 1

—

Lead wire with connector (2 m)

ZS-33-D



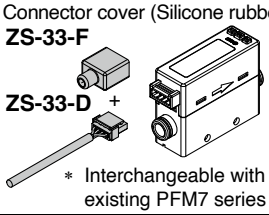
∗ Interchangeable with the existing PFM7 series

W

Lead wire with connector (2 m) + Connector cover (Silicone rubber)

ZS-33-F

ZS-33-D +



∗ Interchangeable with the existing PFM7 series

N

Without lead wire with connector

❻ Unit specification

M	SI unit only∗4
—	Unit selection function

∗4 Fixed unit: Instantaneous flow: l/min
Accumulated flow: L

❽ Calibration certificate∗5

—	None
A	Yes

∗5 Made to order
The certificate is in both English and Japanese.

❼ Option 2

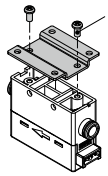
—

Without bracket

R

Bracket (For the type without a flow adjustment valve)

ZS-33-M With 2 tapping screws

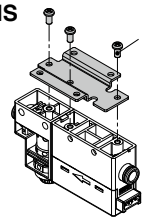


∗ Interchangeable with the existing PFM series

S

Bracket (For the type with a flow adjustment valve)

ZS-33-MS With 3 tapping screws

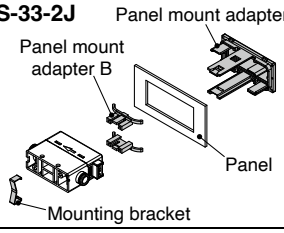


∗ Interchangeable with the existing PFM series

T

Panel mount adapter (For the type without a flow adjustment valve)

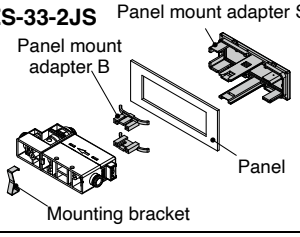
ZS-33-2J



V

Panel mount adapter (For the type with a flow adjustment valve)

ZS-33-2JS



∗ Options are shipped together with the product but do not come assembled.

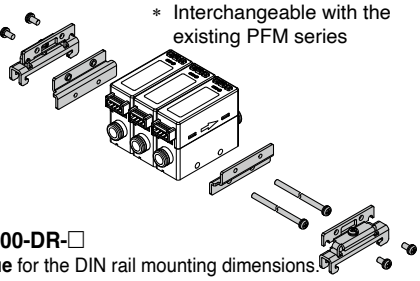
DIN Rail Mounting Bracket (To Be Ordered Separately)

ZS – 33 – R 3

Stations

1	1 station
2	2 stations
3	3 stations
4	4 stations
5	5 stations

∗ Interchangeable with the existing PFM series



DIN rail part number: AXT100-DR-□

∗ Refer to the **Web Catalogue** for the DIN rail mounting dimensions.

2-Colour Display

Digital Flow Switch

PFMB7 Series

(Only 200 L type)

RoHS

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.



How to Order

PFMB7 □ – □□ – □□ – □□ – □□□

Rated flow range (Flow rate range)

501	5 to 500 l/min
102	10 to 1000 l/min
202	20 to 2000 l/min

Thread type

—	Rc
N	NPT
F	G *1

*1 ISO 228 compliant

Port size

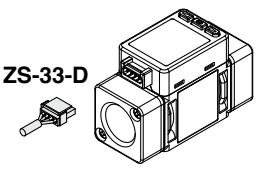
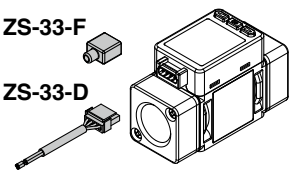
	Port size	Rated flow range		
		501	**102**	**202**
04	1/2	●	●	—
06	3/4	—	—	●

Output specification

	OUT1	OUT2	Applicable monitor unit model
A	NPN	NPN	—
B	PNP	PNP	—
C	NPN	Analogue 1 to 5 V	PFG300 series
D	NPN	Analogue 4 to 20 mA	PFG310 series
E*1	PNP	Analogue 1 to 5 V	PFG300 series
F*1	PNP	Analogue 4 to 20 mA	PFG310 series
G*1	NPN	External input *2	—
H*1	PNP	External input *2	—

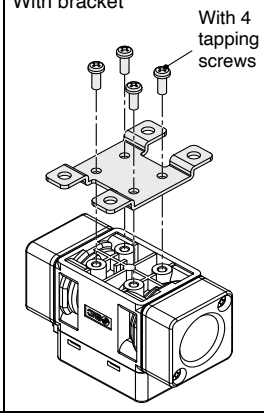
*1 Made to order
*2 Accumulated flow value, peak/bottom flow value can be reset by external signal input.

Option 1

—	**W**
Lead wire with connector (2 m)	Lead wire with connector (2 m) + Rubber cover for connector (Silicone rubber)
	
N	
Without lead wire with connector	

* When only optional parts are required, refer to Option 1/Part Nos. below.

Option 2

—	**R**
No bracket	With bracket 

* Options are shipped together with the product, but not assembled. When only optional parts are required, refer to Option 2/Part Nos. below.

Unit specification

M	SI unit only *1
—	Unit selection function

*1 Fixed unit: Instantaneous flow: l/min
Accumulated flow: L

Calibration certificate *1

—	None
A*2	With calibration certificate

*1 Certificate in both English and Japanese
*2 Made to order

Option 1/Part Nos.

Option	Part no.	Qty.	Note
Lead wire with connector	**ZS-33-D**	1	Lead wire: 2 m
Rubber cover (Silicone rubber)	**ZS-33-F**	1	For connector

Option 2/Part Nos.

Option	Part no.	Qty.	Note
Bracket (for PFMB7201)	**ZS-33-M**	1	With 2 tapping screws (3 x 6)
Bracket (for PFMB7201S)	**ZS-33-MS**	1	With 3 tapping screws (3 x 6)
Panel mount adapter (for PFMB7201)	**ZS-33-J**	1	
Panel mount adapter (for PFMB7201S)	**ZS-33-JS**	1	
Bracket (for PFMB7501/7102)	**ZS-42-C**	1	With 4 tapping screws (3 x 6)
Bracket (for PFMB7202)	**ZS-42-D**	1	With 4 tapping screws (3 x 6)

Flow Sensor

PFMV5 Series

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.



How to Order

PFMV5 05 – 1 – □□

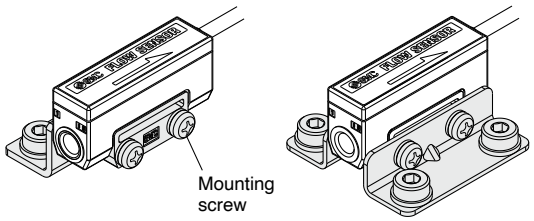
Measurement flow range

05	0.0 to 0.5 l/min
10	0.0 to 1.0 l/min
30	0.0 to 3.0 l/min
05F	–0.5 to 0.5 l/min
10F	–1.0 to 1.0 l/min
30F	–3.0 to 3.0 l/min

Output specifications

1	Analogue output (1 to 5 V)

Option (shipped together)

–	None
A	With L-type bracket 

∗ 2 L-type brackets (with 2 mounting screws) are included.

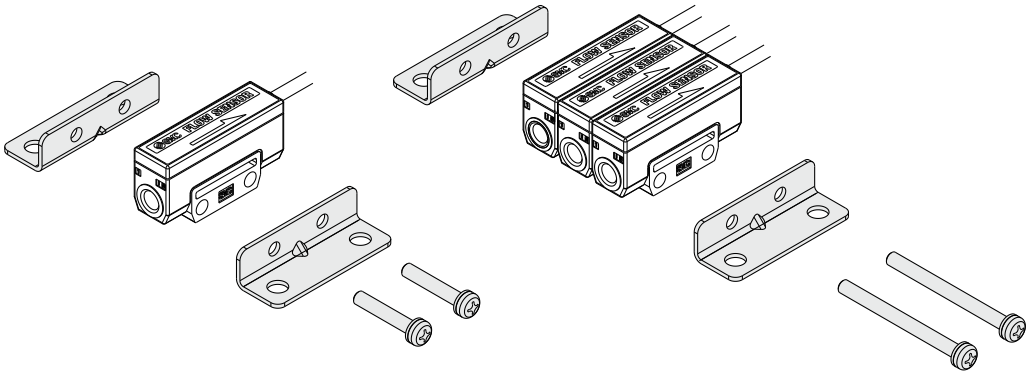
Operation manual

–	With operation manual (Japanese and English)
N	None

Option/Part No.

If a single option or manifold mounting are required, order sensors with the part numbers below separately.

Part no.	Stations	Note
ZS-36-A1	For 1 station (for single unit)	2 L-type brackets, 2 mounting screws M3 x 15L
ZS-36-A2	For 2 stations	2 L-type brackets, 2 mounting screws M3 x 25L
ZS-36-A3	For 3 stations	2 L-type brackets, 2 mounting screws M3 x 35L
ZS-36-A4	For 4 stations	2 L-type brackets, 2 mounting screws M3 x 45L
ZS-36-A5	For 5 stations	2 L-type brackets, 2 mounting screws M3 x 55L



IO-Link
Flow Controller for Air
PFCA7 Series

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.

How to Order

PFCA7 10 – C6 – 1 ☐ – M ☐ ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼



❶ Rated control flow range

Model	Rated control flow range
10	0.1 to 10 l/min
25	0.2 to 25 l/min
50	0.5 to 50 l/min
11	1 to 100 l/min

❷ Port size

Model	Port size	Rated control flow range			
		10	**25**	**50**	**11**
01	Rc1/8	●	●	●	–
N1	NPT1/8	●	●	●	–
F1	G1/8	●	●	●	–
02	Rc1/4	–	–	–	●
N2	NPT1/4	–	–	–	●
F2	G1/4	–	–	–	●
C4	Ø 4	●	–	–	–
C6	Ø 6	●	●	●	●
C8	Ø 8	–	●	●	●
N7	Ø 1/4"	–	●	●	●

❸ Input/output specifications

Model	IN	OUT1	OUT2
1	Analogue input (1 to 5 V)	IO-Link/NPN/PNP	Analogue output (1 to 5 V ⇔ 0 to 10 V)*1
2	Analogue input (4 to 20 mA)	IO-Link/NPN/PNP	Analogue output (4 to 20 mA)

*1 1 to 5 V or 0 to 10 V can be selected by pressing the button. The default setting is 1 to 5 V.

❹ Option 1

Symbol	Content
–	With lead wire with connector (3 m/5 core) **ZS-53-A**
N	Without lead wire with function
Q	M12-M12 lead wire with connector (3 m/5 core)*2 **ZS-53-D**

*2 One side has an M12 (socket), and the other side has an M12 (plug) lead wire with a connector.

❺ Unit specification

Model	Content
–	Unit specification
M	SI unit only*3

*3 Fix unit Instantaneous flow: l/min
Accumulated flow: L

❻ Option 2

Model	Content
–	None
R	Bracket (mounting position: Side) **ZS-40-L** Mounting screw
S	Bracket (mounting position: Stream side) **ZS-53-G** Mounting screw

❼ Operation manual/Calibration certificate*4

Model	Content	
	Operation manual	Calibration certificate
–	●	–
Y	–	–
K	●	●
T	–	●

*4 The certificate is in both English and Japanese.

Flow Controller for Air

PFCQ Series

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.



How to Order

PFCQ5 31 – 04 – A1 C – S M

Flow controller for air (Display separate type)

Rated flow range (Flow range)

31	9 to 300 l/min

Port size

04	Rc1/2

Input/Output specifications
Analogue input/output type

Symbol	IN1	INA	OUT1	OUTA
A1	Common for NPN and PNP	Analogue 1 to 5 V	NPN	Analogue 1 to 5 V
A2	Common for NPN and PNP	Analogue 4 to 20 mA	NPN	Analogue 4 to 20 mA
A3	Common for NPN and PNP	Analogue 1 to 5 V	PNP	Analogue 1 to 5 V
A4	Common for NPN and PNP	Analogue 4 to 20 mA	PNP	Analogue 4 to 20 mA

Power supply cable

–	None
C	With power supply cable (3 m)

Bracket

–	None
S	With bracket

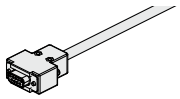
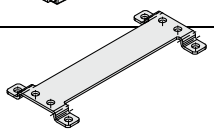
∗ The bracket is shipped together with the product but does not come assembled.

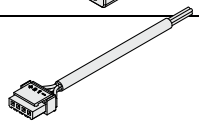
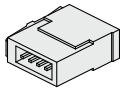
Display

–	None
M	With display∗1

∗1 The following items are included in the shipment.
Digital flow monitor
Lead wire: Lead wire with connector (2 m)
Connector: Sensor connector

Options/Accessories

Description	Part no.	Note
Power supply cable	**PFCQ531-H1-3**	
Bracket	**PFCQ531-B1**	 (with 4 x hexagon socket head cap screws)
Protective plug	**PFCQP-910S-31**	 (Accessory)

Description	Part no.	Note
Digital flow monitor	**PFG310-XY-M-Y-X105**	
Lead wire with connector	**ZS-33-D**	 (for connection with the digital flow monitor)
Sensor connector	**ZS-28-C-1**	 (for connection with the digital flow monitor)

Direct Operated 2-Port Solenoid Valve

HF1B-JSX Series

Body Material **Stainless Steel, Brass**

RoHS

CE UKCA

How to Order

HF1B-JSX 2 1 - S N 302 F - 5 G - D - B

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿



❶ Size

Symbol	Size
1	10
2	20
3	30

❷ Valve type

Symbol	Valve type
1	N.C. 2(OUT) 1(IN)

❸ Body material

Symbol	Body material
S	Stainless steel
C	Brass

❹ Seal material

Symbol	Seal material
N	NBR
F	FKM
E	EPDM

❺ Orifice diameter and port size

Symbol	Orifice diameter [mmØ]	Port size	Size 10	Size 20	Size 30
101	1.6	1/8	●	–	–
201	2.4	1/8	●	–	–
301	3.2	1/8	–	●	–
302		1/4	–	●	–
303		3/8	–	●	–
402	4	1/4	–	●	●
403		3/8	–	●	●
502	5.6	1/4	–	●	●
503		3/8	–	●	●
702	7.1	1/4	–	●	●
703		3/8	–	●	●

❻ Thread type

Symbol	Thread type
R	Rc
N	NPT
F	G

❼ Rated voltage

AC

Symbol	Rated voltage	Symbol	Rated voltage
1	100 VAC	**7**	240 VAC
2	200 VAC	**8**	48 VAC
3	120 (110) VAC	**B**	24 VAC
4	220 VAC	**J**	230 VAC

DC

Symbol	Rated voltage
5	24 VDC
6	12 VDC

❾ Oil-free option

Symbol	Option
–	None
D	Oil-free

❿ Option

Symbol	Option
–	None
B	With bracket*1 (Stainless steel)

*1 Refer to the **Web Catalogue** for the bracket assembly part nos.

❽ Electrical entry

Symbol	Electrical entry		Size 10	Size 20	Size 30	Rated voltage
G	Grommet		●	●	●	24 VDC 12 VDC
GS	Grommet with PCB (With surge voltage suppressor)		●	●	●	100 VAC 24 VDC 12 VDC 48 VAC 24 VAC
CS	Conduit (With surge voltage suppressor)		–	●	●	All voltages
DS	DIN terminal (With surge voltage suppressor)		●	●	●	All voltages
DZ	DIN terminal with light (With surge voltage suppressor)		●	●	●	All voltages
DN	DIN terminal without connector (With surge voltage suppressor)		●	●	●	All voltages
WN	M12 connector/Without connector cable (With surge voltage suppressor)*1		●	●	●	All voltages

*1 A cable for the M12 connector is not included with the product. Refer to "Option" on the **Web Catalogue** to order it separately.

Direct Operated 2-Port Solenoid Valve
HF1B-JSX Series

Body Material **Aluminium**

RoHS

CE UK CA

How to Order

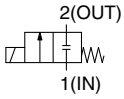
HF1B-JSX **2** **1** - **A** **N** **302** **F** - **5** **G** - **D** - **B**
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿



❶ Size

Symbol	Size
2	20
3	30

❷ Valve type

Symbol	Valve type
1	N.C.  2(OUT) 1(IN)

❸ Body material

Symbol	Body material
A	Aluminium

❹ Seal material

Symbol	Seal material
N	NBR
F	FKM

❺ Orifice diameter and port size

Symbol	Orifice diameter [mmØ]	Port size	Size 20 (Aluminium body)	Size 30 (Aluminium body)
301	3	1/8	●	—
302		1/4	●	—
402	4	1/4	—	●
403		3/8	—	●
501	5	1/8	●	—
502		1/4	●	—
702	7	1/4	—	●
703		3/8	—	●

❻ Thread type

Symbol	Thread type
R	Rc
N	NPT
F	G

❼ Rated voltage

AC

Symbol	Rated voltage	Symbol	Rated voltage
1	100 VAC	**7**	240 VAC
2	200 VAC	**8**	48 VAC
3	120 (110) VAC	**B**	24 VAC
4	220 VAC	**J**	230 VAC

DC

Symbol	Rated voltage
5	24 VDC
6	12 VDC

❽ Electrical entry

Symbol	Electrical entry		Size 10	Size 20	Size 30	Rated voltage
G	Grommet		●	●	●	24 VDC 12 VDC
GS	Grommet with PCB (With surge voltage suppressor)		●	●	●	100 VAC 24 VDC 12 VDC 48 VAC 24 VAC
CS	Conduit (With surge voltage suppressor)		—	●	●	All voltages
DS	DIN terminal (With surge voltage suppressor)		●	●	●	All voltages
DZ	DIN terminal with light (With surge voltage suppressor)		●	●	●	All voltages
DN	DIN terminal without connector (With surge voltage suppressor)		●	●	●	All voltages
WN	M12 connector/Without connector cable (With surge voltage suppressor)*1		●	●	●	All voltages

*1 A cable for the M12 connector is not included with the product. Refer to "Option" on the **Web Catalogue** to order it separately.

❾ Oil-free option

Symbol	Option
—	None
D	Oil-free

❿ Option

Symbol	Option
—	None
B	With bracket*1

*1 Refer to the **Web Catalogue** for the bracket assembly part nos.

NSF/ANSI 61 certification

Direct Operated 2-Port Solenoid Valve

HF3-JSX Series

Body Material **Stainless Steel**

CLASSIFIED c UL us WATER QUALITY c UL us LISTED c RCM us RoHS CE*1 UK CA

*1 This product is not compliant with EU drinking water directive 2020/2184 nor regulation (EC) No. 1935/2004 safety requirements for materials and articles intended to come into contact with food.

For details, refer to the **Web Catalogue**.

For Water

How to Order

HF3-JSX 2 1 - S N 302 F - 5 G - D - B

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

Oil-free



❶ Size

Symbol	Size
1	10
2	20
3	30

❷ Valve type

Symbol	Valve type
1	N.C. 2(OUT) 1(IN)

❸ Body material

Symbol	Body material
S	Stainless steel

❹ Seal material

Symbol	Seal material
N	NBR

❺ Orifice diameter and port size

Symbol	Orifice diameter [mmØ]	Port size	Size 10	Size 20	Size 30
101	1.6	1/8	●	—	—
201	2.4	1/8	●	—	—
301	3.2	1/8	—	●	—
302		1/4	—	●	—
303		3/8	—	●	—
402	4.0	1/4	—	●	●
403		3/8	—	●	●
502	5.6	1/4	—	●	●
503		3/8	—	●	●
702	7.1	1/4	—	●	●
703		3/8	—	●	●

❻ Thread type

Symbol	Thread type
R	Rc
N	NPT
F	G

❼ Rated voltage

AC

Symbol	Rated voltage	Symbol	Rated voltage
1	100 VAC	7	240 VAC
2	200 VAC	8	48 VAC
3	120 (110) VAC	B	24 VAC
4	220 VAC	J	230 VAC

DC

Symbol	Rated voltage
5	24 VDC
6	12 VDC

❾ Option

Symbol	Option
—	None
B	With bracket*1 (Stainless steel)

*1 Refer to the **Web Catalogue** for the bracket assembly part nos.

❽ Electrical entry

Symbol	Electrical entry		Size 10	Size 20	Size 30	Rated voltage	UL Standards
G	Grommet		●	●	●	24 VDC 12 VDC	For details, refer to the **Web Catalogue**.
GS	Grommet with PCB (With surge voltage suppressor)		●	●	●	100 VAC 24 VDC 12 VDC 48 VAC 24 VAC	
CS	Conduit (With surge voltage suppressor)		—	●	●	All voltages	
DS	DIN terminal (With surge voltage suppressor)		●	●	●	All voltages	
DZ	DIN terminal with light (With surge voltage suppressor)		●	●	●	All voltages	
DN	DIN terminal without connector (With surge voltage suppressor)		●	●	●	All voltages	
WN	M12 connector/Without connector cable (With surge voltage suppressor)*1		●	●	●	All voltages	

*1 A cable for the M12 connector is not included with the product. Refer to "Option" on the **Web Catalogue** to order it separately.

⚠ Caution

1. **Quality control relating to hygiene is not implemented for this product.**
2. **This product is NSF/ANSI 61-2016 (Drinking Water System Components-Health Effects) certified by UL. Be sure to use the product in accordance with the laws and regulations of the country and region in which it is to be used.**
3. **Please use the product in accordance with the specifications provided in the catalogs/ operation manuals. It is your responsibility to check the suitability for your workpiece and equipment.**
4. **Install filters suitable for the application on the downstream side of the solenoid valve.**

CLASSIFIED c UL us WATER QUALITY

Modular Mounting Type 2-Port Solenoid Valve

HF1B-JSXM Series

How to Order

HF1B-JSXM **2** **1** **-** **A** **N** **301** **F** **-** **5** **G** **-** **U** **-** **F** **-** **D**

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫



❶ Size

Symbol	Size
2	20
3	30
4	40

❷ Valve type

Symbol	Valve type
1	N.C. 2(OUT) 1(IN)

❸ Body material

Symbol	Body material
A	Aluminium

❹ Seal material

Symbol	Seal material
N	NBR
F	FKM

❺ Orifice diameter and port size

Symbol	Orifice diameter [mmØ]	Port size	Size		
			20	**30**	**40**
301	3.2	1/8	●	—	—
302		1/4	●	—	—
402	4.0	1/4	—	●	●
403		3/8	—	●	●
404		1/2	—	—	●

❻ Thread type

Symbol	Thread type
R	Rc
N	NPT
F	G

❼ Rated voltage

AC

Symbol	Rated voltage	Symbol	Rated voltage
1	100 VAC	**7**	240 VAC
2	200 VAC	**8**	48 VAC
3	120 (110) VAC	**B**	24 VAC
4	220 VAC	**J**	230 VAC

DC

Symbol	Rated voltage
5	24 VDC
6	12 VDC

❽ Electrical entry

Symbol	Electrical entry		Rated voltage
G	Grommet		12 VDC 24 VDC
GS	Grommet with PCB (With surge voltage suppressor)		100 VAC 24 VDC 12 VDC 48 VAC 24 VAC
CS	Conduit (With surge voltage suppressor)		All voltages
DS	DIN terminal (With surge voltage suppressor)		All voltages
DZ	DIN terminal with light (With surge voltage suppressor)		All voltages
DN	DIN terminal without connector (With surge voltage suppressor)		All voltages
WN	M12 connector without cable (With surge voltage suppressor)*1		All voltages

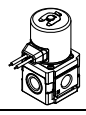
*1 A cable for the M12 connector is not included with the product. Refer to "Option" on the **Web Catalogue** to order it separately.

❾ Coil orientation

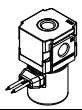
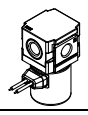
Symbol	Orientation
—	Upward
U	Downward

❿ Blow port position

Coil orientation: Upward (When "—" is selected for ❾)

Symbol	Position
—	Bottom 
F	Front 

Coil orientation: Downward (When "U" is selected for ❾)

Symbol	Position
—	Top 
F	Front 

⓫ Oil-free option

Symbol	Option
—	None
D	Oil-free

Pilot Operated 2-Port Solenoid Valve

HF1B-JSXD Series

RoHS

CE UKCA

How to Order

HF1B-JSXD 3 1 - C N 02 F - 5 G - D - B

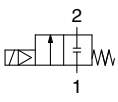
❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿



❶ Size

Symbol	Size
3	30
4	40
5	50
6	60
7	70
8	80
9	90

❷ Valve type

Symbol	Valve type
1	N.C. 

❸ Body material

Symbol	Body material	Size		
		30	**40, 50, 60**	**70, 80, 90**
C	Brass	●	●	–
S	Stainless steel	●	●	–
B	Bronze	–	–	●
A	Aluminium	●	–	–

❹ Seal material

Symbol	Seal material
N	NBR
F	FKM
E∗1	EPDM

∗1 Cannot be used in combination with the aluminium body

❺ Port size

Symbol	Connection	Port size	Size						
			30	**40**	**50**	**60**	**70**	**80**	**90**
02	Thread	1/4	●	–	–	–	–	–	–
03		3/8	●	●	–	–	–	–	–
04		1/2	●	●	–	–	–	–	–
06		3/4	–	–	●	–	–	–	–
10		1	–	–	–	●	–	–	–
12		1 1/4	–	–	–	–	●	–	–
14		1 1/2	–	–	–	–	–	●	–
20		2	–	–	–	–	–	–	●

❻ Thread type∗1

Symbol	Thread type
R	Rc
N	NPT
F	G

∗1 Thread type cannot be selected for 70 to 90 size flange types.

❼ Rated voltage

AC

Symbol	Rated voltage	Symbol	Rated voltage
1	100 VAC	**7**	240 VAC
2	200 VAC	**8**	48 VAC
3	120 (110) VAC	**B**	24 VAC
4	220 VAC	**J**	230 VAC

DC

Symbol	Rated voltage
5	24 VDC
6	12 VDC

❽ Electrical entry

Symbol	Electrical entry		Rated voltage
G	Grommet		12 VDC
			24 VDC
GS	Grommet with PCB (With surge voltage suppressor)		100 VAC
			24 VDC
			12 VDC
			48 VAC
			24 VAC
CS	Conduit (With surge voltage suppressor)		All voltages
DS	DIN terminal (With surge voltage suppressor)		All voltages
DZ	DIN terminal with light (With surge voltage suppressor)		All voltages
DN	DIN terminal without connector (With surge voltage suppressor)		All voltages
WN	M12 connector without connector cable (With surge voltage suppressor)∗1		All voltages

∗1 A cable for the M12 connector is not included with the product. Refer to "Option" on the **Web Catalogue** to order it separately.

❾ Oil-free option

Symbol	Option
–	None
D	Oil-free

❿ Bracket

Symbol	Bracket	Size		
		30 Aluminium, Brass, Stainless Steel	**40, 50, 60**	**70, 80, 90**
–	None	●	●	●
B	With bracket	●	●	–∗1

∗1 Sizes 70 to 90 are not available with a bracket.

Pulse Valve Valve for Dust Collector

HF1B-JSXFAE/F Series

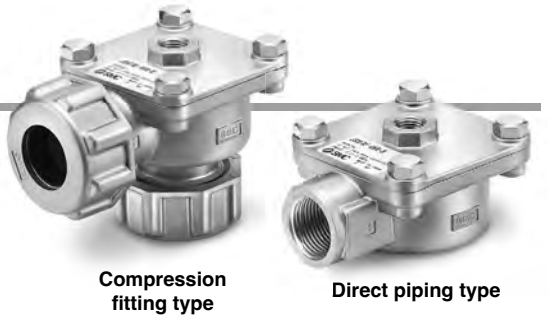
Compression Fitting Type/Direct Piping Type

RoHS

How to Order

HF1B-JSXFA E-06 F-B-□ 1

❶ ❷ ❸ ❹ ❺ ❻



Compression fitting type

Direct piping type

❶ Piping

E	Compression fitting type*1
F	Direct piping type

*1 Seals and washers are included.

❷ IN/OUT port size

06	3/4 (20A)
10	1 (25A)
14	1 1/2 (40A)

❸ Thread type

R	Rc
N	NPT
F	G

❹ Fluid and ambient temperatures

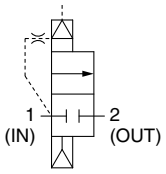
B	-40 to 60 °C

❺ With/without silencer

		Port size		
		06	10	14
—	Without	●	●	●
S	With	—	—	●

* Port size: 14 only
Select — for 06 and 10.

Symbol



❻ Pilot port size

—	1/4
1	1/8

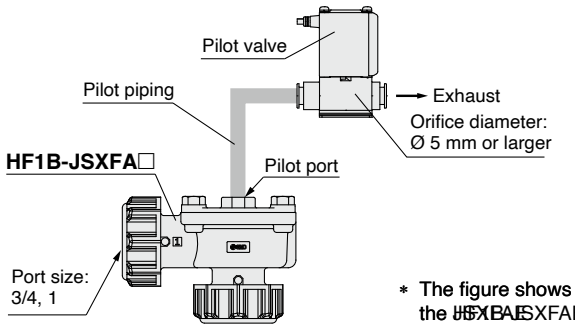
⚠Caution

Selection of Pilot Valve

For the pilot valve orifice diameter, Ø 5 mm or larger is recommended.

When the pilot orifice diameter is Ø 3 mm or larger and less than Ø 5 mm, put "**A**" to the end of the product number for made-to-order. The product may not operate correctly if the pilot valve orifice diameter is inadequate. (port size: 3/4, 1)
Depending on the pilot piping port size*1 or length, the valve may not operate correctly.

*1 The I.D. of the pilot piping must be larger than the pilot valve orifice diameter to use. The maximum pilot piping I.D. is 10 mm.



* The figure shows the HF1B-JSXFAE.

Made to Order

Pilot valve orifice diameter: Special specification

A	For Ø 3 mm to Ø 5 mm	Port size: 06, 10

HF1B-JSXFA □-□□-B-□□ A

Enter the standard product number.

High Speed 2-Port Valve

SX10 Series

The specifications are the same as the "HF1B-" even though there is no "HF1B-" part number prefix.



How to Order

SX1 2 F – A G

Valve mounting

1	Screw mount type*1
2	Quick disconnect type

*1 Two mounting screws (M3 x 0.5) and a gasket are included. (packaged together)

Filter (IN port)

—	Without filter
F	With filter*2

*2 Flow reduction rate
50 l/min: 5 % or less
100 l/min: 5 to 10 %
150 l/min: 10 to 15 %

Flow rate/Operating frequency (at 24 VDC, 0.25 MPa)

Symbol	Flow rate [l/min]	Power consumption [W]	Max. operating frequency [Hz]
A	50	80	1200
B		40	1000
C		10	550
D		4	350
E	100	80	650
F		40	550
G		10	300
H		4	200
J	150	80	600
K		40	500
L		10	250
M		4	150

Lead wire (grommet) length

Symbol	Length
G	300 mm
H	500 mm
J	1000 mm

HF□ Series
Definitions of Terms

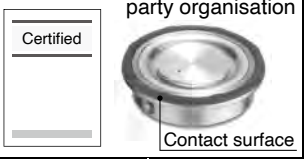
HF1- Series	No lubricants or rust proof agents are used on the fluid contact parts. When used, lubricants and rust proof agents for food machinery are used.
HF1A- Series	No lubricants or rust proof agents are used on the external parts. When used, lubricants and rust proof agents for food machinery are used.
HF1B- Series	No lubricants or rust proof agents are used on the external parts or fluid contact parts. When used, lubricants and rust proof agents for food machinery are used.

HF2- Series	No lubricants or rust proof agents are used on the fluid contact parts. When used, lubricants and rust proof agents for food machinery are used. In addition, U.S. FDA compliant materials are used.
HF2A- Series	No lubricants or rust proof agents are used on the external parts. When used, lubricants and rust proof agents for food machinery are used. In addition, U.S. FDA compliant materials are used.
HF2B- Series	No lubricants or rust proof agents are used on the external parts or fluid contact parts. When used, lubricants and rust proof agents for food machinery are used. In addition, U.S. FDA compliant materials are used.

HF3- Series	Products certified by a third-party organisation*1
HF3A- Series	Uses materials that comply with food contact surface laws and regulations and does not use lubricants or rust proof agents

*1 Refer to each product catalogue for certification standards.

Fluid contact parts: This refers to all parts that come into contact with the fluids (liquids, gases, etc.) that pass through the SMC product and flow out into the food manufacturing environment.
External parts (externally exposed parts): This refers to all exposed external parts and components of SMC products in food manufacturing environments.
Lubricants and rust proof agents for food machinery: This refers to NSF H1 grade registered lubricants (grease, hydraulic oil, turbine oil, etc.) and rust proof agents.
No lubricants or rust proof agents: This means that no lubricants or rust proof agents were used intentionally. This does not include during the cleaning of parts, assembly tools, etc.
U.S. FDA compliant materials/products: This refers to materials and products that are guaranteed or certified by the material manufacturer or analysis to be equivalent to U.S. FDA certified products.

	Material adhesion regulations for product **internal parts** 		Material adhesion regulations for product **external parts** 		Food machinery compatible product **internal and external parts** 		Products certified by a third-party organisation 	
	HF1	**HF2-**	**HF1A-**	**HF2A-**	**HF1B-**	**HF2B-**	**HF3-**	**HF3A-**
	Material adhesion regulations for internal parts	HF1 + U.S. FDA materials	Material adhesion regulations for external parts	HF1A + U.S. FDA materials	Material regulations for internal and external parts	HF1B + U.S. FDA materials	Certified products	Contact surface regulations
No lubricants or rust proof agents	●	○	●	○	●	○		○
Lubricants and rust proof agents for food machinery	●	○	●	○	●	○		
U.S. FDA compliant materials (rubber/resin)		○		○		○		
Products certified by a third-party organisation							○	
Contact surface regulations								○

Product internal parts (fluid contact parts): This refers to all parts that come into contact with the fluids (liquids, gases, etc.) that pass through the SMC product and flow out into the food manufacturing environment
Product external parts (externally exposed parts): This refers to all exposed external parts and components of SMC products in food manufacturing environments.
Lubricants and rust proof agents for food machinery: This refers to NSF H1 grade registered lubricants (grease, hydraulic oil, turbine oil, etc.) and rust proof agents.
U.S. FDA compliant materials/products: This refers to materials and products that are guaranteed or certified by the material manufacturer or analysis to be equivalent to U.S. FDA certified products.

HF□ Series
Notification of Part Number Prefix Change

With the expansion of the HF□ series, new categories have been added. Note that as a result, the part number prefixes of some models have been changed.

Example)

HF1-Series
No lubricants or rust proof agents are used on the fluid contact parts. When used, lubricants and rust proof agents for food machinery are used.

HF1- No lubricants or rust proof agents are used on the fluid contact parts. When used, lubricants and rust proof agents for food machinery are used.
Same specifications as the existing models

HF1A- No lubricants or rust proof agents are used on the external parts. When used, lubricants and rust proof agents for food machinery are used.
New The application range has been expanded to include "external parts (externally exposed parts)."

HF1B- No lubricants or rust proof agents are used on the external parts or fluid contact parts. When used, lubricants and rust proof agents for food machinery are used.
New The application range has been expanded to include "fluid contact parts and external parts (externally exposed parts)."

Changed part number prefixes

Existing	*New*
Series	Series
HF1-AF20, 30, 40, 50, 60-D	**HF1B-AF20, 30, 40, 50, 60-D**
HF1-AFD20, 30, 40-D	**HF1B-AFD20, 30, 40-D**
HF1-AFF20/30/40□□-D	**HF1B-AFF20/30/40□□-D**
HF1-AFM20, 30, 40-D	**HF1B-AFM20, 30, 40-D**
HF1-AM20/30/40□□-D	**HF1B-AM20/30/40□□-D**
HF1-AMD20/30/40□□-D	**HF1B-AMD20/30/40□□-D**
HF1-AMK20/30/40□□-D	**HF1B-AMK20/30/40□□-D**
HF1-AR20, 30, 40, 50, 60(K)-D	**HF1B-AR20, 30, 40, 50, 60(K)-D**
HF1-AS-F	**HF1B-AS-F**
HF1-AW20, 30, 40, 60(K)-D	**HF1B-AW20, 30, 40, 60(K)-D**
HF1-IS10	**HF1B-IS10**
HF1-VHS20, 30, 40, 50(W)-D	**HF1B-VHS20, 30, 40, 50(W)-D**
HF1-VM1000	**HF1B-VM1000**
HF1-JSX	**HF1B-JSX**
HF1-JSXD	**HF1B-JSXD**
HF1-JSXF	**HF1B-JSXF**
HF1-JSXM	**HF1B-JSXM**

Added part number prefixes

Existing	*New*
Series	Series
SFDA	**HF2B-SFDA**

HF□ Series
Precautions

Be sure to read this before handling the products.

⚠ Safety Instructions	Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.

⚠Caution

1 . When selecting equipment, carefully consider the application, required specifications, and operating conditions (fluid, pressure, flow rate, filtration, and environment), making sure not to exceed the specification range.

2 . When the product is used as an air blower, install an appropriate filter to eliminate foreign matter in compressed air for air blowing. (Refer to the example of pneumatic circuit on page 4).

3 . Quality management relating to hygiene for food and medical treatment is not implemented for this product.

4 . Compressed air hygiene should be managed in accordance with national and regional rules and regulations.

5. Grease

Fluid contact parts: NSF H1 grade grease
Part other than fluid contact parts:
NSF H1 grade grease or grease which is not NSF H1 grade

6 . Equipment that comes into contact with food sold as a commercial product must use materials that comply with laws and regulations.

7 . If used above food sold as a commercial product, there is a chance that grease, wear powder, etc., will fall on top of the product. Therefore, be sure to take appropriate preventive measures.

8 . If food products sold as a commercial product or cleaning fluids come into contact with the equipment, it may result in corrosion or reduced lubrication, which may shorten the life of the equipment.

Pressure Gauge Specific Product Precautions

Selection

⚠Caution

1 . Make sure that no direct impact or vibrations are applied to the body.

2 . If operating under pressure pulsations or in high frequency operations, please contact SMC.

3/5-Port Solenoid Valve Specific Product Precautions

⚠Caution

1 . Wear powder is generated by the internal sliding parts of solenoid valves. When using solenoid valves for air blow applications, be sure to install a suitable filter (filtration rating: 0.01 μm) on the outlet side of the solenoid valve to prevent foreign matter from flowing out. In addition, be sure to preform regular inspections, element replacement, and maintenance in accordance with the filter (standard product) operation manual.

2 . Very small amounts of non-H 1 grade oil is used in SY, VP, ITV, and ZK series pilot valves. This oil may come out from the pilot exhaust port, solenoid valve EXH port, or exhaust port. If required, run piping so that the exhaust is released in a location where it will not cause any problems.

■**Trademark**
DeviceNet® is a registered trademark of ODVA, Inc.
EtherNet/IP® is a registered trademark of ODVA, Inc.
CompoNet® is a registered trademark of ODVA, Inc.
EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

⚠ Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC) [1], and other safety regulations.

⚠ **Danger:**	**Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
⚠ **Warning:**	**Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
⚠ **Caution:**	**Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

1) ISO 4414: Pneumatic fluid power – General rules and safety requirements for systems and their components.
ISO 4413: Hydraulic fluid power – General rules and safety requirements for systems and their components.
IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots.
etc.

⚠ Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.
Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.
The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/ equipment until safety is confirmed.
1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. SMC products cannot be used beyond their specifications.
They are not developed, designed, and manufactured to be used under the following conditions or environments.
Use under such conditions or environments is not allowed.
1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, combustion equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogues and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

⚠ Caution

SMC develops, designs, and manufactures products to be used for automatic control equipment, and provides them for peaceful use in manufacturing industries.
Use in non-manufacturing industries is not allowed.
Products SMC manufactures and sells cannot be used for the purpose of transactions or certification specified in the Measurement Act of each country.
The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first. [2] Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.

2) **Suction cups (Vacuum pads) are excluded from this 1 year warranty.**
A suction cup (vacuum pad) is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the suction cup (vacuum pad) or failure due to the deterioration of rubber material are not allowed by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

⚠ **Safety Instructions**	Be sure to read the "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" before use.

SMC Corporation (Europe)

Austria	+43 (0)2262622800	www.smc.at	office.at@smc.com
Belgium	+32 (0)33551464	www.smc.be	info@smc.be
Bulgaria	+359 (0)2807670	www.smc.bg	sales.bg@smc.com
Croatia	+385 (0)13707288	www.smc.hr	sales.hr@smc.com
Czech Republic	+420 541424611	www.smc.cz	office.at@smc.com
Denmark	+45 70252900	www.smcdk.com	smc.dk@smc.com
Estonia	+372 651 0370	www.smcee.ee	info.ee@smc.com
Finland	+358 207513513	www.smc.fi	smc.fi@smc.com
France	+33 (0)164761000	www.smc-france.fr	supportclient.fr@smc.com
Germany	+49 (0)61034020	www.smc.de	info.de@smc.com
Greece	+30 210 2717265	www.smchellas.gr	sales@smchellas.gr
Hungary	+36 23513000	www.smc.hu	office.hu@smc.com
Ireland	+353 (0)14039000	www.smcautomation.ie	technical.ie@smc.com
Italy	+39 03990691	www.smcitalia.it	mailbox.it@smc.com
Latvia	+371 67817700	www.smc.lv	info.lv@smc.com
Lithuania	+370 5 2308118	www.smclt.lt	info.lt@smc.com
Netherlands	+31 (0)205318888	www.smc.nl	info@smc.nl
Norway	+47 67129020	www.smc-norge.no	post.no@smc.com
Poland	+48 22 344 40 00	www.smc.pl	office.pl@smc.com
Portugal	+351 214724500	www.smc.eu	apoiocliente.pt@smc.com
Romania	+40 213205111	www.smcromania.ro	office.ro@smc.com
Russia	+7 (812)3036600	www.smc.eu	sales@smcru.com
Slovakia	+421 (0)413213212	www.smc.sk	sales.sk@smc.com
Slovenia	+386 (0)73885412	www.smc.si	office.si@smc.com
Spain	+34 945184100	www.smc.eu	post.es@smc.com
Sweden	+46 (0)86031240	www.smc.nu	order.se@smc.com
Switzerland	+41 (0)523963131	www.smc.ch	helpcenter.ch@smc.com
Turkey	+90 212 489 0 440	www.smcturkey.com.tr	satis.tr@smc.com
UK	+44 (0)845 121 5122	www.smc.uk	sales.gb@smc.com
South Africa	+27 10 900 1233	www.smcza.co.za	Sales.za@smc.com

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