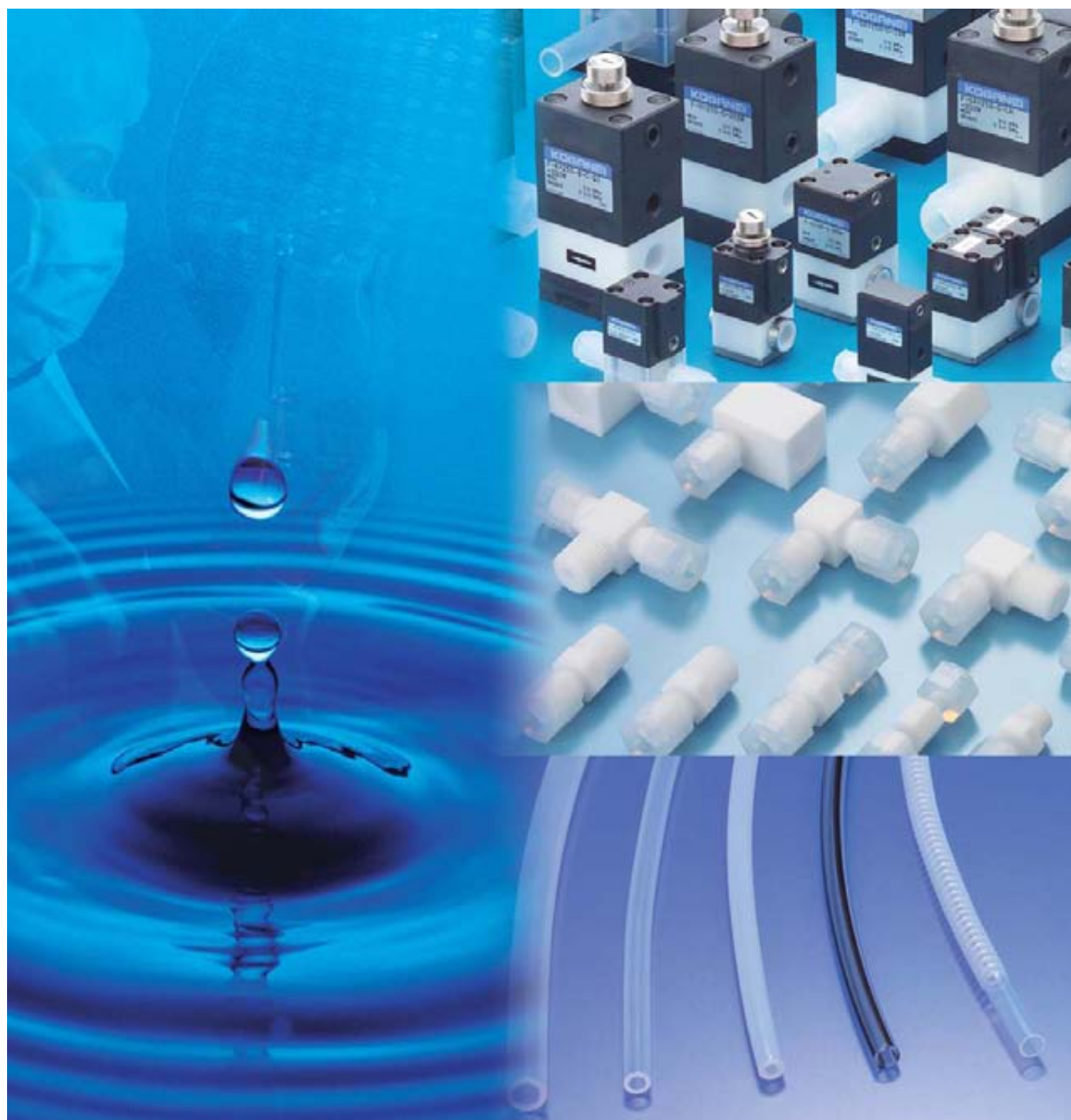


Fluororesin Products

Pure Process Series



Fluororesin Products

Pure Process Series

Among various plastic materials, fluororesin exhibits particularly superior chemical resistance, heat resistance, low friction, electrical insulation, low tackiness, weather resistance, and other features. This superior material is fabricated using micro-machining technology for PTFE products, and Koganei's independently developed injection molding method for PFA products, all under Koganei's rigorous quality control. These products are used in the semiconductor, liquid crystal, and other electronics sectors, as well as in chemicals, food products, medical equipment, chemical plants, and a wide variety of other industrial sectors.

Fluororesin Valve Series



- Compact series line-up suitable for control of small chemical flows now offers even more variety.
- In addition to diverse piping specifications and valve functions, the line-up offers a wide selection of options, such as automatic flow adjustment.

- Air operated valves
- Suck back valves
- Air operated valves with suck back
- Solenoid valve
- Check valve
- Drain valves

Page 7

Fluororesin H Series Fittings

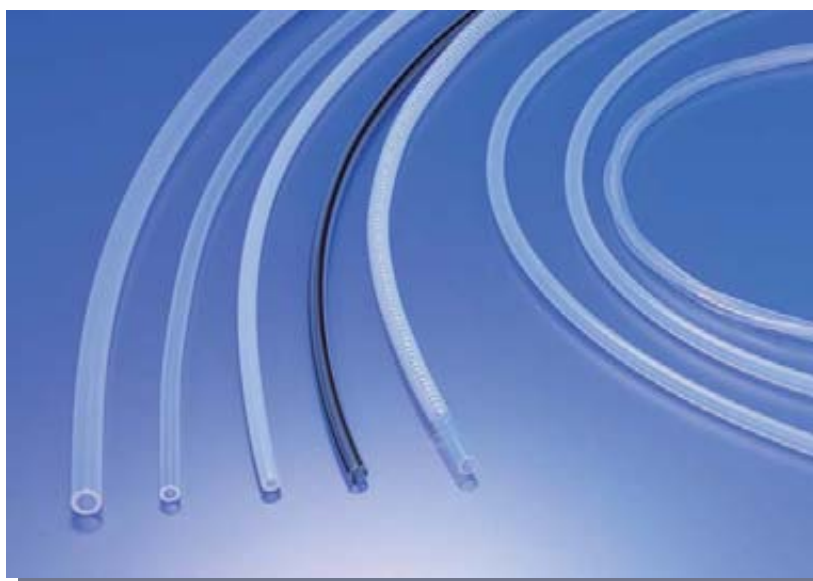


- Simple construction eliminates the need for dedicated tools. Ease of operation during piping is boosted dramatically.
- Tapered seal type offers superior pressure resistance, sealing ability, and heat resistance.

- Straight type
- Elbow type
- T type
- Reducing type

Page 47

Fluororesin Tube Series



- Size variations for the field-proven fluororesin tube have expanded.
- The high-grade HG tube and NE tube that demonstrates effectiveness against anti-static charges, have been added to the line-up.

- PFA tubes
- PFA-HG tubes
- PFA-NE tubes
- BT tubes
- RPL tubes

Page 59

CONTENTS

Features	1	Large Flow Series, Drain Valve Series	43
Safety Precautions	3	Other Related Products	45
Flow Rate Conversion Graph	5	Fluororesin H Series Fittings	
Fluororesin Valve Series		Features, Specifications	47
Features	7	Fitting Types and Parts	49
Valve Selection Guides	9	Dimensions	50
Handling Instructions and Precautions	11	Fluororesin Tube Series	
Air Operated Diaphragm Type 2-port Valves	13	Features, Application Examples	59
Air Operated Diaphragm Type 3-port Valves	23	Maximum Tube Operating Pressure	60
Suck Back Valves	29	Tube Size and Flow Rate	60
Air Operated Valves with Suck Back	32	PFA Tubes	61
Solenoid Valve	39	PFA-HG Tubes	63
Check Valve	40	PFA-NE Tubes	65
Air Operated Valves with Suck Back		BT Tubes	67
High Viscosity Specification	41	RPL Tubes	68
Air Operated Valve Diaphragm Type with Dual Flow Rate Switching Mechanism	42		



Caution

Before use, always read the "Safety Precautions" on p. 3, 48, 60





Before selecting and using products, please read all the Safety Precautions carefully to ensure proper product use.

The Safety Precautions shown below are to help you use the product safely and correctly, and to prevent injury or damage to you, other people, and assets beforehand.

Follow the Safety Precautions for: ISO4414 (Pneumatic fluid power—Recommendations for the application of equipment to transmission and control systems), JIS B 8370 (Pneumatic system regulations).

The directions are ranked according to degree of potential danger or damage:

“DANGER!”, “WARNING!”, “CAUTION!” and “ATTENTION!”

 DANGER	Expresses situations that can be clearly predicted as dangerous. If the noted danger is not avoided, it could result in death or serious injury. It could also result in damage or destruction of assets.
 WARNING	Expresses situations that, while not immediately dangerous, could become dangerous. If the noted danger is not avoided, it could result in death or serious injury. It could also result in damage or destruction of assets.
 CAUTION	Expresses situations that, while not immediately dangerous, could become dangerous. If the noted danger is not avoided, it could result in light or semi-serious injury. It could also result in damage or destruction of assets.
 ATTENTION	While there is little chance of injury, this content refers to points that should be observed for appropriate use of the product.

■ This product was designed and manufactured as parts for use in General Industrial Machinery.

■ In the selection and handling of equipment, the system designer or other person with fully adequate knowledge and experience should always read the Safety Precautions, Catalog, User's Manual and other literature before commencing operation. Making mistakes in handling is dangerous.

■ After reading the Instruction Manual, Catalog, etc., always place them where they can be easily available for reference to users of this product.

■ If transferring or lending the product to another person, always attach the Instruction Manual, Catalog, etc., to the product where they are easily visible, to ensure that the new user can use the product safely and properly.

■ The danger, warning, and caution items listed under these “Safety Precautions” do not cover all possible cases. Read the Catalog and User's Manual carefully, and always keep safety first.

DANGER

- Do not use for the purposes listed below:
 1. Medical equipment related to maintenance or management of human lives or bodies.
 2. Mechanical devices or equipment designed for the purpose of moving or transporting people.
 3. Critical safety components in mechanical devices.
 This product has not been planned or designed for purposes that require advanced stages of safety. It could cause injury to human life.
- Do not use solenoid valves in locations with or near dangerous substances such as flammable or ignitable substances. The products are not explosion-proof. They could ignite or burst into flames.
- Do not allow flammable gases or ignitable chemicals to flow the solenoid valves. Moreover, do not use the solenoid valve in atmospheres containing flammable gases. There is a chance of explosion or ignition.
- Persons who use a pacemaker, etc., should keep a distance of at least one meter [3.28ft.] away from the solenoid valve. There is a possibility that the pacemaker will malfunction due to the strong magnet built into the solenoid valve.
- Do not use any media other than those shown in the specifications table. Use of non-specified media could lead to early shutdown of function or a sudden drop in performance, and result in a reduced operating life. Media leakage on the outside of the product could pose a risk to human life.
- When using chemicals, always check compatibility with the structural materials of the product before use. Use of incompatible media could lead to early shutdown of function or a sudden drop in performance, and result in a reduced operating life. Fluid leakage on the outside of the product could pose a risk to human life.
- When attaching the product, always ensure that it is securely mounted in place. Dropping or falling the product or improper operation could result in injury.
- While the product is in operation, avoid touching it with your hands or otherwise approaching too close. In addition, do not make any adjustments to the interior or to the attached mechanisms (manual override, connecting and disconnecting of wiring connectors, disconnection or connection of piping

tubes or plugs, or adjustment of mounting locations) while in operation. The chemicals could leak out, possibly resulting in injury.

- Do not splash water on the product. Spraying it with water, washing it, or using it underwater could result in malfunction of the product leading to injury, electric shocks, fires, etc.
- Never attempt to remodel the product. It could result in abnormal operation leading to injury, electric shocks, fires, etc.
- Never attempt inappropriate disassembly, assembly or repair of the product relating to basic construction, or to its performance or to functions. It could result in injury, electric shocks, fires, etc.

WARNING

- Do not use the product in excess of its specification range. Such use could result in product breakdowns, function stop or damage or drastically reduce the operating life.
- Before supplying chemicals, gases, or pilot air to the product, and before beginning operation, check that the piping is connected correctly. Careless supply of chemicals, gases, or pilot air could result in chemicals, etc. flowing to an unintended location or leaking out, and causing injury.
- For repairs, inspections, maintenance, replacement, or any other operations related to the product (particularly when the media used are chemicals), check that the chemicals have been completely drained from inside of the equipment, and that pilot air has been shut off and pressure inside the piping completely released. Neglecting this check could lead to leaks of chemicals, etc., that could cause injury.
- When installing a fluororesin fitting, always perform a leak test before supplying chemicals or gases through it, to check that there are no leaks, and then start passing the media. Neglecting this check could lead to leaks of chemicals, etc., that could cause injury.
- Do not pull on tubes that are connected to the fittings. The tube(s) could pull out, leaking chemicals or gases.
- When using fittings and tubes, always use compatible screw sizes and tube sizes. Use of incompatible sizes could lead to leaks or disconnections.
- Always check the Catalog etc. to ensure that solenoid valve

wiring and piping is installed correctly. Errors in wiring and piping could lead to abnormal operation.

- Do not use the solenoid valves or the wiring to control them, at locations close to power lines where large electrical currents are flowing, or in locations subject to strong magnetic fields or power surges. Such applications could lead to unintended operation.
- Do not install solenoid valves inside control panels. Heat inside the control panels could cause leakage on the piping or other areas.
- When energizing the solenoid valve for long periods, provide heat radiation measures to ensure that ambient temperature of the solenoid valve always remain within the specified temperature range. When energizing the unit for long periods, consult us.
- The solenoid valve could generate surge voltage and electromagnetic waves when the switch is turned off, affecting the operations of surrounding equipment. Use solenoids with surge suppression, or take countermeasures in the electrical circuits for surges or electromagnetic waves.
- Always shut off the power when performing wiring work. Leaving the power on could result in electric shocks.
- After completing wiring work, always check to ensure that no wiring connection errors exist before turning on the power.
- Apply the specified voltage to the solenoid. Using the wrong voltage level will prevent the solenoid from performing its function, and could lead to breakage or burning damage of the product itself.
- Avoid scratching the solenoid valve lead wires. Letting the lead wires be subject to scratching, excessive bending, pulling, rolling up, or being placed under heavy objects or squeezed between two objects, may result in current leaks or defective continuity that lead to fires, electric shocks, or abnormal operation.
- Do not touch terminals and miscellaneous switches, etc., while the solenoid valve is powered on. There is a possibility of electric shocks and abnormal operation.
- Design devices so as to ensure safety even when equipment shuts down due to emergency stops, power outages, or other system problems, to prevent damage to the devices or personal injury.
- In the first operation after the equipment has been idle for 48 hours or more, or has been in storage, there is a possibility that contacting parts have been stuck, resulting in equipment operation delays or sudden movements. For these first operations, always run a test operation before use to confirm that the movement is normal.
- In low frequency use (more than 30 days between uses), there is a possibility that contacting parts have been stuck, resulting in equipment operation delays or sudden movements that could lead to personal injury. Run a test operation at least once every 30 days to confirm that movement is normal.
- Do not sit on the product, place your foot on it, or place other objects on it. Accidents such as falling and tripping over could result in injury. Dropping the product may result in injury, or also damage or break the product resulting in abnormal or erratic operation, or runaway, etc.
- Do not allow the product to be thrown into fire. The product could explode and/or release toxic gases.

CAUTION

- Do not use in locations that are subject to direct sunlight (ultraviolet rays), in locations with high temperatures or high humidity, in locations subject to dust, salt, or iron powder, or when the media or ambient atmosphere include components that are incompatible with the product structural materials. It could lead to early shutdown of function or a sudden degradation of performance, and result in a reduced operating life. For the material, see the Major Parts and Materials.
- When mounting the product, leave room for adequate working space around it. Failure to ensure adequate working space will make it more difficult to conduct daily inspections or maintenance, which could eventually lead to system shutdown or damage to the product.
- For installing or transporting heavy products, use a lift, supporting tool, or several people, to provide firm support, and proceed with due caution to ensure personal safety.

- Always post an “operations in progress” sign for installations, adjustments, or other operations, to avoid accidental supply of chemicals, gases, pilot air, or electrical power, etc. Accidental supplying of chemicals, gases, pilot air, or electrical power, etc., could result in injury to operators due to sudden movement of the product, or to electrical shocks.
- Do not bring floppy disks or magnetic media, etc., within one meter [3.28ft.] of the product. There is the possibility that the data on the floppy disks will be destroyed due to the magnetism of the magnet.
- Do not use the solenoid valve in locations subject to large electrical currents or magnetic fields. It could result in erratic operation.
- If leakage current is occurring in the control circuit, there is a possibility of the product performing an unintended operation. Take measures against leakage current in the control circuit, to ensure that the leakage current value does not exceed the allowed range in the product specifications.
- Do not block the product's breathing holes. Pressure changes occur due to changes in volume during operation. Blocking the breathing holes destroys the pressure balance, and could cause failure of the intended operation, equipment damage, or personal injury.

ATTENTION

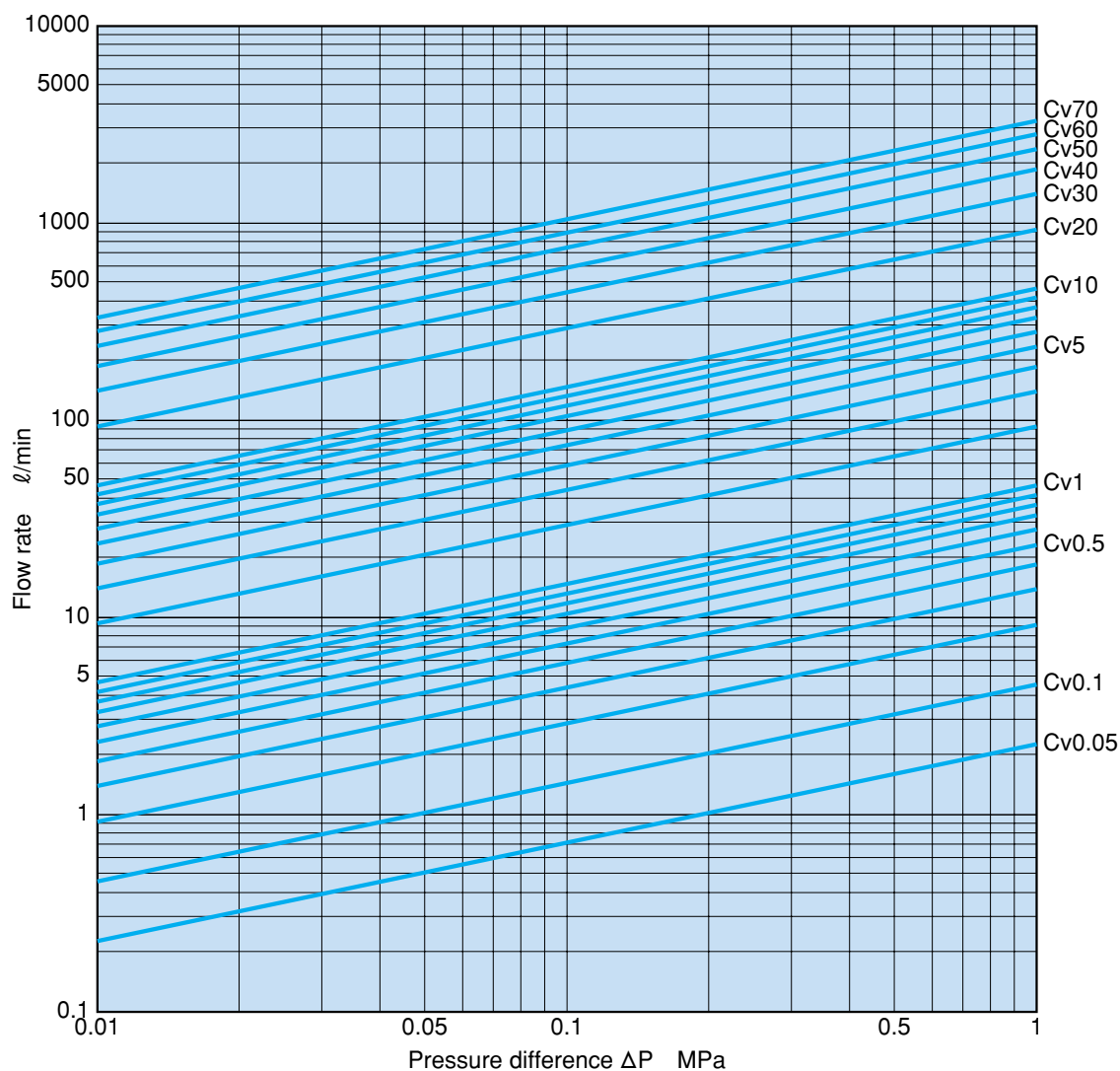
- When considering the possibility of using this product in situations or environments not specifically noted in the Catalog or User's Manual, or in applications where safety is an important requirement, such as in an airplane facility, combustion equipment, leisure equipment, safety equipment and other places where human life or assets may be greatly affected, take adequate safety precautions such as application with enough margins for ratings and performance or fail-safe measures. Be sure to consult us with such applications.
- The properties of fluororesin products mean that they may sometimes not be used with certain acid, alkaline or toxic fluids due to penetration or permeation. For use in such applications, consult us.
- Always check the Catalog and other reference materials for product wiring and piping.
- Use protective covers, etc., to ensure that the operating parts of mechanical devices, etc., are isolated and do not come into direct contact with human bodies.
- When handling the product, wear protective gloves, safety glasses, safety boots, etc. to keep safety.
- When the product can no longer be used, or is no longer necessary, dispose of it appropriately as industrial waste.
- Fluororesin products can show deterioration in performance or function as operating span lengthens. Perform daily inspections of fluororesin products, to check that they satisfy the required functions for the system, and to prevent accidents.
- For inquiries about the product, consult your nearest Koganei sales office or Koganei overseas department. The address and telephone number is shown on the back cover of this catalog.

OTHERS

- Always observe the following items.
 1. When using this product in fluid system or pneumatic systems for pilot, always use genuine KOGANEI parts or compatible parts (recommended parts).
When conducting maintenance and repairs, always use genuine KOGANEI parts or compatible parts (recommended parts). Always observe the required methods and procedure.
 2. Never attempt inappropriate disassembly or assembly of the product relating to basic construction, or to its performance or to functions.

Koganei cannot be responsible if these items are not properly observed.

Water: Flow rate conversion graph



Note: The pressure difference ΔP in the graph shows the pressure difference between the primary (upstream) gauge pressure P_1 and secondary (downstream) gauge pressure P_2 .
 $\Delta P = P_1 - P_2$ (MPa)

Flow rate equation (in the equation, pressures P_h and P_l show absolute pressure)

$$Q = 45.62 C_v \frac{\sqrt{P_h - P_l}}{\sqrt{G}}$$

Q : Flow rate ℓ/min
 C_v : Flow rate coefficient
 P_h : Primary (upstream) absolute pressure (Mpa)
 P_l : Secondary (downstream) absolute pressure (Mpa)
 G : Specific gravity (for water, this equals 1)

$$Q' = 0.1338 C_v \frac{\sqrt{P_h' - P_l'}}{\sqrt{G}}$$

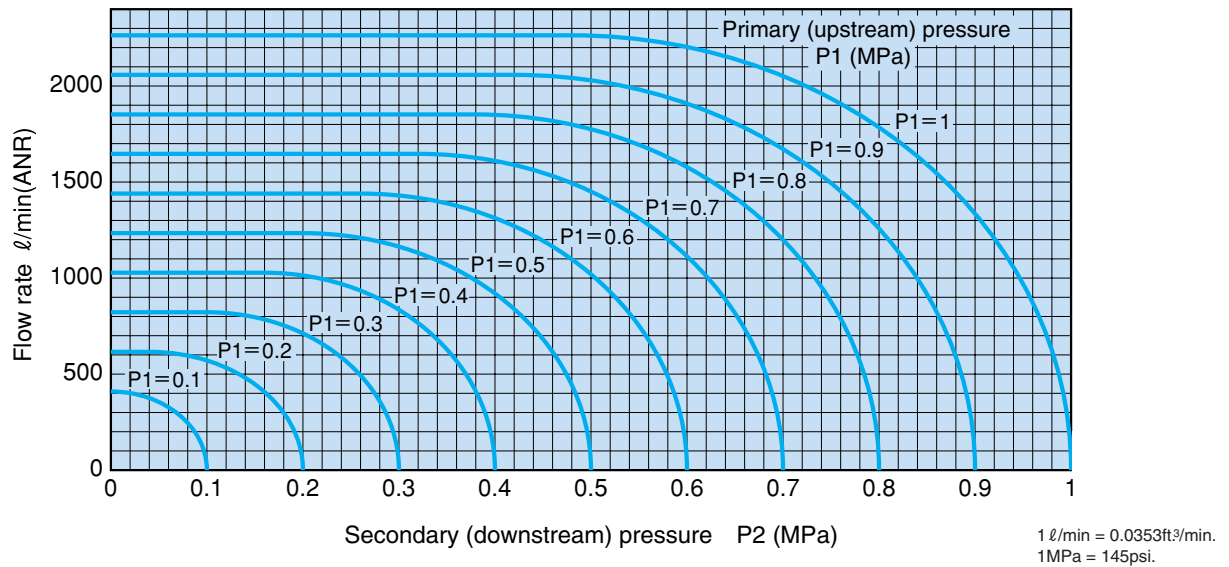
Q' : Flow rate ft^3/min .
 C_v : Flow rate coefficient
 P_h' : Primary (upstream) absolute pressure (psi.)
 P_l' : Secondary (downstream) absolute pressure (psi.)
 G : Specific gravity (for water, this equals 1)

How to use the graph

When there is no diagram for the valve flow rate coefficient (C_v) in the above graph: Multiply the C_v of the valve being used to the flow rate at $C_v = 1$ read out from the graph to calculate the flow.

Example: At $C_v = 1$, value read out from the graph:
 $Q = 20 \ell/\text{min}$ [0.706 ft^3/min .] for the desired pressure difference
 When flow rate coefficient for the valve being used is
 $C_v = 0.31$
 Seeking flow rate $= Q \times C_v = 20 \times 0.31 = 6.2 \ell/\text{min}$ [0.219 ft^3/min .]

Air: Flow rate conversion graph $C_v=1$



Note: Pressures P_1 and P_2 in the graph show the gauge pressure (MPa).

Flow rate equation

(in the equation, pressures P_h and P_l show absolute pressure)

1) When $P_l / P_h > 0.5283$

$$Q = 4119 C_v \frac{\sqrt{(P_h - P_l) P_l}}{\sqrt{G}}$$

2) When $P_l / P_h \leq 0.5283$

$$Q = 2056 C_v P_h \frac{1}{\sqrt{G}}$$

Q : Flow rate l/min (ANR)

C_v : Flow rate coefficient

P_h : Primary (upstream) absolute pressure (Mpa)

P_l : Secondary (downstream) absolute pressure (Mpa)

G : Specific gravity (conversion specific gravity, when air is 1)

How to use the graph

The above graph shows the flow rate when the flow rate coefficient $C_v = 1$.

When $C_v \neq 1$, multiply the C_v of the valve being used to the flow rate read out from the graph to calculate the flow.

Example: Value read out from the graph:

$Q = 500 l/min$ [17.7 ft^3/min .] (ANR) for the desired P_1 and P_2

When flow rate coefficient for the valve being used is $C_v = 0.31$

Seeking flow rate $= Q \times C_v = 500 \times 0.31 = 155 l/min$ [5.47 ft^3/min .] (ANR)

1) When $P_l' / P_h' > 0.5283$

$$Q' = 1.0 C_v \frac{\sqrt{(P_h' - P_l') P_l'}}{\sqrt{G}}$$

2) When $P_l' / P_h' \leq 0.5283$

$$Q' = 0.5 C_v P_h' \frac{1}{\sqrt{G}}$$

Q' : Flow rate ft^3/min . (ANR)

C_v : Flow rate coefficient

P_h' : Primary (upstream) absolute pressure (psi.)

P_l' : Secondary (downstream) absolute pressure (psi.)

G : Specific gravity (conversion specific gravity, when air is 1)

Fluororesin Valve Series

Air Operated Diaphragm Type 2-port Valves



- Compact series line-up, suitable for control of small flow rate of chemicals, now offers even more variety.
- For the valve body materials, select from PFA, PTFE, and SUS.
- In addition to the highly reliable Koganei H series fitting, a monoblock Flowell 60 series fitting integrated type has been added to the product range. Now, other manufacturers fittings are available to suit various applications.
- A flow rate adjustment mechanism employing a differential screw method to enable micro flow rate adjustment can be selected as an option.

Air Operated Diaphragm Type 3-port Valves



- Compact series line-up, suitable for control of small flow rate of chemicals, now offers even more variety.
- For the valve body materials, select from PFA, PTFE, and SUS.
- In addition to the highly reliable Koganei H series fitting, a monoblock Flowell 60 series fitting integrated type has been added to the product range. Now, other manufacturers fittings are available to suit various applications.
- Can be used as either a divider valve or selector valve by only changing the piping direction.

Air Operated Valves with Suck Back



Page 32

- The highly reliable diaphragm-type 2-port valve is combined with a suck back valve to achieve space savings. Ease of use is improved through opposite-position piping ports.
- A low sliding resistance type enabling fine adjustment is also available.
- For the valve body materials, select from PFA, PTFE, and SUS.
- In addition to the highly reliable Koganei H series fitting, a monoblock Flowell 60 series fitting integrated type has been added to the product range. Now, other manufacturers fittings are available to suit various applications.
- A flow rate adjustment mechanism employing a differential screw method to enable micro flow rate adjustment can be selected as an option.

Solenoid Valve



Page 39

- The highly reliable compact solenoid used in the pneumatic solenoid valves is combined with fluororesin valve technology. Energizing the solenoid enables easy control of chemicals even in locations without a pilot air supply.
- The square, compact design achieves space savings, and is suitable for control of micro flow rate chemicals.

High Viscosity Specification Valves



Page 41

- New high viscosity specification valves are now added to our line-up of field-proven air operated valves with suck back.
- Improved valve airtightness boosts reliability during both positive pressure and vacuum, and enables the valves to control discharges of high viscosity chemicals. Employs a special construction that prevents micro-bubbles due to inlet vacuum from growing during suck back operation.

Check Valve



Page 40

- Compact and lightweight unit prevents fluid leakage.
- A choice of different seal materials is available, depending on the media used.

Large Flow Series, Drain Valve Series



Page 43

- Air operated valve (Diaphragm type, bellows type)
- Check valve
- Drain valve (2-port, 3-port)

Suck Back Valves



Page 29

- Use in combination with an air operated valve easily prevents dripping of chemicals.
- Adjustment of the suck back volume is easy using an adjusting screw.

Valve with Dual Flow Rate Switching Mechanism



Page 42

- Allows switching between 2 stages of flow rate in a single valve. Flow rates can be switched easily without making a complex circuit.
- A highly reliable diaphragm valve construction ensures high durability.

Other Related Equipment



Page 45

- PTFE ejector
- PTFE needle valve
- PTFE, PFA lever valves
- Speed controller for pilot air control

Valve Selection Guides Note 1

Type	Basic model	Page	Orifice mm [in.]	Suck back volume cm ³ [in. ³]	Operating pressure MPa [psi.]	Valve function <small>Note 2</small>	Body material	Solvent-resistant specification	With H series fitting <small>Note 3</small> -F□									
									Female thread piping									
									M6×1	Rc1/8	Rc1/4	φ3	φ4	φ6	φ8	φ10	1/8 (φ3.17)	
Air operated diaphragm type 2-port valve	F-AV030	13	1 [0.039]	—	0.2 [29]	C	PTFE	●	●			●	●				●	
	F-AV050 ★	14	1.6 [0.063]	—	0.2 [29]	C	PTFE	—	●			●	●				●	
	F-AV070 ★	15	1.8 [0.071]	—	0.2 [29]	C	PTFE	—		●			●				●	
	F-AV070	16	2 [0.079]	—	0.5 [73]	C, O, D	PTFE	●		●								
	F-AV100	17	2.5 [0.098]	—	0.5 [73]	C, O, D	PTFE	●		●				●				
	F-AV125	18	4 [0.157]	—	0.5 [73]	C, O, D	PTFE	●		●				●				
	F-AV250	19	6, 8 [0.236, 0.315]	—	0.5 [73]	C, O, D	PTFE	●			●				●	●		
	F-AVP070	20	2 [0.079]	—	0.5 [73]	C, O, D	PFA	●					●				●	
	F-AVP125	21	4 [0.157]	—	0.5 [73]	C, O, D	PFA	●										
	F-AVP250	22	8 [0.315]	—	0.5 [73]	C, O, D	PFA	●							●	●		
Air operated diaphragm type 3-port valve	F-DAV070	23	2 [0.079]	—	0.5 [73]	C, R, D	PTFE	●		●								
	F-DAV125	24	4 [0.157]	—	0.5 [73]	C, R, D	PTFE	●		●								
	F-DAV250	25	6 [0.236]	—	0.5 [73]	C, R, D	PTFE	●			●							
	F-DAVP070	26	2 [0.079]	—	0.5 [73]	C, R, D	PFA	●					●				●	
	F-DAVP125	27	3.2 [0.126]	—	0.5 [73]	C, R, D	PFA	●						●				
	F-DAVP250	28	8 [0.315]	—	0.5 [73]	C, R, D	PFA	●								●		
Suck back valve	F-SV070	29	—	0.045 [0.00275]	0.3 [44]	C, D	PTFE	●		●								
	F-SV125	30	—	0.25 [0.0153]	0.3 [44]	C, D	PTFE	●		●								
	F-SV250	31	—	0.40 [0.0244]	0.3 [44]	C, D	PTFE	●			●							
Air operated valve with suck back diaphragm type	F-SAV070 ★	32	1.8 [0.071]	0.04 [0.0024]	0.2 [29]	C	PTFE	—		●			●				●	
	F-SAV070	33	2 [0.079]	0.045 [0.00275]	0.3 [44]	C	PTFE	●		●			●				●	
	F-SAV100	34	2.5 [0.098]	0.25 [0.0153]	0.3 [44]	C, D	PTFE	●		●				●				
	F-SAV125	35	4 [0.157]	0.25 [0.0153]	0.3 [44]	C, D	PTFE	●		●				●				
	F-SAV250	36	6 [0.236]	0.40 [0.0244]	0.3 [44]	C, D	PTFE	●			●				●	●		
	F-SAVP070	37	2 [0.079]	0.045 [0.00275]	0.3 [44]	C	PFA	●										
	F-SAVP125	38	4 [0.157]	0.25 [0.0153]	0.3 [44]	C, D	PFA	●										
Solenoid valve diaphragm type 2-port valve	F-EV120	39	3 [0.118]	—	0.15 [22]	C	PTFE	—		●								
Check valve	F-C250	40	(14mm ²)	—	0.9 [131]	C	PTFE	—			●							

Notes: 1. For specification details, see the page of each product.

2. For valve functions, "C" means normally closed, "O" means normally open, "D" means double acting type, and "R" means one side normally closed and the other side normally open.

3. For the tube sizes applicable to the H series fittings, see p. 17.

4. For the Flowell 60 series special fittings, see p. 11.

5. For items with flow rate adjustment, the square mark ■ shows the differential screw type, and the circle mark ● shows the conventional screw type. For features of the differential screw type, see p. 12.

6. When SUS specification is selected for the valve body material, the fitting specification cannot be selected.

7. The star mark ★ shows the low sliding resistance diaphragm type. A speed controller can be used for fine open/close control.

8. For the triangle mark ▲, which shows the features with bypass flow rate adjustment (made to order), see p. 12.

9. For details of asterisk ※ specifications, consult us.

Piping specification															With flow rate adjustment -Q1 <small>Note 5</small>	With special functions (Made to order)			Body materials SUS specification -S <small>Note 6</small>	
			With Flowell 60 series standard fitting -L□										Flowell 60 series special size <small>Note 4</small>			With bypass flow rate adjustment <small>Note 8</small>	With pillar fitting	With reducing H fitting		
	1/4 (φ6.35)	3/8 (φ9.52)	φ3×φ2	φ4×φ2	φ4×φ3	φ6×φ4	φ8×φ6	φ10×φ8	φ3.17× φ1.59	φ6.35× φ3.96 φ6.35× φ4.35	φ9.52× φ6.35	φ9.52× φ7.52	For φ4×φ3 only	For φ3.17× φ2.17 only						For φ6.35× φ4.35 only
			●	●	●				●				●	●		●	—	※	※	●
			●	●	●				●				●	●		●	—	※	※	●
				●	●				●				●	●		●	—	※	※	●
	●					●				●						■	—	※	※	●
	●					●				●						■	▲	※	※	●
		●					●	●			●	●				●	▲	※	※	●
													●	●		■	—	—	—	—
		●													●	■	—	—	—	—
				●	●				●				●	●		●	—	—	—	—
						●				●						※	—	※	※	●
							●	●			●	●				※	—	※	※	●
	●															※	—	—	—	—
		●														※	—	—	—	—
																—	—	※	※	●
				●	●				●				●	●		●	—	※	※	●
				●	●				●				●			■	—	※	※	●
	●					●				●						■	—	※	※	●
	●					●				●						■	—	※	※	●
		●					●	●			●	●				●	—	※	※	●
														●		■	—	—	—	—
															●	■	—	—	—	—
																—	—	※	※	※
																—	—	—	—	—

Handling Instructions and Precautions



Mounting

Mounting

1. While any mounting direction is acceptable, for the F-SV, F-SAV, F-SAVP series, a vertical mounting that positions the OUT port facing upward is recommended. This will allow easy removal of air bubbles generated inside the valve or entrained from outside.
2. To mount the product, examine the external dimensions and then firmly secure it in place.

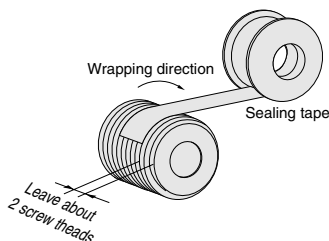
Media

For pilot air, use clean air that has been passed through an air filter with a filtration rating of $5\ \mu\text{m}$ or less to eliminate collected liquid and solid particles.

Valve piping

●Piping for thread portion

1. PTFE sealing tape is required, even when fluororesin fittings are used. Always use it to fill in gaps in the threads to prevent leakage.
2. Before piping, perform air blowing (flushing) or cleaning to completely remove solid particles and other foreign objects from the piping interior.
Entering of foreign objects into the valve could result in leakage at the valve seat. In the cases in which there is the possibility of foreign objects entering, install a filter on the valve primary side.
3. When screwing fittings, exercise caution to ensure that machining chips of piping threads, etc., do not enter to the valve interior.
4. Wrap PTFE sealing tape around the thread portion so that 1.5 to 2 screw threads remain visible. This will probably require 3 to 4 wrappings, but the number of wrappings can be adjusted to match the thread variation.
5. For the tightening torque, see the tables below. (The tightening torque is required to be raised or lowered depending on the operating pressure and on the machined accuracy of the threads.)



Tightening torque for piping

Port size Rc	PFA, PTFE fitting (N · m) [ft · lbf]
1/8	0.4~0.7 [0.30~0.52]
1/4	0.5~0.8 [0.37~0.59]
3/8	1.0~1.5 [0.74~1.11]
1/2	1.5~2.0 [1.11~1.48]
3/4	2.0~2.5 [1.48~1.84]

Tightening torque for
pilot connection port

Port size	N · m [ft · lbf]
M5	0.4~0.6 [0.30~0.44]
Rc1/8	0.4~0.7 [0.44~0.52]

●Metal fittings

1. The use of metal fittings directly onto a PTFE valve body can result in the fitting threads cutting the screw threads on the valve body, resulting in damage to the thread portion and allowing foreign objects to enter into the valve interior. When using metal fittings, always take caution in their selection and installation.
2. When using metal fittings on a PTFE valve body, do not use fittings with threads coated with sealant.

●H series fittings

1. While the applicable tube sizes are based on outer diameters, some tubes cannot be used because of their tube thickness. See the table on p.47, "Applicable tube sizes/tolerances," when making a selection.
2. See p.48, "Tube installing procedure," and install it in accordance with those instructions.

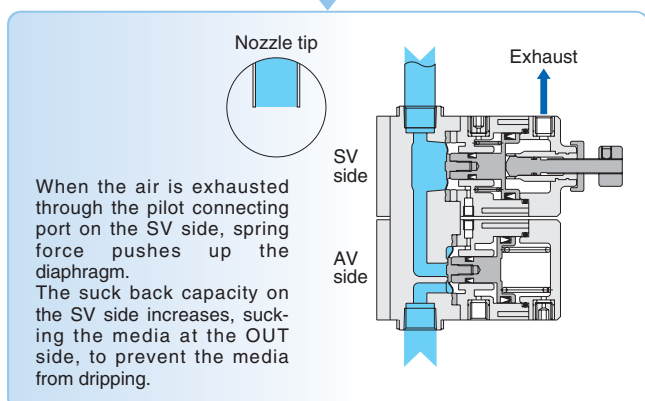
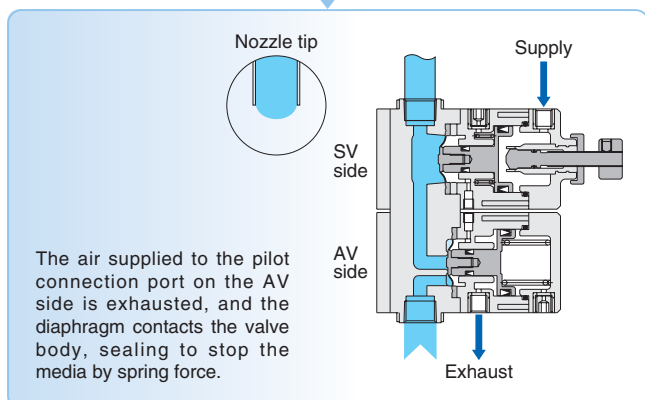
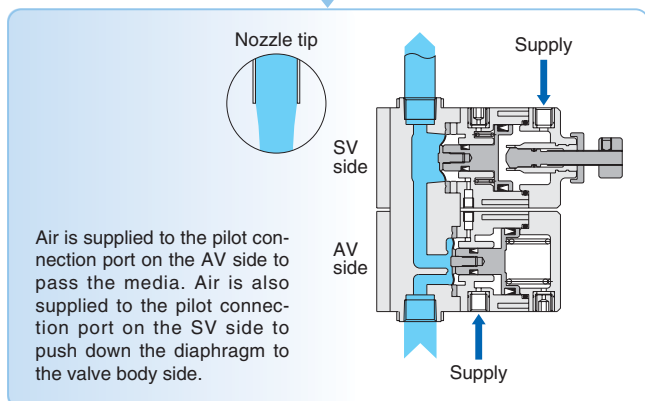
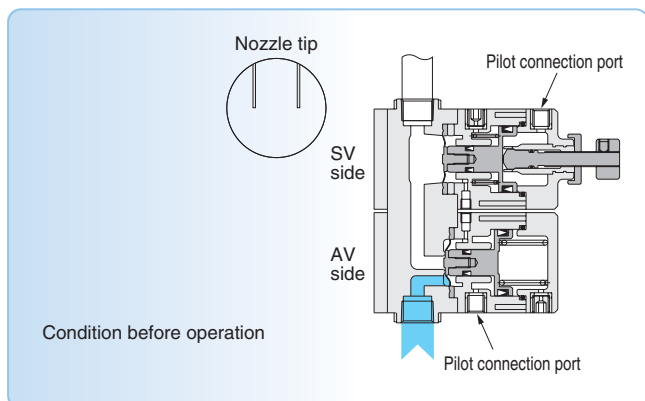
●Flowell 60 series fittings

1. These fittings are flare seal type fittings. See the latest Flowell's catalog and user's manual to properly perform the installation.
2. Regarding the special fitting sizes, dedicated tools for flare processing of the tubes are required in special sizes. Check and ask Flowell for selection and installation.

Application

1. For nitrogen gas, air, or other gases, there is a possibility of leakage of $1\text{cm}^3/\text{min}$ [$0.061\text{in.}^3/\text{min.}$] (at standard air pressure) or less occurring at the valve seat.
2. For the diaphragm type with flow rate adjustment, diaphragm vibrations may occur, depending on the application conditions. In this case, recheck the piping, flow rate, and pressure.
3. The diaphragm type and bellows type may be subjected to water hammering. In the cases in which entraining air bubbles or other problems occur, use a speed controller, etc., to adjust the open/close speed. When the situation does not improve, recheck the piping, flow rate, and pressure.
4. Valve series products are packaged in a clean room. Exercise caution in regard to location, etc. when opening the packages, and handling the products.

Operating principles of single acting type -C



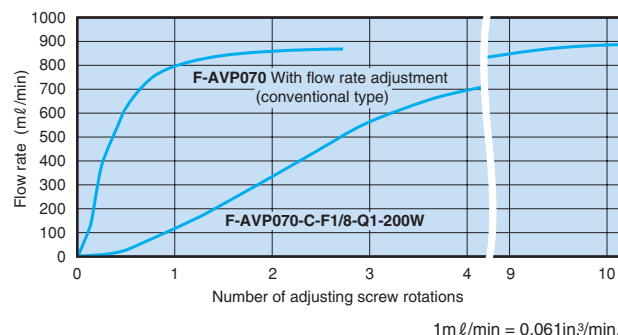
Micro flow rate adjustment type (differential screw type)

- Uses a differential screw for the flow rate adjustment mechanism. The adjusting screw mildly changes the flow rate, enabling easy micro adjustment of the flow rate.
- Flow rate stability on micro flow rate setting is improved.
- The flow rate adjustment range is wide, allowing adjustment all the way from micro flow volume to full flow rate using one valve.

Comparison of flow rate characteristics

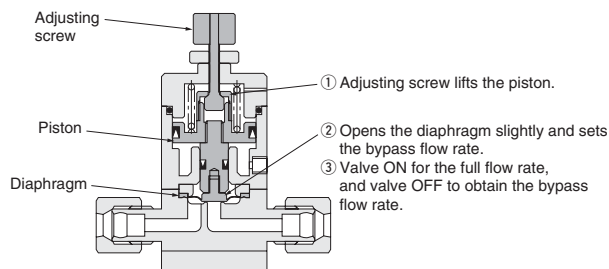
(Media: Water, Differential pressure: 0.1 MPa [15psi.])

F-AVP070 (Orifice: $\phi 2$) comparison



With bypass flow rate adjustment (made to order)

- Restricting the stroke of the diaphragm in closing direction sets the bypass flow rate.
- Compared to conventional bypass flow rate mechanisms, this product provides a more compact valve.
- There is no bypass flow passage, and no residual liquid area.



Air Operated Valve

Diaphragm type
2-port valve

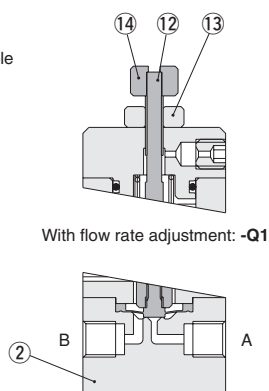
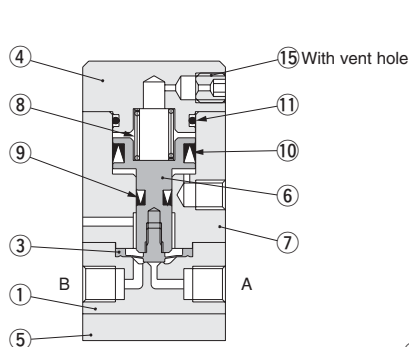
F-AV030-100W

Symbol

Normally closed (NC) type



Inner Construction and Materials

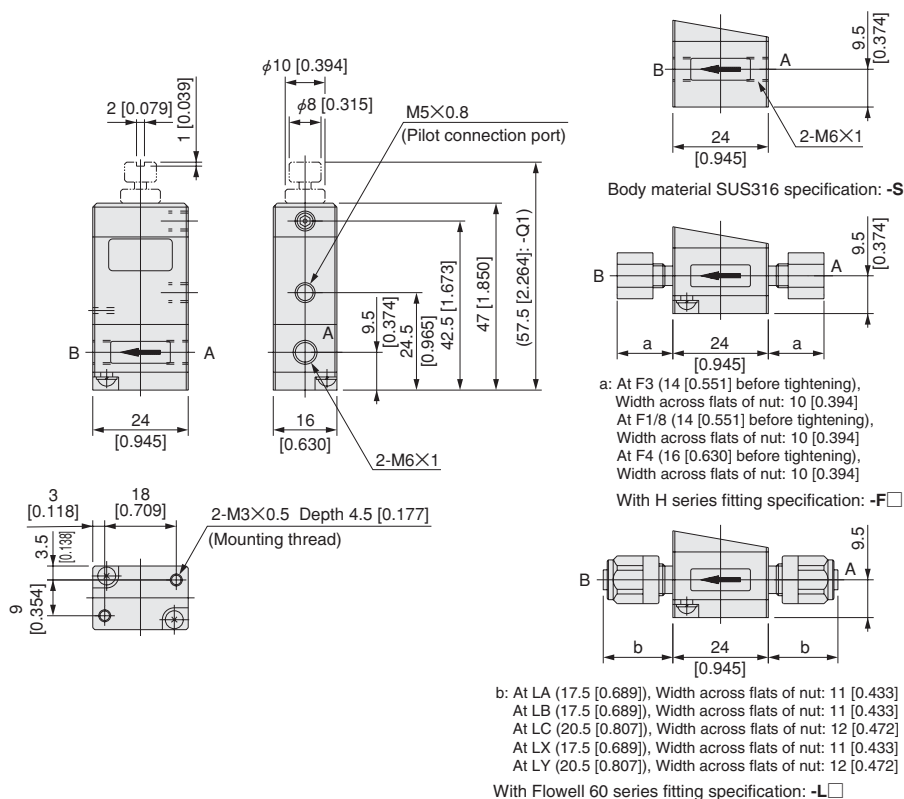


Body material SUS316 specification: -S

No.	Parts	Materials
①	Body	PTFE
②	Body	SUS316
③	Diaphragm	PTFE
④	Cover	Aluminum alloy
⑤	Plate	Aluminum alloy
⑥	Piston	SUS304
⑦	Cylinder tube	Aluminum alloy
⑧	Spring	SUS304-WPB

No.	Parts	Materials
⑨	Seal	FKM
⑩	Seal	FKM
⑪	O-ring	FKM
⑫	Adjusting screw	SUS304
⑬	Nut	SUS304
⑭	Nut	SUS304
⑮	Set screw	SUS304

Dimensions mm [in.]



Specifications

Item	Model	F-AV030-100W
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	A→B	0~0.2 [0~2.0] [0~29]
	B→A	0~0.1 [0~1.0] [0~15]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.1 [0~1.0] [0~15]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice (Cv)	mm	1 [0.02]
Pilot connection port size		M5 × 0.8
Leakage at valve seat		0 [0]
	cm ³ /min [in ³ /min.]	(When the media is water)
Operating frequency	c.p.m	30 or less
Mounting direction		Any

Order Codes

F-AV030 - □ - □ - □ - 100W

Flow rate adjustment

Piping port size and applicable tube size

Body material

Basic model

Body material ^{Note 1}

Blank: PTFE

S: SUS316

Piping port size and applicable tube size

Blank: M6 × 1

H series fitting

F3 : Connecting tube outer diameter φ 3

F1/8 : Connecting tube outer diameter φ 1/8 (φ 3.17)

F4 : Connecting tube outer diameter φ 4

Flowell 60 series fitting ^{Note 2}

Standard fitting

LA: Connecting tube diameter φ 3 × φ 2

LB: Connecting tube diameter φ 3.17 × φ 1.59

LC: Shared connecting tube diameters

φ 4 × φ 2 and φ 4 × φ 3

Special fitting

LX: Connecting tube diameter

φ 3.17 × φ 2.17 only

LY: Connecting tube diameter φ 4 × φ 3 only

Flow rate adjustment

Blank: None

Q1: With flow rate adjustment

Valve function

Normally closed (NC) is only available.

Notes: 1. When the selected body material is -S, with-fitting specification cannot be selected.

2. For the Flowell 60 series special fittings, a mounting tool is also a special type.

Do not use the standard mounting tool.

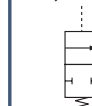
Air Operated Valve

Low sliding resistance diaphragm type
2-port valve

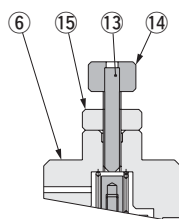
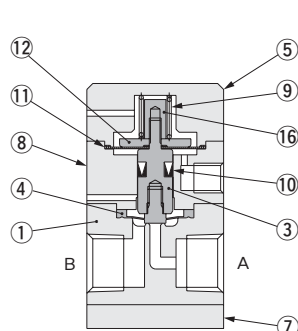
F-AV070-100W

Symbol

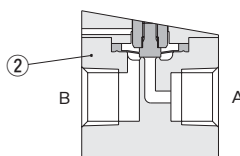
Normally closed (NC) type



Inner Construction and Materials



With flow rate adjustment: -Q1

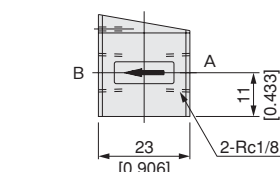
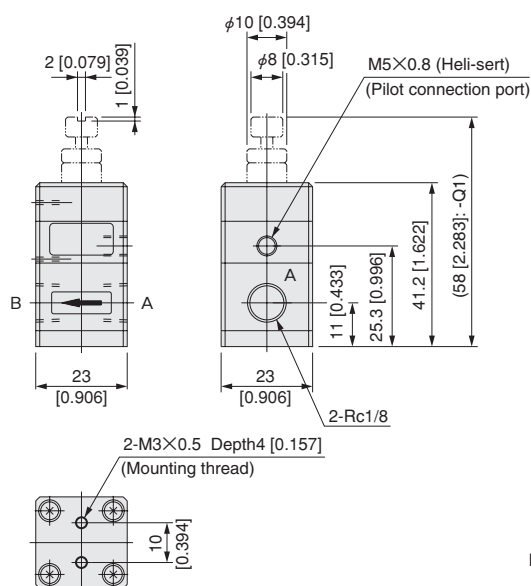


Body material SUS316 specification: -S

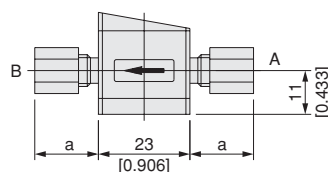
No.	Parts	Materials
①	Body	PTFE
②	Body	SUS316
③	Stem	SUS304
④	Diaphragm	PTFE
⑤	Cover	C-PVC
⑥	Cover	SUS304
⑦	Plate	SUS304
⑧	Cylinder tube	C-PVC

No.	Parts	Materials
⑨	Spring	SUS304-WPB
⑩	Seal	FKM
⑪	Diaphragm	FKM
⑫	Washer	SUS304
⑬	Adjusting screw	SUS304
⑭	Nut	SUS304
⑮	Nut	SUS304
⑯	Nut	SUS304

Dimensions mm [in.]

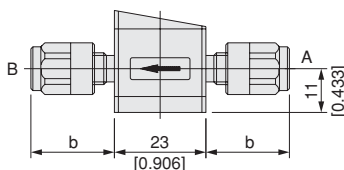


Body material SUS316 specification: -S



a: At F1/8 (14 [0.551] before tightening),
Width across flats of nut: 10 [0.394]
At F4 (16 [0.630] before tightening),
Width across flats of nut: 10 [0.394]

With H series fitting specification: -F□



b: At LB (17.5 [0.689]), Width across flats of nut: 11 [0.433]
At LC (20.5 [0.807]), Width across flats of nut: 12 [0.472]
At LX (17.5 [0.689]), Width across flats of nut: 11 [0.433]
At LY (20.5 [0.807]), Width across flats of nut: 12 [0.472]

With Flowell 60 series fitting specification: -L□

Specifications

Item	Model	F-AV070-100W
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	A→B	0~0.2 [0~2.0] [0~29]
	B→A	0~0.1 [0~1.0] [0~15]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.1 [0~1.0] [0~15]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice (Cv)	mm	1.8 [0.06]
Pilot connection port size		M5 × 0.8
Leakage at valve seat	cm ³ /min [in ³ /min.]	0 [0] (When the media is water)
Operating frequency	c.p.m	30 or less
Mounting direction		Any

Order Codes

F-AV070 - □ - □ - □ - 100W

Flow rate adjustment

Piping port size and
applicable tube size

Body material

Basic model

Body material ^{Note 1}

Blank: PTFE

S: SUS316

Piping port size and applicable tube size

Blank: Rc1/8

H series fitting

F1/8 : Connecting tube outer diameter ϕ 1/8 (ϕ 3.17)

F4 : Connecting tube outer diameter ϕ 4

Flowell 60 series fitting ^{Note 2}

Standard fitting

LB: Connecting tube diameter ϕ 3.17 × ϕ 1.59

LC: Shared connecting tube diameters
 ϕ 4 × ϕ 2 and ϕ 4 × ϕ 3

Special fitting

LX: Connecting tube diameter
 ϕ 3.17 × ϕ 2.17 only

LY: Connecting tube diameter ϕ 4 × ϕ 3 only

Flow rate adjustment ^{Note 3}

Blank: None

Q1: With flow rate adjustment

Valve function

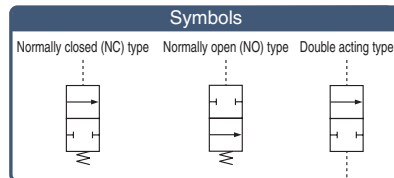
Normally closed (NC) is only available.

- Notes: 1. When the selected body material is -S, with-fitting specification cannot be selected.
2. For the Flowell 60 series special fittings, a mounting tool is also a special type. Do not use the standard mounting tool.
3. Exercise caution, as the flow rate adjusting screw will come off, if rotated more than necessary.

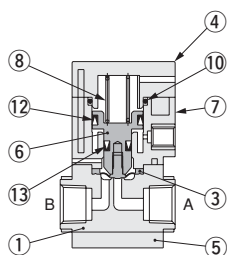
Air Operated Valve

Diaphragm type
2-port valve

F-AV070-200W

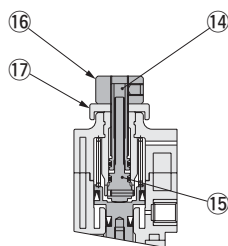


Inner Construction and Materials

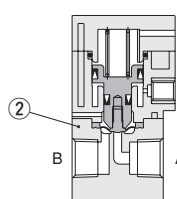


Normally closed (NC) type: -C

Normally open (NO) type: -O



With flow rate adjustment: -Q1



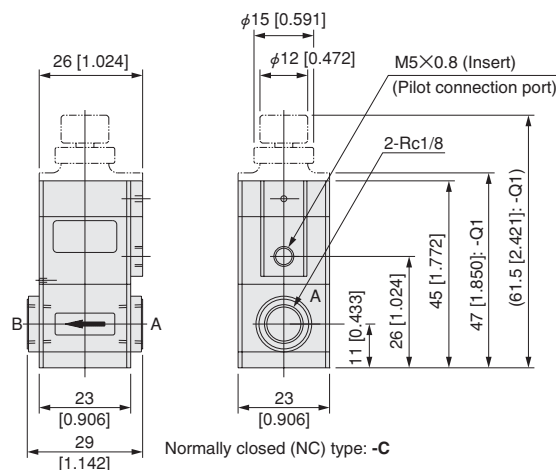
Double acting type: -D

Body material SUS316 specification: -S

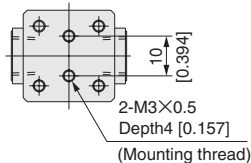
No.	Parts	Materials
①	Body	PTFE
②	Body	SUS316
③	Diaphragm	PTFE
④	Cover	PPS
⑤	Plate	SUS304
⑥	Piston	SUS304
⑦	Cylinder tube	PPS
⑧	Spring	SUS304-WPB
⑨	Spring	SUS304-WPB

No.	Parts	Materials
⑩	O-ring	FKM
⑪	O-ring	FKM
⑫	Seal	FKM
⑬	Seal	FKM
⑭	Adjusting screw	SUS304
⑮	Adjusting screw	SUS304
⑯	Nut	SUS304
⑰	Nut	SUS304

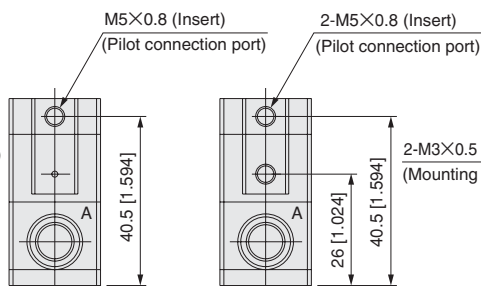
Dimensions mm [in.]



Normally closed (NC) type: -C



Normally open (NO) type: -O



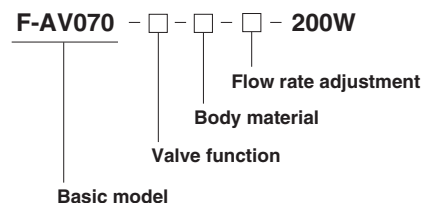
Double acting type: -D

Body material SUS316 specification: -S

Specifications

Item	Model	F-AV070-200W
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	A→B	0~0.5 [0~5.1] [0~73]
	B→A	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice (Cv)	mm	2 [0.1]
Pilot connection port size		M5 X 0.8
Leakage at valve seat		0 [0]
	cm ³ /min [in. ³ /min.]	(When the media is water)
Operating frequency	c.p.m	30 or less
Mounting direction		Any

Order Codes



Valve function

C: Normally closed (NC) type
O: Normally open (NO) type
D: Double acting type

Body material

Blank: PTFE
S: SUS316

Flow rate adjustment ^{Note}

Blank: None
Q1: With flow rate adjustment (Micro flow rate adjustment type)

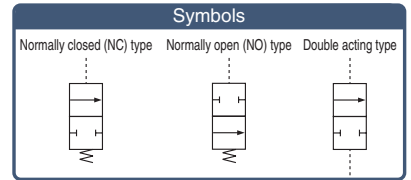
Note: With-flow-rate-adjustment -Q1 can be set only with the normally closed (NC) valve function -C. Enter "C" for the valve function code.

The flow rate adjustment mechanism uses a differential screw method for easier flow rate setting.

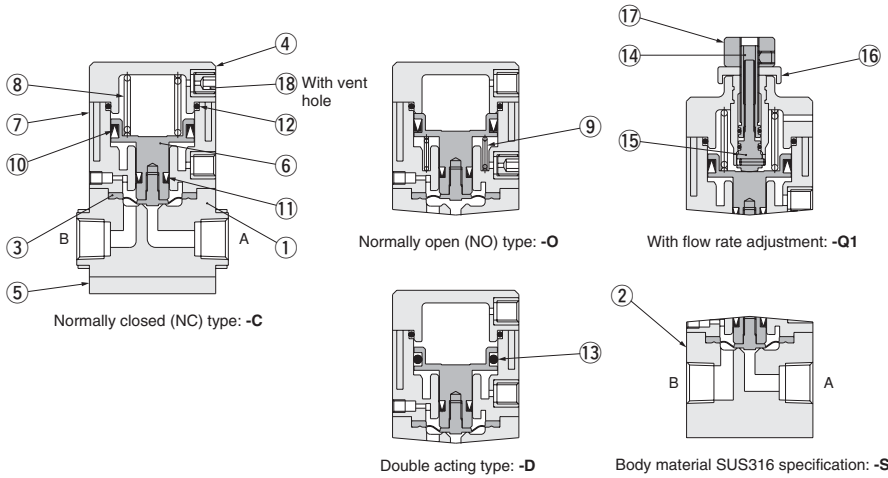
Air Operated Valve

Diaphragm type
2-port valve

F-AV100-200W



Inner Construction and Materials



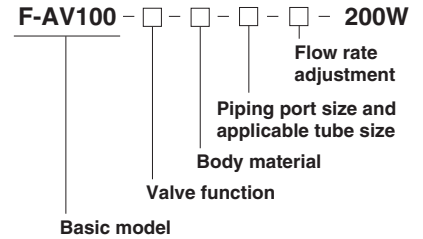
No.	Parts	Materials
①	Body	PTFE
②	Body	SUS316
③	Diaphragm	PTFE
④	Cover	PPS
⑤	Plate	SUS304
⑥	Piston	SUS304
⑦	Cylinder tube	PPS
⑧	Spring	SUS304-WPB
⑨	Spring	SUS304-WPB
⑩	Seal	FKM

No.	Parts	Materials
⑪	Seal	FKM
⑫	O-ring	FKM
⑬	O-ring	FKM
⑭	Adjusting screw	SUS304
⑮	Adjusting screw	SUS304
⑯	Nut	SUS304
⑰	Nut	SUS304
⑱	Set screw	SUS304

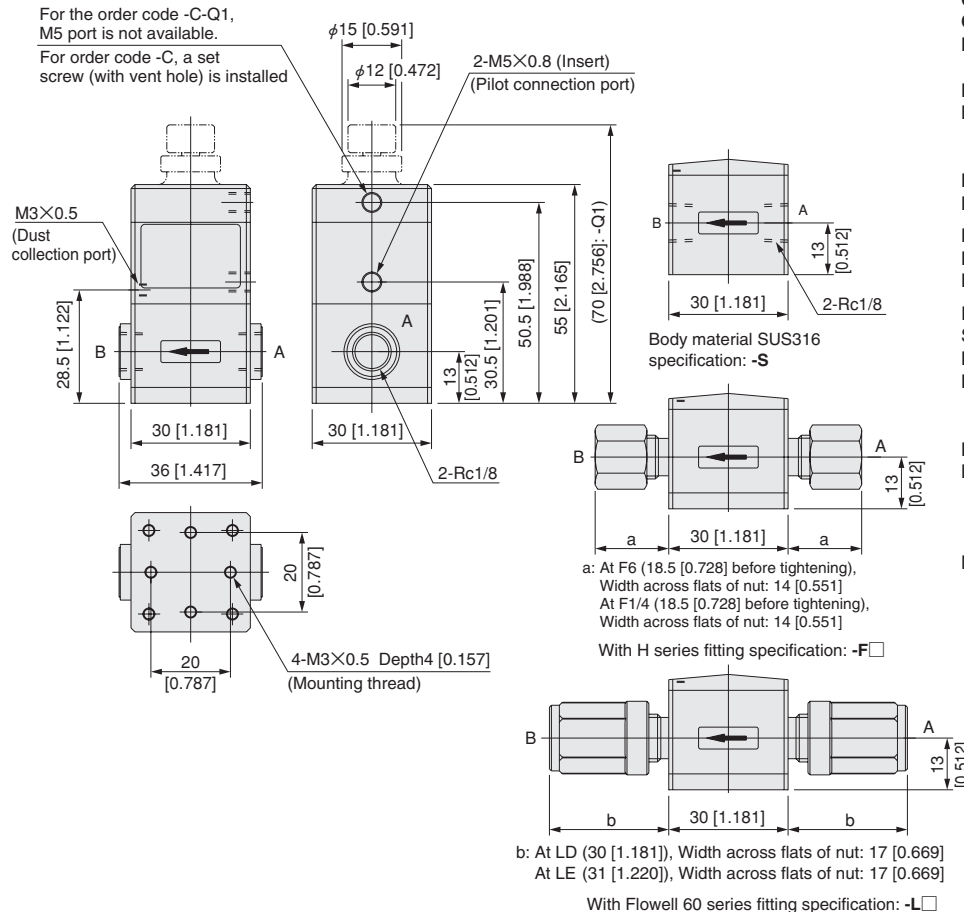
Specifications

Item	Model	F-AV100-200W
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	A→B	0~0.5 [0~5.1] [0~73]
	B→A	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice [Cv]	mm	2.5 [0.15]
Pilot connection port size		M5 × 0.8
Leakage at valve seat	cm ³ /min [in. ³ /min.]	0 [0] (When the media is water)
Operating frequency	c.p.m	30 or less
Mounting direction		Any

Order Codes



Dimensions mm [in.]



Valve function

C: Normally closed (NC) type
O: Normally open (NO) type
D: Double acting type

Body material

Blank: PTFE
S: SUS316

Piping port size and applicable tube size

Blank: Rc1/8

H series fitting

F6 : Connecting tube outer diameter φ 6

F1/4 : Connecting tube outer diameter φ 1/4 (φ 6.35)

Flowell 60 series fitting

Standard fitting

LD: Connecting tube diameter φ 6 × φ 4

LE: Shared connecting tube diameters φ 6.35 × φ 3.96 and φ 6.35 × φ 4.35

Flow rate adjustment ^{Note 2}

Blank: None

Q1: With flow rate adjustment (Micro flow rate adjustment type)




Notes: 1. When the selected body material is -S, with-fitting specification cannot be selected.

2. The flow rate adjustment mechanism uses a differential screw method for easier flow rate setting.

F-AV125-200W

F-AV250-200W

Symbols

Normally closed (NC) type	Normally open (NO) type	Double acting type
		

Technical drawings of the SMC SCS316 solenoid valve in three states: Normally closed (NC), Normally open (NO), and Double acting. The drawings show the internal plunger mechanism and the valve body with various ports labeled with numbers 1 through 20.

Normally closed (NC) type: -C
Orifice $\phi 8$ specification: -8

Normally open (NO) type: -O

Double acting type: -D

Body material SUS316 specification: -S

No.	Parts	Materials
①	Body	PTFE/PFA ^{Note 2}
②	Body	SUS316
③	Diaphragm	PTFE
④	Cover	PPS
⑤	Plate	PPS
⑥	Piston	SUS304
⑦	Piston rod	SUS304
⑧	Cylinder tube	PPS
⑨	Spring	SUS304-WPB
⑩	Spring	SUS304-WPB

No.	Parts	Materials
⑪	Seal	FKM
⑫	O-ring	FKM
⑬	O-ring	FKM
⑭	O-ring	FKM
⑮	Adjusting screw	SUS304
⑯	Nut	SUS304
⑰	Nut	SUS304
⑱	Nut	SUS304
⑲	Plug	VECTRA
⑳	Cap	FKM

F-AV250—□—□—□—□—□—□—**200W**

Basic model

Valve function

Body material

Orifice

Piping port size and applicable tube size

Flow rate adjustment

Mounting base

200W

[illegible]

C: Normally closed (NC) type
O: Normally open (NO) type
D: Double acting type

Body material ^{Note 1}
Blank: PTFE/PFA ^{Note 2}
S: SUS316

Blank: 6mm [0.236in.]
8: 8mm [0.315in.]

Blank: Rc1/4

H series fitting

F8 : Connecting tube outer diameter ϕ 8
F3/8 : Connecting tube outer diameter ϕ 3/8 (ϕ 9.52)
F10 : Connecting tube outer diameter ϕ 10

Flowell 60 series fitting

Standard fitting

LF: Connecting tube diameter $\phi 8 \times \phi 6$
LG: Connecting tube diameter $\phi 9.52 \times \phi 6.35$
LH: Connecting tube diameter $\phi 9.52 \times \phi 7.52$
LI: Connecting tube diameter $\phi 10 \times \phi 8$

Blank: None

Q1: With flow rate adjustment

Blank: Bottom mounting type
B: With mounting base

Notes: 1. When the selected body material is **-S**,
with-fitting specification and with-
mounting-base cannot be selected.

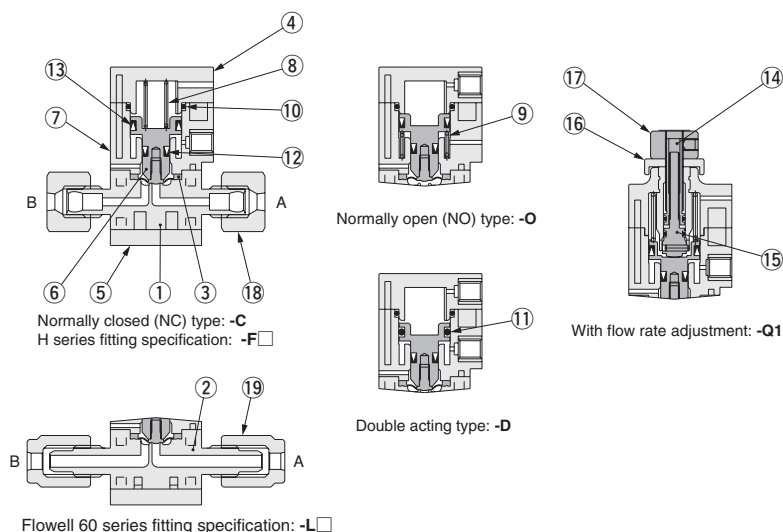
2. When the H series fitting is selected
with an orifice of $\phi 8$ [0.315in.], the
body material is PFA.

Air Operated Valve

Diaphragm type
2-port valve

F-AVP070-200W

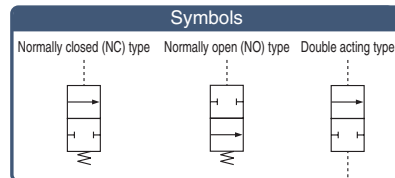
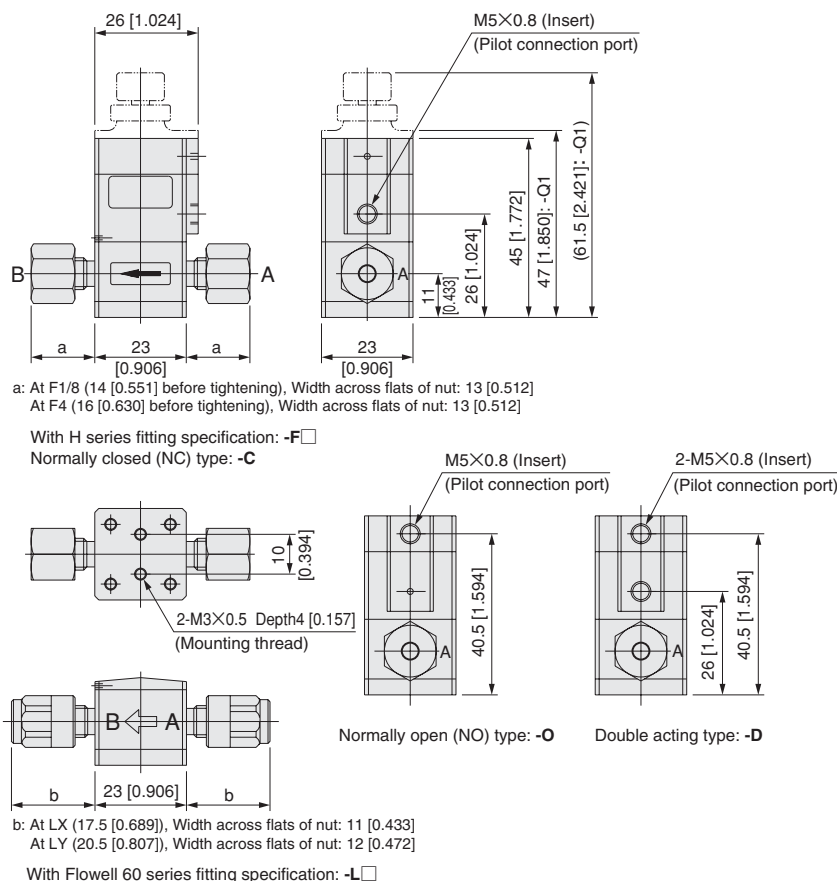
Inner Construction and Materials



No.	Parts	Materials
①	Body	PFA
②	Body	PFA
③	Diaphragm	PTFE
④	Cover	PPS
⑤	Plate	SUS304
⑥	Piston	SUS304
⑦	Cylinder tube	PPS
⑧	Spring	SUS304-WPB
⑨	Spring	SUS304-WPB
⑩	O-ring	FKM

No.	Parts	Materials
⑪	O-ring	FKM
⑫	Seal	FKM
⑬	Seal	FKM
⑭	Adjusting screw	SUS304
⑮	Adjusting screw	SUS304
⑯	Nut	SUS304
⑰	Nut	SUS304
⑱	Nut	PFA
⑲	Nut	PFA

Dimensions mm [in.]



Specifications

Item	Model	F-AVP070-200W
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~80 [41~176]
	Atmosphere	0~60 [32~140]
Operating pressure range	A→B	0~0.5 [0~5.1] [0~73]
	B→A	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 {10.2} [145]
Orifice (Cv)	mm	2 {0.1}
Pilot connection port size		M5 × 0.8
Leakage at valve seat		0 [0]
	cm ³ /min [in. ³ /min.]	(When the media is water)
Operating frequency	c.p.m	30 or less
Mounting direction		Any

Order Codes

F-AVP070 - □ - □ - □ - 200W

Flow rate adjustment

Applicable tube size

Valve function

Basic model

Valve function

C: Normally closed (NC) type
O: Normally open (NO) type
D: Double acting type

Applicable tube size

H series fitting
F1/8: Connecting tube outer diameter ϕ 1/8 (ϕ 3.17)
F4: Connecting tube outer diameter ϕ 4

Flowell 60 series fitting ^{Note 1}

Special fitting

LX: Connecting tube diameter
 ϕ 3.17 × ϕ 2.17 only

LY: Connecting tube diameter ϕ 4 × ϕ 3 only

Flow rate adjustment ^{Note 2}

Blank: None

Q1: With flow rate adjustment (Micro flow rate adjustment type)

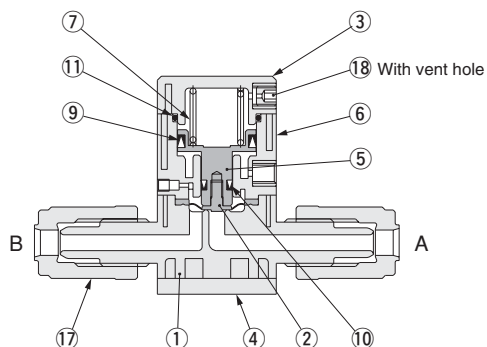
Notes: 1. For the Flowell 60 series special fittings, a mounting tool is also a special type. Do not use the standard mounting tool.
2. With-flow-rate-adjustment -Q1 can be set only with the normally closed (NC) valve function -C. Enter "C" for the valve function code. The flow rate adjustment mechanism uses a differential screw method for easier flow rate setting.

Air Operated Valve

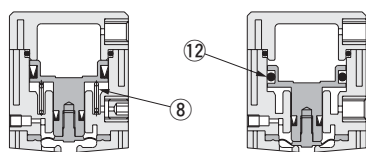
Diaphragm type
2-port valve

F-AVP125-200W

Inner Construction and Materials



Normally closed (NC) type: -C

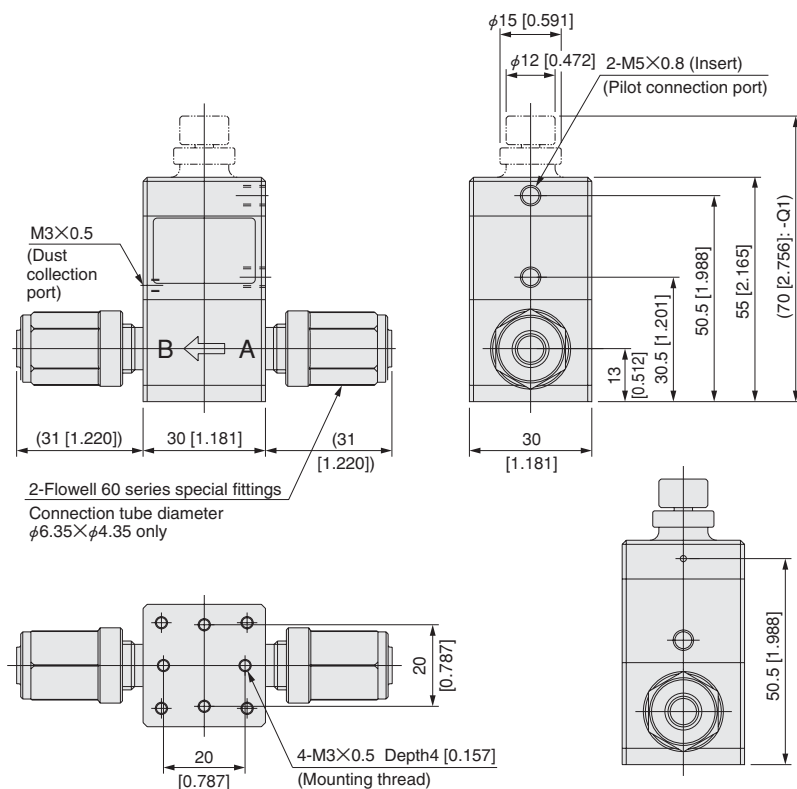


Normally open (NO) type: -O Double acting type: -D

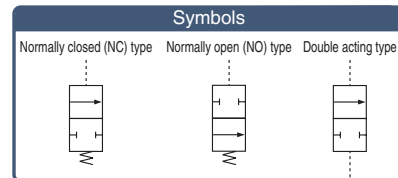
No.	Parts	Materials
①	Body	PFA
②	Diaphragm	PTFE
③	Cover	PPS
④	Plate	SUS304
⑤	Piston	SUS304
⑥	Cylinder tube	PPS
⑦	Spring	SUS304-WPB
⑧	Spring	SUS304-WPB
⑨	Seal	FKM
⑩	Seal	FKM

No.	Parts	Materials
⑪	O-ring	FKM
⑫	O-ring	FKM
⑬	Adjusting screw	SUS304
⑭	Adjusting screw	SUS304
⑮	Nut	SUS304
⑯	Nut	SUS304
⑰	Nut	PFA
⑱	Set screw	SUS304

Dimensions mm [in.]



Normally closed (NC) type
with flow rate adjustment: -C-Q1



Specifications

Item	Model	F-AVP125-200W
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~80 [41~176]
	Atmosphere	0~60 [32~140]
Operating pressure range	A→B	0~0.5 [0~5.1] [0~73]
	B→A	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice (Cv)	mm	4 [0.31]
Pilot connection port size		M5 × 0.8
Leakage at valve seat	cm ³ /min [in. ³ /min.]	0 [0] (When the media is water)
Operating frequency	c.p.m	30 or less
Mounting direction		Any

Order Codes

F-AVP125 - ☐ - LZ - ☐ - 200W

Flow rate adjustment

Applicable tube size

Valve function

Basic model

Valve function ^{Note 1}

C: Normally closed (NC) type
O: Normally open (NO) type
D: Double acting type

Applicable tube size ^{Note 2}

Flowell 60 series fitting
Special fitting
LZ: Fitting tube diameter φ 6.35×φ 4.35 only

Flow rate adjustment ^{Note 3}

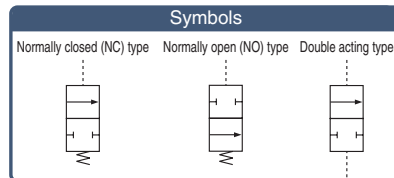
Blank: None
Q1: With flow rate adjustment (Micro flow rate adjustment type)

- Notes: 1. For the normally closed (NC) valve, a set screw with vent hole is installed at the operating port on the normally open (NO) side, and for the normally open (NO) valve, the set screw with vent hole is installed at the operating port on the normally closed (NC) side.
2. This product comes with Flowell 60 series fittings. The fittings are special sizes. The mounting tool is also a special type. Do not use the standard mounting tool.
3. The flow rate adjustment mechanism uses a differential screw method for easier flow rate setting. In the case of normally closed (NC) valves with flow rate adjustment, there is no pilot connection port on the normally open (NO) side.

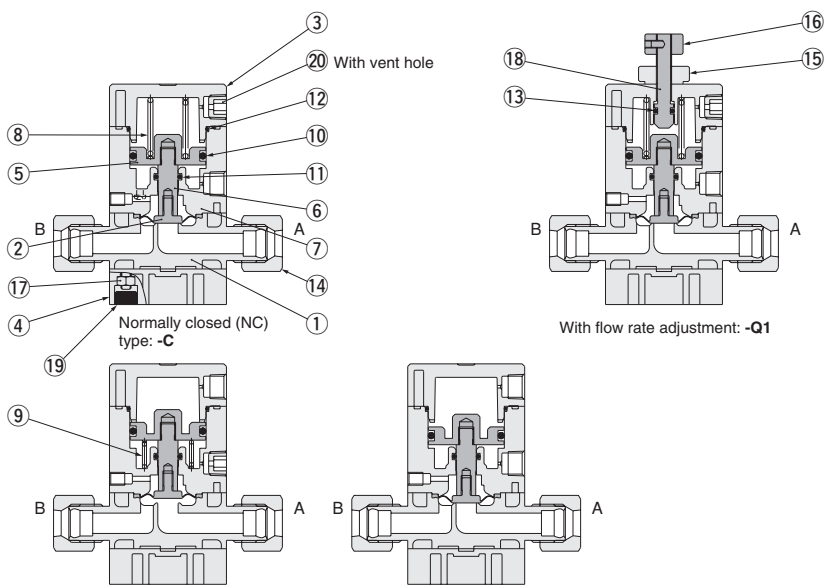
Air Operated Valve

Diaphragm type
2-port valve

F-AVP250-200W



Inner Construction and Materials



Normally open (NO) type: -O

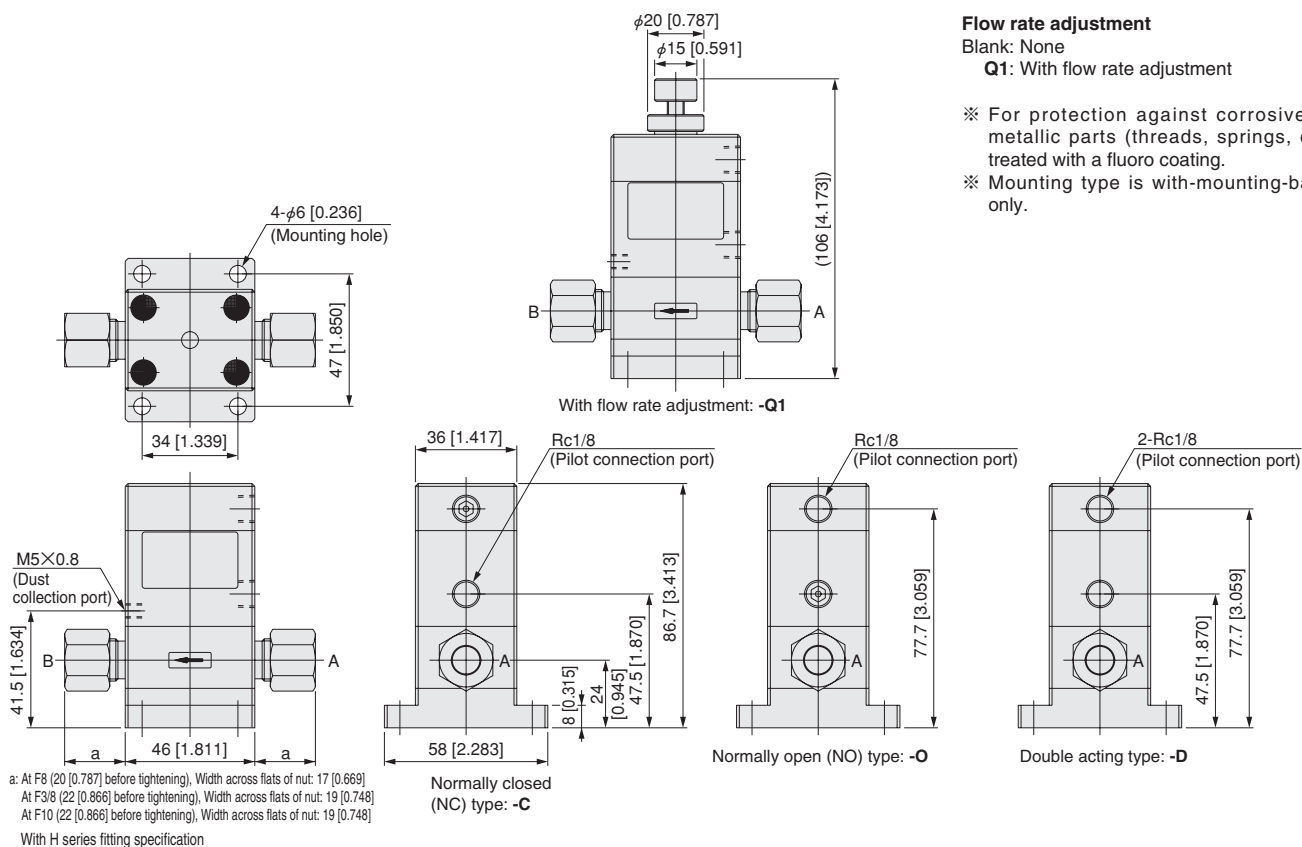
Double acting type: -D

No.	Parts	Materials
①	Body	PFA
②	Diaphragm	PTFE
③	Cover	PPS
④	Plate	PPS
⑤	Piston	—
⑥	Piston rod	—
⑦	Cylinder tube	PPS
⑧	Spring	SUS304-WPB ^{Note}
⑨	Spring	SUS304-WPB ^{Note}
⑩	O-ring	FKM

Note: Fluoro coated

No.	Parts	Materials
⑪	O-ring	FKM
⑫	O-ring	FKM
⑬	O-ring	FKM
⑭	Nut	PFA
⑮	Nut	PP
⑯	Nut	PP
⑰	Nut	SUS304 ^{Note}
⑱	Adjusting screw	—
⑲	Cap	FKM
⑳	Plug	VECTRA

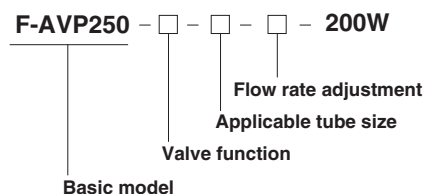
Dimensions mm [in.]



Specifications

Item	Model	F-AVP250-200W
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	A→B	0~0.5 [0~5.1] [0~73]
	B→A	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice (Cv)	mm	8 (1.2)
Pilot connection port size		Rc1/8
Leakage at valve seat		0 [0]
	cm ³ /min [in. ³ /min.]	(When the media is water)
Operating frequency	c.p.m	30 or less
Mounting direction		Any

Order Codes



Valve function

C: Normally closed (NC) type

O: Normally open (NO) type

D: Double acting type

Applicable tube size

H series fitting

F8 : Connecting tube outer diameter φ 8

F3/8 : Connecting tube outer diameter φ 3/8 (φ 9.52)

F10 : Connecting tube outer diameter φ 10

Flow rate adjustment

Blank: None

Q1: With flow rate adjustment

※ For protection against corrosive media, metallic parts (threads, springs, etc.) are treated with a fluoro coating.

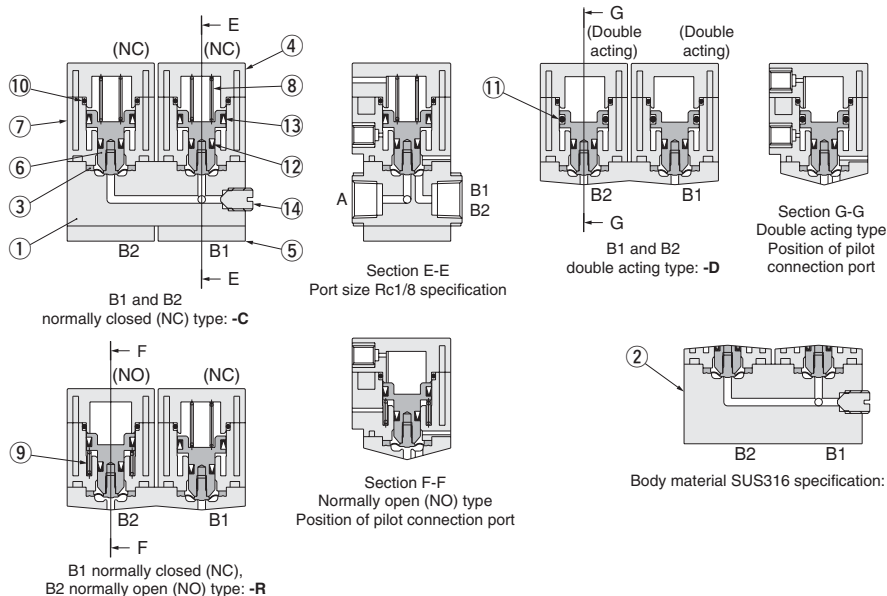
※ Mounting type is with-mounting-base type only.

Air Operated Valve

Diaphragm type
3-port valve

F-DAV070-200W

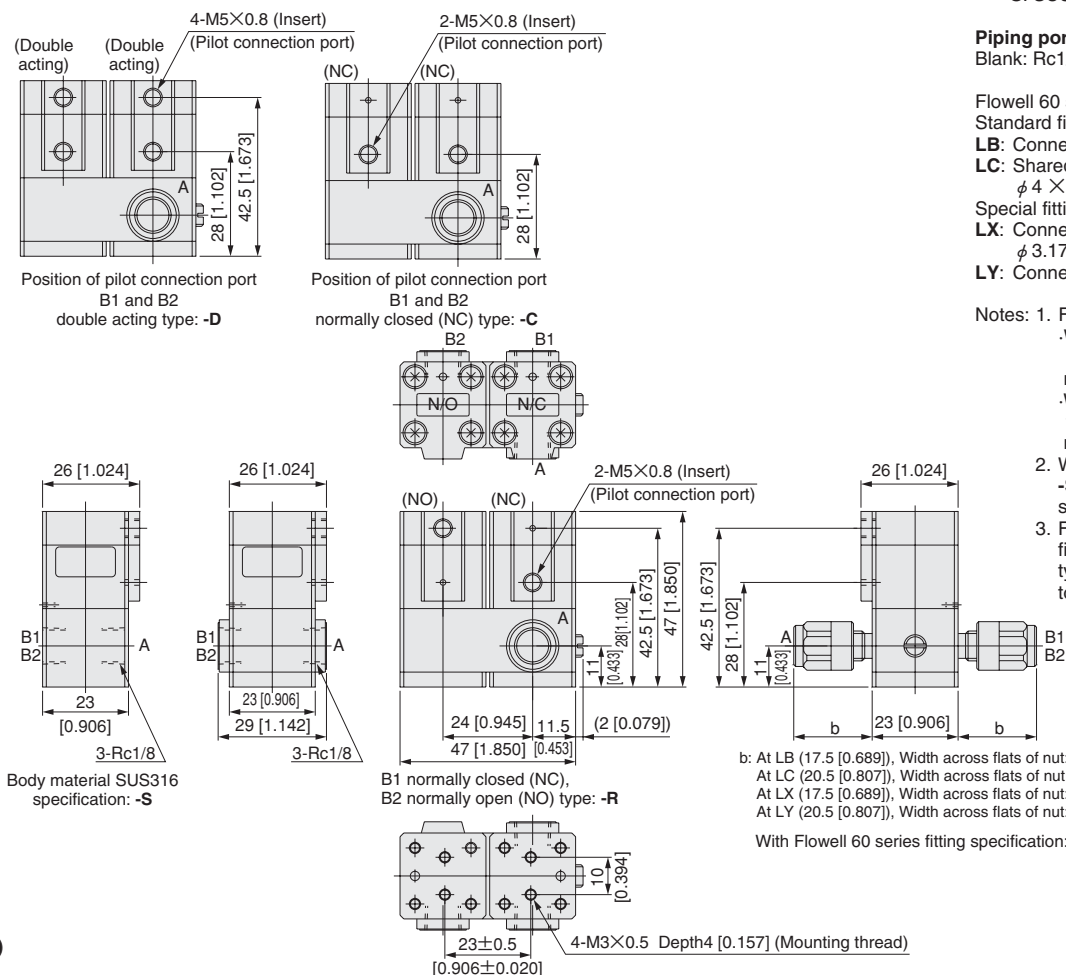
Inner Construction and Materials



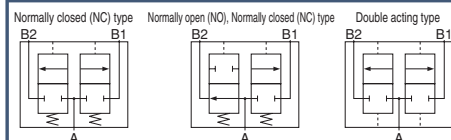
No.	Parts	Materials
①	Body	PTFE
②	Body	SUS316
③	Diaphragm	PTFE
④	Cover	PPS
⑤	Plate	SUS304
⑥	Piston	SUS304
⑦	Cylinder tube	PPS

No.	Parts	Materials
⑧	Spring	SUS304-WPB
⑨	Spring	SUS304-WPB
⑩	O-ring	FKM
⑪	O-ring	FKM
⑫	Seal	FKM
⑬	Seal	FKM
⑭	Plug	CTFE

Dimensions mm [in.]



Symbols



Specifications

Item	Model	F-DAV070-200W
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	A→B	0~0.5 [0~5.1] [0~73]
	B→A	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice (Cv)	mm	2 [0.1]
Pilot connection port size		M5 × 0.8
Leakage at valve seat	cm ³ /min [in. ³ /min.]	0 [0] (When the media is water)
Operating frequency	c.p.m	30 or less
Mounting direction		Any

Order Codes

F-DAV070 - □ - □ - □ - 200W

□ Piping port size and applicable tube size

□ Body material

□ Valve function

Basic model

Valve function ^{Note 1}
C: B1 and B2 normally closed (NC) type
R: B1 normally closed (NC), B2 normally open (NO) type
D: B1 and B2 double acting type

Body material ^{Note 2}
Blank: PTFE
S: SUS316

Piping port size and applicable tube size
Blank: Rc1/8

Flowell 60 series fitting ^{Note 3}
Standard fitting
LB: Connecting tube diameter $\phi 3.17 \times \phi 1.59$
LC: Shared connecting tube diameters $\phi 4 \times \phi 2$ and $\phi 4 \times \phi 3$
Special fitting
LX: Connecting tube diameter $\phi 3.17 \times \phi 2.17$ only
LY: Connecting tube diameter $\phi 4 \times \phi 3$ only

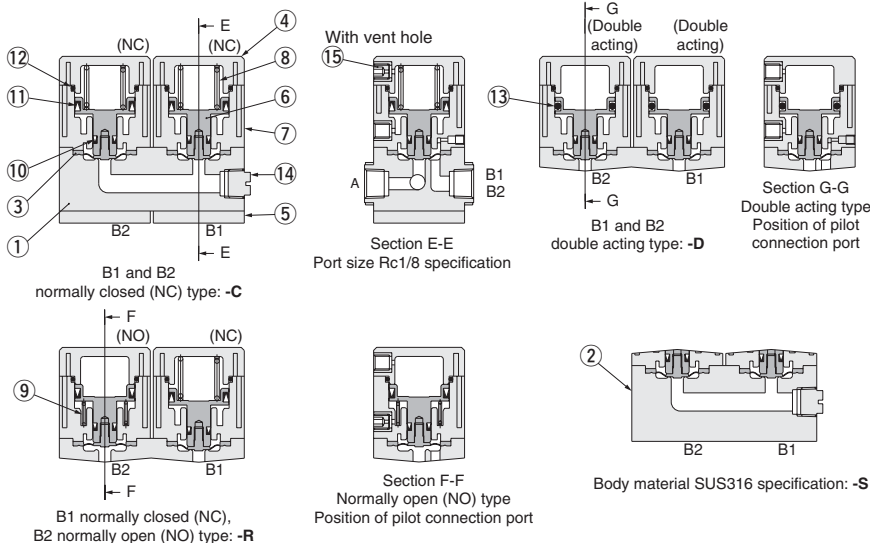
Notes: 1. Flow directions for media
· When media flow direction is A to B1 or B2, use at an operating pressure range of 0 ~ 0.5MPa [0 ~ 73psi].
· When media flow direction is B1 or B2 to A, use at an operating pressure range of 0 ~ 0.3MPa [0 ~ 44psi].
2. When the selected body material is -S, with-fitting specification cannot be selected.
3. For the Flowell 60 series special fittings, a mounting tool is also a special type. Do not use the standard mounting tool.

Air Operated Valve

Diaphragm type
3-port valve

F-DAV125-200W

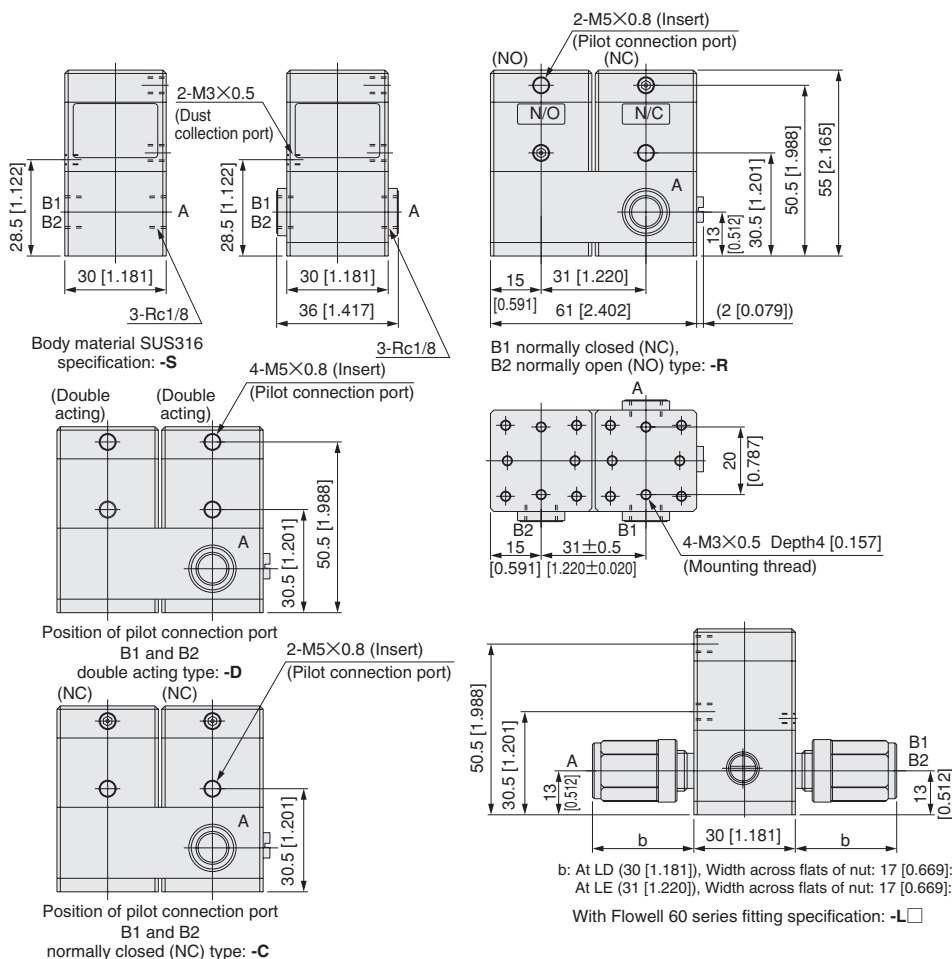
Inner Construction and Materials



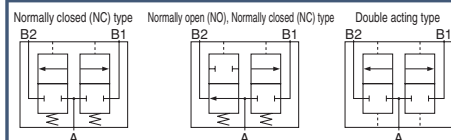
No.	Parts	Materials
①	Body	PTFE
②	Body	SUS316
③	Diaphragm	PTFE
④	Cover	PPS
⑤	Plate	SUS304
⑥	Piston	SUS304
⑦	Cylinder tube	PPS
⑧	Spring	SUS304-WPB

No.	Parts	Materials
⑨	Spring	SUS304-WPB
⑩	Seal	FKM
⑪	Seal	FKM
⑫	O-ring	FKM
⑬	O-ring	FKM
⑭	Plug	CTFE
⑮	Set screw	SUS304

Dimensions mm [in.]



Symbols



Specifications

Item	Model	F-DAV125-200W
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	A→B	0~0.5 [0~5.1] [0~73]
	B→A	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 {10.2} [145]
Orifice (Cv)	mm	4 {0.31}
Pilot connection port size		M5 × 0.8
Leakage at valve seat		0 [0]
	cm ³ /min [in. ³ /min.]	(When the media is water)
Operating frequency	c.p.m	30 or less
Mounting direction		Any

Order Codes

F-DAV125-□-□-□-200W

Basic model

Valve function

Body material

Piping port size and applicable tube size

Valve function ^{Note 1}

C: B1 and B2 normally closed (NC) type
R: B1 normally closed (NC), B2 normally open (NO) type
D: B1 and B2 double acting type

Body material ^{Note 2}

Blank: PTFE
S: SUS316

Piping port size and applicable tube size

Blank: Rc1/8

Flowell 60 series fitting

Standard fitting

LD: Connecting tube diameter $\phi 6 \times \phi 4$

LE: Shared connecting tube diameters
 $\phi 6.35 \times \phi 3.96$ and $\phi 6.35 \times \phi 4.35$

Notes: 1. Flow directions for media

- When media flow direction is A to B1 or B2, use at an operating pressure range of 0 ~ 0.5MPa [0 ~ 73psi.].
- When media flow direction is B1 or B2 to A, use at an operating pressure range of 0 ~ 0.3MPa [0 ~ 44psi.].

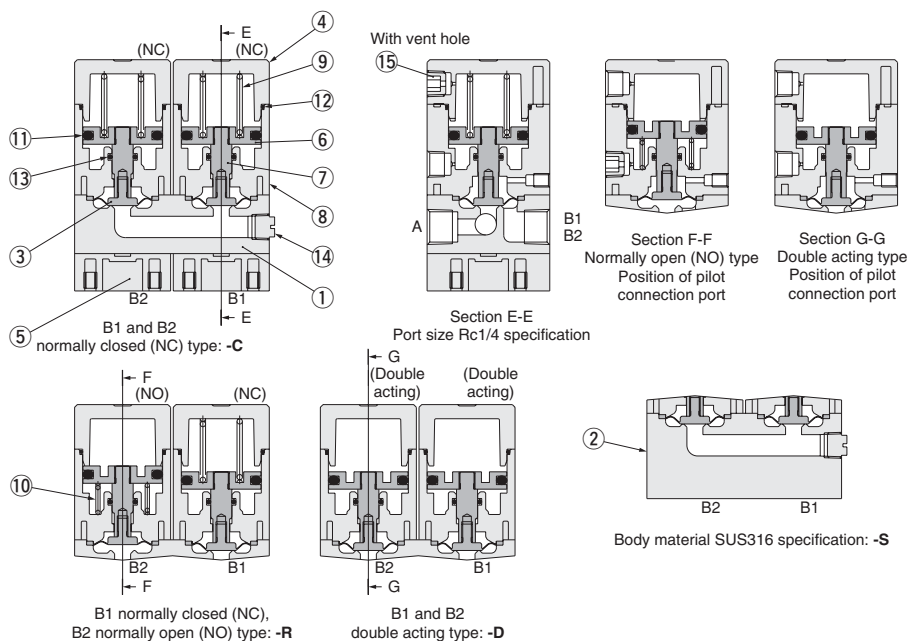
2. When the selected body material is -S, with-fitting specification cannot be selected.

Air Operated Valve

Diaphragm type
3-port valve

F-DAV250-200W

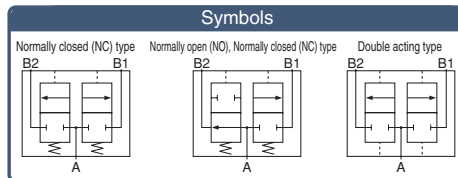
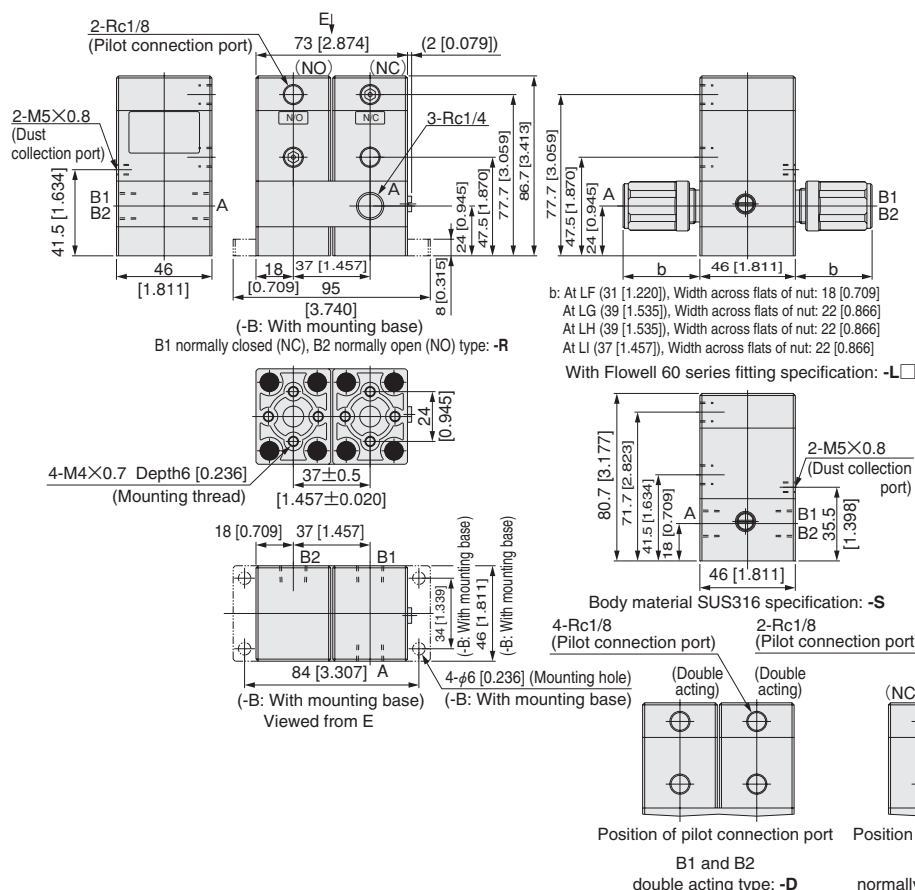
Inner Construction and Materials



No.	Parts	Materials
①	Body	PTFE
②	Body	SUS316
③	Diaphragm	PTFE
④	Cover	PPS
⑤	Plate	PPS
⑥	Piston	SUS304
⑦	Piston rod	SUS304
⑧	Cylinder tube	PPS

No.	Parts	Materials
⑨	Spring	SUS304-WPB
⑩	Spring	SUS304-WPB
⑪	Seal	FKM
⑫	O-ring	FKM
⑬	O-ring	FKM
⑭	Plug	CTFE
⑮	Plug	VECTRA

Dimensions mm [in.]



Specifications

Item	Model	F-DAV250-200W
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	A→B	0~0.5 [0~5.1] [0~73]
	B→A	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice (Cv)	mm	6 [0.6]
Pilot connection port size		Rc1/8
Leakage at valve seat	cm ³ /min [in. ³ /min.]	0 [0] (When the media is water)
Operating frequency	c.p.m	30 or less
Mounting direction		Any

Order Codes

F-DAV250 - - - - - 200W

Mounting base

Piping port size and applicable tube size

Body material

Valve function

Basic model

Valve function Note 1
C: B1 and B2 normally closed (NC) type
R: B1 normally closed (NC), B2 normally open (NO) type
D: B1 and B2 double acting type

Body material Note 2
 Blank: PTFE
S: SUS316

Piping port size and applicable tube size
 Blank: Rc1/4
 Flowell 60 series fitting
 Standard fitting
LF: Connecting tube diameter $\phi 8 \times \phi 6$
LG: Connecting tube diameter $\phi 9.52 \times \phi 6.35$
LH: Connecting tube diameter $\phi 9.52 \times \phi 7.52$
LI: Connecting tube diameter $\phi 10 \times \phi 8$

Mounting base
 Blank: Bottom mounting type
B: With mounting base

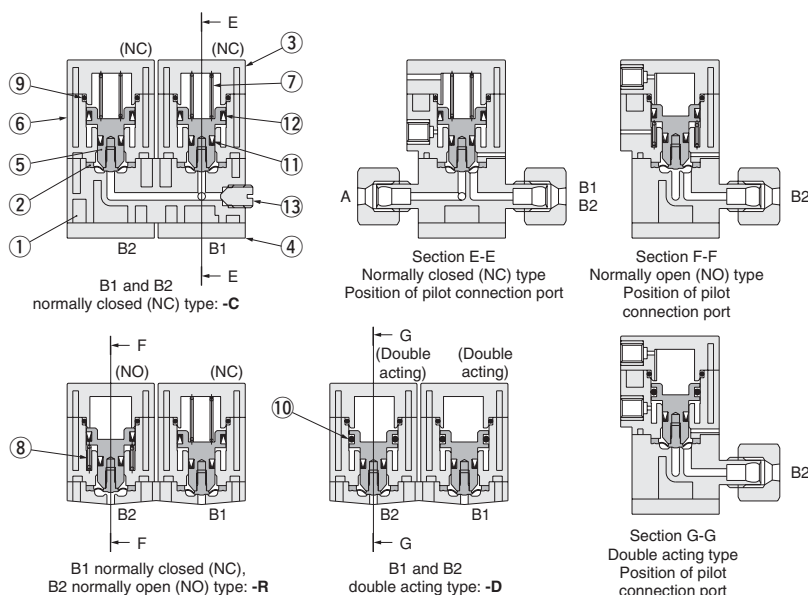
Notes: 1. Flow directions for media
 ·When media flow direction is A to B1 or B2, use at an operating pressure range of 0 ~ 0.5MPa [0 ~ 73psi.].
 ·When media flow direction is B1 or B2 to A, use at an operating pressure range of 0 ~ 0.3MPa [0 ~ 44psi.].
 2. When the selected body material is **-S**, with-fitting specification cannot be selected.

Air Operated Valve

Diaphragm type
3-port valve

F-DAVP070-200W

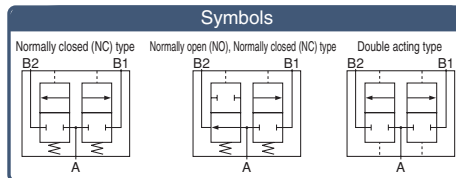
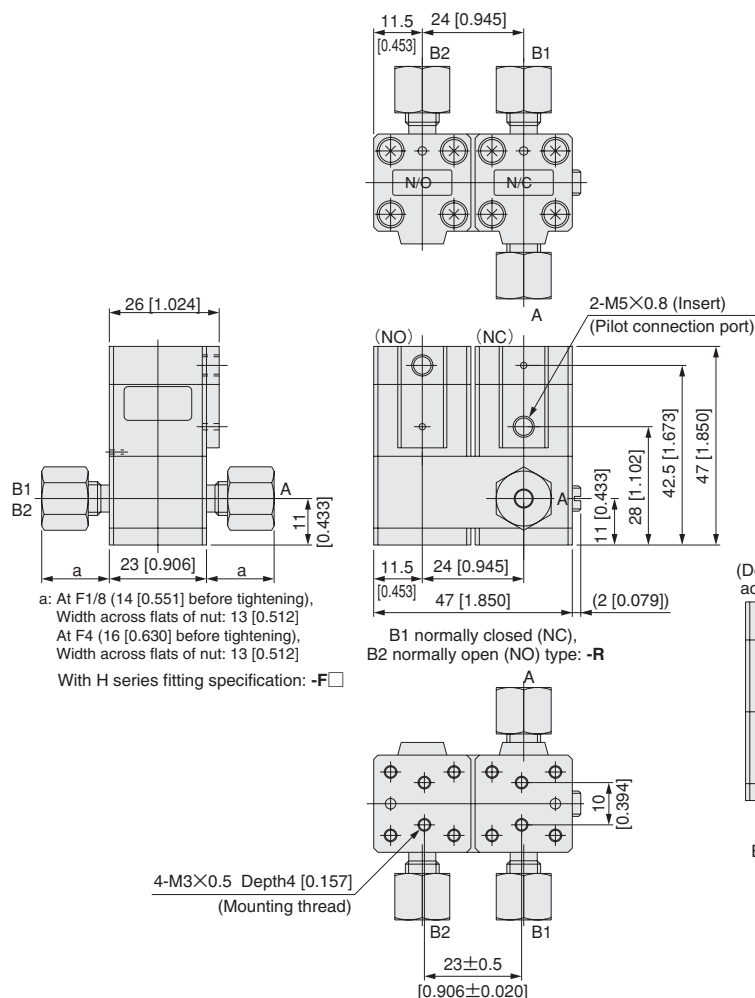
Inner Construction and Materials



No.	Parts	Materials
①	Body	PFA
②	Diaphragm	PTFE
③	Cover	PPS
④	Plate	SUS304
⑤	Piston	SUS304
⑥	Cylinder tube	PPS
⑦	Spring	SUS304-WPB

No.	Parts	Materials
⑧	Spring	SUS304-WPB
⑨	O-ring	FKM
⑩	O-ring	FKM
⑪	Seal	FKM
⑫	Seal	FKM
⑬	Plug	CTFE

Dimensions mm [in.]



Specifications

Item	Model	F-DAVP070-200W
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~80 [41~176]
	Atmosphere	0~50 [32~122]
Operating pressure range	A→B	0~0.5 [0~5.1] [0~73]
	B→A	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 {10.2} [145]
Orifice [Cv]	mm	2 {0.1}
Pilot connection port size		M5 × 0.8
Leakage at valve seat		0 [0]
	cm ³ /min [in. ³ /min.]	(When the media is water)
Operating frequency	c.p.m	30 or less
Mounting direction		Any

Order Codes

F-DAVP070 - ☐ - ☐ - 200W

Applicable tube size

Valve function

Basic model

Valve function ^{Note}

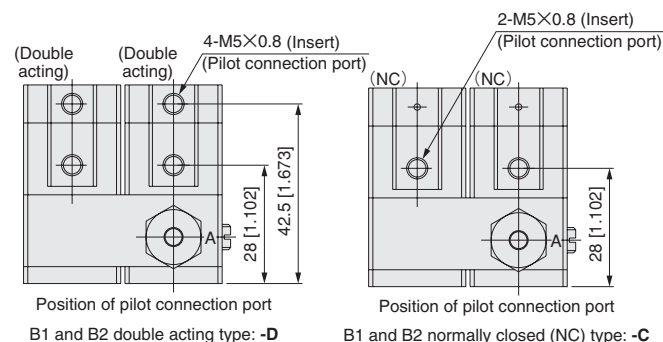
C: B1 and B2 normally closed (NC) type
R: B1 normally closed (NC), B2 normally open (NO) type
D: B1 and B2 double acting type

Applicable tube size

H series fitting
F1/8: Connecting tube outer diameter ϕ 1/8 (ϕ 3.17)
F4: Connecting tube outer diameter ϕ 4

Note: Flow directions for media

·When media flow direction is A to B1 or B2, use at an operating pressure range of 0 ~ 0.5MPa [0 ~ 73psi].
·When media flow direction is B1 or B2 to A, use at an operating pressure range of 0 ~ 0.3 MPa [0 ~ 44psi].

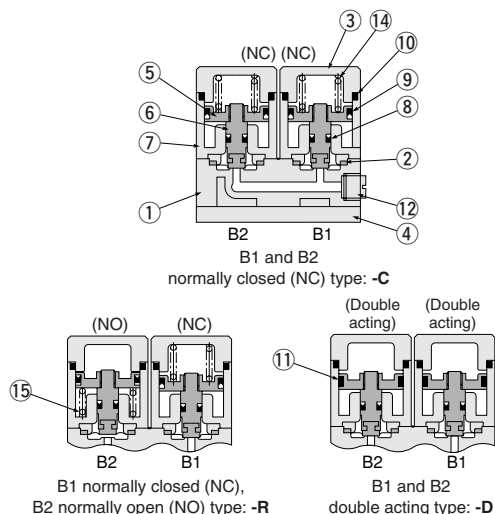


Air Operated Valve

Diaphragm type
3-port type

F-DAVP125

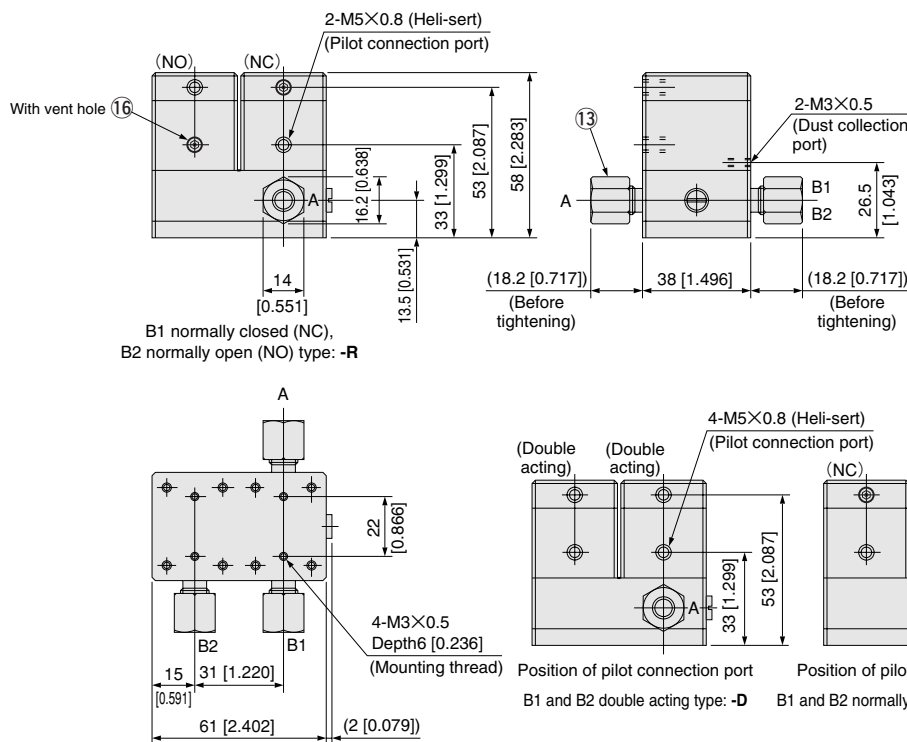
Inner Construction and Materials



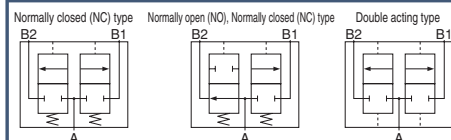
No.	Parts	Materials
①	Body	PFA
②	Diaphragm	PTFE
③	Cover	VECTRA
④	Plate	SUS304
⑤	Piston	SUS304
⑥	Piston rod	SUS304
⑦	Cylinder tube	VECTRA
⑧	Seal	FKM

No.	Parts	Materials
⑨	Seal	FKM
⑩	O-ring	FKM
⑪	O-ring	FKM
⑫	Plug	CTFE
⑬	Nut	PFA
⑭	Spring	SUS304-WPB
⑮	Spring	SUS304-WPB
⑯	Set screw	SUS304

Dimensions mm [in.]



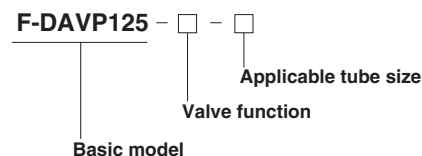
Symbols



Specifications

Item	Model	F-DAVP125
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	A→B	0~0.5 [0~5.1] [0~73]
	B→A	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice (Cv)	mm	3.2 [0.25]
Pilot connection port size		M5 × 0.8
Leakage at valve seat		0 [0]
	cm ³ /min [in. ³ /min.]	(When the media is water)
Operating frequency	c.p.m	30 or less
Mounting direction		Any

Order Codes



Valve function

C: B1 and B2 normally closed (NC) type
R: B1 normally closed (NC), B2 normally open (NO) type
D: B1 and B2 double acting type

Applicable tube size

H series fitting
F6 : Connecting tube outer diameter ϕ 6
F1/4 : Connecting tube outer diameter ϕ 1/4 (ϕ 6.35)

Note: Flow directions for media

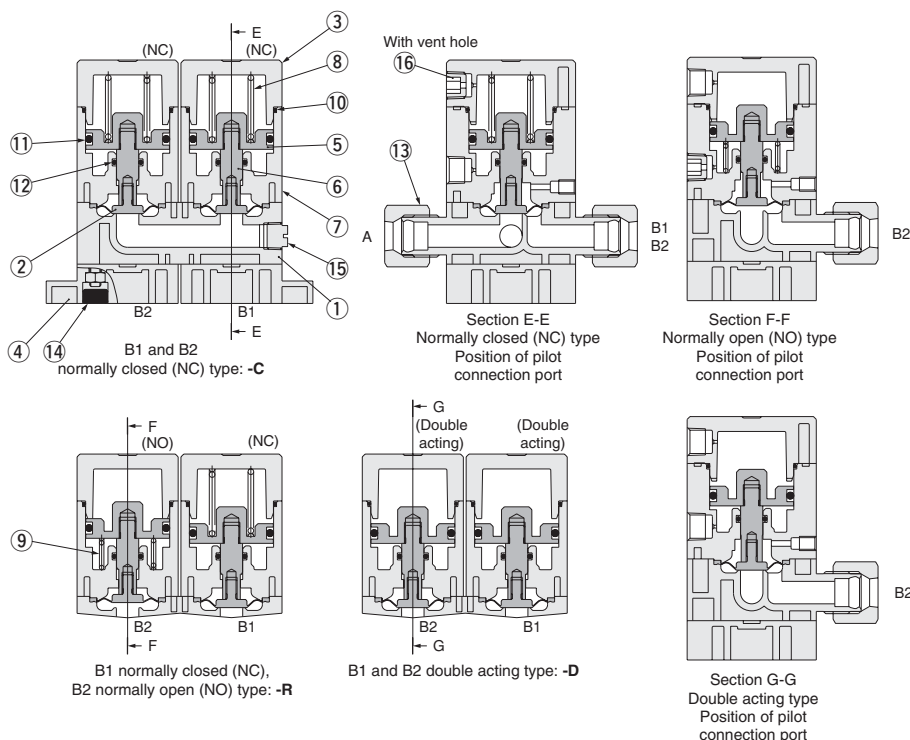
·When media flow direction is A to B1 or B2, use at an operating pressure range of 0 ~ 0.5MPa [0 ~ 73psi].
·When media flow direction is B1 or B2 to A, use at an operating pressure range of 0 ~ 0.3 MPa [0 ~ 44psi].

Air Operated Valve

Diaphragm type
3-port type

F-DAVP250-200W

Inner Construction and Materials

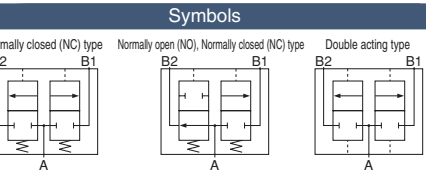
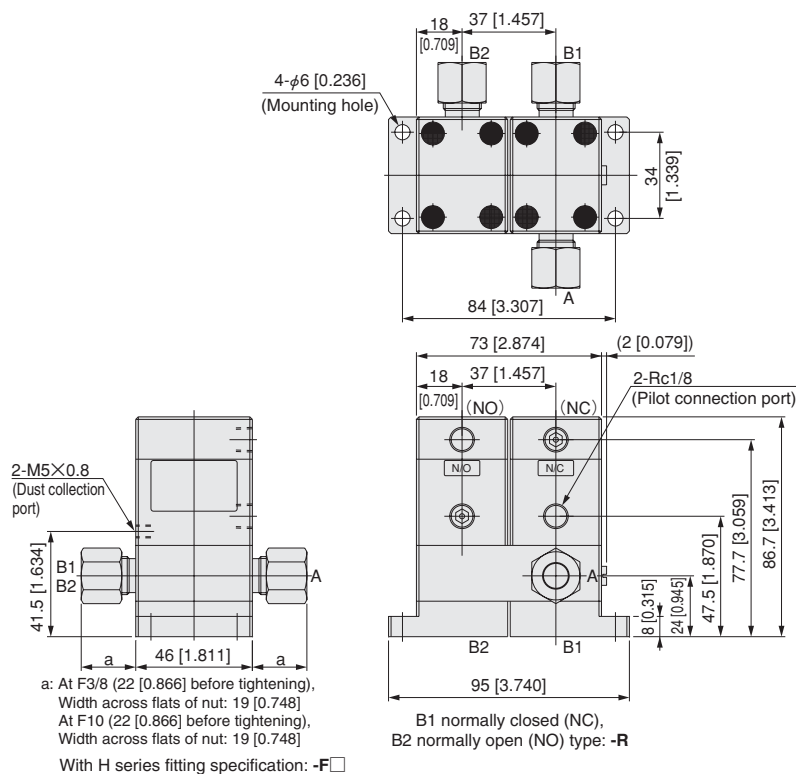


No.	Parts	Materials
①	Body	PFA
②	Diaphragm	PTFE
③	Cover	PPS
④	Plate	PPS
⑤	Piston	PEEK
⑥	Piston rod	PEEK
⑦	Cylinder tube	PPS
⑧	Spring	SUS304-WPB ^{Note}

Note: Fluoro coated

No.	Parts	Materials
⑨	Spring	SUS304-WPB ^{Note}
⑩	O-ring	FKM
⑪	O-ring	FKM
⑫	O-ring	FKM
⑬	Nut	PFA
⑭	Cap	FKM
⑮	Plug	CTFE
⑯	Plug	VECTRA

Dimensions mm [in.]



Specifications

Item	Model	F-DAVP250-200W
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	A→B	0~0.5 [0~5.1] [0~73]
	B→A	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 {10.2} [145]
Orifice (Cv)	mm	8 (1.2)
Pilot connection port size		Rc1/8
Leakage at valve seat	cm ³ /min [in. ³ /min.]	0 [0] (When the media is water)
Operating frequency	c.p.m	30 or less
Mounting direction		Any

Order Codes

F-DAVP250 - - - 200W

Applicable tube size

Valve function

Basic model

Valve function^{Note}

C: B1 and B2 normally closed (NC) type
R: B1 normally closed (NC), B2 normally open (NO) type
D: B1 and B2 double acting type

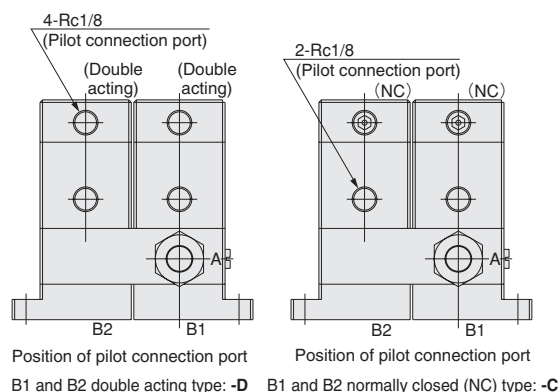
Applicable tube size

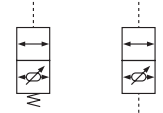
H series fitting
F3/8 : Connecting tube outer diameter ϕ 3/8 (ϕ 9.52)
F10 : Connecting tube outer diameter ϕ 10

Note: Flow directions for media

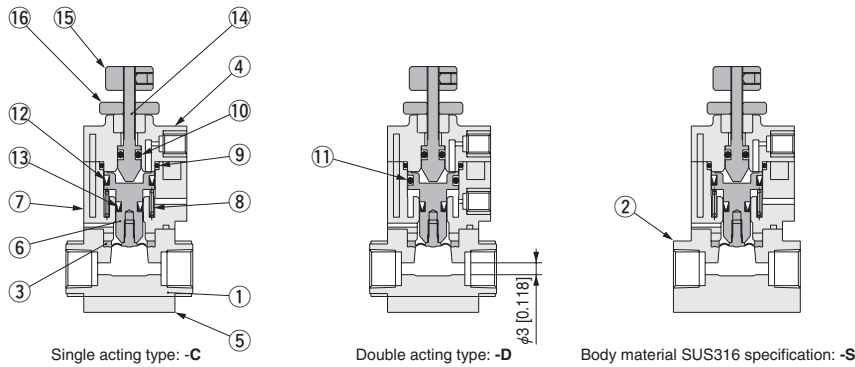
·When media flow direction is A to B1 or B2, use at an operating pressure range of 0 ~ 0.5MPa [0 ~ 73psi].
·When media flow direction is B1 or B2 to A, use at an operating pressure range of 0 ~ 0.3 MPa [0 ~ 44psi].

※ As protection against corrosive media, metallic parts (threads, springs, etc.) are treated with a fluoro coating.





Inner Construction and Materials



No.	Parts	Materials
①	Body	PTFE
②	Body	SUS316
③	Diaphragm	PTFE
④	Cover	PPS
⑤	Plate	SUS304
⑥	Piston	SUS304
⑦	Cylinder tube	PPS
⑧	Spring	SUS304-WPB

No.	Parts	Materials
⑨	O-ring	FKM
⑩	O-ring	FKM
⑪	O-ring	FKM
⑫	Seal	FKM
⑬	Seal	FKM
⑭	Adjusting screw	SUS304
⑮	Nut	SUS304
⑯	Nut	SUS304

Specifications

Model		F-SV070-200W
Media		Pure water, chemicals
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range		0~0.3 [0~3.1] [0~44]
Pilot pressure		0.3~0.5 [3.1~5.1] [44~73]
Proof pressure		1 [10.2] [145]
Maximum suck back volume		0.045 [0.00275]
Connection port size	Pilot	M5 × 0.8
	Main	Rc1/8
Recommended mounting direction		Vertical mounting with port facing upward

Order Codes

F-SV070 - □ - □ - 200W

Basic model

Body material

Valve function

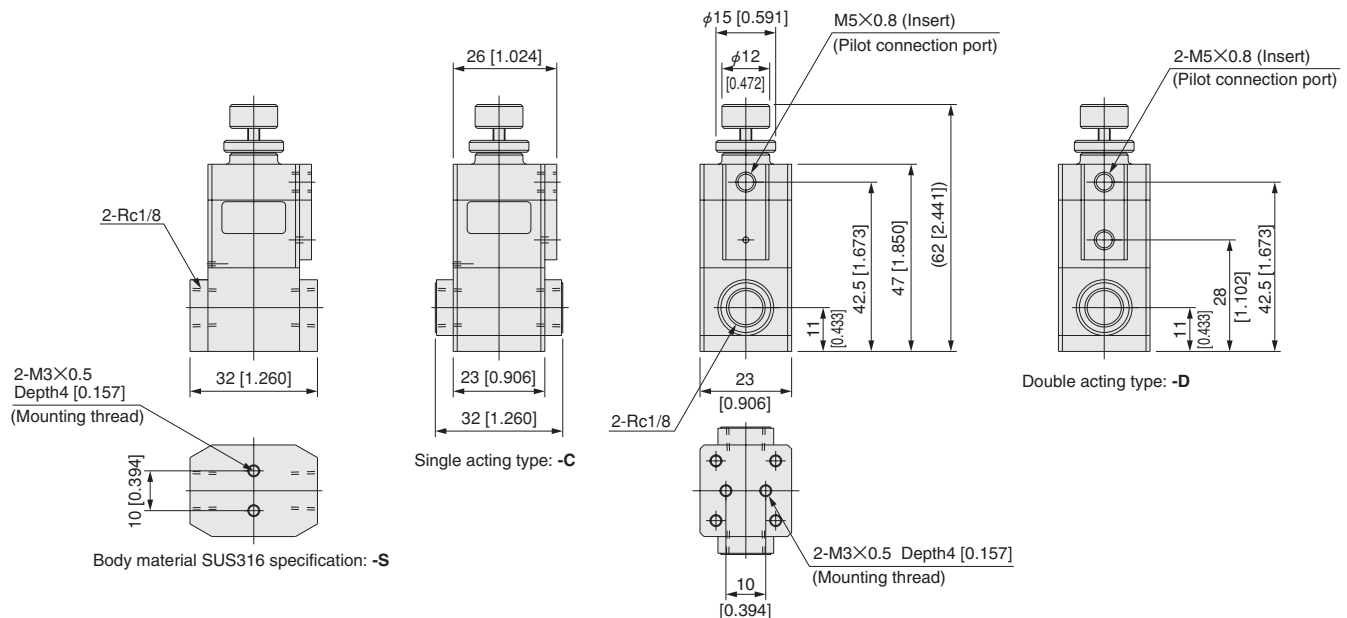
Valve function

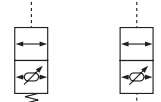
C: Single acting type
D: Double acting type

Body material

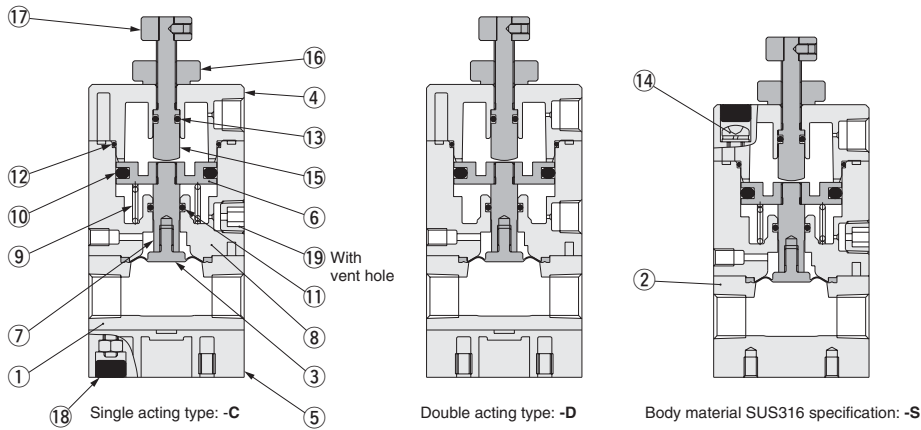
Blank: PTFE
S: SUS316

Dimensions mm [in.]





Inner Construction and Materials



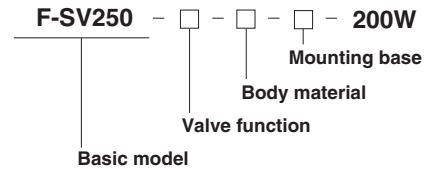
No.	Parts	Materials
①	Body	PTFE
②	Body	SUS316
③	Diaphragm	PTFE
④	Cover	PPS
⑤	Plate	PPS
⑥	Piston	SUS304
⑦	Piston rod	SUS304
⑧	Cylinder tube	PPS
⑨	Spring	SUS304-WPB
⑩	Seal	FKM

No.	Parts	Materials
⑪	O-ring	FKM
⑫	O-ring	FKM
⑬	O-ring	FKM
⑭	Screw	SUS304
⑮	Adjusting screw	SUS304
⑯	Nut	SUS304
⑰	Nut	SUS304
⑱	Cap	FKM
⑲	Plug	VECTRA

Specifications

Model		F-SV250-200W
Media		Pure water, chemicals
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range		0~0.3 [0~3.1] [0~44]
Pilot pressure		0.3~0.5 [3.1~5.1] [44~73]
Proof pressure		1 [10.2] [145]
Maximum suck back volume		0.40 [0.0244]
Connection port size	Pilot	Rc1/8
	Main	Rc1/4
Recommended mounting direction		Vertical mounting with port facing upward

Order Codes



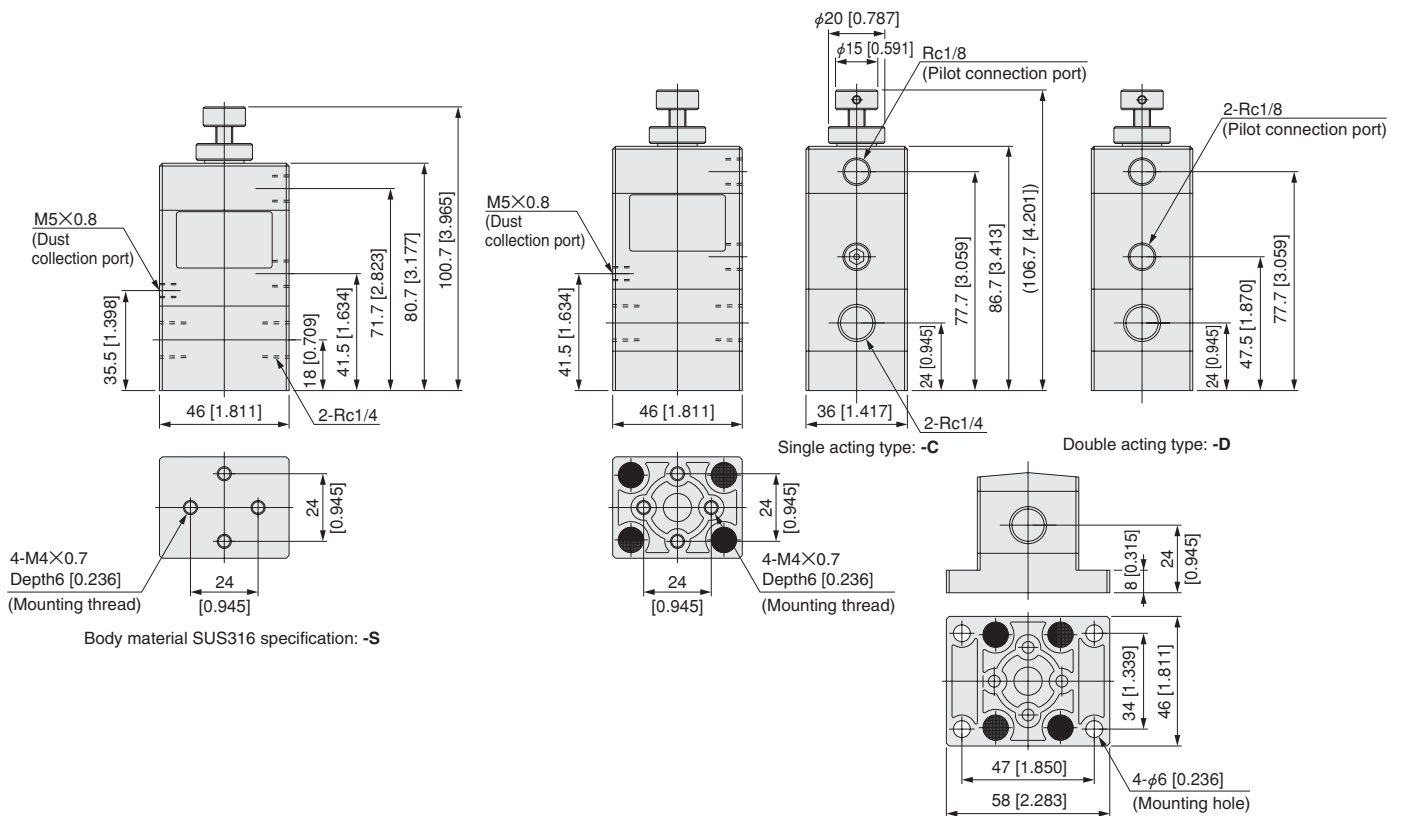
Valve function
C: Single acting type
D: Double acting type

Body material Note
 Blank: PTFE
S: SUS316

Mounting base
 Blank: Bottom mounting type
B: With mounting base

Note: When the selected body material is **-S**, with-mounting-base specification cannot be selected.

Dimensions mm [in.]



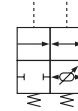
Air Operated Valve with Suck Back

Low sliding resistance
diaphragm type

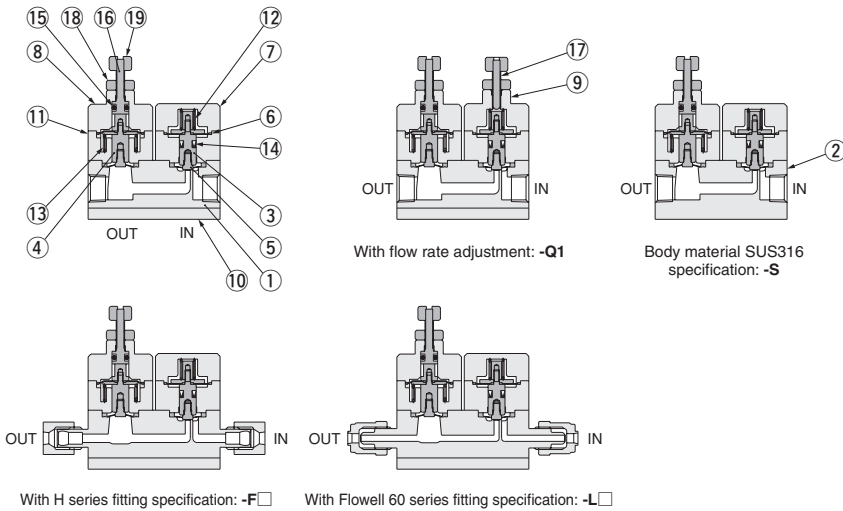
F-SAV070-100W

Symbol

AV side normally closed (NC), SV side single acting type



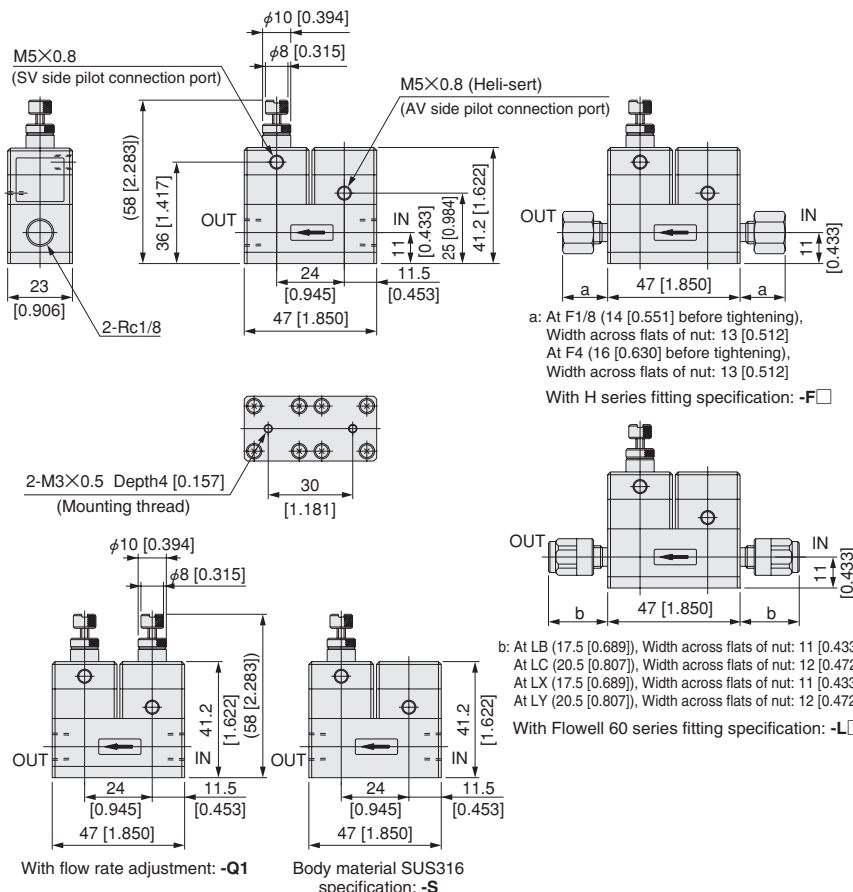
Inner Construction and Materials



No.	Parts	Materials
①	Body	PTFE
②	Body	SUS316
③	Stem	SUS304
④	Stem	SUS304
⑤	Diaphragm	PTFE
⑥	Diaphragm	FKM
⑦	Cover	C-PVC
⑧	Cover	SUS304
⑨	Cover	SUS304
⑩	Plate	SUS304

No.	Parts	Materials
⑪	Tube	C-PVC
⑫	Spring	SUS304-WPB
⑬	Spring	SUS304-WPB
⑭	Seal	FKM
⑮	O-ring	FKM
⑯	Adjusting screw	SUS304
⑰	Adjusting screw	SUS304
⑱	Nut	SUS304
⑲	Knob	SUS304

Dimensions mm [in.]



Specifications

Item	Model	F-SAV070-100W
Media		Pure water, chemicals
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	MPa [kgf/cm ²] [psi.]	0~0.2 [0~2.0] [0~29]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.2 [0~2.0] [0~29]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice [Cv]	mm	1.8 [0.06]
Pilot connection port size		M5 × 0.8
Leakage at valve seat	cm ³ /min [in. ³ /min.]	0 [0] (When the media is water)
Maximum suck back volume	cm ³ [in. ³]	0.04 [0.0024]
Recommended mounting direction		Vertical mounting with port facing upward ^{Note}

Note: Mount the valve with the arrow mark on the label on the valve body side pointing upward.

Order Codes

F-SAV070 - □ - □ - □ - 100W

Flow rate adjustment

Piping port size and applicable tube size

Body material

Basic model

Body material^{Note 1}

Blank: PTFE

S: SUS316

Piping port size and applicable tube size

Blank: Rc1/8

H series fitting

F1/8: Connecting tube outer diameter ϕ 1/8 (ϕ 3.17)

F4: Connecting tube outer diameter ϕ 4

Flowell 60 series fitting^{Note 2}

Standard fitting

LB: Connecting tube diameter ϕ 3.17 × ϕ 1.59

LC: Shared connecting tube diameters

ϕ 4 × ϕ 2 and ϕ 4 × ϕ 3

Special fitting

LX: Connecting tube diameter

ϕ 3.17 × ϕ 2.17 only

LY: Connecting tube diameter ϕ 4 × ϕ 3 only

Flow rate adjustment^{Note 3}

Blank: None

Q1: With flow rate adjustment

Valve function

Only AV side normally closed (NC), SV side single acting type is available.

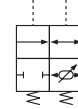
- Notes: 1. When the selected body material is -S, with-fitting specification cannot be selected.
2. For the Flowell 60 series special fittings, a mounting tool is also a special type.
Do not use the standard mounting tool.
3. Exercise caution as the flow rate adjusting screw will come off, if rotated more than necessary.

Air Operated Valve with Suck Back Diaphragm type

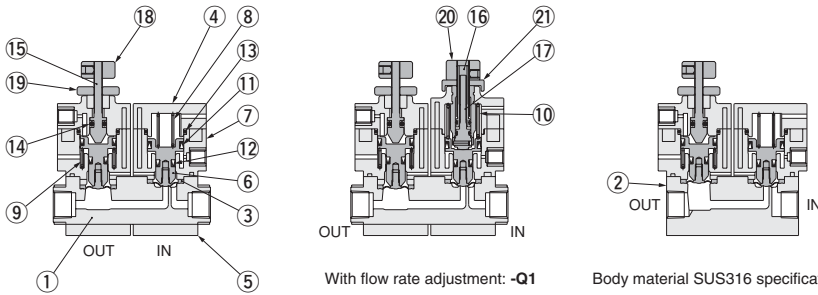
F-SAV070-200W

Symbol

AV side normally closed (NC), SV side single acting type



Inner Construction and Materials



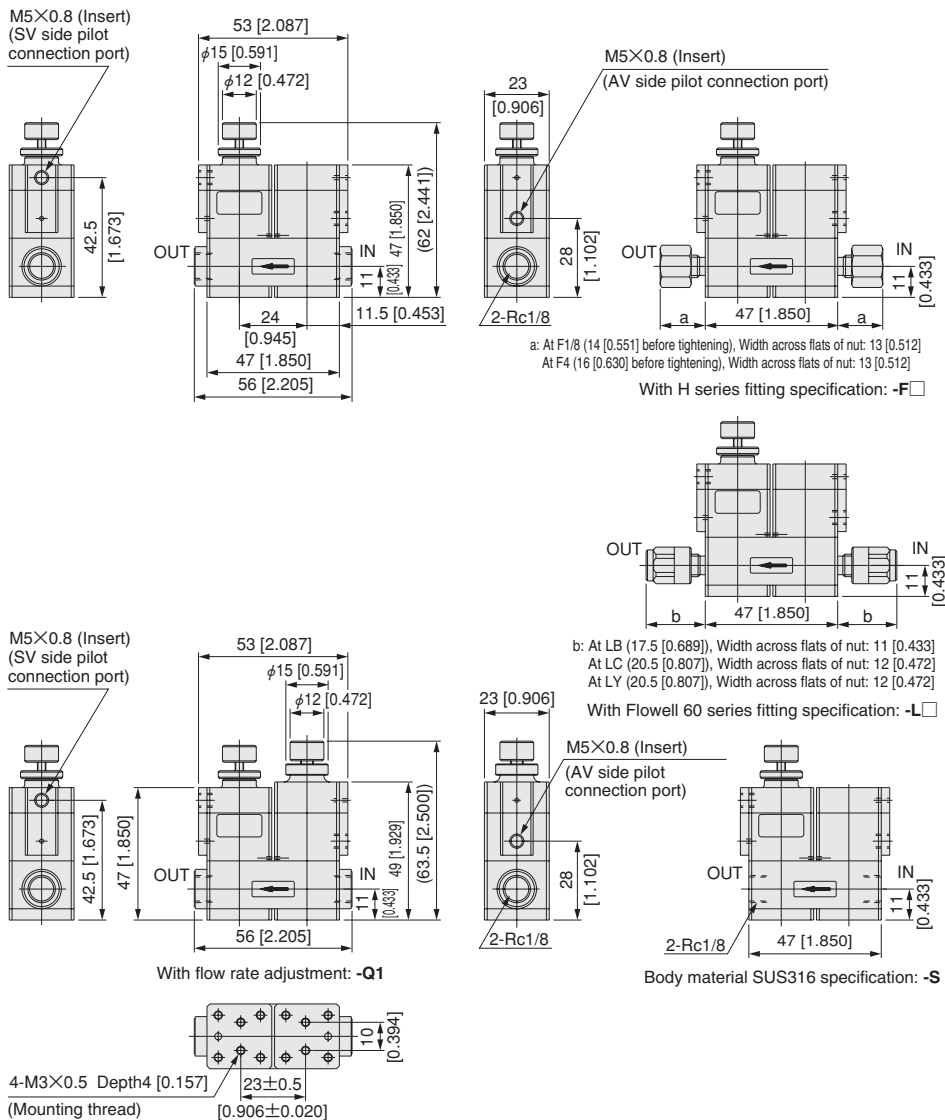
With flow rate adjustment: -Q1

Body material SUS316 specification: -S

No.	Parts	Materials
①	Body	PTFE
②	Body	SUS316
③	Diaphragm	PTFE
④	Cover	PPS
⑤	Plate	SUS304
⑥	Piston	SUS304
⑦	Cylinder tube	PPS
⑧	Spring	SUS304-WPB
⑨	Spring	SUS304-WPB
⑩	Spring	SUS304-WPB
⑪	Seal	FKM

No.	Parts	Materials
⑫	Seal	FKM
⑬	O-ring	FKM
⑭	O-ring	FKM
⑮	Adjusting screw	SUS304
⑯	Adjusting screw	SUS304
⑰	Adjusting screw	SUS304
⑱	Nut	SUS304
⑲	Nut	SUS304
⑳	Nut	SUS304
㉑	Nut	SUS304

Dimensions mm [in.]



With flow rate adjustment: -Q1

Body material SUS316 specification: -S

Specifications

Item	Model	F-SAV070-200W
Media		Pure water, chemicals
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range		0~0.3 [0~3.1] [0~44]
	MPa [kgf/cm ²] [psi.]	
Pilot pressure		0.3~0.5 [3.1~5.1] [44~73]
	MPa [kgf/cm ²] [psi.]	
Back pressure		0~0.3 [0~3.1] [0~44]
	MPa [kgf/cm ²] [psi.]	
Proof pressure		1 [10.2] [145]
	MPa [kgf/cm ²] [psi.]	
Orifice (Cv)	mm	2 [0.1]
Pilot connection port size		M5 × 0.8
Leakage at valve seat		0 [0]
	cm ³ /min [in. ³ /min.]	(When the media is water)
Maximum suck back volume	cm ³ [in. ³]	0.045 [0.00275]
Recommended mounting direction		Vertical mounting with port facing upward ^{Note}

Note: Mount the valve with the arrow mark on the label on the valve body side pointing upward.

Order Codes

F-SAV070 - □ - □ - □ - 200W

Flow rate adjustment

Piping port size and applicable tube size

Body material

Basic model

Body material^{Note 1}

Blank: PTFE

S: SUS316

Piping port size and applicable tube size

Blank: Rc1/8

H series fitting

F1/8 : Connecting tube outer diameter φ 1/8 (φ 3.17)

F4 : Connecting tube outer diameter φ 4

Flowell 60 series fitting^{Note 2}

Standard fitting

LB: Connecting tube diameter φ 3.17 × φ 1.59

LC: Shared connecting tube diameters

φ 4 × φ 2 and φ 4 × φ 3

Special fitting

LY: Connecting tube diameter φ 4 × φ 3 only

Flow rate adjustment^{Note 3}

Blank: None

Q1: With flow rate adjustment (Micro flow rate adjustment type)

Valve function

Only AV side normally closed (NC), SV side single acting type is available.

- Notes: 1. When the selected body material is -S, with-fitting specification cannot be selected.
2. For the Flowell 60 series special fittings, a mounting tool is also a special type.
Do not use the standard mounting tool.
3. The flow rate adjustment mechanism uses a differential screw method for easier flow rate setting.

Air Operated Valve with Suck Back Diaphragm type

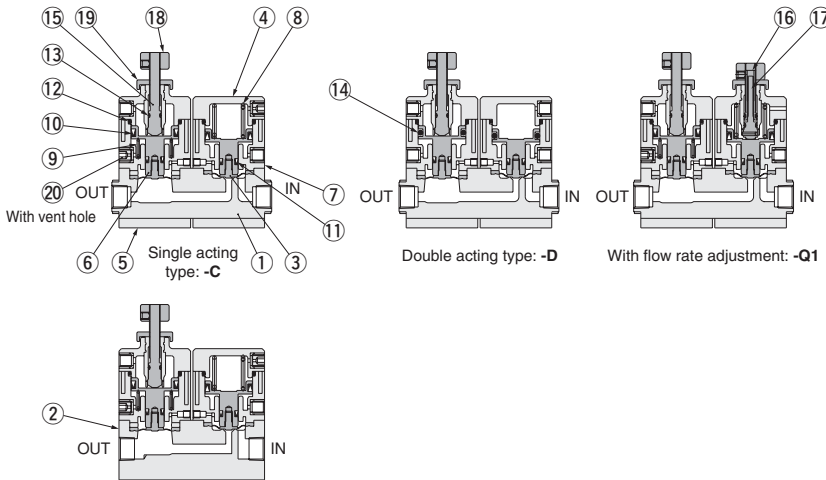
F-SAV100-200W

Symbols

AV side normally closed (NC), SV side single acting type AV and SV sides double acting type



Inner Construction and Materials

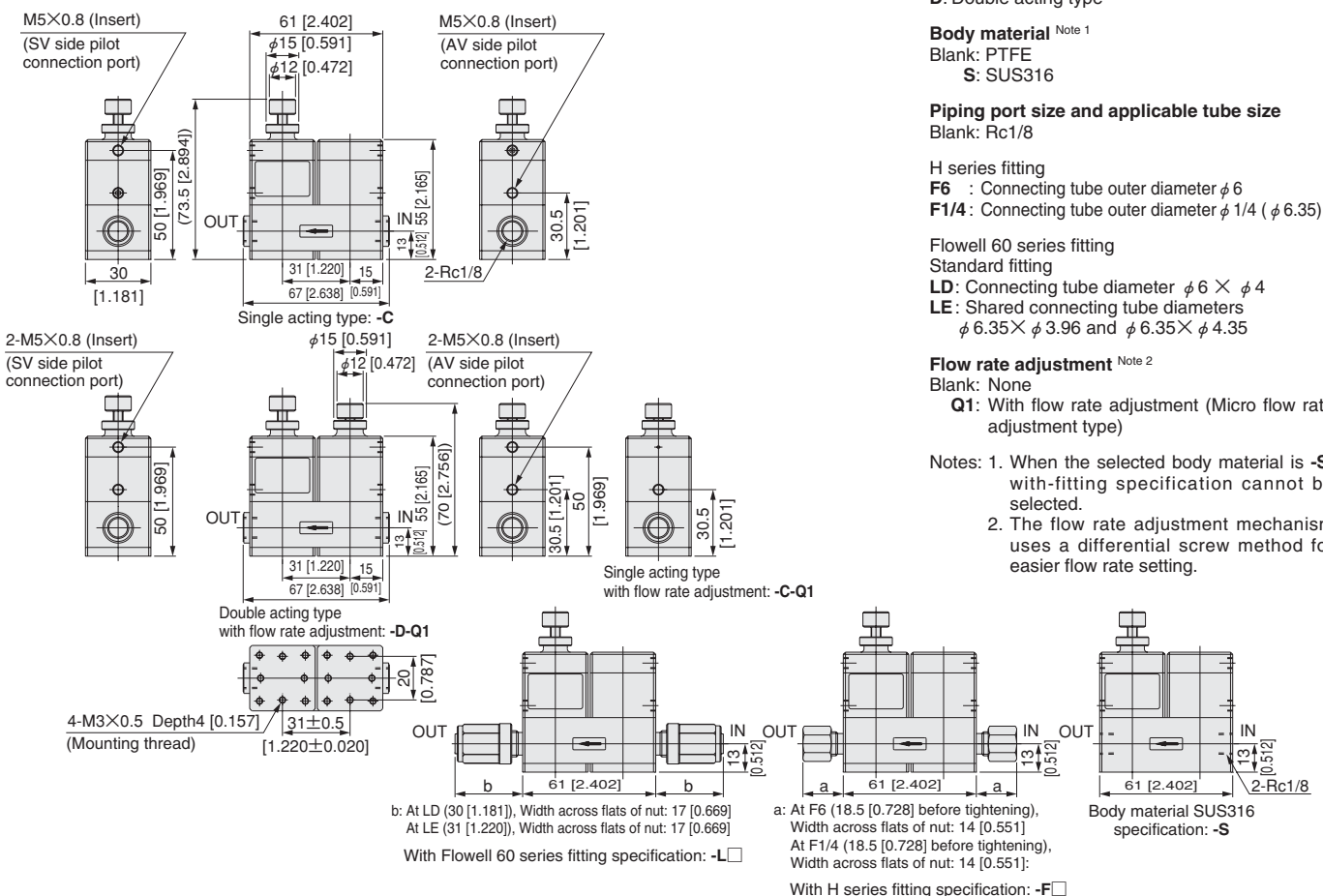


Body material SUS316 specification: -S

No.	Parts	Materials
①	Body	PTFE
②	Body	SUS316
③	Diaphragm	PTFE
④	Cover	PPS
⑤	Plate	SUS304
⑥	Piston	SUS304
⑦	Cylinder tube	PPS
⑧	Spring	SUS304-WPB
⑨	Spring	SUS304-WPB
⑩	Seal	FKM

No.	Parts	Materials
⑪	Seal	FKM
⑫	O-ring	FKM
⑬	O-ring	FKM
⑭	O-ring	FKM
⑮	Adjusting screw	SUS304
⑯	Adjusting screw	SUS304
⑰	Adjusting screw	SUS304
⑱	Nut	SUS304
⑲	Nut	SUS304
⑳	Set screw	SUS304

Dimensions mm [in.]



Specifications

Item	Model	F-SAV100-200W
Media		Pure water, chemicals
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice (Cv)	mm	2.5 [0.15]
Pilot connection port size		M5 × 0.8
Leakage at valve seat	cm ³ /min [in. ³ /min.]	0 [0] (When the media is water)
Maximum suck back volume	cm ³ [in. ³]	0.25 [0.0153]
Recommended mounting direction		Vertical mounting with port facing upward ^{Note}

Note: Mount the valve with the arrow mark on the label on the valve body side pointing upward.

Order Codes

F-SAV100 - ☐ - ☐ - ☐ - ☐ - **200W**
 Basic model
 Valve function
 Body material
 Piping port size and applicable tube size
 Flow rate adjustment

Valve function

C: Single acting type (AV side normally closed (NC), SV side single acting type)
D: Double acting type

Body material ^{Note 1}

Blank: PTFE
 S: SUS316

Piping port size and applicable tube size

Blank: Rc1/8

H series fitting

F6 : Connecting tube outer diameter ϕ 6

F1/4 : Connecting tube outer diameter ϕ 1/4 (ϕ 6.35)

Flowell 60 series fitting

Standard fitting

LD: Connecting tube diameter ϕ 6 × ϕ 4

LE: Shared connecting tube diameters ϕ 6.35 × ϕ 3.96 and ϕ 6.35 × ϕ 4.35

Flow rate adjustment ^{Note 2}

Blank: None

Q1: With flow rate adjustment (Micro flow rate adjustment type)

Notes: 1. When the selected body material is -S, with-fitting specification cannot be selected.

2. The flow rate adjustment mechanism uses a differential screw method for easier flow rate setting.

Air Operated Valve with Suck Back Diaphragm type

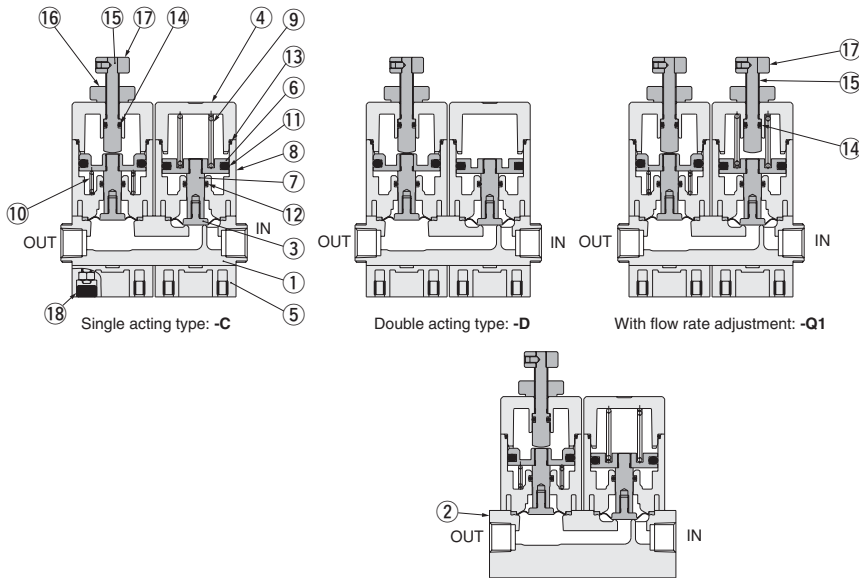
F-SAV250-200W

Symbols

AV side normally closed (NC), SV side single acting type AV and SV sides double acting type



Inner Construction and Materials

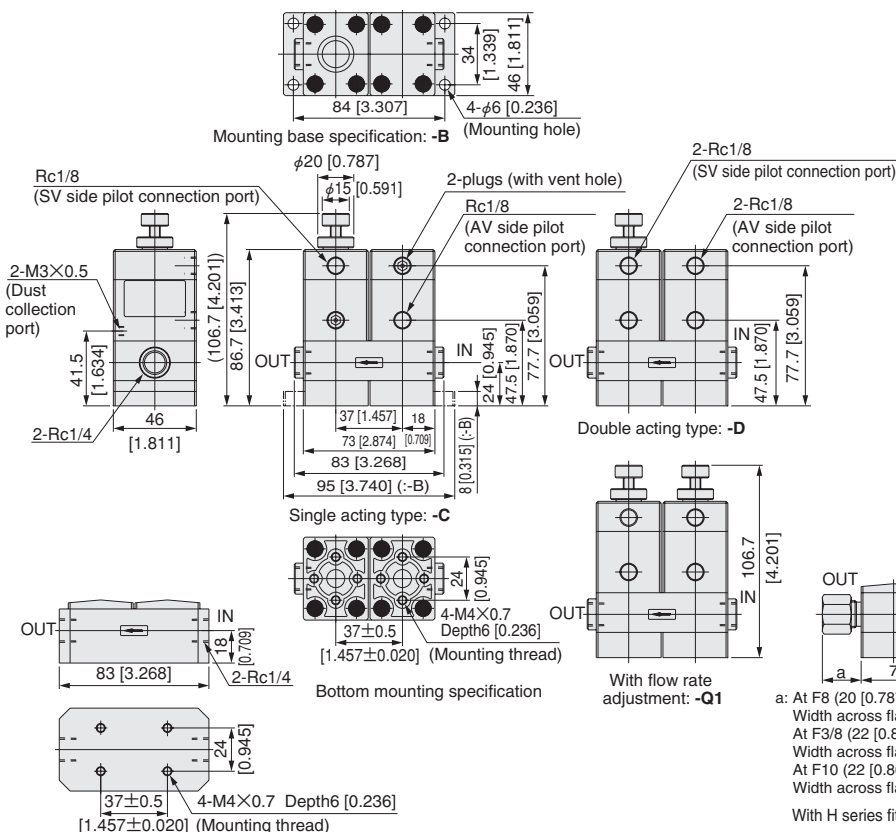


Body material SUS316 specification: -S

No.	Parts	Materials
①	Body	PTFE
②	Body	SUS316
③	Diaphragm	PTFE
④	Cover	PPS
⑤	Plate	PPS
⑥	Piston	SUS304
⑦	Piston rod	SUS304
⑧	Cylinder tube	PPS
⑨	Spring	SUS304-WPB

No.	Parts	Materials
⑩	Spring	SUS304-WPB
⑪	Seal	FKM
⑫	O-ring	FKM
⑬	O-ring	FKM
⑭	O-ring	FKM
⑮	Adjusting screw	SUS304
⑯	Nut	SUS304
⑰	Nut	SUS304
⑱	Cap	FKM

Dimensions mm [in.]



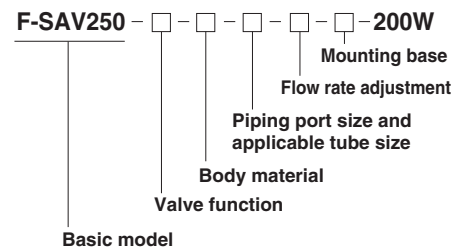
Body material SUS316 specification: -S

Specifications

Item	Model	F-SAV250-200W
Media		Pure water, chemicals
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice (Cv)	mm	6 (0.6)
Pilot connection port size		Rc1/8
Leakage at valve seat	cm ³ /min [in. ³ /min.]	0 [0] (When the media is water)
Maximum suck back volume	cm ³ [in. ³]	0.4 [0.024]
Recommended mounting direction		Vertical mounting with port facing upward ^{Note}

Note: Mount the valve with the arrow mark on the label on the valve body side pointing upward.

Order Codes



Valve function

C: Single acting type (AV side normally closed (NC), SV side single acting type)
D: Double acting type

Body material^{Note}

Blank: PTFE
S: SUS316

Piping port size and applicable tube size

Blank: Rc1/4

H series fitting

F8 : Connecting tube outer diameter $\phi 8$
F3/8 : Connecting tube outer diameter $\phi 3/8$ ($\phi 9.52$)
F10 : Connecting tube outer diameter $\phi 10$

Flowell 60 series fitting

Standard fitting

LF : Connecting tube diameter $\phi 8 \times \phi 6$
LG : Connecting tube diameter $\phi 9.52 \times \phi 6.35$
LH : Connecting tube diameter $\phi 9.52 \times \phi 7.52$
LI : Connecting tube diameter $\phi 10 \times \phi 8$

Flow rate adjustment

Blank: None

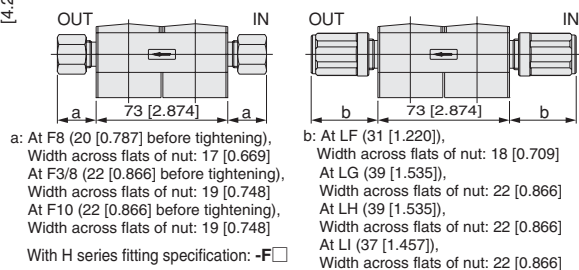
Q1: With flow rate adjustment

Mounting base

Blank: Bottom mounting type

B: With mounting base

Note: When the selected body material is -S, with-fitting specification cannot be selected.



a: At F8 (20 [0.787] before tightening),
Width across flats of nut: 17 [0.669]
At F3/8 (22 [0.866] before tightening),
Width across flats of nut: 19 [0.748]
At F10 (22 [0.866] before tightening),
Width across flats of nut: 19 [0.748]
With H series fitting specification: -F

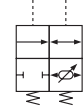
b: At LF (31 [1.220]),
Width across flats of nut: 18 [0.709]
At LG (39 [1.535]),
Width across flats of nut: 22 [0.866]
At LH (39 [1.535]),
Width across flats of nut: 22 [0.866]
At LI (37 [1.457]),
Width across flats of nut: 22 [0.866]
With Flowell 60 series fitting specification: -L

Air Operated Valve with Suck Back Diaphragm type

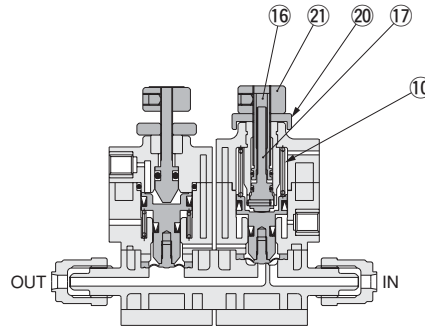
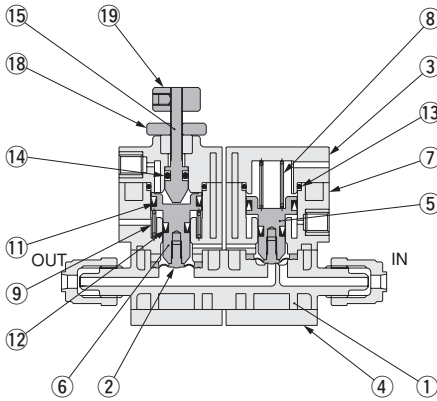
F-SAVP070-200W

Symbol

AV side normally closed (NC), SV side single acting type



Inner Construction and Materials

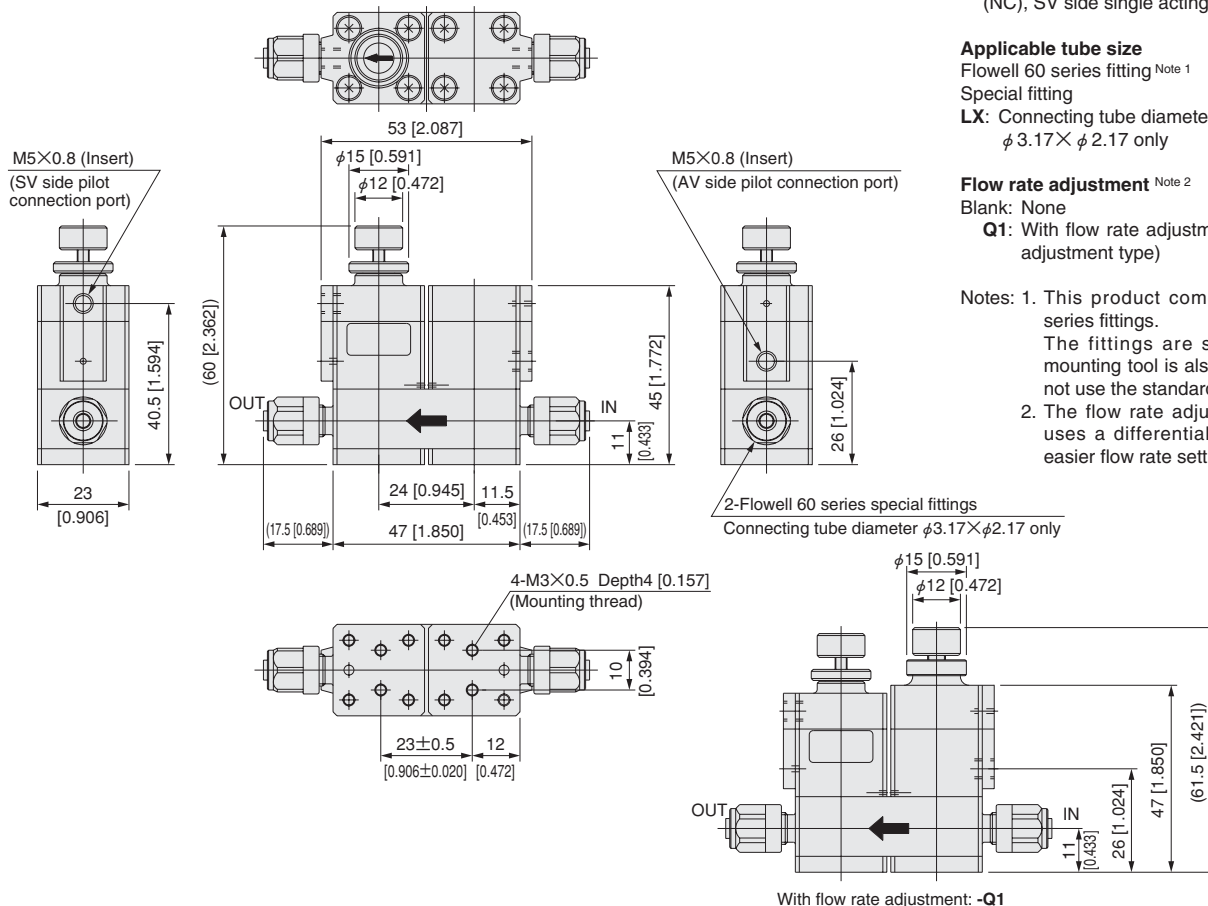


With flow rate adjustment: -Q1

No.	Parts	Materials
①	Body	PFA
②	Diaphragm	PTFE
③	Cover	PPS
④	Plate	SUS304
⑤	Piston	SUS304
⑥	Piston	SUS304
⑦	Cylinder tube	PPS
⑧	Spring	SUS304-WPB
⑨	Spring	SUS304-WPB
⑩	Spring	SUS304-WPB
⑪	Seal	FKM

No.	Parts	Materials
⑫	Seal	FKM
⑬	O-ring	FKM
⑭	O-ring	FKM
⑮	Adjusting screw	SUS304
⑯	Adjusting screw	SUS304
⑰	Adjusting screw	SUS304
⑱	Nut	SUS304
⑲	Nut	SUS304
⑳	Nut	SUS304
㉑	Nut	SUS304

Dimensions mm [in.]



With flow rate adjustment: -Q1

Specifications

Item	Model	F-SAVP070-200W
Media		Pure water, chemicals
Operating temp. range	Media	5~80 [41~176]
	Atmosphere	0~60 [32~140]
Operating pressure range	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice (Cv)	mm	2 [0.1]
Pilot connection port size		M5 × 0.8
Leakage at valve seat	cm ³ /min [in. ³ /min.]	0 [0] (When the media is water)
Maximum suck back volume	cm ³ [in. ³]	0.045 [0.00275]
Recommended mounting direction		Vertical mounting with port facing upward ^{Note}

Note: Mount the valve with the arrow mark on the label on the valve body side pointing upward.

Order Codes

F-SAVP070 - C - LX - □ - 200W

Flow rate adjustment

Applicable tube size

Valve function

Basic model

Valve function

C: Single acting type (AV side normally closed (NC), SV side single acting type)

Applicable tube size

Flowell 60 series fitting^{Note 1}

Special fitting

LX: Connecting tube diameter
φ 3.17 × φ 2.17 only

Flow rate adjustment^{Note 2}

Blank: None

Q1: With flow rate adjustment (Micro flow rate adjustment type)

Notes: 1. This product comes with Flowell 60 series fittings.

The fittings are special sizes. The mounting tool is also a special type. Do not use the standard mounting tool.

2. The flow rate adjustment mechanism uses a differential screw method for easier flow rate setting.

Air Operated Valve with Suck Back Diaphragm type

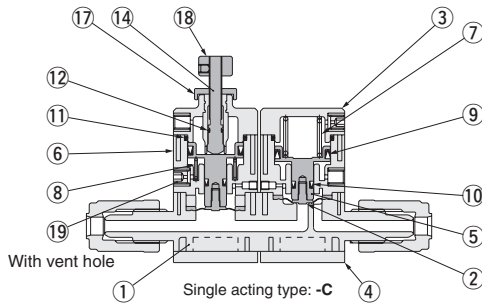
F-SAVP125-200W

Symbols

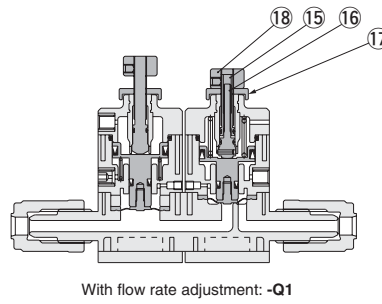
AV side normally closed (NC), SV side single acting type AV and SV sides double acting type



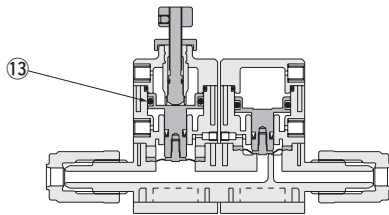
Inner Construction and Materials



Single acting type: -C



With flow rate adjustment: -Q1

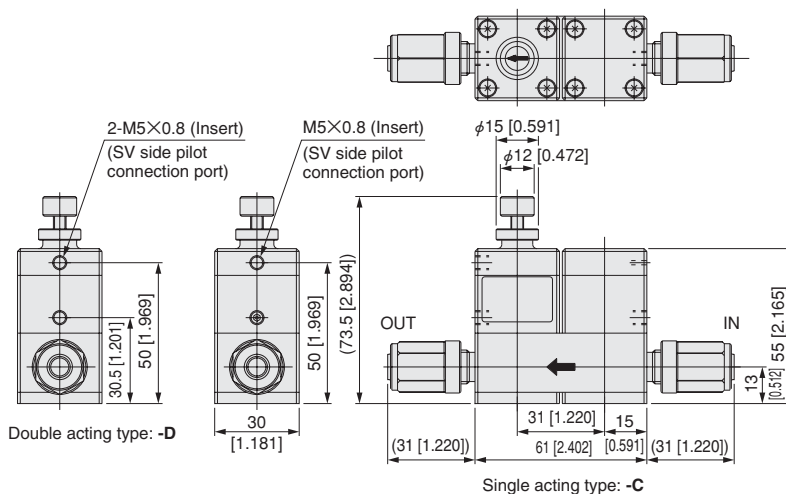


Double acting type: -D

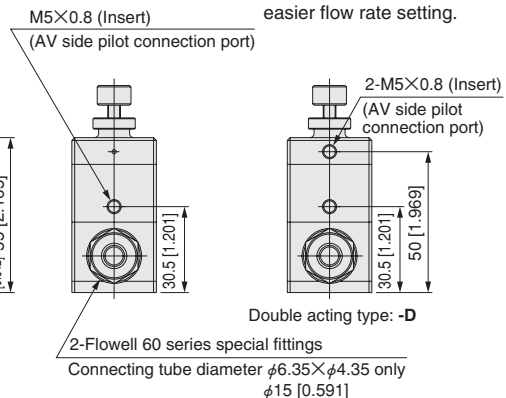
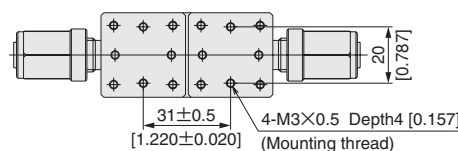
No.	Parts	Materials
①	Body	PFA
②	Diaphragm	PTFE
③	Cover	PPS
④	Plate	SUS304
⑤	Piston	SUS304
⑥	Cylinder tube	PPS
⑦	Spring	SUS304-WPB
⑧	Spring	SUS304-WPB
⑨	Seal	FKM
⑩	Seal	FKM

No.	Parts	Materials
⑪	O-ring	FKM
⑫	O-ring	FKM
⑬	O-ring	FKM
⑭	Adjusting screw	SUS304
⑮	Adjusting screw	SUS304
⑯	Adjusting screw	SUS304
⑰	Nut	SUS304
⑱	Nut	SUS304
⑲	Set screw	SUS304

Dimensions mm [in.]

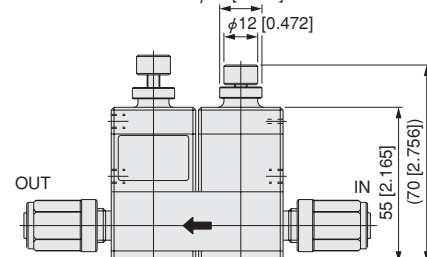


Single acting type: -C



Double acting type: -D

2-Flowell 60 series special fittings
Connecting tube diameter $\phi 6.35 \times \phi 4.35$ only
 $\phi 15$ [0.591]



With flow rate adjustment: -Q1

Specifications

Item	Model	F-SAVP125-200W
Media		Pure water, chemicals
Operating temp. range	Media	5~80 [41~176]
	Atmosphere	0~60 [32~140]
Operating pressure range	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice (Cv)	mm	4 [0.31]
Pilot connection port size		M5 × 0.8
Leakage at valve seat	cm ³ /min [in. ³ /min.]	0 [0] (When the media is water)
Maximum suck back volume	cm ³ [in. ³]	0.25 [0.0153]
Recommended mounting direction		Vertical mounting with port facing upward ^{Note}

Note: Mount the valve with the arrow mark on the label on the valve body side pointing upward.

Order Codes

F-SAVP125 - ☐ - LZ - ☐ - 200W

Flow rate adjustment
Applicable tube size
Valve function
Basic model

Valve function

C: Single acting type (AV side normally closed (NC), SV side single acting type)

D: Double acting type

Applicable tube size

Flowell 60 series fitting^{Note 1}

Special fitting

LZ: Connecting tube diameter of $\phi 6.35 \times \phi 4.35$ only

Flow rate adjustment^{Note 2}

Blank: None

Q1: With flow rate adjustment (Micro flow rate adjustment type)

Notes: 1. This product comes with Flowell 60 series fittings.

The fittings are special sizes. The mounting tool is also a special type. Do not use the standard mounting tool.

2. The flow rate adjustment mechanism uses a differential screw method for easier flow rate setting.

Solenoid Valve

Diaphragm type
2-port valve

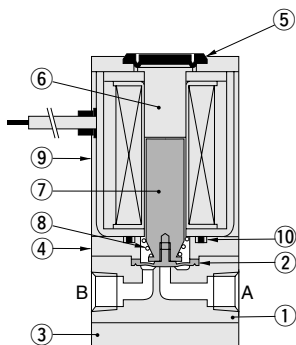
F-EV120

Symbol

Normally closed (NC) type



Inner Construction and Materials



No.	Parts	Materials
①	Body	PTFE
②	Diaphragm	PTFE
③	Plate	Aluminum alloy (black anodized)
④	Adapter	Aluminum alloy (black anodized)
⑤	Cap <small>Note</small>	
⑥	Column	
⑦	Plunger	
⑧	Spring	
⑨	Solenoid	
⑩	O-ring	

Note: The No.5 cap is not a manual override.
Pushing this cap will not switch the functions.

Specifications

Model		F-EV120
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	A→B	0~0.15 [0~1.5] [0~21.8]
	B→A	0~0.03 [0~0.3] [0~4.4]
Back pressure		0~0.03 [0~0.3] [0~4.4]
Proof pressure		1 [10.2] [145]
Orifice [Cv]		3 [0.21]
Connection port size		Rc1/8
Leakage at valve seat		0 [0]
		(When the media is water)
Operating frequency		c.p.m 30 or less
Mounting direction		Any
Mass		kg [lb.] 0.25 [0.55]

Order Codes

F-EV120 -

Basic model

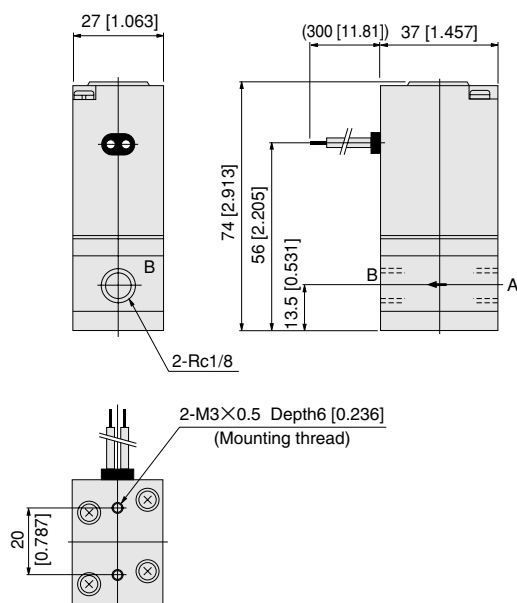
Voltage
DC24V
AC100V
AC200V

Note: The grommet type is the only available wiring type for the solenoid.

Solenoid Specifications

Model		F-EV120			
Solenoid rating		DC24V	AC100V	AC200V	
Type		Flywheel diode incorporated for surge suppression		Flywheel	
Operating voltage range		V 21.6~26.4 (24±10%)	90~110 (100±10%)	180~220 (200±10%)	
Current (When rated voltage is applied)	Frequency Hz	—	50	60	
	Energizing mA	420	160	150	
Allowable leakage current		mA 30	15	7	
Insulation resistance		MΩ 10			
Lead wire length		mm [in.] 300 [11.8]			
Color of lead wire		Red (+), Black (-)	Yellow, Black	White, Black	
Surge suppression		Flywheel diode			

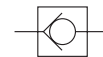
Dimensions mm [in.]



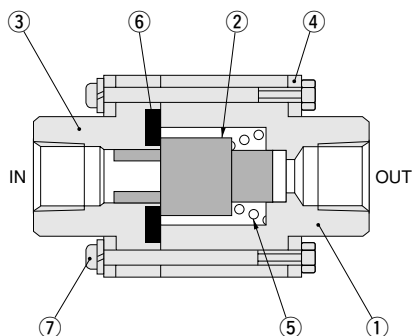
Check Valve

F-C250

Symbol



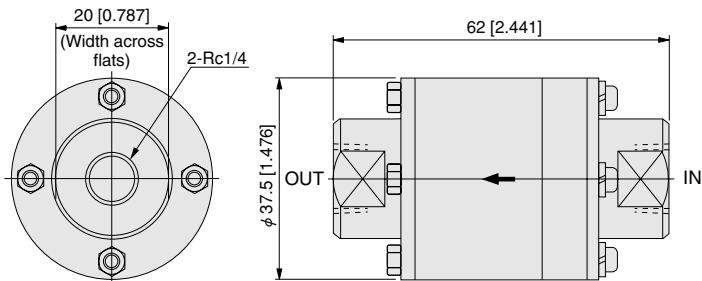
Inner Construction and Materials



No.	Parts	Materials
①	Body	PTFE
②	Stem	PTFE
③	Cover with port	PTFE
④	Retainer	SUS304
⑤	Spring	SUS304-WPB <small>Note</small>
⑥	Seal	(NBR, FKM, Si, EP)
⑦	Screw	SUS304

Note: Fluoro coated

Dimensions mm [in.]



Specifications

Model		F-C250
Item		
Media <small>Note</small>		Pure water, air, N ₂
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range		0.07~0.9 [0.7~9.2]
		MPa [kgf/cm ²] [psi.]
Proof pressure		1 [10.2] [145]
Effective area (Cv)		14 [0.72]
Connection port size		Rc 1/4
Mounting direction		Any
Mass		0.12 [0.26]
		kg [lb.]

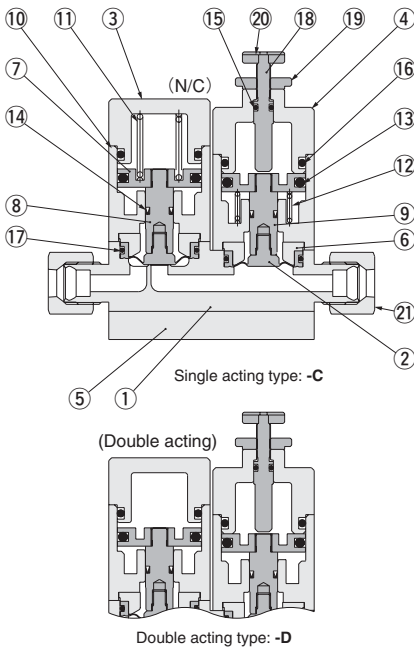
Note: Can be used with media of viscosity 40cp or less. When planning to use the product with corrosive media, consult us.

Order Codes

F-C250	-	
Basic model		Seal material
		1 : NBR (Nitril rubber)
		2 : FKM (Viton)
		3 : Si (Silicone rubber)
		4 : EP (Ethylene propylene rubber)

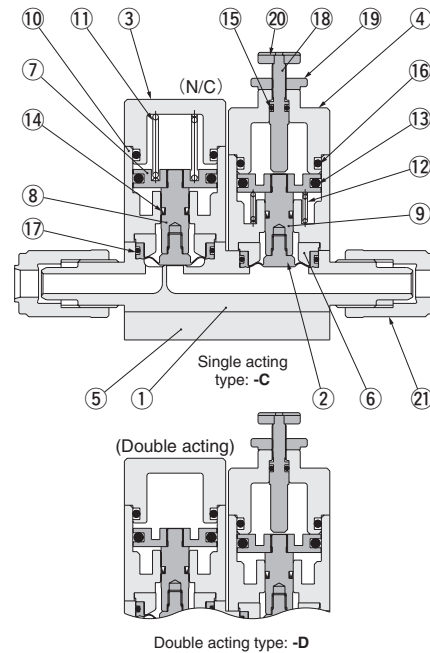
Inner Construction and Materials

●F-SAV250-10W



No.	Parts	Materials
①	Body	PTFE
②	Diaphragm	PTFE
③	Cover	C-PVC
④	Cover	SUS304
⑤	Plate	C-PVC
⑥	Guide washer	SUS304
⑦	Piston	SUS304
⑧	Piston rod	SUS304
⑨	Piston rod	SUS304
⑩	Cylinder tube	C-PVC
⑪	Spring	SUS304-WPB

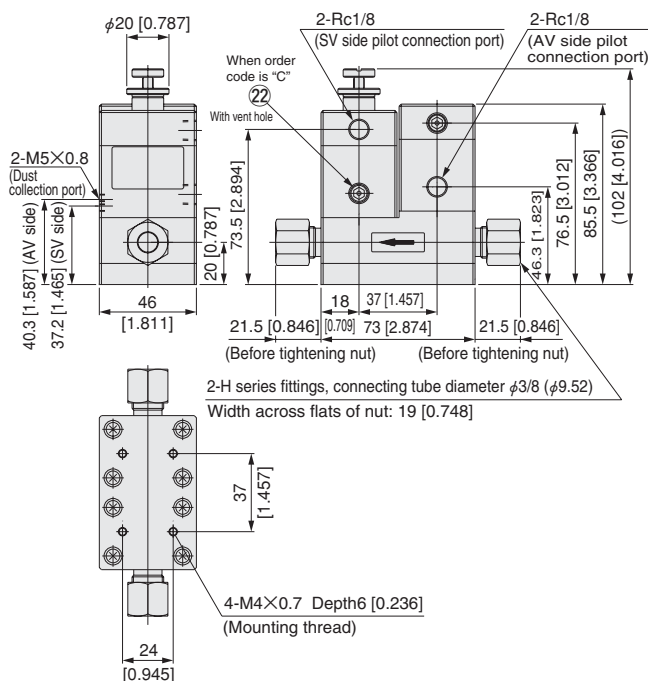
●F-SAV250-18W



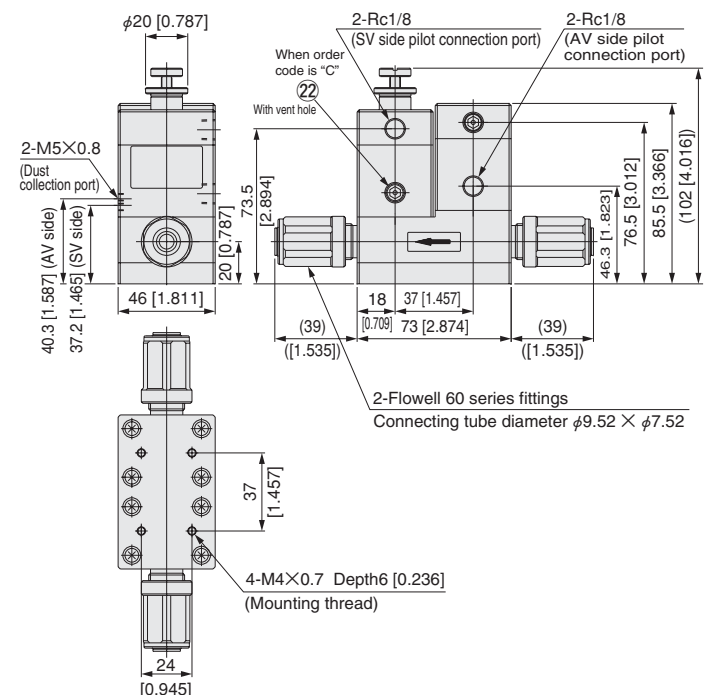
No.	Parts	Materials
⑫	Spring	SUS304-WPB
⑬	Seal	FKM
⑭	Seal	FKM
⑮	O-ring	FKM
⑯	O-ring	FKM
⑰	O-ring	FKM
⑱	Adjusting screw	SUS304
⑲	Lock nut	SUS304
⑳	Nut	SUS304
㉑	Nut	PFA
㉒	Plug	VECTRA

Dimensions mm [in.]

●F-SAV250-10W



●F-SAV250-18W



Symbols

AV side normally closed (NC), SV side single acting type AV and SV sides double acting type



Specifications

Item	Model	F-SAV250-10W F-SAV250-18W
Media		Pure water, chemicals
Operating temp. range	Media °C [°F]	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	MPa [kgf/cm ²] [psi.]	0~0.2 [0~2.0] [0~29]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.3~0.5 [3.1~5.1] [44~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1 [10.2] [145]
Orifice (Cv)	mm	6 [0.6]
Pilot connection port size		Rc1/8
Leakage at valve seat	cm ³ /min [in. ³ /min.]	0 [0] (When the media is water)
Maximum suck back volume	cm ³ [in. ³]	0.5 [0.031]
Recommended mounting direction		Vertical mounting with port facing upward ^{Note}

Note: Mount the valve with the arrow mark on the label on the valve body side pointing upward.

Order Codes

●With H series fitting

F-SAV250 - [] - 10W

Valve function

Basic model

Valve function

C: Single acting type (AV side normally closed (NC), SV side single acting type)
D: Double acting type

●With Flowell 60 series fitting

F-SAV250 - [] - 18W

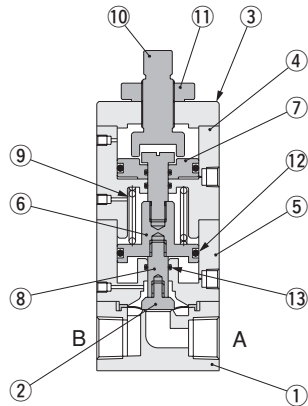
Valve function

Basic model

Valve function

C: Single acting type (AV side normally closed (NC), SV side single acting type)
D: Double acting type

Inner Construction and Materials



No.	Parts	Materials
①	Body	SUS316
②	Diaphragm	PTFE
③	Cover	Aluminum alloy
④	Cylinder tube	Aluminum alloy
⑤	Cylinder tube	Aluminum alloy
⑥	Piston	SUS304
⑦	Piston	SUS304

No.	Parts	Materials
⑧	Piston rod	SUS304
⑨	Spring	SUS304-WPB
⑩	Adjusting screw	SUS304
⑪	Lock nut	SUS304
⑫	O-ring	FKM
⑬	O-ring	FKM

Note: SUS304, PTFE, or PFE is available as the valve body material.
For details of order codes and specifications, consult us.

Specifications

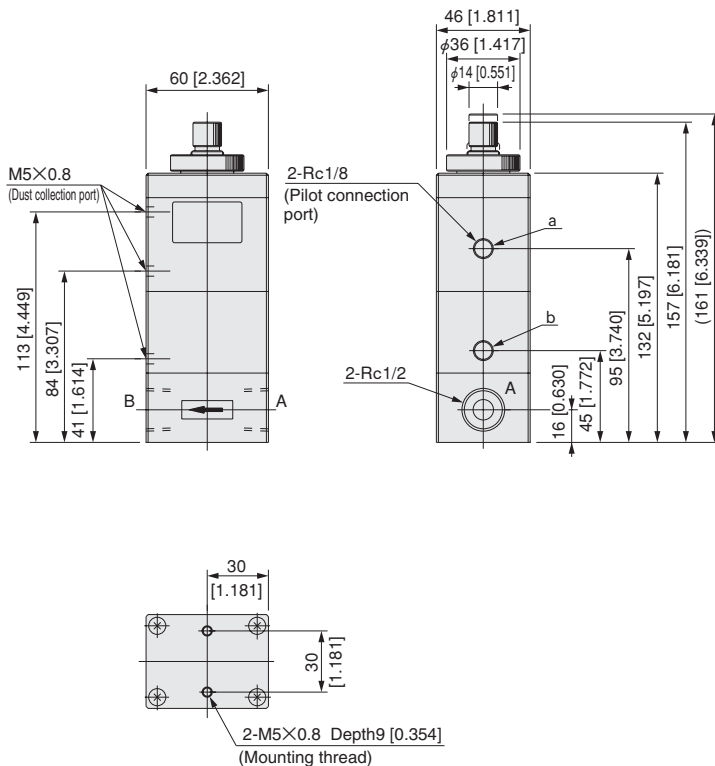
Model		F-AV500-12W
Item		
Media		Pure water, chemicals, air, N ₂
Operating temp. range	Media	5~60 [41~140]
	Atmosphere	0~50 [32~122]
Operating pressure range	A→B	0~0.5 [0~5.1] [0~73]
	B→A	0~0.3 [0~3.1] [0~44]
Pilot pressure	MPa [kgf/cm ²] [psi.]	0.35~0.5 [3.6~5.1] [50.8~73]
Back pressure	MPa [kgf/cm ²] [psi.]	0~0.3 [0~3.1] [0~44]
Proof pressure	MPa [kgf/cm ²] [psi.]	1.5 [15.3] [218]
Orifice (Cv)	mm	12 [2.3]
Pilot connection port size		Rc1/8
Leakage at valve seat	cm ³ /min [in. ³ /min.]	0 [0] (When the media is water)
Operating frequency	c.p.m	30 or less
Mounting direction		Any

Order Code

F-AV500 - 12W

Basic model

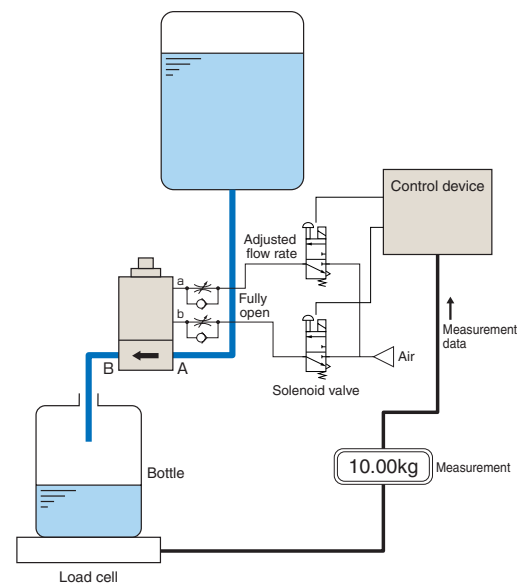
Dimensions mm [in.]



Features

A single valve switches between 2 flow rates. It is easy to operate and does not require complex circuitry. Switching is possible between the maximum flow rate and an adjusted flow rate, and this function is best demonstrated when accurate filling is needed for bottle filling processes, etc.

Application example (bottle filling process)



- When air is supplied to port **a**, the adjusted flow rate is obtained (the flow rate is set by the adjusting screw).
- When air is supplied to port **b**, the maximum flow rate is obtained.
- When air is not supplied to either port **a** or **b**, the B port is closed (NC).

Large Flow Series

● For details of order codes and specifications, consult us.

Air Operated Valve

F-AVB400~1000

Bellows type 2-port valve

Model	Operating temperature range °C [°F]		Operating pressure range MPa {kgf/cm ² } [psi.]		Orifice mm [Cv]	Port size		
	Media	Atmosphere	A→B	B→A		Main	Operating port	
F-AVB400	5~60 [41~140]	0~50 [32~122]	0~0.44 {0~4.5}	0~0.03 {0~0.3}	10 [1.8]	Rc3/8	Rc1/8	
F-AVB500			0~0.2 {0~2.0}		12 [2.5]	Rc1/2		
F-AVB600					16 [6.5]	Rc3/4		
F-AVB750			0~0.2 {0~2.0}	0~0.02 {0~0.2}	20 [7.0]	Rc1		
F-AVB1000					25 [11.0]	Rc1		

● For details of order codes and specifications, consult us.



Air Operated Valve

F-AVP500, 750

Diaphragm type 2-port valve

Model	Operating temperature range °C [°F]		Operating pressure range MPa {kgf/cm ² } [psi.]		Orifice mm [Cv]	Port size	
	Media	Atmosphere	A→B	B→A		Main	Operating port
F-AVP500	5~60 [41~140]	0~50 [32~122]	0~0.5 {0~5.1}	0~0.3 {0~3.1}	12 ^{Note 2} [2.5]	Outer dia. 1/2" tube	Rc1/8
F-AVP750	(5~100 [41~212] ^{Note 1})				20 ^{Note 2} [7.0]	Outer dia. 3/4" tube	

● For details of order codes and specifications, consult us.

Notes: 1. For medium temperature specifications

2. Valve seat orifice



Check Valve

F-C375, 500

Model	Operating temperature range °C [°F]		Operating pressure range MPa {kgf/cm ² } [psi.]	Effective area mm ² [Cv]	Port size
	Media	Atmosphere			
F-C375	5~60 [41~140]	0~50 [32~122]	0.07~0.9 {0.7~9.2}	74 [3.7]	Rc3/8
F-C500					Rc1/2

● For details of order codes and specifications, consult us.



Limited Warranty

KOGANEI CORP. warrants its products to be free from defects in material and workmanship subject to the following provisions.

Warranty Period The warranty period is 180 days from the date of delivery.

Koganei Responsibility If a defect in material or workmanship is found during the warranty period, KOGANEI CORP. will replace any part proved defective under normal use free of charge and will provide the service necessary to replace such a part.

Limitations

- This warranty is in lieu of all other warranties, expressed or implied, and is limited to the original cost of the product and shall not include any transportation fee, the cost of installation or any liability for direct, indirect or consequential damage or delay resulting from the defects.

- KOGANEI CORP. shall in no way be liable or responsible for injuries or damage to persons or property arising out of the use or operation of the manufacturer's product.

- This warranty shall be void if the engineered safety devices are removed, made inoperative or not periodically checked for proper functioning.

- Any operation beyond the rated capacity, any improper use or application, or any improper installation of the product, or any substitution upon it with parts not furnished or approved by KOGANEI CORP., shall void this warranty.

- This warranty covers only such items supplied by KOGANEI CORP. The products of other manufacturers are covered only by such warranties made by those original manufacturers, even though such items may have been included as the components.

The specifications are subject to change without notice.

Koganei also handles many related items. Please feel free to consult us.

— High-performance control of dispensing and quantitative discharges for semiconductors, liquid crystals, biotechnology, medical products, etc. industries—

High-Performance Dispensing and Quantitative Discharge Pump Series

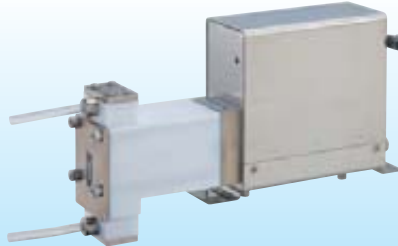
Achieves high reliability and high accuracy.

Electric CT Pump PATENTED. F-EPT Series



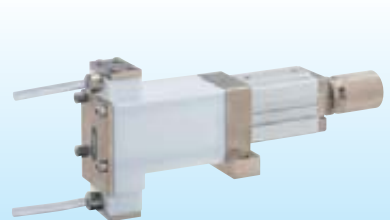
Easy-to-use stepping motor drive method.

Electric Bellows Pump F-EPB Series



Low-cost type air cylinder actuator.

Pneumatic Bellows Pump F-APB Series



— For electric CT pump and electric bellows pump —

Pump Controller



ISO9001
ISO14001



- ISO 9001 certified offices are Main Office, Komagane Plant, and Sales Offices.
- ISO 14001 certified offices are Main Office, and Komagane Plant.

URL <http://www.koganei.co.jp>

E-mail: overseas@koganei.co.jp



KOGANEI CORPORATION

OVERSEAS DEPARTMENT

3-11-28, Midori-cho, Koganei City, Tokyo 184-8533, Japan
Tel: 042-383-7271 Fax: 042-383-7276

SHANGHAI KOGANEI INTERNATIONAL TRADING CORPORATION

Room 2606-2607, Tongda Venture Building No.1, Lane 600, Tianshan Road, Shanghai, 200051, China
Tel: 021-6145-7313 Fax: 021-6145-7323

KOGANEI-PORNCHAI CO., LTD.

89/174 Moo 3, Vibhavadee Rangsit Road, Talad Bangkhen, Laksi, Bangkok, 10210, Thailand
Tel: 02-551-4025 Fax: 02-551-4015