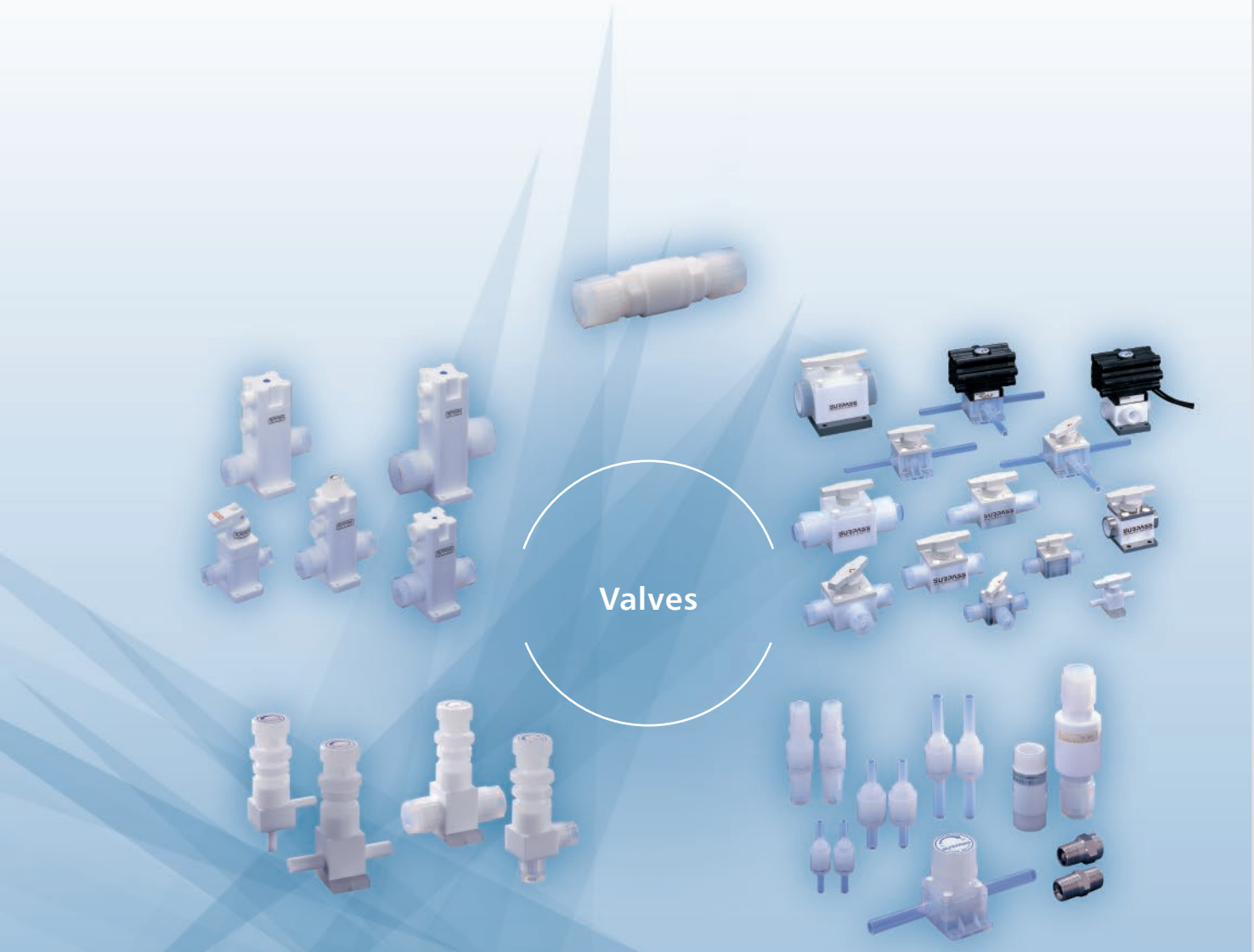
Valves



Pneumatic Valve / Suck back Valve / Momentary Valve

Mode Selection Table

●Pneumatic Valve

Model	Operation	Tube size	Connection type	Operation specification	Actuator material
PSD	Pneumatic	1/4"	Pillar fitting	NC only	PVDF
		3/8"			
SD	Pneumatic	1/4"	Pillar fitting	NC·NO Flow control functions (Optional)	PP
		3/8"			
		1/2"			
		3/4"			
PSDX	Pneumatic	1/4"	Pillar fitting	NC only	PVDF
		3/8"			
NSD	Pneumatic	1/16"	Pillar fitting	NC only	PFA
		1/8"			
		Ø3			

※Pillar fitting means Pillar Super 300 Type P series.

●Suck back Valve

Model	Operation	Tube size	Connection type	Operation specification	Actuator material
PSS	Pneumatic	1/4"	Pillar fitting	ON·OFF integrated function	PVDF
SSV	Pneumatic	1/4"	Pillar fitting	ON·OFF integrated function Suck back adjustment functions (optional)	PP

※Pillar fitting means Pillar Super 300 Type P series.

●Momentary Valve

Model	Operation	Tube size	Connection type	Operation specification
MVH	Manual	1/4"	Pillar fitting	Fixed Lockout mechanism (optional)
		3/8"		
		1/2"		
		3/4"		
MMV	Manual	1/4"	Pillar fitting	Auto return type
MTV	Manual	1/4"		Fixed

※Pillar fitting means Pillar Super 300 Type P series.

●Special instructions

⚠ ◎In case selling products with inner diameters of more than 10mm to a specific country or region, it is required an export license from the Ministry of Economy, Trade and Industry.

Model PSD Pneumatic Valve

RoHS2


PSD-2P300P-11, PSD-3P300P-11

Features

- ◎Corrosive-resistant PTFE is adopted on wetted parts and these valves have outstanding chemical resistance and durability.
- ◎PVDF is adopted for the material of the actuator section as a gas permeation countermeasure.
- ◎Our own simple structure is adopted for unique flow channels.
- ◎The indicator is normally installed to confirm operation conditions of the valve.

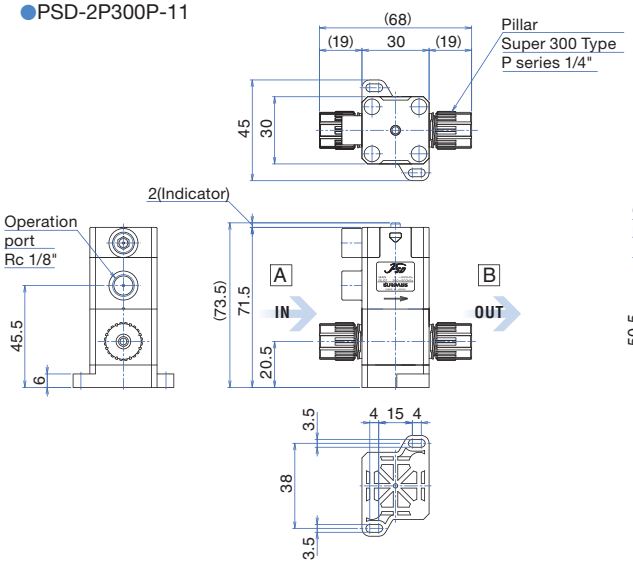
Models / Specifications

Type	PSD-2P300P-11	PSD-3P300P-11
Fluids	Gas, Liquids (DI water, Chemicals)	
Body size	□30	
Tube size	1/4" (Ø6.35×Ø3.95)	3/8" (Ø9.53×Ø6.35)
Connection type	Pillar fitting	
Orifice diameter	Ø4	Ø7
Cv value	0.3	0.8
Pressure range A→B	0~500kPa	
Back pressure B→A	0~300kPa	
Operating pressure	300~500kPa	
Withstanding pressure	1MPa	
Control port	Rc1/8	
Valve seat leakage	0mL/min (water pressure)※	
Fluid temperature	5~90℃	
Ambient temperature	0~60℃	
Operational frequency	Less than 20 operations/min	
Mounting positions	Flexible	
Wetted parts	PTFE	
Valve operating specifications	NC	

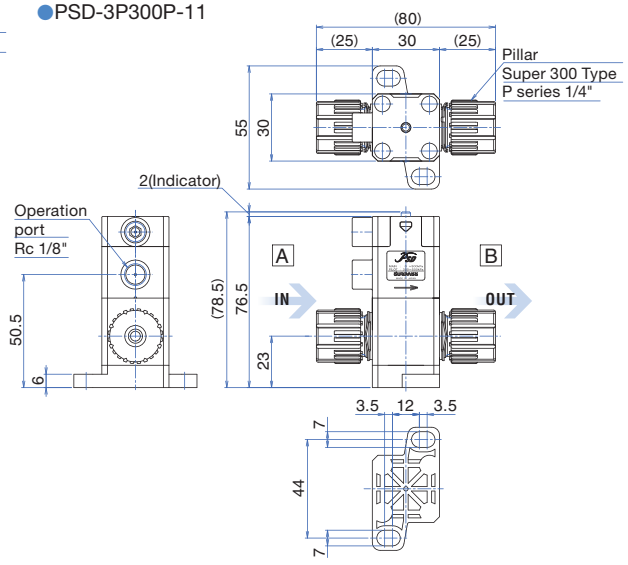
※When using gas such as N_2 or air, valve seat leakage could occur up to 1cm³ /min. (at pneumatic pressure)
※Refer to page 108 for material chart.

Dimensions

●PSD-2P300P-11

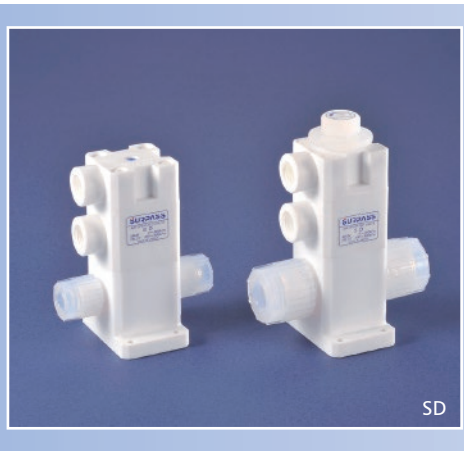


●PSD-3P300P-11



Model SD Pneumatic Valve

RoHS2



Features

- ◎Corrosive-resistant PTFE is adopted on wetted parts and these valves have outstanding chemical resistance and durability.
- ◎Our own simple structure is adopted for unique flow channels.
- ◎The indicator is normally installed to confirm operation conditions of the valve. (except for flow control function type)
- ◎PP is adopted for the material of the actuator section.

Caution Do not overtighten the flow rate adjustment knob.

Models / Specifications

Type	SD-2P300P-□□	SD-3P300P-□□	SD-4P300P-□□	SD-6P300P-□□
Fluids	Gas, Liquids (DI water, Chemicals)			
Body size	□30	□30	□40	□40
Tube size	1/4"	3/8"	1/2"	3/4"
	Ø6.35×Ø3.95	Ø9.53×Ø6.35	Ø12.7×Ø9.53	Ø19.05×Ø15.9
Connection type	Pillar fitting			
Orifice diameter	Ø4	Ø7	Ø10	Ø16
Cv value	0.3	0.8	2.3	5.1
Pressure range A→B	0~500kPa		0~300kPa	
Back pressure B→A	0~300kPa		0~200kPa	
Operating pressure	300~500kPa			
Withstanding pressure	1MPa			
Control port	Rc1/8			
Valve seat leakage	0mL/min (water pressure)※			
Fluid temperature	5~90℃			
Ambient temperature	0~60℃			
Operational frequency	Less than 20 operations/min			
Mounting positions	Flexible			
Wetted parts	PTFE			

※When using gas such as N_2 or air, valve seat leakage could occur up to 1cm^3 /min. (at pneumatic pressure)

Models

SD-□P300P-□□

- Specification
  1: Only the ON/OFF function
  2: with the flow control function
- Valve normal position
  1: NC (Normally closed)
  2: NO (Normally opened)
  ※NC: Lower operation ports are used
  NO: Upper operation port are used
- Fitting: Pillar Super 300 Type P series
- Tube size 2 : 1/4" (Ø6.35×Ø3.95)
  3 : 3/8" (Ø9.53×Ø6.35)
  4 : 1/2" (Ø12.7×Ø9.53)
  6 : 3/4" (Ø19.05×Ø15.9)

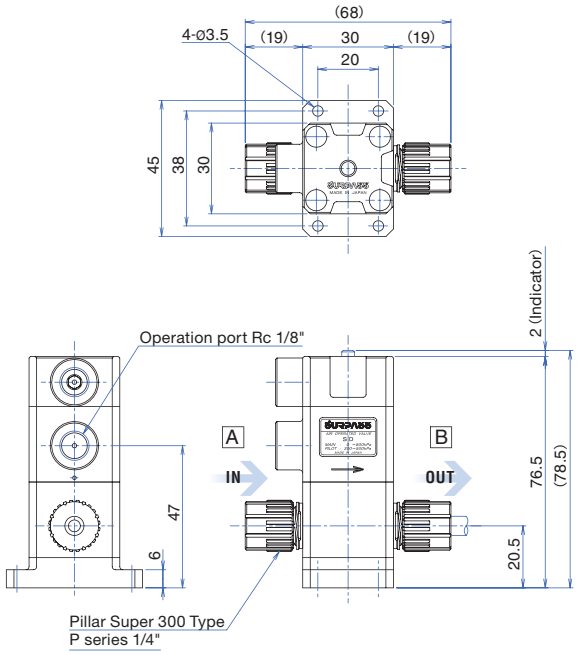
SD-2P300P-□4

- Specification 4: With the high-resolution flow control function
- Valve normal position
  1: NC (Normally closed)
  2: NO (Normally opened)
  ※NC: Lower operation ports are used
  NO: Upper operation port are used
- Fitting: Pillar Super 300 Type P series

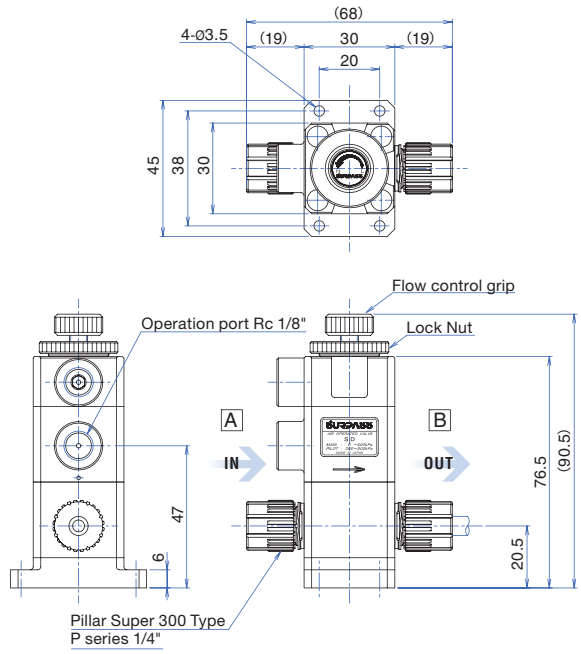
※Please contact us if you need to change the direction of operation ports.

Dimensions

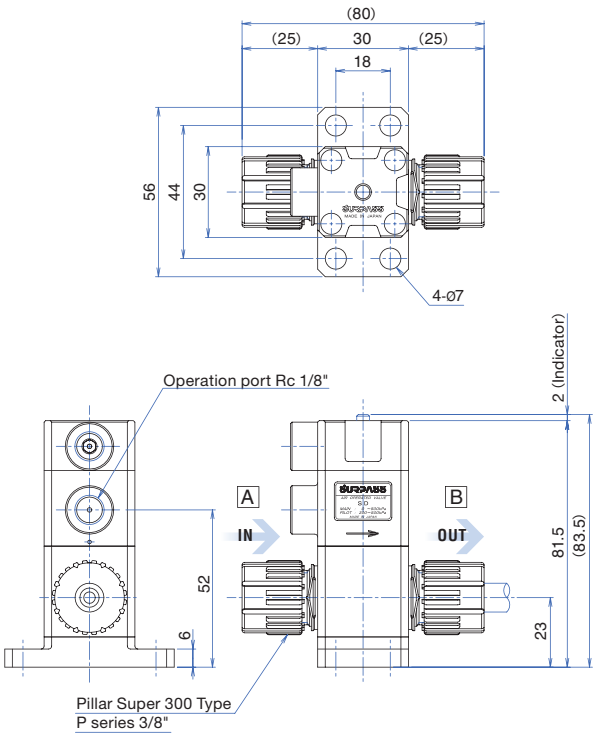
●SD-2P300P-□1



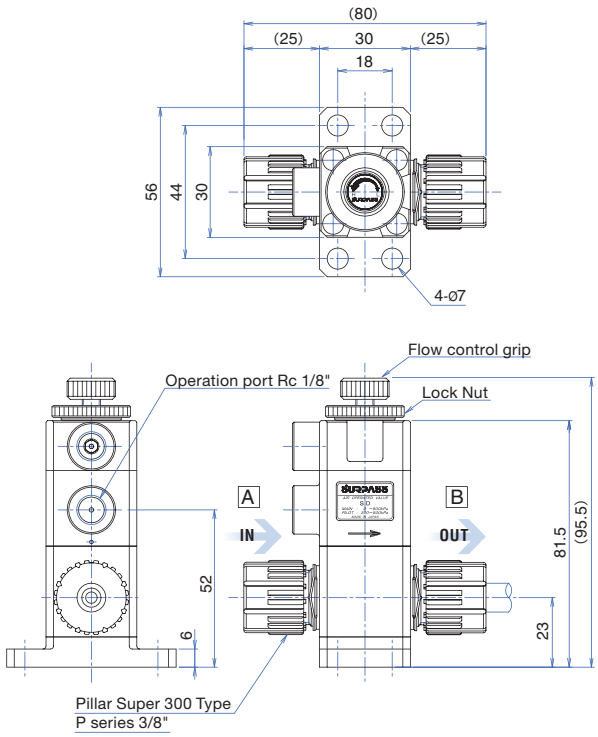
●SD-2P300P-□2 (with the flow control function)
●SD-2P300P-□4 (with the high-resolution flow control function)



●SD-3P300P-□1



●SD-3P300P-□2 (with the flow control function)

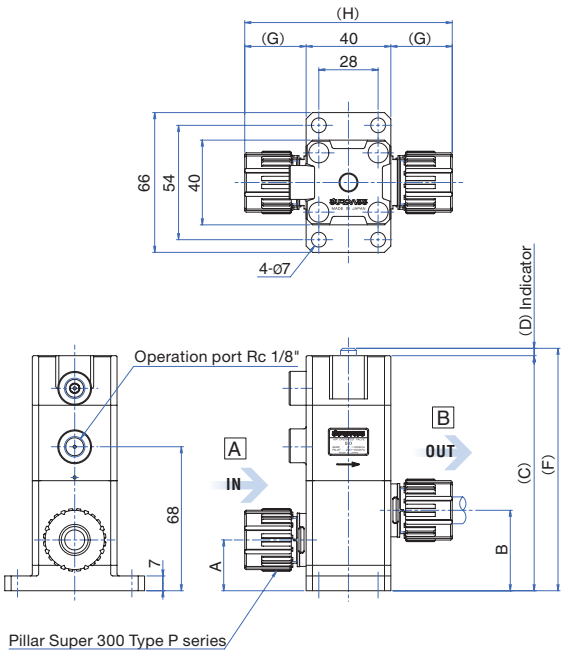


※The above drawing is references for NC (Normally Closed) have selected.

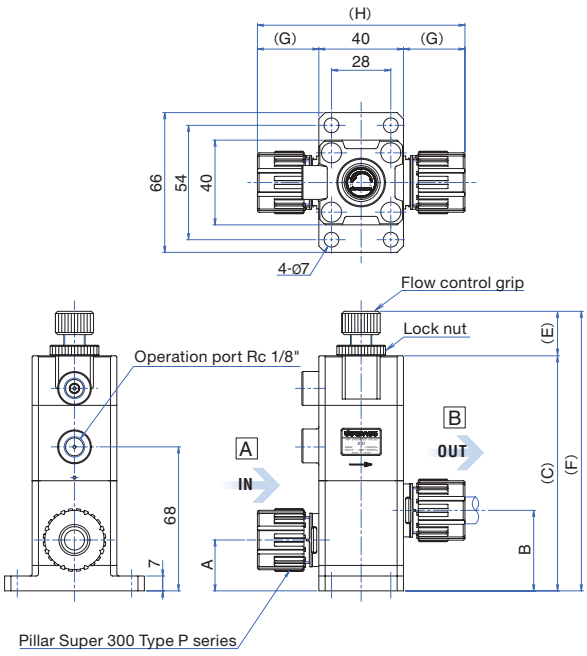
Pneumatic Valves

Dimensions

●SD-4P300P-□1
●SD-6P300P-□1



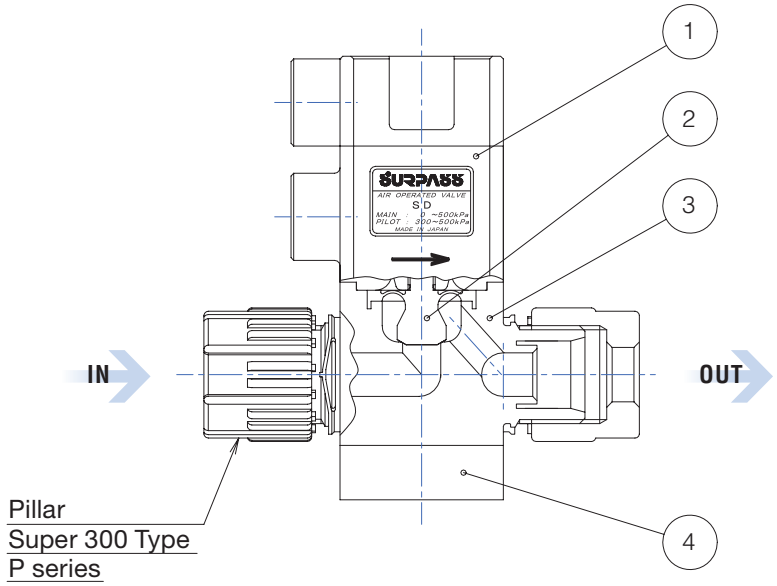
●SD-4P300P-□2 (with the flow control function)
●SD-6P300P-□2 (with the flow control function)



Model	A	B	(C)	(D)	(E)	(F)	(G)	(H)
SD-4P300P-□1	24	38	111	3.5	—	114.5	29	98
SD-4P300P-□2	24	38	111	—	21	132	29	98
SD-6P300P-□1	28	48	124.4	3.5	—	127.9	36	112
SD-6P300P-□2	28	48	124.4	—	21	145.4	36	112

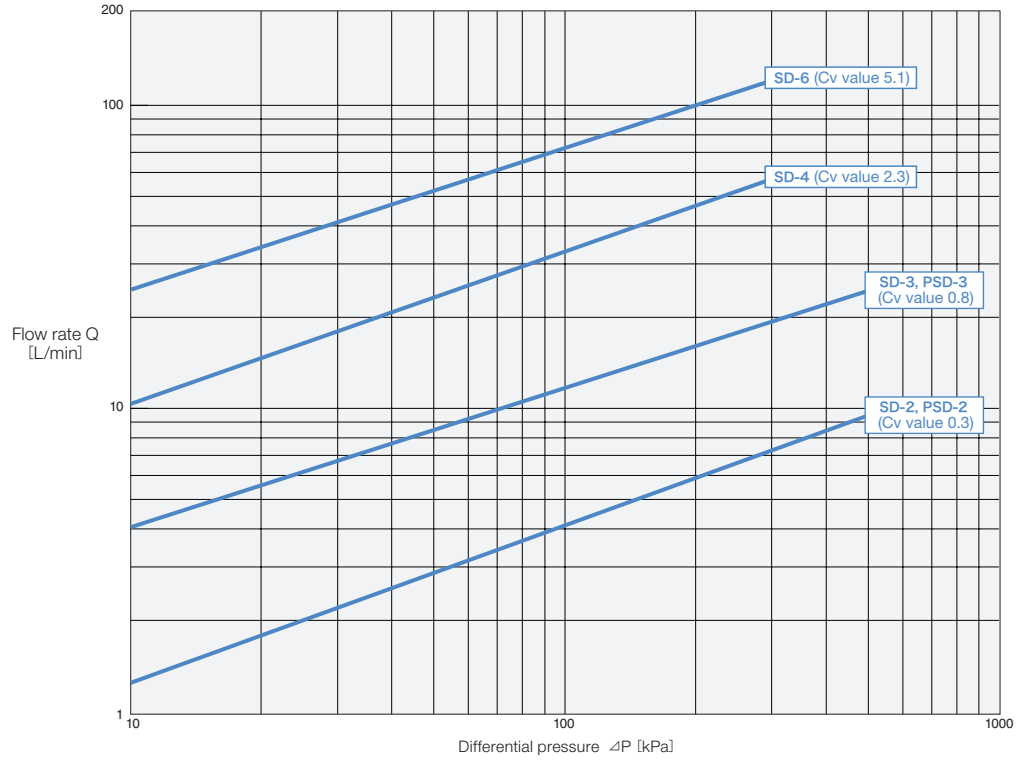
※The above drawing is references for NC (Normally Closed) have selected.

Inside Materials



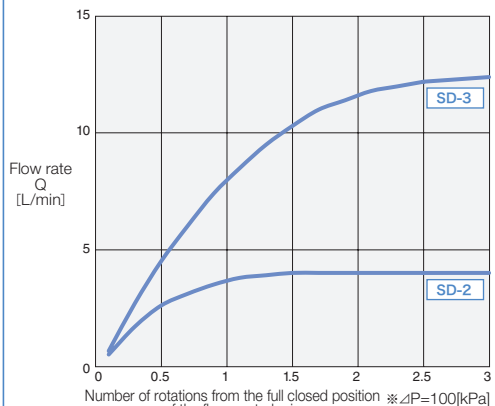
No.	Name	Materials	
		SD	PSD
1	Actuator	PP	PVDF
2	Diaphragm	PTFE	PTFE
3	Body	PTFE	PTFE
4	Base	PP	PVDF

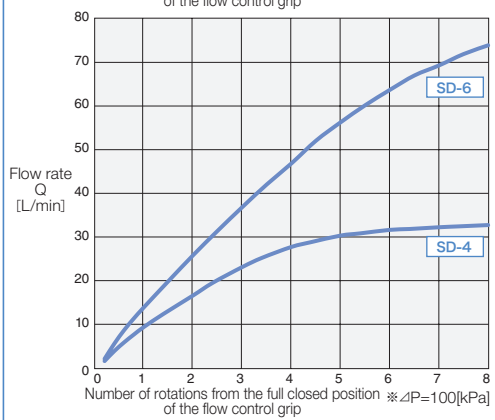
Flow Characteristics



Fluid:DI water Fluid/Ambient temperature:Room temp.

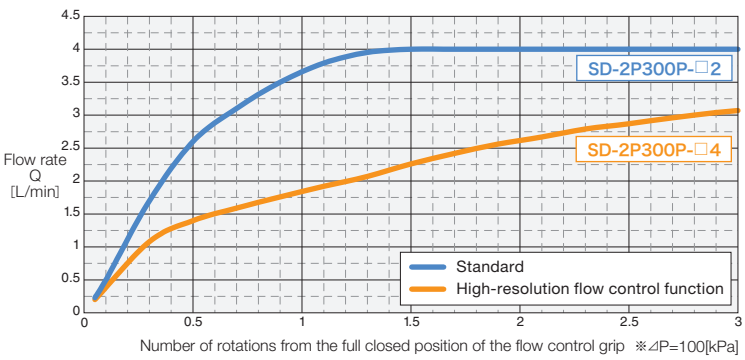
Flow Rate Control Characteristics





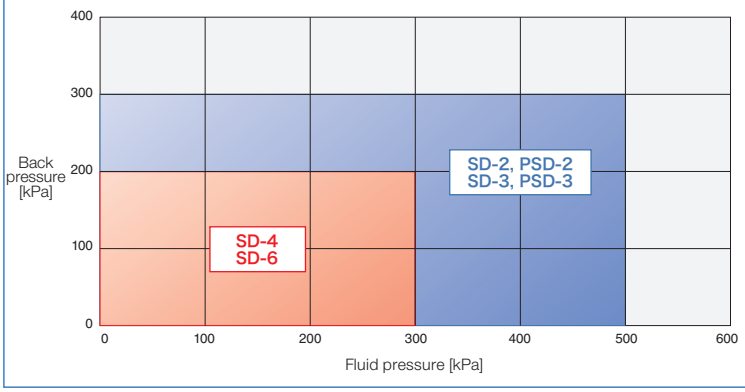
Fluid:DI water Fluid/Ambient temperature:Room temp.

Flow Rate Control Characteristics (with the high-resolution flow control function)



Fluid:DI water Fluid/Ambient temperature:Room temp.

Operating Fluid Pressure Range



※The data is reference value, not a guaranteed value

Model PSDX Pneumatic Valve ⟨Specified for Precise Flow Control⟩


PSDX-3P300P-12

Features

◎Corrosive-resistant PTFE is adopted on wetted parts.
◎PVDF is adopted for the material of the actuator section.
◎The flow adjustment parts are adapted with differential screws, fine flow adjustment is possible.

Caution Do not overtighten the flow rate adjustment knob.

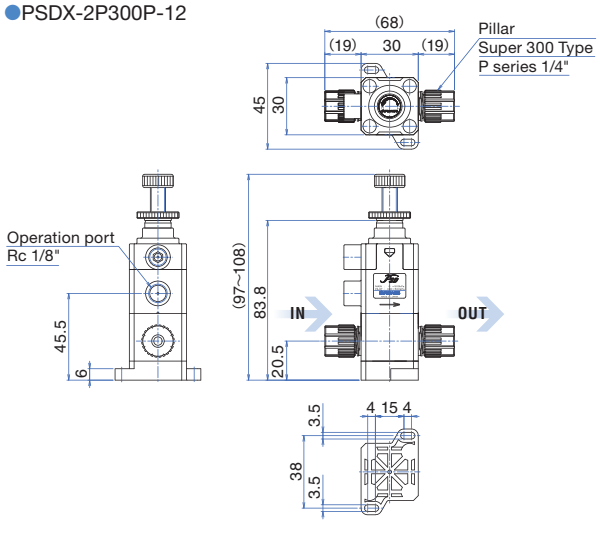
Models / Specifications

Type	PSDX-2P300P-12	PSDX-3P300P-12
Fluids	Gas, Liquids (DI water, Chemicals)	
Body size	□30	
Tube size	1/4"	3/8"
	Ø6.35×Ø3.95	Ø9.53×Ø6.35
Connection type	Pillar fitting	
Orifice diameter	MAX Ø2.4	MAX Ø3.2
Pressure range A→B	0~500kPa	
Back pressure B→A	0~300kPa	
Operating pressure	300~500kPa	
Withstanding pressure	1MPa	
Control port	Rc1/8	
Valve seat leakage	0mL/min (water pressure)	
Fluid temperature	5~90℃	
Ambient temperature	0~60℃	
Operational frequency	Less than 20 operations/min	
Mounting positions	Flexible	
Wetted parts	PTFE	
Valve operating specifications	NC	

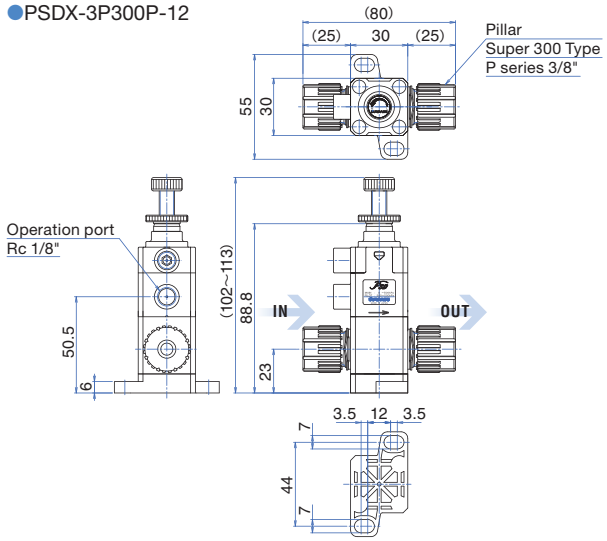
※When using gas such as N_2 or air, valve seat leakage could occur up to 1cm³ /min. (at pneumatic pressure)

Dimensions

●PSDX-2P300P-12

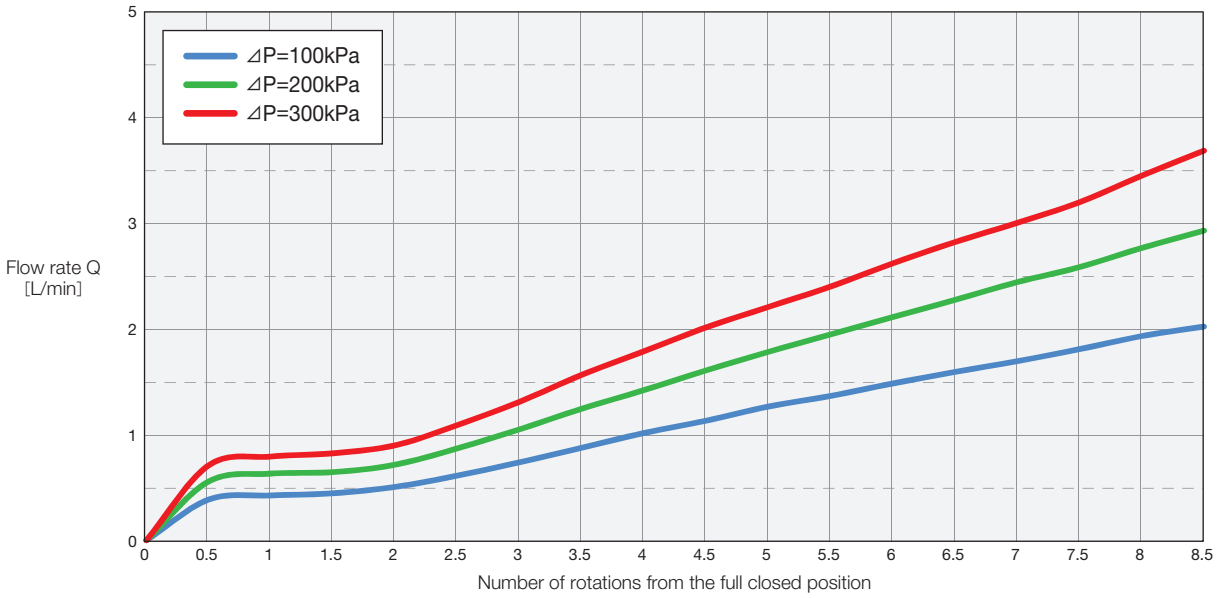


●PSDX-3P300P-12

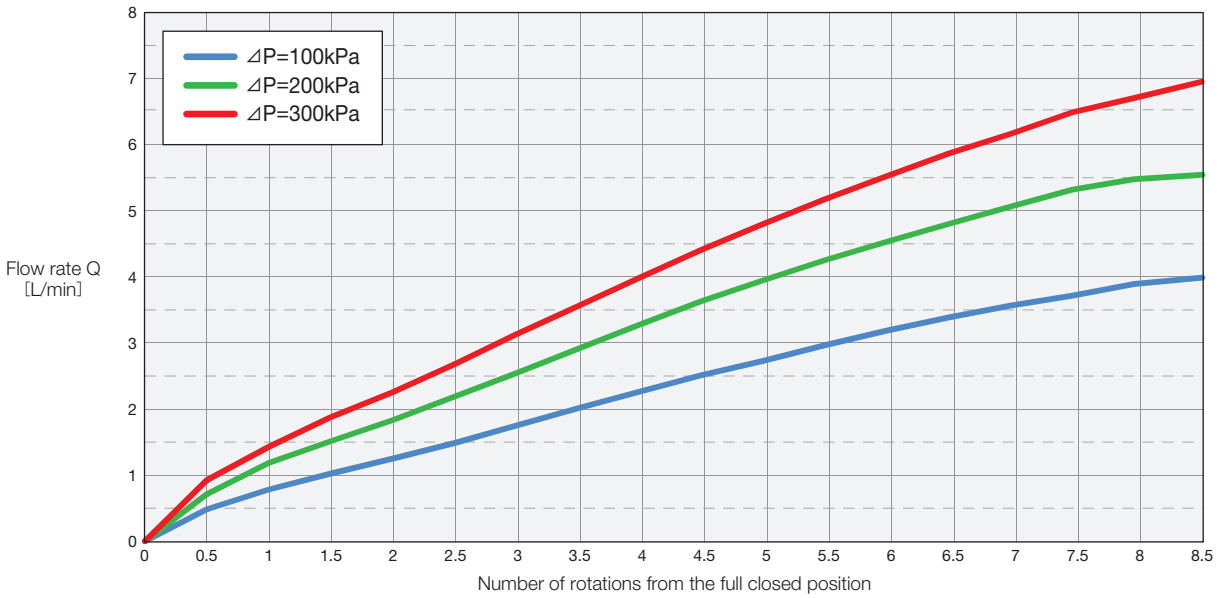


Flow Rate Control Characteristics

●PSDX-2P300P-12



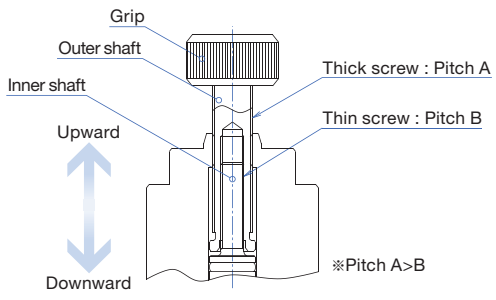
●PSDX-3P300P-12



Fluid: DI water Fluid temperature: 25℃±1℃ Ambient temperature: Room temp.

※The data is reference value, not a guarateed value.

Operating Principle of Differential Screw



[Operating Principle]

It consists of an outer shaft with a thick screw (pitch A) on the outside and a thin screw (pitch B) on the inside, and an inner shaft with a thin screw (pitch B) fixed to the body. When the knob is rotated once, the thick screw advances by pitch A.

Simultaneously, the inner shaft screwed into a thin screw advances by pitch B. The inner shaft moves by the difference between the pitch A and the pitch B occured. (Ex. If A has a pitch of 1mm and B has a pitchof 0.8mm, it moves 0.2mm in one rotation of thick screw.) This principle enables finer flow control compared to conventional products.

Model NSD Pneumatic Valve

RoHS2

Features

◎Corrosive-resistant PTFE is adopted on wetted parts and these valves have outstanding chemical resistance and durability.
◎Small diameter PFA molded pneumatic valve.
◎The footprint is small and can be mounted in a space-saving unit.

Models

NSD-1/16S-11
- Connection type : W Fitting
- Tube size 1/16 : Ø1.6 or 1/16"

NSD-1/8P300P-11
- Fitting: Pillar Super 300 Type P series
- Tube size 1/8 : 1/8"

NSD-3MS-11
- Connection type : W Fitting
- Tube size 3M : Ø3

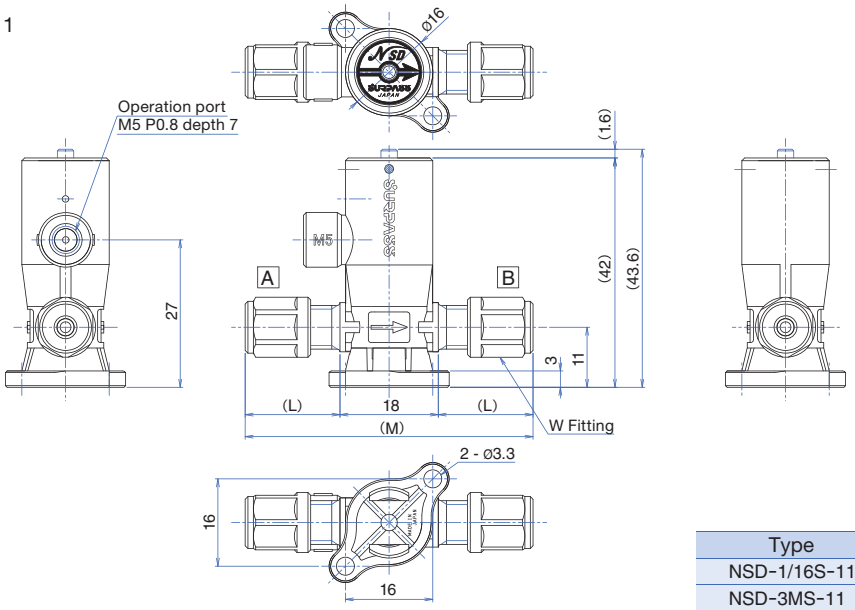
Specifications

Type	NSD-1/16S-11	NSD-3MS-11	NSD-1/8P300P-11
Fluids	Gas, Liquids (DI water, Chemicals)		
Tube size	Ø1.6 or 1/16"	Ø3	1/8" (Ø3.18×Ø2.18)
Connection type	Pillar fitting		
Orifice diameter	Ø1.0		Ø1.8
Pressure range A→B	0~300kPa		
Back pressure B→A	0~200kPa		
Withstanding pressure	500kPa		
Fluid pressure	350~450kPa		
Control port	M5 P0.8		
Valve seat leakage	0mL/min (water pressure)※		
Fluid temperature	15~60℃		
Ambient temperature	15~50℃		
Operational frequency	Less than 15 operations/min		
Mounting positions	Flexible (Only valid for fixed at base)		
Wetted parts	PTFE, PFA		
Valve operating specifications	NC		

※When using gas such as N_2 or air, valve seat leakage could occur up to 1cm^3 /min. (at pneumatic pressure)
※Refer to P.158 for W fitting.

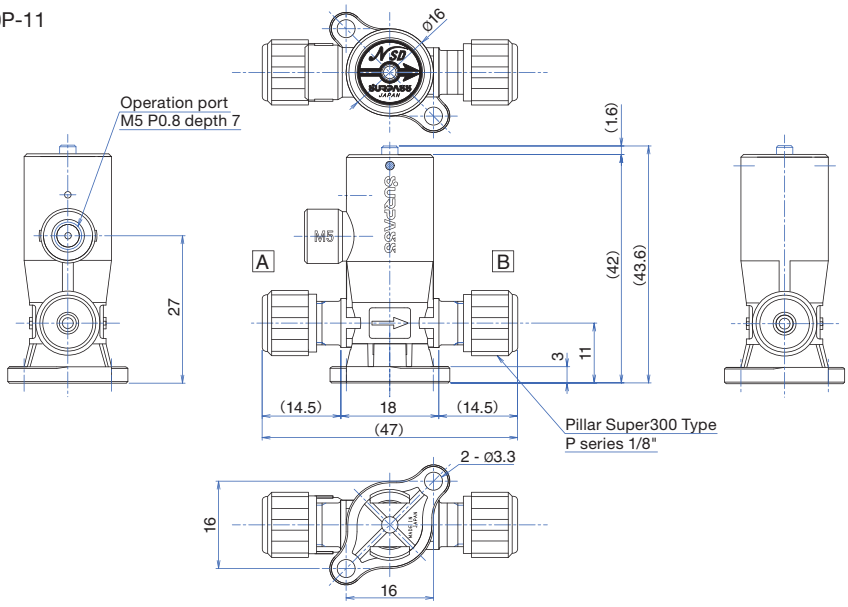
Dimensions

●NSD-1/16S-11
NSD-3MS-11

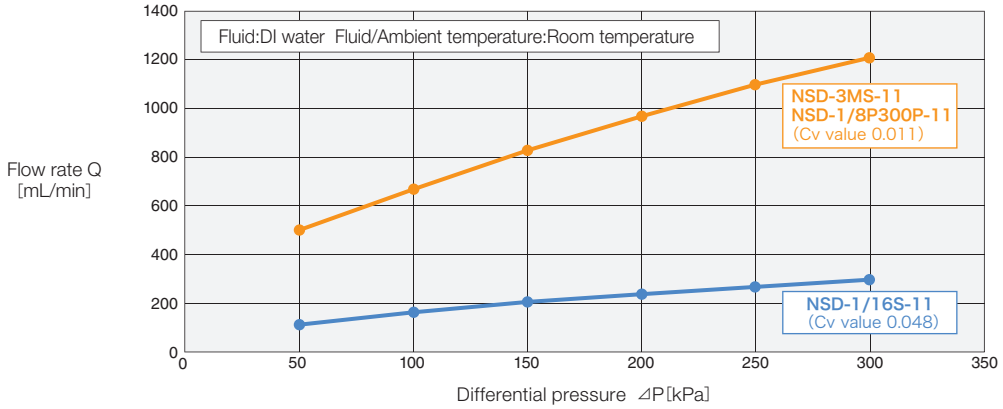


Type	(L)	(M)
NSD-1/16S-11	14	46
NSD-3MS-11	17	52

●NSD-1/8P300P-11



Flow Characteristics



※The data is reference value, not a guaranteed value.

Model PSS / Model SSV Suck back Valve

RoHS2


PSS-2P300P / SSV-2P300PM-020x

Features

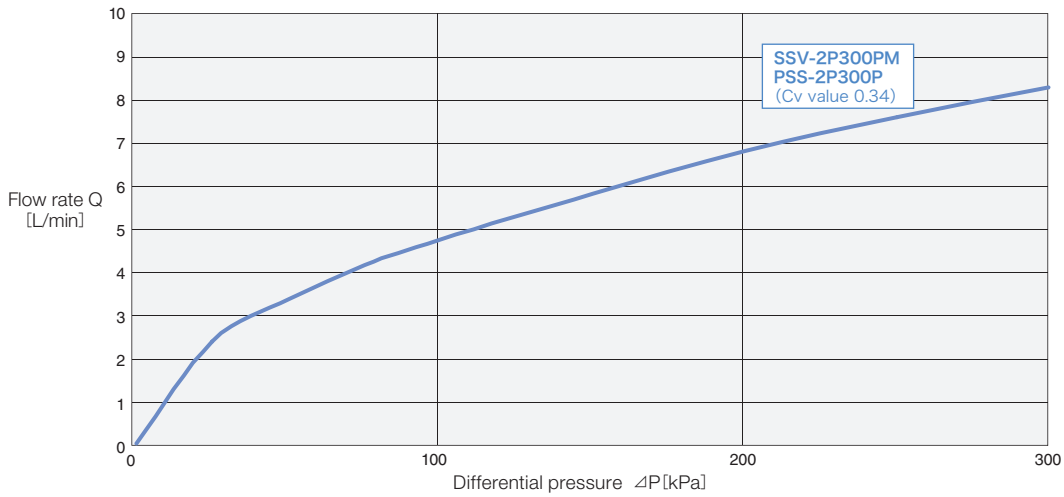
- ◎Corrosive-resistant PTFE is adopted on wetted parts and these valves have outstanding chemical resistance and durability.
- ◎This suck back valve has the integrated suck back and shut-off function.
- ◎Excellent operability and space-saving installation is available.
- ◎There is an indicator which can be checked the operation state of the valve. (except for specifications with flow adjustment)
- ◎The model can be selected according to the material of the actuator part.

Models / Specifications

Type	PSS-2P300P	SSV-2P300PM-020	SSV-2P300PM-1-020
Adjusting function of suck back volume	Not available	Not available	Available
Actuator material	PVDF	PP	PP
Fluids	Gas, Liquids (DI water, Chemicals)		
Body size	□30		
Tube size	1/4" (Ø6.35×Ø3.95)		
Connection type	Pillar fitting		
Pressure range A→B	0~300kPa		
Back pressure B→A	300kPa		
Operating pressure	300~500kPa		
Withstanding pressure	750kPa		
Control port	Rc1/8		
Valve seat leakage	0mL/min (Water pressure)		
Fluid temperature	5~80℃		
Ambient temperature	5~50℃		
Operational frequency	Less than 20 operations/min		
Mounting positions	Vertical ("OUT" port should be the upper position)		
Wetted parts	PFA, PTFE		

※Maximum suck back volume : 0.2mL
※Use the speed controller to adjust the suck back speed.

Flow Characteristics

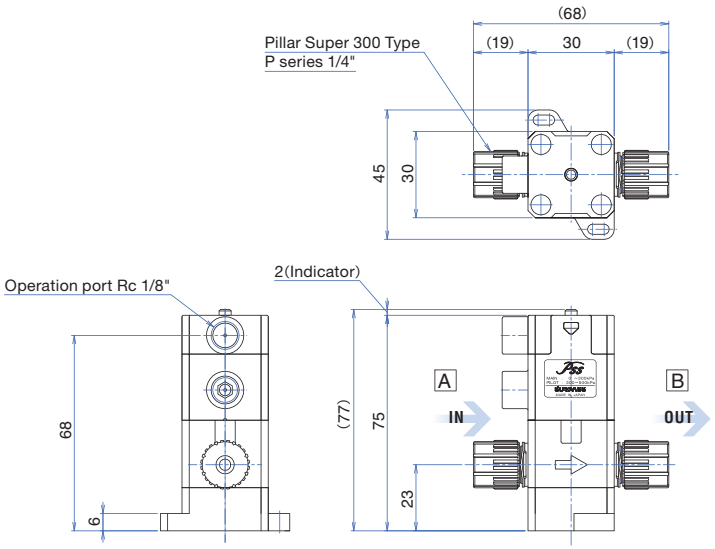


Fluid:DI water Fluid/Ambient temperature:Room temperature

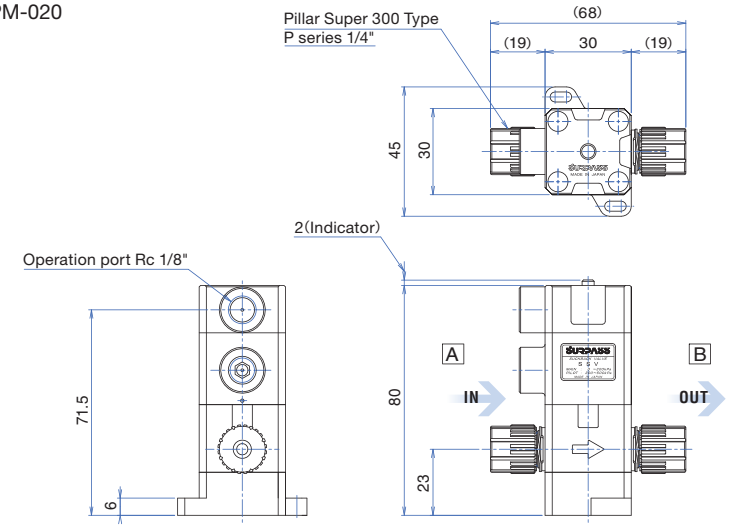
※The data is reference value, not a guaranteed value.

Dimensions

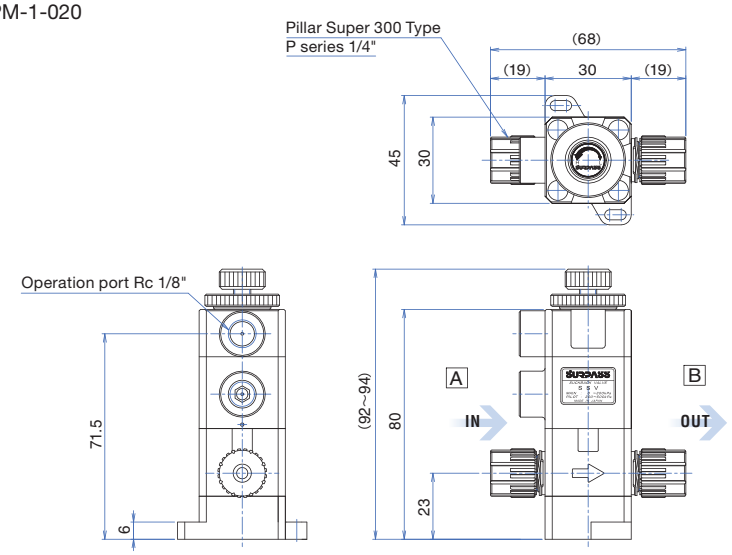
●PSS-2P300P



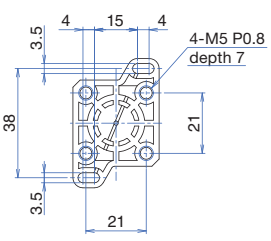
●SSV-2P300PM-020



●SSV-2P300PM-1-020



PSS/SSV common base



Model MVH Momentary Valve

RoHS2


MVH-2P300P, MVH-3P300P

Features

◎Corrosive-resistant PTFE is adopted on wetted parts and these valves have outstanding chemical resistance and durability.
◎Valves can be manually open/close with a one-touch operation.
◎These products can be conveniently utilized as emergency shut-off valves, maintenance valves and air vent valves for filters.
◎The MVH-□P300P-BK has a lockout function with base.

Models / Specifications

Type	MVH-2P300P MVH-2P300P-BK	MVH-3P300P MVH-3P300P-BK	MVH-4P300P MVH-4P300P-BK	MVH-6P300P MVH-6P300P-BK
Fluids	Gas, Liquids (DI water, Chemicals)			
Body size	□30	□30	□40	□40
Tube size	1/4"	3/8"	1/2"	3/4"
	Ø6.35×Ø3.95	Ø9.53×Ø6.35	Ø12.7×Ø9.53	Ø19.05×Ø15.9
Connection type	Pillar fitting			
Connector	Pillar Super 300 Type P series			
Orifice diameter	Ø4	Ø7	Ø10	Ø16
Cv value	0.3	0.8	2.3	5.1
Pressure range A→B	0~500kPa		0~400kPa	
Back pressure B→A	0~300kPa		0~400kPa	
Withstanding pressure	750kPa		1MPa	
Valve seat leakage	0mL/min (water pressure)※			
Fluid temperature	5~80℃			
Ambient temperature	5~50℃			
Mounting positions	Flexible			
Wetted parts	PTFE			

※When using gas such as N_2 or air, valve seat leakage could occur up to 1cm³ /min. (at pneumatic pressure)

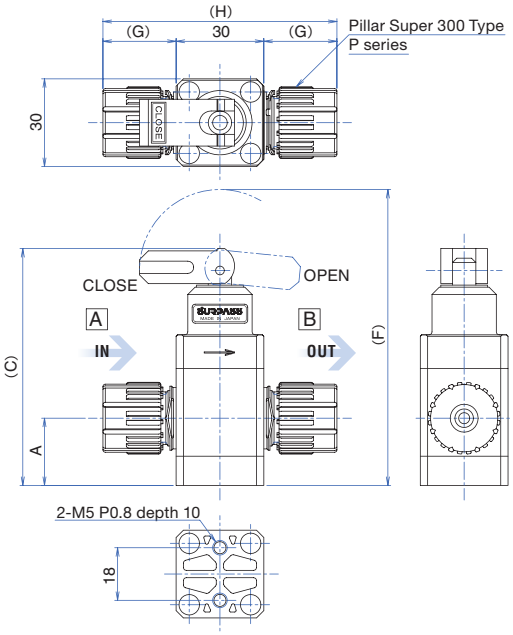
Models

MVH-□P300P-□□

- □ (Tube size): 2 : 1/4"(Ø6.35×Ø3.95)
  3 : 3/8"(Ø9.53×Ø6.35)
  4 : 1/2"(Ø12.7×Ø9.53)
  6 : 3/4"(Ø19.05×Ø15.9)
- P300P: Fitting: Pillar Super 300 Type P series
- □□: None : Using fixing tap, no lockout
  BK : Using base hole, with lockout

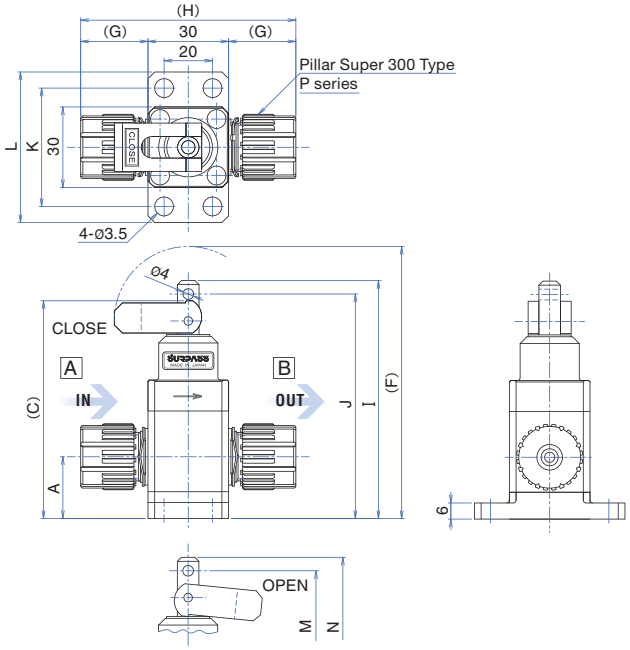
Dimensions

●MVH-2P300P
●MVH-3P300P



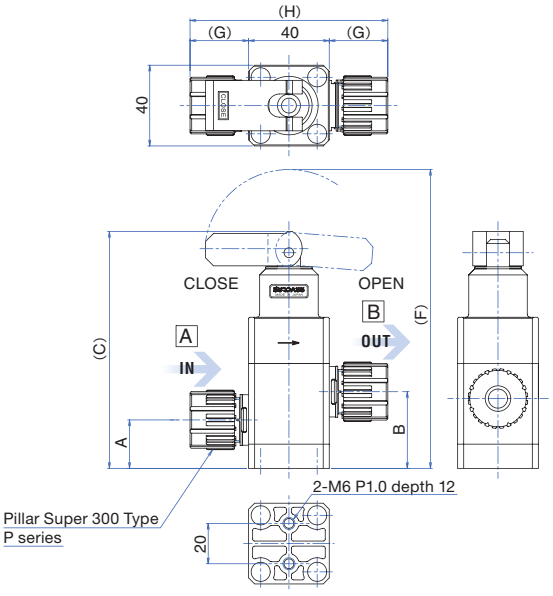
Type	A	(C)	(F)	(G)	(H)
MVH-2P300P	20.5	76	97	19	68
MVH-3P300P	23	81	101	25	80

●MVH-2P300P-BK
●MVH-3P300P-BK



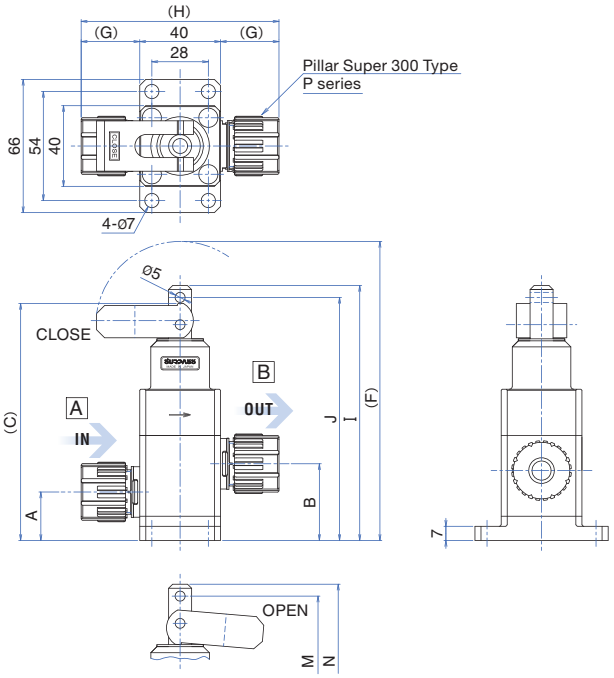
Type	A	(C)	(F)	(G)	(H)	I	J	K	L	M	N
MVH-2P300P-BK	20.5	76	97	19	68	83.5	78.5	38	45	80.5	85.5
MVH-3P300P-BK	23	81	101	25	80	88.5	83.5	44	56	85.5	90.5

●MVH-4P300P
●MVH-6P300P



Type	A	B	(C)	(F)	(G)	(H)
MVH-4P300P	24	38	118	149	29	98
MVH-6P300P	28	48	131	162	36	112

●MVH-4P300P-BK
●MVH-6P300P-BK



Type	A	B	(C)	(F)	(G)	(H)	I	J	M	N
MVH-4P300P-BK	24	38	117.4	149	29	98	126.3	120.4	124	129.9
MVH-6P300P-BK	28	48	131	162	36	112	139.7	133.8	137.4	143.3

Model MMV / Model MTV Momentary Valve RoHS2


MMV-1/4P300P

Features

◎It is a manual diaphragm valve with a simple lever operation. An auto return and a hold type are available.
◎The auto return type will never be left open.
◎It is suitable as an air vent valve for a filter, or a sampling valve.

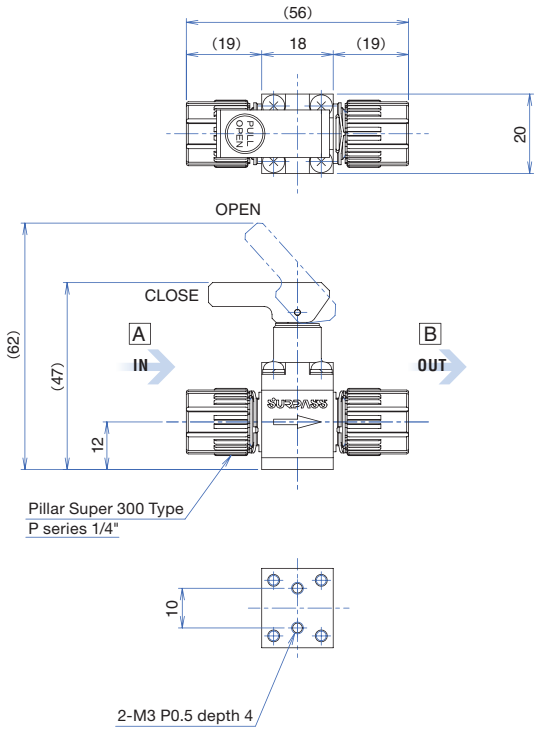
Models / Specifications

Type	MMV-1/4P300P	MTV-1/4P300P
Fluids	Gas, Liquids (DI water, Chemicals)	
Pressure range A→B	0~400kPa	
Back pressure B→A	0~400kPa	
Withstanding pressure	500kPa	
Fluid temperature	5~60℃	
Ambient temperature	0~40℃	
Orifice diameter	Ø4	
Valve seat leakage	0mL/min (water pressure)※	
Tube size	1/4" (Ø6.35×Ø3.95)	
Connection type	Pillar fitting	
Wetted parts	PFA, PTFE	

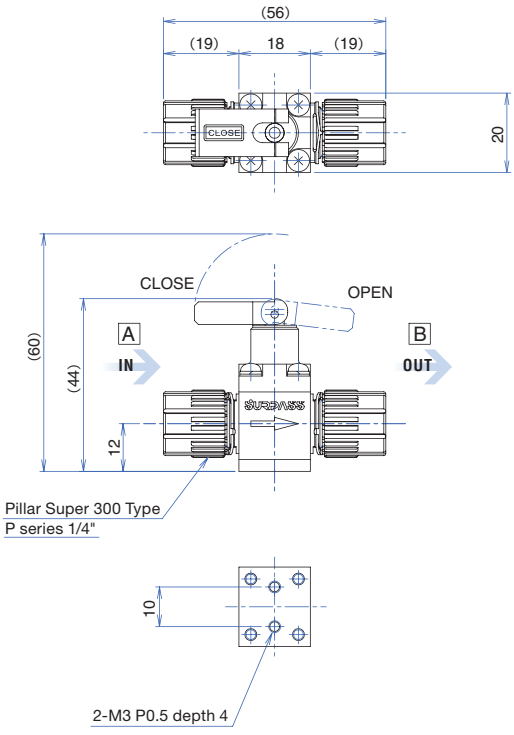
※When using gas such as N_2 or air, valve seat leakage could occur up to 1cm³/min. (at pneumatic pressure)

Dimensions

●MMV-1/4P300P (Auto return type)



●MTV-1/4P300P (Hold type)



●Safety Instructions

⚠

◎Before using the product, read the instruction manual carefully and use it correctly.
We are not liable for accidents that occurred during use other than those described in the instruction manual.

◎Use this product within the specified range.

◎Confirm the compatibility of the product material with the type of fluid and ambient atmosphere before use.

◎Do not use fluids that contain refuse or foreign matter, as this may interfere with normal function.

◎Abrasive or coagulate fluids may interfere with normal function, and take measures to prevent stacking residue on the wetted parts.

◎When tubing, allow the fluid to flow in the direction mark (→) imprinted on the main unit.

◎Connect this product not to apply any bending, tensile or compression, and other forces on the valve.

◎Do not use the product in an environment where excessive pressure or water hammer is generated.

◎Do not use the product with excessive vibration or shock.

◎Do not disassemble the product.

◎Do not place heavy objects on the product top.

◎Do not use the product in a harsh environment where fluid temperature changes rapidly, as this may cause damage to the product.

◎Use the speed controller to adjust the suck back speed.

◎Release sufficient air venting after installation. It may cause of malfunction.

◎Periodic inspection should be performed for safety when using chemical solution with high permeability for long time.

◎If static electricity is generated, the equipment may seriously damage.
Please use after applying antistatic measures.

◎Be sure to use this product within the ambient temperature range.

◎Do not warm up the product directly from the outside.
It may cause external or internal leakage failure.

• Pillar Super 300 Type P series is a trademark of Nippon Pillar Co., Ltd.