

# TK-FUJUKIN VALVES

Semiconductor / Ultra High Purity Products



# INDEX



Semiconductor / Ultra High Purity Products

## LOW PRESSURE DIAPHRAGM VALVE

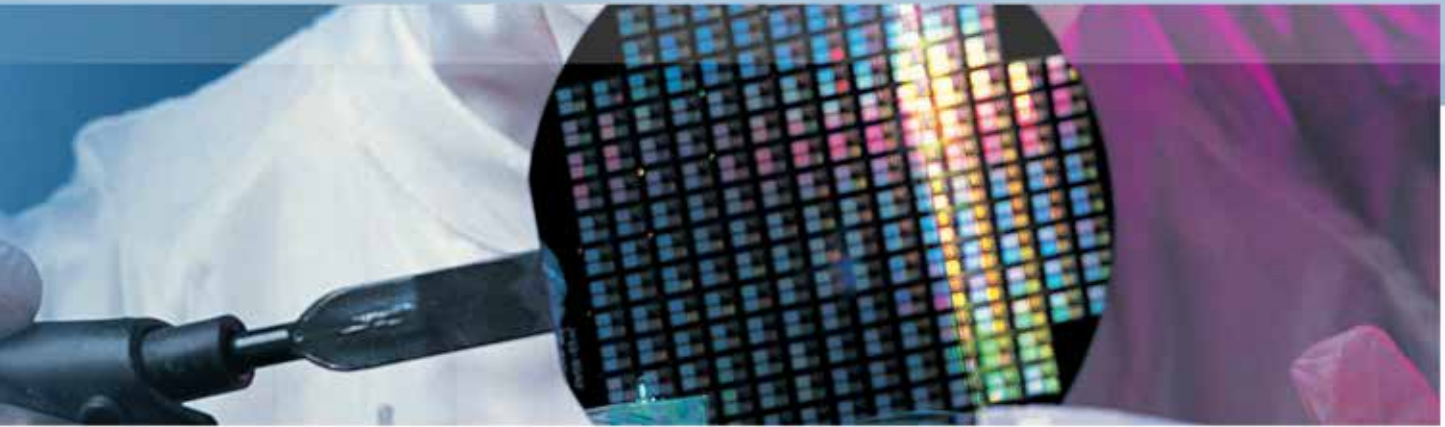


4	PRODUCTION FLOW
5	SELECTION GUIDE

6	LOW PRESSURE MANUAL DIAPHRAGM VALVE STD TYPE
8	MANUAL DIAPHRAGM VALVE LOCKING TYPE
10	MANUAL DIAPHRAGM VALVE IGS LOCKING TYPE
12	LOW PRESSURE MANUAL DIAPHRAGM VALVE FORGED BODY TYPE
14	LOW PRESSURE PNEUMATIC DIAPHRAGM VALVE STD TYPE
16	LOW PRESSURE PNEUMATIC DIAPHRAGM VALVE HIGH DURABILITY TYPE
18	LOW PRESSURE MANUAL BLOCK DIAPHRAGM VALVE STD TYPE
20	LOW PRESSURE PNEUMATIC BLOCK DIAPHRAGM VALVE STD TYPE
22	LOW PRESSURE MANUAL DIAPHRAGM VALVE SHUTOFF TYPE
24	LOW PRESSURE MANUAL DIAPHRAGM VALVE SHUTOFF TYPE
26	LOW PRESSURE MANUAL DIAPHRAGM VALVE BRANCH TYPE
28	LOW PRESSURE PNEUMATIC DIAPHRAGM VALVE BRANCH TYPE
30	LOW PRESSURE MANUAL DIAPHRAGM VALVE WELD TEE&VALVE TYPE
32	LOW PRESSURE MANUAL DIAPHRAGM VALVE WELD TEE&VALVE TYPE
34	DOUBLE DUTY DIAPHRAGM VALVE STD TYPE
36	LOW PRESSURE DUAL FLOW PNEUMATIC DIAPHRAGM VALVE STD TYPE
38	LOW PRESSURE METAL DIAPHRAGM METERING VALVE FLOW CONTROL TYPE
40	LOW PRESSURE MANUAL DIAPHRAGM VALVE FORGED BODY TYPE

## HIGH FLOW DIAPHRAGM VALVE

42	HIGH FLOW MANUAL DIAPHRAGM VALVE STD TYPE
44	ULTRA HIGH FLOW MANUAL DIAPHRAGM VALVE STD TYPE
46	HIGH FLOW MANUAL BLOCK DIAPHRAGM VALVE STD TYPE



### HIGH PRESSURE DIAPHRAGM VALVE



- |    |   |
|----|---|
| 48 | HIGH PRESSURE MANUAL DIAPHRAGM VALVE STD TYPE       |
| 50 | HIGH PRESSURE MANUAL DIAPHRAGM VALVE SPRING TYPE    |
| 52 | HIGH PRESSURE MANUAL BLOCK DIAPHRAGM VALVE STD TYPE |
| 54 | HIGH PRESSURE MANUAL DIAPHRAGM VALVE BRANCH TYPE    |
| 56 | HIGH PRESSURE PNEUMATIC DIAPHRAGM VALVE STD TYPE    |
| 58 | HIGH PRESSURE MANUAL DIAPHRAGM VALVE STD TYPE       |

### LOW PRESSURE BELLOWS VALVE



- |    |   |
|----|---|
| 60 | LOW PRESSURE MANUAL BELLOWS VALVE STD TYPE                      |
| 62 | LOW PRESSURE PNEUMATIC BELLOWS VALVE STD TYPE                   |
| 64 | LOW PRESSURE MANUAL BELLOWS METERING VALVE FLOW CONTROL TYPE    |
| 66 | LOW PRESSURE MANUAL BELLOWS VALVE FORGED A TYPE                 |
| 68 | LOW PRESSURE PNEUMATIC BELLOWS VALVE FORGED A TYPE              |
| 70 | LOW PRESSURE MANUAL BELLOWS VALVE (32A ~ 50A) CASTING A TYPE    |
| 72 | LOW PRESSURE MANUAL BELLOWS VALVE (65A ~ 500 A) CASTING A TYPE  |
| 74 | LOW PRESSURE PNEUMATIC BELLOWS VALVE (32A ~ 50A) CASTING A TYPE |
| 76 | LOW PRESSURE FULL FLOW MANUAL BELLOWS VALVE Y TYPE              |
| 78 | LOW PRESSURE FULL/HALF FLOW PNEUMATIC BELLOWS VALVE YPBV TYPE   |
| 80 | HIGH FLOW MANUAL BELLOWS VALVE STD TYPE                         |
| 82 | HIGH FLOW PNEUMATIC BELLOWS VALVE STD TYPE                      |

### CHECK VALVE



- |    |                      |
|----|----------------------|
| 84 | CHECK VALVE STD TYPE |
|----|----------------------|

### OTHERS VALVE

- |    |   |
|----|---|
| 86 | HIGH PRESSURE CYLINDER VALVE DIAPHRAGM SEAL TYPE      |
| 88 | HIGH PRESSURE MANUAL METERING VALVE FLOW CONTROL TYPE |
| 90 | ULTRA-HIGH PURITY VACUUM GENERATORS VG1 SERISE        |

# PRODUCTION FLOW



## CAREFULLY SELECTED MATERIALS

Selecting and standardizing a highly clean material reduced non-metallic inclusions and outgases. Further, production of VAR material that is highly resistant to corrosion and Hastelloy® C-22™ material are even made possible.

## HIGH PRECISION MACHINING PROCESS

Using fully automatic, high precision, high-speed CNC Machining center and lathe, a precision machining process is established. With high precision locating, automatic dimensional calculation and automatic compensation, an unattended, labor-reduced production process is made possible.

## ULTRA-HIGH CLEANING PROCESS

Using TKF unique technology for super cleanliness, passivation treatment by means of special electropolishing, etc. is applied to the smooth machined surface before polishing process. This enables to form a highly corrosion-resistant and super clean surface structure.

## CLEAN WELDING

Clean welding method is made available by using a high speed, full-automatic orbital welding machine. Using a sealed inner and outer manostat gauge in the clean room, inner pressure is controlled with hyper pure inert-gas so that the totally clean welding technology can fully contribute to realization of the flat bead condition, etc..

## ULTRA PRECISION CLEANING

An automatic processing line including ultra pure hot water with resistivity of more than 17MΩcm has been established in the clean room. The best possible cleaning condition is achieved here prior to the assembly.

## ASSEMBLY IN THE CLEAN ROOM

Production staffs fully acquainted with the special assembling method are dedicated to the assembly process in the certified clean room.

## CLEAN PACKING

Packing is carried out at the certified clean room with inner vacuum seal method. In this way, mixing-in of foreign particles at the time of packing is extensively reduced to its minimum.

# SELECTION GUIDE

No.	GAS NAME		TK-FUJIKIN					
			VALVE					
			BODY		SEAT			GASKET
			SUS	HAS	PCTFE	PFA	PTFE	NIKEL
1	ARGON	Ar	○	○	○	○	○	○
2	ARSINE	AsH <sub>3</sub>	○	×	○	○	○	×
3	DIBORANE	B <sub>2</sub> H <sub>6</sub>	○	○	○	○	○	-
4	BORONTRICHLORIDE	BCl <sub>3</sub>	○	○	○	-	○	○
5	HALOCARBON-116 HEXAFLUOROETHANE	C <sub>2</sub> F <sub>6</sub>	○	○	○	○	○	○
6	Ethene, Ethylene	C <sub>2</sub> H <sub>4</sub>	○	○	○	-	○	-
7	PERFLUOROPROPANE	C <sub>3</sub> F <sub>8</sub>	○	○	○	-	○	-
8	Sifren® 46 Hexafluorobutadiene	C <sub>4</sub> F <sub>6</sub>	-	○	-	-	○	-
9	Octafluorocyclobutane	C <sub>4</sub> F <sub>8</sub>	○	○	-	-	○	-
10	Octafluorocyclopentene	C <sub>5</sub> F <sub>8</sub>	-	○	-	-	○	-
11	Tetrafluoromethane	CF <sub>4</sub>	○	○	-	○	○	-
12	Difluoromethane	CH <sub>2</sub> F <sub>2</sub>	-	○	-	○	○	-
13	Methyl Fluoride	CH <sub>3</sub> F	○	○	-	-	○	-
14	Methane	CH <sub>4</sub>	○	○	○	○	○	-
15	Trifluoromethane	CHF <sub>3</sub>	○	○	-	○	○	-
16	Chlorine	Cl <sub>2</sub>	○	○	○	○	○	×
17	Chlorotrifluoromethane	ClF <sub>3</sub>	-	○	-	-	○	-
18	Trifluoromethane	CO	○	○	-	○	○	-
19	Carbon Dioxide	CO <sub>2</sub>	○	○	○	○	○	×
20	Deuterium	D <sub>2</sub>	○	○	○	-	○	-
21	≤20% Fluorine	≤20%F <sub>2</sub>	-	○	-	-	○	-
22	Germane	GeH <sub>4</sub>	○	○	-	-	○	-
23	Hydrogen Bromide	HBr	○	○	-	-	○	-
24	Hydrogen Chloride	HCl	×	○	○	○	○	○
25	Helium	He	○	○	○	○	○	○
26	AMMONIA	NH <sub>3</sub>	○	○	○	○	○	-
27	Nitrogen	N <sub>2</sub>	○	○	○	○	○	○
28	Nitrous Oxide	N <sub>2</sub> O	○	○	○	○	○	○
29	Nitrogen Trifluoride	NF <sub>3</sub>	○	○	-	○	○	-
30	Nitrogen Monoxide	NO	○	○	-	-	○	-
31	Oxygen	O <sub>2</sub>	○	○	○	○	○	○
32	Phosphene	PH <sub>3</sub>	○	○	○	-	○	×
33	Sulfur Hexafluoride	SF <sub>6</sub>	○	○	○	-	○	-
34	Disilane	Si <sub>2</sub> H <sub>6</sub>	○	○	-	-	○	-
35	Silicon Tetrafluoride	SiF <sub>4</sub>	×	○	○	-	○	-
36	Dichlorosilane	SiH <sub>2</sub> Cl <sub>2</sub>	×	○	○	○	○	-
37	Silane	SiH <sub>4</sub>	○	○	○	○	○	○
38	Trichlorosilane	SiHCl <sub>3</sub>	○	○	○	○	○	-
39	Sulfur Dioxide	SO <sub>2</sub>	○	○	○	○	○	×
40	Tungsten Hexafluoride	WF <sub>6</sub>	×	○	-	○	○	-
41	Xenon	Xe	○	○	○	○	○	○

○	사용가능	×	사용불가	-	사용검토
---	------	---	------	---	------

## LOW PRESSURE MANUAL DIAPHRAGM VALVE

## STD TYPE

## FEATURES

- Reduced inner capacity
- Electropolished, D.I. water cleaned, assembled, tested and packaged in a certified clean room
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Permanently heat code laser marked; material traceable to original mill certificate of test
- Hastelloy® C-22™ and custom configurations available upon request

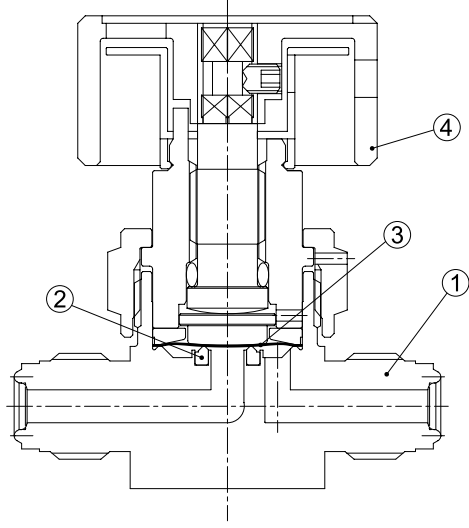


## MAJOR SPECIFICATIONS

Size	1/4"	3/8", 1/2"	3/4"
<b>Cv Value</b>	0.3	0.7	0.7
<b>Orifice Size</b>	4.5mm	7mm	7mm
<b>Max. Working Pressure (G.)</b>	1MPa		
<b>Max. Working Temp.</b>	PCTFE : -10°C ~ 80°C / PI, PFA : -10°C ~ 150°C		
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 30 sec.</b>			
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 1 min.</b>			
<b>Particle Inspection (EP only)</b>	No count		
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>			
<b>Sample Volume : 1CFM</b>			
<b>0.1µm and Larger</b>			

## PRODUCT GRADE

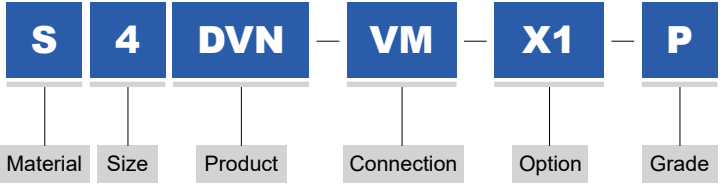
GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



**MATERIAL**

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE / PI / PFA
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminum

**ORDERING INFORMATION**



MATERIAL	SIZE	CONNECTION	OPTION	GRADE
S 316L Stainless Steel	4 1/4"	VM MFS Male	×47 Constant Bleed ø0.3	AP AP Grade
D 316L Stainless Steel VAR	6 3/8"	VF MFS Female	×59 Constant Bleed ø0.6	BLANK BA Grade
4S 304 Stainless Steel	8 1/2"	SW Lok		P EP Grade
	12 3/4"	TW Butt Weld		

MODEL	CONNECTION	SIZE	A	B	C	D	F	G	H
	MFS Male	1/4"	57	11	64.3	40	26	25.4	
		3/8"	76.2	16	76.8	40	37	28	
		1/2"	76.2	16	76.8	40	37	28	
		3/4"	122	22	82.8	40	37	28	
	MFS Female	1/4"	70.6	11	64.3	40	26	25.4	
		3/8"	83	16	76.8	40	37	28	
		1/2"	83	16	76.8	40	37	28	
		3/4"	122	22	82.8	40	37	28	
	Lok	1/4"	69.5	11	64.3	40	26	25.4	55
		3/8"	82.5	16	76.8	40	37	28	68
		1/2"	91	16	76.8	40	37	28	70
		3/4"	106	22	82.8	40	37	28	84
	Butt Weld	1/4"	54	11	64.3	40	26	25.4	
		3/8"	69	16	76.8	40	37	28	
		1/2"	69	16	76.8	40	37	28	
		3/4"	150	22	82.8	40	37	28	

## MANUAL DIAPHRAGM VALVE

## LOCKING TYPE

## FEATURES

- Quick, quarter-turn actuation
- Lockable in the CLOSED position for safety
- Low internal volume
- Minimal particle generation
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Permanently heat code laser marked; material traceable to original mill certificate of test.
- Hastelloy® C-22TM and custom configurations available upon request



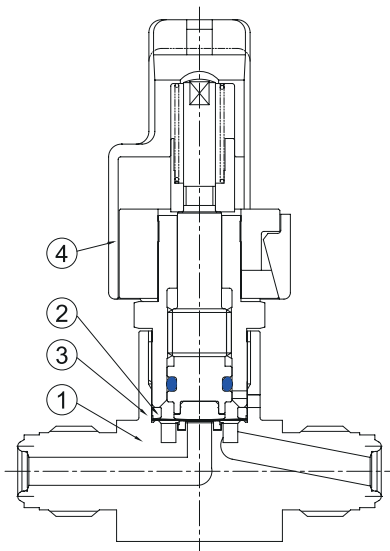
## MAJOR SPECIFICATIONS

Size	1/4"	1/2"
<b>Cv Value</b>	0.3	0.5
<b>Orifice Size</b>	4.5mm	7.0mm
<b>Max. Working Pressure (G.)</b>	1MPa	
<b>Max. Working Temp.</b>	-10°C ~ 80°C	
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>		
<b>Holding Time ≥ 30 sec.</b>		
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>		
<b>Holding Time ≥ 1 min.</b>		
<b>Particle Inspection (EP only)</b>	No count	
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>		
<b>Sample Volume : 1CFM</b>		
<b>0.1µm and Larger</b>		

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

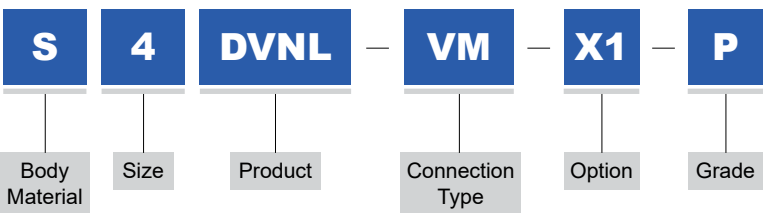




**MATERIAL**

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE
3	Diaphragm	Ni-Co Alloy
4	Handle	NYLON6

**ORDERING INFORMATION**



MATERIAL	SIZE	CONNECTION	GRADE
S 316L Stainless Steel	4 1/4"	VM MFS Male	AP AP Grade
D 316L Stainless Steel VAR	6 3/8"	VF MFS Female	BLANK BA Grade
4S 304 Stainless Steel	8 1/2"	SW Lok	P EP Grade
		TW But Weld	

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G
	MFS Male	1/4"	57	11	89.6	28.5	26	25.4	-
		3/8"	76.2	16	102.3	28.5	37	28	-
		1/2"	76.2	16	102.3	28.5	37	28	-
	MFS Female	1/4"	70.6	11	89.6	28.5	26	25.4	-
		3/8"	83	16	102.3	28.5	37	28	-
		1/2"	83	16	102.3	28.5	37	28	-
	Lok	1/4"	69.5	11	89.6	28.5	26	25.4	55
		3/8"	82.5	16	102.3	28.5	37	28	68
		1/2"	91	16	102.3	28.5	37	28	70
	Butt Weld	1/4"	54	11	89.6	28.5	26	25.4	-
		3/8"	69	16	102.3	28.5	37	28	-
		1/2"	69	16	102.3	28.5	37	28	-

## MANUAL DIAPHRAGM VALVE

## IGS LOCKING TYPE

## FEATURES

- Quick, quarter-turn actuation
- Lockable in the CLOSED position for safety
- Highly resistant to corrosion using nickel-cobalt alloy diaphragm
- Minimal particle generation
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Footprint and compact (footprint), to reduce the space required
- Assembly and lightweight for easy component

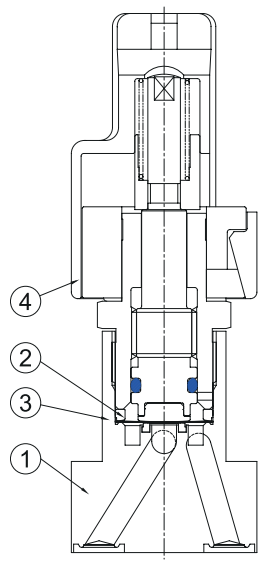


## MAJOR SPECIFICATIONS

Size	1.125"	1.5"
Cv Value	0.3	0.3
Max. Working Pressure (G.)	1MPa	
Max. Working Temp.	-10°C ~ 80°C	
Internal Leakage Allowance (He)		
Test Pressure $\leq 1 \times 10^{-2}$ Torr	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
Holding Time $\geq 30$ sec.		
External Leakage Allowance (He)		
Test Pressure $\leq 1 \times 10^{-2}$ Torr	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
Holding Time $\geq 1$ min.		
Particle Inspection (EP only)		
Pressure : 60~80psi N <sub>2</sub> Gas	No count	
Sample Volume : 1CFM		
0.1μm and Larger		

## PRODUCT GRADE

GRADE	EP
Inner Surface Roughness	Ry $\leq 0.7 \mu\text{m}$ 5 μinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Electro Polishing Finish



**MATERIAL**

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel VAR
2	Seat	PCTFE
3	Diaphragm	Ni-Co Alloy
4	Handle	NYLON6

**ORDERING INFORMATION**

**S**
**11**
**DVNL1**
**2W**
**X1**
**P**

Body Material
Size
Product
Connection Type
Option
Grade

MATERIAL	SIZE	CONNECTION	GRADE
S 316L Stainless Steel	11 1.125"	2W 2 Port W-Seal	BLANK BA Grade
D 316L Stainless Steel VAR	15 1/5"	2C 2 Port C-Seal	P EP Grade

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G
	W-Seal	1.125"	10.9	10	28.5	82.8	14	-	-
		1.5"	15.1	13	39	85.8	17	-	-
	C-Seal	1.125"	10.9	10.9	28.5	82.8	14	-	-
		1.5"	15.1	15.1	39	85.8	17	-	-

## LOW PRESSURE MANUAL DIAPHRAGM VALVE

**FORGED BODY TYPE****FEATURES**

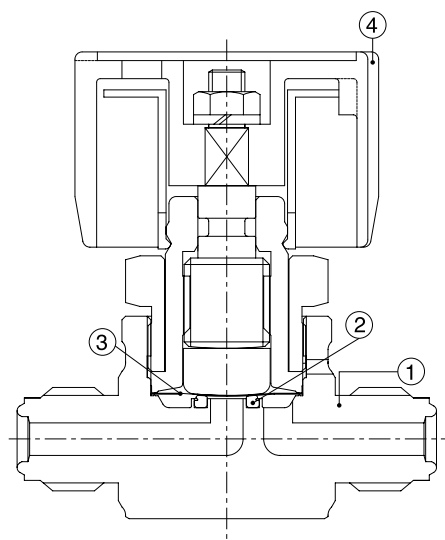
- Forged body using round bar stock
- Low internal volume
- Minimal particle generation
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Permanently heat code laser marked; material traceable to original mill certificate of test
- Hastelloy® C-22™ and custom configurations available upon request

**MAJOR SPECIFICATIONS**

Size	1/4"	3/8", 1/2"	3/4"
<b>Cv Value</b>	0.3	0.7	0.7
<b>Orifice Size</b>	4.5mm	6.5mm	6.5mm
<b>Max. Working Pressure (G.)</b>	1MPa		
<b>Max. Working Temp.</b>	PTFE : -10°C ~ 80°C / PI, PFA : -10°C ~ 150°C		
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 30 sec.</b>			
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 1 min.</b>			
<b>Particle Inspection (EP only)</b>	No count		
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>			
<b>Sample Volume : 1CFM</b>			
<b>0.1µm and Larger</b>			

**PRODUCT GRADE**

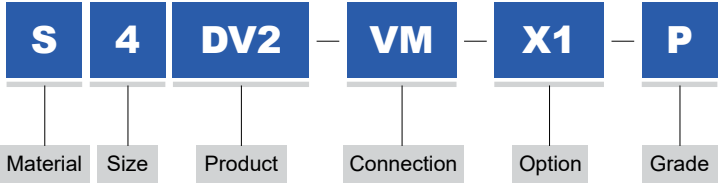
GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE / PI / PFA
3	Diaphragm	Ni-Co Alloy
4	Handle	ABS

### ORDERING INFORMATION



MATERIAL		SIZE		CONNECTION		GRADE	
S	316L Stainless Steel	4	1/4"	VM	MFS Male	AP	AP Grade
D	316L Stainless Steel VAR	6	3/8"	VF	MFS Female	BLANK	BA Grade
4S	304 Stainless Steel	8	1/2"	SW	Lok	P	EP Grade
		12	3/4"	TW	Butt Weld		

MODEL	CONNECTION	SIZE	A	B	C	D	E	G	H
	MFS Male	1/4"	58	11	66	17	45	28	
		3/8"	76	16	77	28	45	38	
		1/2"	76	16	77	28	45	38	
		3/4"	122	22	85	28	45	38	
	MFS Female	1/4"	78	11	66	17	45	28	
		3/8"	104.6	16	77	28	45	38	
		1/2"	104.6	16	77	28	45	38	
		3/4"	122	22	85	28	45	38	
	Lok	1/4"	69.3	11	66	17	45	28	55
		3/8"	82.5	16	77	28	45	38	68
		1/2"	90.2	16	77	28	45	38	70
		3/4"	106	22	85	28	45	38	84
	Butt Weld	1/4"	135	11	66	17	45	28	
		3/8"	147	16	77	28	45	38	
		1/2"	147	16	77	28	45	38	
		3/4"	150	22	85	28	45	38	

## LOW PRESSURE PNEUMATIC DIAPHRAGM VALVE

## STD TYPE

## FEATURES

- Reduced inner capacity
- Electropolished, D.I. water cleaned, assembled, tested and packaged in a certified clean room
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Permanently heat code laser marked; material traceable to original mill certificate of test
- Hastelloy® C-22™ and custom configurations available upon request



## MAJOR SPECIFICATIONS

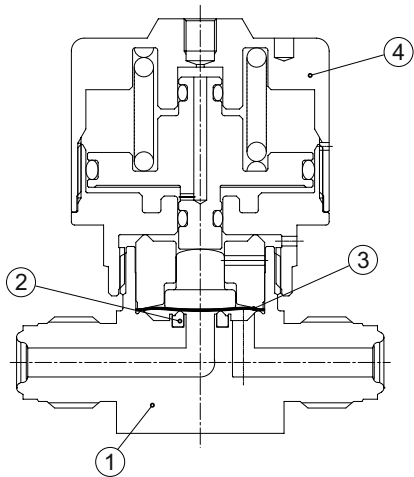
Size	1/4"	3/8", 1/2"	3/4"
<b>Cv Value</b>	0.3	0.7	0.7
<b>Orifice Size</b>	4.5mm	7mm	7mm
<b>Max. Working Pressure (G.)</b>	1MPa		
<b>Operating Pressure (G.)</b>	0.4 ~ 0.6MPa		
<b>Max. Working Temp.</b>	PCTFE : -10°C ~ 80°C / PI, PFA : -10°C ~ 150°C		
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 15 sec.</b>			
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 1 min.</b>			
<b>Particle Inspection (EP only)</b>	No count		
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>			
<b>Sample Volume : 1CFM</b>			
<b>0.1µm and Larger</b>			

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE / PI / PFA
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminum



### ORDERING INFORMATION

S
4
PDVN
VM
C
X1
P

Material
Size
Product
Connection
Operation Method
Option
Grade

MATERIAL		SIZE		CONNECTION		OPERATION METHOD		OPTION		GRADE	
S	316L Stainless Steel	4	1/4"	VM	MFS Male	C	Normally Close	×47	Constant Bleed ø0.3	AP	AP Grade
D	316L Stainless Steel VAR	6	3/8"	VF	MFS Female	O	Normally Open	×59	Constant Bleed ø0.6	BLANK	BA Grade
4S	304 Stainless Steel	8	1/2"	SW	Lok					P	EP Grade
		12	3/4"	TW	Butt Weld						

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G
	MFS Male	1/4"	57	11	64.3	40	26	25.4	
		3/8"	76.2	16	83.8	55	37	28	
		1/2"	76.2	16	83.8	55	37	28	
		3/4"	122	22	89.8	55	37	28	
	MFS Female	1/4"	70.6	11	64.3	40	26	25.4	
		3/8"	83	16	83.8	55	37	28	
		1/2"	83	16	83.8	55	37	28	
		3/4"	122	22	89.8	55	37	28	
	Lok	1/4"	69.5	11	64.3	40	26	25.4	55
		3/8"	82.5	16	83.8	55	37	28	68
		1/2"	91	16	83.8	55	37	28	70
		3/4"	106	22	89.8	55	37	28	84
	Butt Weld	1/4"	54	11	64.3	40	26	25.4	
		3/8"	69	16	83.8	55	37	28	
		1/2"	69	16	83.8	55	37	28	
		3/4"	150	22	89.8	55	37	28	

## LOW PRESSURE PNEUMATIC DIAPHRAGM VALVE

# HIGH DURABILITY TYPE

## FEATURES

- Ultra high cycle life with high-speed actuation
- Cv range from 0.27
- Up to 392°F (200°C) capability with thermal actuators
- Permanently heat code laser marked;  
material traceable to original millcertificate of test



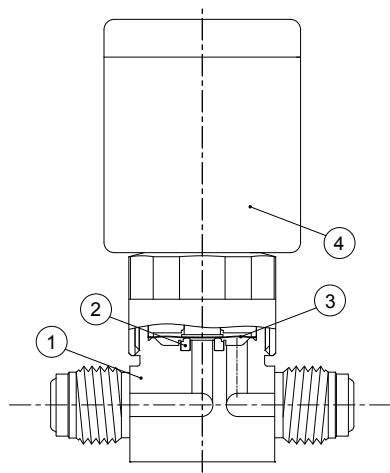
## MAJOR SPECIFICATIONS

Size	1/4"
Cv Value	0.27
Orifice Size	4mm
Max. Working Pressure (G.)	1MPa
Operating Pressure (G.)	0.35~0.6MPa
Max. Working Temp.	STANDARD : 0°C ~ 120°C / THERMAL : 0°C ~ 200°C
Internal Leakage Allowance (He)	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s
Test Pressure ≤ 1×10 <sup>-2</sup> Torr	
Holding Time ≥ 15 sec.	
External Leakage Allowance (He)	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s
Test Pressure ≤ 1×10 <sup>-2</sup> Torr	
Holding Time ≥ 1 min.	
Particle Inspection (EP only)	No count
Pressure : 60~80psi N <sub>2</sub> Gas	
Sample Volume : 1CFM	
0.1μm and Larger	

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25μm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0μm 10 μinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7μm 5 μinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Polishing Finish





### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Seat	PFA
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminum

### ORDERING INFORMATION

S
4
HDPDV
VM
C
H
X1
P

Material
Size
Product
Connection
Operation Method
Option1
Option2
Grade

MATERIAL	SIZE	CONNECTION	OPERATION METHOD	OPTION	GRADE
S 316L Stainless Steel	4 1/4"	VM MFS Male	C Normally Close	H Heater Cartridge Holes	P EP Grade
D 316L Stainless Steel VAR		VF MFS Female		S Position Sensor	
		TW Butt Weld		V Solenoid Valve	

STANDARD MODEL	CONNECTION	SIZE	A	B	C	D	E	F
	MFS Male	1/4"	58.4	11.2	86	38	28	25.4
	MFS Female	1/4"	70.6	11.2	86	38	28	25.4
	Butt Weld	1/4"	44.2	11.2	86	38	28	25.4

THERMAL MODEL	CONNECTION	SIZE	A	B	C	D	E	F
	MFS Male	1/4"	58.4	11.2	114	38	28	25.4
	MFS Female	1/4"	70.6	11.2	114	38	28	25.4
	Butt Weld	1/4"	44.2	11.2	114	38	28	25.4

## LOW PRESSURE MANUAL BLOCK DIAPHRAGM VALVE

## STD TYPE

## FEATURES

- Space-saving
- Minimal dead space
- Out-gas free
- Minimal particle generation
- Permanently heat code laser marked; material traceable to original mill certificate of test
- Electropolished, D.I. water cleaned, assembled, tested and packed in a certified clean room



## MAJOR SPECIFICATIONS

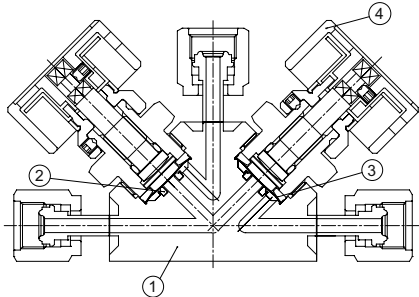
Size	1/4"	3/8", 1/2"
<b>Cv Value</b>	0.3	0.7
<b>Orifice Size</b>	4.5mm	7mm
<b>Max. Working Pressure (G.)</b>	1MPa	
<b>Max. Working Temp.</b>	PCTFE : -10°C ~ 80°C / PI, PFA : -10°C ~ 150°C	
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>		
<b>Holding Time ≥ 30 sec.</b>		
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>		
<b>Holding Time ≥ 1 min.</b>		
<b>Particle Inspection (EP only)</b>	No count	
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>		
<b>Sample Volume : 1CFM</b>		
<b>0.1µm and Larger</b>		

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Seat	PCTFE / PI / PFA
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminum



### ORDERING INFORMATION

**S**
**4**
**BDVN**
**VM**
**1T23**
**X1**
**P**

Material
Size
Product
Connection
Flow
Option
Grade

	MATERIAL	SIZE	CONNECTION	FLOW	GRADE			
S	316L Stainless Steel	4	1/4"	VF	MFS Female	1T25	AP	AP Grade
D	316L Stainless Steel VAR	8	1/2"			5T12	BLANK	BA Grade
						1T23	P	EP Grade
						3T12		

MODEL	FLOW	MODEL	FLOW	MODEL	FLOW	MODEL	FLOW
	1T25		1T23		5T12		3T12

MODEL	FLOW	SIZE	A	B	C	D	E	F	G	H
	1T25	1/4"	21.8	11	74.4	53.8	126.7	64	15	40
		1/2"	23	16	90.2	71.5	145	82	20	55
	1T23	1/4"	21.8	11	74.4	34.8	126.7	64	15	40
		1/2"	23	16	90.2	41	145	82	20	55

## LOW PRESSURE PNEUMATIC BLOCK DIAPHRAGM VALVE

## STD TYPE

## FEATURES

- Space-saving
- Minimal dead space
- Minimal particle generation
- Permanently heat code laser marked; material traceable to original mill certificate of test
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Electropolished, D.I. water cleaned, assembled, tested and packed in a certified clean room



## MAJOR SPECIFICATIONS

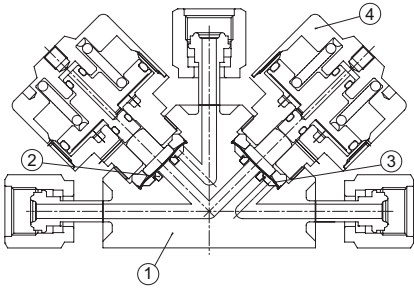
Size	1/4"	3/8", 1/2"
Cv Value	0.3	0.7
Orifice Size	4.5mm	7mm
Max. Working Pressure (G.)	1MPa	
Operating Pressure (G.)	0.4 ~ 0.6MPa	
Max. Working Temp.	PCTFE : -10°C ~ 80°C / PI, PFA : -10°C ~ 150°C	
Internal Leakage Allowance (He)	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
Test Pressure ≤ 1×10 <sup>-2</sup> Torr		
Holding Time ≥ 15 sec.		
External Leakage Allowance (He)	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
Test Pressure ≤ 1×10 <sup>-2</sup> Torr		
Holding Time ≥ 1 min.		
Particle Inspection (EP only)	No count	
Pressure : 60~80psi N <sub>2</sub> Gas		
Sample Volume : 1CFM		
0.1µm and Larger		

## PRODUCT GRADE

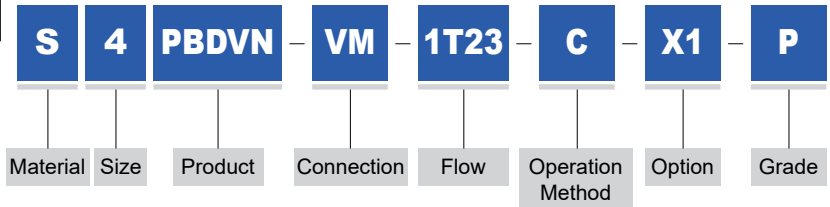
GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

### MATERIAL

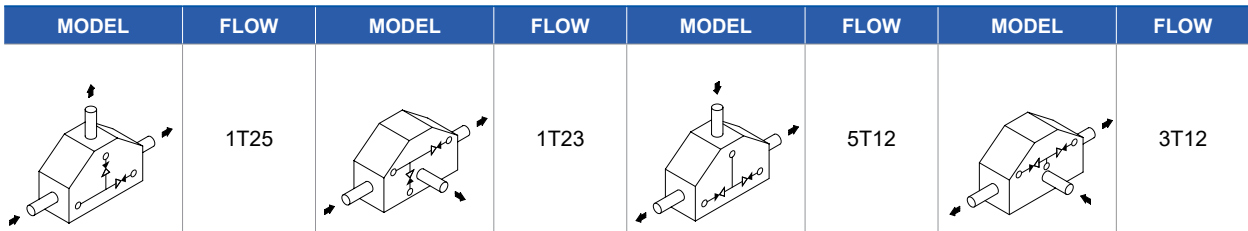
NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Seat	PCTFE / PI / PFA
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminum



### ORDERING INFORMATION



MATERIAL	SIZE	CONNECTION	FLOW	OPERATION METHOD	GRADE
S 316L Stainless Steel	4 1/4"	VF MFS Female	1T25	C Normally Close	AP AP Grade
D 316L Stainless Steel VAR			5T12	O Normally Open	BLANK BA Grade
			1T23		P EP Grade
			3T12		



MODEL	FLOW	SIZE	A	B	C	D	E	F	G	H
	1T25	1/4"	21.8	11	70.4	53.8	118.7	64	15	40
	1T23	1/4"	21.8	11	70.4	34.8	118.7	64	15	40

## LOW PRESSURE MANUAL DIAPHRAGM VALVE

**SHUTOFF TYPE****FEATURES**

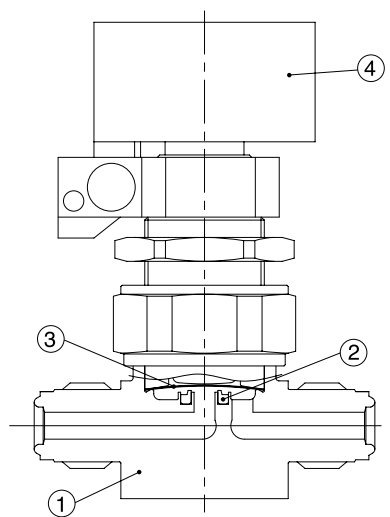
- Shutoff type handle operation
- Low internal volume
- Minimal particle generation
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Handle colors available upon request
- Lockable in the CLOSED position for safety

**MAJOR SPECIFICATIONS**

Size	1/4"	3/8", 1/2"	3/4"
<b>Cv Value</b>	0.3	0.7	0.7
<b>Orifice Size</b>	3.5mm	7mm	7mm
<b>Max. Working Pressure (G.)</b>	1MPa		
<b>Max. Working Temp.</b>	PCTFE : -10°C ~ 80°C / PI, PFA : -10°C ~ 150°C		
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 15 sec.</b>			
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 1 min.</b>			
<b>Particle Inspection (EP only)</b>	No count		
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>			
<b>Sample Volume : 1CFM</b>			
<b>0.1µm and Larger</b>			

**PRODUCT GRADE**

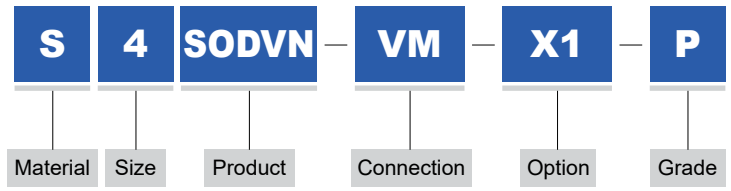
GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE / PI / PFA
3	Diaphragm	Ni-Co Alloy
4	Handle	Nylon

### ORDERING INFORMATION



MATERIAL	SIZE	CONNECTION	OPTION	GRADE
S 316L Stainless Steel	4 1/4"	VM MFS Male	×87 Locking	AP AP Grade
D 316L Stainless Steel VAR	6 3/8"	VF MFS Female	×27 Lock Nut	BLANK BA Grade
4S 304 Stainless Steel	8 1/2"	SW Lok		P EP Grade
	12 3/4"	TW Butt Weld		

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G	H	J	K
	MFS Male	1/4"	57	11	77.1	37	24	26	25.4	5	20.5	
		3/8"	76.2	16	105.2	50	31.6	37	28	10	24.5	
		1/2"	76.2	16	105.2	50	31.6	37	28	10	24.5	
		3/4"	122	22	111.2	50	31.6	37	28	10	24.5	
	MFS Female	1/4"	70.6	11	77.1	37	24	26	25.4	5	20.5	
		3/8"	83	16	105.2	50	31.6	37	28	10	24.5	
		1/2"	83	16	105.2	50	31.6	37	28	10	24.5	
		3/4"	122	22	111.2	50	31.6	37	28	10	24.5	
	Lok	1/4"	69.5	11	77.1	37	24	26	25.4	5	20.5	55
		3/8"	82.5	16	105.2	50	31.6	37	28	10	24.5	68
		1/2"	91	16	105.2	50	31.6	37	28	10	24.5	70
		3/4"	106	22	111.2	50	31.6	37	28	10	24.5	84
	Butt Weld	1/4"	54	11	77.1	37	24	26	25.4	5	20.5	
		3/8"	69	16	105.2	50	31.6	37	28	10	24.5	
		1/2"	69	16	105.2	50	31.6	37	28	10	24.5	
		3/4"	150	22	111.2	50	31.6	37	28	10	24.5	

## LOW PRESSURE MANUAL DIAPHRAGM VALVE

**SHUTOFF TYPE****FEATURES**

- Shutoff type handle operation
- Low internal volume
- Minimal particle generation
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Handle colors available upon request
- Lockable in the CLOSED position for safety

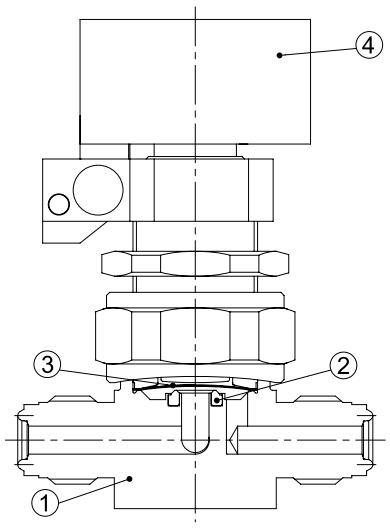
**MAJOR SPECIFICATIONS**

Size	1/4"	3/8", 1/2"
<b>Cv Value</b>	0.3	0.7
<b>Orifice Size</b>	3.5mm	6.5mm
<b>Max. Working Pressure (G.)</b>	1MPa	
<b>Max. Working Temp.</b>	PCTFE : -10°C ~ 80°C / PI, PFA : -10°C ~ 150°C	
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>		
<b>Holding Time ≥ 15 sec.</b>		
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>		
<b>Holding Time ≥ 1 min.</b>		
<b>Particle Inspection (EP only)</b>	No count	
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>		
<b>Sample Volume : 1CFM</b>		
<b>0.1µm and Larger</b>		

**PRODUCT GRADE**

GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

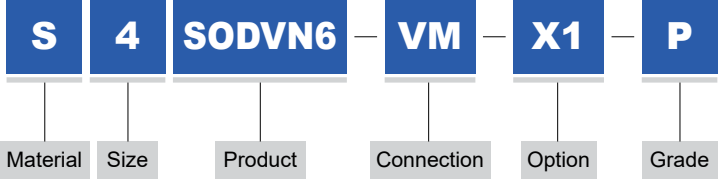




**MATERIAL**

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE / PI / PFA
3	Diaphragm	Ni-Co Alloy
4	Handle	Nylon

**ORDERING INFORMATION**



MATERIAL		SIZE		CONNECTION		OPTION		GRADE	
S	316L Stainless Steel	4	1/4"	VM	MFS Male	×87	Locking	AP	AP Grade
D	316L Stainless Steel VAR	6	3/8"	VF	MFS Female	×27	Lock Nut	BLANK	BA Grade
4S	Stainless Steel 304	8	1/2"	SW	Lok			P	EP Grade

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G	H	J	K
	MFS Male	1/4"	57	14.3	80.4	37	24	26	25.4	7	20.5	
		3/8"	76.2	11.1	100.3	50	31.6	37	28.6	10	24.5	
		1/2"	76.2	11.1	100.3	50	31.6	37	28.6	10	24.5	
	MFS Female	1/4"	70.6	14.3	80.4	37	24	26	25.4	7	20.5	
		3/8"	83	12.7	101.9	50	31.6	37	28.6	10	24.5	
		1/2"	83	12.7	101.9	50	31.6	37	28.6	10	24.5	
	Lok	1/4"	69.5	14.3	80.4	37	24	26	25.4	7	20.5	55
		3/8"	82.5	12.7	101.9	50	31.6	37	28.6	10	24.5	68
		1/2"	91	12.7	101.9	50	31.6	37	28.6	10	24.5	70
	Butt Weld	1/4"	54	14.3	80.4	37	24	26	25.4	7	20.5	
		3/8"	69	12.7	101.9	50	31.6	37	28.6	10	24.5	
		1/2"	69	12.7	101.9	50	31.6	37	28.6	10	24.5	

## LOW PRESSURE MANUAL DIAPHRAGM VALVE

**BRANCH TYPE****FEATURES**

- Reduced inner capacity
- Highly resistant to corrosion using nickel-cobalt alloy diaphragm
- Minimal particle generation
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Permanently heat code laser marked; material traceable to original mill certificate of test
- Electropolished, D.I. water cleaned, assembled, tested and packed in a certified clean room

**MAJOR SPECIFICATIONS**

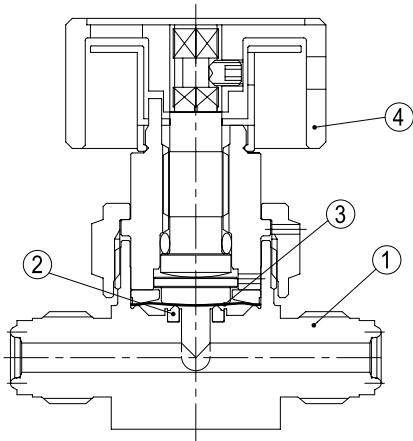
Size	1/4"	3/8", 1/2"	3/4"
<b>Cv Value</b>	0.3	0.7	0.7
<b>Orifice Size</b>	4.5mm	7mm	7mm
<b>Max. Working Pressure (G.)</b>	1MPa		
<b>Max. Working Temp.</b>	PCTFE : -10°C ~ 80°C / PI, PFA : -10°C ~ 150°C		
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 30 sec.</b>			
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 1 min.</b>			
<b>Particle Inspection (EP only)</b>	No count		
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>			
<b>Sample Volume : 1CFM</b>			
<b>0.1µm and Larger</b>			

**PRODUCT GRADE**

0.3	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE / PI / PFA
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminum



### ORDERING INFORMATION

S
4
DVN3
VM
12T3
X1
P

Material
Size
Product
Connection
Flow
Option
Grade

MATERIAL		SIZE		CONNECTION		FLOW		GRADE	
S	316L Stainless Steel	4	1/4"	VM	MFS Male	12T3		AP	AP Grade
D	316L Stainless Steel VAR	6	3/8"	VF	MFS Female			BLANK	BA Grade
4S	304 Stainless Steel	8	1/2"	SW	Lok	13T2		P	EP Grade
		12	3/4"	TW	Butt Weld				

MODEL	CONNECTION	SIZE	A	B	C	D	F	G	H
	MFS Male	1/4"	57	11	64.3	40	26	25.4	
		3/8"	76.2	16	76.8	40	37	28	
		1/2"	76.2	16	76.8	40	37	28	
		3/4"	122	22	82.8	40	37	28	
	MFS Female	1/4"	70.6	11	64.3	40	26	25.4	
		3/8"	83	16	76.8	40	37	28	
		1/2"	83	16	76.8	40	37	28	
		3/4"	122	22	82.8	40	37	28	
	Lok	1/4"	69.5	11	64.3	40	26	25.4	14.5
		3/8"	82.5	16	76.8	40	37	28	15.5
		1/2"	91	16	76.8	40	37	28	16.5
		3/4"	106	22	82.8	40	37	28	23.5
	Butt Weld	1/4"	54	11	64.3	40	26	25.4	
		3/8"	69	16	76.8	40	37	28	
		1/2"	69	16	76.8	40	37	28	
		3/4"	150	22	82.8	40	37	28	

## LOW PRESSURE PNEUMATIC DIAPHRAGM VALVE

## BRANCH TYPE

## FEATURES

- Reduced inner capacity
- Highly resistant to corrosion using nickel-cobalt alloy diaphragm
- Minimal particle generation
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Permanently heat code laser marked; material traceable to original mill certificate of test
- Increased operation speed using aluminum piston

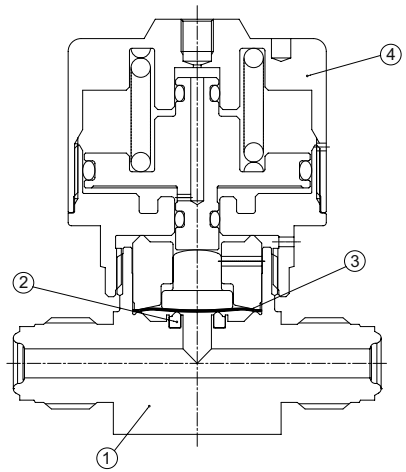


## MAJOR SPECIFICATIONS

Size	1/4"	3/8", 1/2"	3/4"
<b>Cv Value</b>	0.3	0.7	0.7
<b>Orifice Size</b>	4.5mm	7mm	7mm
<b>Max. Working Pressure (G.)</b>	1MPa		
<b>Operating Pressure (G.)</b>	0.4~0.6MPa		
<b>Max. Working Temp.</b>	PCTFE : -10°C ~ 80°C / PI, PFA : -10°C ~ 150°C		
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 15 sec.</b>			
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 1 min.</b>			
<b>Particle Inspection (EP only)</b>	No count		
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>			
<b>Sample Volume : 1CFM</b>			
<b>0.1µm and Larger</b>			

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



**MATERIAL**

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE / PI / PFA
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminum

**ORDERING INFORMATION**

**S**
**4**
**PDVN3**
**VM**
**12T3**
**C**
**X1**
**P**

Material    Size    Product    Connection    Flow    Operation Method    Option    Grade

MATERIAL	SIZE	CONNECTION	FLOW	OPERATION METHOD	GRADE
S 316L Stainless Steel	4 1/4"	VM MFS Male	12T3	C Normally Close	AP AP Grade
D 316L Stainless Steel VAR	6 3/8"	VF MFS Female			BLANK BA Grade
4S 304 Stainless Steel	8 1/2"	SW Lok	13T2	O Normally Open	P EP Grade
	12 3/4"	TW Butt Weld			

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G
	MFS Male	1/4"	15.5	11	64.3	40	26	25.4	
		3/8"	19.6	16	83.8	55	37	28	
		1/2"	19.6	16	83.8	55	37	28	
		3/4"	42.5	22	89.8	55	37	28	
	MFS Female	1/4"	22.3	11	64.3	40	26	25.4	
		3/8"	23	16	83.8	55	37	28	
		1/2"	23	16	83.8	55	37	28	
		3/4"	42.5	22	89.8	55	37	28	
	Lok	1/4"	14.5	11	64.3	40	26	25.4	26.7
		3/8"	15.5	16	83.8	55	37	28	22.8
		1/2"	16.5	16	83.8	55	37	28	26.8
		3/4"	23.5	22	89.8	55	37	28	34.5
	Butt Weld	1/4"	54	11	64.3	40	26	25.4	
		3/8"	69	16	83.8	55	37	28	
		1/2"	69	16	83.8	55	37	28	
		3/4"	150	22	89.8	55	37	28	

## LOW PRESSURE MANUAL DIAPHRAGM VALVE

# WELD TEE & VALVE TYPE

## FEATURES

- Used in sub-main or after of the bulk gas piping system
- Developed for low cost
- Simple and easy to use
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Component parts are reduced to minimum



## MAJOR SPECIFICATIONS

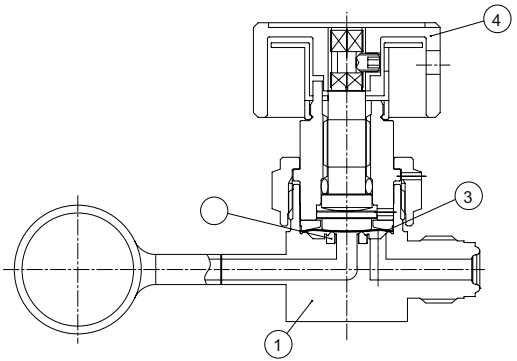
Size	1/4"	3/8", 1/2"	3/4"
<b>Cv Value</b>	0.3	0.7	0.7
<b>Orifice Size</b>	4.5mm	7mm	7mm
<b>Max. Working Pressure (G.)</b>	1MPa		
<b>Max. Working Temp.</b>	PCTFE : -10°C ~ 80°C / PI, PFA : -10°C ~ 150°C		
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-4</sup> Torr</b>			
<b>Holding Time ≥ 30 sec.</b>			
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-4</sup> Torr</b>			
<b>Holding Time ≥ 1 min.</b>			
<b>Particle Inspection (EP only)</b>	No count		
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>			
<b>Sample Volume : 1CFM</b>			
<b>0.1µm and Larger</b>			

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE / PI / PFA
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminum



### ORDERING INFORMATION

**S**
**20×T4**
**TDVN**
**VM**
**X1**
**P**

Material
Size
Product
Connection
Option
Grade

MATERIAL		SIZE		CONNECTION		GRADE	
S	316L Stainless Steel	20×T4	20A×1/4"	VM	MFS Male	AP	AP Grade
D	316L Stainless Steel VAR	20×T6	20A×3/8"	VF	MFS Female	BLANK	BA Grade
4S	304 Stainless Steel	20×T8	20A×1/2"	SW	Lok	P	EP Grade
		20×T12	20A×3/4"	TW	Butt Weld		

MODEL	CONNECTION	SIZE	A	B	C	D	E	H
	MFS Male	1/4"	98.5	11	64.3	26	40	115.5
		3/8"	122.6	16	76.8	28	40	135.1
		1/2"	122.6	16	76.8	28	40	125.1
		3/4"	158.9	22	82.8	28	40	172.5
	MFS Female	1/4"	105.9	11	64.3	26	40	122.9
		3/8"	114.5	16	76.8	28	40	131.5
		1/2"	114.5	16	76.8	28	40	131.5
		3/4"	141.8	22	82.8	28	40	155.4
	Lok	1/4"	105	11	64.3	26	40	114.7
		3/8"	118.5	16	76.8	28	40	135.5
		1/2"	118.5	16	76.8	28	40	135.5
		3/4"	155	22	82.8	28	40	168.6
	Butt Weld	1/4"	97.2	11	64.3	26	40	114.2
		3/8"	126	16	76.8	28	40	143
		1/2"	126	16	76.8	28	40	143
		3/4"	155	16	82.8	28	40	168.6

## LOW PRESSURE MANUAL DIAPHRAGM VALVE

# WELD TEE & VALVE TYPE

## FEATURES

- Used in sub-main or after of the bulk gas piping system
- Developed for low cost
- Simple and easy to use
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Component parts are reduced to minimum



## MAJOR SPECIFICATIONS

Size	1/4"	3/8", 1/2"	3/4"
<b>Cv Value</b>	0.3	0.7	0.7
<b>Orifice Size</b>	4.5mm	6.5mm	6.5mm
<b>Max. Working Pressure (G.)</b>	1MPa		
<b>Max. Working Temp.</b>	PCTFE : -10°C ~ 80°C / PI, PFA : -10°C ~ 150°C		
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-4</sup> Torr</b>			
<b>Holding Time ≥ 30 sec.</b>			
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-4</sup> Torr</b>			
<b>Holding Time ≥ 1 min.</b>			
<b>Particle Inspection (EP only)</b>	No count		
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>			
<b>Sample Volume : 1CFM</b>			
<b>0.1µm and Larger</b>			

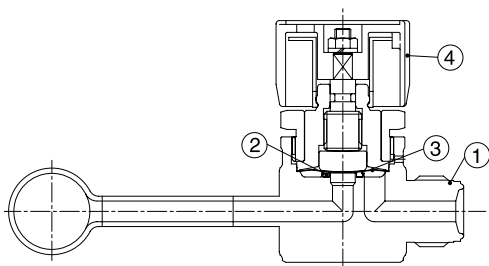
## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

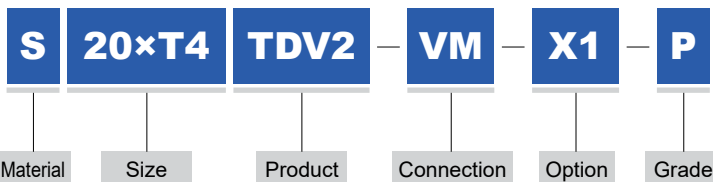


### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE / PI / PFA
3	Diaphragm	Ni-Co Alloy
4	Handle	HI-100



### ORDERING INFORMATION



MATERIAL		SIZE		CONNECTION		GRADE	
S	316L Stainless Steel	20xT4	20Ax1/4"	VM	MFS Male	AP	AP Grade
D	316L Stainless Steel VAR	20xT6	20Ax3/8"	VF	MFS Female	BLANK	BA Grade
4S	304 Stainless Steel	20xT8	20Ax1/2"	SW	Lok	P	EP Grade
		20xT12	20Ax3/4"	TW	Butt Weld		

MODEL	CONNECTION	SIZE	A	B	C	D	E	H
	MFS Male	1/4"	98.5	11	66	17	45	113.5
		3/8"	121.5	16	77	28	45	138.5
		1/2"	121.5	16	77	28	45	138.5
		3/4"	158.9	22	85	28	45	172.5
	MFS Female	1/4"	105.9	11	66	17	45	123.8
		3/8"	135.8	16	77	28	45	149.4
		1/2"	135.8	16	77	28	45	149.4
		3/4"	141.8	22	85	28	45	155.4
	Lok	1/4"	98.4	11	66	17	45	112
		3/8"	117.5	16	77	28	45	131.1
		1/2"	118.5	16	77	28	45	132.1
		3/4"	155	22	85	28	45	168.6
	Butt Weld	1/4"	138.4	11	66	17	45	152
		3/8"	157	16	77	28	45	170.6
		1/2"	157	16	77	28	45	170.6
		3/4"	155	22	85	28	45	168.6

## DOUBLE DUTY DIAPHRAGM VALVE

## STD TYPE

## FEATURES

- Low internal volume
- Minimal particle generation
- Minimal contributions of moisture, Oxygen and Hydrocarbon
- Permanently heat code laser marked ; material traceable to original mill certificate of test
- Ni-Co Alloy and custom configurations available upon request

## PATENT NUMBER

- 10-2004-0074464
- 20-2004-0026738

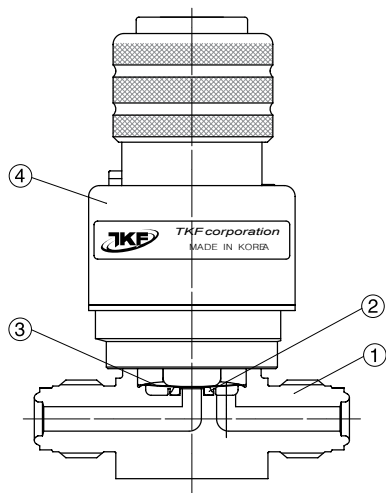


## MAJOR SPECIFICATIONS

Size	1/4"
Cv Value	0.3
Orifice Size	4.5mm
Max. Working Pressure (G.)	1MPa
Operating Pressure (G.)	0.4~0.6MPa
Max. Working Temp.	PCTFE : -10°C ~ 80°C / PI, PFA : -10°C ~ 150°C
Internal Leakage Allowance (He)	
Test Pressure ≤ 1×10 <sup>-2</sup> Torr	1×10 <sup>-10</sup> Pa · m <sup>3</sup> /s
Holding Time ≥ 15 sec.	
External Leakage Allowance (He)	
Test Pressure ≤ 1×10 <sup>-2</sup> Torr	1×10 <sup>-10</sup> Pa · m <sup>3</sup> /s
Holding Time ≥ 1 min.	
Particle Inspection (EP only)	
Pressure : 60~80psi N <sub>2</sub> Gas	No count
Sample Volume : 1CFM	
0.1µm and Larger	

## PRODUCT GRADE

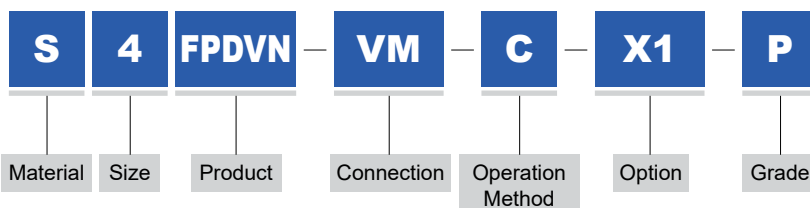
GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Seat	PCTFE / PI / PFA
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminum

### ORDERING INFORMATION



MATERIAL	SIZE	CONNECTION	OPERATION METHOD	GRADE
S 316L Stainless Steel	4 1/4"	VM MFS Male	C Normally Close	AP AP Grade
D 316L Stainless Steel VAR		VF MFS Female	O Normally Open	BLANK BA Grade
		SW Lok		P EP Grade
		TW Butt Weld		

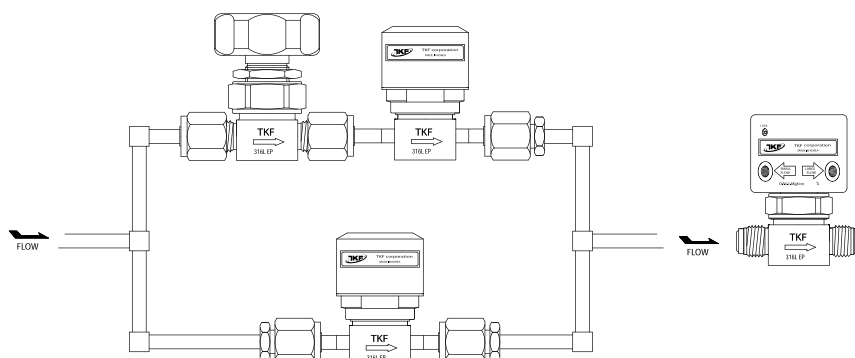
MODEL	CONNECTION	MFS MALE	MODEL	CONNECTION	MFS FEMALE
	SIZE	1/4"		SIZE	1/4"
	A	57		A	70.6
	B	11		B	11
	C	86		C	86
	D	ø38		D	ø38
	E	26		E	26
	F	25.4		F	25.4
G	M5-TAP8	G	M5-TAP8		
	CONNECTION	LOK		CONNECTION	BUTT WELD
	SIZE	1/4"		SIZE	1/4"
	A	69.5		A	54
	B	11		B	11
	C	86		C	86
	D	ø38		D	ø38
	E	26		E	26
F	25.4	F	25.4		
G	M5-TAP8	G	M5-TAP8		

# LOW PRESSURE DUAL FLOW PNEUMATIC DIAPHRAGM VALVE

## STD TYPE

### FEATURES

- Reduced inner capacity
- Highly resistant to corrosion using nickel-cobalt alloy diaphragm
- Minimal particle generation
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Permanently heat code laser marked, material traceable to original mill certificate of test
- Increased operation speed using aluminum piston

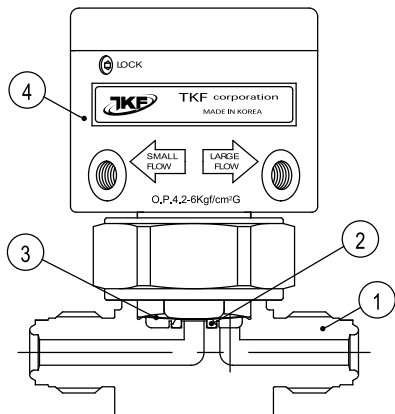


### MAJOR SPECIFICATIONS

Size	1/4"	3/8", 1/2"	3/4"
<b>Cv Value</b>	0.3	0.7	0.7
<b>Orifice Size</b>	3.5mm	7mm	7mm
<b>Max. Working Pressure (G.)</b>	1MPa		
<b>Operating Pressure (G.)</b>	0.4 ~ 0.6MPa		
<b>Max. Working Temp.</b>	PCTFE : -10°C ~ 80°C / PI, PFA : -10°C ~ 150°C		
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 15 sec.</b>			
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 1 min.</b>			
<b>Particle Inspection (EP only)</b>	No count		
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>			
<b>Sample Volume : 1CFM</b>			
<b>0.1µm and Larger</b>			

### PRODUCT GRADE

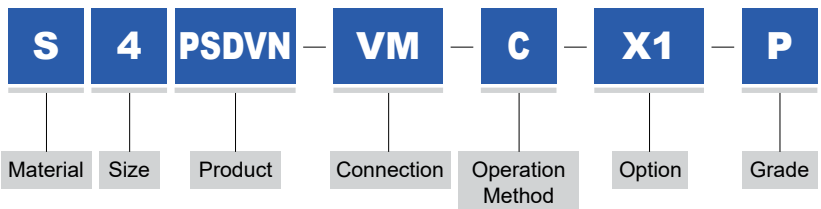
GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE / PI / PFA
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminum

### ORDERING INFORMATION



	MATERIAL	SIZE	CONNECTION	OPERATION METHOD	GRADE
S	316L Stainless Steel	4 1/4"	VM MFS Male	C Normally Close	AP AP Grade
D	316L Stainless Steel VAR	6 3/8"	VF MFS Female		BLANK BA Grade
4S	304 Stainless Steel	8 1/2"	SW Lok		P EP Grade
		12 3/4"	TW Butt Weld		

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G
	MFS Male	1/4"	57	11	77.2	43.6	26	25.4	
		3/8"	76.2	16	98.6	60	37	28	
		1/2"	76.2	16	98.6	60	37	28	
		3/4"	122	22	104.6	60	37	28	
	MFS Female	1/4"	70.6	11	77.2	43.6	26	25.4	
		3/8"	83	16	98.6	60	37	28	
		1/2"	83	16	98.6	60	37	28	
		3/4"	122	22	104.6	60	37	28	
	Lok	1/4"	69.5	11	77.2	43.6	26	25.4	55
		3/8"	82.5	16	98.6	60	37	28	68
		1/2"	91	16	98.6	60	37	28	70
		3/4"	106	22	104.6	60	37	28	84
	Butt Weld	1/4"	54	11	77.2	43.6	26	25.4	
		3/8"	69	16	98.6	60	37	28	
		1/2"	69	16	98.6	60	37	28	
		3/4"	150	22	98.6	60	37	28	

## LOW PRESSURE METAL DIAPHRAGM METERING VALVE

**FLOW CONTROL TYPE****FEATURES**

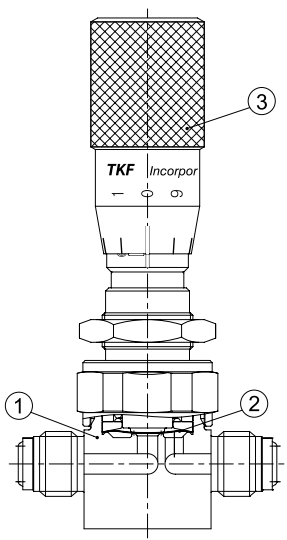
- Metal diaphragm metering valve
- Cv range from 0.25
- Valve for use in temperatures of up to 150°C
- Permanently heat code laser marked;  
material traceable to original millcertificate of test

**MAJOR SPECIFICATIONS**

Size	1/4"
Cv Value	0.25
Orifice Size	4.5mm
Max. Working Pressure (G.)	1MPa
Max. Working Temp.	-10°C ~ 150°C
External Leakage Allowance (He)	
Test Pressure $\leq 1 \times 10^{-2}$ Torr	$1 \times 10^{-10}$ Pa · m <sup>3</sup> /s
Holding Time $\geq 1$ min.	
Particle Inspection (EP only)	
Pressure : 60~80psi N <sub>2</sub> Gas	No count
Sample Volume : 1CFM	
0.1 $\mu$ m and Larger	

**PRODUCT GRADE**

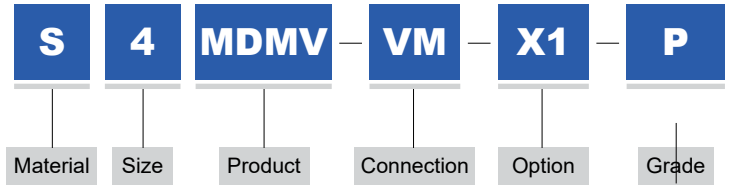
GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu$ m Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu$ m 10 $\mu$ inch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu$ m 5 $\mu$ inch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Diaphragm	Ni-Co Alloy
3	Handle	Aluminum

### ORDERING INFORMATION



MATERIAL	SIZE	CONNECTION	GRADE
S 316L Stainless Steel	4 1/4"	VM MFS Male	P EP Grade
D 316L Stainless Steel VAR		VF MFS Female	

STANDARD MODEL	CONNECTION	SIZE	A	B	C	D	E	F
	MFS Male	1/4"	57	11	119.3	25	26	25.4
	MFS Female	1/4"	70.6	11	119.3	25	26	25.4

## LOW PRESSURE MANUAL DIAPHRAGM VALVE

**FORGED BODY TYPE****FEATURES**

- Forged body using round bar stock
- Low internal volume
- Minimal particle generation
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Permanently heat code laser marked; material traceable to original mill certificate of test
- Hastelloy® C-22™ and custom configurations available upon request

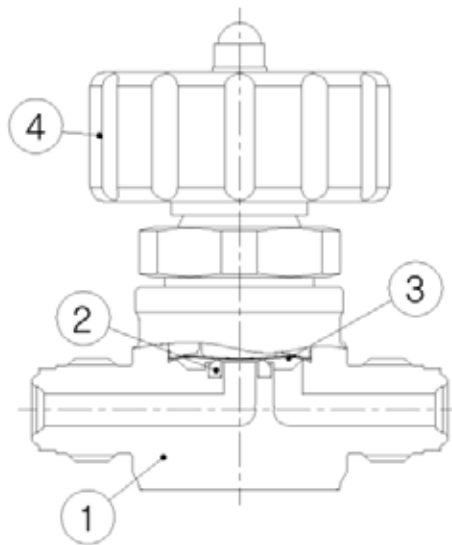
**MAJOR SPECIFICATIONS**

Size	1/4"	3/8", 1/2"
<b>Cv Value</b>	0.3	0.7
<b>Orifice Size</b>	4.4mm	7mm
<b>Max. Working Pressure (G.)</b>	1MPa	
<b>Max. Working Temp.</b>	PCTFE : -10°C ~ 80°C / PI, PFA : -10°C ~ 150°C	
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>		
<b>Holding Time ≥ 30 sec.</b>		
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>		
<b>Holding Time ≥ 1 min.</b>		
<b>Particle Inspection (EP only)</b>	No count	
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>		
<b>Sample Volume : 1CFM</b>		
<b>0.1µm and Larger</b>		

**PRODUCT GRADE**

GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

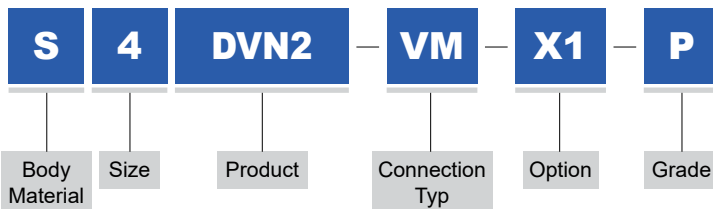




### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE / PI / PFA
3	Diaphragm	Ni-Co Alloy
4	Handle	ABS

### ORDERING INFORMATION



MATERIAL	SIZE	CONNECTION	GRADE
S 316L Stainless Steel	4 1/4"	VM MFS Male	AP Grade
D 316L Stainless Steel VAR	6 3/8"	VF MFS Female	BLANK BA Grade
4S 304 Stainless Steel	8 1/2"	SW Lok	P EP Grade
		TW Buttt Weld	

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G
	MFS Male	1/4"	58	11	65.3	42	17	28	
		3/8"	76	16	75.5	42	28	38	
		1/2"	76	16	75.5	42	28	38	
	MFS Female	1/4"	78	11	65.3	42	17	28	
		3/8"	104.6	16	75.5	42	28	38	
		1/2"	104.6	16	75.5	42	28	38	
	Lok	1/4"	69.3	11	65.3	42	17	28	55
		3/8"	82.5	16	75.5	42	28	38	68
		1/2"	90.2	16	75.5	42	28	38	70
	Butt Weld	1/4"	58	11	65.3	42	17	28	
		3/8"	72	16	75.5	42	28	38	
		1/2"	72	16	75.5	42	28	38	

## HIGH FLOW MANUAL DIAPHRAGM VALVE

## STD TYPE

## FEATURES

- Internally threadless and springless
- Fully functional from a vacuum to 275psig
- Aerodynamic, fully swept flow passages
- Minimum particle generation and particle areas
- 100% Helium leak tested



## MAJOR SPECIFICATIONS

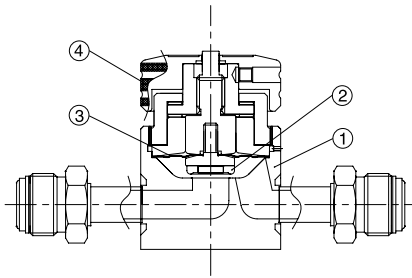
Size	1/2"	3/4", 1"
<b>Cv Value</b>	2.8	3.5
<b>Max. Working Pressure (G.)</b>	1.86MPa	
<b>Max. Working Temp.</b>	-10°C ~ 80°C	
<b>Internal Leakage Allowance (He)</b>		
<b>Test Pressure <math>\leq 1 \times 10^{-2}</math> Torr</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Holding Time <math>\geq 30</math> sec.</b>		
<b>External Leakage Allowance (He)</b>		
<b>Test Pressure <math>\leq 1 \times 10^{-2}</math> Torr</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Holding Time <math>\geq 1</math> min.</b>		
<b>Particle Inspection (EP only)</b>		
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>	No count	
<b>Sample Volume : 1CFM</b>		
<b>0.1µm and Larger</b>		

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu\text{m}$ Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu\text{m}$ 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu\text{m}$ 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length: 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Disk	PCTFE
3	Diaphragm	316L Stainless Steel
4	Handle	Aluminum



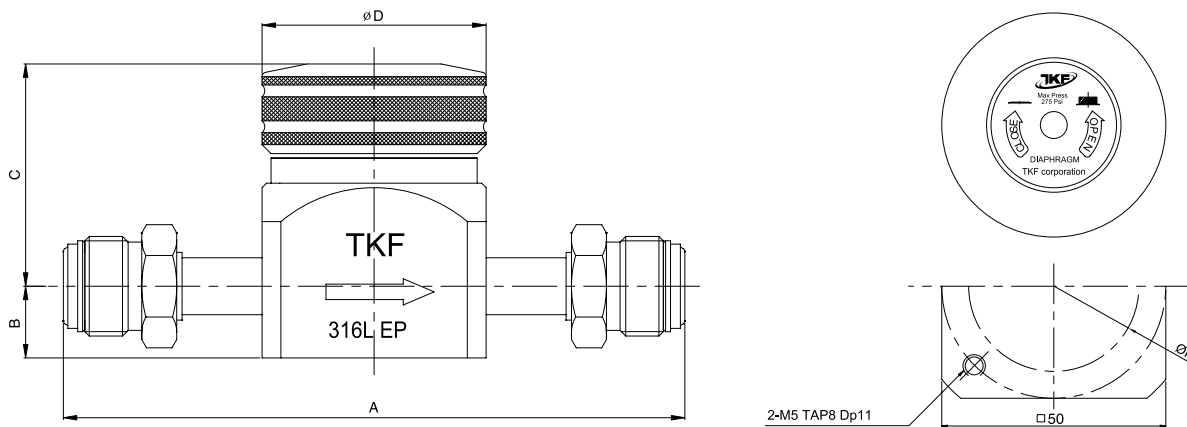
### ORDERING INFORMATION

**S**
**8**
**HFDV**
**VM**
**P2**
**PVF**
**X1**
**P**

Material   Size   Product   Connection   Purge Port   Purge Port Connection   Option   Grade

MATERIAL		SIZE		CONNECTION	
S	316L Stainless Steel	8	1/2"	VM	MFS Male
D	316L Stainless Steel VAR	12	3/4"	VF	MFS Female
4S	304 Stainless Steel	16	1"	TW	Butt Weld

PURGE PORT LOCATION		PURGE PORT CONNECTIONS		GRADE	
P0	Outlet Side	PVM	1/4" MFS Male	AP	AP Grade
P1	Inlet and Outlet	PVF	1/4" MFS Female	BLANK	BA Grade
P2	Inlet Side			P	EP Grade
Blank	No Purge Port				



SIZE	CONNECTION	A	B	C	D	E
1/2"	VM	138.7	16	53.5	50	50
	VF	138.7	16	53.5	50	50
	TW	150	16	53.5	50	50
3/4"	VM	157.0	17.5	56.5	50	50
	VF	157.0	17.5	56.5	50	50
	TW	150	17.5	56.5	50	50
1"	VM	166	17.5	56.5	50	50
	VF	166	17.5	56.5	50	50
	TW	150	17.5	56.5	50	50

## ULTRA HIGH FLOW MANUAL DIAPHRAGM VALVE

## STD TYPE

## FEATURES

- Internally threadless and springless
- Fully functional from a vacuum to 275psig
- Aerodynamic, fully swept flow passages
- Minimum particle generation and particle areas
- 100% Helium leak tested



## MAJOR SPECIFICATIONS

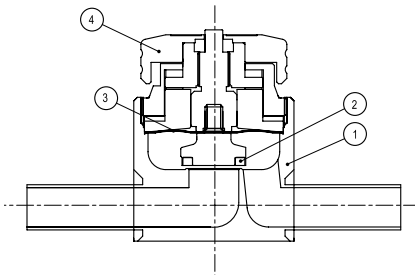
Size	3/4", 1", 1-1/2", 2"
<b>Cv Value</b>	10
<b>Max. Working Pressure (G.)</b>	1.86MPa
<b>Max. Working Temp.</b>	-10°C ~ 80°C
<b>Internal Leakage Allowance (He)</b>	
<b>Test Pressure <math>\leq 1 \times 10^{-2}</math> Torr</b>	$1 \times 10^{-10}$ Pa · m <sup>3</sup> /s
<b>Holding Time <math>\geq 30</math> sec.</b>	
<b>External Leakage Allowance (He)</b>	
<b>Test Pressure <math>\leq 1 \times 10^{-2}</math> Torr</b>	$1 \times 10^{-10}$ Pa · m <sup>3</sup> /s
<b>Holding Time <math>\geq 1</math> min.</b>	
<b>Particle Inspection (EP only)</b>	
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>	
<b>Sample Volume : 1CFM</b>	
<b>0.1<math>\mu</math>m and Larger</b>	No count

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu$ m Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu$ m 10 $\mu$ inch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu$ m 5 $\mu$ inch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Disk	PCTFE
3	Diaphragm	316L Stainless Steel
4	Handle	Aluminum



### ORDERING INFORMATION

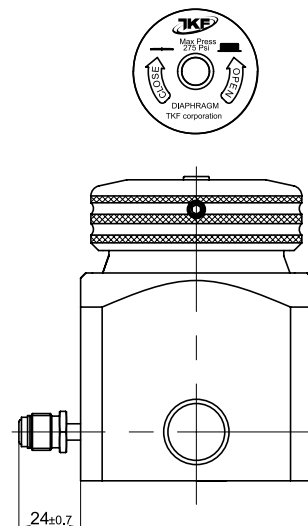
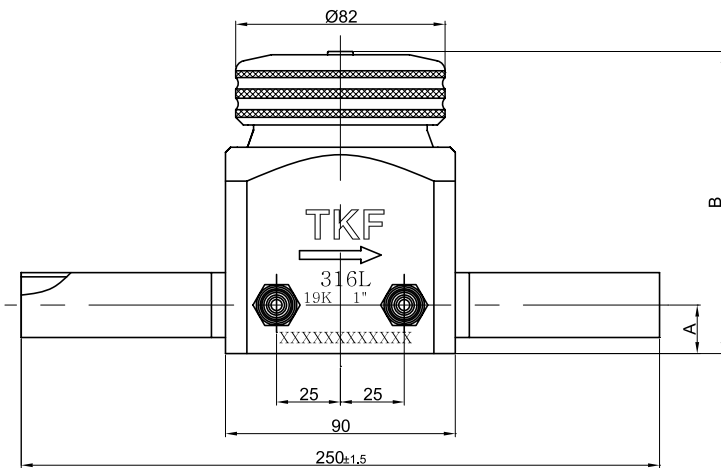
<b>S</b>	<b>12</b>	<b>HFLDV</b>	<b>TW</b>	<b>P1</b>	<b>PVM</b>	<b>X1</b>	<b>P</b>
Material	Size	Product	Connection	Purge Port	Purge Port Connection	Option	Grade

MATERIAL		SIZE		CONNECTION	
S	316L Stainless Steel	12	3/4"	TW	Butt Weld(3/4", 1", 1-1/2", 2")
D	316L Stainless Steel VAR	16	1"	VM	MFS Male(3/4", 1")
4S	304 Stainless Steel	24	1 - 1/2"	VF	MFS Female(3/4", 1")
		32	2"		

PURGE PORT LOCATION		PURGE PORT CONNECTIONS		GRADE	
P0	Outlet Side	PVM	1/4" MFS Male	AP	AP Grade
P1	Inlet and Outlet			BLANK	BA Grade
P2	Inlet Side	PVF	1/4" MFS Female	P	EP Grade
Blank	No Purge Port				

### OUTSIDE DIMENSIONS

	PORT SIZES	
	3/4", 1"	1-1/2", 2"
A	19	29.2
B	218	228



## HIGH FLOW MANUAL BLOCK DIAPHRAGM VALVE

## STD TYPE

## FEATURES

- Internally threadless and springless
- Fully functional from a vacuum to 275psig
- Aerodynamic, fully swept flow passages
- Minimum particle generation and particle entrapment areas
- 100% Helium leak tested



## MAJOR SPECIFICATIONS

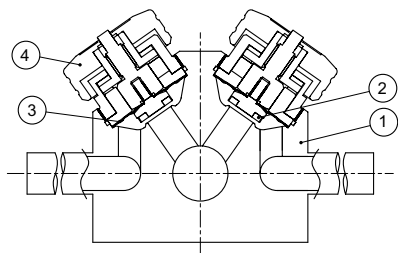
Size	Main : 1/2", 3/4", 1", 1-1/2", 2"	Branch : 1/4", 3/8", 1/2", 3/4", 1"
<b>Cv Value</b>	2.8	
<b>Max. Working Pressure (G.)</b>	1.86MPa	
<b>Max. Working Temp.</b>	-10°C ~ 80°C	
<b>Internal Leakage Allowance (He)</b>		
<b>Test Pressure <math>\leq 1 \times 10^{-2}</math> Torr</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Holding Time <math>\geq 30</math> sec.</b>		
<b>External Leakage Allowance (He)</b>		
<b>Test Pressure <math>\leq 1 \times 10^{-2}</math> Torr</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Holding Time <math>\geq 1</math> min.</b>		
<b>Particle Inspection (EP only)</b>		
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>		
<b>Sample Volume : 1CFM</b>		
<b>0.1µm and Larger</b>	No count	

## PRODUCT GRADE

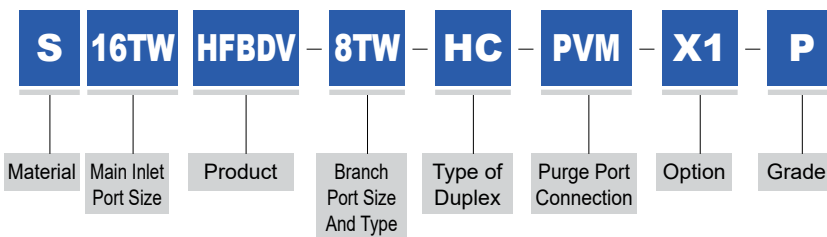
GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu\text{m}$ Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu\text{m}$ 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu\text{m}$ 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Disk	PCTFE
3	Diaphragm	316L Stainless Steel
4	Handle	Aluminum



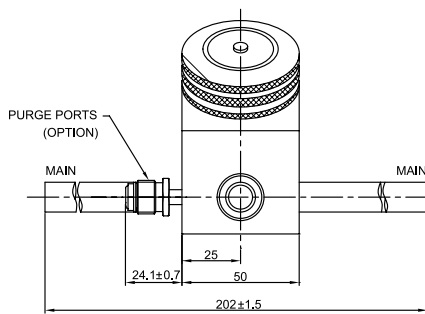
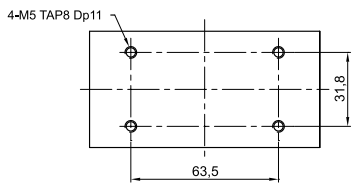
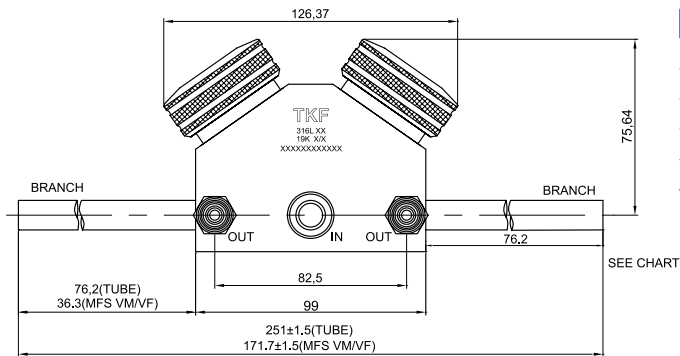
### ORDERING INFORMATION



MATERIAL	MAIN INLET PORT SIZE	BRANCH PORT SIZE AND TYPE	TYPE OF DUPLEX	PURGE PORT CONNECTIONS	GRADE
S 316L Stainless Steel	8TW 1/2" Tube	4TW 1/4" Tube	HC Horizontal Cross	BLANK NO	AP AP Grade
D 316L Stainless Steel VAR	12TW 3/4" Tube	6TW 3/8" Tube	HT Horizontal Tee	PVM 1/4" MFS Male	BLANK BA Grade
4S 304 Stainless Steel	16TW 1" Tube	8TW 1/2" Tube	VT Vertical Tee		P EP Grade
	24TW 1-1/2" Tube	12TW 3/4" Tube			
	32TW 2" Tube (Not available Vertical Tee)	16TW 1" Tube			
		8VM 1/2" MFS Male			
		8VF 1/2" MFS Female			

### MAIN & BRANCH PORT LOCATION

Main Port Tube Dia.	Horizontal Cross(HC)	Horizontal Tee(HT)	Vertical Tee(VT)
1/2"	15.7	15.7	15.7
3/4"	15.7	15.7	15.7
1"	15.7	15.7	15.7
1-1/2"	31.7	31.7	31.7
2"	31.7	31.7	N/A



## HIGH PRESSURE MANUAL DIAPHRAGM VALVE

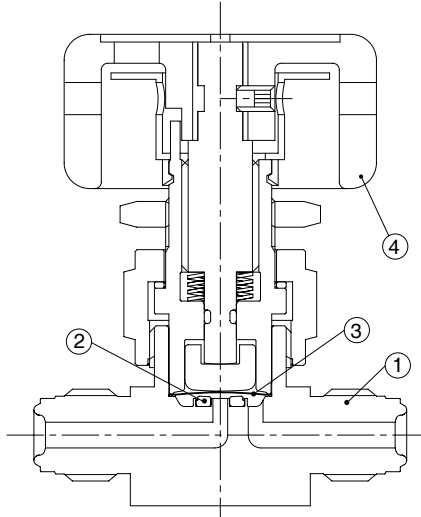
**STD TYPE****MAJOR SPECIFICATIONS**

Size	1/4"
<b>Cv Value</b>	0.1
<b>Orifice Size</b>	2.3mm
<b>Max. Working Pressure (G.)</b>	23.5MPa
<b>Max. Working Temp.</b>	-10°C ~ 40°C
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>	
<b>Holding Time ≥ 30 sec.</b>	
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>	
<b>Holding Time ≥ 1 min.</b>	
<b>Particle Inspection (EP only)</b> Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1µm and Larger	No count

**PRODUCT GRADE**

GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

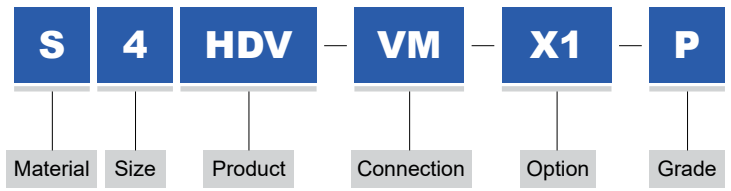




### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminum

### ORDERING INFORMATION



MATERIAL		SIZE		CONNECTION		GRADE	
S	316L Stainless Steel	4	1/4"	VM	MFS Male	AP	AP Grade
D	316L Stainless Steel VAR			VF	MFS Female	BLANK	BA Grade
4S	304 Stainless Steel			SW	Lok	P	EP Grade
				TW	Butt Weld		

MODEL	CONNECTION	A	B	C	D	E	F	G	H	I	J
	MFS Male	57	11	74	48	28	25.4	28.5	3.5	M5	
	MFS Female	70.6	11	74	48	28	25.4	28.5	3.5	M5	
	Lok	55	11	74	48	28	25.4	28.5	3.5	M5	69.3
	Butt Weld	135	11	74	48	28	25.4	28.5	3.5	M5	

## HIGH PRESSURE MANUAL DIAPHRAGM VALVE

# SPRING TYPE

## FEATURES

- HPL series diaphragm valves require just one-quarter turn of the handle to actuate the valve from fully open to closed.
- Position indicator ring provides visual confirmation that the Valve is fully open or closed.
- Splined handle and actuator prevent handle slippage and Assure positive valve actuator.
- Various end connections are available (MFS Male, MFS Female, Lok)

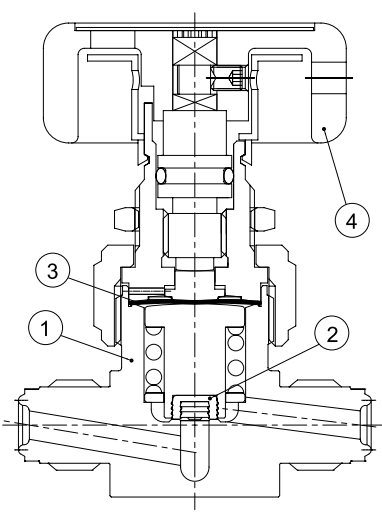


## MAJOR SPECIFICATIONS

Size	1/4"
<b>Cv Value</b>	0.3
<b>Orifice Size</b>	4.5mm
<b>Max. Working Pressure (G.)</b>	24.1MPa
<b>Max. Working Temp.</b>	-73°C ~ 80°C
<b>Internal Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>	
<b>Holding Time ≥ 30 sec.</b>	
<b>External Leakage Allowance (He)</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>	
<b>Holding Time ≥ 1 min.</b>	
<b>Particle Inspection (EP only)</b> Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1µm and Larger	No count

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Seat	PCTFE / PFA
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminum

### ORDERING INFORMATION

**S**
**4**
**HPR**
**VM**
**X1**
**P**

Material
Size
Product
Connection
Option
Grade

	MATERIAL	SIZE	HANDLE	CONNECTION	GRADE
S	316L Stainless Steel	4 1/4"	HPR Round Handle	VM MFS Male	AP AP Grade
D	316L Stainless Steel VAR		HPL Lever Handle	VF MFS Female SW Lok	BLANK BA Grade P EP Grade

ROUND HANDLE	CONNECTION	SIZE	A	B	C	D	E	F
	MFS Male	1/4"	58.4	11.4	76	48	26.9	25.4
	MFS Female	1/4"	70.1	11.4	76	48	26.9	25.4
	Lok	1/4"	68.2	11.4	76	48	26.9	25.4

## HIGH PRESSURE MANUAL BLOCK DIAPHRAGM VALVE

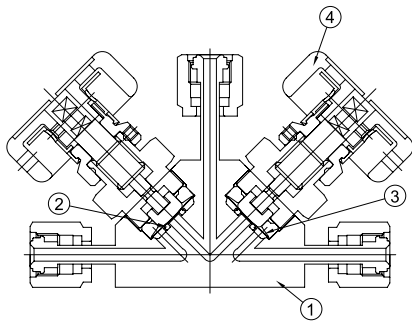
**STD TYPE****MAJOR SPECIFICATIONS**

Size	1/4"
<b>Cv Value</b>	0.1
<b>Orifice Size</b>	2.3mm
<b>Max. Working Pressure (G.)</b>	23.5MPa
<b>Max. Working Temp.</b>	-10°C ~ 40°C
<b>Internal Leakage Allowance (He)</b>	
<b>Test Pressure <math>\leq 1 \times 10^{-2}</math> Torr</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s
<b>Holding Time <math>\geq 30</math> sec.</b>	
<b>External Leakage Allowance (He)</b>	
<b>Test Pressure <math>\leq 1 \times 10^{-2}</math> Torr</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s
<b>Holding Time <math>\geq 1</math> min.</b>	
<b>Particle Inspection (EP only)</b>	
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>	
<b>Sample Volume : 1CFM</b>	No count
<b>0.1µm and Larger</b>	

**PRODUCT GRADE**

GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu\text{m}$ Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu\text{m}$ 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu\text{m}$ 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

### MATERIAL



NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Seat	PCTFE
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminum

### ORDERING INFORMATION

<b>S</b>	<b>4</b>	<b>HBDV</b>	<b>VM</b>	<b>1T23</b>	<b>X1</b>	<b>P</b>
Material	Size	Product	Connection	Flow	Option	Grade

MATERIAL	SIZE	CONNECTION	FLOW	GRADE
S 316L Stainless Steel	4 1/4"	VF MFS Female	1T25	AP AP Grade
D 316L Stainless Steel VAR			5T12 1T23 3T12	BLANK BA Grade P EP Grade

MODEL	FLOW	MODEL	FLOW	MODEL	FLOW	MODEL	FLOW
	1T25		1T23		5T12		3T12

MODEL	FLOW	SIZE	A	B	C	D	E	F	G	H
	1T25	1/4"	21.8	11	74.4	53.8	126.7	64	15	40
	1T23	1/4"	21.8	11	74.4	34.8	126.7	64	15	40

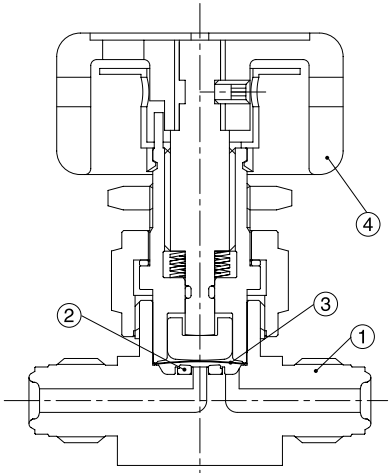
## HIGH PRESSURE MANUAL DIAPHRAGM VALVE

**BRANCH TYPE****MAJOR SPECIFICATIONS**

Size	1/4"
<b>Cv Value</b>	0.1
<b>Orifice Size</b>	2.3mm
<b>Max. Working Pressure (G.)</b>	23.5MPa
<b>Max. Working Temp.</b>	-10°C ~ 40°C
<b>Internal Leakage Allowance (He)</b>	
<b>Test Pressure <math>\leq 1 \times 10^{-2}</math> Torr</b>	$1 \times 10^{-10}$ Pa · m <sup>3</sup> /s
<b>Holding Time <math>\geq 30</math> sec.</b>	
<b>External Leakage Allowance (He)</b>	
<b>Test Pressure <math>\leq 1 \times 10^{-2}</math> Torr</b>	$1 \times 10^{-10}$ Pa · m <sup>3</sup> /s
<b>Holding Time <math>\geq 1</math> min.</b>	
<b>Particle Inspection (EP only)</b>	
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>	
<b>Sample Volume : 1CFM</b>	
<b>0.1μm and Larger</b>	No count

**PRODUCT GRADE**

GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu\text{m}$ Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu\text{m}$ 10 μinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu\text{m}$ 5 μinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



**MATERIAL**

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminum

**ORDERING INFORMATION**

**S**
**4**
**HDV3**
**VM**
**12T3**
**X1**
**P**

Material
Size
Product
Connection
Flow
Option
Grade

MATERIAL	SIZE	CONNECTION	FLOW	GRADE
S 316L Stainless Steel	4 1/4"	VM MFS Male		AP AP Grade
D 316L Stainless Steel VAR		VF MFS Female		BLANK BA Grade
4S 304 Stainless Steel		SW Lok		P EP Grade
		TW Butt Weld		

MODEL	CONNECTION	A	B	C	D	E	F	G	H
	MFS Male	57	11	73	48		25.4	28.5	3.5
	MFS Female	70.6	11	73	48		25.4	28.5	3.5
	Lok	69.3	11	73	48	13.5	25.4	28.5	3.5
	Butt Weld	135	11	73	48		25.4	28.5	3.5

## HIGH PRESSURE PNEUMATIC DIAPHRAGM VALVE

## STD TYPE

## FEATURES

- Highly resistant to corrosion using nickel-cobalt alloy diaphragm
- Minimal particle generation
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Permanently heat code laser marked; material traceable to original mill certificate of test
- Increased operation speed using aluminum piston



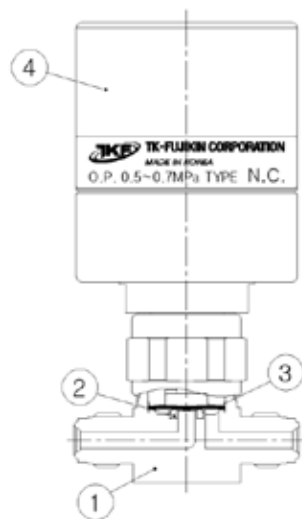
## MAJOR SPECIFICATIONS

Size	1/4"	1/2"
Cv Value	0.28	0.7
Orifice Size	4.4mm	8mm
Max. Working Pressure (G.)	20.5MPa	
Operating Pressure (G.)	0.5 ~ 0.7MPa	
Max. Working Temp.	PTFE : -10°C ~ 40°C	
Internal Leakage Allowance (He)		
Test Pressure ≤ 1×10 <sup>-2</sup> Torr	1×10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
Holding Time ≥ 15 sec.		
External Leakage Allowance (He)		
Test Pressure ≤ 1×10 <sup>-2</sup> Torr	1×10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
Holding Time ≥ 1 min.		
Particle Inspection (EP only)		
Pressure : 60~80psi N <sub>2</sub> Gas	No count	
Sample Volume : 1CFM		
0.1µm and Larger		

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

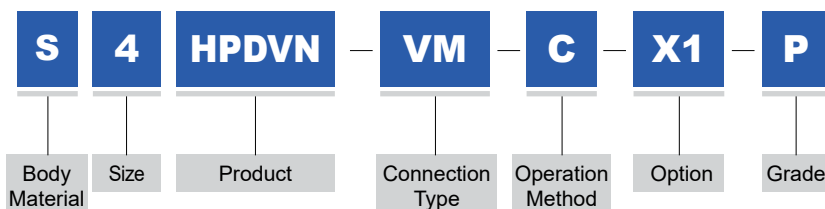




### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless steel 316L Stainless steel VAR 304 Stainless Steel
2	Seat	PCTFE
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminum

### ORDERING INFORMATION



	MATERIAL	SIZE	CONNECTION	OPTION	GRADE
S	316L Stainless Steel	4 1/4"	VM MFS Male	C Normally Close	AP AP Grade
D	316L Stainless Steel VAR	8 1/2"	VF MFS Female		BLANK BA Grade
4S	304 Stainless Steel				P EP Grade

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G
	MFS Male	1/4"	58.7	11.1	119.8	57.5	18	28	
		1/2"	82.5	18.3	134.1	57.5	27	44.3 x 38	
	MFS Female	1/4"	76.2	11.1	119.8	57.5	18	28	
		1/2"	114.3	18.3	134.1	57.5	27	44.3 x 38	

## HIGH PRESSURE MANUAL DIAPHRAGM VALVE

## STD TYPE

## FEATURES

- Highly resistant to corrosion using nickel-cobalt alloy diaphragm
- Minimal particle generation
- Permanently heat code laser marked; material traceable to original mill certificate of test
- Electropolished, D.I. water cleaned, assembled, tested and packed in a certified clean room

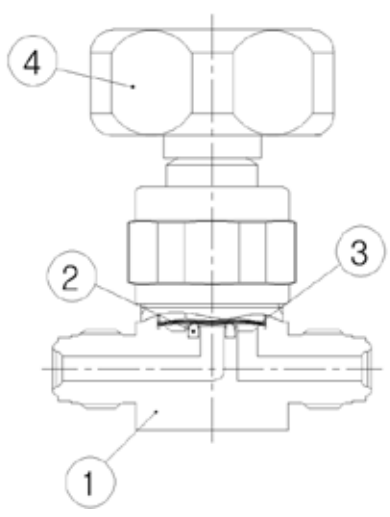


## MAJOR SPECIFICATIONS

Size	1/4"	1/2"
Cv Value	0.29	0.7
Orifice Size	4.4mm	7mm
Max. Working Pressure (G.)	20.6MPa	
Max. Working Temp.	PCTFE : -40°C ~ 71°C	PCTFE : -40°C ~ 65°C
Internal Leakage Allowance (He)	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
Test Pressure ≤ 1x10 <sup>-2</sup> Torr		
Holding Time ≥ 30 sec.		
External Leakage Allowance (He)	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
Test Pressure ≤ 1x10 <sup>-2</sup> Torr		
Holding Time ≥ 1 min.		
Particle Inspection (EP only)	No count	
Pressure : 60~80psi N <sub>2</sub> Gas		
Sample Volume : 1CFM		
0.1µm and Larger		

## PRODUCT GRADE

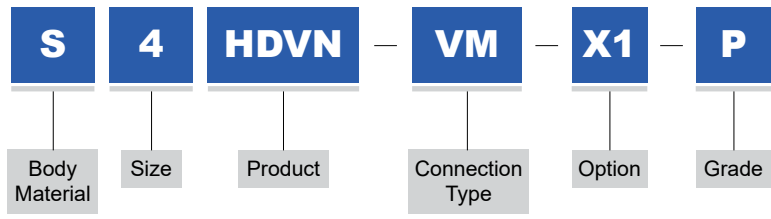
GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminum

### ORDERING INFORMATION



MATERIAL		SIZE		CONNECTION		GRADE	
S	316L Stainless Steel	4	1/4"	VM	MFS Male	AP	AP Grade
D	316L Stainless Steel VAR	8	1/2"	VF	MFS Female	BLANK	BA Grade
4S	304 Stainless Steel					P	EP Grade

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G
	MFS Male	1/4"	58.7	11.1	72.8	48	18	28	
		1/2"	82.5	18.3	87	48	27	44.3 X 38	
	MFS Female	1/4"	76.2	11.1	72.8	48	18	28	
		1/2"	114.3	18.3	87	48	27	44.3 X 38	

## LOW PRESSURE MANUAL BELLOWS VALVE

## STD TYPE

## FEATURES

- Minimize the dead space
- Installation can be made either panel-mount or bottom-mount
- Handle with open/close indicator is standardized

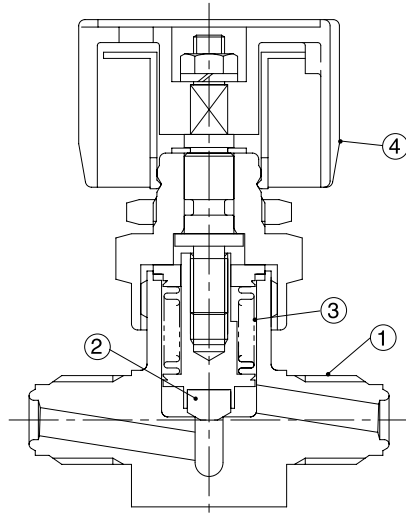


## MAJOR SPECIFICATIONS

Size	1/4"	3/8", 1/2"	3/4"
<b>Cv Value</b>	0.36	1.1	2.6
<b>Orifice Size</b>	4.5mm	8mm	12mm
<b>Max. Working Pressure (G.)</b>	1MPa		
<b>Max. Working Temp.</b>	PCTFE : -10°C ~ 80°C / PI : -10°C ~ 150°C		
<b>Internal Leakage Allowance (He)</b>	4x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 30 sec.</b>			
<b>External Leakage Allowance (He)</b>	4x10 <sup>-10</sup> Pa · m <sup>3</sup> /s		
<b>Test Pressure ≤ 1×10<sup>-2</sup> Torr</b>			
<b>Holding Time ≥ 1 min.</b>			
<b>Particle Inspection (EP only)</b>	No count		
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>			
<b>Sample Volume : 1CFM</b>			
<b>0.1µm and Larger</b>			

## PRODUCT GRADE

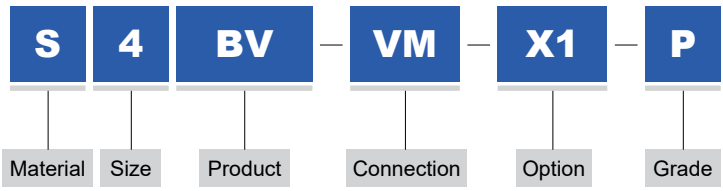
GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Disk	PCTFE / PI
3	Bellows	316L Stainless Steel
4	Handle	1/4" ~ 1/2" : HI-100, 3/4" : Aluminum

### ORDERING INFORMATION



MATERIAL		SIZE		CONNECTION		OPTION		GRADE	
S	316L Stainless Steel	4	1/4"	VM	MFS Male	X259	PI Disk	AP	AP Grade
D	316L Stainless Steel VAR	6	3/8"	VF	MFS Female			BLANK	BA Grade
4S	304 Stainless Steel	8	1/2"	SW	Lok			P	EP Grade
		12	3/4"	TW	Butt Weld				

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G	H	J	L
	MFS Male	1/4"	58	14	79	45	23	25	30	2	18.5	
		3/8"	60	16	85	45	23	25	36.5	2	18.5	
		1/2"	60	16	85	45	23	25	36.5	2	18.5	
		3/4"	125	22	124	65	32	33	58	6	24	
	MFS Female	1/4"	70.5	14	79	45	23	25	30	2	18.5	
		3/8"	90	14	85	45	23	25	36.5	2	18.5	
		1/2"	90	14	85	45	23	25	36.5	2	18.5	
		3/4"	115	22	124	65	32	33	58	6	24	
	Lok	1/4"	50	14	79	45	23	25	30	2	18.5	64
		3/8"	63	14	85	45	23	25	36.5	2	18.5	78
		1/2"	63	14	85	45	23	25	36.5	2	18.5	83.5
		3/4"	80	22	124	65	32	33	58	6	24	101
	Butt Weld	1/4"	150	14	85	45	23	25	36.5	2	18.5	
		3/8"	150	14	85	45	23	25	36.5	2	18.5	
		1/2"	150	14	85	45	23	25	36.5	2	18.5	
		3/4"	158	22	124	65	32	33	58	6	24	

## LOW PRESSURE PNEUMATIC BELLOWS VALVE

## STD TYPE

## FEATURES

- Reduced inner capacity
- Electropolished, D.I. water cleaned, assembled, tested and packaged in a certified clean room
- Minimal contributions of Moisture, Oxygen and Hydrocarbon
- Permanently heat code laser marked; material traceable to original mill certificate of test

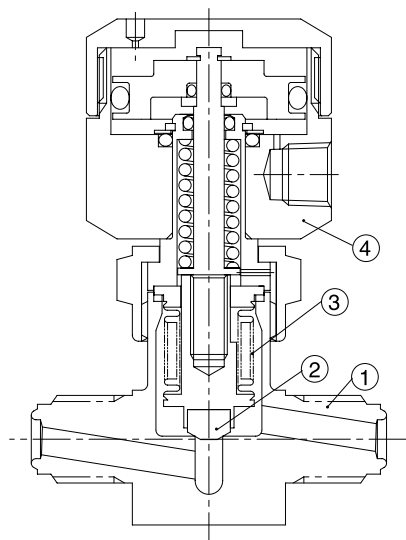


## MAJOR SPECIFICATIONS

Size	1/4"	3/8", 1/2"
<b>Cv Value</b>	0.36	1.1
<b>Orifice Size</b>	4.5mm	8mm
<b>Max. Working Pressure (G.)</b>	1MPa	
<b>Operating Pressure (G.)</b>	0.4 ~ 0.6MPa	
<b>Max. Working Temp.</b>	-10°C ~ 80°C	
<b>Internal Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 15$ sec.	4x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>External Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 1$ min.	4x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Particle Inspection (EP only)</b> Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1μm and Larger	No count	

## PRODUCT GRADE

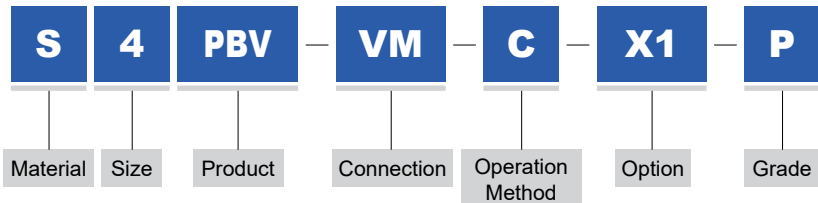
GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu\text{m}$ Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu\text{m}$ 10 μinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu\text{m}$ 5 μinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Disk	PCTFE
3	Bellows	316L Stainless Steel
4	Actuator	Aluminum

### ORDERING INFORMATION



MATERIAL	SIZE	CONNECTION	OPERATION METHOD	GRADE
S 316L Stainless Steel	4 1/4"	VM MFS Male	C Normally Close	AP AP Grade
D 316L Stainless Steel VAR	6 3/8"	VF MFS Female	O Normally Open	BLANK BA Grade
4S 304 Stainless Steel	8 1/2"	SW Lok		P EP Grade
		TW Butt Weld		

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	H
	MFS Male	1/4"	58	14	82.6	40	23	25	
		3/8"	60	16	88.7	40.6	23	25	
		1/2"	60	16	88.7	40.6	23	25	
	MFS Female	1/4"	70.5	14	82.6	40	23	25	
		3/8"	90	14	86.7	40.6	23	25	
		1/2"	90	14	86.7	40.6	23	25	
	Lok	1/4"	50	14	82.6	40	23	25	64
		3/8"	63	14	86.7	40.6	23	25	78
		1/2"	63	14	86.7	40.6	23	25	83.5
	Butt Weld	1/4"	150	14	89.1	40	23	25	
		3/8"	150	14	86.7	40.6	23	25	
		1/2"	150	14	86.7	40.6	23	25	

## LOW PRESSURE MANUAL BELLOWS METERING VALVE

# FLOW CONTROL TYPE

## FEATURES

- Reduced inner capacity
- Precise Micrometer Handle
- Precisely processed Stem Assembly: No backlash enables control of even a very small flow
- Metal Gasket (standard feature): Improves heat resistance



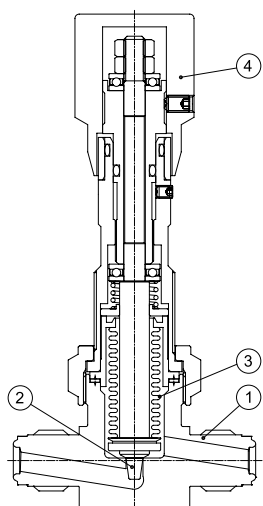
## MAJOR SPECIFICATIONS

Size	1/4"(4BMVS)	1/4"(4BMVM)
<b>Cv Value</b>	0.02	0.3
<b>Orifice Size</b>	1.4mm	4.5mm
<b>Max. Working Pressure (G.)</b>	1MPa	
<b>Max. Working Temp.</b>	-10°C ~ 150°C	
<b>Internal Leakage Allowance</b>	-	
<b>External Leakage Allowance (He)</b>		
<b>Test Pressure <math>\leq 1 \times 10^{-2}</math> Torr</b>	1x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Holding Time <math>\geq 1</math> min.</b>		
<b>Particle Inspection (EP only)</b>		
<b>Pressure : 60~80psi N<sub>2</sub> Gas</b>	No count	
<b>Sample Volume : 1CFM</b>		
<b>0.1µm and Larger</b>		

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu\text{m}$ Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu\text{m}$ 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu\text{m}$ 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

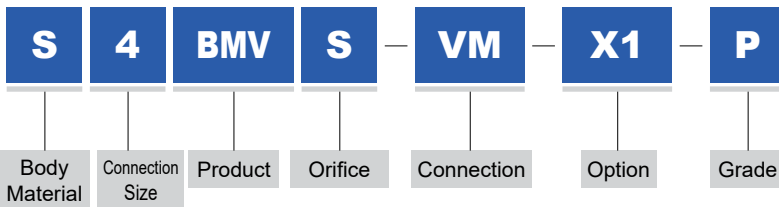




### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Stem	316L Stainless Steel
3	Bellows	316L Stainless Steel
4	Handle	Aluminum

### ORDERING INFORMATION



MATERIAL	SIZE	ORIFICE	CONNECTION	GRADE
S 316L Stainless Steel	4 1/4"	S 1.4mm	VM MFS Male	AP AP Grade
D 316L Stainless Steel VAR		M 4.0mm	VF MFS Female	BLANK BA Grade
4S 304 Stainless Steel				P EP Grade

MODEL	SIZE	TYPE	A	B	C	D	E	F	H	J	K
	1/4"	4BMVS	57	11	120	28	25.4	26	12	19.5	27
		4BMVM	57	11	120	28	25.4	26	12	19.5	27
	1/4"	4BMVS	70.6	11	120	28	25.4	26	12	19.5	27
		4BMVM	70.6	11	120	28	25.4	26	12	19.5	27

## LOW PRESSURE MANUAL BELLOWS VALVE

**FORGED A TYPE****FEATURES**

- Forged body reduced the total weight
- The valve seat is designed to produce less dust and gas residue
- Handle colors available on request

**MAJOR SPECIFICATIONS**

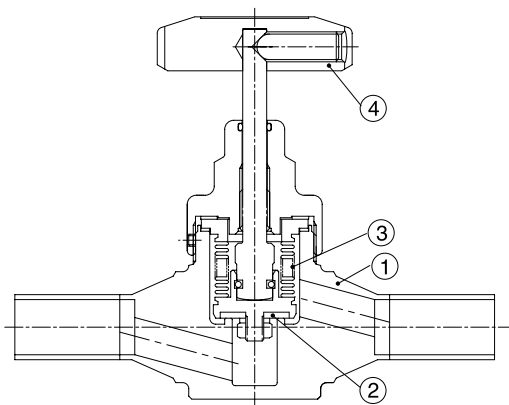
Size	15A	1"	20A	25A
<b>Cv Value</b>	2.9	4.1	4.1	6.9
<b>Orifice Size</b>	15mm	19mm	19mm	25mm
<b>Max. Working Pressure (G.)</b>	1MPa			
<b>Max. Working Temp.</b>	-10°C ~ 80°C			
<b>Internal Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 30$ sec.	1x10 <sup>-6</sup> Pa · m <sup>3</sup> /s			
<b>External Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 1$ min.	1x10 <sup>-6</sup> Pa · m <sup>3</sup> /s			
<b>Particle Inspection (EP only)</b> Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1 $\mu$ m and Larger	No count			

**PRODUCT GRADE**

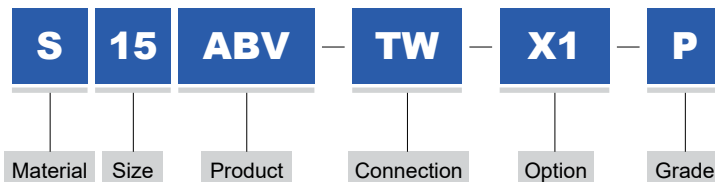
GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu$ m Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu$ m 10 $\mu$ inch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu$ m 5 $\mu$ inch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Disk	PTFE
3	Bellows	316L Stainless Steel
4	Handle	Aluminum



### ORDERING INFORMATION



MATERIAL		SIZE		CONNECTION		GRADE	
S	316L Stainless Steel	15	15A	TW	Butt Weld	AP	AP Grade
D	316L Stainless Steel VAR	T16	1"	FL	Flange(JIS 10K)	BLANK	BA Grade
4S	304 Stainless Steel	20	20A			P	EP Grade
		25	25A				

MODEL	CONNECTION	SIZE	A	B	C	D	E	G	L
	Butt Weld	15A	190	24	131	65	30		
		1"	200	28	143	65	35		
		20A	200	28	143	65	35		
		25A	210	33	161	79	40		

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G	N-H
	Flange	15A	108	47.5	155	65	95	70	51	4-Ø15
		1"	117	50	165	65	100	75	56	4-Ø15
		20A	117	50	165	65	100	75	56	4-Ø15
		25A	127	62.5	191	79	125	90	67	4-Ø19

## LOW PRESSURE PNEUMATIC BELLOWS VALVE

**FORGED A TYPE****FEATURES**

- Forged body reduced the total weight
- The valve seat is designed to produce less dust and gas residue

**MAJOR SPECIFICATIONS**

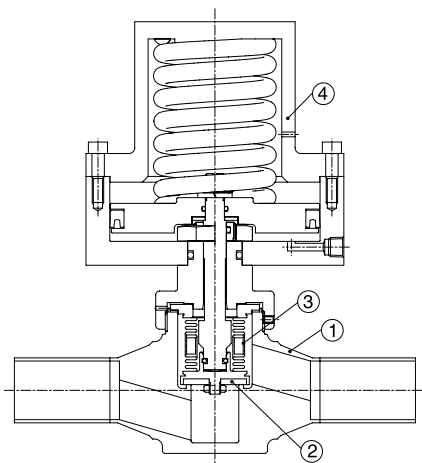
Size	15A	1"	20A	25A
<b>Cv Value</b>	2.9	4.1	4.1	6.9
<b>Orifice Size</b>	15mm	19mm	19mm	25mm
<b>Max. Working Pressure (G.)</b>	1MPa			
<b>Operating Pressure (G.)</b>	0.4 ~ 0.7MPa			
<b>Max. Working Temp.</b>	-10°C ~ 80°C			
<b>Internal Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 15$ sec.	1x10 <sup>-6</sup> Pa · m <sup>3</sup> /s			
<b>External Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 1$ min.	1x10 <sup>-6</sup> Pa · m <sup>3</sup> /s			
<b>Particle Inspection (EP only)</b> Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1μm and Larger	No count			

**PRODUCT GRADE**

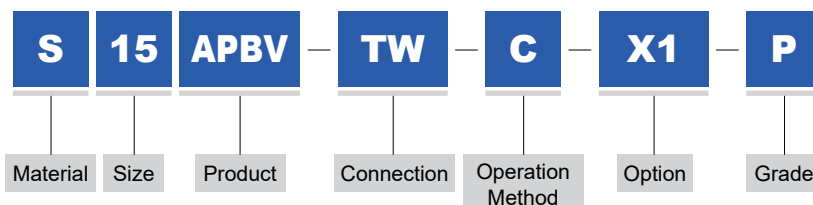
GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu\text{m}$ Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu\text{m}$ 10 μinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu\text{m}$ 5 μinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

## MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Disk	PCTFE
3	Bellows	316L Stainless Steel
4	Actuator	Aluminum



## ORDERING INFORMATION



MATERIAL	SIZE	CONNECTION	OPERATION METHOD	GRADE
S 316L Stainless Steel	15 15A	TW Butt Weld	C Normally Close	AP AP Grade
D 316L Stainless Steel VAR	T16 1"	FL Flange (JIS 10K)	O Normally Open	BLANK BA Grade
4S 304 Stainless Steel	20 20A			P EP Grade
	25 25A			

MODEL	CONNECTION	SIZE	A	B	C	D	E
	Butt Weld	15A	190	24	204	110	30
		1"	200	28	215	135	35
		20A	200	28	215	135	35
		25A	210	33	226	135	40

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G	N-H
	Flange	15A	108	47.5	228	110	95	70	51	4-Ø15
		1"	117	50	237	135	100	75	56	4-Ø15
		20A	117	50	237	135	100	75	56	4-Ø15
		25A	127	62.5	256	135	125	90	67	4-Ø19

## LOW PRESSURE MANUAL BELLOWS VALVE (32A ~ 50A)

## CASTING A TYPE



## MAJOR SPECIFICATIONS

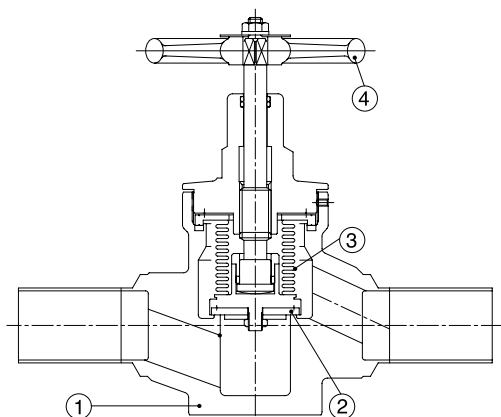
Size	32A	40A	2"	50A
<b>Cv Value</b>	16	16	16	21
<b>Orifice Size</b>	40mm	40mm	40mm	45mm
<b>Max. Working Pressure (G.)</b>	1MPa			
<b>Max. Working Temp.</b>	-10°C ~ 80°C			
<b>Internal Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 30$ sec.	1x10 <sup>-6</sup> Pa · m <sup>3</sup> /s			
<b>External Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 1$ min.	1x10 <sup>-6</sup> Pa · m <sup>3</sup> /s			
<b>Particle Inspection (EP only)</b> Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1 $\mu$ m and Larger	No count			

## PRODUCT GRADE

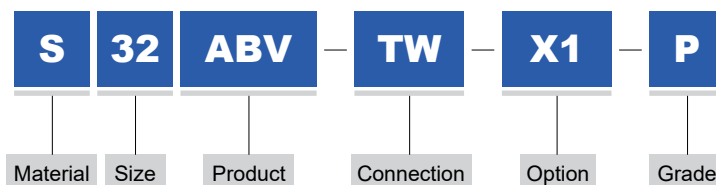
GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu$ m Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu$ m 10 $\mu$ inch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu$ m 5 $\mu$ inch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

### MATERIAL

NO.	NAME	MATERIAL
1	Body	SCS16 SCS13
2	Disk	PTFE
3	Bellows	316L Stainless Steel
4	Handle	SCS13



### ORDERING INFORMATION



MATERIAL		SIZE		CONNECTION		GRADE	
S	SCS16	32	32A	TW	Butt Weld	AP	AP Grade
4S	SCS13	40	40A	FL	Flange(JIS 10K)	BLANK	BA Grade
		T32	2"			P	EP Grade
		50	50A				

MODEL	CONNECTION	SIZE	A	B	C	D
	Butt Weld	32A	270	51	239	125
		40A	270	51	239	125
		2"	270	51	239	125
		50A	295	61	295	160

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G	N-H
	Flange	32A	165	67.5	256.0	125	135	100	76	4-Ø19
		40A	165	70.0	258.0	125	140	105	81	4-Ø19
		2"	165	70.0	258.0	125	140	105	81	4-Ø19
		50A	203	77.5	311.5	160	155	120	96	4-Ø19

## LOW PRESSURE MANUAL BELLOWS VALVE (65A ~ 500A)

## CASTING A TYPE



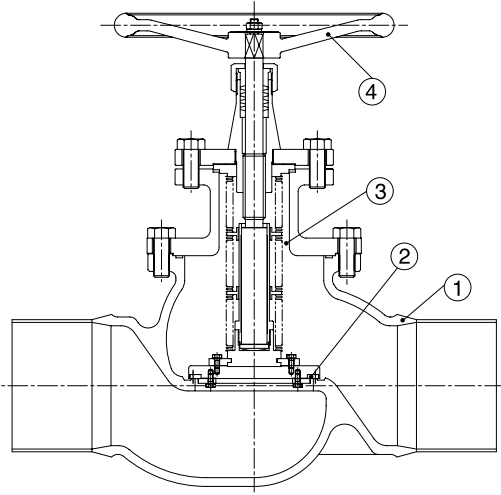
## MAJOR SPECIFICATIONS

Size	65A	80A	100A	125A	150A	200A	250A	300A	350A	400A	450A	500A
<b>Cv Value</b>	81	132	200	302	434	772	1200	1600	2000	2650	3100	3400
<b>Orifice Size</b>	65	80	100	124	148	200	250	300	350	400	450	490
<b>Max. Working Pressure (G.)</b>	1MPa											
<b>Max. Working Temp.</b>	-10°C ~ 80°C											
<b>Internal Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 30$ sec.	1x10 <sup>-6</sup> Pa · m <sup>3</sup> /s											
<b>External Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 1$ min.	1x10 <sup>-6</sup> Pa · m <sup>3</sup> /s											
<b>Particle Inspection (EP only)</b> Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1μm and Larger	No count											

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu\text{m}$ Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu\text{m}$ 10 μinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu\text{m}$ 5 μinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish





**MATERIAL**

NO.	NAME	MATERIAL
1	Body	SCS16 SCS13
2	Disk	PTFE
3	Bellows	316L Stainless Steel
4	Handle	SCS13

**ORDERING INFORMATION**

**S**
**65**
**ABV**
**TW**
**X1**
**P**

Material
Size
Product
Connection
Option
Grade

MATERIAL		SIZE		CONNECTION		GRADE	
S	SCS16	65	65A	TW	Butt Weld	AP	AP Grade
4S	SCS13	80	80A	FL	Flange(JIS 10K)	BLANK	BA Grade
		100	100A			P	EP Grade
		125	125A				
		150	150A				
		200	200A				
		250	250A				
		300	300A				
		350	350A				
		400	400A				
		450	450A				
		500	500A				

MODEL	CONNECTION	SIZE	A	B	C	D
	Butt Weld	65A	416	68	347	160
		80A	441	80	381	200
		100A	492	94	476	200
		125A	556	111	616	300
		150A	606	126	632	300
		200A	795	157	847	400
		250A	1022	190	1085	450
		300A	1100	216	1228	500
		350A	1187	241	1286	710
		400A	1314	268	1318	710
450A	1200	305	1454	800		

MODEL	CONNECTION	SIZE	A	B	C	D
	Flange	65A	216	87.5	367	160
		80A	241	92.5	394	200
		100A	292	105	487	200
		125A	356	125	630	300
		150A	406	140	646	300
		200A	495	165	855	400
		250A	622	200	1095	450
		300A	698	222.5	1235	500
		350A	787	245	1290	710
		400A	914	280	1330	710
450A	1040	310	1579	800		
500A	1040	338	1630	800		

NOTE : When order for 50A Size, part no. must be 50 ABV-TW-X388 / 50ABV-FL-X388

## LOW PRESSURE PNEUMATIC BELLOWS VALVE (32A ~ 50A)

## CASTING A TYPE

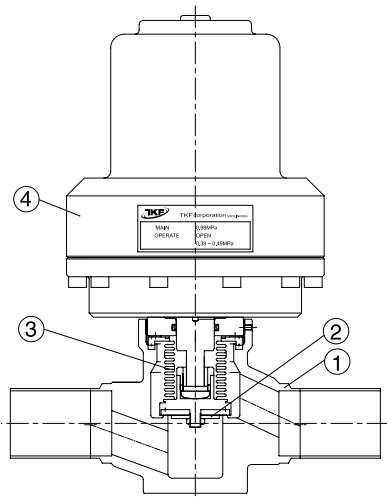


## MAJOR SPECIFICATIONS

Size	32A	40A	2"	50A
<b>Cv Value</b>	16	16	16	21
<b>Orifice Size</b>	40mm	40mm	40mm	45mm
<b>Max. Working Pressure (G.)</b>	1MPa			
<b>Operating Pressure (G.)</b>	0.4 ~ 0.7MPa			
<b>Max. Working Temp.</b>	-10°C ~ 80°C			
<b>Internal Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 15$ sec.	1x10 <sup>-6</sup> Pa · m <sup>3</sup> /s			
<b>External Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 1$ min.	1x10 <sup>-6</sup> Pa · m <sup>3</sup> /s			
<b>Particle Inspection (EP only)</b> Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1μm and Larger	No count			

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu\text{m}$ Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu\text{m}$ 10 μinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu\text{m}$ 5 μinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



## MATERIAL

NO.	NAME	MATERIAL
1	Body	SCS16 SCS13
2	Disk	PTFE
3	Bellows	316L Stainless Steel
4	Actuator	Aluminum

## ORDERING INFORMATION

<b>S</b>	<b>40</b>	<b>APBV</b>	<b>TW</b>	<b>C</b>	<b>X1</b>	<b>P</b>
Material	Size	Product	Connection	Operation Method	Option	Grade

MATERIAL	SIZE	CONNECTION	OPERATION METHOD	GRADE
S SCS16	32 32A	TW Butt Weld	C Normally Close	AP AP Grade
4S SCS13	40 40A	FL Flange (JIS 10K)	O Normally Open	BLANK BA Grade
	T32 2"			P EP Grade
	50 50A			

MODEL	CONNECTION	SIZE	A	B	C	D
	Butt Weld	32A	270	51	309	188
		40A	270	51	309	188
		2"	270	51	309	188
		50A	295	57	350	188

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G	N-H
	Flange	32A	165	67.5	309	188	135	100	76	4-Ø19
		40A	165	70.0	309	188	140	105	81	4-Ø19
		2"	165	70.0	309	188	140	105	81	4-Ø19
		50A	203	77.5	350	188	155	120	96	4-Ø19

## LOW PRESSURE FULL FLOW MANUAL BELLOWS VALVE

## Y TYPE

## FEATURES

- Achieved large Cv value
- Inner surface has uniform surface roughness
- The valve seat is designed to produce less dust and gas residue
- Cast steel valves suitable for works demanding strength, shock resistance, elongation and heat resistance(40A~200A)

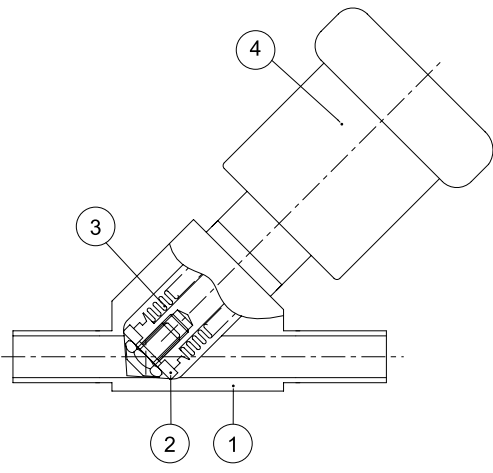


## MAJOR SPECIFICATIONS

Size	1/2"	3/4"	1"
Cv Value	17	23	38
Max. Working Pressure (G.)	1MPa		
Max. Working Temp.	-10°C ~ 80°C		
Internal Leakage Allowance (He) Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 30$ sec.	4x10 <sup>-6</sup> Pa · m <sup>3</sup> /s		1x10 <sup>-6</sup> Pa · m <sup>3</sup> /s
External Leakage Allowance (He) Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 1$ min.	4x10 <sup>-6</sup> Pa · m <sup>3</sup> /s		1x10 <sup>-6</sup> Pa · m <sup>3</sup> /s
Particle Inspection (EP only) Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1μm and Larger	No count		No count

## PRODUCT GRADE

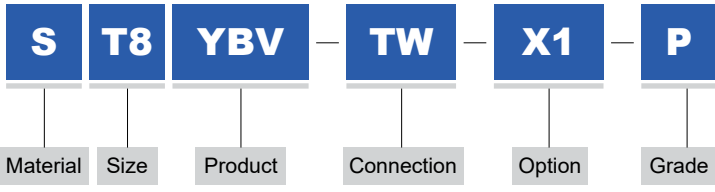
GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu\text{m}$ Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu\text{m}$ 10 μinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu\text{m}$ 5 μinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Disk	PCTFE / PTFE
3	Bellows	316L Stainless Steel
4	Handle	Aluminum

### ORDERING INFORMATION



MATERIAL		SIZE				CONNECTION		GRADE	
S	316L Stainless Steel	T8	1/2"	80	80A	TW	Butt Weld	AP	AP Grade
D	316L Stainless Steel VAR	T12	3/4"	100	100A			BLANK	BA Grade
4S	304 Stainless Steel	T16	1"	125	125A			P	EP Grade
S	SCS16(40A~200A)	40	40A	150	150A				
4S	SCS13(40A~200A)	50	50A	200	200A				
		65	65A						

MODEL	CONNECTION	SIZE	A	B	C	D
	Butt Weld	1/2"	180	8.4	109	52
		3/4"	200	11.5	127	59
	Butt Weld	1"	257	17.7	187	65
	Butt Weld	40A	270	30.5	214.6	125
		50A	340	38.5	251.8	160
	Butt Weld	65A	380	46	315.4	200
		80A	420	54	348.4	200
		100A	520	65	413.1	250
		125A	620	77.5	487.7	300
		150A	720	91	543.1	300
		200A	900	114	676.1	400

## LOW PRESSURE FULL / HALF FLOW PNEUMATIC BELLOWS VALVE

## YPBV TYPE

## FEATURES

- Achieved large Cv value
- Inner surface has uniform surface roughness
- The valve seat is designed to produce less dust and gas residue



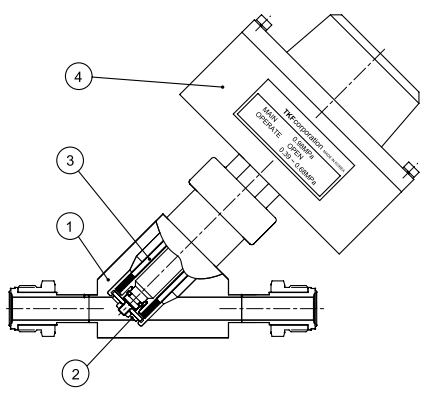
## MAJOR SPECIFICATIONS

Size	FULL FLOW		HALF FLOW
	1/2"	3/4"	1"
Cv Value	17	20	36
Max. Working Pressure (G.)	1MPa		
Operating Pressure (G.)	1/2"~1" : 0.4 ~ 0.7MPa		
Max. Working Temp.	-10°C ~ 80°C		
Internal Leakage Allowance (He) Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 30$ sec.	1x10 <sup>-6</sup> Pa · m <sup>3</sup> /s		
External Leakage Allowance (He) Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 1$ min.	1x10 <sup>-6</sup> Pa · m <sup>3</sup> /s		
Particle Inspection (EP only) Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1 $\mu$ m and Larger	No count		

## PRODUCT GRADE

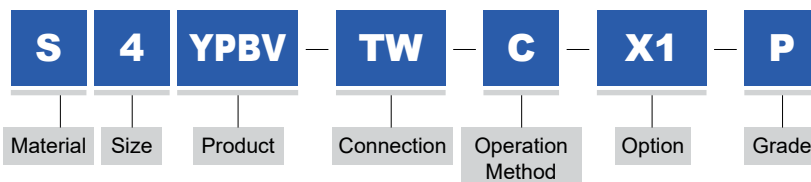
GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu$ m Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu$ m 10 $\mu$ inch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu$ m 5 $\mu$ inch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

### MATERIAL



NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Disk	PCTFE / PTFE
3	Bellows	316L Stainless Steel
4	Actuator	Aluminum

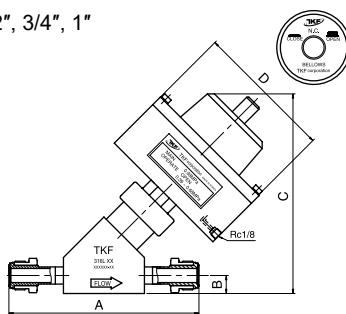
### ORDERING INFORMATION



MATERIAL		SIZE		PRODUCT		CONNECTION		OPERATION METHOD		GRADE	
S	316L Stainless Steel	T8	1/2"	YPBVK	Full Flow	VM	MFS Male	C	Normally Close	AP	AP Grade
D	316L Stainless Steel VAR	T12	3/4"	YPHBVK	Half Flow	VF	MFS Female	O	Normally Open	BLANK	BA Grade
4S	304 Stainless Steel	T16	1"			TW	Butt Weld			P	EP Grade

### MODEL

BODY SIZE : 1/2", 3/4", 1"



#### Full Flow

CONNECTION	SIZE	A	B	C	D
VM	1/2"	162	15	175	120
VM	3/4"	211.2	20	222	155
TW	3/4"	260	20	222	155
VM	1"	214	17.7	230	165
TW	1"	270	17.7	230	165

#### Half Flow

CONNECTION	SIZE	A	B	C	D
VM	1/2"	162	15	175	120
VM	3/4"	211.2	20	228	155
TW	3/4"	260	20	228	155
VM	1"	214	17.7	228	165
TW	1"	270	17.7	228	165

## HIGH FLOW MANUAL BELLOWS VALVE

## STD TYPE

## FEATURES

- Achieved large Cv value
- The valve seat is designed to produce less dust and gas residue.
- Electropolished, D.I. water cleaned, assembled, tested and packaged in a certified clean room



## MAJOR SPECIFICATIONS

Size	1/2"	3/4"
<b>Cv Value</b>	2.0	2.8
<b>Orifice Size</b>	10.2mm	12.0mm
<b>Max. Working Pressure (G.)</b>	1MPa	
<b>Max. Working Temp.</b>	-10°C ~ 80°C	
<b>Internal Leakage Allowance (He)</b> Test Pressure ≤ 1×10 <sup>-2</sup> Torr Holding Time ≥ 30 sec.	5×10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>External Leakage Allowance (He)</b> Test Pressure ≤ 1×10 <sup>-2</sup> Torr Holding Time ≥ 1 min.	5×10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Particle Inspection (EP only)</b> Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1µm and Larger	No count	

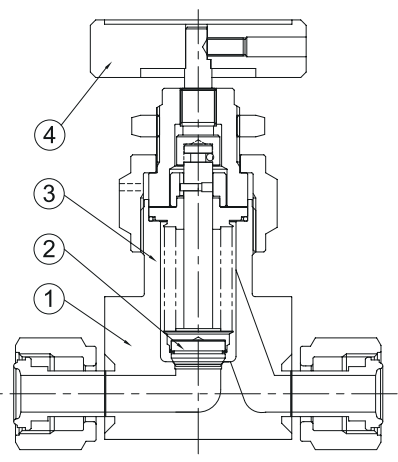
## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry ≤ 25µm Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry ≤ 3.0µm 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry ≤ 0.7µm 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Disk	PCTFE
3	Bellows	316L SS
4	Handle	Aluminum



### ORDERING INFORMATION

S
8
HFBV
-
VF
-
X1
-
P

Body Material
Size
Product
Connection Type
Option
Grade

	MATERIAL	SIZE	CONNECTION	GRADE
S	316L Stainless Steel	8	VM MFS Male	AP AP Grade
D	316L Stainless Steel VAR	12	VF MFS Female	BLANK BA Grade
4S	304 Stainless Steel			P EP Grade

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G
	MFS Male	1/2"	76.2	11.1	111.9	60	40	34	22.6
		3/4"	85	22	119.5	60	40	40	22.6
	MFS Female	1/2"	102.6	12.7	117.2	60	52	34	22.6
			149	22	118.5	60	47	34	22.6

## HIGH FLOW PNEUMATIC BELLOWS VALVE

## STD TYPE

## FEATURES

- Achieved large Cv value
- The valve seat is designed to produce less dust and gas residue.
- Electropolished, D.I. water cleaned, assembled, tested and packaged in a certified clean room

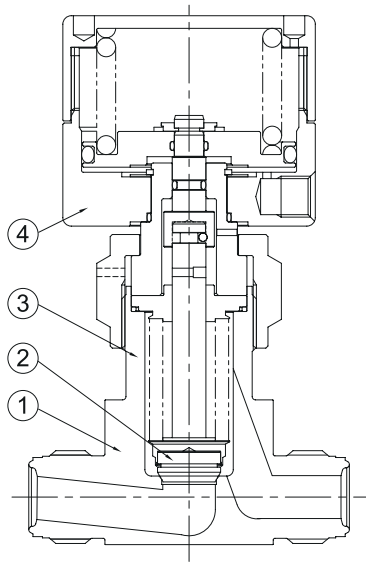


## MAJOR SPECIFICATIONS

Size	1/2"	3/4"
<b>Cv Value</b>	2.0	2.8
<b>Orifice Size</b>	10.2mm	12.0mm
<b>Max. Working Pressure (G.)</b>	1MPa	
<b>Operating Pressure (G.)</b>	0.34 ~ 0.59MPa	
<b>Max. Working Temp.</b>	-10°C ~ 80°C	
<b>Internal Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 30$ sec.	5x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>External Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 1$ min.	5x10 <sup>-10</sup> Pa · m <sup>3</sup> /s	
<b>Particle Inspection (EP only)</b> Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1µm and Larger	No count	

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu\text{m}$ Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu\text{m}$ 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu\text{m}$ 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Disk	PCTFE
3	Bellows	316L SS
4	Actuator	Aluminum

### ORDERING INFORMATION

<b>S</b>	<b>8</b>	<b>HFPBV</b>	<b>VM</b>	<b>C</b>	<b>X1</b>	<b>P</b>
Body Material	Size	Product	Connection Type	Operation Method	Option	Grade

MATERIAL	SIZE	CONNECTION	OPTION	GRADE
S 316L Stainless Steel	8 1/2"	VM MFS Male	C Normally Close	AP AP Grade
D 316L Stainless Steel VAR	12 3/4"	VF MFS Female	O Normally Open	BLANK BA Grade
4S 304 Stainless Steel				P EP Grade

MODEL	CONNECTION	SIZE	A	B	C	D	E	F	G
	MFS Male	1/2"	76.2	11.1	125.7	60	40	34	22.6
		3/4"	85	22	133.4	60	40	40	22.6
	MFS Female	1/2"	102.6	12.7	131	60	52	34	22.6
		3/4"	149	22	132.4	60	47	34	22.6

## CHECK VALVE

## STD TYPE

## FEATURES

- Using SUS316L as a material , corrosion resistance is improved
- All-welded design provides reliable containment of system fluid
- Conserves panel space
- Noise free operations
- Cleanroom assembled and packaged

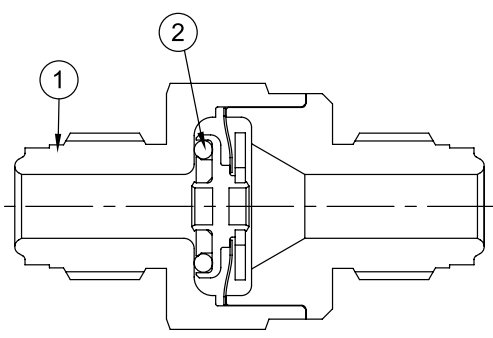


## MAJOR SPECIFICATIONS

Size	1/4"	3/8", 1/2"
<b>Cv Value</b>	0.55	0.7
<b>Max. Working Pressure (G.)</b>	20.6MPa	
<b>Nominal Reseal Pressure (G.)</b>	27.6KPa	
<b>Nominal Cracking Pressure (G.)</b>	13.8KPa	
<b>Max. Working Temp.</b>	-10°C ~ 80°C	
<b>External Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 1$ min.	1x10 <sup>-10</sup> Pa · cm <sup>3</sup> /s	
<b>Particle Inspection (EP only)</b> Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1µm and Larger	No count	

## PRODUCT GRADE

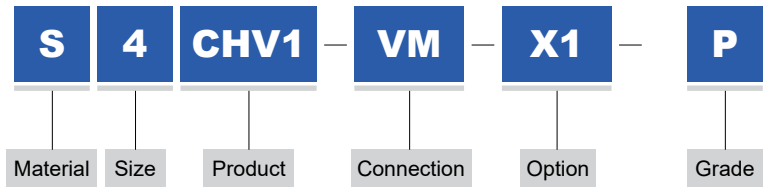
GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu\text{m}$ Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu\text{m}$ 10 µinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu\text{m}$ 5 µinch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish



### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Seal Ring	FKM / Neoprene /
3	Spring	Hastelloy C-22

### ORDERING INFORMATION



MATERIAL		SIZE		CONNECTION		GRADE	
S	316L Stainless Steel	4	1/4"	VM	MFS Male	AP	AP Grade
D	316L Stainless Steel VAR	8	1/2"			BLANK	BA Grade
						P	EP Grade

MODEL	CONNECTION	SIZE	A	B
	MFS Male	1/4"	45.8	22
		1/2"	52.3	27

## HIGH PRESSURE CYLINDER VALVE

# DIAPHRAGM SEAL TYPE

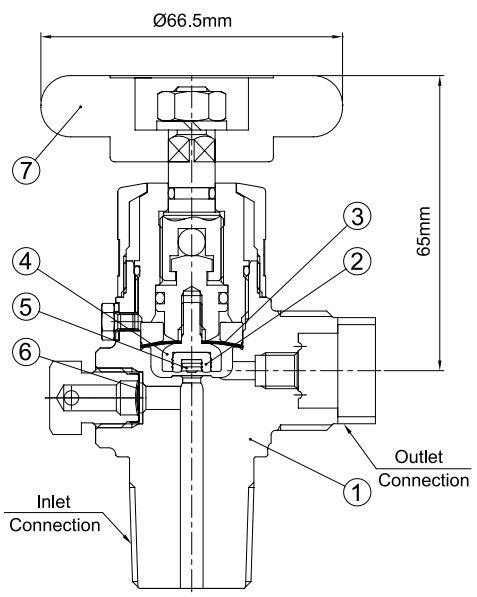
## FEATURES

- Ultra high purity gas available
- Minimized dead space
- Springless type
- Handwheel smoothly control
- Secondary sealing type
- Outlet connection changeable  
(CGA, CGA DISS, DIN, JIS Standard)



## MAJOR SPECIFICATIONS

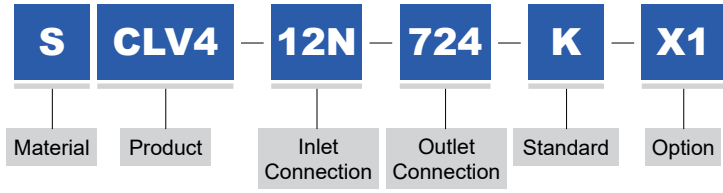
<b>Cv Value</b>	<b>0.35</b>
<b>Orifice Size</b>	4mm
<b>Max. Working Pressure (G.)</b>	20.6MPa
<b>Max. Working Temp.</b>	-40°C ~ 70°C
<b>Internal Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 30$ sec.	$1 \times 10^{-10}$ Pa · m <sup>3</sup> /s
<b>External Leakage Allowance (He)</b> Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 1$ min.	$1 \times 10^{-10}$ Pa · m <sup>3</sup> /s
<b>Particle Inspection</b> Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1μm and Larger	No count
<b>Inner Surface Roughness</b>	Ry $\leq 3.0\mu\text{m}$ 10 μinch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm



### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE
3	Diaphragm	Ni-Co Alloy
4	Seat Holder	316L Stainless Steel
5	Seat Pin	316L Stainless Steel
6	Burst Disc	Nickel
7	Handle	Aluminum

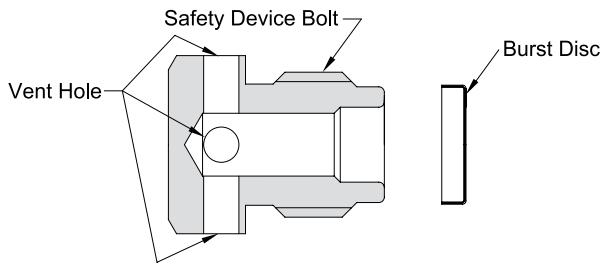
### ORDERING INFORMATION



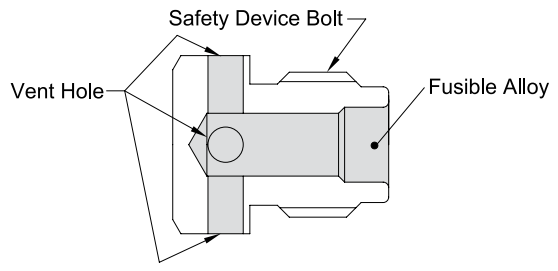
	MATERIAL	INLET CONNECTION		OUTLET CONNECTION		STANDARD	
S	316L Stainless Steel	8N	1/2"-14NGT Thread	632	CGA632	K	KS Standard
D	316L Stainless Steel VAR	12N	3/4"-14NGT Thread	640	CGA640	G	CGA Standard
4S	304 Stainless Steel	16N	1"-11 1/2NGT Thread	724	CGA724		
		W28	W28-14	W22	W22-14		
			⋮ (Customer Option)		⋮ (Customer Option)		

### SAFETY DEVICES

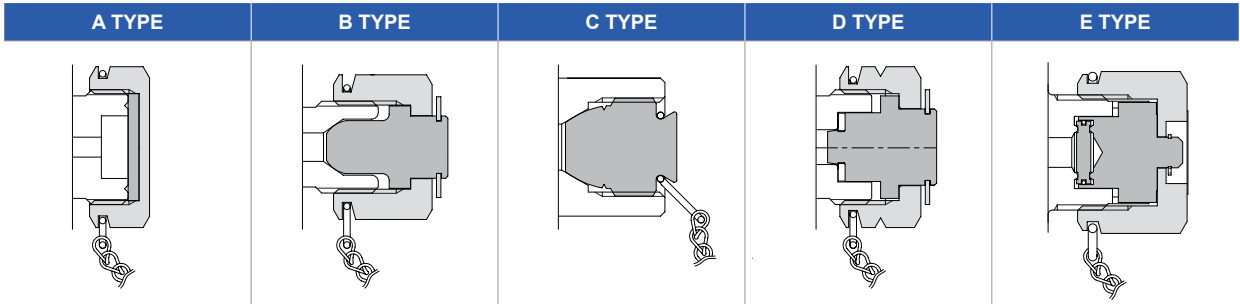
#### ■ Burst Disc



#### ■ Fusible Alloy (option)



### OUTLET CAP DESIGNS



- A TYPE : CGA 170, 180, 320, 330, 660, 670
- B TYPE : CGA 290, 326, 346, 350, 540
- C TYPE : CGA 296, 510, 580, 590
- D TYPE : CGA 678, 679
- E TYPE : CGA DISS SERIES (632 ~ 642, 712 ~ 728)

## HIGH PRESSURE MANUAL METERING VALVE

# FLOW CONTROL TYPE

## FEATURES

- Precisely tapered valve stem accurately controls flow
- 316L forged body construction
- Panel or in-line mounting
- IN-line pattens
- Valve stem thread not in contact with process fluid
- Optional handle



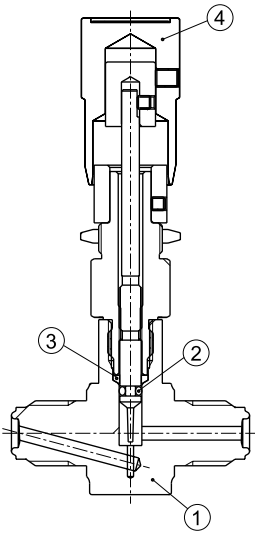
## MAJOR SPECIFICATIONS

Size	1/4"
Cv Value	0.03
Stem Taper	3°
Tums to Open	9+/-1
Orifice Size	1.35mm
Max. Working Pressure (G.)	6.89MPa
Max. Working Temp.	-10°C ~ 150°C
External Leakage Allowance (He) Test Pressure $\leq 1 \times 10^{-2}$ Torr Holding Time $\geq 1$ min.	$1 \times 10^{-10}$ Pa · m <sup>3</sup> /s
Particle Inspection (EP only) Pressure : 60~80psi N <sub>2</sub> Gas Sample Volume : 1CFM 0.1 $\mu$ m and Larger	No count

## PRODUCT GRADE

GRADE	AP	BA	EP
Inner Surface Roughness	Ry $\leq 25\mu$ m Cut off Length : 2.5mm Measuring Length : 12.5mm	Ry $\leq 3.0\mu$ m 10 $\mu$ inch Ra(Avg.) Cut off Length : 0.8mm Measuring Length : 4mm	Ry $\leq 0.7\mu$ m 5 $\mu$ inch Ra(Avg.) Cut off Length : 0.25mm Measuring Length : 1.25mm
Polishing	Machining Finish	Machining Finish	Electro Polishing Finish

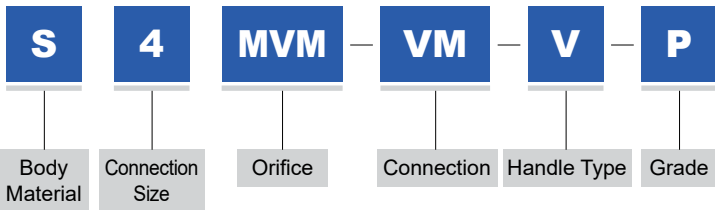




### MATERIAL

NO.	NAME	MATERIAL
1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	O-Ring	FKM
3	Grand Ring	Teflon
4	Handle	Aluminum

### ORDERING INFORMATION



MATERIAL	SIZE	ORIFICE	CONNECTION	HANDLE TYPE	GRADE
S 316L Stainless Steel	4 1/4"	MVM 1.35	VM MFS Male SW Lok	K Knurled KS Knurled with Slot V Vernier	AP AP Grade BLANK BA Grade P EP Grade

MODEL	CONNECTION	A	B	C	D	E	F	G
	MFS Male	52.4	13.5	38.4	91	21.6	4.5	
	Lok	60.6	13.5	38.4	91	21.6	4.5	46.3

## ULTRA - HIGH PURITY VACUUM GENERATORS

# VG1 SERIES

## FEATURES

- High Performance Design
- Stainless Steel 316L Construction
- Metal Face Seal and Tube Butt-Weld Connections



## TECHNICAL DATA

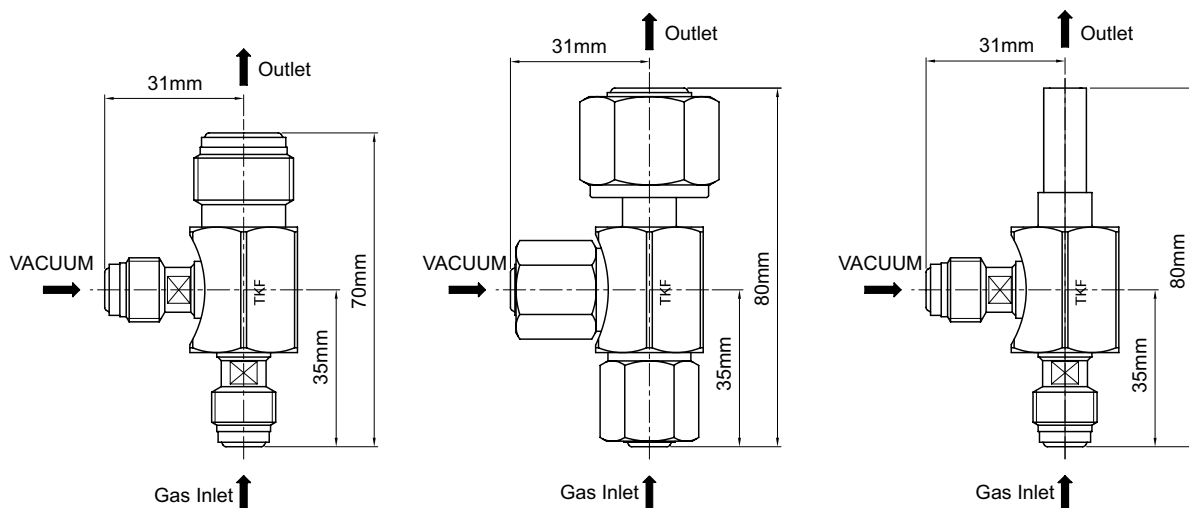
<b>Ultimate Pressure</b>	50torr (66.7mbar)
<b>Gas Flow at Ultimate</b>	60ℓ / min
<b>Gas Pressure at Ultimate</b>	80psig
<b>Optimize working Pressure</b>	80 ~ 100psig
<b>Max. Working Pressure</b>	150psig (10kgf/cm <sup>2</sup> )
<b>Operating Temperature</b>	0 ~ 150°C

\* measured when operating gas flow is over 60LPM and extension vent tube length is over 20mm.

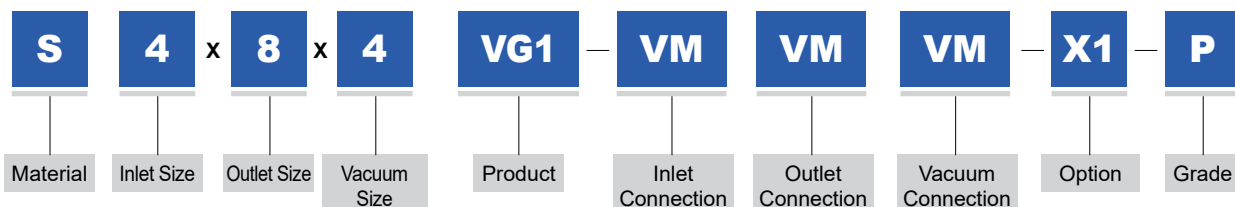
Note1. The dimension of drawing is for reference only. Please contact us for customer drawing and special product.

## PRODUCT FEATURES

- 50torr(66.7mbar) vacuum generated with a minimum source Nitrogen pressure of 80psig
- Ultrasonic and D.I. water cleaned for semiconductor Ultra-high purity
- Cleaned, welded, assembled, tested and packaged in a Class 100 or 10 clean room
- 100% tested for vacuum performance and Helium leakage

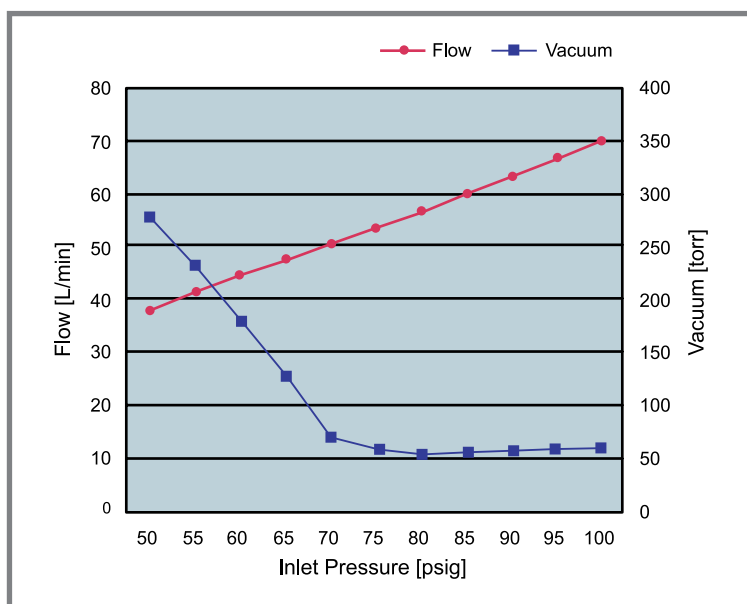


### ORDERING INFORMATION



MATERIAL		SIZE		CONNECTION		GRADE	
S	316L Stainless Steel	4	1/4"	VM	MFS Male	A	AP Grade
D	316L Stainless Steel VAR	6	3/8"	VF	MFS Female	Blank	BA Grade
		8	1/2"	TW	Tube Butt Weld	P	EP Grade

### VACUUM AND FLOW SPECIFICATIONS



# PRODUCT LIST

Valve Category	Model	Operating Method	Size	Product Code	Connection	Flow	Valve Type	Max. Usable Pressure					
Diaphragm Valve	DVN	Manual	1/4"	4DVN-VM	MFS MALE		STRAIGHT	1MPa					
				4DVN-VF	MFS FEMALE								
				4DVN-SW	LOK								
				4DVN-TW	BUTT WELD								
			3/8"	6DVN-SW	LOK								
				6DVN-TW	BUTT WELD								
			1/2"	8DVN-VM	MFS MALE								
				8DVN-VF	MFS FEMALE								
				8DVN-SW	LOK								
				8DVN-TW	BUTT WELD								
			3/4"	12DVN-VM	MFS MALE								
				12DVN-VF	MFS FEMALE								
				12DVN-SW	LOK								
				12DVN-TW	BUTT WELD								
			DV2	Manual	1/4"				4DV2-VM	MFS MALE		STRAIGHT	1MPa
									4DV2-VF	MFS FEMALE			
	4DV2-SW	LOK											
	4DV2-TW	BUTT WELD											
	3/8"	6DV2-SW			LOK								
		6DV2-TW			BUTT WELD								
	1/2"	8DV2-VM			MFS MALE								
		8DV2-VF			MFS FEMALE								
		8DV2-SW			LOK								
		8DV2-TW			BUTT WELD								
	3/4"	12DV2-VM			MFS MALE								
		12DV2-VF			MFS FEMALE								
		12DV2-SW			LOK								
		12DV2-TW			BUTT WELD								
	PDVN	Pneumatic Normally Close			1/4"	4PDVN-VM-C	MFS MALE		STRAIGHT	1MPa			
						4PDVN-VF-C	MFS FEMALE						
			4PDVN-SW-C	LOK									
			4PDVN-TW-C	BUTT WELD									
			3/8"	6PDVN-SW-C	LOK								
				6PDVN-TW-C	BUTT WELD								
			1/2"	8PDVN-VM-C	MFS MALE								
				8PDVN-VF-C	MFS FEMALE								
8PDVN-SW-C				LOK									
8PDVN-TW-C				BUTT WELD									
3/4"			12PDVN-VM-C	MFS MALE									
			12PDVN-VF-C	MFS FEMALE									
			12PDVN-SW-C	LOK									
			12PDVN-TW-C	BUTT WELD									
Pneumatic Normally Open			1/4"	4PDVN-VM-O	MFS MALE								
				4PDVN-VF-O	MFS FEMALE								
		4PDVN-SW-O		LOK									
		4PDVN-TW-O		BUTT WELD									
3/8"		6PDVN-SW-O	LOK										
		6PDVN-TW-O	BUTT WELD										

# PRODUCT LIST

Valve Category	Model	Operating Method	Size	Product Code	Connection	Flow	Valve Type	Max. Usable Pressure	
Diaphragm Valve	PDPVN	Pneumatic Normally Open	1/2"	8PDPVN-VM-O	MFS MALE		STRAIGHT	1MPa	
				8PDPVN-VF-O	MFS FEMALE				
				8PDPVN-SW-O	LOK				
				8PDPVN-TW-O	BUTT WELD				
			3/4"	12PDPVN-VM-O	MFS MALE				
				12PDPVN-VF-O	MFS FEMALE				
				12PDPVN-SW-O	LOK				
				12PDPVN-TW-O	BUTT WELD				
	HDPDV	Pneumatic Normally Close	1/4"	4HDPDV-VM-C	MFS MALE		STRAIGHT	1MPa	
				4HDPDV-VF-C	MFS FEMALE				
				4HDPDV-TW -C	BUTT WELD				
	BDVN	Manual		1/4"	4BDVN-VM-1T25	MFS MALE	1T25	STRAIGHT	1MPa
					4BDVN-VF-1T25	MFS FEMALE			
					4BDVN-SW-1T25	LOK			
					4BDVN-TW-1T25	BUTT WELD			
				1/2"	8BDVN-VM-1T25	MFS MALE			
					8BDVN-VF-1T25	MFS FEMALE			
					8BDVN-SW-1T25	LOK			
					8BDVN-TW-1T25	BUTT WELD			
				1/4"	4BDVN-VM-5T12	MFS MALE	5T12		
					4BDVN-VF-5T12	MFS FEMALE			
					4BDVN-SW-5T12	LOK			
					4BDVN-TW-5T12	BUTT WELD			
				1/2"	8BDVN-VM-5T12	MFS MALE			
					8BDVN-VF-5T12	MFS FEMALE			
					8BDVN-SW-5T12	LOK			
					8BDVN-TW-5T12	BUTT WELD			
				1/4"	4BDVN-VM-1T23	MFS MALE	1T23		
4BDVN-VF-1T23					MFS FEMALE				
4BDVN-SW-1T23					LOK				
4BDVN-TW-1T23					BUTT WELD				
1/2"				8BDVN-VM-1T23	MFS MALE				
				8BDVN-VF-1T23	MFS FEMALE				
				8BDVN-SW-1T23	LOK				
				8BDVN-TW-1T23	BUTT WELD				
1/4"				4BDVN-VM-3T12	MFS MALE	3T12			
				4BDVN-VF-3T12	MFS FEMALE				
				4BDVN-SW-3T12	LOK				
				4BDVN-TW-3T12	BUTT WELD				
1/2"	8BDVN-VM-3T12	MFS MALE							
	8BDVN-VF-3T12	MFS FEMALE							
	8BDVN-SW-3T12	LOK							
	8BDVN-TW-3T12	BUTT WELD							

# PRODUCT LIST

Valve Category	Model	Operating Method	Size	Product Code	Connection	Flow	Valve Type	Max. Usable Pressure
Diaphragm Valve	PBDVN	Manual	1/4"	4PBDVN-VM-1T25	MFS MALE	1T25	STRAIGHT	1MPa
				4PBDVN-VF-1T25	MFS FEMALE			
				4PBDVN-SW-1T25	LOK			
				4PBDVN-TW-1T25	BUTT WELD			
			1/4"	4PBDVN-VM-5T12	MFS MALE	5T12		
				4PBDVN-VF-5T12	MFS FEMALE			
				4PBDVN-SW-5T12	LOK			
				4PBDVN-TW-5T12	BUTT WELD			
			1/4"	4PBDVN-VM-1T23	MFS MALE	1T23		
				4PBDVN-VF-1T23	MFS FEMALE			
				4PBDVN-SW-1T23	LOK			
				4PBDVN-TW-1T23	BUTT WELD			
			1/4"	4PBDVN-VM-3T12	MFS MALE	3T12		
				4PBDVN-VF-3T12	MFS FEMALE			
				4PBDVN-SW-3T12	LOK			
				4PBDVN-TW-3T12	BUTT WELD			
	SODVN	Manual	1/4"	4SODVN-VM	MFS MALE	STRAIGHT	1MPa	
				4SODVN-VF	MFS FEMALE			
				4SODVN-SW	LOK			
				4SODVN-TW	BUTT WELD			
			3/8"	6SODVN-VM	MFS MALE			
				6SODVN-VF	MFS FEMALE			
				6SODVN-SW	LOK			
				6SODVN-TW	BUTT WELD			
			1/2"	8SODVN-VM	MFS MALE			
				8SODVN-VF	MFS FEMALE			
				8SODVN-SW	LOK			
				8SODVN-TW	BUTT WELD			
			3/4"	12SODVN-VM	MFS MALE			
				12SODVN-VF	MFS FEMALE			
				12SODVN-SW	LOK			
				12SODVN-TW	BUTT WELD			
	SODVN6	Manual	1/4"	4SODVN6-VM	MFS MALE	STRAIGHT	1MPa	
				4SODVN6-VF	MFS FEMALE			
				4SODVN6-SW	LOK			
			3/8"	6SODVN6-VM	MFS MALE			
				6SODVN6-VF	MFS FEMALE			
				6SODVN6-SW	LOK			
			1/2"	8SODVN6-VM	MFS MALE			
				8SODVN6-VF	MFS FEMALE			
DVN3	Manual	1/4"	4DVN3-VM	MFS MALE	BRANCH	1MPa		
			4DVN3-VF	MFS FEMALE				
			4DVN3-SW	LOK				
			4DVN3-TW	BUTT WELD				
		3/8"	6DVN3-SW	LOK				
			6DVN3-TW	BUTT WELD				
		1/2"	8DVN3-VM	MFS MALE				
			8DVN3-VF	MFS FEMALE				
			8DVN3-SW	LOK				
			8DVN3-TW	BUTT WELD				

# PRODUCT LIST

Valve Category	Model	Operating Method	Size	Product Code	Connection	Flow	Valve Type	Max. Usable Pressure		
Diaphragm Valve	DVN3	Manual	3/4"	12DVN3-VM	MFS MALE		BRANCH	1MPa		
				12DVN3-VF	MFS FEMALE					
				12DVN3-SW	LOK					
				12DVN3-TW	BUTT WELD					
	PDVN3	Pneumatic Normally Close	1/4"	1/4"	4PDVN3-VM-12T3-C	MFS MALE	12T3	BRANCH	1MPa	
					4PDVN3-VF-12T3-C	MFS FEMALE				
					4PDVN3-SW-12T3-C	LOK				
					4PDVN3-TW-12T3-C	BUTT WELD				
				3/8"	6PDVN3-SW-12T3-C	LOK				
					6PDVN3-TW-12T3-C	BUTT WELD				
					1/2"	8PDVN3-VM-12T3-C				MFS MALE
						8PDVN3-VF-12T3-C				MFS FEMALE
				8PDVN3-SW-12T3-C		LOK				
				8PDVN3-TW-12T3-C		BUTT WELD				
				3/4"	12PDVN3-VM-12T3-C	MFS MALE				
					12PDVN3-VF-12T3-C	MFS FEMALE				
			12PDVN3-SW-12T3-C		LOK					
			12PDVN3-TW-12T3-C		BUTT WELD					
			1/4"	4PDVN3-VM-13T2-C	MFS MALE	13T2				
				4PDVN3-VF-13T2-C	MFS FEMALE					
				4PDVN3-SW-13T2-C	LOK					
				4PDVN3-TW-13T2-C	BUTT WELD					
			3/8"	6PDVN3-SW-13T2-C	LOK					
				6PDVN3-TW-13T2-C	BUTT WELD					
				1/2"	8PDVN3-VM-13T2-C		MFS MALE			
					8PDVN3-VF-13T2-C		MFS FEMALE			
			8PDVN3-SW-13T2-C		LOK					
			8PDVN3-TW-13T2-C		BUTT WELD					
			3/4"	12PDVN3-VM-13T2-C	MFS MALE					
				12PDVN3-VF-13T2-C	MFS FEMALE					
				12PDVN3-SW-13T2-C	LOK					
				12PDVN3-TW-13T2-C	BUTT WELD					
Pneumatic Normally Open			1/4"	1/4"	4PDVN3-VM-12T3-O	MFS MALE	12T3			
					4PDVN3-VF-12T3-O	MFS FEMALE				
					4PDVN3-SW-12T3-O	LOK				
					4PDVN3-TW-12T3-O	BUTT WELD				
	3/8"	6PDVN3-SW-12T3-O		LOK						
		6PDVN3-TW-12T3-O		BUTT WELD						
		1/2"		8PDVN3-VM-12T3-O	MFS MALE					
				8PDVN3-VF-12T3-O	MFS FEMALE					
	8PDVN3-SW-12T3-O			LOK						
	8PDVN3-TW-12T3-O			BUTT WELD						
	3/4"	12PDVN3-VM-12T3-O		MFS MALE						
		12PDVN3-VF-12T3-O		MFS FEMALE						
		12PDVN3-SW-12T3-O	LOK							
		12PDVN3-TW-12T3-O	BUTT WELD							
	1/4"	4PDVN3-VM-13T2-O	MFS MALE	13T2						
		4PDVN3-VF-13T2-O	MFS FEMALE							
		4PDVN3-SW-13T2-O	LOK							
		4PDVN3-TW-13T2-O	BUTT WELD							

# PRODUCT LIST

Valve Category	Model	Operating Method	Size	Product Code	Connection	Flow	Valve Type	Max. Usable Pressure
Diaphragm Valve	PDVN3	Pneumatic Normally Open	3/8"	6PDVN3-SW-13T2-O	LOK	13T2	BRANCH	1MPa
				6PDVN3-TW-13T2-O	BUTT WELD			
			1/2"	8PDVN3-VM-13T2-O	MFS MALE			
				8PDVN3-VF-13T2-O	MFS FEMALE			
				8PDVN3-SW-13T2-O	LOK			
				8PDVN3-TW-13T2-O	BUTT WELD			
			3/4"	12PDVN3-VM-13T2-O	MFS MALE			
				12PDVN3-VF-13T2-O	MFS FEMALE			
				12PDVN3-SW-13T2-O	LOK			
				12PDVN3-TW-13T2-O	BUTT WELD			
			TDVN	Manual	20A×1/4"			
	20xT4TDVN-VF	MFS FEMALE						
	20xT4TDVN-SW	LOK						
	20xT4TDVN-TW	BUTT WELD						
	20A×3/8"	20xT6TDVN-SW			LOK			
		20xT6TDVN-TW			BUTT WELD			
	20A×1/2"	20xT8TDVN-VM			MFS MALE			
		20xT8TDVN-VF			MFS FEMALE			
		20xT8TDVN-SW			LOK			
20xT8TDVN-TW		BUTT WELD						
20A×3/4"	20xT12TDVN-VM	MFS MALE						
	20xT12TDVN-VF	MFS FEMALE						
	20xT12TDVN-SW	LOK						
	20xT12TDVN-TW	BUTT WELD						
TDV2	Manual	20A×1/4"	20xT4TDV2-VM	MFS MALE		STRAIGHT	1MPa	
			20xT4TDV2-VF	MFS FEMALE				
			20xT4TDV2-SW	LOK				
			20xT4TDV2-TW	BUTT WELD				
		20A×3/8"	20xT6TDV2-SW	LOK				
			20xT6TDV2-TW	BUTT WELD				
		20A×1/2"	20xT8TDV2-VM	MFS MALE				
			20xT8TDV2-VF	MFS FEMALE				
			20xT8TDV2-SW	LOK				
			20xT8TDV2-TW	BUTT WELD				
		20A×3/4"	20xT12TDV2-VM	MFS MALE				
			20xT12TDV2-VF	MFS FEMALE				
			20xT12TDV2-SW	LOK				
20xT12TDV2-TW	BUTT WELD							
FPDVN	Manual Pneumatic Normally Close	1/4"	4FPDVN-VM-C	MFS MALE		STRAIGHT	1MPa	
			4FPDVN-VF-C	MFS FEMALE				
			4FPDVN-SW-C	LOK				
			4FPDVN-TW-C	BUTT WELD				
	Manual Pneumatic Normally Open	1/4"	4FPDVN-VM-O	MFS MALE				
			4FPDVN-VF-O	MFS FEMALE				
			4FPDVN-SW-O	LOK				
			4FPDVN-TW-O	BUTT WELD				



# PRODUCT LIST

Valve Category	Model	Operating Method	Size	Product Code	Connection	Flow	Valve Type	Max. Usable Pressure
Diaphragm Valve	PSDVN	Pneumatic Normally Close	1/4"	4PSDVN-VM-C	MFS MALE		STRAIGHT	1MPa
				4PSDVN-VF-C	MFS FEMALE			
				4PSDVN-SW-C	LOK			
				4PSDVN-TW-C	BUTT WELD			
	MDMV	Manual	1/4"	4MDMV-VM	MFS MALE			1MPa
				4MDMV-VF	MFS FEMALE			
	HFDV	Manual	1/2"	8HFDV-VM-P0-PVM	MFS MALE		STRAIGHT	1MPa
				8HFDV-VF-P0-PVM	MFS FEMALE			
				8HFDV-TW-P0-PVM	BUTT WELD			
				8HFDV-VM-P0-PVF	MFS MALE			
				8HFDV-VF-P0-PVF	MFS FEMALE			
				8HFDV-TW-P0-PVF	BUTT WELD			
				8HFDV-VM-P1-PVM	MFS MALE			
				8HFDV-VF-P1-PVM	MFS FEMALE			
				8HFDV-TW-P1-PVM	BUTT WELD			
				8HFDV-VM-P1-PVF	MFS MALE			
				8HFDV-VF-P1-PVF	MFS FEMALE			
				8HFDV-TW-P1-PVF	BUTT WELD			
				8HFDV-VM-P2-PVM	MFS MALE			
				8HFDV-VF-P2-PVM	MFS FEMALE			
			8HFDV-TW-P2-PVM	BUTT WELD				
			8HFDV-VM-P2-PVF	MFS MALE				
			8HFDV-VF-P2-PVF	MFS FEMALE				
			8HFDV-TW-P2-PVF	BUTT WELD				
			3/4"	12HFDV-VM-P0-PVM	MFS MALE			
				12HFDV-VF-P0-PVM	MFS FEMALE			
				12HFDV-TW-P0-PVM	BUTT WELD			
				12HFDV-VM-P0-PVF	MFS MALE			
				12HFDV-VF-P0-PVF	MFS FEMALE			
				12HFDV-TW-P0-PVF	BUTT WELD			
				12HFDV-VM-P1-PVM	MFS MALE			
				12HFDV-VF-P1-PVM	MFS FEMALE			
12HFDV-TW-P1-PVM				BUTT WELD				
12HFDV-VM-P1-PVF				MFS MALE				
12HFDV-VF-P1-PVF	MFS FEMALE							
12HFDV-TW-P1-PVF	BUTT WELD							
12HFDV-VM-P2-PVM	MFS MALE							
12HFDV-VF-P2-PVM	MFS FEMALE							
12HFDV-TW-P2-PVM	BUTT WELD							
12HFDV-VM-P2-PVF	MFS MALE							
12HFDV-VF-P2-PVF	MFS FEMALE							
12HFDV-TW-P2-PVF	BUTT WELD							

# PRODUCT LIST

Valve Category	Model	Operating Method	Size	Product Code	Connection	Flow	Valve Type	Max. Usable Pressure
Diaphragm Valve	HFDV	Manual	1"	16HFDV-VM-P0-PVM	MFS MALE		STRAIGHT	1MPa
				16HFDV-VF-P0-PVM	MFS FEMALE			
				16HFDV-TW-P0-PVM	BUTT WELD			
				16HFDV-VM-P0-PVF	MFS MALE			
				16HFDV-VF-P0-PVF	MFS FEMALE			
				16HFDV-TW-P0-PVF	BUTT WELD			
				16HFDV-VM-P1-PVM	MFS MALE			
				16HFDV-VF-P1-PVM	MFS FEMALE			
				16HFDV-TW-P1-PVM	BUTT WELD			
				16HFDV-VM-P1-PVF	MFS MALE			
				16HFDV-VF-P1-PVF	MFS FEMALE			
				16HFDV-TW-P1-PVF	BUTT WELD			
				16HFDV-VM-P2-PVM	MFS MALE			
				16HFDV-VF-P2-PVM	MFS FEMALE			
				16HFDV-TW-P2-PVM	BUTT WELD			
				16HFDV-VM-P2-PVF	MFS MALE			
	16HFDV-VF-P2-PVF	MFS FEMALE						
	16HFDV-TW-P2-PVF	BUTT WELD						
	HFLDV	Manual	3/4"	12HFLDV-TW-P0-PVM	BUTT WELD		STRAIGHT	1MPa
				12HFLDV-VM-P0-PVM	MFS MALE			
				12HFLDV-VF-P0-PVM	MFS FEMALE			
				12HFLDV-TW-P0-PVF	BUTT WELD			
				12HFLDV-VM-P0-PVF	MFS MALE			
				12HFLDV-VF-P0-PVF	MFS FEMALE			
				12HFLDV-TW-P1-PVM	BUTT WELD			
				12HFLDV-VM-P1-PVM	MFS MALE			
				12HFLDV-VF-P1-PVM	MFS FEMALE			
				12HFLDV-TW-P1-PVF	BUTT WELD			
				12HFLDV-VM-P1-PVF	MFS MALE			
				12HFLDV-VF-P1-PVF	MFS FEMALE			
				12HFLDV-TW-P2-PVM	BUTT WELD			
				12HFLDV-VM-P2-PVM	MFS MALE			
12HFLDV-VF-P2-PVM				MFS FEMALE				
12HFLDV-TW-P2-PVF				BUTT WELD				
12HFLDV-VM-P2-PVF	MFS MALE							
12HFLDV-VF-P2-PVF	MFS FEMALE							
HFLDV	Manual	1"	16HFLDV-TW-P0-PVM	BUTT WELD		STRAIGHT	1MPa	
			16HFLDV-VM-P0-PVM	MFS MALE				
			16HFLDV-VF-P0-PVM	MFS FEMALE				
			16HFLDV-TW-P0-PVF	BUTT WELD				
			16HFLDV-VM-P0-PVF	MFS MALE				
			16HFLDV-VF-P0-PVF	MFS FEMALE				
			16HFLDV-TW-P1-PVM	BUTT WELD				
			16HFLDV-VM-P1-PVM	MFS MALE				

# PRODUCT LIST

Valve Category	Model	Operating Method	Size	Product Code	Connection	Flow	Valve Type	Max. Usable Pressure
Diaphragm Valve	HFLDV	Manual	1"	16HFLDV-VF-P1-PVM	MFS FEMALE		STRAIGHT	1MPa
				16HFLDV-TW-P1-PVF	BUTT WELD			
				16HFLDV-VM-P1-PVF	MFS MALE			
				16HFLDV-VF-P1-PVF	MFS FEMALE			
				16HFLDV-TW-P2-PVM	BUTT WELD			
				16HFLDV-VM-P2-PVM	MFS MALE			
				16HFLDV-VF-P2-PVM	MFS FEMALE			
				16HFLDV-TW-P2-PVF	BUTT WELD			
				16HFLDV-VM-P2-PVF	MFS MALE			
				16HFLDV-VF-P2-PVF	MFS FEMALE			
			1-1/2"	24HFLDV-TW-P0-PVM	BUTT WELD			
				24HFLDV-VM-P0-PVM	MFS MALE			
				24HFLDV-VF-P0-PVM	MFS FEMALE			
				24HFLDV-TW-P0-PVF	BUTT WELD			
				24HFLDV-VM-P0-PVF	MFS MALE			
				24HFLDV-VF-P0-PVF	MFS FEMALE			
				24HFLDV-TW-P1-PVM	BUTT WELD			
				24HFLDV-VM-P1-PVM	MFS MALE			
				24HFLDV-VF-P1-PVM	MFS FEMALE			
				24HFLDV-TW-P1-PVF	BUTT WELD			
				24HFLDV-VM-P1-PVF	MFS MALE			
				24HFLDV-VF-P1-PVF	MFS FEMALE			
				24HFLDV-TW-P2-PVM	BUTT WELD			
				24HFLDV-VM-P2-PVM	MFS MALE			
			1-1/2"	24HFLDV-VF-P2-PVM	MFS FEMALE			
				24HFLDV-TW-P2-PVF	BUTT WELD			
				24HFLDV-VM-P2-PVF	MFS MALE			
				24HFLDV-VF-P2-PVF	MFS FEMALE			
			2"	32HFLDV-TW-P0-PVM	BUTT WELD			
				32HFLDV-VM-P0-PVM	MFS MALE			
				32HFLDV-VF-P0-PVM	MFS FEMALE			
				32HFLDV-TW-P0-PVF	BUTT WELD			
				32HFLDV-VM-P0-PVF	MFS MALE			
				32HFLDV-VF-P0-PVF	MFS FEMALE			
				32HFLDV-TW-P1-PVM	BUTT WELD			
				32HFLDV-VM-P1-PVM	MFS MALE			
				32HFLDV-VF-P1-PVM	MFS FEMALE			
				32HFLDV-TW-P1-PVF	BUTT WELD			
				32HFLDV-VM-P1-PVF	MFS MALE			
				32HFLDV-VF-P1-PVF	MFS FEMALE			
				32HFLDV-TW-P2-PVM	BUTT WELD			
				32HFLDV-VM-P2-PVM	MFS MALE			
				32HFLDV-VF-P2-PVM	MFS FEMALE			
				32HFLDV-TW-P2-PVF	BUTT WELD			
				32HFLDV-VM-P2-PVF	MFS MALE			
32HFLDV-VF-P2-PVF	MFS FEMALE							
HFBDV	Manual	1/2"×1/4"	8TWHFBDV-4TW-HC-PVM	HORIZONTAL CROSS		STRAIGHT	1.86MPa	
			8TWHFBDV-4TW-HT-PVM	HORIZONTAL TEE				
			8TWHFBDV-4TW-VT-PVM	VERTICAL TEE				

# PRODUCT LIST

Valve Category	Model	Operating Method	Size	Product Code	Connection	Flow	Valve Type	Max. Usable Pressure
Diaphragm Valve	HFBDV	Manual	1/2"×3/8"	8TWHFBDV-6TW-HC-PVM	HORIZONTAL CROSS		STRAIGHT	1.86MPa
				8TWHFBDV-6TW-HT-PVM	HORIZONTAL TEE			
				8TWHFBDV-6TW-VT-PVM	VERTICAL TEE			
			1/2"	8TWHFBDV-8TW-HC-PVM	HORIZONTAL CROSS			
				8TWHFBDV-8TW-HT-PVM	HORIZONTAL TEE			
				8TWHFBDV-8TW-VT-PVM	VERTICAL TEE			
			3/4"×1/4"	12TWHFBDV-4TW-HC-PVM	HORIZONTAL CROSS			
				12TWHFBDV-4TW-HT-PVM	HORIZONTAL TEE			
				12TWHFBDV-4TW-VT-PVM	VERTICAL TEE			
			3/4"×3/8"	12TWHFBDV-6TW-HC-PVM	HORIZONTAL CROSS			
				12TWHFBDV-6TW-HT-PVM	HORIZONTAL TEE			
				12TWHFBDV-6TW-VT-PVM	VERTICAL TEE			
			3/4"×1/2"	12TWHFBDV-8TW-HC-PVM	HORIZONTAL CROSS			
				12TWHFBDV-8TW-HT-PVM	HORIZONTAL TEE			
				12TWHFBDV-8TW-VT-PVM	VERTICAL TEE			
			3/4"	12TWHFBDV-12TW-HC-PVM	HORIZONTAL CROSS			
				12TWHFBDV-12TW-HT-PVM	HORIZONTAL TEE			
				12TWHFBDV-12TW-VT-PVM	VERTICAL TEE			
			1"×1/4"	16TWHFBDV-4TW-HC-PVM	HORIZONTAL CROSS			
				16TWHFBDV-4TW-HT-PVM	HORIZONTAL TEE			
				16TWHFBDV-4TW-VT-PVM	VERTICAL TEE			
			1"×3/8"	16TWHFBDV-6TW-HC-PVM	HORIZONTAL CROSS			
				16TWHFBDV-6TW-HT-PVM	HORIZONTAL TEE			
				16TWHFBDV-6TW-VT-PVM	VERTICAL TEE			
			1"×1/2"	16TWHFBDV-8TW-HC-PVM	HORIZONTAL CROSS			
				16TWHFBDV-8TW-HT-PVM	HORIZONTAL TEE			
				16TWHFBDV-8TW-VT-PVM	VERTICAL TEE			
			1"×3/4"	16TWHFBDV-12TW-HC-PVM	HORIZONTAL CROSS			
				16TWHFBDV-12TW-HT-PVM	HORIZONTAL TEE			
				16TWHFBDV-12TW-VT-PVM	VERTICAL TEE			
			1"	16TWHFBDV-16TW-HC-PVM	HORIZONTAL CROSS			
				16TWHFBDV-16TW-HT-PVM	HORIZONTAL TEE			
				16TWHFBDV-16TW-VT-PVM	VERTICAL TEE			
			1-1/2"×1/4"	24TWHFBDV-4TW-HC-PVM	HORIZONTAL CROSS			
				24TWHFBDV-4TW-HT-PVM	HORIZONTAL TEE			
				24TWHFBDV-4TW-VT-PVM	VERTICAL TEE			
			1-1/2"×3/8"	24TWHFBDV-6TW-HC-PVM	HORIZONTAL CROSS			
				24TWHFBDV-6TW-HT-PVM	HORIZONTAL TEE			
				24TWHFBDV-6TW-VT-PVM	VERTICAL TEE			
			1-1/2"×1/2"	24TWHFBDV-8TW-HC-PVM	HORIZONTAL CROSS			
				24TWHFBDV-8TW-HT-PVM	HORIZONTAL TEE			
				24TWHFBDV-8TW-VT-PVM	VERTICAL TEE			
			1-1/2"×3/4"	24TWHFBDV-12TW-HC-PVM	HORIZONTAL CROSS			
				24TWHFBDV-12TW-HT-PVM	HORIZONTAL TEE			
				24TWHFBDV-12TW-VT-PVM	VERTICAL TEE			
			1-1/2"×1"	24TWHFBDV-16TW-HC-PVM	HORIZONTAL CROSS			
				24TWHFBDV-16TW-HT-PVM	HORIZONTAL TEE			
				24TWHFBDV-16TW-VT-PVM	VERTICAL TEE			
			1-1/2"	24TWHFBDV-24TW-HC-PVM	HORIZONTAL CROSS			
				24TWHFBDV-24TW-HT-PVM	HORIZONTAL TEE			
				24TWHFBDV-24TW-VT-PVM	VERTICAL TEE			

# PRODUCT LIST

Valve Category	Model	Operating Method	Size	Product Code	Connection	Flow	Valve Type	Max. Usable Pressure
Diaphragm Valve	HFBDV	Manual	2"×1/4"	32TWHFBDV-4TW-HC-PVM	HORIZONTAL CROSS		STRAIGHT	1.86MPa
				32TWHFBDV-4TW-HT-PVM	HORIZONTAL TEE			
				32TWHFBDV-4TW-VT-PVM	VERTICAL TEE			
			2"×3/8"	32TWHFBDV-6TW-HC-PVM	HORIZONTAL CROSS			
				32TWHFBDV-6TW-HT-PVM	HORIZONTAL TEE			
				32TWHFBDV-6TW-VT-PVM	VERTICAL TEE			
			2"×1/2"	32TWHFBDV-8TW-HC-PVM	HORIZONTAL CROSS			
				32TWHFBDV-8TW-HT-PVM	HORIZONTAL TEE			
				32TWHFBDV-8TW-VT-PVM	VERTICAL TEE			
			2"×3/4"	32TWHFBDV-12TW-HC-PVM	HORIZONTAL CROSS			
				32TWHFBDV-12TW-HT-PVM	HORIZONTAL TEE			
				32TWHFBDV-12TW-VT-PVM	VERTICAL TEE			
			2"×1"	32TWHFBDV-16TW-HC-PVM	HORIZONTAL CROSS			
				32TWHFBDV-16TW-HT-PVM	HORIZONTAL TEE			
				32TWHFBDV-16TW-VT-PVM	VERTICAL TEE			
	2"	32TWHFBDV-32TW-HC-PVM	HORIZONTAL CROSS					
		32TWHFBDV-32TW-HT-PVM	HORIZONTAL TEE					
		32TWHFBDV-32TW-VT-PVM	VERTICAL TEE					
	HDV	Manual	1/4"	4HDV-VM	MFS MALE		STRAIGHT	23.5MPa
				4HDV-VF	MFS FEMALE			
				4HDV-SW	LOK			
				4HDV-TW	BUTT WELD			
	HPR	Manual	1/4"	4HPR-VM	MFS MALE		STRAIGHT	24.1MPa
				4HPR-VF	MFS FEMALE			
				4HPR-SW	LOK			
	HPDV	Pneumatic Normally Close	1/4"	4HPDV-VM-C	MFS MALE		STRAIGHT	20.6MPa
				4HPDV-VF-C	MFS FEMALE			
				4HPDV-SW-C	LOK			
4HPDV-TW-C				BUTT WELD				
HBDV	Manual	1/4"	4HBDV-VF-1T25	MFS FEMALE	1T25	3 WAY BLOCK	23.5MPa	
			4HBDV-VF-5T12	MFS FEMALE	5T12			
			4HBDV-VF-1T23	MFS FEMALE	1T23			
			4HBDV-VF-3T12	MFS FEMALE	3T12			
HPBDV	Pneumatic Normally Close	1/4"	4HPBDV-VF-3T14-C	MFS FEMALE	3T14	3 WAY BLOCK	20.6MPa	
			4HPBDV-VF-3T24-C	MFS FEMALE	3T24			
			4HPBDV-VF-1T23-C	MFS FEMALE	1T23			
			4HPBDV-VF-3T12-C	MFS FEMALE	3T12			
HDV3	Manual	1/4"	4HDV3-VM-12T3	MFS MALE	12T3	BRANCH	23.5MPa	
			4HDV3-VF-12T3	MFS FEMALE				
			4HDV3-SW-12T3	LOK				
			4HDV3-TW-12T3	BUTT WELD				
HPDV3	Pneumatic Normally Close	1/4"	4HPDV3-VM-12T3-C	MFS MALE	12T3	BRANCH	20.6MPa	
			4HPDV3-VF-12T3-C	MFS FEMALE				
			4HPDV3-SW-12T3-C	LOK				
			4HPDV3-TW-12T3-C	BUTT WELD				
			4HPDV3-VM-13T2-C	MFS MALE	13T2			
			4HPDV3-VF-13T2-C	MFS FEMALE				
			4HPDV3-SW-13T2-C	LOK				
			4HPDV3-TW-13T2-C	BUTT WELD				

# PRODUCT LIST

Valve Category	Model	Operating Method	Size	Product Code	Connection	Flow	Valve Type	Max. Usable Pressure					
Diaphragm Valve	HPDV3	Pneumatic Normally Open	1/4"	4HPDV3-VM-12T3-O	MFS MALE	12T3	BRANCH	20.6MPa					
				4HPDV3-VF-12T3-O	MFS FEMALE								
				4HPDV3-SW-12T3-O	LOK								
				4HPDV3-TW-12T3-O	BUTT WELD								
				4HPDV3-VM-13T2-O	MFS MALE	13T2							
				4HPDV3-VF-13T2-O	MFS FEMALE								
				4HPDV3-SW-13T2-O	BUTT WELD								
				4HPDV3-TW-13T2-O	MFS MALE								
BELLOWS VALVE	BV	Manual	1/4"	4BV-VM	MFS MALE		STRAIGHT	1MPa					
				4BV-VF	MFS FEMALE								
				4BV-SW	LOK								
				4BV-TW	BUTT WELD								
			3/8"	6BV-SW	LOK								
				6BV-TW	BUTT WELD								
				1/2"	8BV-VM				MFS MALE				
					8BV-VF				MFS FEMALE				
			8BV-SW		LOK								
			8BV-TW		BUTT WELD								
			3/4"	12BV-VM	MFS MALE								
				12BV-VF	MFS FEMALE								
	12BV-SW	LOK											
	12BV-TW	BUTT WELD											
	PBV	Pneumatic Normally Close	1/4"	4PBV-VM-C	MFS MALE		STRAIGHT	1MPa					
				4PBV-VF-C	MFS FEMALE								
				4PBV-SW-C	LOK								
				4PBV-TW-C	BUTT WELD								
			3/8"	6PBV-SW-C	LOK								
				6PBV-TW-C	BUTT WELD								
				1/2"	8PBV-VM-C				MFS MALE				
					8PBV-VF-C				MFS FEMALE				
			8PBV-SW-C		LOK								
			8PBV-TW-C		BUTT WELD								
PBV			Pneumatic Normally Open	1/4"	4PBV-VM-O				MFS MALE		STRAIGHT	1MPa	
					4PBV-VF-O				MFS FEMALE				
	4PBV-SW-O	LOK											
	4PBV-TW-O	BUTT WELD											
	3/8"	6PBV-SW-O		LOK									
		6PBV-TW-O		BUTT WELD									
		1/2"		8PBV-VM-O	MFS MALE								
				8PBV-VF-O	MFS FEMALE								
	8PBV-SW-O			LOK									
	8PBV-TW-O			BUTT WELD									
	Diaphragm Valve	BMV		Manual	1/4"	4BMVS-VM	MFS MALE		STRAIGHT				1MPa
						4BMVS-VF	MFS FEMALE						
4BMVM-VM			MFS MALE										
4BMVM-VF			MFS FEMALE										
BELLOWS VALVE	PBMV	Pneumatic Normally Close	1/4"	4PBMV-VM	MFS MALE		STRAIGHT	1MPa					
				4PBMV-VF	MFS FEMALE								
				4PBMV-SW	LOK								
				4PBMV-TW	BUTT WELD								
			3/8"	6PBMV-VM	MFS MALE								
				6PBMV-VF	MFS FEMALE								
				6PBMV-SW	LOK								
				6PBMV-TW	BUTT WELD								

# PRODUCT LIST

Valve Category	Model	Operating Method	Size	Product Code	Connection	Flow	Valve Type	Max. Usable Pressure	
BELLOWS VALVE	PBMV	Pneumatic Normally Close	1/2"	8PBMV-VM	MFS MALE		STRAIGHT	1MPa	
				8PBMV-VF	MFS FEMALE				
				8PBMV-SW	LOK				
				8PBMV-TW	BUTT WELD				
	ABV	Manual		15A	15ABV-FL	FLANGE		STRAIGHT	1MPa
					15ABV-TW	BUTT WELD			
				1"	T16ABV-FL	FLANGE			
					T16ABV-TW	BUTT WELD			
				20A	20ABV-FL	FLANGE			
					20ABV-TW	BUTT WELD			
				25A	25ABV-FL	FLANGE			
					25ABV-TW	BUTT WELD			
				32A	32ABV-FL	FLANGE			
					32ABV-TW	BUTT WELD			
				40A	40ABV-FL	FLANGE			
					40ABV-TW	BUTT WELD			
				2"	T32ABV-FL	FLANGE			
					T32ABV-TW	BUTT WELD			
				50A	50ABV-FL	FLANGE			
					50ABV-TW	BUTT WELD			
				65A	65ABV-FL	FLANGE			
					65ABV-TW	BUTT WELD			
				80A	80ABV-FL	FLANGE			
					80ABV-TW	BUTT WELD			
				100A	100ABV-FL	FLANGE			
					100ABV-TW	BUTT WELD			
				125A	125ABV-FL	FLANGE			
					125ABV-TW	BUTT WELD			
				150A	150ABV-FL	FLANGE			
					150ABV-TW	BUTT WELD			
				200A	200ABV-FL	FLANGE			
					200ABV-TW	BUTT WELD			
				250A	250ABV-FL	FLANGE			
250ABV-TW					BUTT WELD				
300A				300ABV-FL	FLANGE				
				300ABV-TW	BUTT WELD				
350A	350ABV-FL	FLANGE							
	350ABV-TW	BUTT WELD							
400A	400ABV-FL	FLANGE							
	400ABV-TW	BUTT WELD							
450A	450ABV-FL	FLANGE							
	450ABV-TW	BUTT WELD							
500A	500ABV-FL	FLANGE							
	500ABV-TW	BUTT WELD							
APBV	Pneumatic Normally Close		15A	15APBV-FL-C	FLANGE		STRAIGHT	1MPa	
				15APBV-TW-C	BUTT WELD				
			1"	T16APBV-FL-C	FLANGE				
				T16APBV-TW-C	BUTT WELD				
			20A	20APBV-FL-C	FLANGE				
				20APBV-TW-C	BUTT WELD				
			25A	25APBV-FL-C	FLANGE				
				25APBV-TW-C	BUTT WELD				

# PRODUCT LIST

Valve Category	Model	Operating Method	Size	Product Code	Connection	Flow	Valve Type	Max. Usable Pressure	
BELLOWS VALVE	APBV	Pneumatic Normally Close	32A	32APBV-FL-C	FLANGE		STRAIGHT	1MPa	
				32APBV-TW-C	BUTT WELD				
			40A	40APBV-FL-C	FLANGE				
				40APBV-TW-C	BUTT WELD				
			2"	T32APBV-FL-C	FLANGE				
				T32APBV-TW-C	BUTT WELD				
			50A	50APBV-FL-C	FLANGE				
				50APBV-TW-C	BUTT WELD				
			Pneumatic Normally Open	15A	15APBV-FL-O				FLANGE
					15APBV-TW-O				BUTT WELD
		1"		T16APBV-FL-O	FLANGE				
				T16APBV-TW-O	BUTT WELD				
		20A		20APBV-FL-O	FLANGE				
				20APBV-TW-O	BUTT WELD				
		25A		25APBV-FL-O	FLANGE				
				25APBV-TW-O	BUTT WELD				
		32A		32APBV-FL-O	FLANGE				
				32APBV-TW-O	BUTT WELD				
		40	40APBV-FL-O	FLANGE					
			40APBV-TW-O	BUTT WELD					
	2"	T32APBV-FL-O	FLANGE						
		T32APBV-TW-O	BUTT WELD						
	50	50APBV-FL-O	FLANGE						
		50APBV-TW-O	BUTT WELD						
	YBV	Manual	1/2"	T8YBV-TW	BUTT WELD		Y TYPE	1MPa	
			3/4"	T12YBV-TW	BUTT WELD				
			1"	T16YBV-TW	BUTT WELD				
	YPBV	Pneumatic Normally Close	1/2"	T8YPBV-VM-C	MFS MALE		Y TYPE	1MPa	
				T8YPBV-VF-C	MFS FEMALE				
				T8YPBV-TW-C	BUTT WELD				
				T8YPHBV-VM-C	MFS MALE				
				T8YPHBV-VF-C	MFS FEMALE				
				T8YPHBV-TW-C	BUTT WELD				
3/4"			T12YPBV-VM-C	MFS MALE					
			T12YPBV-VF-C	MFS FEMALE					
			T12YPBV-TW-C	BUTT WELD					
			T12YPHBV-VM-C	MFS MALE					
			T12YPHBV-VF-C	MFS FEMALE					
			T12YPHBV-TW-C	BUTT WELD					
1"			T16YPBV-VM-C	MFS MALE					
			T16YPBV-VF-C	MFS FEMALE					
			T16YPBV-TW-C	BUTT WELD					
			T16YPHBV-VM-C	MFS MALE					
			T16YPHBV-VF-C	MFS FEMALE					
			T16YPHBV-TW-C	BUTT WELD					



# PRODUCT LIST

Valve Category	Model	Operating Method	Size	Product Code	Connection	Flow	Valve Type	Max. Usable Pressure
BELLOWS VALVE	YPBV	Pneumatic Normally Open	1/2"	T8YPBV-VM-O	MFS MALE		Y TYPE	1MPa
				T8YPBV-VF-O	MFS FEMALE			
				T8YPBV-TW-O	BUTT WELD			
				T8YPHBV-VM-O	MFS MALE			
				T8YPHBV-VF-O	MFS FEMALE			
				T8YPHBV-TW-O	BUTT WELD			
			3/4"	T12YPBV-VM-O	MFS MALE			
				T12YPBV-VF-O	MFS FEMALE			
				T12YPBV-TW-O	BUTT WELD			
				T12YPHBV-VM-O	MFS MALE			
				T12YPHBV-VF-O	MFS FEMALE			
				T12YPHBV-TW-O	BUTT WELD			
			1"	T16YPBV-VM-O	MFS MALE			
				T16YPBV-VF-O	MFS FEMALE			
				T16YPBV-TW-O	BUTT WELD			
T16YPHBV-VM-O	MFS MALE							
T16YPHBV-VF-O	MFS FEMALE							
T16YPHBV-TW-O	BUTT WELD							
CHECK VALVE	CHV1		1/4 "	4CHV1-VM	MFS MALE		STRAIGHT	20.6MPa
			1/2"	8CHV1-VM	MFS MALE			
OTHERS VALVE	CLV4	Manual	-	CLV4 - □ - □	Customer Option			20.6MPa
	MVM	Manual	1/4"	4MVM-VM-V	MFS MALE		FLOW CONTROL	6.89MPa
				4MVM-SW-V	LOK			
				4MVM-VM-KS	MFS MALE			
				4MVM-SW-KS	LOK			
				4MVM-VM-K	MFS MALE			
				4MVM-SW-K	LOK			
VACUUM GENERATORS	VG1		1/4"	S4x8x4VG1-□	MFS MALE			150 Psig (10kgf/cm <sup>2</sup> )
					MFS FEMALE			
					BUTT WELD			
			1/2"	S8x12x8VG1-□	MFS MALE			
					MFS FEMALE			
					BUTT WELD			

# TK-FUJIKIN VALVES



## Head Office

7, Noksansandan 261-ro 88beon-gil, Gangseo-gu, Busan, Korea

## 2nd Factory

32, Hwajeonsandan 3-ro, Gangseo-gu, Busan, Korea

TEL. 82-51-970-6700 FAX. 82-51-831-1215

[www.tk-fujikin.com](http://www.tk-fujikin.com) E-mail : [tc@tk-fujikin.com](mailto:tc@tk-fujikin.com)



**FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

This document and other information from TKF corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by TKF corporation and its subsidiaries at any time without notice.