BMT

UHP Products & Gas Systems

BMT Book-Bound Catalog (Volume 2)

SUPERLOK®

Contents

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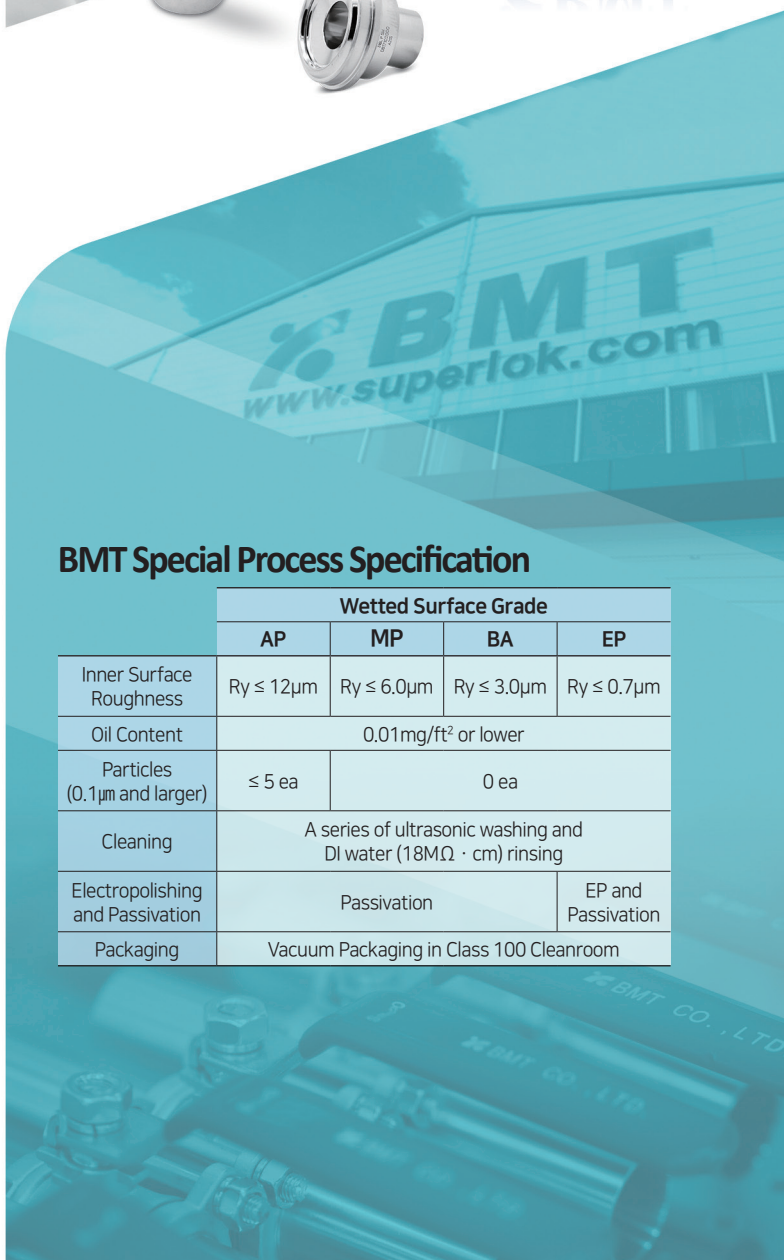


BMT Special Process Specification

	Wetted Surface Grade			
	AP	MP	BA	EP
Inner Surface Roughness	Ry ≤ 12μm	Ry ≤ 6.0μm	Ry ≤ 3.0μm	Ry ≤ 0.7μm
Oil Content	0.01mg/ft² or lower			
Particles (0.1μm and larger)	≤ 5 ea	0 ea		
Cleaning	A series of ultrasonic washing and DI water (18MΩ · cm) rinsing			
Electropolishing and Passivation	Passivation			EP and Passivation
Packaging	Vacuum Packaging in Class 100 Cleanroom			

Ultra High Purity

WELD & METAL SEAL FITTINGS

Weld & Metal Seal Fittings

Ordering Information

*Additional configurations available upon request.

A	B	C	D	E	-	F	-	G
SM	4	FG	N	6	-	AX	-	P

Standard feature
Optional

A Materials

Glands, Bodies, and Nuts	
SM	316L Stainless Steel
DM	316L Stainless Steel VAR
Gaskets	
SM	316L Stainless Steel
NI	Nickel

B Connection Size

Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
2	1/8 in.	3.18 mm	0.7 mm
4	1/4 in.	6.35 mm	1.0 mm
6	3/8 in.	9.53 mm	1.0 mm
8	1/2 in.	12.7 mm	1.24 mm
12	3/4 in.	19.05 mm	1.65 mm
16	1 in.	25.4 mm	1.65 mm

Optional End Connection Sizes

For drop size fittings, first size the run and add the suffix "X" then a size designator for the branch. (i.e. Reducer for 3/8" O.D. tube and 1/4" male pipe thread would be 6X4)

C Body Type

R	Reducer
E	Elbow
HE	45° Elbow
T	Tee
CR	Cross
TB	Tribow
FG	Female Gland
MG	Male Gland
SSG	Socket Weld Short Gland
SLG	Socket Weld Long Gland
RSLG	Reducing Socket Weld Gland
BG	Blind Gland
MWG	Male Weld Gland
TA	Tube Adapter
MU	Double Male Union
MRU	Double Male Reducing Union
BHU	Bulkhead Union
TC	TBW Connector

C Body Type (continued)

TBHC	TBW Bulkhead Connector
CG	Coupling
FRU	Double Female Reducing Union
RA	Reducing Adapter
RB	Reducing Bushing
ME	Male Elbow
UE	Union Elbow
UT	Union Tee
UC	Union Cross
SC	SUPERLOK Tube Fitting Connector
BHSC	SUPERLOK Tube Fitting Bulkhead Connector
BHMC	Bulkhead Male Connector
MC	Male Connector
FC	Female Connector
GR	Gasket Retainer Assembly
GT	Gasket
BGT	Blind Gasket
FN	Female Nut
MN	Male Nut
PG	Plug
CP	Cap
PGC	Plug (Cable Type)
HFN	High Flow Female Nut
HMN	High Flow Male Nut
HLG	High Flow Long Gland
HTC	High Flow TBW Connector
HBHC	High Flow TBW Bulkhead Connector
WMC	Welded Male Connector
WFC	Welded Female Connector
WSC	Welded Lok Connector
WFU	Welded Female Union

D Threads Type

Designator	Thread Option
N	NPT (National Pipe Thread)
R	PT (Tapered Thread)
U	SAE (Unified)

Weld & Metal Seal Fittings

E	Tube Length	
	6	6.35 mm
	10	10 mm
	19	19.05 mm
	22	22.5 mm
	23	23.3 mm

F	Wall Thickness			
	Standard			
	For **Standard Wall Thickness**. No part designator needed.			
	Designator	**Tube OD**	**Wall Thickness**	
	No Need	1/8 in.	0.7 mm	0.028 in.
	No Need	1/4 in.	1.0 mm	0.039 in.
	No Need	3/8 in.	1.0 mm	0.039 in.
	No Need	1/2 in.	1.24 mm	0.049 in.
	No Need	3/4 in.	1.65 mm	0.065 in.
	Designator	**Tube OD**	**Wall Thickness**	
	AX	1/4 in.	0.89 mm	0.035 in.
	AX	3/8 in.	0.89 mm	0.035 in.

G	Wetted Surface Grade	
	Glands, Bodies, and Nuts	
	BA is standard. No part designator needed.	
	P	EP
	Gaskets	
	Leave **Blank**: ***Unplated gasket***	
	SP	Silver plated

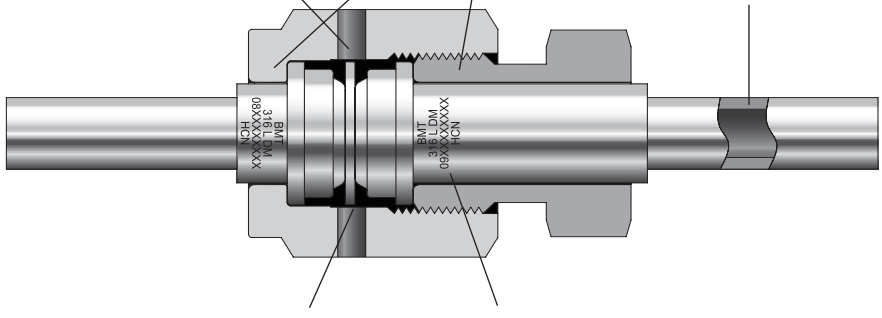
BMT Vacuum Coupling (BVC) Fittings

BMT Vacuum Coupling (BVC) Fittings provide the high purity of a metal-to-metal seal for leak-free service from vacuum to positive pressure applications. The gasket is compressed by two highly polished beads when a male nut and a female nut are engaged.

Gasket: unplated stainless steel 316L (standard), unplated nickel, silver-plated stainless steel 316L or nickel, or special request

As standard, BVC fittings are marked with manufacturer, material, grade, traveler number, and material heat code designator (HCN).

Standard surface finish: Ra 0.25 µm (Ra 10 µin)

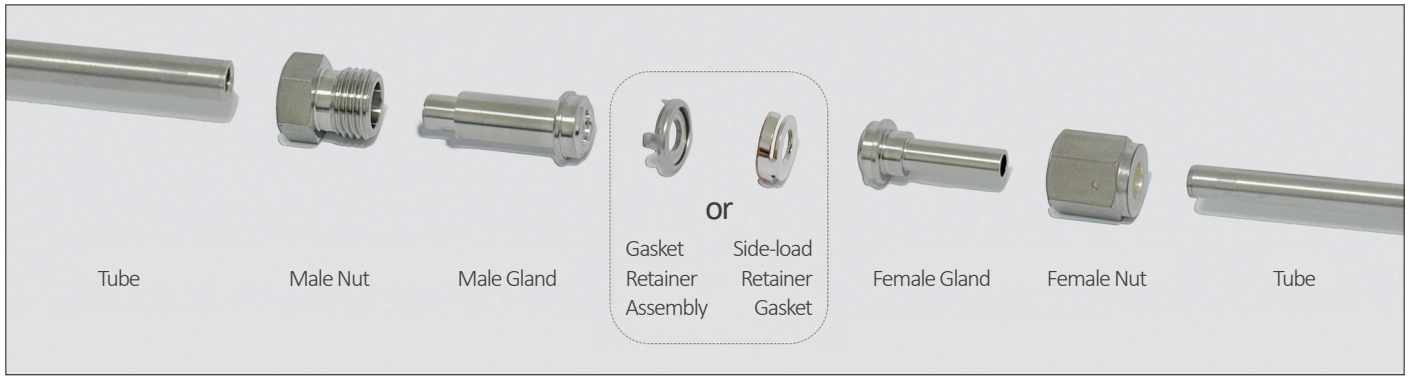


Test port allows easy leak testing

The female nut is silver plated to ensure consistent torque and easy assembly.

BMT Metal Gasket Face Seal Fitting

BVC Fitting Installation Procedures



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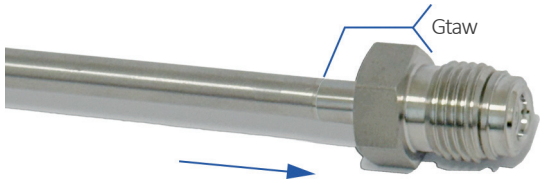

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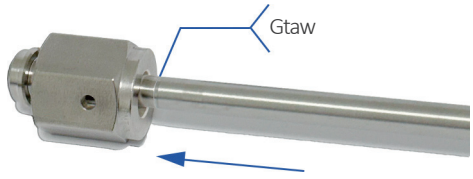

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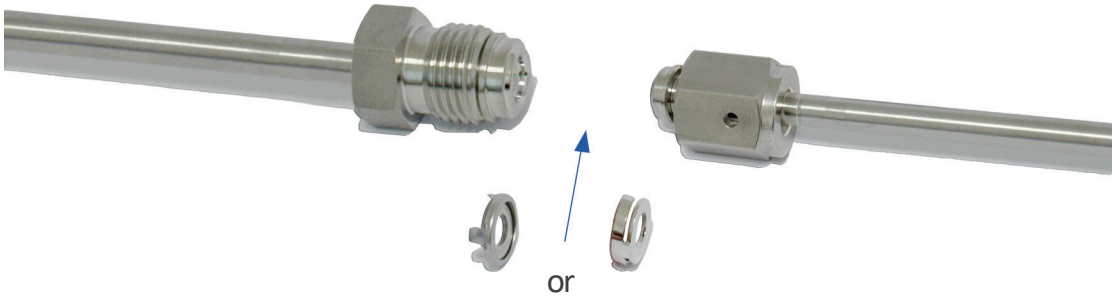
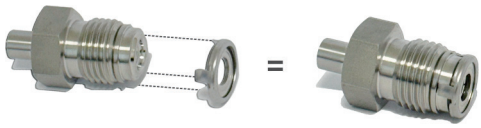
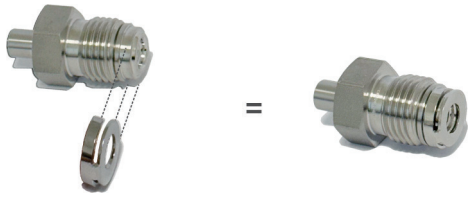


3a Gasket Retainer Assembly



3b Side-load Retainer Gasket



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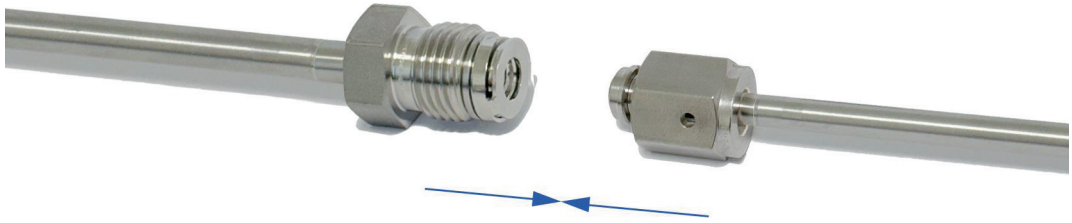
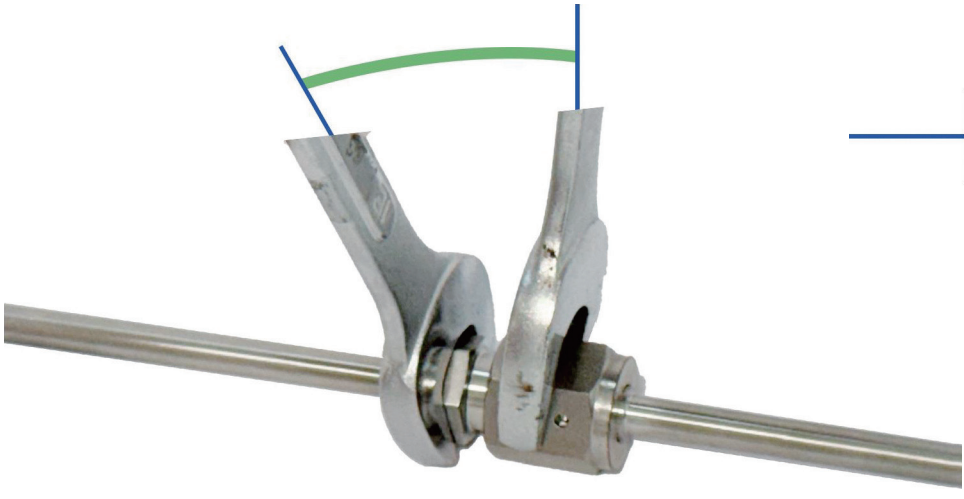
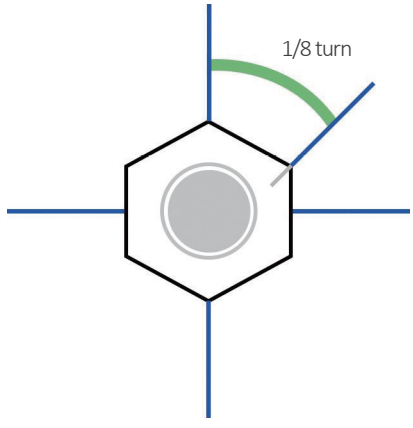


5

Finger-tight

6





Stainless Steel, Nikel

Body Type

Micro Weld Fittings


Micro Reducer


Micro 90° Elbow


Micro Reducing 90° Elbow


Micro 45° Elbow


Micro Tee


Micro Reducing Tee


Micro Cross


Micro Tribow

Forged Weld Fittings


90° Elbow


Reducing 90° Elbow


Tee


Reducing Tee


Cross


Reducer

Glands


Female Gland


Male Gland


Socket Weld Short Gland


Socket Weld Long Gland


Reducing Socket Weld Long Gland


Blind Gland


Male Weld Gland

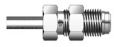

Tube Adapter


Double Male Union


Double Male Reducing Union


Bulkhead Union


Tube Butt Weld (TBW) Connector


Tube Butt Weld (TBW) Bulkhead Connector


Coupling


Double Female Reducing Union


Reducing Adapter


Reducing Bushing


Male Elbow (NPT)


Male Elbow (PT)


Union Elbow


Union Tee


Union Cross


SUPERLOK Tube Fitting Connector


SUPERLOK Tube Fitting Bulkhead Connector


Bulkhead Male Connector (NPT)


Male Connector (PT)

Male Connector (NPT)

Male Connector (ST)

Female Connector (PT)

Female Connector (NPT)

Gaskets

Gasket Retainer Assembly

Gasket

Blind Gasket

Nuts, Caps and Plugs

Female Nut

Male Nut

Plug

Cap

Plug (Cable Type)

High - Flow Connection - "H" Type

High Flow Female Nut

High Flow Male Nut

High Flow Long Gland

High Flow Tube Butt Weld (TBW) Connector

High Flow Tube Butt Weld (TBW) Bulkhead Connector

Welded Assembly

Welded Male Connector (PT)

Welded Male Connector (NPT)

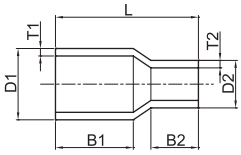
Welded Female Connector (PT)

Welded Female Connector (NPT)

Welded Lok Connector

Welded Female Union

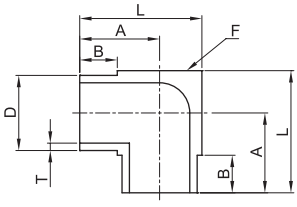
Micro Weld Fittings



Micro Reducer

Part No.	Tube OD (D1)		Tube OD (D2)		T1	T2	B1	B2	L
	Size (in)	Size	Size (in)	Size					
SM4X2R6	1/4"	6.35	1/8"	3.18	1.00	0.70	10.4	6.35	19.1
SM6X4R6	3/8"	9.53	1/4"	6.35	1.00	1.00	10.4	6.35	19.1
SM8X4R6	1/2"	12.70	1/4"	6.35	1.24	1.00	10.4	6.35	19.1
SM8X6R6	1/2"	12.70	3/8"	9.53	1.24	1.00	10.4	6.35	19.1
SM12X4R6	3/4"	19.05	1/4"	6.35	1.65	1.00	10.4	6.35	19.1
SM12X6R6	3/4"	19.05	3/8"	9.53	1.65	1.00	10.4	6.35	19.1
SM12X8R6	3/4"	19.05	1/2"	12.70	1.65	1.24	10.4	6.35	19.1

Part No.	Tube OD (D1)		Tube OD (D2)		T1	T2	B1	B2	L
	Size (in)	Size	Size (in)	Size					
SM4X2R6-AX	1/4"	6.35	1/8"	3.18	0.89	0.70	10.7	6.35	19.1
SM6X4R6-AX	3/8"	9.53	1/4"	6.35	0.89	0.89	10.7	6.35	19.1
SM8X4R6-AX	1/2"	12.70	1/4"	6.35	1.24	0.89	10.7	6.35	19.1
SM8X6R6-AX	1/2"	12.70	3/8"	9.53	1.24	0.89	10.7	6.35	19.1
SM12X4R6-AX	3/4"	19.05	1/4"	6.35	1.24	0.89	10.7	6.35	19.1
SM12X6R6-AX	3/4"	19.05	3/8"	9.53	1.24	0.89	10.7	6.35	19.1



Micro 90° Elbow

Part No.	Tube OD (D)		T	A	B	F Body	L
	Size (in)	Size					
SM2E6	1/8"	3.18	0.70	10.32	6.35	7.94	14.29
SM4E6	1/4"	6.35	1.00	10.32	6.35	7.94	14.29
SM6E6	3/8"	9.53	1.00	11.91	6.35	11.11	17.46
SM8E6	1/2"	12.70	1.24	13.50	6.35	14.29	20.64
SM12E6	3/4"	19.05	1.65	16.68	6.35	20.65	27.00

Part No.	Tube OD (D)		T	A	B	F Body	L
	Size (in)	Size					
SM4E6-AX	1/4"	6.35	0.89	10.32	6.35	7.94	14.29
SM6E6-AX	3/8"	9.53	0.89	11.91	6.35	11.11	17.46

NOTE:
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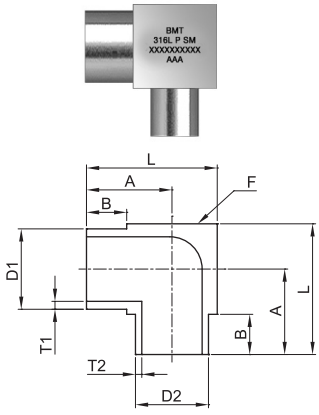
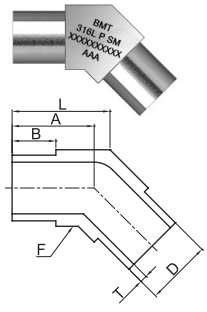


Micro Reducing 90° Elbow

Part No.	Tube OD (D1)		Tube OD (D2)		T1	T2	A	B	F Body	L
	Size (in)	Size	Size (in)	Size						
SM4X2E6	1/4"	6.35	1/8"	3.18	1.00	0.70	10.32	6.35	7.94	14.29
SM6X4E6	3/8"	9.53	1/4"	6.35	1.00	1.00	11.91	6.35	11.11	17.46
SM8X4E6	1/2"	12.70	1/4"	6.35	1.24	1.00	13.50	6.35	14.29	20.64
SM8X6E6	1/2"	12.70	3/8"	9.53	1.24	1.00	13.50	6.35	14.29	20.64
SM12X4E6	3/4"	19.05	1/4"	6.35	1.65	1.00	16.68	6.35	20.65	27.00
SM12X6E6	3/4"	19.05	3/8"	9.53	1.65	1.00	16.68	6.35	20.65	27.00
SM12X8E6	3/4"	19.05	1/2"	12.70	1.65	1.24	16.68	6.35	20.65	27.00

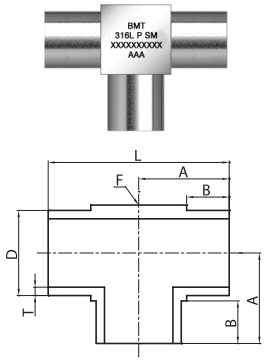
Part No.	Tube OD (D1)		Tube OD (D2)		T1	T2	A	B	F Body	L
	Size (in)	Size	Size (in)	Size						
SM4X2E6-AX	1/4"	6.35	1/8"	3.18	0.89	0.71	10.32	6.35	7.94	14.29
SM6X4E6-AX	3/8"	9.53	1/4"	6.35	0.89	0.89	11.91	6.35	11.11	17.46
SM8X4E6-AX	1/2"	12.70	1/4"	6.35	1.24	0.89	13.50	6.35	14.29	20.64
SM8X6E6-AX	1/2"	12.70	3/8"	9.53	1.24	0.89	13.50	6.35	14.29	20.64
SM12X4E6-AX	3/4"	19.05	1/4"	6.35	1.24	0.89	16.68	6.35	20.65	27.00
SM12X6E6-AX	3/4"	19.05	3/8"	9.53	1.24	0.89	16.68	6.35	20.65	27.00



Micro 45° Elbow

Part No.	Tube OD (D)		T	A	B	F Body	L
	Size (in)	Size					
SM2HE6	1/8"	3.18	0.70	10.32	6.35	7.94	11.96
SM4HE6	1/4"	6.35	1.00	10.32	6.35	7.94	11.96
SM6HE6	3/8"	9.53	1.00	11.91	6.35	11.11	14.21
SM8HE6	1/2"	12.70	1.24	13.50	6.35	14.29	16.46
SM12HE6	3/4"	19.05	1.65	16.68	6.35	20.65	20.95

Part No.	Tube OD (D)		T	A	B	F Body	L
	Size (in)	Size					
SM4HE6-AX	1/4"	6.35	0.89	10.32	6.35	7.94	11.96
SM6HE6-AX	3/8"	9.53	0.89	11.91	6.35	11.11	14.21



Micro Tee

Part No.	Tube OD (D)		T	A	B	F Body	L
	Size (in)	Size					
SM2T6	1/8"	3.18	0.70	10.32	6.35	7.94	20.64
SM4T6	1/4"	6.35	1.00	10.32	6.35	7.94	20.64
SM6T6	3/8"	9.53	1.00	11.91	6.35	11.11	23.81
SM8T6	1/2"	12.70	1.24	13.50	6.35	14.29	26.99
SM12T6	3/4"	19.05	1.65	16.68	6.35	20.65	33.35

Part No.	Tube OD (D)		T	A	B	F Body	L
	Size (in)	Size					
SM4T6-AX	1/4"	6.35	0.89	10.32	6.35	7.94	20.64
SM6T6-AX	3/8"	9.53	0.89	11.91	6.35	11.11	23.81

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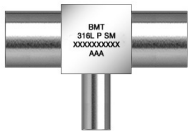
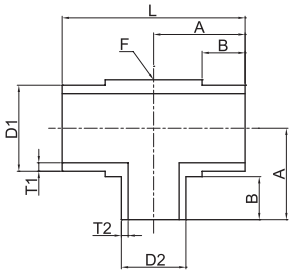
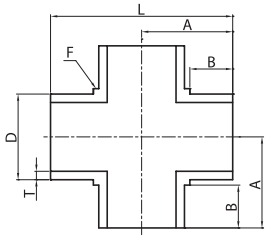




Micro Reducing Tee

Part No.	Tube OD (D1)		Tube OD (D2)		T1	T2	A	B	F Body	L
	Size (in)	Size	Size (in)	Size						
SM4X2T6	1/4"	6.35	1/8"	3.18	1.00	0.70	10.35	6.35	7.94	20.64
SM6X4T6	3/8"	9.53	1/4"	6.35	1.00	1.00	11.91	6.35	11.11	23.81
SM8X4T6	1/2"	12.70	1/4"	6.35	1.24	1.00	13.50	6.35	14.29	27.00
SM8X6T6	1/2"	12.70	3/8"	9.53	1.24	1.00	13.50	6.35	14.29	27.00
SM12X4T6	3/4"	19.05	1/4"	6.35	1.65	1.00	16.68	6.35	20.65	27.00
SM12X6T6	3/4"	19.05	3/8"	9.53	1.65	1.00	16.68	6.35	20.65	27.00
SM12X8T6	3/4"	19.05	1/2"	12.70	1.65	1.24	16.68	6.35	20.65	27.00

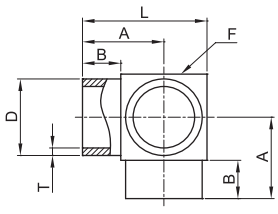
Part No.	Tube OD (D1)		Tube OD (D2)		T1	T2	A	B	F Body	L
	Size (in)	Size	Size (in)	Size						
SM4X2T6-AX	1/4"	6.35	1/8"	3.18	0.89	0.71	10.35	6.35	7.94	20.64
SM6X4T6-AX	3/8"	9.53	1/4"	6.35	0.89	0.89	11.91	6.35	11.11	23.81
SM8X4T6-AX	1/2"	12.70	1/4"	6.35	1.24	0.89	13.50	6.35	14.29	27.00
SM8X6T6-AX	1/2"	12.70	3/8"	9.53	1.24	0.89	13.50	6.35	14.29	27.00
SM12X4T6-AX	3/4"	19.05	1/4"	6.35	1.24	0.89	16.68	6.35	20.65	27.00
SM12X6T6-AX	3/4"	19.05	3/8"	9.53	1.24	0.89	16.68	6.35	20.65	27.00



Micro Cross

Part No.	Tube OD (D)		T	A	B	F Body	L
	Size (in)	Size					
SM2CR6	1/8"	3.18	0.70	10.32	6.35	7.94	20.64
SM4CR6	1/4"	6.35	1.00	10.32	6.35	7.94	20.64
SM6CR6	3/8"	9.53	1.00	11.91	6.35	11.11	23.81
SM8CR6	1/2"	12.70	1.24	13.50	6.35	14.29	27.00
SM12CR6	3/4"	19.05	1.65	16.68	6.35	20.65	33.35

Part No.	Tube OD (D)		T	A	B	F Body	L
	Size (in)	Size					
SM4CR6-AX	1/4"	6.35	0.89	10.32	6.35	7.94	20.64
SM6CR6-AX	3/8"	9.53	0.89	11.91	6.35	11.11	23.81



Micro Tribow

Part No.	Tube OD (D)		T	A	B	F Body	L
	Size (in)	Size					
SM2TB6	1/8"	3.18	0.70	10.32	6.35	7.94	14.29
SM4TB6	1/4"	6.35	1.00	10.32	6.35	7.94	14.29
SM6TB6	3/8"	9.53	1.00	11.91	6.35	11.11	17.46
ST8TB6	1/2"	12.70	1.24	13.50	6.35	14.29	20.65
ST12TB6	3/4"	19.05	1.65	16.68	6.35	20.65	27.00

Part No.	Tube OD (D)		T	A	B	F Body	L
	Size (in)	Size					
SM4TB6-AX	1/4"	6.35	0.89	10.32	6.35	7.94	14.29
SM6TB6-AX	3/8"	9.53	0.89	11.91	6.35	11.11	17.46

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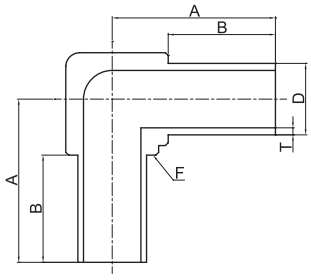
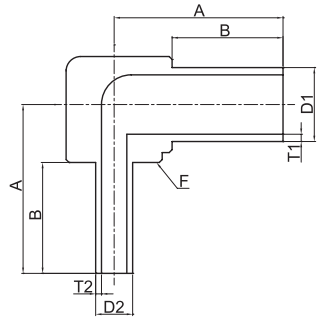
Forged Weld Fittings



90° Elbow

Part No.	Tube OD (D)		T	A	B	F Body
	Size (in)	Size				
SM4E19	1/4"	6.35	1.00	25.00	19.05	11.1
SM6E19	3/8"	9.53	1.00	25.00	19.05	12.4
SM8E19	1/2"	12.70	1.24	29.00	22.50	17.0
SM12E22	3/4"	19.05	1.65	33.50	23.30	25.0
SM16E23	1"	25.40	1.65	38.30	10.00	30.0
SM4E10	1/4"	6.35	1.00	15.90	10.00	11.1
SM6E10	3/8"	9.53	1.00	15.90	10.00	12.4
SM12E10	3/4"	19.05	1.65	22.40	10.00	25.0
SM16E10	1"	25.40	1.65	24.95	10.00	30.0
SM16E10	1"	25.40	1.65	24.95	10.00	30.0

Part No.	Tube OD (D)		T	A	B	F Body
	Size (in)	Size				
SM4E19-AX	1/4"	6.35	0.89	31.2	19.05	11.11
SM6E19-AX	3/8"	9.53	0.89	31.2	19.05	11.11
SM4E10-AX	1/4"	6.35	0.89	22.15	10.00	11.11
SM6E10-AX	3/8"	9.53	0.89	22.15	10.00	11.11



Reducing 90° Elbow

Part No.	Tube OD (D1)		Tube OD (D2)		T1	T2	A	B	F Body
	Size (in)	Size	Size (in)	Size					
SM6X4E19	3/8"	9.53	1/4"	6.35	1.00	1.00	25.0	19.05	12.4
SM8X4E19	1/2"	12.70	1/4"	6.35	1.24	1.00	29.0	19.05	17.0
SM8X6E19	1/2"	12.70	3/8"	9.53	1.24	1.00	29.0	19.05	17.0
SM12X4E22	3/4"	19.05	1/4"	6.35	1.65	1.00	33.5	22.50	25.0
SM12X6E22	3/4"	19.05	3/8"	9.53	1.65	1.00	33.5	22.50	25.0
SM12X8E22	3/4"	19.05	1/2"	12.70	1.65	1.24	33.5	22.50	25.0
SM16X4E23	1"	25.40	1/4"	6.35	1.65	1.00	38.3	23.30	30.0
SM16X8E23	1"	25.40	1/2"	12.70	1.65	1.24	38.3	23.30	30.0
SM16X12E23	1"	25.40	3/4"	19.05	1.65	1.65	38.3	23.30	30.0

Part No.	Tube OD (D1)		Tube OD (D2)		T1	T2	A	B	F Body
	Size (in)	Size	Size (in)	Size					
SM6X4E19-AX	3/8"	9.53	1/4"	6.35	0.89	0.89	30.5	19.0	11.11
SM8X4E19-AX	1/2"	12.70	1/4"	6.35	1.24	0.89	34.0	19.0	17.46
SM8X6E19-AX	1/2"	12.70	3/8"	9.53	1.24	0.89	34.0	19.0	17.46
SM12X4E22-AX	3/4"	19.05	1/4"	6.35	1.24	0.89	-	22.0	23.81
SM12X6E22-AX	3/4"	19.05	3/8"	9.53	1.24	0.89	-	22.0	23.81
SM16X4E23-AX	1"	25.4	1/4"	6.35	1.65	0.89	-	23.0	-

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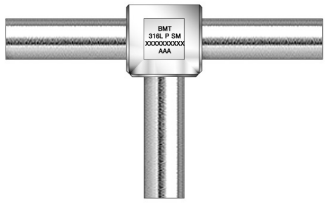
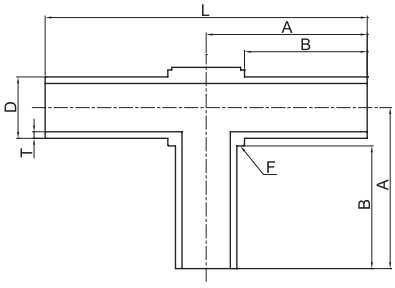
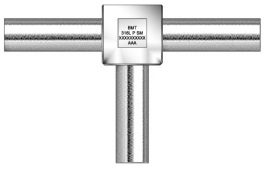


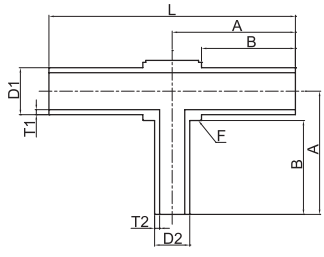


Tee

Part No.	Tube OD (D)		T	A	B	F Body	L
	Size (in)	Size					
SM4T19	1/4"	6.35	1.00	25.00	19.05	11.1	50.0
SM6T19	3/8"	9.53	1.00	25.00	19.05	12.4	50.0
SM8T19	1/2"	12.70	1.24	29.00	19.05	17.0	58.0
SM12T22	3/4"	19.05	1.65	33.50	22.50	25.0	67.0
SM16T23	1"	25.40	1.65	38.30	23.30	30.0	76.6
SM4T10	1/4"	6.35	1.00	15.90	10.00	11.1	31.8
SM6T10	3/8"	9.53	1.00	15.90	10.00	12.4	31.8
SM8T10	1/2"	12.70	1.24	19.90	10.00	17.0	39.8
SM12T10	3/4"	19.05	1.65	22.40	10.00	25.0	44.8
SM16T10	1"	25.40	1.65	24.95	10.00	30.0	49.9

Part No.	Tube OD (D)		T	A	B	F Body	L
	Size (in)	Size					
SM4T19-AX	1/4"	6.35	0.89	31.2	19.05	11.11	62.5
SM6T19-AX	3/8"	9.53	0.89	31.2	19.05	11.11	62.5
SM4T10-AX	1/4"	6.35	0.89	31.2	10.00	11.11	53.5
SM6T10-AX	3/8"	9.53	0.89	31.2	10.00	11.11	53.5





Reducing Tee

Part No.	Tube OD (D1)		Tube OD (D2)		T1	T2	A	B	F Body	L
	Size (in)	Size	Size (in)	Size						
SM6X4T19	3/8"	9.53	1/4"	6.35	1.00	1.00	25.0	19.05	12.4	50.0
SM8X4T19	1/2"	12.70	1/4"	6.35	1.24	1.00	29.0	19.05	17.0	58.0
SM8X6T19	1/2"	12.70	3/8"	9.53	1.24	1.00	29.0	19.05	17.0	58.0
SM12X4T22	3/4"	19.05	1/4"	6.35	1.65	1.00	33.5	22.50	25.0	67.0
SM12X6T22	3/4"	19.05	3/8"	9.53	1.65	1.00	33.5	22.50	25.0	67.0
SM12X8T22	3/4"	19.05	1/2"	12.70	1.65	1.24	33.5	22.50	25.0	67.0
SM16X4T23	1"	25.40	1/4"	6.35	1.65	1.00	38.3	23.30	30.0	76.6
SM16X8T23	1"	25.40	1/2"	12.70	1.65	1.24	38.3	23.30	30.0	76.6
SM16X12T23	1"	25.40	3/4"	19.05	1.65	1.65	38.3	23.30	30.0	76.6
SM6X4T10	3/8"	9.53	1/4"	6.35	1.00	1.00	15.9	10.00	12.4	31.8
SM8X4T10	1/2"	12.70	1/4"	6.35	1.24	1.00	19.9	10.00	17.0	39.8
SM8X6T10	1/2"	12.70	3/8"	9.53	1.24	1.00	19.9	10.00	17.0	39.8
SM12X4T10	3/4"	19.05	1/4"	6.35	1.65	1.00	22.4	10.00	25.0	44.8
SM12X6T10	3/4"	19.05	3/8"	9.53	1.65	1.00	22.4	10.00	25.0	44.8

Part No.	Tube OD (D1)		Tube OD (D2)		T1	T2	A1	A2	B	F Body	L
	Size (in)	Size	Size (in)	Size							
SM6X4T19-AX	3/8"	9.53	1/4"	6.35	0.89	0.89	30.5	31.2	19.05	11.11	60.7
SM8X4T19-AX	1/2"	12.7	1/4"	6.35	1.24	0.89	34.0	34.0	19.05	17.46	67.8
SM8X6T19-AX	1/2"	12.7	3/8"	9.53	1.24	0.89	34.0	34.3	19.05	17.46	67.8
SM12X4T22-AX	3/4"	19.05	1/4"	6.35	1.24	0.89	-	-	22.50	-	-
SM12X6T22-AX	3/4"	19.05	3/8"	9.53	1.24	0.89	-	-	22.50	-	-
SM16X4T23-AX	1"	25.4	1/4"	6.35	1.65	0.89	-	-	23.30	-	-
SM6X4T10-AX	3/8"	9.53	1/4"	6.35	0.89	0.89	21.5	22.2	10.00	11.11	42.7
SM8X4T10-AX	1/2"	12.7	1/4"	6.35	1.24	0.89	25.0	25.0	10.00	17.46	49.8
SM8X6T10-AX	1/2"	12.7	3/8"	9.53	1.24	0.89	25.0	25.3	10.00	17.46	49.8
SM12X4T10-AX	3/4"	19.05	1/4"	6.35	1.24	0.89	28.1	28.6	10.00	23.81	55.9
SM12X6T10-AX	3/4"	19.05	3/8"	9.53	1.24	0.89	28.1	25.3	10.00	23.81	55.9

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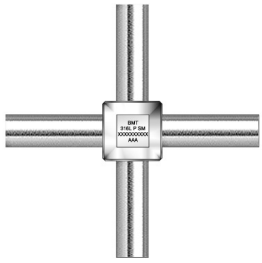
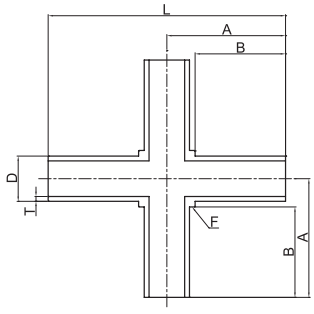
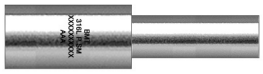


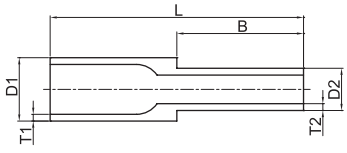


Cross

Part No.	Tube OD (D)		T	A	B	F Body	L
	Size (in)	Size					
SM4CR19	1/4"	6.35	1.00	25.00	19.05	11.1	50.0
SM6CR19	3/8"	9.53	1.00	25.00	19.05	12.4	50.0
SM8CR19	1/2"	12.7	1.24	29.00	19.05	17.0	58.0
SM12CR22	3/4"	19.05	1.65	31.50	22.50	25.0	67.0
SM16CR23	1"	25.40	1.65	34.00	23.30	30.0	76.6
SM4CR10	1/4"	6.35	1.00	15.90	10.00	11.1	31.8
SM6CR10	3/8"	9.53	1.00	15.90	10.00	12.4	31.8
SM8CR10	1/2"	12.70	1.24	19.90	10.00	17.0	39.8
SM12CR10	3/4"	19.05	1.65	22.40	10.00	25.0	44.8
SM16CR10	1"	25.40	1.65	24.95	10.00	30.0	49.9

Part No.	Tube OD (D)		T	A	B	F Body	L
	Size (in)	Size					
SM4CR19-AX	1/4"	6.35	0.89	31.2	19.05	11.11	62.2
SM6CR19-AX	3/8"	9.53	0.89	31.2	19.05	11.11	62.2
SM4CR10-AX	1/4"	6.35	0.89	22.2	10.00	11.11	44.2
SM6CR10-AX	3/8"	9.53	0.89	22.2	10.00	11.11	44.2





Reducer

Part No.	Tube OD (D1)		Tube OD (D2)		T1	T2	B	L
	Size (in)	Size	Size (in)	Size				
SM6X4R19	3/8"	9.53	1/4"	6.35	1.00	1.00	19.05	38.1
SM8X4R19	1/2"	12.70	1/4"	6.35	1.24	1.00	19.05	38.1
SM8X6R19	1/2"	12.70	3/8"	9.53	1.24	1.00	19.05	38.1
SM12X4R19	3/4"	19.05	1/4"	6.35	1.65	1.00	19.05	42.9
SM12X6R19	3/4"	19.05	3/8"	9.53	1.65	1.00	19.05	42.9
SM12X8R19	3/4"	19.05	1/2"	12.70	1.65	1.24	19.05	42.9
SM16X4R19	1"	25.40	1/4"	6.35	1.65	1.00	19.05	42.9
SM16X6R19	1"	25.40	3/8"	9.53	1.65	1.00	19.05	42.9
SM16X8R19	1"	25.40	1/2"	12.70	1.65	1.24	19.05	42.9
SM16X12R19	1"	25.40	3/4"	19.05	1.65	1.65	19.05	42.9
SM6X4R10	3/8"	9.53	1/4"	6.35	1.00	1.00	10.00	20.0
SM8X4R10	1/2"	12.70	1/4"	6.35	1.24	1.00	10.00	20.0
SM8X6R10	1/2"	12.70	3/8"	9.53	1.24	1.00	10.00	20.0
SM12X4R10	3/4"	19.05	1/4"	6.35	1.65	1.00	10.00	20.0
SM12X6R10	3/4"	19.05	3/8"	9.53	1.65	1.00	10.00	20.0
SM12X8R10	3/4"	19.05	1/2"	12.70	1.65	1.24	10.00	20.0

Part No.	Tube OD (D1)		Tube OD (D2)		T1	T2	B	L
	Size (in)	Size	Size (in)	Size				
SM6X4R19-AX	3/8"	9.53	1/4"	6.35	0.89	0.89	19	38.1
SM8X4R19-AX	1/2"	12.70	1/4"	6.35	1.24	0.89	19	38.1
SM8X6R19-AX	1/2"	12.70	3/8"	9.53	1.24	0.89	19	38.1
SM12X4R19-AX	3/4"	19.05	1/4"	6.35	1.24	0.89	19	38.1
SM12X6R19-AX	3/4"	19.05	3/8"	9.53	1.24	0.89	19	38.1
SM16X4R19-AX	1"	25.40	1/4"	6.35	1.65	0.89	19	38.1
SM16X6R19-AX	1"	25.40	3/8"	9.53	1.65	0.89	19	38.1
SM6X4R10-AX	3/8"	9.53	1/4"	6.35	0.89	0.89	10	20.1
SM8X4R10-AX	1/2"	12.70	1/4"	6.35	1.24	0.89	10	20.1
SM8X6R10-AX	1/2"	12.70	3/8"	9.53	1.24	0.89	10	20.1
SM12X4R10-AX	3/4"	19.05	1/4"	6.35	1.24	0.89	10	20.1
SM12X6R10-AX	3/4"	19.05	3/8"	9.53	1.24	0.89	10	20.1

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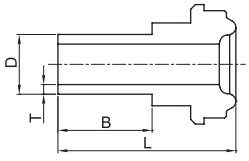
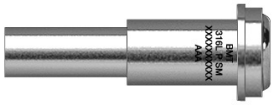
Glands

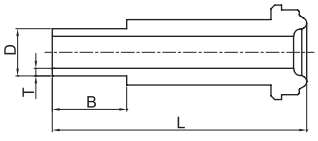


Female Gland

Part No.	Head Size (in)	Tube OD (D)		T	B	L	ANS (in)
		Size (in)	Size				
SM2FG19	1/8"	1/8"	3.18	0.70	19.05	27.40	1/8"
SM4FG6	1/4"	1/4"	6.35	1.00	6.35	15.24	1/4"
SM4FG10	1/4"	1/4"	6.35	1.00	10.00	18.89	1/4"
SM4FG19	1/4"	1/4"	6.35	1.00	19.05	27.94	1/4"
SM6FG6	3/8"	3/8"	9.53	1.00	6.35	15.75	1/2"
SM6FG10	3/8"	3/8"	9.53	1.00	10.00	19.40	1/2"
SM6FG19	3/8"	3/8"	9.53	1.00	19.05	28.45	1/2"
SM8FG6	1/2"	1/2"	12.70	1.24	6.35	15.75	1/2"
SM8FG10	1/2"	1/2"	12.70	1.24	10.00	19.40	1/2"
SM8FG19	1/2"	1/2"	12.70	1.24	19.05	28.45	1/2"
SM12FG19	3/4"	3/4"	19.05	1.65	19.05	34.50	3/4"
SM16FG19	1"	1"	25.40	1.65	19.05	38.60	1"
SM8X4FG6	1/2"	1/4"	6.35	1.00	6.35	15.75	1/2"
SM8X4FG10	1/2"	1/4"	6.35	1.00	10.00	19.40	1/2"
SM8X4FG19	1/2"	1/4"	6.35	1.00	19.05	28.45	1/2"

ANS : Available Nut Size

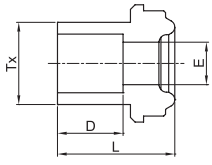




Male Gland

Part No.	Head Size (in)	Tube OD (D)		T	B	L	ANS (in)
		Size (in)	Size				
SM2MG19	1/8"	1/8"	3.18	0.70	19.05	36.00	1/8"
SM4MG6	1/4"	1/4"	6.35	1.00	6.35	30.48	1/4"
SM4MG10	1/4"	1/4"	6.35	1.00	10.00	34.13	1/4"
SM4MG19	1/4"	1/4"	6.35	1.00	19.05	43.18	1/4"
SM6MG6	3/8"	3/8"	9.53	1.00	6.35	32.77	1/2"
SM6MG10	3/8"	3/8"	9.53	1.00	10.00	36.42	1/2"
SM6MG19	3/8"	3/8"	9.53	1.00	19.05	45.47	1/2"
SM8MG6	1/2"	1/2"	12.70	1.24	6.35	32.77	1/2"
SM8MG10	1/2"	1/2"	12.70	1.24	10.00	36.42	1/2"
SM8MG19	1/2"	1/2"	12.70	1.24	19.05	45.47	1/2"
SM12MG19	3/4"	3/4"	19.05	1.65	19.05	51.56	3/4"
SM16MG19	1"	1"	25.40	1.65	19.05	58.93	1"
SM8X4MG6	1/2"	1/4"	6.35	1.00	6.35	32.77	1/2"
SM8X4MG10	1/2"	1/4"	6.35	1.00	10.00	36.42	1/2"
SM8X4MG19	1/2"	1/4"	6.35	1.00	19.05	45.47	1/2"

ANS : Available Nut Size



Socket Weld Short Gland

Part No.	Head Size (in)	Socket Size (in)	D	E	L	Tx
SM4SSG	1/4"	1/4"	7.1	4.6	12.7	8.9

NOTE:
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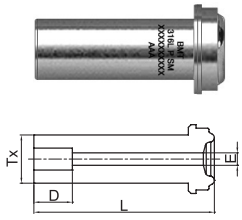
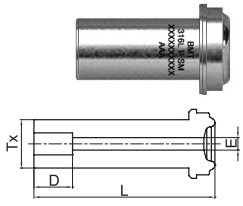


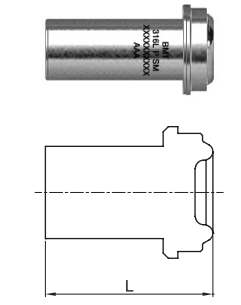
Socket Weld Long Gland

Part No.	Head Size (in)	Socket Size (in)	D	E	L	Tx
SM2SLG	1/8"	1/8"	2.5	2.30	17.8	5.1
SM4SLG	1/4"	1/4"	7.1	4.60	33.3	8.9
SM6SLG	1/2"	1/2"	7.9	7.10	38.1	15.2
SM8SLG	1/2"	1/2"	9.6	10.22	38.1	15.2
SM12SLG	3/4"	3/4"	11.2	15.75	50.8	22.4
SM16SLG	1"	1"	15.7	22.10	56.4	30.2



Reducing Socket Weld Long Gland

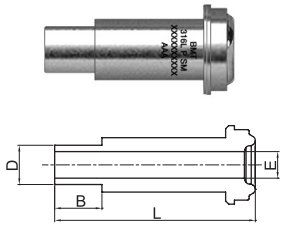
Part No.	Head Size (in)	Socket Size (in)	D	E	L	Tx
SM4X2RSLG	1/4"	1/8"	2.5	2.30	33.3	8.9
SM8X4RSLG	1/2"	1/4"	7.1	4.60	38.1	15.2



Blind Gland

Part No.	Head Size (in)	L
SM2BG	1/8"	17.8
SM4BG	1/4"	33.3
SM8BG	1/2"	38.1

Part No.	Head Size (in)	L
SM12BG	3/4"	50.8
SM16BG	1"	56.4



Male Weld Gland

Part No.	Head Size (in)	Tube OD (D)		E	B	L	ANS (in)
		Size (in)	Size				
SM2MWG	1/8"	1/8"	3.18	1.5	7.1	17.8	1/8"
SM4MWG	1/4"	1/4"	6.35	3.0	10.4	33.3	1/4"
SM6MWG	1/2"	3/8"	9.53	7.1	10.4	38.1	3/8"
SM8MWG	1/2"	1/2"	12.70	10.2	12.7	38.1	1/2"

ANS : Available Nut Size

NOTE:
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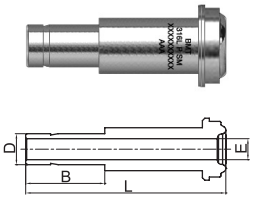
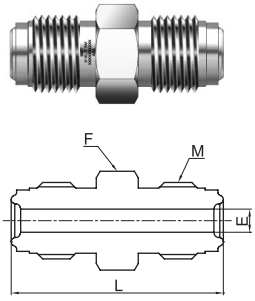


Tube Adapter

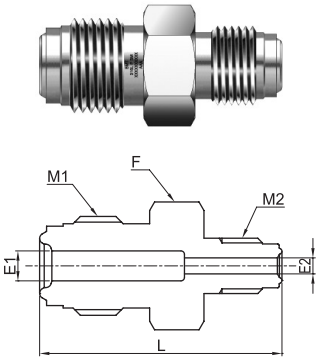
Part No.	Head Size (in)	Tube OD (D)		E	B	L	ANS (in)
		Size (in)	Size				
SM4TA	1/4"	1/4"	6.35	4.3	16.2	41.0	1/4"
SM6TA	1/2"	3/8"	9.53	6.8	17.8	46.0	3/8"
SM8TA	1/2"	1/2"	12.70	9.4	24.4	49.3	1/2"

ANS : Available Nut Size



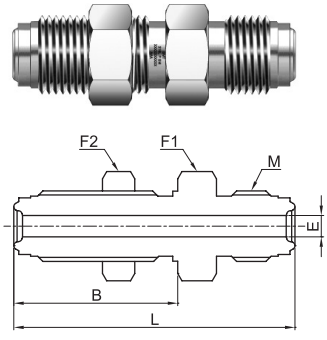
Double Male Union

Part No.	Head Size (in)	E	L	F HEX.	M
SM2MU	1/8"	2.30	28.70	9.52	5/16-24UNF
SM4MU	1/4"	4.35	39.37	15.88	9/16-18UNF
SM8MU	1/2"	10.22	46.74	23.81	7/8-14UNF
SM12MU	3/4"	15.75	61.98	33.33	1 1/4-18UNEF
SM16MU	1"	22.10	65.79	41.28	1 1/2-20UN



Double Male Reducing Union

Part No.	Head Size (in)	Head Size (in)	E1	E2	F HEX.	L	M1	M2
SM4X2MRU	1/4"	1/8"	4.35	2.30	15.88	34.8	9/16-18UNF	5/16-24UNF
SM8X4MRU	1/2"	1/4"	10.22	4.35	23.81	43.4	7/8-14UNF	9/16-18UNF



Bulkhead Union

Part No.	Head Size (in)	E	B	L	F1 HEX.	F2 HEX.	M
SM4BHU	1/4"	4.35	33.00	56.60	19.05	19.05	9/16-18UNF
SM8BHU	1/2"	10.22	37.60	65.25	26.98	26.98	7/8-14UNF
SM12BHU	3/4"	15.75	43.25	79.00	38.10	38.10	1 1/4-18UNEF
SM16BHU	1"	22.10	47.10	86.00	44.45	44.45	1 1/2-20UN

NOTE:
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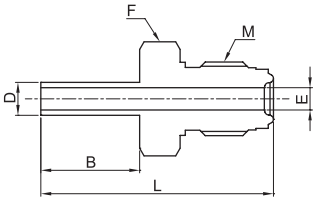
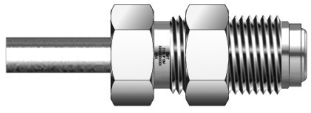
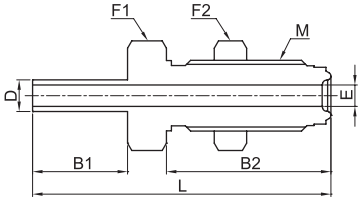


Tube Butt Weld (TBW) Connector

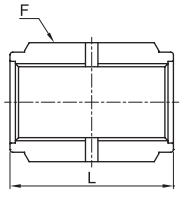
Part No.	Head Size (in)	Tube OD (D)		B	E	L	F HEX.	M
		Size (in)	Size					
SM4TC	1/4"	1/4"	6.35	19.05	4.35	42.65	15.88	9/16-18UNF
SM6TC	1/2"	3/8"	9.53	19.05	10.22	46.70	23.81	7/8-14UNF
SM8TC	1/2"	1/2"	12.70	19.05	10.22	46.70	23.81	7/8-14UNF
SM12TC	3/4"	3/4"	19.05	19.05	15.75	55.55	33.33	1 1/4-18UNEF





Tube Butt Weld (TBW) Bulkhead Connector

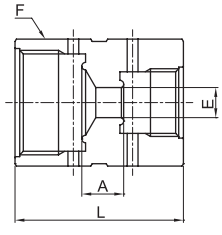
Part No.	Head Size (in)	Tube OD (D)		E	B1	B2	L	F1 HEX.	F2 HEX.	M
		Size (in)	Size							
SM4TBHC	1/4"	1/4"	6.35	4.35	19.05	33.00	59.85	19.05	19.05	9/16-18UNF
SM8TBHC	1/2"	1/2"	12.70	10.22	19.05	37.60	65.25	26.98	26.98	7/8-14UNF
SM12TBHC	3/4"	3/4"	19.05	15.75	19.05	43.25	71.30	38.10	38.10	1 1/4-18UNEF



Coupling

Part No.	Head Size (in)	F HEX.	L
SM2CG	1/8"	11.11	16.8
SM4CG	1/4"	19.05	30.2
SM8CG	1/2"	26.98	33.3

Part No.	Head Size (in)	F HEX.	L
SM12CG	3/4"	38.10	42.7
SM16CG	1"	44.45	51.8



Double Female Reducing Union

Part No.	Head Size (in)	Head Size (in)	E	F HEX.	A	L
SM8X4FRU	1/2"	1/4"	6.4	26.98	8.9	35.8

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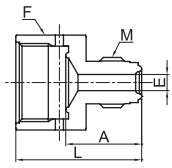
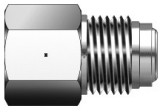
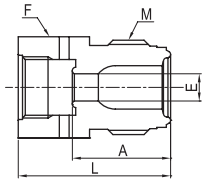


Reducing Adapter

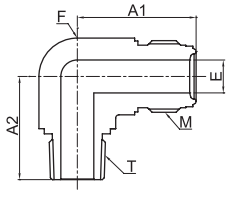
Part No.	Head Size (in)	Head Size (in)	E	F HEX.	A	L	M
SM2X4RA	1/8"	1/4"	2.3	19.05	17.5	30.2	5/16-24UNF
SM4X8RA	1/4"	1/2"	4.6	26.98	21.6	35.8	9/16-18UNF





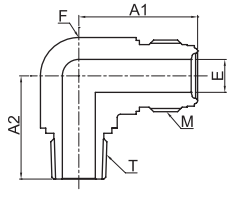
Reducing Bushing

Part No.	Head Size (in)	Head Size (in)	E	F HEX.	A	L	M
SM4X2RB	1/4"	1/8"	3.3	15.88	19.3	26.9	9/16-18UNF
SM8X4RB	1/2"	1/4"	6.4	23.81	23.1	35.8	7/8-14UNF



Male Elbow (NPT)

Part No.	Head Size (in)	T (NPT)	E	A1	A2	F Body	M
SM4MEN	1/4"	1/4"	4.35	27.18	27.18	17.0	9/16-18UNF
SM8MEN	1/2"	1/2"	10.22	36.83	36.83	25.0	7/8-14UNF
SM12MEN	3/4"	3/4"	15.75	48.80	43.50	33.3	1 1/4-18UNEF



Male Elbow (PT)

Part No.	Head Size (in)	T (PT)	E	A1	A2	F Body	M
SM4MER	1/4"	1/4"	4.35	27.18	27.18	17.0	9/16-18UNF
SM8MER	1/2"	1/2"	10.22	36.83	36.83	25.0	7/8-14UNF
SM12MER	3/4"	3/4"	15.75	48.80	43.50	33.3	1 1/4-18UNEF

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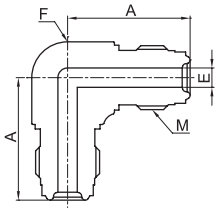
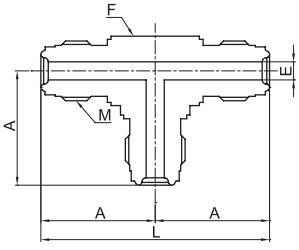


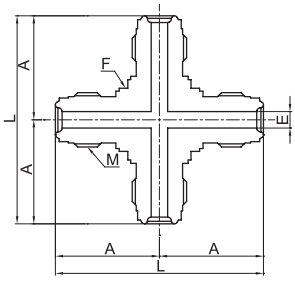
Union Elbow

Part No.	Head Size (in)	E	A	F Body	M
SM4UE	1/4"	4.35	27.18	17.0	9/16-18UNF
SM8UE	1/2"	10.22	36.83	25.0	7/8-14UNF
SM12UE	3/4"	15.75	48.77	33.3	1 1/4-18UNEF
SM16UE	1"	22.10	50.80	42.8	1 1/2-20UN



Union Tee

Part No.	Head Size (in)	E	A	L	F Body	M
SM4UT	1/4"	4.35	27.18	54.36	17.0	9/16-18UNF
SM8UT	1/2"	10.22	36.83	73.66	25.0	7/8-14UNF
SM12UT	3/4"	15.75	48.77	97.54	33.3	1 1/4-18UNEF
SM16UT	1"	22.10	50.80	101.60	42.8	1 1/2-20UN



Union Cross

Part No.	Head Size (in)	E	A	L	F Body	M
SM4UC	1/4"	4.35	27.18	54.36	17.0	9/16-18UNF
SM8UC	1/2"	10.22	36.83	73.66	25.0	7/8-14UNF
SM12UC	3/4"	15.75	48.77	97.54	33.3	1 1/4-18UNEF
SM16UC	1"	22.10	50.80	101.60	42.8	1 1/2-20UN

NOTE:
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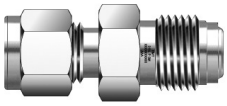
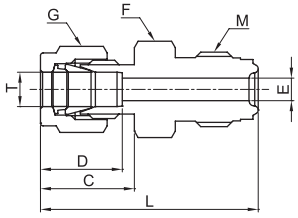
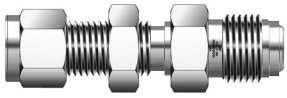
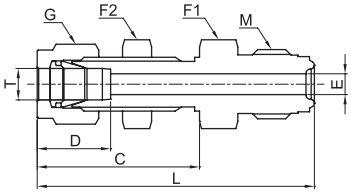




SUPERLOK Tube Fitting Connector

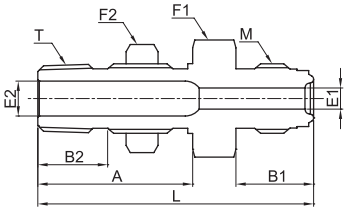
Part No.	Head Size (in)	Tube Size (in)	C	D	E	F HEX.	G HEX.	L	T (in)	M
SM4SC	1/4"	1/4"	17.8	15.5	4.35	15.88	14.28	41.4	1/4"	9/16-18UNF
SM8SC	1/2"	1/2"	22.1	22.9	10.22	23.81	22.23	49.5	1/2"	7/8-14UNF





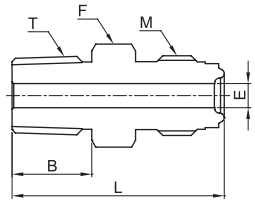
SUPERLOK Tube Fitting Bulkhead Connector

Part No.	Head Size (in)	Tube Size (in)	C	D	E	F1 HEX.	F2 HEX.	G HEX.	L	T (in)	M
SM4BHSC	1/4"	1/4"	33.5	15.2	4.6	15.88	15.88	14.28	57.2	1/4"	9/16-18UNF
SM8BHSC	1/2"	1/2"	41.9	22.9	10.22	23.81	23.81	22.23	69.5	1/2"	7/8-14UNF



Bulkhead Male Connector (NPT)

Part No.	Head Size (in)	T (NPT)	B1	B2	E1	E2	F1 HEX.	F2 HEX.	A	L	M
SM4BHMCN	1/4"	1/4"	15.7	14.2	4.60	7.1	20.64	20.64	31.5	56.1	9/16-18UNF



Male Connector (PT)

Part No.	Head Size (in)	T (PT)	E	B	L	F HEX.	M
SM2MCR	1/8"	1/8"	2.30	9.60	27.20	11.11	5/16-24UNF
SM4MCR	1/4"	1/4"	4.35	14.22	37.84	15.88	9/16-18UNF
SM8MCR	1/2"	1/2"	10.22	19.05	46.74	23.81	7/8-14UNF
SM12MCR	3/4"	3/4"	15.75	19.05	55.63	33.33	1 1/4-18UNEF
SM16MCR	1"	1"	22.10	23.88	62.74	41.28	1 1/2-20UN

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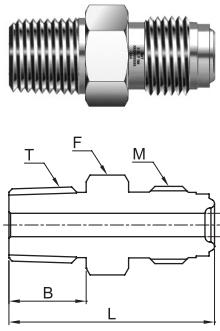
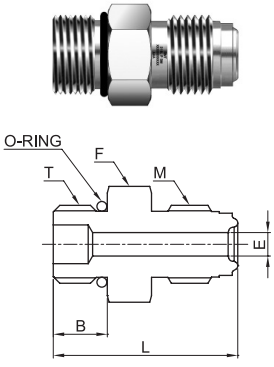


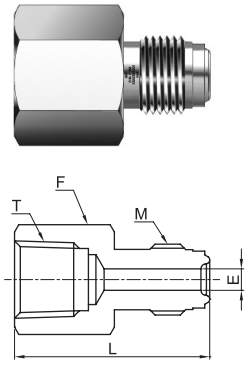
Male Connector (NPT)

Part No.	Head Size (in)	T (NPT)	E	B	L	F HEX.	M
SM2MCN	1/8"	1/8"	2.30	9.60	27.20	11.11	5/16-24UNF
SM4MCN	1/4"	1/4"	4.35	14.22	37.84	15.88	9/16-18UNF
SM8MCN	1/2"	1/2"	10.22	19.05	46.74	23.81	7/8-14UNF
SM12MCN	3/4"	3/4"	15.75	19.05	55.63	33.33	1 1/4-18UNEF
SM16MCN	1"	1"	22.10	23.88	62.74	41.28	1 1/2-20UN



Male Connector (SAE)

Part No.	Head Size (in)	T (SAE)	E	B	L	F HEX.	M
SM4X6MCU	1/4"	9/16-18UNF	4.35	9.9	33.8	19.05	9/16-18UNF
SM8X10MCU	1/2"	7/8-14UNF	10.22	12.7	42.2	25.40	7/8-14UNF
SM8X6MCU	1/2"	9/16-18UNF	10.22	9.9	37.6	23.81	7/8-14UNF
SM12X14MCU	3/4"	1 3/16-12UNF	15.75	15	51.5	33.33	1 1/4-18UNEF



Female Connector (PT)

Part No.	Head Size (in)	T (PT)	E	L	F HEX.	M
SM2FCR	1/8"	1/8"	2.30	30.2	14.28	5/16-24UNF
SM4FCR	1/4"	1/4"	4.35	39.1	19.05	9/16-18UNF
SM8FCR	1/2"	1/2"	10.22	50.5	26.98	7/8-14UNF
SM12FCR	3/4"	3/4"	15.75	59.9	33.33	1 1/4-18UNEF
SM16FCR	1"	1"	22.10	63.8	41.28	1 1/2-20UN

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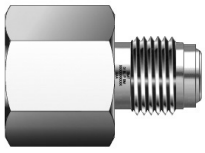
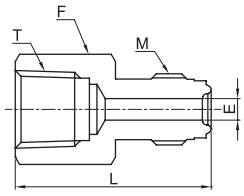
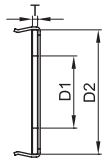




Female Connector (NPT)

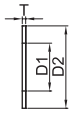
Part No.	Head Size (in)	T (NPT)	E	L	F HEX.	M
SM2FCN	1/8"	1/8"	2.30	30.2	14.28	5/16-24UNF
SM4FCN	1/4"	1/4"	4.35	39.1	19.05	9/16-18UNF
SM8FCN	1/2"	1/2"	10.22	50.5	26.98	7/8-14UNF
SM12FCN	3/4"	3/4"	15.75	59.9	33.33	1 1/4-18UNEF
SM16FCN	1"	1"	22.10	63.8	41.28	1 1/2-20UN

Gaskets



Gasket Retainer Assembly

Part No.	Head Size (in)	T	D1	D2
SM4GR	1/4"	0.8	5.6	11.85
SM8GR	1/2"	0.8	11.2	19.27
SM12GR	3/4"	0.8	16.7	27.90
SM16GR	1"	0.8	22.6	34.20



Gasket

Part No.	Head Size (in)	T	D1	D2
SM2GT	1/8"	0.8	2.3	6.6
SM4GT	1/4"	0.8	5.6	12.7
SM8GT	1/2"	0.8	11.2	19.8
SM12GT	3/4"	0.8	16.7	29.0
SM16GT	1"	0.8	22.6	35.8

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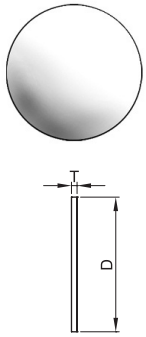
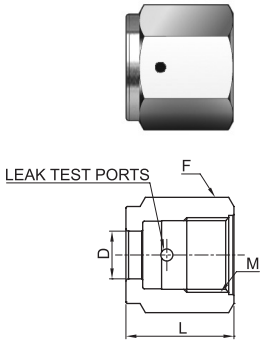


Blind Gasket

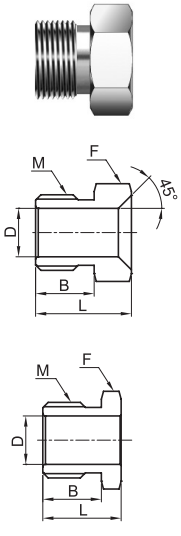
Part No.	Head Size (in)	T	D
SM4BGT	1/4"	0.8	11.9
SM8BGT	1/2"	0.8	19.8
SM12BGT	3/4"	0.8	28.9
SM16BGT	1"	0.8	35.5

Nuts, Caps and Plugs



Female Nut

Part No.	Head Size (in)	L	D	F Hex.	M
SM2FN	1/8"	13.5	5.3	11.11	5/16-24UNF
SM4FN	1/4"	20.6	9.1	19.05	9/16-18UNF
SM8FN	1/2"	22.4	15.5	26.98	7/8-14UNF
SM12FN	3/4"	28.5	22.8	38.10	1 1/4-18UNEF
SM16FN	1"	34.0	30.5	44.45	1 1/2-20UN



Short Male nut 1/4" only

Male Nut

Part No.	Head Size (in)	L	B	D	F Hex.	M
SM2MN	1/8"	12.7	8.2	5.3	9.52	5/16-24UNF
SM4MN	1/4"	18.0	11.0	9.1	15.88	9/16-18UNF
SM4MNS*	1/4"	13.7	11.0	9.1	15.88	9/16-18UNF
SM8MN	1/2"	20.5	12.7	15.5	23.81	7/8-14UNF
SM12MN	3/4"	25.4	16.0	22.6	33.33	1 1/4-18UNEF
SM16MN	1"	30.2	20.0	30.5	41.28	1 1/2-20UN

*SM4MNS : Short Male nut 1/4" only

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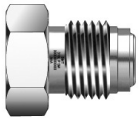
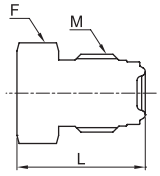
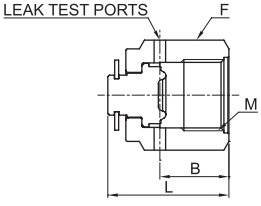




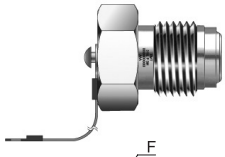
Plug

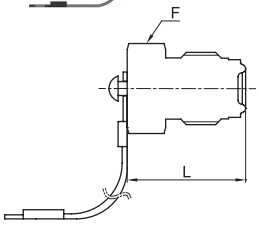
Part No.	Head Size (in)	L	F HEX.	M
SM2PG	1/8"	17.3	9.52	5/16-24UNF
SM4PG	1/4"	23.37	15.88	9/16-18UNF
SM8PG	1/2"	27.43	23.81	7/8-14UNF
SM12PG	3/4"	36.32	33.33	1 1/4-18UNEF
SM16PG	1"	38.61	41.28	1 1/2-20UN



Cap

Part No.	Head Size (in)	L	B	F Hex.	M
SM2CP	1/8"	16.00	7.6	11.11	5/16-24UNF
SM4CP	1/4"	24.20	12.8	19.05	9/16-18UNF
SM8CP	1/2"	25.54	14.3	26.98	7/8-14UNF
SM12CP	3/4"	32.77	18.8	38.10	1 1/4-18UNEF
SM16CP	1"	40.12	22.0	44.45	1 1/2-20UN

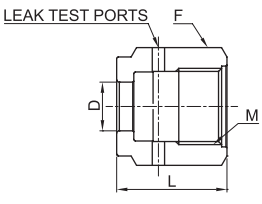




Plug (Cable Type)

Part No.	Head Size (in)	F HEX.	L	Cable Length
SM4PGC	1/4"	15.88	23.37	260
SM8PGC	1/2"	23.81	27.43	260

High - Flow Connection - “H” Type



High Flow Female Nut

Part No.	Head Size (in)	L	D	F HEX.	M
SM4HFN	1/4"	20.57	9.9	19.05	9/16-18UNF

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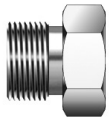
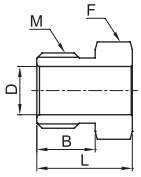
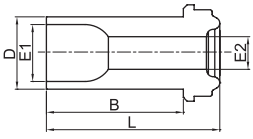




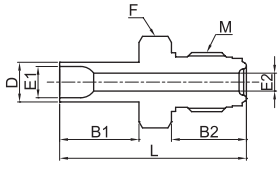
High Flow Male Nut

Part No.	Head Size (in)	B	L	D	F HEX.	M
SM4HMN	1/4"	11.0	18.03	9.9	15.88	9/16-18UNF



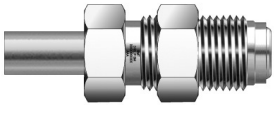
High Flow Long Gland

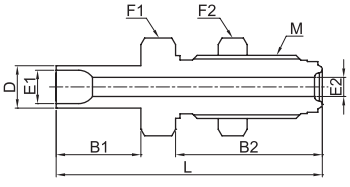
Part No.	Head Size (in)	Tube OD (D)		B	L	E1	E2
		Size (in)	Size				
SM4X6HLG	1/4"	3/8"	9.53	28.4	33.2	7.5	6.28



High Flow Tube Butt Weld (TBW) Connector

Part No.	Head Size (in)	Tube OD (D)		E1	E2	B1	B2	L	F HEX.	M
		Size (in)	Size							
SM4X6HTC	1/4"	3/8"	9.53	7.5	6.35	19.05	15.7	42.75	15.88	9/16-18UNF





High Flow Tube Butt Weld (TBW) Bulkhead Connector

Part No.	Head Size (in)	Tube OD (D)		B1	B2	E1	E2	L	F1 HEX.	F2 HEX.	M
		Size (in)	Size								
SM4X6HBHC	1/4"	3/8"	9.53	19.05	33	7.5	6.35	59.85	19.05	19.05	9/16-18UNF

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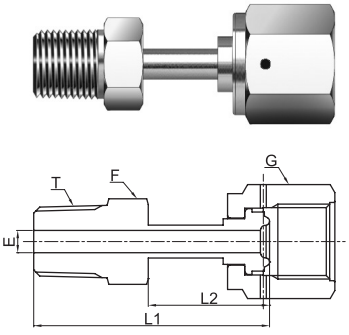
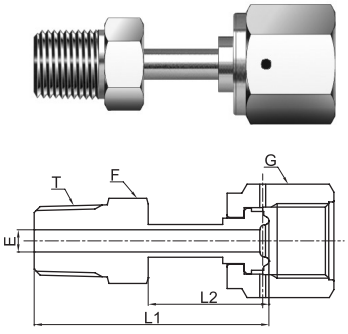
Welded Assembly



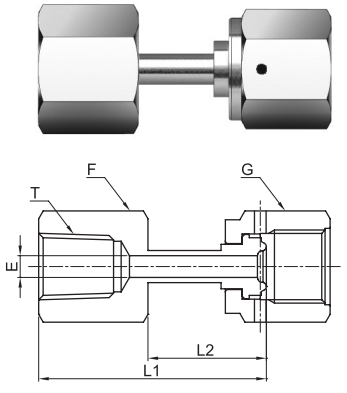
Welded Male Connector (PT)

Part No.	Head Size (in)	T (PT)	E	L1	L2	F HEX.	G HEX.
SM4WMCR	1/4"	1/4"	4.35	45.5	23.4	14.28	19.05
SM8WMCR	1/2"	1/2"	10.22	53.1	25.6	22.23	26.99



Welded Male Connector (NPT)

Part No.	Head Size (in)	T (NPT)	E	L1	L2	F HEX.	G HEX.
SM4WMCN	1/4"	1/4"	4.35	45.5	23.4	14.28	19.05
SM8WMCN	1/2"	1/2"	10.22	53.1	25.6	22.23	26.99



Welded Female Connector (PT)

Part No.	Head Size (in)	T (PT)	E	L1	L2	F HEX.	G HEX.
SM4WFCR	1/4"	1/4"	4.35	45.0	23.4	19.05	19.05
SM8WFCR	1/2"	1/2"	10.22	55.4	26.4	26.99	26.99

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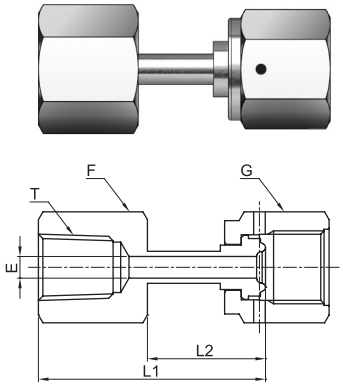
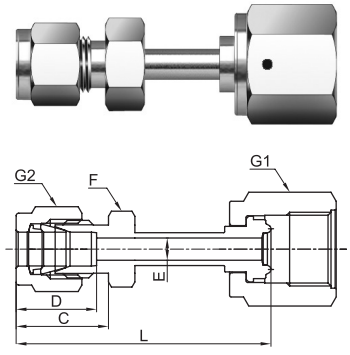


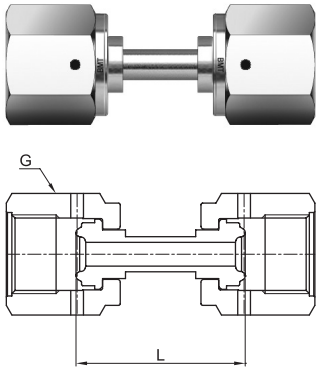
Welded Female Connector (NPT)

Part No.	Head Size (in)	T (NPT)	E	L1	L2	F HEX.	G HEX.
SM4WFCN	1/4"	1/4"	4.35	45.0	23.4	19.05	19.05
SM8WFCN	1/2"	1/2"	10.22	55.4	26.4	26.99	26.99



Welded Lok Connector

Part No.	Head Size (in)	Tube Size (in)	C	D	E	L	F HEX.	G1 HEX.	G2 HEX.
SM4WSC	1/4"	1/4"	17.8	12.7	4.35	49.28	12.70	19.05	14.28
SM8WSC	1/2"	1/2"	22.1	17.3	10.22	56.64	20.64	26.99	22.23



Welded Female Union

Part No.	Head Size (in)	L	G HEX.
SM4WFU	1/4"	43.4	19.05
SM8WFU	1/2"	46.7	26.99

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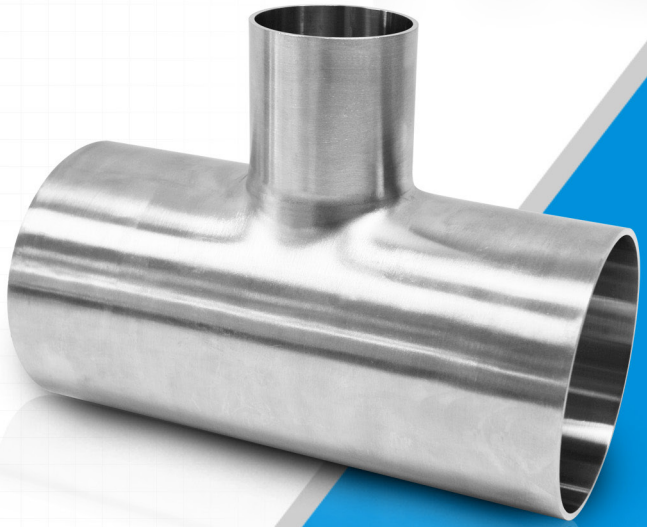
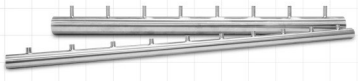
Ultra High Purity

TUBE & PIPE BEND FITTINGS





BMT www.superlok.com

Tube & Pipe Bend Fittings

Ordering Information

*Additional configurations available upon request.

A	B	C	-	D
SM	50A	EL	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Connection Size

Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
4S			0.89 mm
6	3/8 in.	9.53 mm	1.00 mm
6S			0.89 mm
8	1/2 in.	12.7 mm	1.24 mm
8S			1.00 mm
12	3/4 in.	19.05 mm	1.65 mm
12S			1.24 mm
16	1 in.	25.4 mm	1.65 mm
16S			1.24 mm
20	1-1/4 in.	31.8 mm	1.65 mm
24	1-1/2 in.	38.1 mm	1.65 mm
32	2 in.	50.8 mm	1.65 mm
40	2-1/2 in.	63.5 mm	1.65 mm
48	3 in.	76.2 mm	1.65 mm
64	4 in.	101.6 mm	2.11 mm
80	5 in.	127 mm	2.77 mm
80S			3.05 mm
96	6 in.	152.4 mm	2.77 mm
96S			3.05 mm

Pipe

Designator	Nominal Size	Outside Diameter	Schedule	Wall Thickness
8A	8A	13.8 mm	SCH 5S	1.20 mm
8AS			SCH 10S	1.65 mm
10A	10A	17.3 mm	SCH 5S	1.20 mm
10AS			SCH 10S	1.65 mm
15A	15A	21.7 mm	SCH 5S	1.65 mm
15AS			SCH 10S	2.10 mm
20A	20A	27.2 mm	SCH 5S	1.65 mm
20AS			SCH 10S	2.10 mm

B Connection Size (Continued)

Pipe

Designator	Nominal Size	Outside Diameter	Schedule	Wall Thickness
25A	25A	34.0 mm	SCH 5S	1.65 mm
25AS			SCH 10S	2.80 mm
32A	32A	42.7 mm	SCH 5S	1.65 mm
32AS			SCH 10S	2.80 mm
40A	40A	48.6 mm	SCH 5S	1.65 mm
40AS			SCH 10S	2.80 mm
50A	50A	60.5 mm	SCH 5S	1.65 mm
50AS			SCH 10S	2.80 mm
65A	65A	76.3 mm	SCH 5S	2.10 mm
65AS			SCH 10S	3.00 mm
80A	80A	89.1 mm	SCH 5S	2.10 mm
80AS			SCH 10S	3.00 mm
100A	100A	114.3 mm	SCH 5S	2.10 mm
100AS			SCH 10S	3.00 mm
125A	125A	139.8 mm	SCH 5S	2.80 mm
125AS			SCH 10S	3.40 mm
150A	150A	165.2 mm	SCH 5S	2.80 mm
150AS			SCH 10S	3.40 mm
200A	200A	216.3 mm	SCH 5S	2.80 mm
200AS			SCH 10S	4.00 mm
250A	250A	267.4 mm	SCH 5S	3.40 mm
250AS			SCH 10S	4.00 mm
300A	300A	318.5 mm	SCH 5S	4.00 mm
300AS			SCH 10S	4.50 mm
350A	350A	355.6 mm	SCH 5S	4.00 mm
350AS			SCH 10S	4.80 mm
400A	400A	406.4 mm	SCH 5S	4.20 mm
400AS			SCH 10S	4.80 mm
450A	450A	457.2 mm	SCH 5S	4.20 mm
450AS			SCH 10S	5.50 mm
500A	500A	508.0 mm	SCH 5S	4.80 mm
500AS			SCH 10S	5.50 mm
550A	550A	558.8 mm	SCH 5S	4.80 mm
550AS			SCH 10S	5.50 mm

Optional End Connection Sizes

For drop size fittings, first size the run and add the suffix "X" then a size designator for the branch. (i.e. Reducing Tee for 25A pipe connection for the main run and 1 inch tube connection for the branch would be 25AX16)

Tube & Pipe Bend Fittings

C	Body Type	
	EL	90° Long Elbow
	ES	90° Short Elbow
	ELH	45° Long Elbow
	TL	Standard Tee
	TS	Standard Short Tee
	RTL	Reducing Tee
	RC	Concentric Reducer
	REB	Eccentric Reducer
	CPB	Cap
	CPR	Cap Reducer
	JTM	Joint Tee (Male)
	JTF	Joint Tee (Female)
	JRM	Joint Reducer (Male)
	JRF	Joint Reducer (Female)
	JCPM	Joint Cap (Male)
	JCPF	Joint Cap (Female)
	GTT	Teflon Gasket
	FP	Pipe Flange
	FRF	RF Flange
	FB	Blind Flange
	LJ	Lap Joint
	TMH	Multi-Header Tee
	TMHJ	Multi-Header Joint Tee

D	Wetted Surface Grade	
	BA is standard. No part designator needed.	
	P	EP
	AP	AP

Part Number Examples

	SM50ASEL-P		DM16SEL	
Material	**SM**	316L Stainless Steel	**DM**	316L Stainless Steel VAR
Connection Size	**50AS**	SCH10S. 50A JIS Pipe	**16S**	1 in. Special Tube
Body Type	**EL**	90° Long Elbow	**EL**	90° Long Elbow
Surface Grade	**P**	EP Grade		BA Grade *(standard)*

	4SS12ES-AP		SM12SES-P	
Material	**4SS**	304 Stainless Steel	**SM**	316L Stainless Steel
Connection Size	**12**	3/4 in. Tube	**12S**	3/4 in. Special Tube
Body Type	**ES**	90° Short Elbow	**ES**	90° Short Elbow
Surface Grade	**AP**	AP Grade	**P**	EP Grade

	DM16X12CPR-P		SM50AX16CPR	
Material	**DM**	316L Stainless Steel VAR	**SM**	316L Stainless Steel
Connection Size	**16X12**	1 in. Tube (Run) X 3/4 in. Tube (Branch)	**50AX16**	SCH5S. 50A JIS Pipe (Run) X 1 in. Tube (Branch)
Body Type	**CPR**	Cap Reducer	**CPR**	Cap Reducer
Surface Grade	**P**	EP Grade		BA Grade *(standard)*

	SM50AX20ARTL		DM25AX16RTL-P	
Material	**SM**	316L Stainless Steel	**DM**	316L Stainless Steel VAR
Connection Size	**50AX20A**	SCH5S. 50A Pipe JIS (Run) X SCH5S. 25A Pipe (Branch)	**25AX16**	SCH5S. 25A JIS Pipe (Run) X 1 in. Tube (Branch)
Body Type	**RTL**	Reducing Tee	**RTL**	Reducing Tee
Surface Grade		BA Grade *(standard)*	**P**	EP Grade

	4SS50AX4TMH-AP		DM32X8TMH	
Material	**4SS**	304 Stainless Steel	**DM**	316L Stainless Steel VAR
Connection Size	**50AX4**	SCH5S. 50A JIS Pipe (Run) X 1/4in. Tube (Branch)	**32X8**	2 in. Tube (Run) X 1/2 in. Tube (Branch)
Body Type	**TMH**	Multi-Header Tee	**TMH**	Multi-Header Tee
Surface Grade	**AP**	AP Grade		BA Grade *(standard)*

Body Type


90° Long Elbow


90° Short Elbow


45° Long Elbow


Standard Tee


Standard Short Tee


Reducing Tee


Concentric Reducer


Eccentric Reducer


Cap


Cap Reducer


Joint Tee (Male)


Joint Tee (Female)


Joint Reducer (Male)


Joint Reducer (Female)


Joint Cap (Male)


Joint Cap (Female)


Teflon Gasket


Pipe Flange


RF Flange

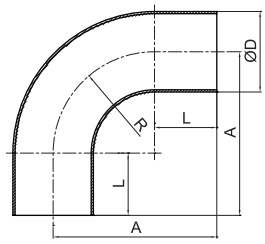

Blind Flange


Lap Joint

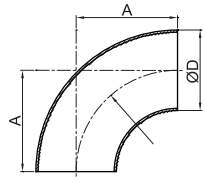

Multi-Header Tee


Multi-Header Joint Tee

EL
90° Long Elbow



AUTO WELDING 90° ELBOW
(8A~100A) (1/4"~6")

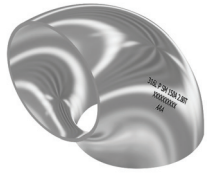


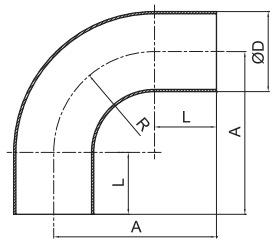
MANUAL WELDING 90° ELBOW
(125A ~ 300A)

PIPE (A Size)																
D	8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A
R	25.4	25.4	38.1	38.1	38.1	47.6	57.2	76.2	63.5	76.2	101.6	190.5	228.6	304.8	381.0	457.2
A	55.0	62.0	75.0	75.0	75.0	94.0	104.0	123.0	115.0	128.0	153.0	190.5	228.6	304.8	381.0	457.2
L	29.0	36.0	36.0	36.0	36.0	46.0	46.0	46.0	51.0	51.0	51.0	-	-	-	-	-

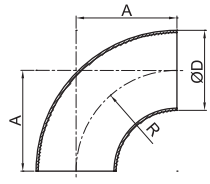
TUBE (Inch Size)														
D	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
R	20.0	23.0	25.0	28.0	30.0	33.0	47.6	57.2	76.2	95.3	95.3	133.4	190.5	228.6
A	49.0	52.0	54.0	64.0	66.0	69.0	84.0	104.0	123.0	147.0	147.0	185.0	250.0	290.0
L	29.0	29.0	29.0	36.0	36.0	36.0	36.0	46.0	46.0	51.0	51.0	51.0	56.0	56.0

ES
90° Short Elbow





AUTO WELDING 90° ELBOW
(8A~100A)



MANUAL WELDING 90° ELBOW
(125A ~ 300A)

PIPE (A Size)																
D	8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A
R	12.7	12.7	12.7	19.1	25.4	31.8	38.1	50.8	63.5	76.2	101.6	127.0	152.4	203.2	254.0	304.8
A	42.0	49.0	49.0	56.0	62.0	78.0	85.0	97.0	115.0	128.0	153.0	127.0	152.4	203.2	254.0	304.8
L	29.0	29.0	29.0	36.0	36.0	36.0	36.0	46.0	46.8	51.0	51.0	-	-	-	-	-

NOTE:
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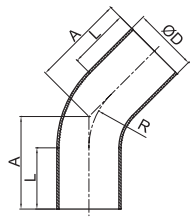
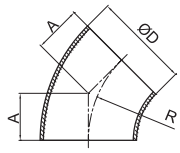
·Unless otherwise specified, all dimensions are in millimeters.

ELH
45° Long Elbow



AUTO WELDING 45° ELBOW
(8A~100A) (1/4"~6")

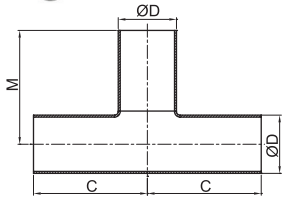


MANUAL WELDING 45° ELBOW
(125A ~ 300A)

PIPE (A Size)																
D	8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A
R	25.4	25.4	38.1	38.1	38.1	47.6	57.2	76.2	95.3	114.3	152.4	190.5	228.6	304.8	381.0	457.2
A	40.0	47.0	52.0	52.0	52.0	66.0	70.0	78.0	91.0	99.0	115.0	78.9	94.7	126.2	157.8	189.4
L	29.0	36.0	36.0	36.0	36.0	46.0	46.0	46.0	51.0	51.0	51.0	-	-	-	-	-

TUBE (Inch Size)														
D	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
R	20.0	23.0	25.0	28.0	30.0	33.0	47.6	57.2	76.2	95.3	95.3	133.4	190.5	228.6
A	38.0	39.0	40.0	48.0	49.0	50.0	56.0	70.0	78.0	91.0	91.0	107.0	140.0	155.0
L	29.0	29.0	29.0	36.0	36.0	36.0	36.0	46.0	46.0	51.0	51.0	51.0	56.0	56.0

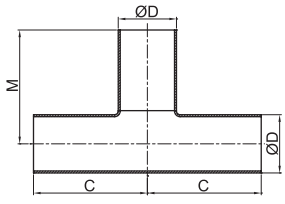
TL
Standard Tee



PIPE (A Size)																
D	8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A
C	42	49	59	65	68	88	95	102	121	130	145	123.8	142.9	177.8	215.9	254.0
M	42	49	59	65	68	88	95	102	121	130	145	123.8	142.9	177.8	215.9	254.0

TUBE (Inch Size)														
D	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
C	35	37	39	49	52	55	59	74	77	90	121	132	140	160
M	35	37	39	49	52	55	59	74	77	90	121	132	140	160

TS
Standard Short Tee



PIPE (A Size)									
D	15A	20A	25A	32A	40A	50A	65A	80A	100A
C	52	55	59	74	77	83	97	103	116
M	52	55	59	74	77	83	97	103	116

NOTE:
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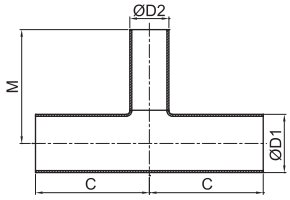
RTL
Reducing Tee



PIPE (A Size)

D1	D2	C	M	D1	D2	C	M
8A	1/2", 3/8", 1/4"	42	42	125A	8A, 1/2", 3/8", 1/4"	80	110
10A	8A, 1/2", 3/8", 1/4"	47	44		25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"	100	120
15A	8A, 1/2", 3/8", 1/4"	47	44		50A, 40A, 32A, 2", 1-1/2"	120	130
	10A, 3/4", 5/8"	52	52		100A, 80A, 65A, 4", 3", 2-1/2"	140	140
20A	8A, 1/2", 3/8", 1/4"	47	47		5"	160	160
	15A, 10A, 1", 3/4", 5/8"	55	55	150A	8A, 1/2", 3/8", 1/4"	90	130
25A	8A, 1/2", 3/8", 1/4"	47	50		25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"	110	140
	20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"	59	59		50A, 40A, 32A, 2", 1-1/2"	130	150
32A	8A, 1/2", 3/8", 1/4"	57	54		100A, 80A, 65A, 4", 3", 2-1/2"	150	160
	25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"	68	62		125A	170	170
40A	8A, 1/2", 3/8", 1/4"	57	57	200A	8A, 1/2", 3/8", 1/4"	100	150
	25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"	68	65		25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"	120	160
	32A, 1-1/2"	77	77		50A, 40A, 32A, 2", 1-1/2"	140	170
50A	8A, 1/2", 3/8", 1/4"	57	63		100A, 80A, 65A, 4", 3", 2-1/2"	160	180
	25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"	68	71		150A, 125A, 6" 5"	180	190
	40A, 32A, 2", 1-1/2"	83	83	250A	8A, 1/2", 3/8", 1/4"	110	180
65A	8A, 1/2", 3/8", 1/4"	61	71		25A, 20A, 15A, 10A, 1", 3/4"	130	190
	25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"	72	79		50A, 40A, 32A	150	200
	50A, 40A, 32A, 2", 1-1/2"	88	90		100A, 80A, 65A	170	210
	2-1/2"	97	97		150A, 125A	190	220
80A	8A, 1/2", 3/8", 1/4"	61	77		200A	210	240
	25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"	72	85	300A	8A, 1/2", 3/8", 1/4"	120	200
	50A, 40A, 32A, 2", 1-1/2"	88	96		25A, 20A, 15A, 10A, 1", 3/4"	140	210
	65A, 3", 2-1/2"	103	103		50A, 40A, 32A	160	220
100A	8A, 1/2", 3/8", 1/4"	61	90		100A, 80A, 65A	180	230
	25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"	72	98		150A, 125A	200	240
	50A, 40A, 32A, 2", 1-1/2"	88	109		200A	220	260
	80A, 65A, 4", 3", 2-1/2"	116	116				

TUBE (Inch Size)

D1	D2	C	M	D1	D2	C	M
3/8"	1/4"	37	37	3'	1/2", 3/8", 1/4", 8A	61	71
1/2"	3/8", 1/4"	39	39		1-1/4", 1", 3/4", 5/8", 25A, 20A, 15A, 10A	72	79
5/8"	1/2", 3/8", 1/4", 8A	47	44		2", 1-1/2", 50A, 40A, 32A	90	90
3/4"	1/2", 3/8", 1/4", 8A	47	44		2-1/2", 65A	97	97
	5/8", 10A	52	52	4"	1/2", 3/8", 1/4", 8A	61	87
1"	1/2", 3/8", 1/4", 8A	47	47		1-1/4", 1", 3/4", 5/8", 25A, 20A, 15A, 10A	72	95
	3/4", 5/8", 15A, 10A	55	55		2", 1-1/2", 50A, 40A, 32A	90	105
1-1/4"	1/2", 3/8", 1/4", 8A	47	50		3", 2-1/2", 80A, 65A	110	110
	1", 3/4", 5/8", 20A, 15A, 10A	59	59	5"	1/2", 3/8", 1/4", 8A	70	100
1-1/2"	1/2", 3/8", 1/4", 8A	57	54		1-1/4", 1", 3/4", 5/8", 25A, 20A, 15A, 10A	90	110
	1-1/4", 1", 3/4", 5/8", 25A, 20A, 15A, 10A	68	62		2", 1-1/2", 50A, 40A, 32A	110	120
2"	1/2", 3/8", 1/4", 8A	57	57		4", 3", 2-1/2", 100A, 80A, 65A	140	140
	1-1/4", 1", 3/4", 5/8", 25A, 20A, 15A, 10A	68	65	6"	1/2", 3/8", 1/4", 8A	80	115
	1-1/2", 40A, 32A	77	77		1-1/4", 1", 3/4", 5/8", 25A, 20A, 15A, 10A	100	125
2-1/2"	1/2", 3/8", 1/4", 8A	61	63		2", 1-1/2", 50A, 40A, 32A	120	135
	1-1/4", 1", 3/4", 5/8", 25A, 20A, 15A, 10A	72	71		4", 3", 2-1/2", 100A, 80A, 65A	140	145
	2", 1-1/2", 50A, 40A, 32A	90	83		5", 125A	160	160

NOTE:
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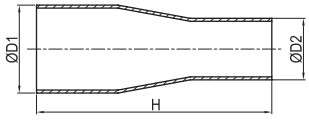
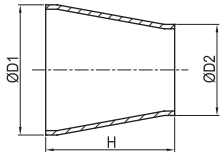
RC
Concentric Reducer



AUTO WELDING TYPE
(8A~100A)



MANUAL WELDING TYPE
(125A ~ 200A)

Auto Welding Type

PIPE (A Size)					
D1	D2	H	D1	D2	H
20A	15A	105	50A	40A, 32A, 25A	140
25A	20A, 15A	120	65A	50A, 40A, 32A	165
32A	25A, 20A, 15A	125	80A	65A, 50A, 40A	170
40A	32A, 25A, 20A	130	100A	80A, 65A, 50A	180

Mechanical Working Type

PIPE (A Size)					
D1	D2	H	D1	D2	H
15A	3/4", 1/2"	100	32A	1-1/2", 1-1/4", 1"	125
20A	1", 3/4", 1/2"	105	40A	1-1/2", 1-1/4", 1", 3/4", 1/2", 3/8"	130
25A	1", 3/4", 1/2", 3/8" 1/4"	120	50A	2", 1-1/2", 1-1/4", 1", 3/4"	140

Manual Welding of Large DIA. Side X Automatic Welding of Small DIA. Side Type

PIPE (A Size)		
D1	D2	H
125A	100A, 80A, 65A, 50A	190
150A	100A, 80A, 65A	205
200A	100A	220

Manual Welding Type

PIPE (A Size)					
D1	D2	H	D1	D2	H
150A	125A	139.7	250A	200A, 150A, 125A	177.8
200A	150A, 125A	152.4	300A	250A, 200A, 150A, 125A	203.2

NOTE:
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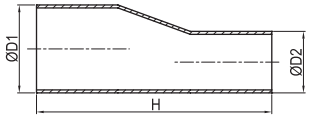
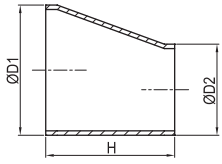
REB
Eccentric Reducer



AUTO WELDING TYPE
(8A~100A)



MANUAL WELDING TYPE
(125A ~ 200A)

Auto Welding Type

PIPE (A Size)					
D1	D2	H	D1	D2	H
20A	15A	105	50A	40A, 32A, 25A	140
25A	20A, 15A	120	65A	50A, 40A, 32A	165
32A	25A, 20A, 15A	125	80A	65A, 50A, 40A	170
40A	32A, 25A, 20A	130	100A	80A, 65A, 50A	180

Mechanical Working Type

PIPE (A Size)					
D1	D2	H	D1	D2	H
15A	3/4", 1/2"	100	32A	1-1/2", 1-1/4", 1"	125
20A	1", 3/4", 1/2"	105	40A	1-1/2", 1-1/4", 1", 3/4", 1/2", 3/8"	130
25A	1", 3/4", 1/2", 3/8" 1/4"	120	50A	2", 1-1/2", 1-1/4", 1", 3/4"	140

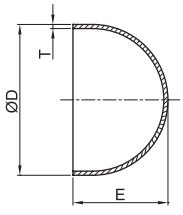
Manual Welding of Large DIA. Side X Automatic Welding of Small DIA. Side Type

PIPE (A Size)		
D1	D2	H
125A	100A, 80A, 65A, 50A	190
150A	100A, 80A, 65A	205
200A	100A	220

Manual Welding Type

PIPE (A Size)					
D1	D2	H	D1	D2	H
150A	125A	139.7	250A	200A, 150A, 125A	177.8
200A	150A, 125A	152.4	300A	250A, 200A, 150A, 125A	203.2

CPB
Cap



PIPE (A Size)																
D	8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A
E	12.7	19.1	25.4	25.4	38.1	38.1	38.1	38.1	38.1	50.8	63.5	76.2	88.9	101.6	127.0	152.4
T	1.20	1.20	1.65	1.65	1.65	1.65	1.65	1.65	2.10	2.10	2.10	3.40	3.40	4.00	4.00	4.50

TUBE (Inch Size)												
D	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
E	12.7	12.7	12.7	12.7	19.1	25.4	38.1	38.1	38.1	38.1	38.1	63.5
T	1.00	1.00	1.24	1.24	1.65	1.65	1.65	1.65	1.65	1.65	1.65	2.11

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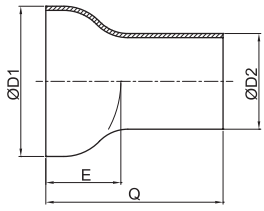
CPR
Cap Reducer



PIPE (A Size)

D1	D2	E	Q	D1	D2	E	Q
15A	8A, 1/2", 3/8", 1/4"	25.4	60	125A	8A, 1/2", 3/8", 1/4"	76.2	120
	10A, 3/4", 5/8"		(67)		25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"		130
20A	8A, 1/2", 3/8", 1/4"	25.4	60		50A, 40A, 32A, 2", 1-1/2"		140
	15A, 10A, 1", 3/4", 5/8"		67		100A, 80A, 65A, 4", 3", 2-1/2"		(150)
25A	8A, 1/2", 3/8", 1/4"	38.1	73	150A	8A, 1/2", 3/8", 1/4"	88.9	130
	20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"		(80)		25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"		140
32A	8A, 1/2", 3/8", 1/4"	38.1	73		50A, 40A, 32A, 2", 1-1/2"		150
	25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"		80		100A, 80A, 65A, 4", 3", 2-1/2"		160
40A	8A, 1/2", 3/8", 1/4"	38.1	73	200A	8A, 1/2", 3/8", 1/4"	101.6	140
	25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"		80		25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"		150
	32A, 1-1/2"		(90)		50A, 40A, 32A, 2", 1-1/2"		160
50A	8A, 1/2", 3/8", 1/4"	38.1	73		100A, 80A, 65A, 4", 3", 2-1/2"		170
	25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"		80	250A	8A, 1/2", 3/8", 1/4"	127	170
	40A, 32A, 2", 1-1/2"		(90)		25A, 20A, 15A, 10A, 1", 3/4"		180
65A	8A, 1/2", 3/8", 1/4"	38.1	73		50A, 40A, 32A		190
	25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"		80		100A, 80A, 65A,		200
	50A, 40A, 32A, 2", 1-1/2"		(90)	300A	8A, 1/2", 3/8", 1/4"	152.4	200
	2-1/2"		(100)		25A, 20A, 15A, 10A, 1", 3/4"		210
80A	8A, 1/2", 3/8", 1/4"	50.8	85		50A, 40A, 32A		220
	25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"		92		100A, 80A, 65A		230
	50A, 40A, 32A, 2", 1-1/2"		102				
	65A, 3", 2-1/2"		(110)				
100A	8A, 1/2", 3/8", 1/4"	63.5	98				
	25A, 20A, 15A, 10A, 1-1/4", 1", 3/4", 5/8"		105				
	50A, 40A, 32A, 2", 1-1/2"		115				
	80A, 65A, 4", 3", 2-1/2"		125				

TUBE (Inch Size)

D1	D2	E	Q	D1	D2	E	Q
3/4"	1/2", 3/8", 1/4", 8A	19.1	54	2-1/2"	1/2", 3/8", 1/4", 8A	38.1	73
	5/8", 10A		60		1-1/4", 1", 3/4", 5/8", 25A, 20A, 15A, 10A		80
1"	1/2", 3/8", 1/4", 8A	25.4	60		2", 1-1/2", 50A, 40A, 32A		(90)
	3/4", 5/8", 15A, 10A		67	3"	1/2", 3/8", 1/4", 8A		73
1-1/4"	1/2", 3/8", 1/4", 8A	38.1	73		1-1/4", 1", 3/4", 5/8", 25A, 20A, 15A, 10A		80
	1", 3/4", 5/8", 20A, 15A, 10A		80		2", 1-1/2", 50A, 40A, 32A		(90)
1-1/2"	1/2", 3/8", 1/4", 8A	38.1	73		2-1/2"		(95)
	1-1/4", 1", 3/4", 5/8", 25A, 20A, 15A, 10A		80	4"	1/2", 3/8", 1/4", 8A		98
2"	1/2", 3/8", 1/4", 8A	38.1	73		1-1/4", 1", 3/4", 5/8", 25A, 20A, 15A, 10A		105
	1-1/4", 1", 3/4", 5/8", 25A, 20A, 15A, 10A		80		2", 1-1/2", 50A, 40A, 32A	63.5	115
	1-1/2", 40A, 32A		(90)		3", 2-1/2", 80A, 65A		(125)

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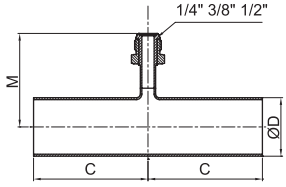
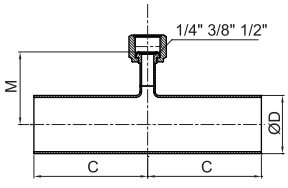
JTM
Joint Tee (Male)



PIPE (A Size)														
D	8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A
C	45	52	52	55	59	68	68	68	72	72	72	100	110	120
M	45	47	49.5	52.5	56.5	61	64	70	78	84.5	97	110	123	148.5

TUBE (Inch Size)														
D	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
C	43	45	45	52	52	55	59	68	68	72	72	72	90	100
M	41.5	43.5	45	46.5	48	52	55.5	58	65	72.5	78	91	104	117

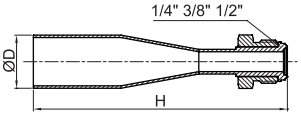
JTF
Joint Tee (Female)



PIPE (A Size)														
D	8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A
C	45	52	52	55	59	68	68	68	72	72	72	100	110	120
M	35	37	39.5	42.5	46.5	51	54	60	68	74.5	87	100	113	138.5

TUBE (Inch Size)														
D	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
C	43	45	45	52	52	55	59	68	68	72	72	72	90	100
M	31.5	33.5	35	36.5	38	42	45.5	48	55	61.5	68	81	94	107

JRM
Joint Reducer (Male)



PIPE (A Size)					
D	8A	10A	15A	20A	25A
H	100	110	120	125	140

TUBE (Inch Size)					
D	3/8"	1/2"	5/8"	3/4"	1"
H	90	95	110	120	125

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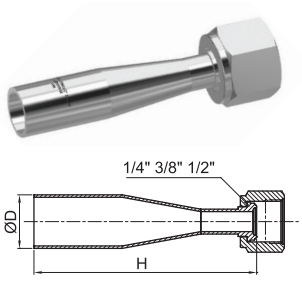
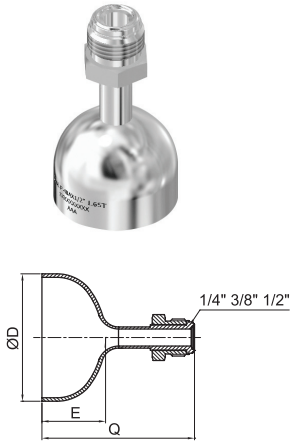
JRF
Joint Reducer (Female)



PIPE (A Size)					
D	8A	10A	15A	20A	25A
H	100	110	120	125	140

TUBE (Inch Size)					
D	3/8"	1/2"	5/8"	3/4"	1"
H	90	95	110	120	125

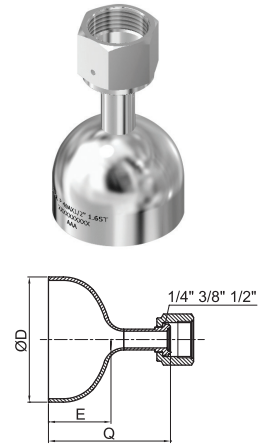
JCPM
Joint Cap (Male)



PIPE (A Size)													
D	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A
E	19.1	25.4	25.4	38.1	38.1	38.1	38.1	38.1	50.8	63.5	76.2	88.9	101.6
Q	58.0	65.0	65.0	78.0	78.0	78.0	78.0	78.0	91.0	104.0	117.0	130.0	143.0

TUBE (Inch Size)								
D	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
E	19.1	25.4	38.1	38.1	38.1	38.1	38.1	63.5
Q	58	65.0	78.0	78.0	78.0	78.0	78.0	104.0

JCPF
Joint Cap (Female)



PIPE (A Size)													
D	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A
E	19.1	25.4	25.4	38.1	38.1	38.1	38.1	38.1	50.8	63.5	76.2	88.9	101.6
Q	48.0	55.0	55.0	68.0	68.0	68.0	68.0	68.0	81.0	94.0	107.0	120.0	133.0

TUBE (Inch Size)								
D	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
E	19.1	25.4	38.1	38.1	38.1	38.1	38.1	63.5
Q	48.0	55.0	68.0	68.0	68.0	68.0	68.0	94.0

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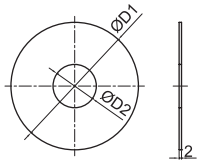
GTT
Teflon Gasket

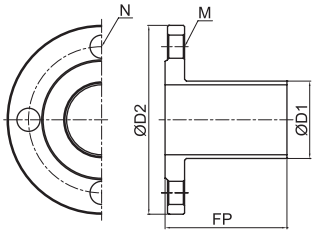


PIPE (A Size)															
JIS 10K															
D*	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A
D1	53	58	63	74	84	89	104	124	134	159	190	220	270	333	378
D2	18	22	28	35	43	49	61	77	90	115	141	167	218	270	321
JIS 5K															
D*	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A
D1	45	50	55	65	78	83	93	118	129	149	184	214	260	325	370
D2	18	22	28	35	43	49	61	77	90	115	141	167	218	270	321

TUBE (Inch Size)										
D*	3/4"	1"	1-1/4"	1-1/2"	2"	2 1/2	3"	4"	5"	6"
D1	58	63	74	84	89	104	124	144	190	220
D2	19.5	26	32.5	38.5	51.5	64	77	102.5	128	153.5

*D: Flange Size

FP
Pipe Flange



PIPE (A Size)															
D1	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A
D2	90	95	100	125	135	140	155	175	185	210	250	280	330	400	445
FP	100	100	100	100	100	100	100	100	100	100	200	200	200	200	200
N	4	4	4	4	4	4	4	4	8	8	8	8	12	12	16
M	M12	M12	M12	M16	M16	M16	M16	M16	M16	M16	M20	M20	M20	M22	M22

TUBE (Inch Size)										
D1	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
D2	95	100	125	135	140	155	175	195	250	280
FP	100	100	100	100	100	100	100	100	200	200
N	4	4	4	4	4	4	4	8	8	8
M	M12	M12	M16	M16	M16	M16	M16	M16	M20	M20

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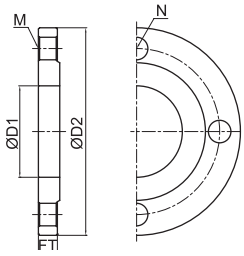
FRF
RF Flange

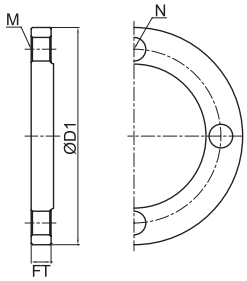


PIPE (A Size)_JIS 10K															
D1	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A
D2	90	95	100	125	135	140	155	175	185	210	250	280	330	400	445
FT	12	12	14	14	16	16	16	18	18	18	20	22	22	24	24
N	4	4	4	4	4	4	4	4	8	8	8	8	12	12	16
M	M12	M12	M12	M16	M16	M16	M16	M16	M16	M16	M20	M20	M20	M22	M22

PIPE (A Size)_JIS 5K															
D1	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A
D2	75	80	85	95	115	120	130	155	180	200	235	265	320	385	430
FT	9	9	10	10	12	12	14	14	14	16	16	18	20	22	22
N	4	4	4	4	4	4	4	4	4	8	8	8	8	12	12
M	M10	M10	M10	M10	M12	M12	M12	M12	M16	M16	M16	M16	M20	M20	M20

TUBE (Inch Size)										
D1	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
D2	95	100	125	135	140	155	175	195	250	280
FT	12	14	14	16	16	16	18	18	20	22
N	4	4	4	4	4	4	4	8	8	8
M	M12	M12	M16	M16	M16	M16	M16	M16	M20	M20

FB
Blind Flange



PIPE (A Size)_JIS 10K															
D*	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A
D1	90	95	100	125	135	140	155	175	185	210	250	280	330	400	445
FT	12	12	14	14	16	16	16	18	18	18	20	22	22	24	24
N	4	4	4	4	4	4	4	4	8	8	8	8	12	12	16
M	M12	M12	M12	M16	M16	M16	M16	M16	M16	M16	M20	M20	M20	M22	M22

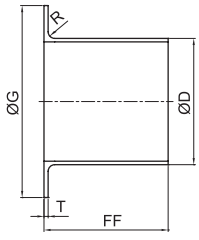
PIPE (A Size)_JIS 5K															
D*	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A
D1	75	80	85	95	115	120	130	155	180	200	235	265	320	385	430
FT	9	9	10	10	12	12	14	14	14	16	16	18	20	22	22
N	4	4	4	4	4	4	4	4	4	8	8	8	8	12	12
M	M10	M10	M10	M10	M12	M12	M12	M12	M16	M16	M16	M16	M20	M20	M20

TUBE (Inch Size)										
D*	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
D1	95	100	125	135	140	155	175	195	250	280
FT	12	14	14	16	16	16	18	18	20	22
N	4	4	4	4	4	4	4	8	8	8
M	M12	M12	M16	M16	M16	M16	M16	M16	M20	M20

*D: Flange Size

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

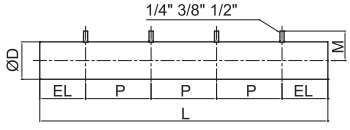
LJ
Lap Joint



PIPE (A Size)															
D		10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A
FF		55	55	55	55	70	70	70	75	75	75	50	50	65	65	65
G	JIS 10K	46	51	56	67	76	81	96	116	126	151	182	212	262	324	368
	JIS 5K	39	44	49	59	70	75	85	110	121	141	182	212	262	324	368
R		3	3	3	3	3	3	4	4	5	5	5	5	5	5	5
T		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5	5	7	7	9

TUBE (Inch Size)									
D	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
FF	55	55	55	70	70	70	75	75	85	90
G	51	56	67	76	81	96	116	136	182	212
R	3	3	3	3	3	4	4	5	5	5
T	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3	3

TMH
Multi-Header Tee



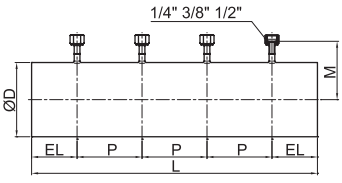
PIPE (A Size)												
D			8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A
Length at End (EL)			60								70		
Pitch(P)			125								145		
L*	Number of Branches	2	245								285		
		3	370								430		
		4	495								575		
		5	620								720		
M*	Tube-End		42	44	44	47	50	54	57	63	71	77	90

TUBE (Inch Size)													
D			1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
Length at End (EL)			21.0	21.0	21.0	27.0	30.0	33.0	40.0	45.0	50.0	65.0	68.0	86.0
Pitch (P)			152.4											
L*	Number of Branches	2	304.8											
		3	457.2											
		4	609.6											
		5	762.0											
M*	Tube-End		35	37	39	44	44	47	50	54	57	63	71	87

*M: Branch Tube Height
*L: Total Length

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

TMHJ
Multi-Header Joint Tee



PIPE (A Size)												
D			8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A
Length at End (EL)			23	29	31	34	42	46	49	60	68	74.5	87
Pitch (P)			125								145		
L*	Number of Branches	2	245								285		
		3	370								430		
		4	495								575		
		5	620								720		
M*	Female		35	37	39.5	42.5	46.5	51	54	60	68	74.5	87

TUBE (Inch Size)													
D			1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
Length at End (EL)			21	21	21	27	30	33	40	45	50	65	68	86
Pitch(P)			154.4											
L*	Number of Branches	2	304.8											
		3	457.2											
		4	609.6											
		5	762.0											
M*	Female		31.5	33.5	35	36.5	38	42	45.5	48	55	61.5	68	81

*M: Branch Tube Height
*L: Total Length

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

BMT

www.superlok.com

Ultra High Purity

VALVES

BMT www.superlok.com

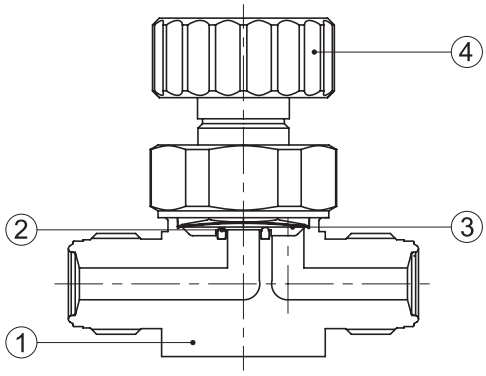
DV1 Diaphragm Valves

Low Pressure Manual Diaphragm Valves (Standard Type)

Specifications

Size	1/4"	3/8", 1/2"	3/4"
Cv Value	0.3	0.7	0.7
Orifice Size	4.5 mm	7.0 mm	7.0 mm
Max. Working Pressure	10 bar (145 psig)		
Working Temperature	PCTFE: -10 ~ 80°C (14~176°F) / PFA, PI: -10 ~ 150°C (14 ~ 302°F)		
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s		
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s		
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count		
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm		

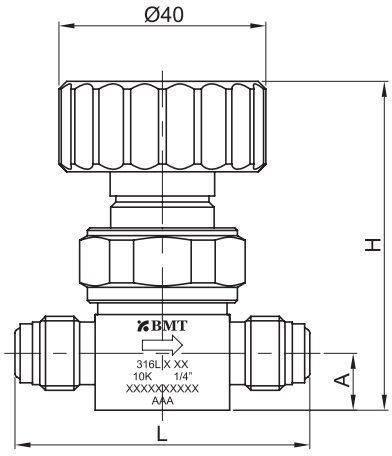
Material



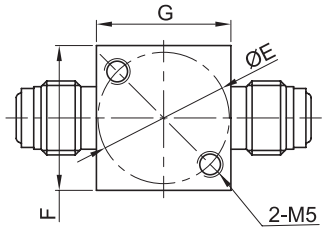
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PFA / PI
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Dimensions

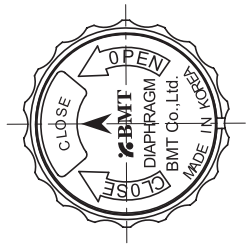


Male BVC

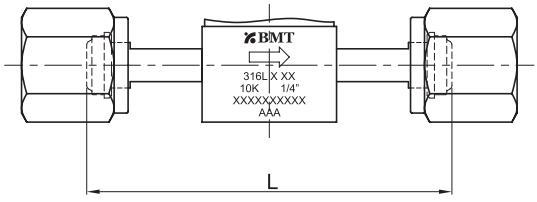


Bottom Mounting

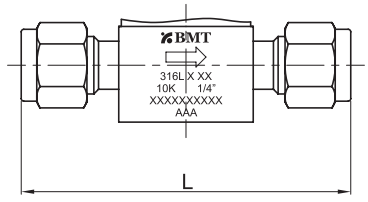
Handle Open



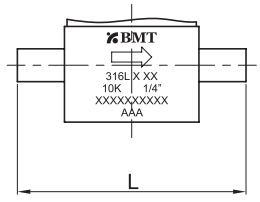
Handle Close



Female BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)					
		L	H	A	E (Φ)	F	G
Male BVC	SMDV1-VM4	57	64.7	11	25.4	28	26
	SMDV1-VM6	77	74.1	16	28	37	36
	SMDV1-VM8	77	74.1	16	28	37	36
	SMDV1-VM12	122	81.3	22	28	37	37
Female BVC	SMDV1-VF4	70.6	64.7	11	25.4	28	26
	SMDV1-VF6	83	74.1	16	28	37	36
	SMDV1-VF8	83	74.1	16	28	37	36
	SMDV1-VF12	122	81.3	22	28	37	37
SUPERLOK Tube Fitting	SMDV1-S4	63.7	64.7	11	25.4	28	26
	SMDV1-S6	75.6	74.1	16	28	37	36
	SMDV1-S8	81.2	74.1	16	28	37	36
	SMDV1-S12	104.6	81.3	22	28	37	37
Tube Butt Weld	SMDV1-TW4	44.2	64.7	11	25.4	28	26
	SMDV1-TW6	68	74.1	16	28	37	36
	SMDV1-TW8	68	74.1	16	28	37	36
	SMDV1-TW12	150	81.3	22	28	37	37

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Manual Diaphragm Valves (Standard Type)
*Additional configurations available upon request.

A	DV1	-	B	C	-	D	-	E
SM	DV1	-	VM	4	-	PA	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female

C Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
6	3/8 in.	9.53 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm
12	3/4 in.	19.05 mm	1.65 mm

D Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	Polyimide

E Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

Part Number Examples

	SMDV1-S8		SMDV1-VM4-PA-P	
Material	**SM**	316L Stainless Steel	**SM**	316L Stainless Steel
Series	**DV1**	DV1 series	**DV1**	DV1 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**S**	Lok	**VM**	BVC Male
Connection Size	**8**	1/2"	**4**	1/4"
Seat Material		PCTFE *(standard)*	**PA**	PFA
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

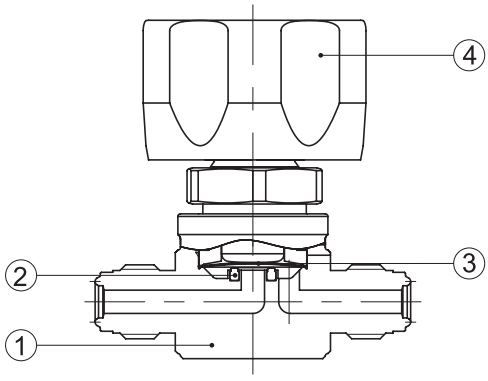
DV2 Diaphragm Valves

Low Pressure Manual Diaphragm Valves (Forged Type)

Specifications

Size	1/4"	3/8", 1/2"	3/4"
Cv Value	0.3	0.7	0.7
Orifice Size	4.5 mm	7.0 mm	7.0 mm
Max. Working Pressure	10 bar (145 psig)		
Working Temperature	PCTFE: -10 ~ 80°C (14~176°F) / PFA, PI: -10 ~ 150°C (14 ~ 302°F)		
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s		
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s		
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count		
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm		

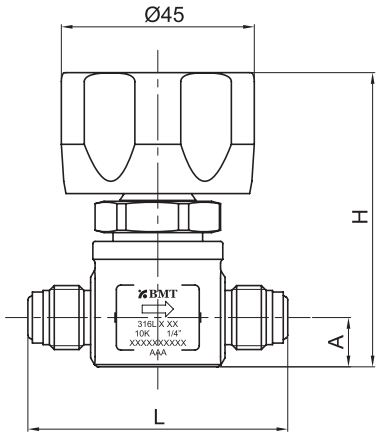
Material



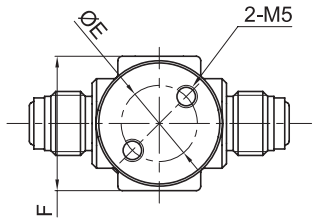
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PFA / PI
3	Diaphragm	Ni-Co Alloy
4	Handle	ABS

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

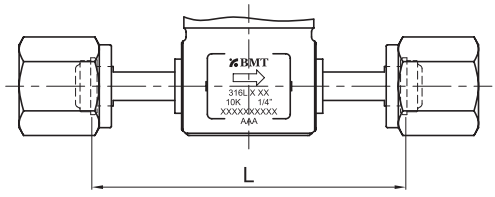
Dimensions



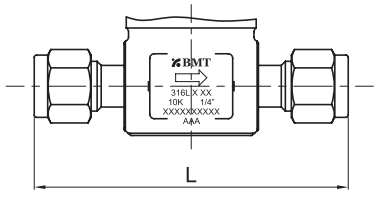
Male BVC



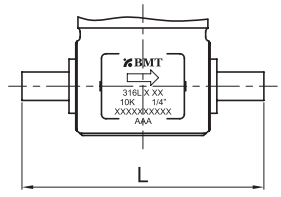
Bottom Mounting



Female BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)				
		L	H	A	E (Φ)	F
Male BVC	SMDV2-VM4	58	67	11	17	30
	SMDV2-VM6	76	77	16	28	40
	SMDV2-VM8	76	77	16	28	40
	SMDV2-VM12	122	87.2	22	28	40
Female BVC	SMDV2-VF4	78	67	11	17	30
	SMDV2-VF6	104.6	77	16	28	40
	SMDV2-VF8	104.6	77	16	28	40
	SMDV2-VF12	122	87.2	22	28	40
SUPERLOK Tube Fitting	SMDV2-S4	70.1	67	11	17	30
	SMDV2-S6	84.8	77	16	28	40
	SMDV2-S8	90.4	77	16	28	40
	SMDV2-S12	105	87.2	22	28	40
Tube Butt Weld	SMDV2-TW4	54	67	11	17	30
	SMDV2-TW6	69	77	16	28	40
	SMDV2-TW8	69	77	16	28	40
	SMDV2-TW12	150	87.2	22	28	40

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Manual Diaphragm Valves (Forged Type)
*Additional configurations available upon request.

A	DV2	-	B	C	-	D	-	E
SM	DV2	-	VM	4	-	PA	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female

C Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
6	3/8 in.	9.53 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm
12	3/4 in.	19.05 mm	1.65 mm

D Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	Polyimide

E Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

Part Number Examples

	SMDV2-VF8		SMDV2-VM4-PA-P	
Material	**SM**	316L Stainless Steel	**SM**	316L Stainless Steel
Series	**DV2**	DV2 series	**DV2**	DV2 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**VF**	BVC Female	**VM**	BVC Male
Connection Size	**8**	1/2"	**4**	1/4"
Seat Material		PCTFE *(standard)*	**PA**	PFA
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

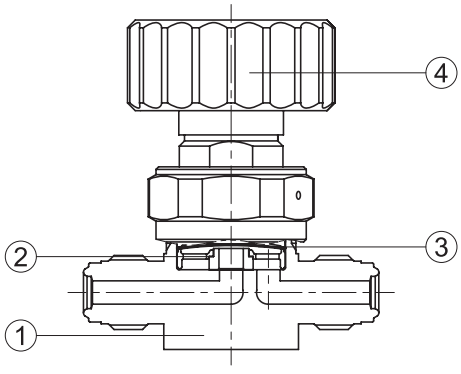
DV3 Diaphragm Valves

Low Pressure Manual Diaphragm Valves (3-Way Type)

Specifications

Size	1/4"	1/2"
Cv Value	0.3	0.7
Orifice Size	4.5 mm	7.0 mm
Max. Working Pressure	10 bar (145 psig)	
Working Temperature	-10 ~ 80°C (14 ~ 176°F)	
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count	
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm	

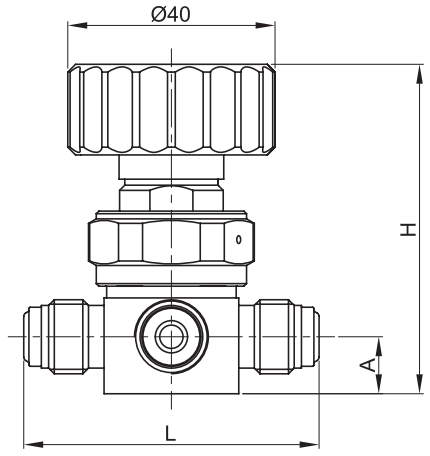
Material



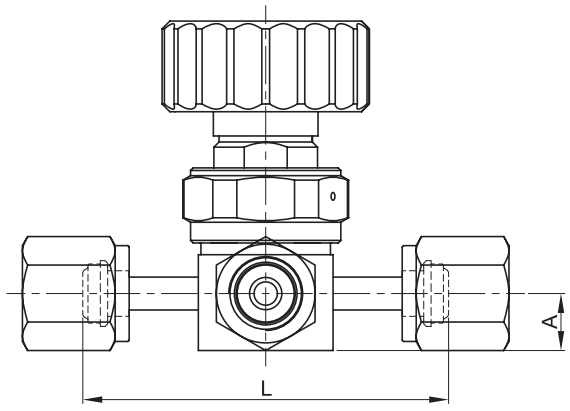
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PFA / PI
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

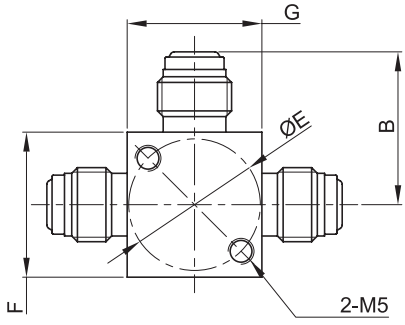
Dimensions



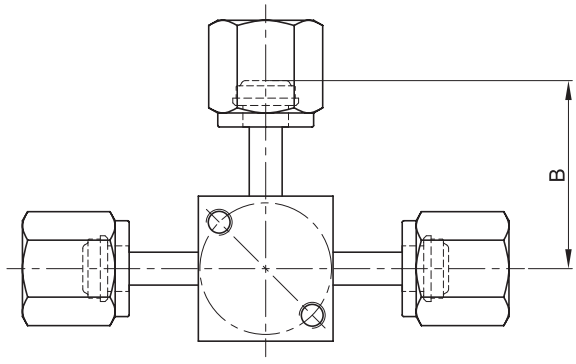
Male BVC



Female BVC



Bottom Mounting



Bottom Mounting

Part No.	Dimensions (mm)						
	L	H	A	B	E (Φ)	F	G
SMDV3-4-MMM-1F23	57	64.7	11	28.5	25.4	28	26
SMDV3-8-MMM-1F23	77	74.1	16	38.5	28	37	36
SMDV3-4-FFF-1F23	70.6	64.7	11	35.3	25.4	28	26
SMDV3-8-FFF-1F23	83	74.1	16	41.5	28	37	36

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Manual Diaphragm Valves (3-Way Type)
*Additional configurations available upon request.

A	DV3	-	B	-	C	-	D	-	E	-	E
SM	DV3	-	4	-	FMF	-	1F23	-	PA	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Connection Size

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm

C Connection Type

MMM	Male Only
FMF	In : Female / Out : Male, Female
FFF	Female Only

D Flow Direction

See ***Flow Paths*** for the figures on Page 180.

2F13	Figure B
1F34	Figure C
4F13	Figure D

E Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	Polyimide

F Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
AP	AP

Part Number Examples

	SMDV3-8-FFF-1F23		DMDV3-4-FMF-1F34-PA-P	
Material	**SM**	316L Stainless Steel	**DM**	316L Stainless Steel VAR
Series	**DV3**	DV3 series	**DV3**	DV3 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**FFF**	Female Only	**FMF**	In : Female / Out : Male, Female
Connection Size	**8**	1/2"	**4**	1/4"
Flow Path		Fig.E of ***Flow Paths***, Page 180		Fig.G of ***Flow Paths***, Page 180
Seat Material		PCTFE *(standard)*	**PA**	PFA
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

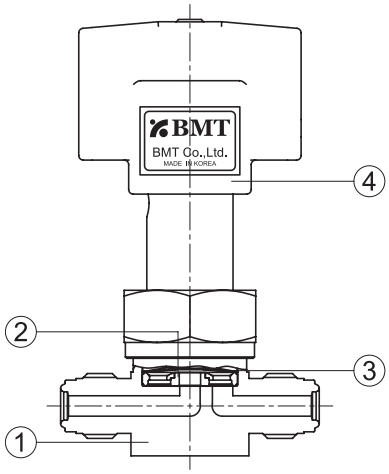
LDV1 Diaphragm Valves

Low Pressure Manual Diaphragm Valves (LOTO Type)

Specifications

Size	1/4"	1/2"
Cv Value	0.3	0.7
Orifice Size	4.5 mm	7.0 mm
Max. Working Pressure	10 bar (145 psig)	
Working Temperature	-10 ~ 80°C (14 ~ 176°F)	
Internal Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Inboard Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count	
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm	

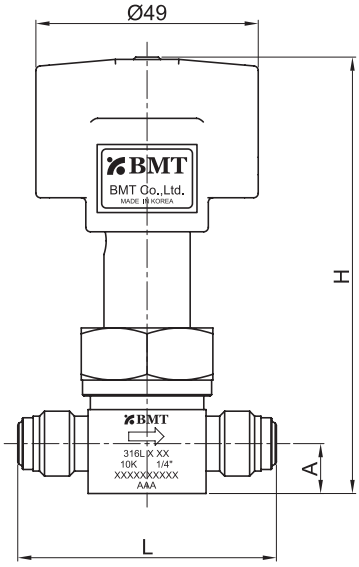
Material



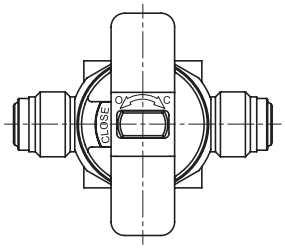
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)*
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

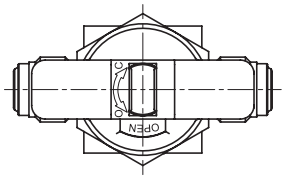
Dimensions



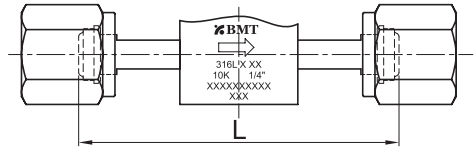
Male BVC



Close



Open



Female BVC

End Connection	Part No.	Dimensions (mm)					
		L	H	A	E (Φ)	F	G
Male BVC	SMLDV1-VM4	57	96.5	11	25.4	28	26
	SMLDV1-VM8	77	107	16	28	37	36
Female BVC	SMLDV1-VF4	70.6	96.5	11	25.4	28	28
	SMLDV1-VF8	83	107	16	28	37	36

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

A		LDV1	-	B	C	-	D	-	E
SM		LDV1		VM	4	-		-	P

Standard feature
Optional

A	Materials	
	SM	316L Stainless Steel
	DM	316L Stainless Steel VAR
	4SS	304 Stainless Steel

B	Connection Type	
	VM	Male BVC (BMT Vacuum Coupling)
	VF	Female BVC (BMT Vacuum Coupling)
	S	SUPERLOK Tube Fitting
	TW	Butt Weld

C	Connection Size			
	ASTM Tube			
	Designator	Nominal Size	Outside Diameter	Wall Thickness
	4	1/4 in.	6.35 mm	1.00 mm

D	Seat Material	
	PCTFE is standard. No part designator needed.	
	PA	PFA
	PI	PI

E	Wetted Surface Grade	
	BA is standard. No part designator needed.	
	P	EP
	MP	MP

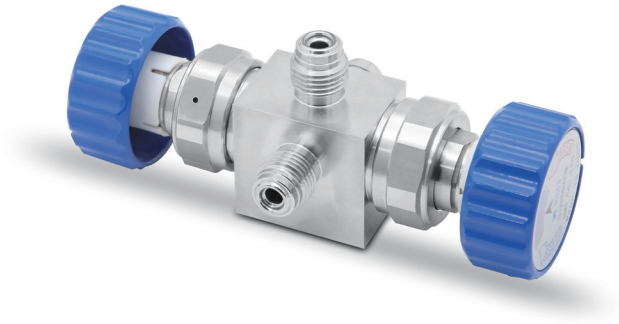
Part Number Examples

	DMLDV1-VM4		SMLDV1-VF4-P	
Material	**DM**	316L Stainless Steel VAR	**SM**	316L Stainless Steel
Series	**LDV1**	LDV1 series	**LDV1**	LDV1 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**VM**	BVC Male	**VF**	BVC Female
Connection Size	**4**	1/4"	**4**	1/4"
Seat Material		PCTFE *(standard)*		PCTFE *(standard)*
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

MNDV1 Diaphragm Valves

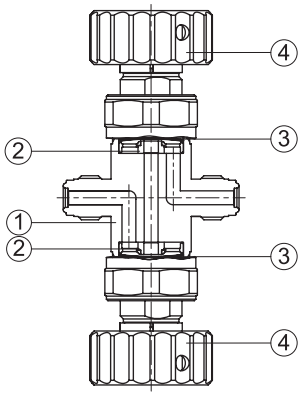
Low Pressure Manual Diaphragm Valves (Mono Type)



Specifications

Size	1/4"
Cv Value	0.3
Orifice Size	4.5 mm
Max. Working Pressure	10 bar (145 psig)
Working Temperature	-10 ~ 80°C (14 ~ 176°F)
Internal Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Inboard Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm

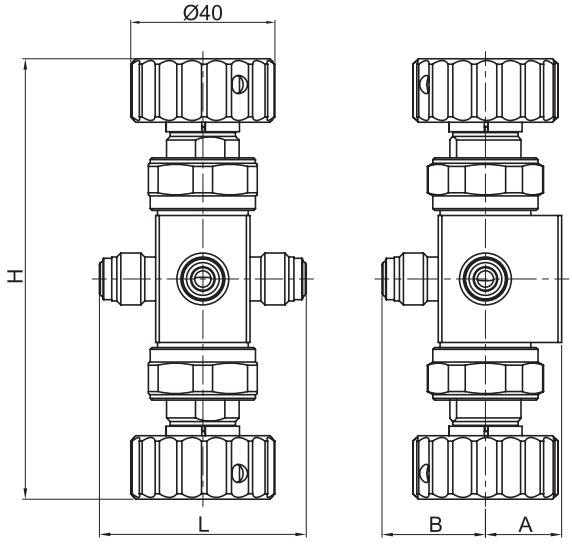
Material



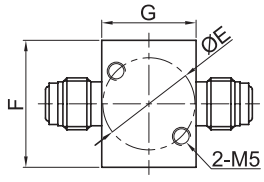
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)*
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

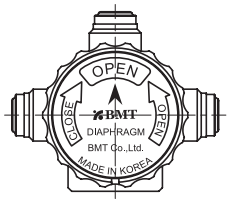
Dimensions



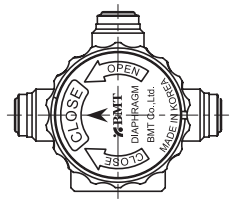
Male BVC



Bottom Mounting



Open



Close

End Connection	Part No.	Dimensions (mm)						
		L	H	A	B	E (Φ)	F	G
Male BVC	SMMNDV1-4-MMM-1F23-P	57	121.4	21	28.5	25.4	35	26

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Pneumatic Diaphragm Valves (Standard Type)
*Additional configurations available upon request.

A		B	C	D	E	F
	MNDV1 -	-	-	-	-	-
SM	MNDV1	4	MMM	1F23	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wal Thickness
4	1/4 in.	6.35 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm

C Conection Type

MMM	Male Only

D Flow Direction

See Flow Path for the figures on Page 181.

1F23	1 IN FLOW 2,3 OUT
2F13	2 IN FLOW 1.3 OUT
3F12	3 IN FLOW 1.2 OUT

E Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	PI

F Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP

Part Number Examples

	SMMNDV1-4-MMM-1F23		DMMNDV1-4-MMM-3F12-P	
Material	**SM**	316L Stainless Steel	**DM**	316L Stainless Steel VAR
Series	**MNDV1**	MNDV1 series	**MNDV1**	MNDV1 series
Connection Size	**4**	1/4"	**4**	1/4"
Connection Type	**MMM**	Male Only	**MMM**	Male Only
Flow Path	**1F23**	Fig.A of ***Flow Paths***, Page 181	**3F12**	Fig.C of ***Flow Paths***, Page 181
Seat Material		PCTFE *(standard)*		PCTFE *(standard)*
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

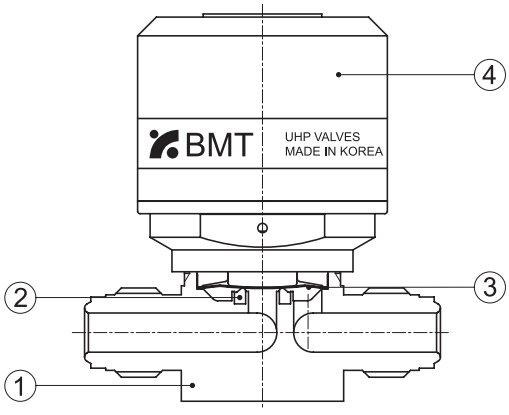
PDV1 Diaphragm Valves

Low Pressure Pneumatic Diaphragm Valves (Standard Type) - N.O/N.C

Specifications

Size	1/4"	3/8", 1/2"	3/4"
Cv Value	0.3	0.7	0.7
Orifice Size	4.5 mm	7. 0 mm	7.0 mm
Max. Working Pressure	10 bar (145 psig)		
Operating Pressure	0.4 ~ 0.6 MPa (58 ~ 87 psig)		
Working Temperature	PCTFE: -10 ~ 80°C (14 ~ 176°F) / PFA, PI: -10 ~ 150°C (14 ~ 302°F)		
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s		
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s		
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count		
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm		

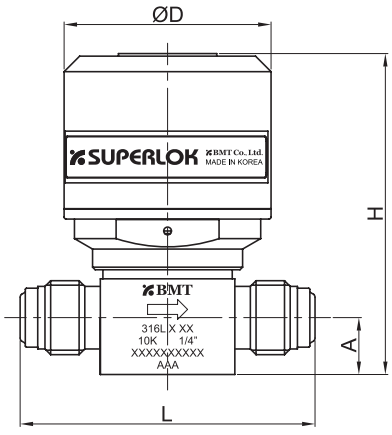
Material



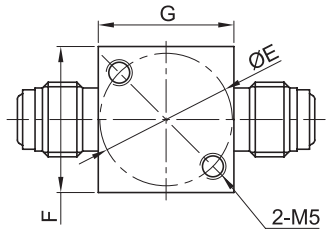
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PFA / PI
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

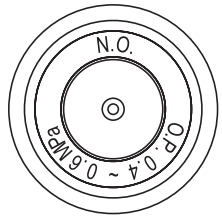
Dimensions



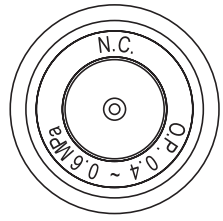
Male BVC



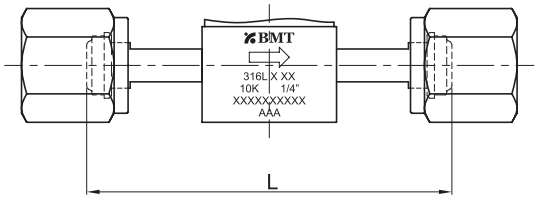
Bottom Mounting



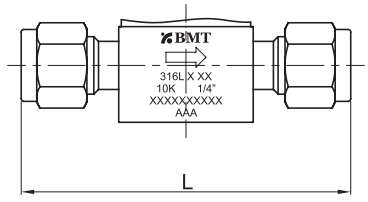
Nomal Open



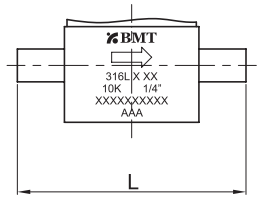
Nomal Close



Female BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)						
		L	H	A	D (Φ)	E (Φ)	F	G
Male BVC	SMPDV1C-VM4	57	62.1	11	40	25.4	28	26
	SMPDV1C-VM6	77	81.2	16	55	28	37	36
	SMPDV1C-VM8	77	81.2	16	55	28	37	36
	SMPDV1C-VM12	122	88.4	22	55	28	37	37
Female BVC	SMPDV1C-VF4	70.6	62.1	11	40	25.4	28	26
	SMPDV1C-VF6	83	81.2	16	55	28	37	36
	SMPDV1C-VF8	83	81.2	16	55	28	37	36
	SMPDV1C-VF12	122	88.4	22	55	28	37	37
SUPERLOK Tube Fitting	SMPDV1C-S4	63.7	62.1	11	40	25.4	28	26
	SMPDV1C-S6	75.6	81.2	16	55	28	37	36
	SMPDV1C-S8	81.2	81.2	16	55	28	37	36
	SMPDV1C-S12	104.6	88.4	22	55	28	37	37
Tube Butt Weld	SMPDV1C-TW4	44.2	62.1	11	40	25.4	28	26
	SMPDV1C-TW6	68	81.2	16	55	28	37	36
	SMPDV1C-TW8	68	81.2	16	55	28	37	36
	SMPDV1C-TW12	150	88.4	22	55	28	37	37

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Pneumatic Diaphragm Valves (Standard Type)
*Additional configurations available upon request.

A	PDV1	B	-	C	D	-	E	-	F
SM	PDV1	C	-	VM	4	-	PA	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Operation Method

C	Normally Closed
O	Normally Open

C Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female

D Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
6	3/8 in.	9.53 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm
12	3/4 in.	19.05 mm	1.65 mm

E Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	Polyimide

F Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

Part Number Examples

	DMPDV1O-TW8		SMPDV1C-VM4-PA-P	
Material	**DM**	316L Stainless Steel VAR	**SM**	316L Stainless Steel
Series	**PDV1**	PDV1 series	**PDV1**	PDV1 series
Operation Method	**O**	Normally Open	**C**	Normally Closed
Connection Type	**TW**	Butt Weld	**VM**	BVC Male
Connection Size	**8**	1/2"	**4**	1/4"
Seat Material		PCTFE *(standard)*	**PA**	PFA
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

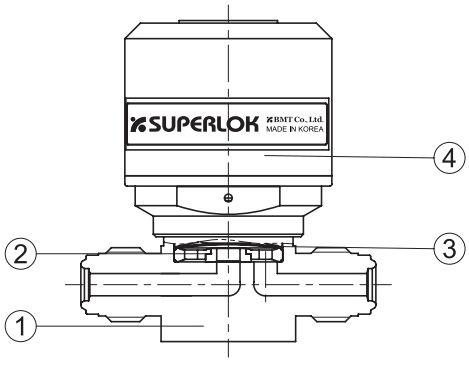
PDV3 Diaphragm Valves

Low Pressure Pneumatic Diaphragm Valves (3-Way Type)

Specifications

Size	1/4"	1/2"
Cv Value	0.3	0.7
Orifice Size	4.5 mm	7.0 mm
Max. Working Pressure	10 bar (145 psig)	
Operating Pressure	0.4 ~ 0.6 MPa (58 ~ 87 psig)	
Working Temperature	-10 ~ 80°C (14 ~ 176°F)	
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count	
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm	

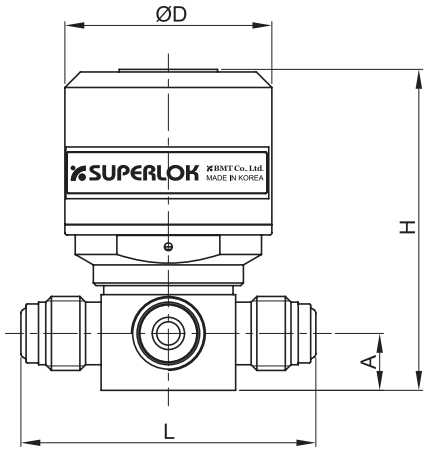
Material



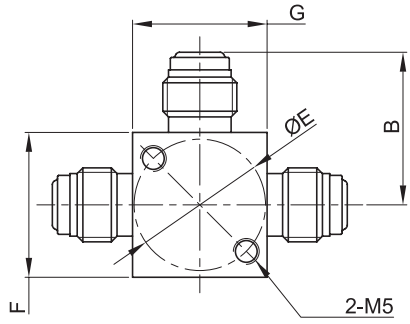
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PFA / PI
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

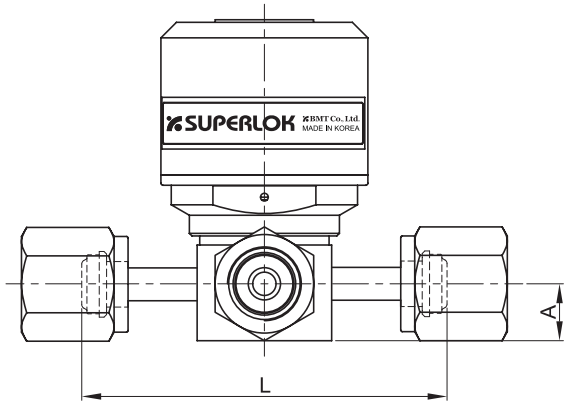
Dimensions



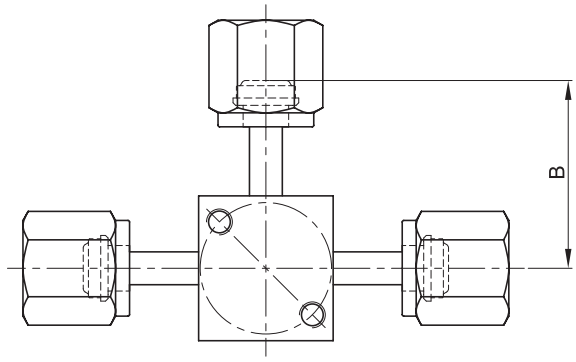
Male BVC



Bottom Mounting



Female BVC



Bottom Mounting

Part No.	Dimensions (mm)							
	L	H	A	B	D (Φ)	E (Φ)	F	G
SMPDV3C-4-MMM-1F23	57	62.1	11	28.5	40	25.4	28	26
SMPDV3C-8-MMM-1F23	77	81.2	16	38.5	55	28	37	36
SMPDV3C-4-FFF-1F23	70.6	62.1	11	35.3	40	25.4	28	26
SMPDV3C-8-FFF-1F23	83	81.2	16	41.5	55	28	37	36

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Pneumatic Diaphragm Valves (3-Way Type)
*Additional configurations available upon request.

A	PDV3	B	-	C	-	D	-	E	-	F	-	G
SM	PDV3	C	-	4	-	FMF	-	1F23	-	PA	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Operation Method

Add an operation method designator for **Pneumatic Valves.**

C	Normally Closed
O	Normally Open

C Connection Size

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm

D Connection Type

FFF	Female Only
FMF	In : Female / Out : Male, Female

E Flow Direction

See ***Flow Paths*** for the figures on Page 180.

2F13	Figure B
1F34	Figure C
4F13	Figure D

F Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	Polyimide

G Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
AP	AP

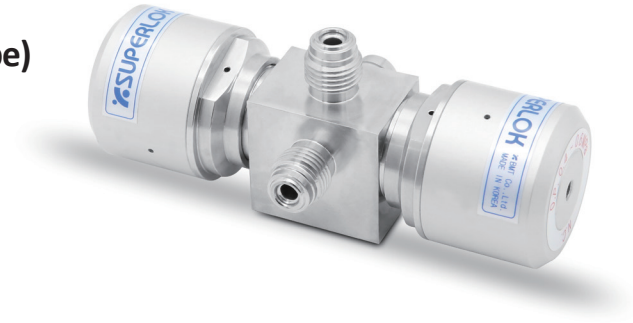
Part Number Examples

	SMPDV3C-8-FFF-1F23		DMPDV3C-4-FMF-1F34-PA-P	
Material	**SM**	316L Stainless Steel	**DM**	316L Stainless Steel VAR
Series	**PDV3**	PDV3 series	**PDV3**	PDV3 series
Operation Method	**C**	Normally Closed	**C**	Normally Closed
Connection Type	**FFF**	Female Only	**FMF**	In : Female / Out : Male, Female
Connection Size	**8**	1/2"	**4**	1/4"
Flow Path		Fig.E of ***Flow Paths***, Page 180		Fig.G of ***Flow Paths***, Page 180
Seat Material		PCTFE *(standard)*	**PA**	PFA
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

MNPDV1 Diaphragm Valves

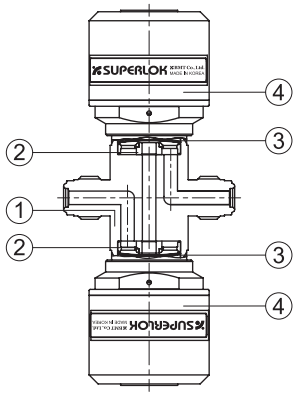
Low Pressure Pneumatic Diaphragm Valves (Mono Type)



Specifications

Size	1/4"
Cv Value	0.3
Orifice Size	4.5 mm
Max. Working Pressure	10 bar (145 psig)
Operating Pressure	0.4 ~ 0.6 MPa (58 ~ 87 psig)
Working Temperature	-10 ~ 80°C (14 ~ 176°F)
Internal Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Inboard Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm

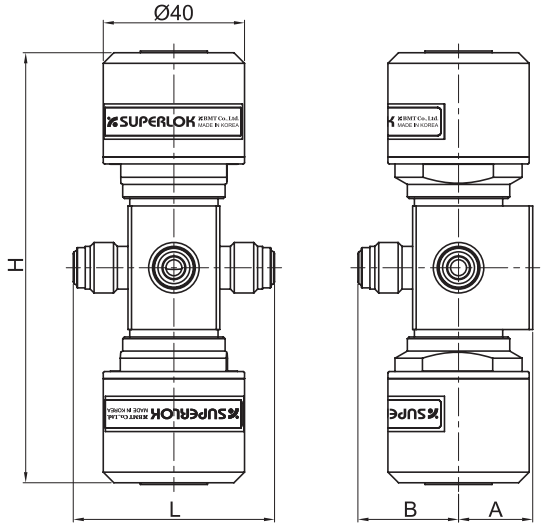
Material



No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)*
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Dimensions



Male BVC

End Connection	Part No.	Dimensions (mm)						
		L	H	A	B	E (Φ)	F	G
Male BVC	SMMNPDV1C-4-MMM-1F23-P	57	125	21	28.5	25.4	35	26

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Pneumatic Diaphragm Valves (Standard Type)
*Additional configurations available upon request.

A	MNPDV1	B	-	C	-	D	-	E	-	F	-	G
SM	MNPDV1	C		4		MMM		1F23	-		-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Operation Method

Add an operation method designator for **Pneumatic Valves**.

C	Normally Closed
O	Normally Open

C Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm

D Conection Type

MMM	Male Only

E Flow Direction

See Flow Path for the figures on Page 181.

1F23	1 IN FLOW 2,3 OUT
2F13	2 IN FLOW 1.3 OUT
3F12	3 IN FLOW 1.2 OUT

F Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	PI

G Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP

Part Number Examples

	MMNPDV1C-4-MMM-1F23		DMMNPDV1C-4-MMM-3F12-P	
Material	**SM**	316L Stainless Steel	**DM**	316L Stainless Steel VAR
Series	**MNPDV1**	MNPDV1 series	**MNPDV1**	MNPDV1 series
Operation Method	**C**	Normally Closed	**C**	Normally Closed
Connection Size	**4**	1/4"	**4**	1/4"
Connection Type	**MMM**	Male Only	**MMM**	Male Only
Flow Path	**1F23**	1 IN FLOW 2, 3 OUT	**3F12**	3 IN FLOW 1, 2 OUT
Seat Material		PCTFE *(standard)*		PCTFE *(standard)*
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

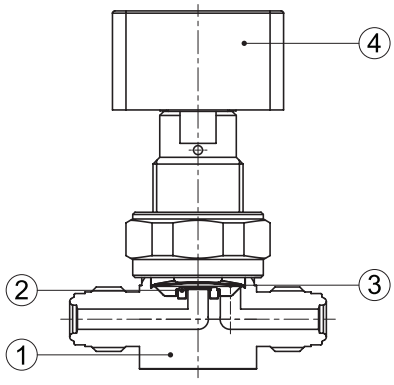
SODV1 Diaphragm Valves

Low Pressure Manual Diaphragm Valves (Shutoff Type)

Specifications

Size	1/4"	3/8", 1/2"	3/4"
Cv Value	0.3	0.7	0.7
Orifice Size	4.5 mm	7.0 mm	7.0 mm
Max. Working Pressure	10 bar (145 psig)		
Working Temperature	PCTFE: -10 ~ 80°C (14 ~ 176°F) / PFA, PI: -10 ~ 150°C (14 ~ 302°F)		
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s		
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s		
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count		
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm		

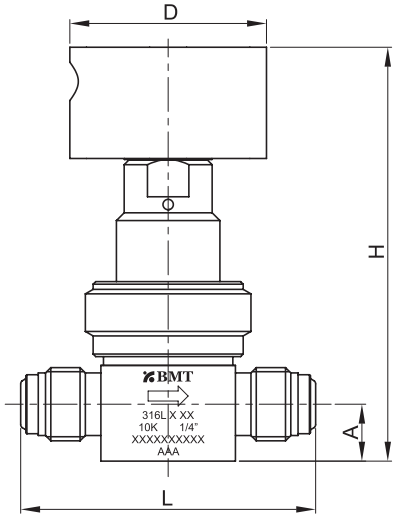
Material



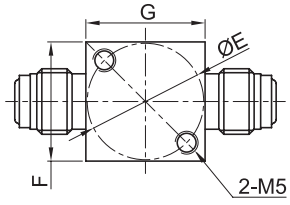
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR / 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PFA / PI
3	Diaphragm	Ni-Co Alloy
4	Handle	ABS

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

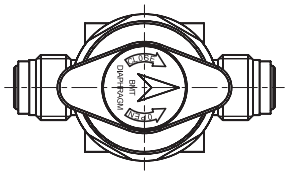
Dimensions



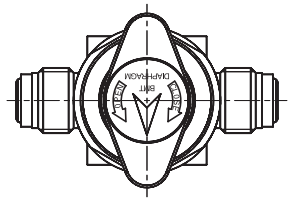
Male BVC



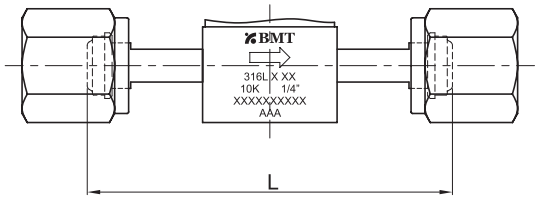
Bottom Mounting



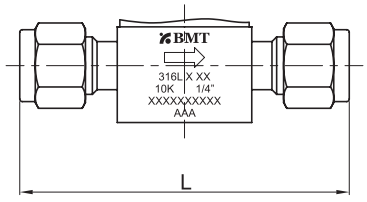
Handle Open



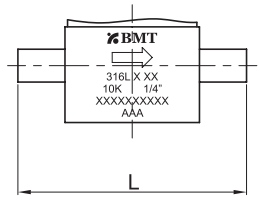
Handle Close



Female BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)						
		L	H	A	D	E (Φ)	F	G
Male BVC	SMSODV1-VM4	57	80	11	38	25.4	28	26
	SMSODV1-VM6	77	93.5	16	50	28	37	36
	SMSODV1-VM8	77	93.5	16	50	28	37	36
	SMSODV1-VM12	122	98	22	50	28	37	37
Female BVC	SMSODV1-VF4	70.6	80	11	38	25.4	28	26
	SMSODV1-VF6	83	93.5	16	50	28	37	36
	SMSODV1-VF8	83	93.5	16	50	28	37	36
	SMSODV1-VF12	122	98	22	50	28	37	37
SUPERLOK Tube Fitting	SMSODV1-S4	63.7	80	11	38	25.4	28	26
	SMSODV1-S6	75.6	93.5	16	50	28	37	36
	SMSODV1-S8	81.2	93.5	16	50	28	37	36
	SMSODV1-S12	104.6	98	22	50	28	37	37
Tube Butt Weld	SMSODV1-TW4	44.2	80	11	38	25.4	28	26
	SMSODV1-TW6	68	93.5	16	50	28	37	36
	SMSODV1-TW8	68	93.5	16	50	28	37	36
	SMSODV1-TW12	150	98	22	50	28	37	37

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Manual Diaphragm Valves (Shutoff Type)
*Additional configurations available upon request.

A	SODV1	-	B	C	-	D	-	E
SM	SODV1	-	VM	4	-	PA	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female

C Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
6	3/8 in.	9.53 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm
12	3/4 in.	19.05 mm	1.65 mm

D Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	Polyimide

E Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

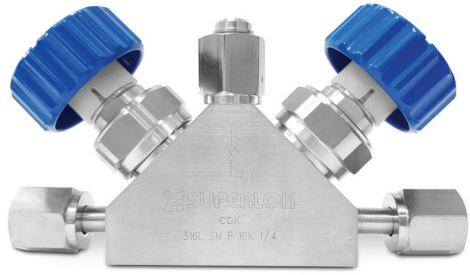
Part Number Examples

	SMSODV1-VF8		SMSODV1-VM4-PA-P	
Material	**SM**	316L Stainless Steel	**SM**	316L Stainless Steel
Series	**SODV1**	SODV1 series	**SODV1**	SODV1 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**VF**	BVC Female	**VM**	BVC Male
Connection Size	**8**	1/2"	**4**	1/4"
Seat Material		PCTFE *(standard)*	**PA**	*PFA*
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

BDV1 Diaphragm Valves

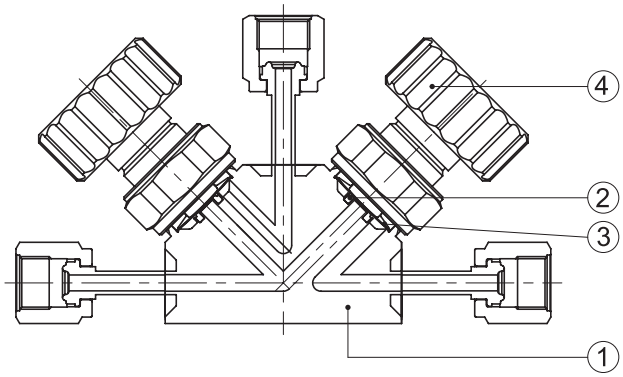
Low Pressure Manual Diaphragm Valves (Block Type)



Specifications

Size	1/4"	1/2"
Cv Value	0.3	0.7
Orifice Size	4.5 mm	7.0 mm
Max. Working Pressure	10 bar (145 psig)	
Working Temperature	PCTFE: -10 ~ 80°C (14 ~ 176°F) / PFA, PI: -10 ~ 150°C (14 ~ 302°F)	
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count	
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm	

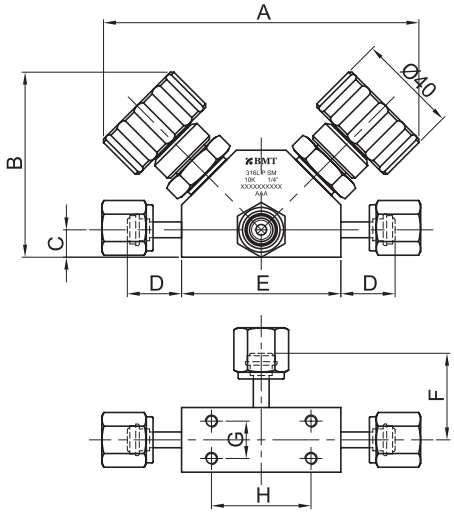
Material



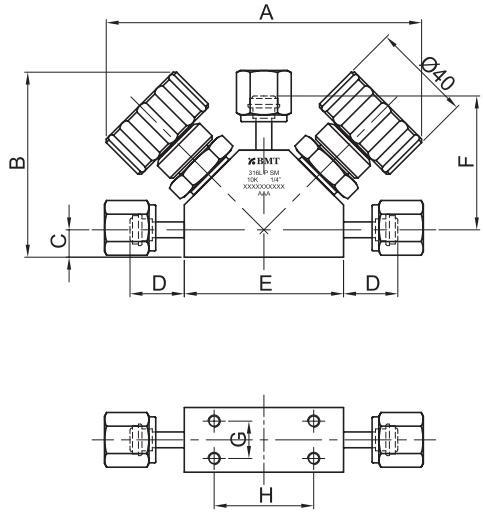
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PFA / PI
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

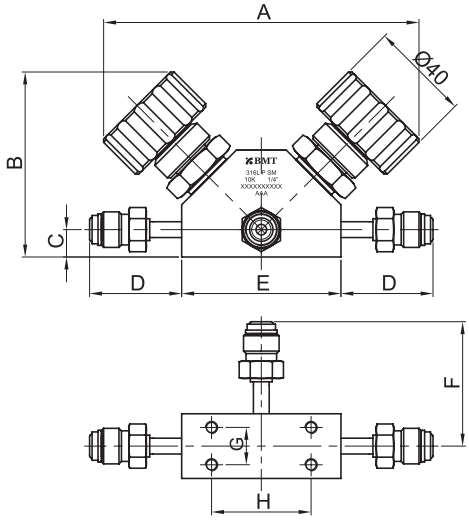
Dimensions



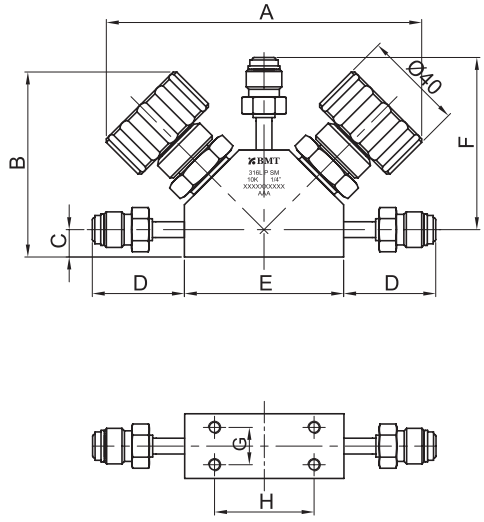
Female BVC FLOW (1F35, 5F13)



Female BVC FLOW (1F23, 2F13)



Male BVC FLOW (1F35, 5F13)



Male BVC FLOW (1F23, 2F13)

*NOTE: See ***Flow Paths*** on Page 180.

End Connection	Part No.	Dimensions (mm)							
		A	B	C	D	E	F	G	H
Male BVC	SMBDV1-4-MMM-1F23	116.4	70	11	37	64	68	15	40
	SMBDV1-4-MMM-1F35						50	15	40
	SMBDV1-8-MMM-1F23	129	80.5	16	40	82	89.5	20	55
	SMBDV1-8-MMM-1F35						59	20	55
Female BVC	SMBDV1-4-FFF-1F23	116.4	70	11	21.8	64	53.8	15	40
	SMBDV1-4-FFF-1F35						34.8	15	40
	SMBDV1-8-FFF-1F23	129	80.5	16	23	82	71.5	20	55
	SMBDV1-8-FFF-1F35						41	20	55

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Manual Diaphragm Valves (Block Type)
*Additional configurations available upon request.

A		B	C	D	E	F
	BDV1	-	-	-	-	-
SM	BDV1	4	MMM	1F23	PA	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm

C Connection Type

MMM	Male Only
FMF	In : Female / Out : Male, Female
FFF	Female Only

D Flow Path

See ***Flow Paths*** for the figures on Page 180.

1F23	Figure A	**2F13**	Figure C
1F35	Figure B	**5F13**	Figure D

E Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	Polyimide

F Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

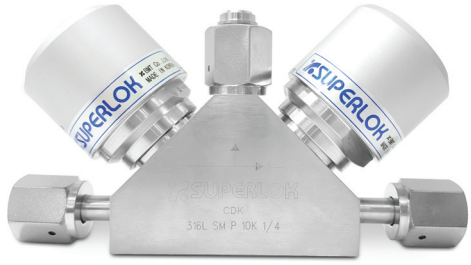
Part Number Examples

	SMBDV1-4-MMM-1F23-PA-P		DMBDV1-8-FMF-2F13-P	
Material	**SM**	316L Stainless Steel	**DM**	316L Stainless Steel VAR
Series	**BDV1**	BDV1 series	**BDV1**	BDV1 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**MMM**	Male Only	**FMF**	In : Female / Out : Male, Female
Connection Size	**4**	1/4"	**8**	1/2"
Flow Path	**1F23**	Fig.A of ***Flow Paths***, Page 180	**2F13**	Fig.C of ***Flow Paths***, Page 180
Seat Material	**PA**	PFA		PCTFE *(standard)*
Grade	**P**	EP grade	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

PBDV1 Diaphragm Valves

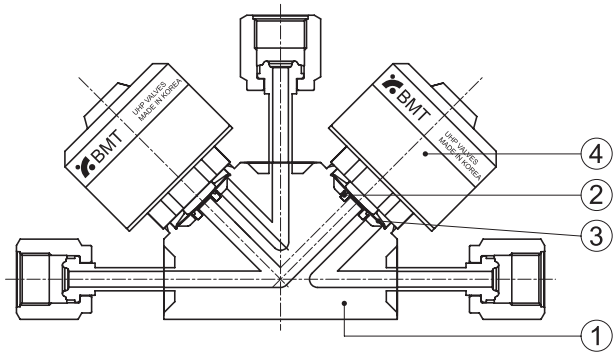
Low Pressure Pneumatic Diaphragm Valves (Block Type) - N.O/N.C



Specifications

Size	1/4"	1/2"
Cv Value	0.3	0.7
Orifice Size	4.5 mm	7.0 mm
Max. Working Pressure	10 bar (145 psig)	
Operating Pressure	0.4 ~ 0.6 Mpa (58 ~ 87psig)	
Working Temperature	PCTFE: -10 ~ 80°C (14 ~ 176°F) / PFA, PI: -10 ~ 150°C (14 ~ 302°F)	
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count	
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm	

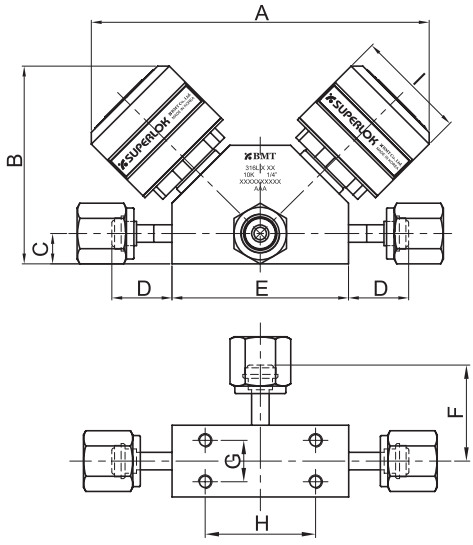
Material



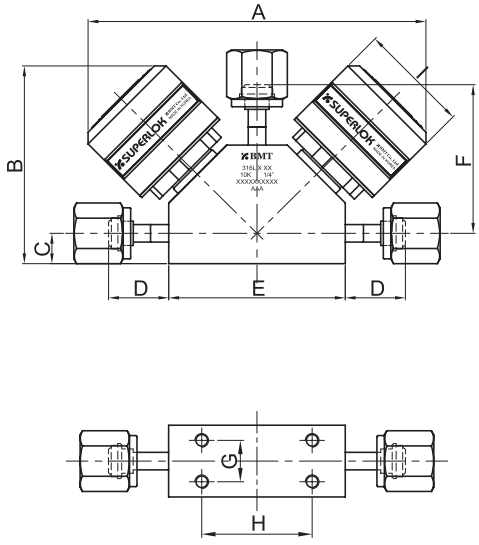
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PFA / PI
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

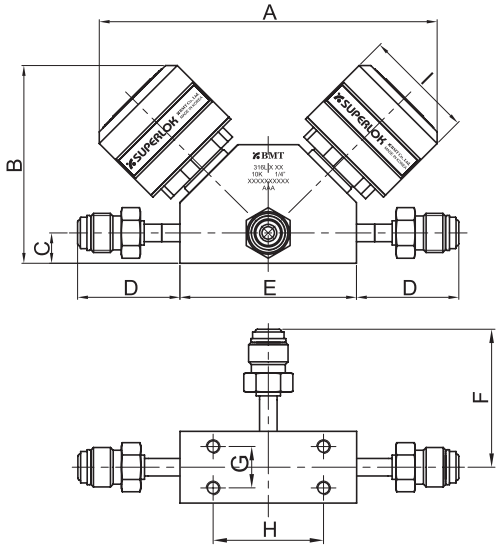
Dimensions



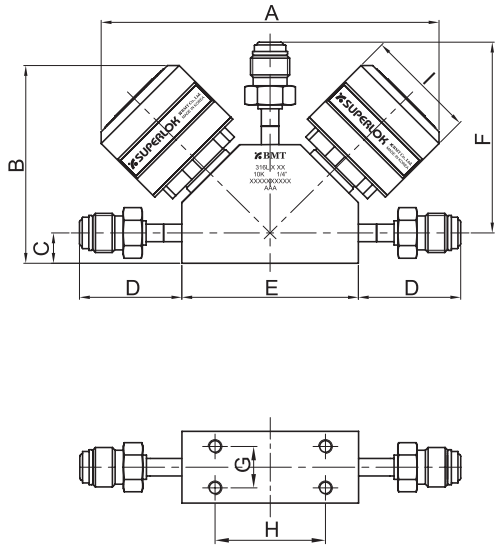
Female BVC FLOW (1F35, 5F13)



Female BVC FLOW (1F23, 2F13)



Male BVC FLOW (1F35, 5F13)



Male BVC FLOW (1F23, 2F13)

*NOTE: See ***Flow Paths*** on Page 180.

End Connection	Part No.	Dimensions (mm)								
		A	B	C	D	E	F	G	H	I (Φ)
Male BVC	SMPBDV1C-4-MMM-1F23	121	71.7	11	37	64	68	15	40	40
	SMPBDV1C-4-MMM-1F35						50	15	40	40
	SMPBDV1C-8-MMM-1F23	162.3	97.3	16	40	82	89.5	20	55	55
	SMPBDV1C-8-MMM-1F35						59	20	55	55
Female BVC	SMPBDV1C-4-FFF-1F23	121	71.7	11	21.8	64	53.8	15	40	40
	SMPBDV1C-4-FFF-1F35						34.8	15	40	40
	SMPBDV1C-8-FFF-1F23	162.3	97.3	16	23	82	71.5	20	55	55
	SMPBDV1C-8-FFF-1F35						41	20	55	55

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Pneumatic Diaphragm Valves (Block Type) - N.O/N.C
*Additional configurations available upon request.

A		B	-	C	-	D	-	E	-	F	-	G
	PBDV1											
SM	PBDV1	C	-	4	-	MMM	-	1F23	-	PA	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Operation Method

C	Normally Closed
O	Normally Open

C Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm

D Connection Type

MMM	Male Only
FMF	In : Female / Out : Male, Female
FFF	Female Only

E Flow Path

See ***Flow Paths*** for the figures on Page 180.

1F23	Figure A	**2F13**	Figure C
1F35	Figure B	**5F13**	Figure D

F Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	Polyimide

G Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

Part Number Examples

	SMBDV1-4-MMM-1F23-PA-P		DMBDV1-8-FMF-2F13-P	
Material	**SM**	316L Stainless Steel	**DM**	316L Stainless Steel VAR
Series	**PBDV1**	PBDV1 series	**PBDV1**	PBDV1 series
Operation Method	**C**	Normally Closed	**O**	Normally Open
Connection Type	**MMM**	Male Only	**FMF**	In : Female / Out : Male, Female
Connection Size	**4**	1/4”	**8**	1/2”
Flow Path	**1F23**	Fig.A of ***Flow Paths***, Page 180	**5F13**	Fig.D of ***Flow Paths***, Page 180
Seat Material	**PA**	PFA		PCTFE *(standard)*
Grade	**P**	EP grade		BA grade *(standard)*

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

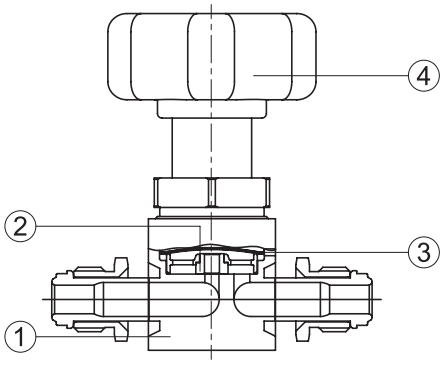
MDV1 Diaphragm Valves

Medium Pressure Manual Diaphragm Valves (Standard Type)

Specifications

Size	1/4"
Cv Value	0.3
Orifice Size	6.3 mm
Max. Working Pressure	20 bar (290 psig)
Working Temperature	-10 ~ 80°C (14 ~ 176°F)
Internal Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Inboard Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Particle Inspection (EP Only) (0.1μm and Larger)	No Count
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm

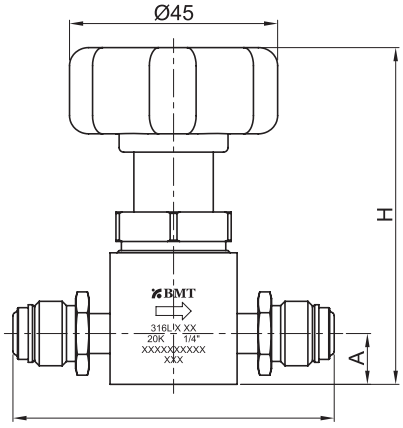
Material



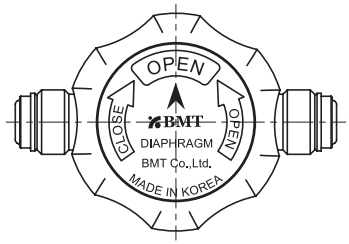
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)*
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

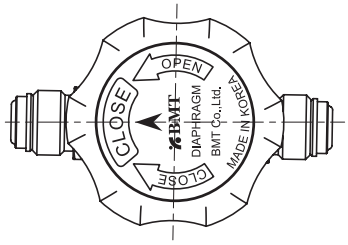
Dimensions



Male BVC



Open



Close

End Connection	Part No.	Dimensions (mm)					
		L	H	A	E (Φ)	F	G
Male BVC	SMMDV1-VM4	70.6	76.2	11.2	25.4	28	28
Female BVC	SMMDV1-VF4	70.6	76.2	11.2	25.4	28	28

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

A	MDV1	-	B	C	-	D	-	E
SM	MDV1		VM	4	-		-	P

Standard feature
Optional

A	Materials	
	SM	316L Stainless Steel
	DM	316L Stainless Steel VAR
	4SS	304 Stainless Steel

B	Connection Type	
	VM	Male BVC (BMT Vacuum Coupling)
	VF	Female BVC (BMT Vacuum Coupling)
	S	SUPERLOK Tube Fitting
	TW	Butt Weld

C	Connection Size			
	ASTM Tube			
	Designator	Nominal Size	Outside Diameter	Wall Thickness
	4	1/4 in.	6.35 mm	1.00 mm

D	Seat Material	
	PCTFE is standard. No part designator needed.	
	PA	PFA
	PI	PI

E	Wetted Surface Grade	
	BA is standard. No part designator needed.	
	P	EP
	MP	MP

Part Number Examples

	DMMDV1-VM4		SMMDV1-VF4-P	
Material	**DM**	316L Stainless Steel VAR	**SM**	316L Stainless Steel
Series	**MDV1**	MDV1 series	**MDV1**	MDV1 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**VM**	BVC Male	**VF**	BVC Female
Connection Size	**4**	1/4"	**4**	1/4"
Seat Material		PCTFE *(standard)*		PCTFE *(standard)*
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

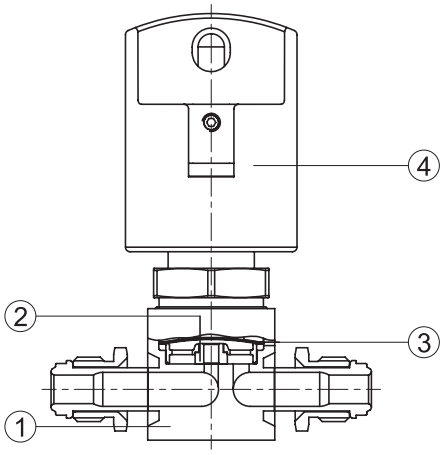
MLDV1 Diaphragm Valves

Medium Pressure Manual Diaphragm Valves (LOTO Type)

Specifications

Size	1/4"
Cv Value	0.3
Orifice Size	6.3 mm
Max. Working Pressure	20 bar (290 psig)
Working Temperature	-10 ~ 80°C (14 ~ 176°F)
Internal Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Inboard Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm

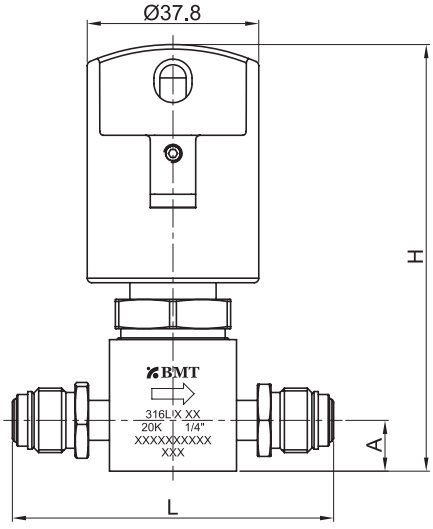
Material



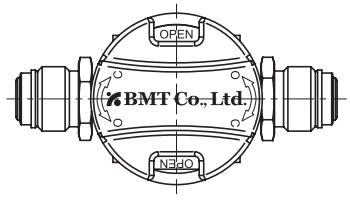
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)*
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

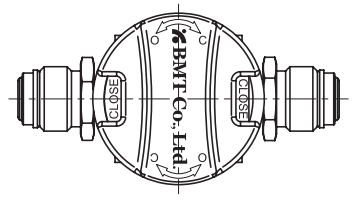
Dimensions



Male BVC



Open



Close

End Connection	Part No.	Dimensions (mm)					
		L	H	A	E (Φ)	F	G
Male BVC	SMMLDV1-VM4	70.6	94.6	11.2	25.4	28	28
Female BVC	SMMLDV1-VF4	70.6	94.6	11.2	25.4	28	28

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

A	MLDV1	B	-	C	D	-	E	-	F
SM	MLDV1			VM	4	-		-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Operation Method

Add an operation method designator for **Pneumatic Valves**.

C Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld

D Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm

E Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	PI

F Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP

Part Number Examples

	DMMLDV1-VM4		SMMLDV1-VF4-P	
Material	**DM**	316L Stainless Steel VAR	**SM**	316L Stainless Steel
Series	**MLDV1**	MLDV1 series	**MLDV1**	MLDV1 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**VM**	BVC Male	**VF**	BVC Female
Connection Size	**4**	1/4"	**4**	1/4"
Seat Material		PCTFE *(standard)*		PCTFE *(standard)*
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

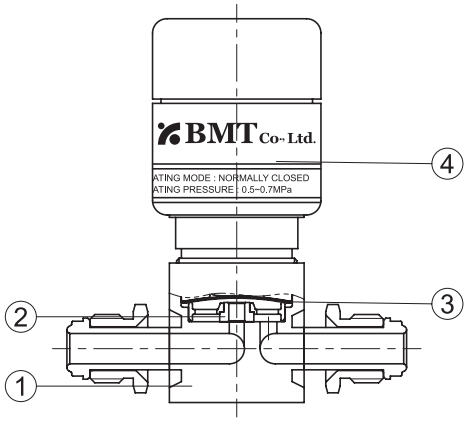
MPDV1 Diaphragm Valves

Medium Pressure Pneumatic Diaphragm Valves (Standard Type) - N.O/N.C

Specifications

Size	1/4"
Cv Value	0.3
Orifice Size	6.3 mm
Operating Pressure	0.5 ~ 0.7 MPa (73 ~ 101 psig)
Max. Working Pressure	20 bar (290 psig)
Working Temperature	-10 ~ 80°C (14 ~ 176°F)
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/sec
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/sec
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm

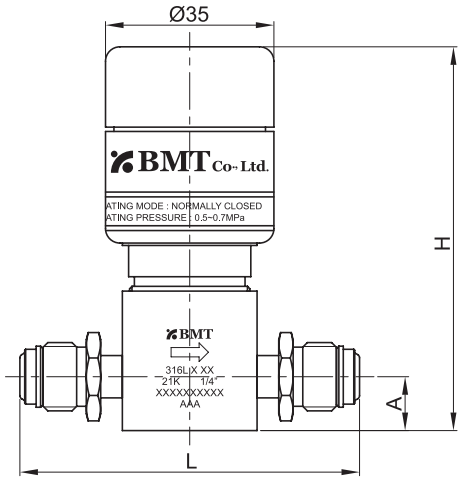
Material



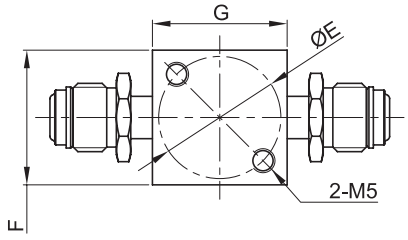
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PFA / PI
3	Diaphragm	Ni-Co Alloy
4	Actuator	304 Stainless Steel

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

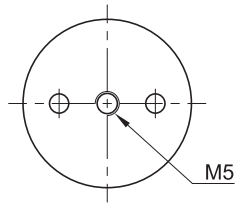
Dimensions



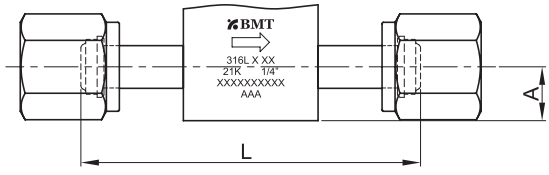
Male BVC



Bottom Mounting



Top View



Female BVC

End Connection	Part No.	Dimensions (mm)					
		L	H	A	E (Φ)	F	G
Male BVC	SMMPDV1C-VM4	70.6	80	11.2	25.4	28	28
Female BVC	SMMPDV1C-VF4	70.6	80	11.2	25.4	28	28

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Medium Pressure Pneumatic Diaphragm Valves (Standard Type) - N.O/N.C
*Additional configurations available upon request.

A		B	-	C	D	-	E	-	F
	MPDV1								
SM	MPDV1	C	-	VM	4	-	PA	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Operation Method

Add an operation method designator for **Pneumatic Valves.**

C	Normally Closed
O	Normally Open

C Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld

D Connection Size

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm

E Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	Polyimide

F Wetted Surface Grade

BA is standard. No part designator needed.

P	EP

Part Number Examples

	DMMPDV1C-VM4		SMMPDV1O-VF4-PA-P	
Material	**DM**	316L Stainless Steel VAR	**SM**	316L Stainless Steel
Series	**MPDV1**	MPDV1 series	**MPDV1**	MPDV1 series
Operation Method	**C**	Normally Closed	**O**	Normally Open
Connection Type	**VM**	BVC Male	**VF**	BVC Female
Connection Size	**4**	1/4"	**4**	1/4"
Seat Material		PCTFE *(standard)*	**PA**	PFA
Grade		BA grade*(standard)*	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

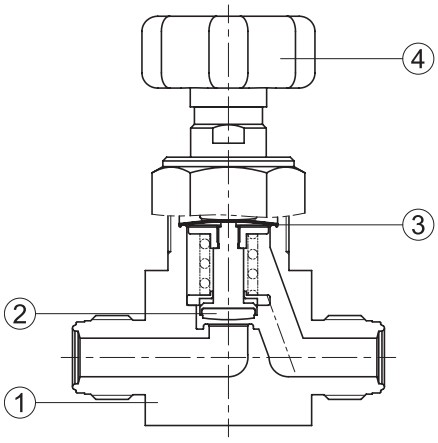
MFDV1 Diaphragm Valves

Medium Pressure Manual Diaphragm Valves (High Flow Type)

Specifications

Size	1/2"
Cv Value	1.5
Orifice Size	10.2 mm
Max. Working Pressure	20 bar (290 psig)
Working Temperature	PCTFE: -10 ~ 80°C (14 ~ 176°F) / PFA, PI: -10 ~ 150°C (14 ~ 302°F)
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/sec
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/sec
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count

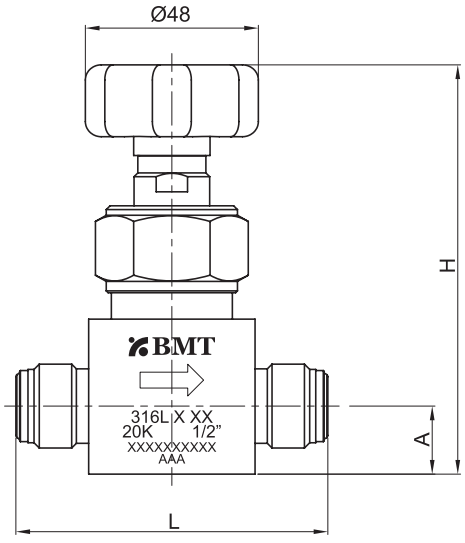
Material



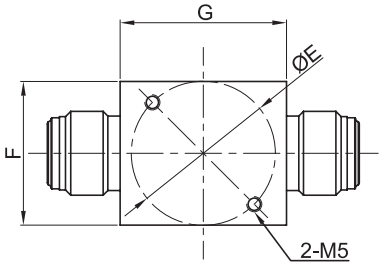
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PFA / PI
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

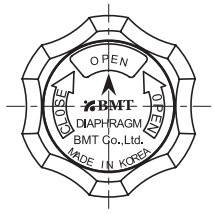
Dimensions



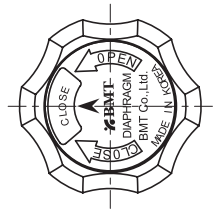
Male BVC



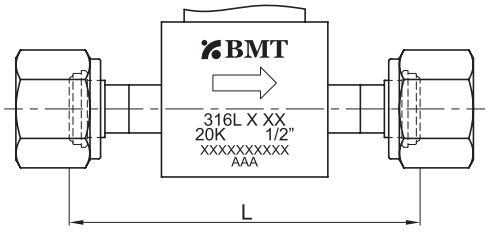
Bottom Mounting



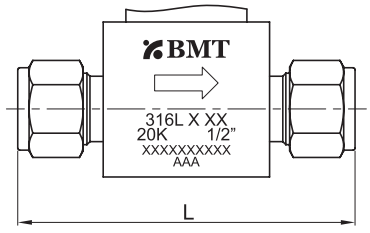
Handle Open



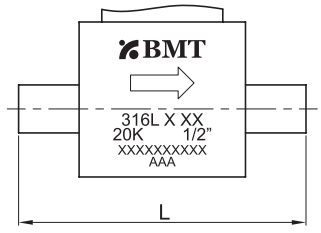
Handle Close



Female BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)					
		L	H	A	E (Φ)	F	G
Male BVC	SMMFDV1-VM8	83	108.3	18	38	38	44
Female BVC	SMMFDV1-VF8	92.8	108.3	18	38	38	44
SUPERLOK Tube Fitting	SMMFDV1-S8	89.2	108.3	18	38	38	44
Tube Butt Weld	SMMFDV1-TW8	76	108.3	18	38	38	44

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Medium Pressure Manual Diaphragm Valves (High Flow Type)
*Additional configurations available upon request.

A	MFDV1	-	B	C	-	D	-	E
SM	MFDV1	-	VM	8	-	PA	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female

C Connection Size

Designator	Nominal Size	Outside Diameter	Wall Thickness
8	1/2 in.	12.7 mm	1.24 mm

E Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	Polyimide

F Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
AP	AP

Part Number Examples

	DMMFDV1-VM8		SMMFDV1-VM8-PA-P	
Material	**DM**	316L Stainless Steel VAR	**SM**	316L Stainless Steel
Series	**MFDV1**	MFDV1 series	**MFDV1**	MFDV1 series
Operation Method		*Omit for MFDV1 Series*		*Omit for MFDV1 Series*
Connection Type	**VM**	BVC Male	**VM**	BVC Male
Connection Size	**8**	1/2"	**8**	1/2"
Flow Path		*Omit for MFDV1 series*		*Omit for MFDV1 series*
Seat Material		PCTFE *(standard)*	**PA**	PFA
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

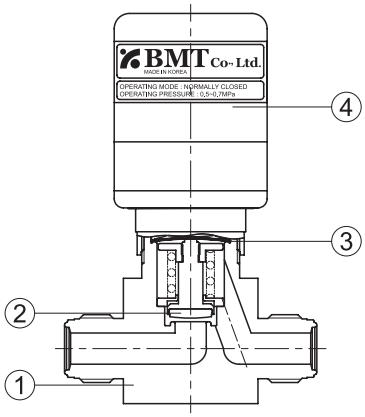
MFPDV1 Diaphragm Valves

Medium Pressure Pneumatic Diaphragm Valves (High Flow Type) - N.O/N.C

Specifications

Size	1/2"
Cv Value	1.5
Orifice Size	10.2 mm
Max. Working Pressure	20 bar (290 psig)
Operating Pressure	0.5 ~ 0.7 MPa (73 ~ 101 psig)
Working Temperature	PCTFE: -10 ~ 80°C (14 ~ 176°F) / PFA, PI: -10 ~ 150°C (14 ~ 302°F)
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/sec
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/sec
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm

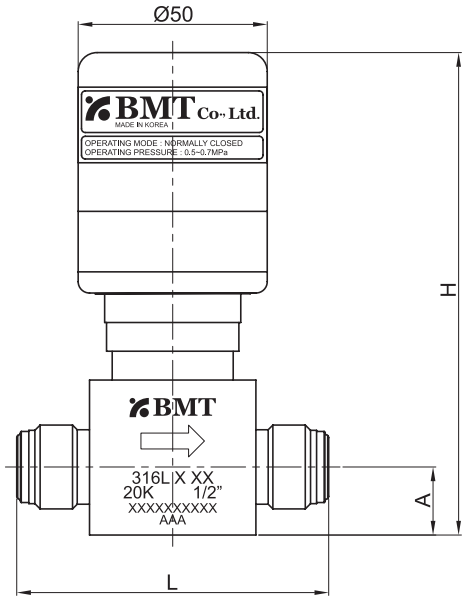
Material



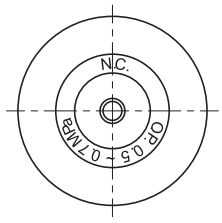
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PFA / PI
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

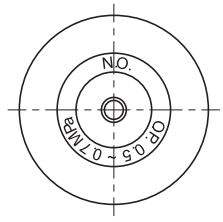
Dimensions



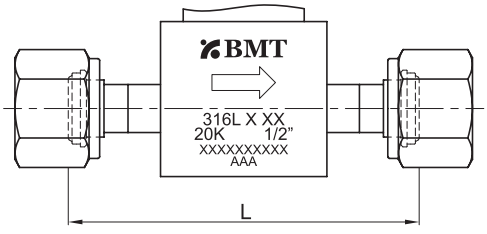
Male BVC



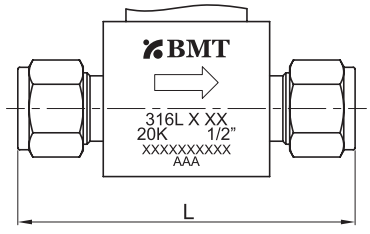
Normal Close



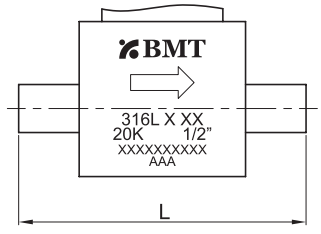
Normal Open



Female BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)					
		L	H	A	E (Φ)	F	G
Male BVC	SMMFPDV1C-VM8	83	127.6	18	38	38	44
Female BVC	SMMFPDV1-VF8	92.8	127.6	18	38	38	44
SUPERLOK Tube Fitting	SMMFPDV1-S8	89.2	127.6	18	38	38	44
Tube Butt Weld	SMMFPDV1-TW8	76	127.6	18	38	38	44

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Medium Pressure Pneumatic Diaphragm Valves (Standard Type) - N.O/N.C
*Additional configurations available upon request.

A	MFPDV1	B	-	C	D	-	E	-	F
SM	MFPDV1	C	-	VM	4	-	PA	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Operation Method

Add an operation method designator for **Pneumatic Valves.**

C	Normally Closed
O	Normally Open

C Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female

D Connection Size

Designator	Nominal Size	Outside Diameter	Wall Thickness
8	1/2 in.	12.7 mm	1.24 mm

E Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	Polyimide

F Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
AP	AP

Part Number Examples

	DMMFPDV1C-VM8		SMMFPDV1O-VM8-PA-P	
Material	**DM**	316L Stainless Steel VAR	**SM**	316L Stainless Steel
Series	**MFPDV1**	MFPDV1 series	**MFPDV1**	MFPDV1 series
Operation Method	**C**	Normally Closed	**O**	Normally Open
Connection Type	**VM**	BVC Male	**VM**	BVC Male
Connection Size	**8**	1/2"	**8**	1/2"
Seat Material		PCTFE *(standard)*	**PA**	PFA
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
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·Unless otherwise specified, all dimensions are in millimeters.

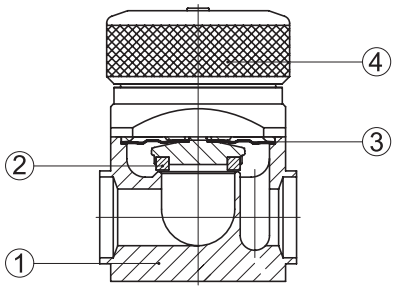
MFDV2 Diaphragm Valves

Medium Pressure Manual Diaphragm Valves (High Flow Type)

Specifications

Size	1/2"	1
Cv Value	2.8	3.5
Orifice Size	10.2 mm	15.5 mm
Max. Working Pressure	19 bar (275 psig)	
Working Temperature	-10 ~ 80°C (14 ~ 176°F)	
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count	
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm	

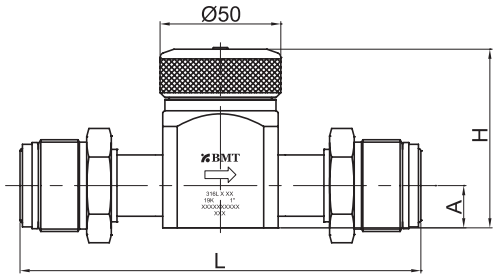
Material



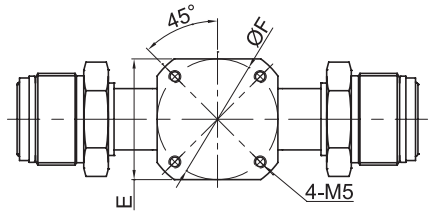
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)*
3	Diaphragm	316L Stainless Steel
4	Handle	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

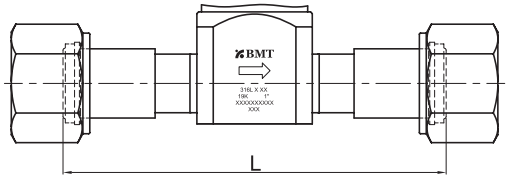
Dimensions



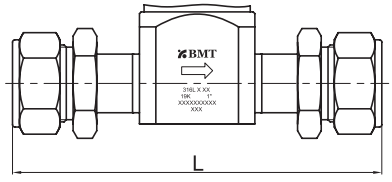
Male BVC



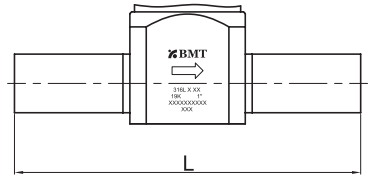
Bottom Mounting



Female BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)				
		L	H	A	E	F (Φ)
Male BVC	SMMFDV2-VM16	166	74	17.5	50	50
Female BVC	SMMFDV2-VF16	166	74	17.5	50	50
SUPERLOK Tube Fitting	SMMFDV2-S16	160	74	17.5	50	50
Tube Butt Weld	SMMFDV2-TW16	150	74	17.5	50	50
Male BVC	SMMFDV2-VM8	138.7	69.5	16	50	50
Female BVC	SMMFDV2-VF8	138.7	69.5	16	50	50
SUPERLOK Tube Fitting	SMMFDV2-S8	136.2	69.5	16	50	50
Tube Butt Weld	SMMFDV2-TW8	150	69.5	16	50	50

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Medium Pressure Manual Diaphragm Valves (High Flow Type)
*Additional configurations available upon request.

A	MFDV2	-	B	C	-	D	-	E
SM	MFDV2	-	VM	8	-	PA	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female

C Connection Size

Designator	Nominal Size	Outside Diameter	Wall Thickness
8	1/2 in.	12.7 mm	1.24 mm
16	1 in.	25.4 mm	1.65 mm

E Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	Polyimide

F Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
AP	AP

Part Number Examples

	SMMFDV2-VM16		DMMFDV2-VF16-P	
Material	**SM**	316L Stainless Steel	**DM**	316L Stainless Steel VAR
Series	**MFDV2**	MFDV2 series	**MFDV2**	MFDV2 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**VM**	BVC Male	**VF**	BVC Female
Connection Size	**16**	1"	**16**	1"
Seat Material		PCTFE *(standard)*		PCTFE *(standard)*
Grade		BA grade *(Standard)*	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

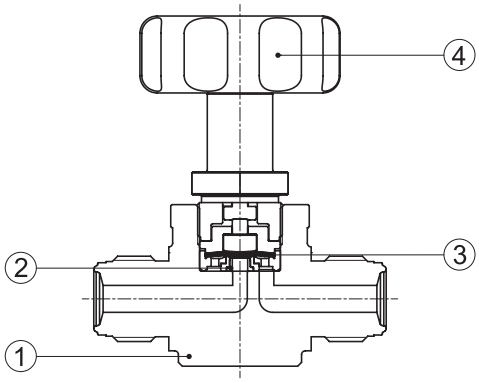
HDV1 Diaphragm Valves

High Pressure Manual Diaphragm Valves (Standard Type)

Specifications

Size	1/4"	1/2"
Cv Value	0.1	0.27
Orifice Size	2.4 mm	3.8 mm
Max. Working Pressure	210 bar (3,045 psig)	
Working Temperature	PCTFE: -10 ~ 40℃ (14 ~ 104℉) / PI: -10 ~ 150℃ (14 ~ 302℉)	
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count	
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm	

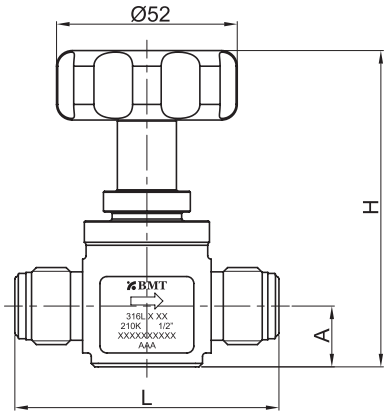
Material



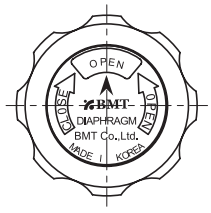
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PI
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

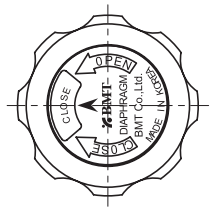
Dimensions



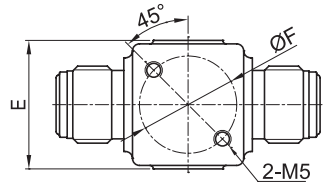
Male BVC



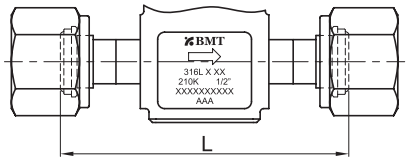
Handle Open



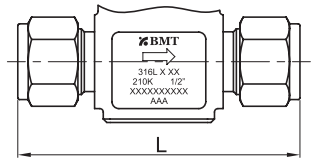
Handle Close



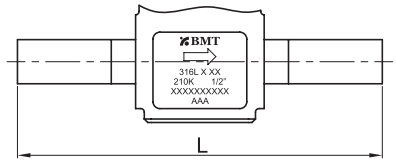
Bottom Mounting



Female BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)				
		L	H	A	E	F (Φ)
Male BVC	SMHDV1-VM4	57	79	11	30	17
	SMHDV1-VM8	76	91.5	17.5	39	28
Female BVC	SMHDV1-VF4	70.6	79	11	30	17
	SMHDV1-VF8	83	91.5	17.5	39	28
SUPERLOK Tube Fitting	SMHDV1-S4	63.7	79	11	30	17
	SMHDV1-S8	81.2	91.5	17.5	39	28
Tube Butt Weld	SMHDV1-TW4	135	79	11	30	17
	SMHDV1-TW8	105	91.5	17.5	39	28

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

High Pressure Manual Diaphragm Valves (Standard Type)
*Additional configurations available upon request.

A	HDV1	-	B	C	-	D	-	E
SM	HDV1	-	VM	16	-	PI	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female

C Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm

D Seat Material

PCTFE is standard. No part designator needed.

PI	Polyimide

E Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

Part Number Examples

	SMHDV1-VF4-P		DMHDV1-VM8-P	
Material	**SM**	316L Stainless Steel	**DM**	316L Stainless Steel VAR
Series	**HDV1**	HDV1 series	**HDV1**	HDV1 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**VF**	BVC Female	**VM**	BVC Male
Connection Size	**4**	1/4"	**8**	1/2"
Seat Material		PCTFE *(standard)*		PCTFE *(standard)*
Grade	**P**	EP grade	**P**	EP grade

NOTE:
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·Unless otherwise specified, all dimensions are in millimeters.

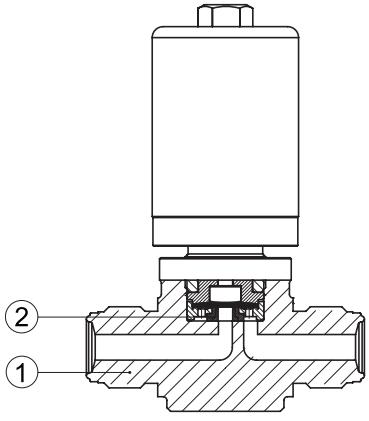
HPDV1 Diaphragm Valves

High Pressure Pneumatic Diaphragm Valves (Standard Type) - N.C

Specifications

Size	1/4"	1/2"
Cv Value	0.1	0.27
Orifice Size	2.4 mm	3.8 mm
Max. Working Pressure	210 bar (3,045 psig)	
Operating Pressure	0.4~0.6 Mpa	
Max. Working Temperature	PCTFE: -10 ~ 40℃ (14 ~ 104℉) / PI: -10 ~ 150℃ (14 ~ 302℉)	
Internal Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Inboard Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count	
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm	

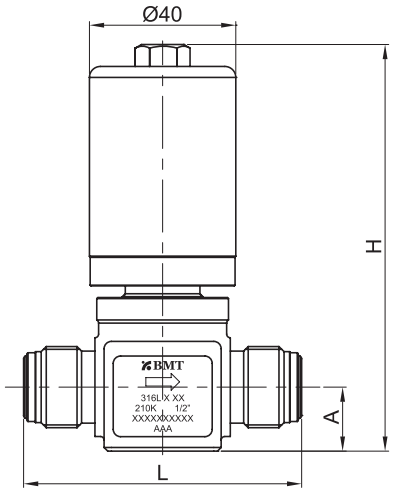
Material

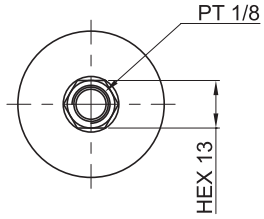


No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PI
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminium

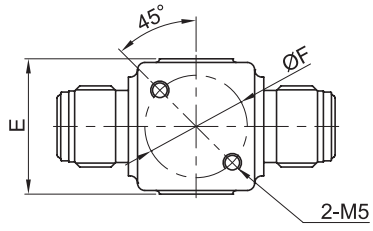
NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Dimensions

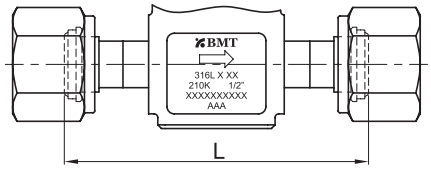




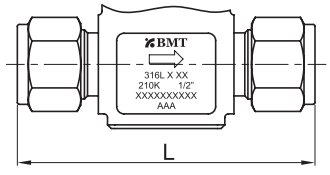
Top View



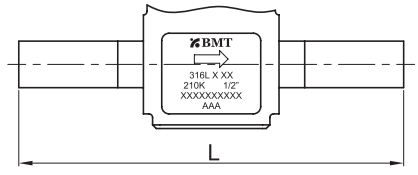
Bottom Mounting



Female BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)				
		L	H	A	E	F (Φ)
Male BVC	SMHPDV1C-VM4	57	98	11	30	17
	SMHPDV1C-VM8	76	110	17.5	39	28
Female BVC	SMHPDV1C-VF4	70.6	98	11	30	17
	SMHPDV1C-VF8	83	110	17.5	39	28
SUPERLOK Tube Fitting	SMHPDV1C-S4	63.7	98	11	30	17
	SMHPDV1C-S8	81.2	110	17.5	39	28
Tube Butt Weld	SMHPDV1C-TW4	135	98	11	30	17
	SMHPDV1C-TW8	105	110	17.5	39	28

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

High Pressure Pneumatic Diaphragm Valves (Standard Type) - N.C
*Additional configurations available upon request.

A		B		C	D		E		F
DM	HPDV1	C	-	VM	4	-	PI	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Operation Method

C	Normally Closed
O	Normally Open

C Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female

D Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm

D Seat Material

PCTFE is standard. No part designator needed.

PI	Polyimide

E Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

Part Number Examples

	DMHPDV1C-VM4-P		SMHPDV1C-VF8-P	
Material	**DM**	316L Stainless Steel VAR	**SM**	316L Stainless Steel
Series	**HPDV1**	HPDV1 series	**HPDV1**	HPDV1 series
Operation Method	**C**	Normally Closed	**C**	Normally Closed
Connection Type	**VM**	BVC Male	**VF**	BVC Female
Connection Size	**4**	1/4"	**8**	1/2"
Seat Material		PCTFE *(standard)*		PCTFE *(standard)*
Grade	**P**	EP grade	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

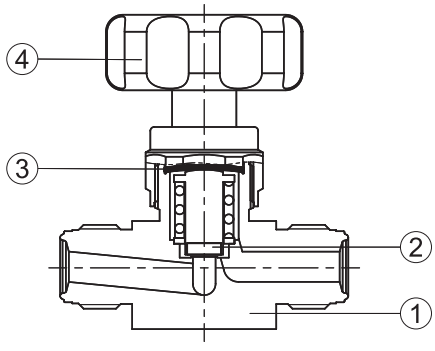
HPFDV1 Diaphragm Valves

High Pressure Manual Diaphragm Valves (High Flow Type)

Specifications

Size	1/4"	1/2"
Cv Value	0.3	0.5
Orifice Size	4.5 mm	8.0 mm
Max. Working Pressure	210 bar (3,045 psig)	
Working Temperature	PCTFE: -10 ~ 40℃ (14 ~ 104℉) / PI: -10 ~ 150℃ (14 ~ 302℉)	
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count	
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm	

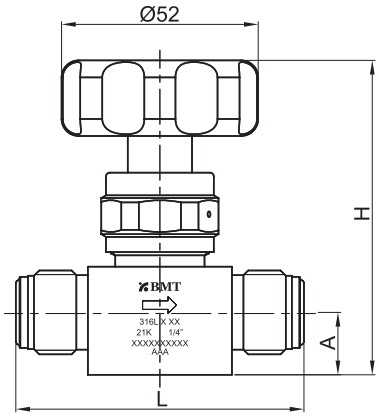
Material



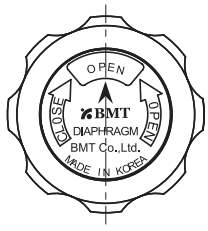
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PI
3	Diaphragm	Ni-Co Alloy
4	Handle	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

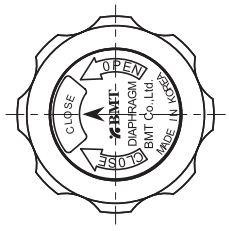
Dimensions



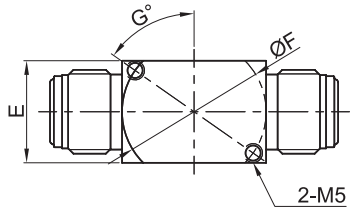
Male BVC



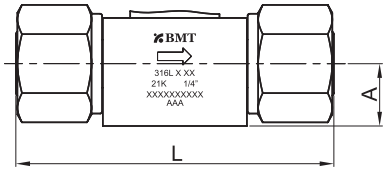
Handle Open



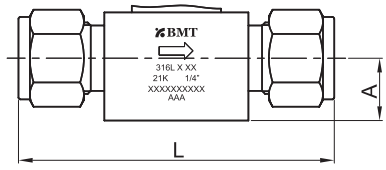
Handle Close



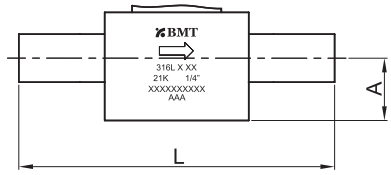
Bottom Mounting



Female BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)					
		L	H	A	E	F (Φ)	G
Male BVC	SMHPFDV1-VM4	57	71.4	11	28	25.4	45
	SMHPFDV1-VM8	76	83.2	16.5	27	38	55
Female BVC	SMHPFDV1-VF4	70.6	71.4	11	28	25.4	45
	SMHPFDV1-VF8	83	83.2	16.5	27	38	55
SUPERLOK Tube Fitting	SMHPFDV1-S4	63.7	71.4	11	28	25.4	45
	SMHPFDV1-S8	81.2	83.2	16.5	27	38	55
Tube Butt Weld	SMHPFDV1-TW4	44.2	71.4	11	28	25.4	45
	SMHPFDV1-TW8	68	83.2	16.5	27	38	55

NOTE:
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Ordering Information

High Pressure Manual Diaphragm Valves (High Flow Type)
*Additional configurations available upon request.

A		HPFDV1	-	B	C	-	D	-	E
SM		HPFDV1	-	VM	4	-	PA	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female

C Connection Size

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm

D Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	Polyimide

E Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
AP	AP

Part Number Examples

	DMHPFDV1-VF8		SMHPFDV1-VM4-PA-P	
Material	**DM**	316L Stainless Steel VAR	**SM**	316L Stainless Steel
Series	**HPFDV1**	HPFDV1 series	**HPFDV1**	HPFDV1 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**VF**	BVC Female	**VM**	BVC Male
Connection Size	**8**	1/2"	**4**	1/4"
Seat Material		PCTFE *(standard)*	**PA**	PFA
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
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·Unless otherwise specified, all dimensions are in millimeters.

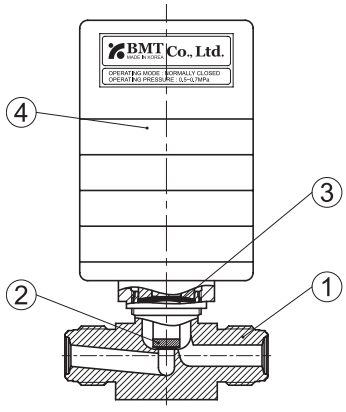
HPFPDV1 Diaphragm Valves

High Pressure Pneumatic Diaphragm Valves (High Flow Type) - N.C

Specifications

Size	1/2"
Cv Value	0.5
Orifice Size	6 mm
Max. Working Pressure (Positive Pressure / Back Pressure)	210 bar (3,045 psig)
Operating Pressure	0.5 ~ 0.7 Mpa
Max. Working Temperature	PCTFE: -10 ~ 40℃
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/sec
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/sec
Particle Inspection (EP Only)	No Count
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm

Material



No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PI
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminium

NOTE:
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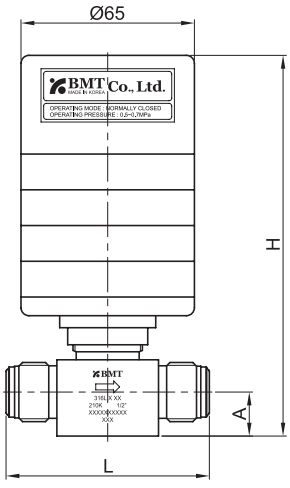
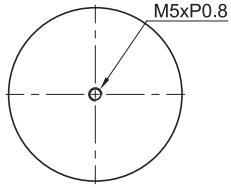
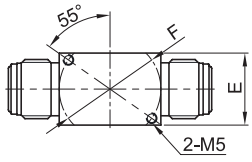
·Unless otherwise specified, all dimensions are in millimeters.

Dimensions

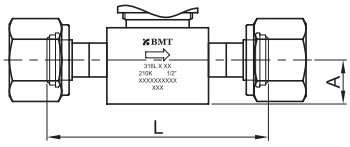




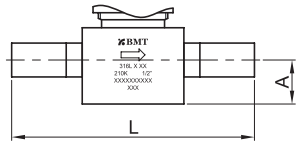
Top View



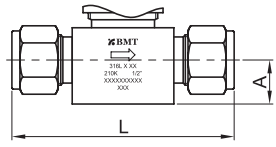
Bottom Mounting



Female BVC



Tube Butt Weld



SUPERLOK Tube Fitting

End Connection	Part No.	Dimensions (mm)				
		L	H	A	E	F
Male BVC	SMHPFPDV1C-VM8	76	142	16.5	27	38
Female BVC	SMHPFPDV1C-VF8	83	142	16.5	27	38
SUPERLOK Tube Fitting	SMHPFPDV1C-S8	81	142	16.5	27	38
Tube Butt Weld	SMHPFPDV1C-TW8	91	142	16.5	27	38

NOTE:
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·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

High Pressure Pneumatic Diaphragm Valves (High Flow Type) - N.C
*Additional configurations available upon request.

A		B		C	D		E
DM	HPFPDV1	C	-	VM	8	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Operation Method

C	Normally Closed
O	Normally Open

C Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female

D Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
8	1/2 in.	12.7 mm	1.24 mm

E Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

Part Number Examples

	DMHPFPDV1C-VM8-P		SMHPFPDV1C-VF8-P	
Material	**DM**	316L Stainless Steel VAR	**SM**	316L Stainless Steel
Series	**HPFPDV1**	HPFPDV1 series	**HPFPDV1**	HPFPDV1 series
Operation Method	**C**	Normally Closed	**C**	Normally Closed
Connection Type	**VM**	BVC Male	**VF**	BVC Female
Connection Size	**8**	1/2”	**8**	1/2”
Seat Material		PCTFE *(standard)*		PCTFE *(standard)*
Grade	**P**	EP grade	**P**	EP grade

NOTE:
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·Unless otherwise specified, all dimensions are in millimeters.

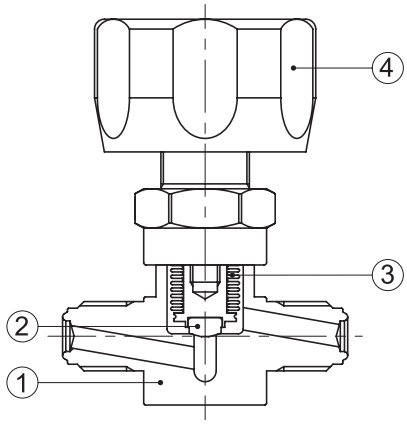
BV1 Bellows Valves

Low Pressure Manual Bellows Valves (Standard Type)

Specifications

Size	1/4"	3/8", 1/2"	3/4"
Cv Value	0.36	1.1	2.6
Orifice Size	4.5 mm	8.0 mm	12 mm
Max. Working Pressure	10 bar (145 psig)		
Working Temperature	PCTFE: -10 ~ 80°C (14 ~ 176°F) / PI: -10 ~ 150°C (14 ~ 302°F)		
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤4x10^{-9} atm.cc/s		
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤4x10^{-9} atm.cc/s		
Particle Inspection (EP Only) (0.1μm and Larger)	No Count		
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm		

Material



No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PI
3	Bellows	316L Stainless Steel
4	Handle	1/4", 1/2": ABS / 3/4": Aluminium

NOTE:
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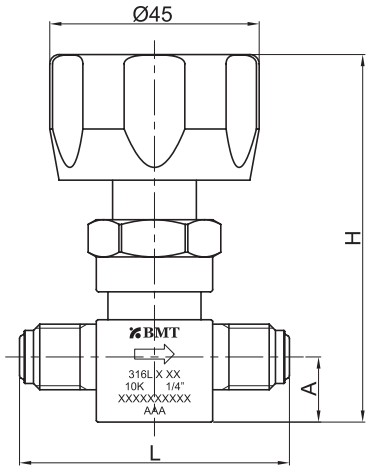
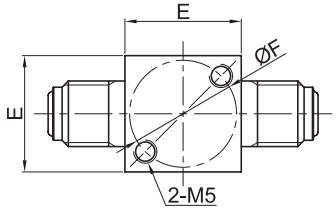
·Unless otherwise specified, all dimensions are in millimeters.

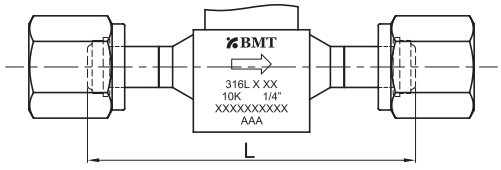
Dimensions



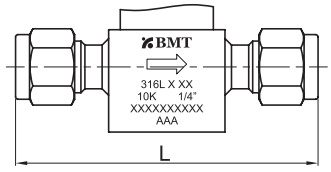
Male BVC



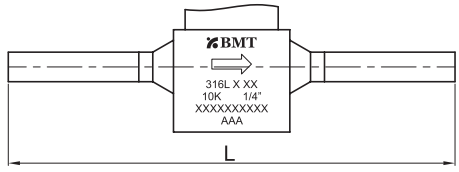
Bottom Mounting



Female BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)				
		L	H	A	E	F (Φ)
Male BVC	SMBV1-VM4	58	79	14	25	23
	SMBV1-VM6	60	85			
	SMBV1-VM8	60	85			
Female BVC	SMBV1-VF4	70.5	79	14	25	23
	SMBV1-VF6	90	85			
	SMBV1-VF8	90	85			
SUPERLOK Tube Fitting	SMBV1-S4	65	79	14	25	23
	SMBV1-S6	78	85			
	SMBV1-S8	83.4	85			
Tube Butt Weld	SMBV1-TW4	150	79	14	25	23
	SMBV1-TW6	150	85			
	SMBV1-TW8	150	85			

NOTE:
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·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Manual Bellows Valves (Standard Type)
*Additional configurations available upon request.

A		BV1	-	B	C	-	D	-	E
SM		BV1	-	VM	4	-	PI	-	AP

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female

C Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
6	3/8 in.	9.53 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm

D Seat Material

PCTFE is standard. No part designator needed.

PI	Polyimide

E Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

Part Number Examples

	4SSBV1-VM4-AP		SMBV1-S8-P	
Material	**4SS**	304 Stainless Steel	**SM**	316L Stainless Steel
Series	**BV1**	BV1 series	**BV1**	BV1 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**VM**	BVC Male	**S**	Lok
Connection Size	**4**	1/4"	**8**	1/2"
Seat Material		PCTFE *(standard)*		PCTFE *(standard)*
Grade	**AP**	AP grade	**P**	EP grade

NOTE:
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·Unless otherwise specified, all dimensions are in millimeters.

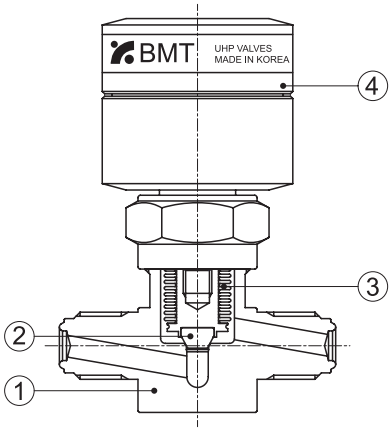
PBV1 Bellows Valves

Low Pressure Pneumatic Bellows Valves (Standard Type) - N.O/N.C

Specifications

Size	1/4"	3/8", 1/2"
Cv Value	0.36	1.1
Orifice Size	4.5 mm	8.0 mm
Max. Working Pressure	10 bar (145 psig)	
Operating Pressure	0.4~0.6 MPa (58~87 psig)	
Working Temperature	PCTFE: -10 ~ 80℃ (14 ~ 176℉) / PI: -10 ~ 150℃ (14 ~ 302℉)	
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤4x10^{-9} atm.cc/s	
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤4x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count	
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm	

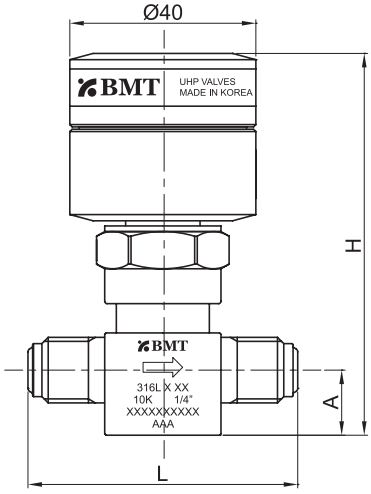
Material



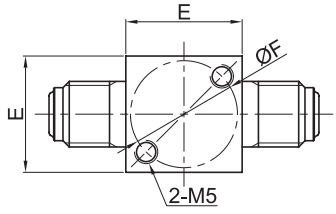
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PCTFE *(standard)* / PI
3	Bellows	316L Stainless Steel
4	Actuator	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

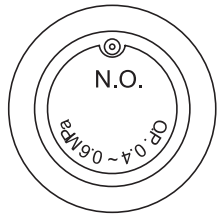
Dimensions



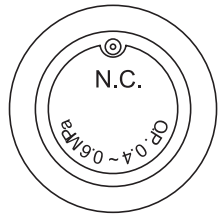
Male BVC



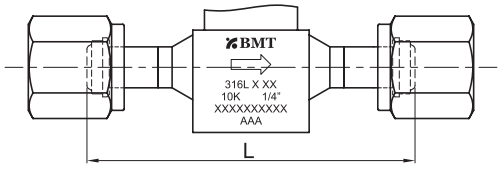
Bottom Mounting



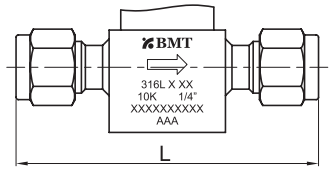
Normal Open



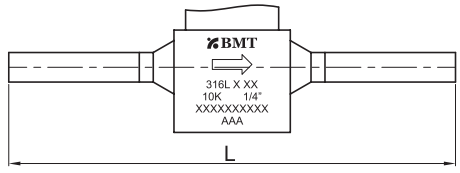
Normal Close



Female BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)				
		L	H	A	E	F (Φ)
Male BVC	SMPBV1C-VM4	58	82.7	14	25	23
	SMPBV1C-VM6	60	86.6			
	SMPBV1C-VM8	60	86.6			
Female BVC	SMPBV1C-VF4	70.5	82.7	14	25	23
	SMPBV1C-VF6	90	86.6			
	SMPBV1C-VF8	90	86.6			
SUPERLOK Tube Fitting	SMPBV1C-S4	65	82.7	14	25	23
	SMPBV1C-S6	78	86.6			
	SMPBV1C-S8	83.4	86.6			
Tube Butt Weld	SMPBV1C-TW4	150	82.7	14	25	23
	SMPBV1C-TW6	150	86.6			
	SMPBV1C-TW8	150	86.6			

NOTE:
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·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Pneumatic Bellows Valves (Standard Type) - N.O/N.C
*Additional configurations available upon request.

A		B		C	D		E		F
	PBV1		-			-		-	
SM	PBV1	C	-	VM	4	-	PI	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Operation Method

C	Normally Closed
O	Normally Open

C Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female

D Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
6	3/8 in.	9.53 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm

E Seat Material

PCTFE is standard. No part designator needed.

PI	Polyimide

F Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

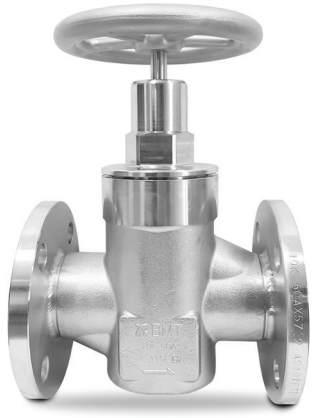
Part Number Examples

	SMPBV1C-VM4-PI-P			4SSPBV1O-TW6-AP	
Material	**SM**	316L Stainless Steel		**4SS**	304 Stainless Steel
Series	**PBV1**	PBV1 series		**PBV1**	PBV1 series
Operation Method	**C**	Normally Closed		**O**	Normally Open
Connection Type	**VM**	BVC Male		**TW**	Butt Weld
Connection Size	**4**	1/4"		**6**	3/8"
Seat Material	**PI**	Polyimide			PCTFE *(standard)*
Grade	**P**	EP grade		**AP**	AP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

BV2 Bellows Valves

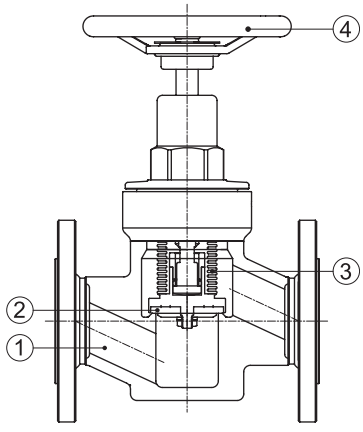
Low Pressure Manual Bellows Valves (Forged Type)



Specifications

Size	15A	1"	20A	25A	32A	40A	2"	50A
Cv Value	2.9	4.1	4.1	6.9	16	16	16	21
Orifice Size	15 mm	19 mm	19 mm	25 mm	40 mm	40 mm	40 mm	45 mm
Max. Working Pressure	10 bar (145 psig)							
Working Temperature	-10 ~ 80℃ (14 ~ 176℉)							
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-5} atm.cc/s							
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-5} atm.cc/s							
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count							
Inner Surface Roughness	AP: Ra ≤ 40 μin, Ra ≤ 1 μm (100A이하) / Ra ≤ 100 μin, Ra ≤ 2.54 μm (125A이상) MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm							

Material



No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PTFE *(standard)*
3	Bellows	316L Stainless Steel
4	Handle	15A~25A: Aluminium / 32A~50A : 304 Stainless Steel

NOTE:
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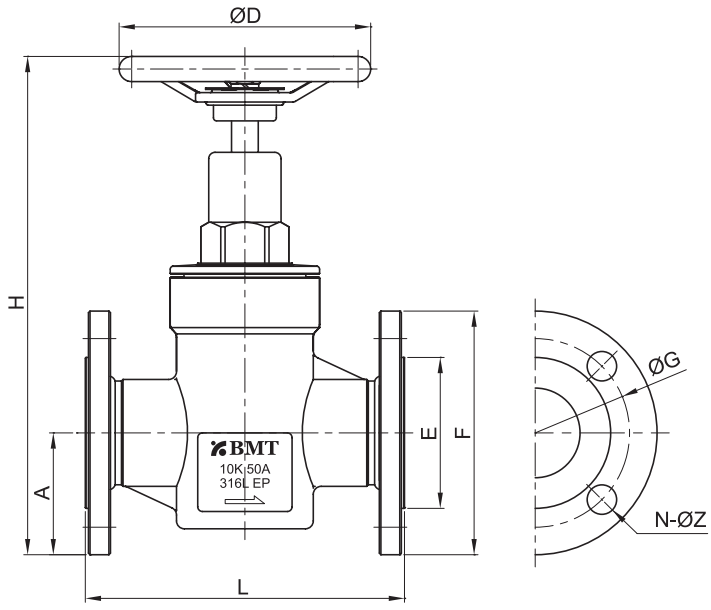
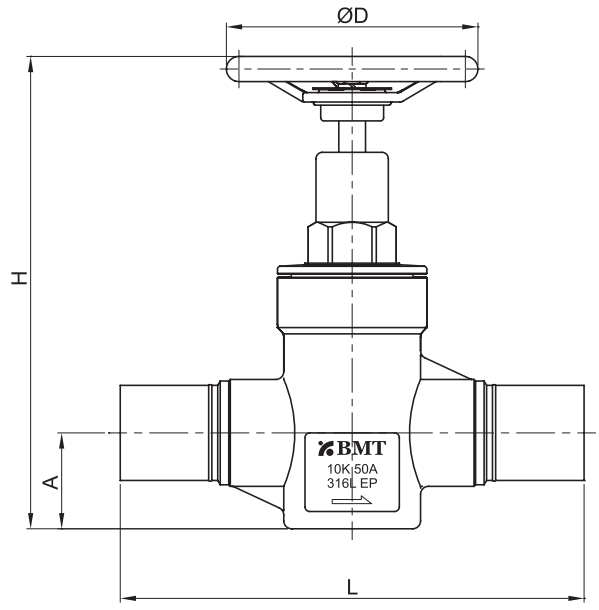
·Unless otherwise specified, all dimensions are in millimeters.

Dimensions



Flange



Butt Weld

Flange									
Part No.	L	A	H	D	E	F	G	N	Z
SMBV2-FE15A	108	47.5	151	65	51	95	70	4	15
SMBV2-FE16	117	50	159.5	65	56	100	75	4	15
SMBV2-FE20A	117	50	159.5	65	56	100	75	4	15
SMBV2-FE25A	127	62.5	184	65	67	125	90	4	19
SMBV2-FE32A	165	67.5	256	160	76	135	100	4	19
SMBV2-FE40A	165	70	258	160	81	140	105	4	19
SMBV2-FE32	165	70	258	160	81	140	105	4	19
SMBV2-FE50A	203	77.5	306	160	96	155	120	4	19

Butt Weld				
Part No.	L	A	H	D
SMBV2-TW15A	190	24	127.5	65
SMBV2-TW16	200	28	137.5	65
SMBV2-TW20A	200	28	137.5	65
SMBV2-TW25A	210	33	154.5	65
SMBV2-TW32A	270	51	240	160
SMBV2-TW40A	270	51	240	160
SMBV2-TW32	270	51	240	160
SMBV2-TW50A	295	61	290	160

NOTE:
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·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Manual Bellows Valves (Forged Type)
*Additional configurations available upon request.

A		BV2	-	B	C	-	D
SM		BV2	-	FE	32A	-	AP

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female
FE	Flange

D Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

C Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
16	1 in.	25.4 mm	1.65 mm
32	2 in.	50.8 mm	1.65 mm

JIS Pipe

Designator	Nominal Size	Outside Diameter	Schedule	Wall Thickness
15A	15A	21.7 mm	SCH 5S	1.65 mm
15AS			SCH 10S	2.10 mm
20A	20A	27.2 mm	SCH 5S	1.65 mm
20AS			SCH 10S	2.80 mm
25A	25A	34.0 mm	SCH 5S	1.65 mm
25AS			SCH 10S	2.80 mm
32A	32A	42.7 mm	SCH 5S	1.65 mm
32AS			SCH 10S	2.80 mm
40A	40A	48.6 mm	SCH 5S	1.65 mm
40AS			SCH 10S	2.80 mm
50A	50A	60.5 mm	SCH 5S	1.65 mm
50AS			SCH 10S	2.80 mm

Part Number Examples

	SMBV2-FE32A		4SSBV2-TW50A-AP	
Material	**SM**	316L Stainless Steel	**4SS**	304 Stainless Steel
Series	**BV2**	BV2 series	**BV2**	BV2 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**FE**	Flange	**TW**	Butt Weld
Connection Size	**32A**	32A	**50A**	SCH5S, 50A
Seat Material		PTFE *(standard)*		PTFE *(standard)*
Grade		BA grade *(standard)*	**AP**	AP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

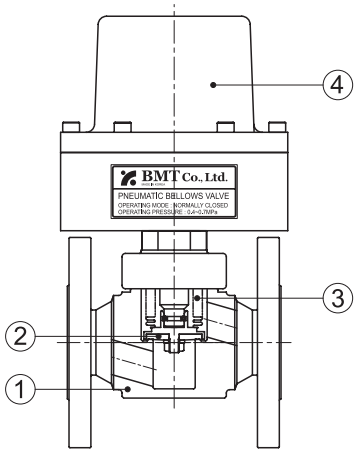
PBV2 Bellows Valves

Low Pressure Pneumatic Bellows Valves (Forged Type)

Specifications

Size	3/4"	15A	1"	20A	25A	32A	40A	2"	50A
Cv Value	2.9	2.9	4.1	4.1	6.9	16	16	16	21
Orifice Size	15 mm	15 mm	19 mm	19 mm	25 mm	40 mm	40 mm	40 mm	45 mm
Max. Working Pressure	10 bar (145 psig)								
Operating Pressure	0.4 ~ 0.7 MPa (58 ~ 101 psig)								
Working Temperature	-10 ~ 80℃ (14 ~ 176℉)								
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-5} atm.cc/s								
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-5} atm.cc/s								
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count								
Inner Surface Roughness	AP: Ra ≤ 40 μin, Ra ≤ 1 μm (100A이하) / Ra ≤ 100 μin, Ra ≤ 2.54 μm (125A이상) MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm								

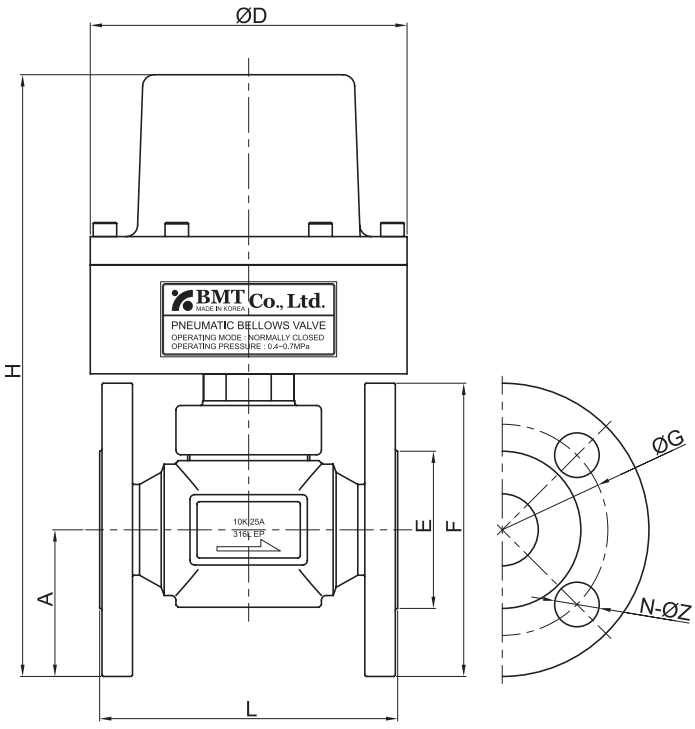
Material



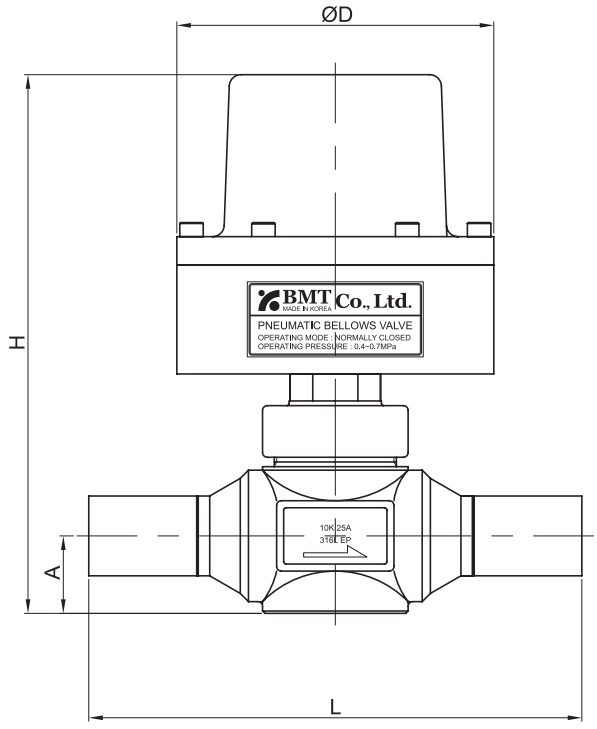
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PTFE *(standard)*
3	Bellows	316L Stainless Steel
4	Actuator	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Dimensions



Flange



Butt Weld

Flange									
Part No.	L	A	H	D	E	F	G	N	Z
SMPBV2C-FE15A	108	47.5	228	110	51	95	70	4	15
SMPBV2C-FE16	117	50	237	135	56	100	75	4	15
SMPBV2C-FE20A	117	50	237	135	56	100	75	4	15
SMPBV2C-FE25A	127	62.5	258.5	135	67	125	90	4	19
SMPBV2C-FE32A	165	67.5	376.5	188	76	135	100	4	19
SMPBV2C-FE40A	165	70	379	188	81	140	105	4	19
SMPBV2C-FE32	165	70	379	188	81	140	105	4	19
SMPBV2C-FE50A	203	77.5	427.5	188	96	155	120	4	19

Butt Weld				
Part No.	L	A	H	D
SMPBV2C-TW15A	190	24	204	110
SMPBV2C-TW16	200	28	215	135
SMPBV2C-TW20A	200	28	215	135
SMPBV2C-TW25A	210	33	229	135
SMPBV2C-TW32A	270	51	360	188
SMPBV2C-TW40A	270	51	360	188
SMPBV2C-TW32	270	51	360	188
SMPBV2C-TW50A	295	57	407	188

NOTE:
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·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Pneumatic Bellows Valves (Forged Type) - N.C
*Additional configurations available upon request.

A		PBV2		B		C		D		E
SM		PBV2		C	-	FE		25A	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Operation Method

C	Normally Closed
O	Normally Open

C Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female
FE	Flange

E Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

D Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
16	1 in.	25.4 mm	1.65 mm
32	2 in.	50.8 mm	1.65 mm

JIS Pipe

Designator	Nominal Size	Outside Diameter	Schedule	Wall Thickness
15A	15A	21.7 mm	SCH 5S	1.65 mm
15AS			SCH 10S	2.10 mm
20A	20A	27.2 mm	SCH 5S	1.65 mm
20AS			SCH 10S	2.80 mm
25A	25A	34.0 mm	SCH 5S	1.65 mm
25AS			SCH 10S	2.80 mm
32A	32A	42.7 mm	SCH 5S	1.65 mm
32AS			SCH 10S	2.80 mm
40A	40A	48.6 mm	SCH 5S	1.65 mm
40AS			SCH 10S	2.80 mm
50A	50A	60.5 mm	SCH 5S	1.65 mm
50AS			SCH 10S	2.80 mm

Part Number Examples

	SMPBV2C-FE25A-P		4SSPBV2C-TW32A-AP	
Material	**SM**	316L Stainless Steel	**4SS**	304 Stainless Steel
Series	**PBV2**	PBV2 series	**PBV2**	PBV2 series
Operation Method	**C**	Normally Closed	**C**	Normally Closed
Connection Type	**FE**	Flange	**TW**	Butt Weld
Connection Size	**25A**	25A	**32A**	SCH5S, 32A
Seat Material		PTFE *(standard)*		PTFE *(standard)*
Grade	**P**	EP grade	**AP**	AP grade

NOTE:
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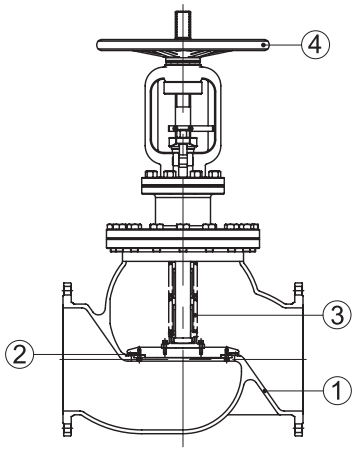
BV3 Bellows Valves

Low Pressure Manual Bellows Valves (Casted Type)

Specifications

Size	65A	80A	100A	125A	150A	200A	250A	300A	350A	400A	450A	500A	550A
Cv Value	81	132	200	302	434	772	1200	1600	2000	2650	3100	3400	3400
Orifice Size	65	80	100	124	148	200	250	300	350	400	440	490	490
Max. Working Pressure	10 bar (145 psig)												
Working Temperature	-10 ~ 80°C (14 ~ 176°F)												
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-5} atm.cc/s												
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-5} atm.cc/s												
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count												
Inner Surface Roughness	AP: Ra ≤ 40 μin, Ra ≤ 1 μm (100A이하) / Ra ≤ 100 μin, Ra ≤ 2.54 μm (125A이상) MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm												

Material



No.	Component	Material
1	Body	SCS 13 SCS 16
2	Seat	PTFE *(standard)*
3	Bellows	316L Stainless Steel
4	Handle	SCS 13

NOTE:
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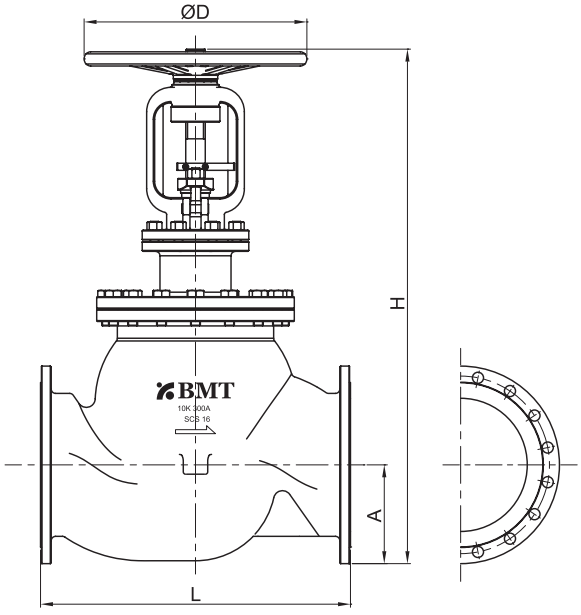
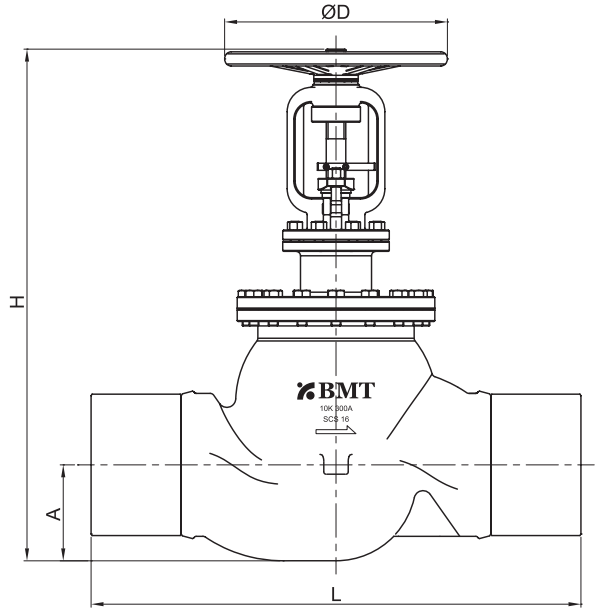
·Unless otherwise specified, all dimensions are in millimeters.

Dimensions



Flange



Butt weld

Flange				
Part No.	L	A	H	D
13BV3-FE65A	216	87.5	359.5	160
13BV3-FE80A	241	92.5	375.5	160
13BV3-FE100A	292	105.0	456	200
13BV3-FE125A	356	125.0	589.5	300
13BV3-FE150A	406	140.0	605	300
13BV3-FE200A	495	165.0	796	350
13BV3-FE250A	622	200.0	1034.5	450
13BV3-FE300A	698	222.5	1159	500
13BV3-FE350A	787	245.0	1189	710
13BV3-FE400A	914	280.0	1230	710
13BV3-FE450A	1040	310.0	1461	800
13BV3-FE500A	1040	337.5	1537.5	800
13BV3-FE550A	1040	382.5	1572.5	800

Butt Weld				
Part No.	L	A	H	D
13BV3-TW65A	416	68	340	160
13BV3-TW80A	441	80	363	160
13BV3-TW100A	492	95	446	200
13BV3-TW125A	556	111	575.5	300
13BV3-TW150A	606	126	591	300
13BV3-TW200A	795	157	788	350
13BV3-TW250A	1022	190	1024.5	450
13BV3-TW300A	1100	216	1152.5	500
13BV3-TW350A	1187	241	1185	710
13BV3-TW400A	1314	268	1218	710
13BV3-TW450A	1440	305	1454	800

NOTE:
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·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

Low Pressure Manual Bellows Valves (Casted Type)
*Additional configurations available upon request.

A		BV3	-	B	C	-	D
13		BV3	-	FE	500A	-	AP

Standard feature
Optional

A Materials

13	SCS 13
16	SCS 16

B Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female
FE	Flange

D Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

C Connection Size

JIS Pipe

Designator	Nominal Size	Outside Diameter	Schedule	Wall Thickness
65A	65A	76.3 mm	SCH 5S	2.10 mm
65AS			SCH 10S	3.00 mm
80A	80A	89.1 mm	SCH 5S	2.10 mm
80AS			SCH 10S	3.00 mm
100A	100A	114.3 mm	SCH 5S	2.10 mm
100AS			SCH 10S	3.00 mm
125A	125A	139.8 mm	SCH 5S	2.80 mm
125AS			SCH 10S	3.40 mm
150A	150A	165.2 mm	SCH 5S	2.80 mm
150AS			SCH 10S	3.40 mm
200A	200A	216.3 mm	SCH 5S	2.80 mm
200AS			SCH 10S	4.00 mm
250A	250A	267.4 mm	SCH 5S	3.40 mm
250AS			SCH 10S	4.00 mm
300A	300A	318.5 mm	SCH 5S	4.00 mm
300AS			SCH 10S	4.50 mm
350A	350A	355.6 mm	SCH 5S	4.00 mm
350AS			SCH 10S	4.80 mm
400A	400A	406.4 mm	SCH 5S	4.20 mm
400AS			SCH 10S	4.80 mm
450A	450A	457.2 mm	SCH 5S	4.20 mm
450AS			SCH 10S	5.50 mm

Part Number Examples

	13BV3-FE500A-AP		16BV3-TW400A-P	
Material	**13**	SCS13	**16**	SCS16
Series	**BV3**	BV3 series	**BV3**	BV3 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**FE**	Flange	**TW**	Butt Weld
Connection Size	**500A**	500A	**400A**	SCH5S, 400A
Seat Material		PTFE *(standard)*		PTFE *(standard)*
Grade	**AP**	AP grade	**P**	EP grade

NOTE:
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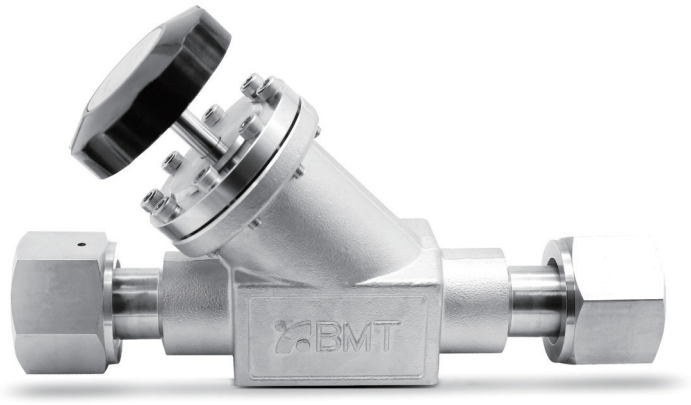
·Unless otherwise specified, all dimensions are in millimeters.

YMBV2 Bellows Valves

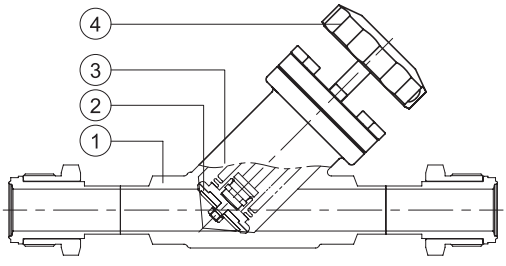
Medium Pressure Manual Bellows Valves (Y Type)



Specifications

Size	1"
Cv Value	20.0
Orifice Size	19 mm
Max. Working Pressure	20 bar (290 psig)
Working Temperature	-10 ~ 80°C (14 ~ 176°F)
Internal Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Inboard Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count
Inner Surface Roughness	AP: Ra ≤ 40 µin, Ra ≤ 1 µm (100A이하) / Ra ≤ 100 µin, Ra ≤ 2.54 µm (125A이상) MP: Ra ≤ 20 µin, Ry ≤ 6 µm BA: Ra ≤ 10 µin, Ry ≤ 3 µm EP: Ra ≤ 5 µin, Ry ≤ 0.7 µm

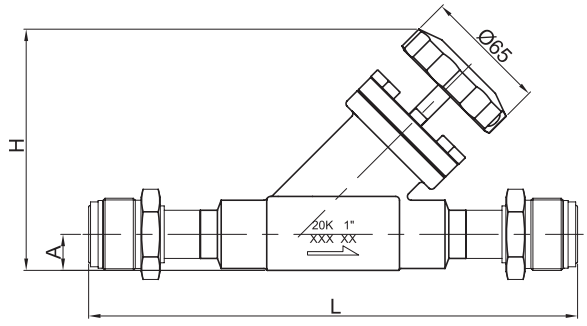
Material



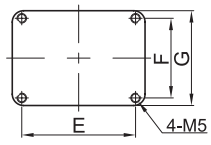
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR 304 Stainless Steel
2	Seat	PTFE *(standard)*
3	Bellows	316L Stainless Steel
4	Handle	Aluminium

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

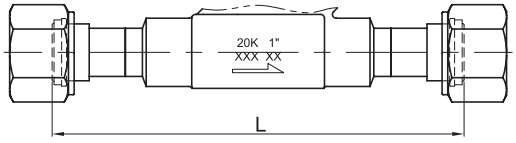
Dimensions



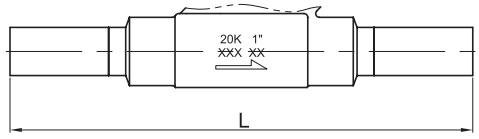
Male BVC



Bottom Mounting



Female BVC



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)					
		L	H	A	E	F	G
Male BVC	SMYMBV2-VM16	257.6	124	20	60.0	42	50
Female BVC	SMYMBV2-VF16	217.0	124	20	60.0	42	50
Tube Butt Weld	SMYMBV2-TW16	244.0	124	20	60.0	42	50

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

A		YMBV2	-	B	C	-	D	-	E
SM		YMBV2		VM	16	-		-	P

Standard feature
Optional

A	Materials	
	SM	316L Stainless Steel
	DM	316L Stainless Steel VAR
	4SS	304 Stainless Steel

B	Connection Type	
	VM	Male BVC (BMT Vacuum Coupling)
	VF	Female BVC (BMT Vacuum Coupling)
	TW	Butt Weld

C	Connection Size			
	ASTM Tube			
	Designator	Nominal Size	Outside Diameter	Wall Thickness
	16	1 in.	25.4 mm	1.65 mm

D	Seat Material	
	PTFE is standard. No part designator needed.	
	PC	PCTFE

E	Wetted Surface Grade	
	BA is standard. No part designator needed.	
	P	EP
	AP	AP
	MP	MP

Part Number Examples

	SMYMBV2-VM16		SMYMBV2-TW16-P	
Material	**SM**	316L Stainless Steel	**SM**	316L Stainless Steel
Series	**YMBV2**	YMBV2 series	**YMBV2**	YMBV2 series
Connection Type	**VM**	BVC Male	**TW**	Butt Weld
Connection Size	**16**	1"	**16**	1"
Seat Material		PTFE *(standard)*		PTFE *(standard)*
Grade		BA grade *(standard)*	**P**	EP grade

NOTE:
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·Unless otherwise specified, all dimensions are in millimeters.

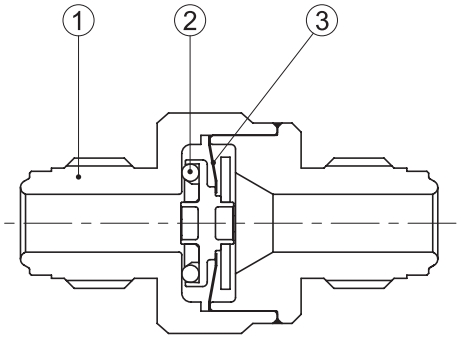
CV1 Check Valves

Specifications

Size	1/4"	3/8", 1/2"
Cv Value	0.55	0.7
Max. Working Pressure	206 bar (3000 psig)	
Nominal Reseal Pressure	0.276 bar (4 psig)	
Nominal Cracking Pressure	0.138 bar (2 psig)	
Maximum Pressure Drop	10 bar (145 psi)	
Working Temp.	-10 ~ 80℃ (14 ~ 176℉)	
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1㎛ and Larger)	No count	
Inner Surface Roughness	MP: Ra ≤ 20 μin, Ry ≤ 6 μm BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm	

※ BMT CV1 Series Check Valves are designed for directional flow control only. The CV1 Series Check Valve should never be used as safety relief devices.

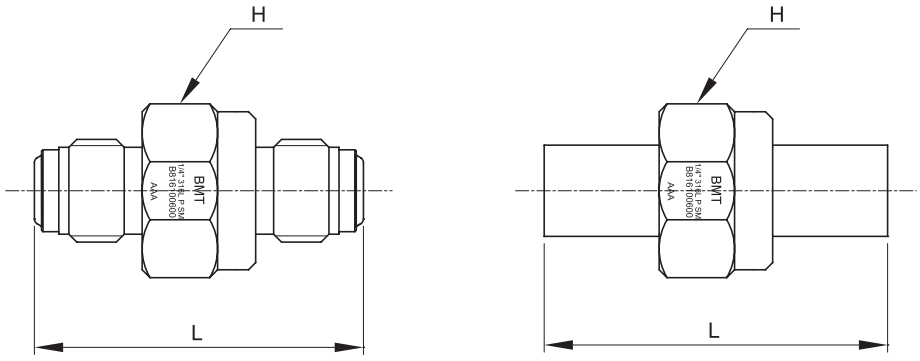
Material



No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Seal Ring	Viton *(standard)* / Neoprene
3	Spring	HASTELLOY C-22

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Dimensions



Male BVC

Tube Butt Weld

End Connection	Part No.	L	H (Hex.)
Male BVC	SMCV1-VM4	45.8	22
	SMCV1-VM8	52.3	27
Tube Butt Weld	SMCV1-TW4	47.8	22
	SMCV1-TW8	54.3	27

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

*Additional configurations available upon request.

A		CV1	-	B	C	-	D	-	E
SM		CV1	-	TW	8	-	NE	-	P

Standard feature
Optional

A Materials

SM	316L Stainless Steel
DM	316L Stainless Steel VAR
4SS	304 Stainless Steel

B Connection Type

VM	Male BVC (BMT Vacuum Coupling)
VF	Female BVC (BMT Vacuum Coupling)
S	SUPERLOK Tube Fitting
TW	Butt Weld
VMXVF	In Male-Out Female

C Connection Size

ASTM Tube

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm

D Seat Material

Viton is Standard. No part designator needed

NE	Neoprene

E Wetted Surface Grade

BA is standard. No part designator needed.

P	EP
MP	MP
AP	AP

Part Number Examples

	SMCV1-VM4-P		DMCV1-TW8-NE	
Material	**SM**	316L Stainless Steel	**DM**	316L Stainless Steel VAR
Series	**CV1**	CV1 series	**CV1**	CV1 series
Operation Method		*Omit for Manual Valves*		*Omit for Manual Valves*
Connection Type	**VM**	BVC Male	**TW**	Butt Weld
Connection Size	**4**	1/4"	**8**	1/2"
Seal Material		Viton *(standard)*	**NE**	Neoprene
Grade	**P**	EP grade		BA grade *(standard)*

NOTE:
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·Unless otherwise specified, all dimensions are in millimeters.

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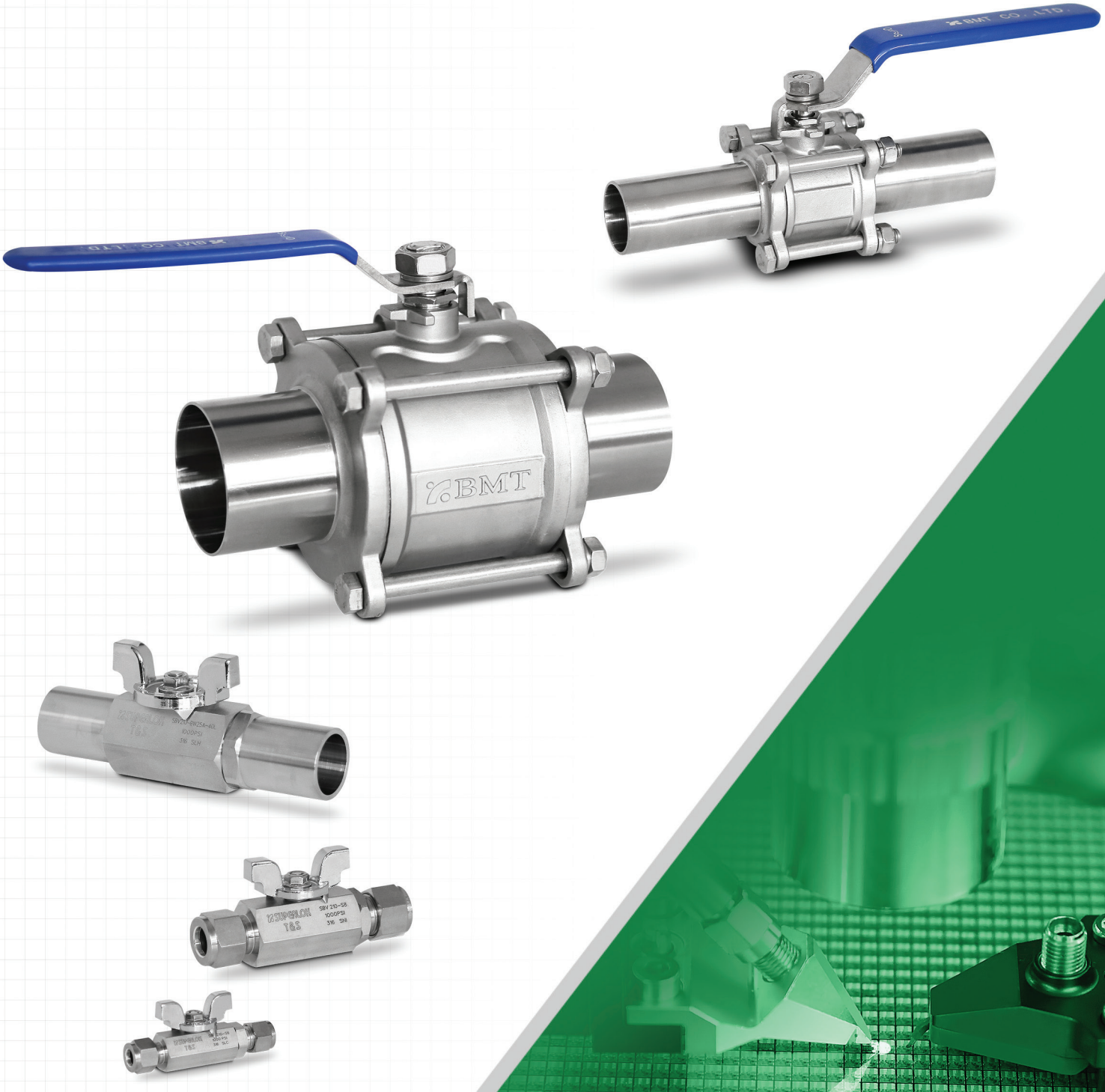
CLEAN VALVES



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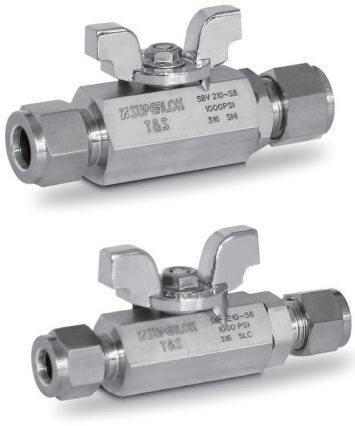
SBV210 Clean Valves

Two-Piece Ball Valves (Hex. Body)



- Compact design
- Butterfly and lever handles available
- 1/4 to 1 in. SUPERLOK tube fitting or buttweld end connections
- 100% Helium leak tested
- AP, BA, EP grades available

Specifications

Size	1/4"	3/8"	1/2"	3/4"	1"
Cv Value	1.25	2.5	9.5	12.5	16
Max. Working Pressure	69 bar (1000 psig)				
Working Temperature	-10 ~ 80°C (14 ~ 176°F)				
Internal Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-5} atm.cc/s				
Inboard Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-5} atm.cc/s				

Ordering Information

*Additional configurations available upon request.

SBV210	-	A	B	-	C	-	D	-	E
SBV210	-	S	8	-	BH	-	36L	-	AP

Standard feature
Optional

A Connection Type

S	SUPERLOK Tube Fittings
TW	Butt Weld

B Connection Size

Tube

Designator	Nominal Size
4	1/4 in.
6	3/8 in.
8	1/2 in.
12	3/4 in.
16	1 in.

C Handle

Butterfly Handle (Silver) is standard. No part designator needed.

BK	Butterfly Handle (Black)
BL	Butterfly Handle (Blue)
RD	Butterfly Handle (Red)
BH	Lever Handle (Blue)

D Material

36L	316L Stainless Steel
304	304 Stainless Steel

E Wetted Surface Grade

P	EP Grade
BA	BA Grade
AP	AP Grade

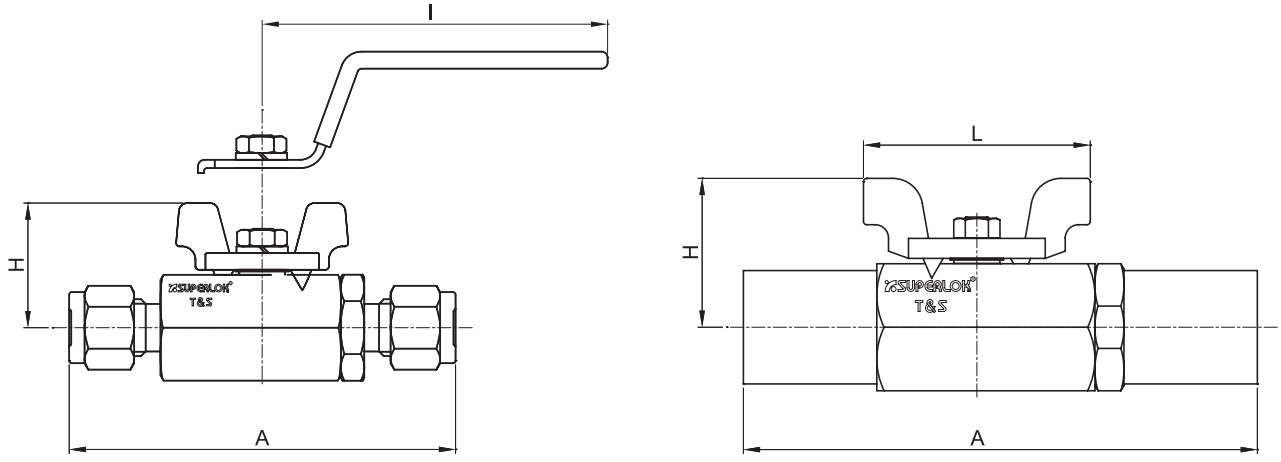
NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

SBV210 Clean Valves

Part Number Examples

	SBV210-TW4-304-AP		SBV210-S16-BH-36L-BA	
Product Type	SBV210	SBV 210 Series	SBV210	SBV 210 Series
Connection Type	TW	Butt Weld	S	SUPERLOK
Connection Size	4	1/4"	16	1"
Handle		Butterfly (Silver) (*standard*)	BH	Lever (Blue)
Material	304	304 Stainless Steel	36L	316L Stainless Steel
Wetted Surface Grade	AP	AP grade	BA	BA grade

Dimensions

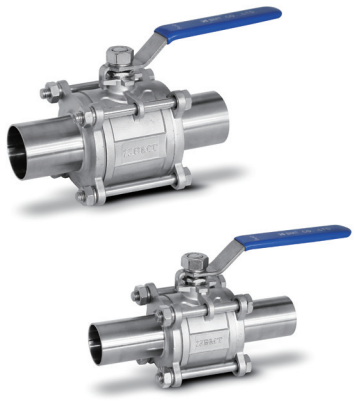


End Connection		Orifice	Dimensions			
Description	Designator		A	H	L	I
1/4" SUPERLOK	S4	5.0	79.8	23	30	60
1/4" Butt Weld	TW4		104.1			
3/8" SUPERLOK	S6	7.5	91.5	31	48	90
3/8" Butt Weld	TW6		111.6			
1/2" SUPERLOK	S8	9.0	101.4	34	50	90
1/2" Butt Weld	TW8		117.0			
3/4" SUPERLOK	S12	12.5	107.0	39	55	100
3/4" Butt Weld	TW12		181.1			
1" SUPERLOK	S16	16.0	131.0	45	68	100
1" Butt Weld	TW16		198.6			

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

BLV1 Clean Valves

Three-Piece Ball Valves



- High flow capacity
- High cycle-life performance
- 3-piece construction for ease of maintenance
- Butt weld end connections from 15A up to 100A
- 100% Helium leak tested
- AP, BA, EP grades available

Specifications

Size	15A	20A	25A	32A	40A	50A	65A	80A	100A
Cv Value	41	75	120	202	299	529	932	1448	2317
Max. Working Pressure	10 bar (145 psig)								
Working Temperature	-10~80°C (14~176°F)								
Internal Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-5} atm.cc/s								
Inboard Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-5} atm.cc/s								

Ordering Information

*Additional configurations available upon request.

A		BLV1	-	TW	B	-	C
SM		BLV1	-	TW	15A	-	P

A	Materials	
	SM	316L Stainless Steel
	4SS	304 Stainless Steel

B	Connection Size				
	JIS Pipe				
	Designator	Norminal Size	Outside Diameter	Schedule	Wall Thickness
	15A	15A	21.7 mm	SCH 5S	1.65
	15AS			SCH 10S	2.10
	20A	20A	27.2 mm	SCH 5S	1.65
	20AS			SCH 10S	2.10
	25A	25A	34.0 mm	SCH 5S	1.65
	25AS			SCH 10S	2.80
	32A	32A	42.7 mm	SCH 5S	1.65
	32AS			SCH 10S	2.80
	40A	40A	48.6 mm	SCH 5S	1.65
	40AS			SCH 10S	2.80

B	Connection Size (Continued)				
	JIS Pipe				
	Designator	Norminal Size	Outside Diameter	Schedule	Wall Thickness
	50A	50A	60.5 mm	SCH 5S	1.65
	50AS			SCH 10S	2.80
	65A	65A	76.3 mm	SCH 5S	2.10
	65AS			SCH 10S	3.00
	80A	80A	89.1 mm	SCH 5S	2.10
	80AS			SCH 10S	3.00
	100A	100A	114.3 mm	SCH 5S	2.10
	100AS			SCH 10S	3.00

C	Wetted Surface Grade	
	P	EP Grade
	BA	BA Grade
	AP	AP Grade

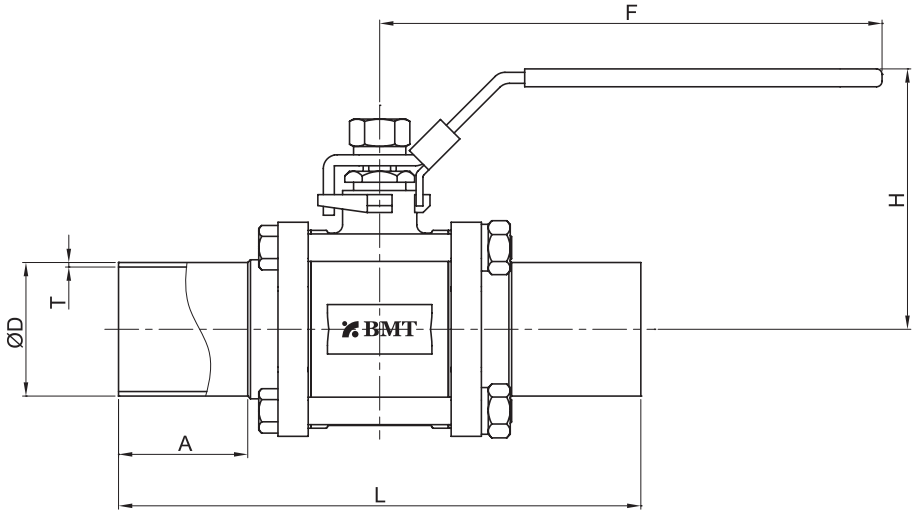
NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

BLV1 Clean Valves

Part Number Examples

	SMBLV1-TW15AS-P		4SSBLV1-TW40A-BA	
Materials	SM	316L Stainless Steel	4SS	304 Stainless Steel
Product Type	BLV1	BVL1 series	BLV1	BVL1 series
Connection Type	TW	Butt Weld	TW	Butt Weld
Connection Size	15AS	SCH 10S, 15A	40A	SCH 5S, 40A
Grade	P	EP grade	BA	BA grade

Dimensions



Size	End Connection	Dimensions						
		D	A	H	F	T		L
						SCH 5S	SCH 10S	
15A	15A Pipe	21.7	37	58	101	1.65	2.1	140
20A	20A Pipe	27.2	37	58	101	1.65	2.1	140
25A	25A Pipe	34.0	37	70	153	1.65	2.8	186
32A	32A Pipe	42.7	47	95	183	1.65	2.8	190
40A	40A Pipe	48.6	47	95	183	1.65	2.8	190
50A	50A Pipe	60.5	47	105	183	1.65	2.8	212
65A	65A Pipe	76.3	52	143	256	2.10	3.0	250
80A	80A Pipe	89.1	52	154	256	2.10	3.0	258
100A	100A Pipe	114.3	52	167	302	2.10	3.0	326

NOTE:
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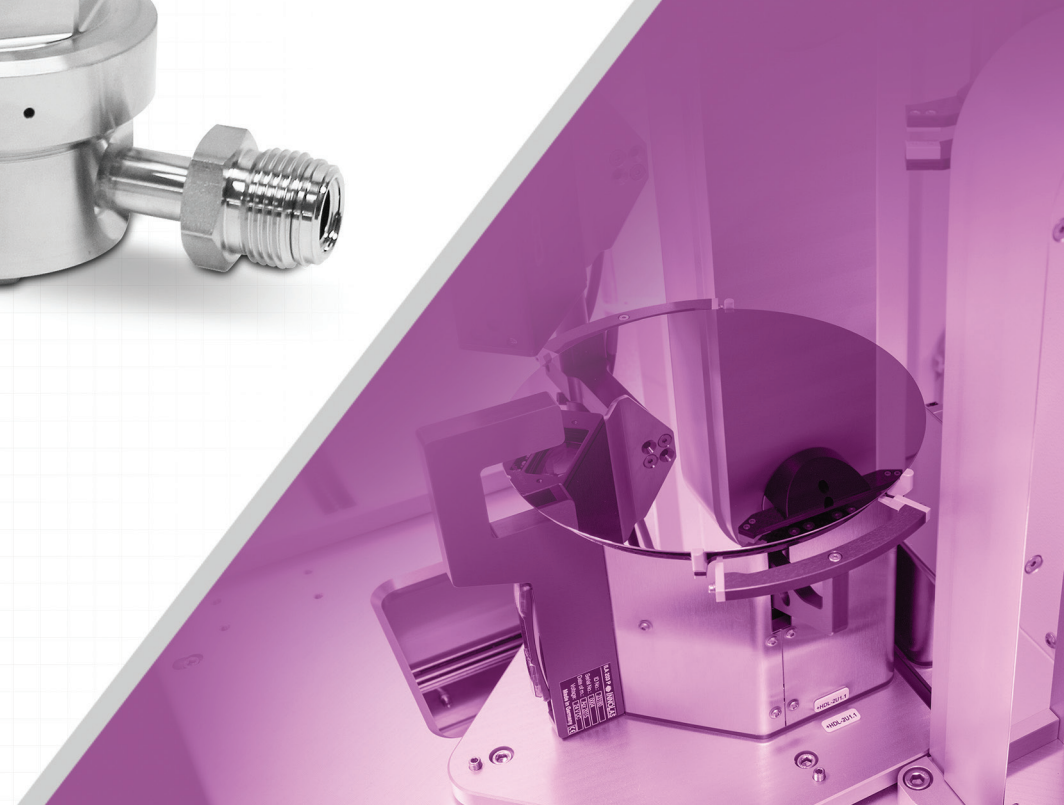
REGULATORS



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Regulators

Ordering Information

*Additional configurations available upon request.

A	B	-	C	D	-	E	F	-	G	H	I	-	J
SM	PR1	-	VF	4	-	06	03	-	06	C	03	-	P

Standard feature
Optional

A Materials

SM	316L Stainless steel
DM	316L Stainless steel VAR

B Type

PR1	Regulator PR1 series
PR2	Regulator PR2 series
PRL1	Regulator (Tied Type) PRL1 series
PRL2	Regulator (Tied Type) PRL2 series

C Connection Type

VM	Male BVC
VF	Female BVC
TW	Butt Weld
S	SUPERLOK Tube Fitting

D Connection Size

Designator	Nominal Size	Outside Diameter	Wall Thickness
4	1/4 in.	6.35 mm	1.00 mm
6	3/8 in.	9.53 mm	1.00 mm
8	1/2 in.	12.7 mm	1.24 mm

E Maximum Inlet Pressure

06	600 psig (41.4 bar)
10	1000 psig (69 bar)
35	3500 psig (241 bar)

F Outlet Pressure

03	30 psig (2.1 bar)
06	60 psig (41.4 bar)
10	100 psig (6.9 bar)
15	150 psig (10.3 bar)
25	250 psig (17.3 bar)

G Inlet Gauge

Leave **Blank**: regulator ***without*** gauge.

06	600 Psig
10	1000 psig
35	3500 psig
40	4000 psig

H Gauge Port

See ***Gauge Port Configuration*** for the figures on Page 182.

A	Figure A
B	Figure B
C	Figure C
D	Figure D

I Outlet Gauge

03	0 ~ 30 psig
06	0 ~ 60 psig
10	0 ~ 100 psig
16	0 ~ 160 psig
20	0 ~ 200 psig
30	0 ~ 300 psig

J Wetted Surface Grade

BA is standard. No part designator needed.

P	EP

Part Number Examples

	SMPRL1-VF4-0603-B03		DMPR1-VM4-1010-10C16-P	
Material	**SM**	316L Stainless Steel	**DM**	316L Stainless Steel VAR
Type	**PRL1**	PRL1 series	**PR1**	PR1 series
Connection Type	**VF**	BVC Female	**VM**	BVC Male
Connection Size	**4**	1/4"	**4**	1/4"
Max. Inlet Pressure	**06**	600 psig (41.4 bar)	**10**	1000 psig (69 bar)
Outlet Pressure	**03**	30 psig (2.1 bar)	**10**	100 psig (6.9 bar)
Inlet Gauge		W/O inlet gauge	**10**	1000 psig
Gauge Port*	**B**	Fig.B of ***Gauge Port Configurations***, Page 182	**C**	Fig.C of ***Gauge Port Configurations***, Page 182
Oulet Gauge	**03**	0 ~ 30psig	**16**	0 ~ 160 psig
Grade		BA grade *(standard)*	**P**	EP grade

PR1 Regulators

Standard Type

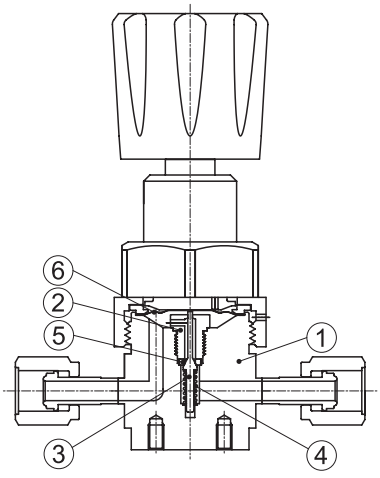
Part Number Examples

	DMPR1-VF4-0603-B03		DMPR1-VM4-1010-10C16-P	
Material	DM	316L Stainless Steel VAR	DM	316L Stainless Steel VAR
Type	PR1	PR1 series	PR1	PR1 series
Connection Type	VF	BVC Female	VM	BVC Male
Connection Size	4	1/4"	4	1/4"
Max. Inlet Pressure	06	600 psig (41.4 bar)	10	1000 psig (69 bar)
Outlet Pressure	03	30 psig (2.1 bar)	10	100 psig (6.9 bar)
Inlet Gauge		W/O inlet gauge	10	1000 psig
Gauge Port*	B	Fig.B of ***Gauge Port Configurations***, Page 182	C	Fig.C of ***Gauge Port Configurations***, Page 182
Outlet Gauge	03	0 ~ 30 psig	16	0 ~ 160 psig
Grade		BA grade *(standard)*	P	EP grade

Specifications

Size	1/4"
Cv Value	0.06 or 0.2
Surface finish (Ra)	10 µin or 5 µin
Max. rated inlet pressure	600, 1000, 3500 psig (41.4, 69, 241 bar)
Outlet pressure ranges	30, 60, 100, 150, 250 psig (2.1, 4.1, 6.9, 10.3, 17.3 bar)
Design proof pressure	150% of Maximum rated pressure
Max. Working Temperature	PCTFE: -26 ~ 80°C (-15 ~ 176°F) / PFA, PI: -26 ~ 150°C (-15 ~ 302°F)
Inboard Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Particle Inspection (EP Only) (0.1µm and Larger)	No count

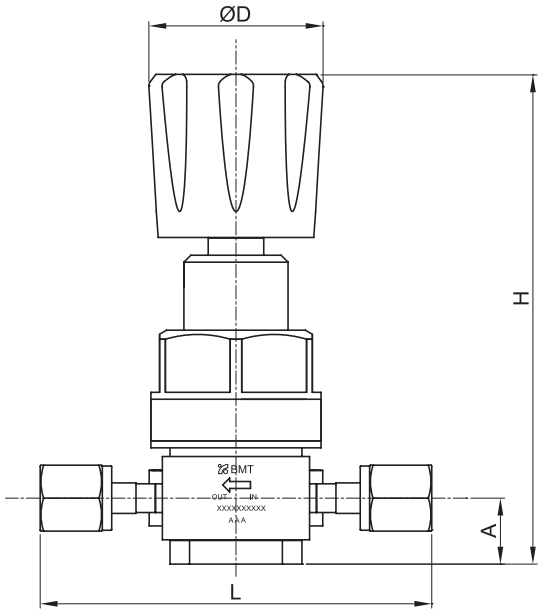
Material



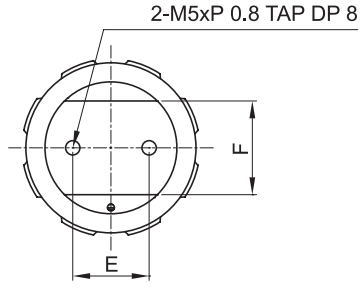
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Seat Holder	316L Stainless Steel
3	Main Valve	316L Stainless Steel
4	Valve Spring	Inconel 750
5	Seat	PCTFE *(standard)* / PFA / PI
6	Diaphragm	Ni-Co Alloy

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

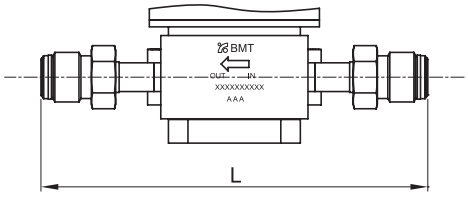
Dimensions



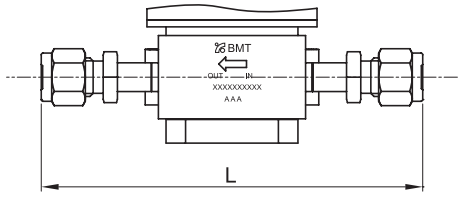
Female BVC



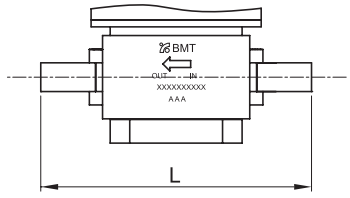
Bottom View



Male BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)					
		L	H	A	E	F	D
Male BVC	SMPR1-VM4	114	134	19	22	27	52
Female BVC	SMPR1-VF4	94					
SUPERLOK Tube Fitting	SMPR1-S4	111					
Butt Weld	SMPR1-TW4	76					

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

PR2 Regulators

Standard Type

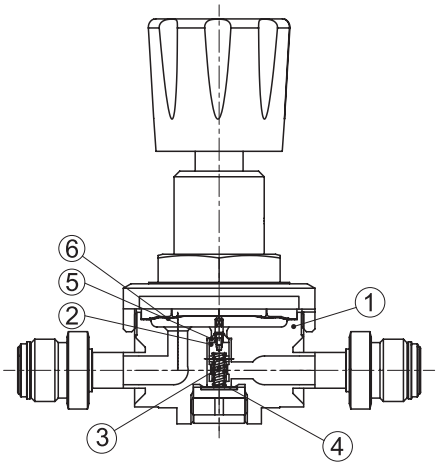
Part Number Examples

	DMPR2-VM8-3525-40C-30-P		SMPR2-S8-0603-A	
Material	**DM**	316L Stainless Steel VAR	**SM**	316L Stainless Steel
Type	**PR2**	PR2 series	**PR2**	PR2 series
Connection Type	**VM**	BVC Male	**S**	Lok
Connection Size	**8**	1/2"	**8**	1/2"
Max. Inlet Pressure	**35**	3500 psig (241 bar)	**06**	600 psig (42.4 bar)
Outlet Pressure	**25**	250 psig (17.3 bar)	**03**	30 psig (2.1 bar)
Inlet Gauge	**40**	4000 psig		W/O inlet gauge
Gauge Port*	**C**	Fig.C of ***Gauge Port Configurations***, Page 182	**A**	Fig.A of ***Gauge Port Configurations***, Page 182
Outlet Gauge	**30**	0 ~ 30 psig		W/O outlet gauge
Grade	**P**	EP grade		BA grade *(standard)*

Specifications

Size	1/2"
Cv Value	0.5
Surface finish (Ra)	10 µin or 5 µin
Max. rated inlet pressure	600, 1000, 3500 psig (41.4, 69, 241 bar)
Outlet pressure ranges	30, 60, 100, 150, 250 psig (2.1, 4.1, 6.9, 10.3, 17.3 bar)
Design proof pressure	150% of Maximum rated pressure
Max. Working Temperature	PCTFE: -26 ~ 80°C (-15 ~ 176°F) / PFA, PI: -26 ~ 150°C (-15 ~ 302°F)
Inboard Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Particle Inspection (EP Only) (0.1µm and Larger)	No count

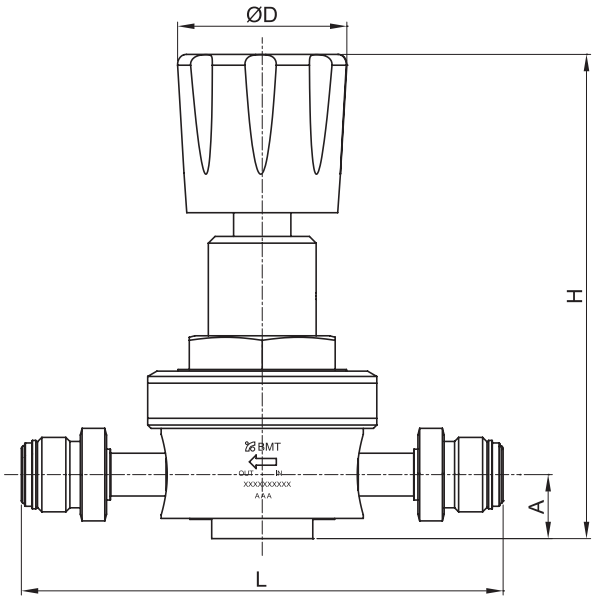
Material



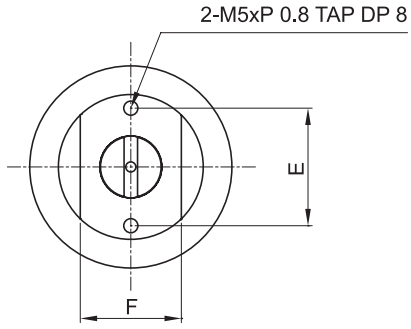
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Seat Holder	316L Stainless Steel
3	Main Valve	316L Stainless Steel
4	Valve Spring	Inconel 750
5	Seat	PCTFE *(standard)* / PFA / PI
6	Diaphragm	Ni-Co Alloy

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

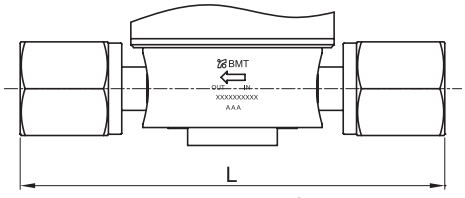
Dimensions



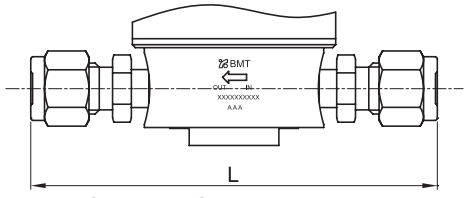
Male BVC



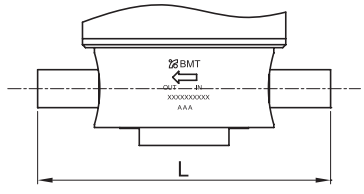
Bottom View



Female BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)					
		L	H	A	E	F	D
Male BVC	SMPR1-VM8	142	142	19	34.9	30	52
Female BVC	SMPR1-VF8	142					
SUPERLOK Tube Fitting	SMPR1-S8	136.8					
Butt Weld	SMPR1-TW8	94					

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

PRL1 Regulators

Tied Type

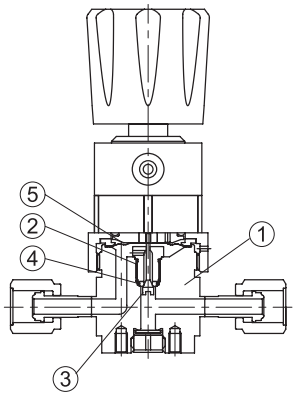
Part Number Examples

		SMPRL1-VF4-0603-B03
Material	**SM**	316L Stainless Steel
Type	**PRL1**	PRL1 series
Connection Type	**VF**	BVC Female
Connection Size	**4**	1/4"
Max. Inlet Pressure	**06**	600 psig (41.4 bar)
Outlet Pressure	**03**	30 psig (2.1 bar)
Inlet Gauge		W/O inlet gauge
Gauge Port*	**B**	Fig.B of ***Gauge Port Configurations***, Page 182
Outlet Gauge	**03**	0 ~ 30 psig
Grade		BA grade *(standard)*

Specifications

Size	1/4"
Cv Value	0.06 or 0.2
Surface finish (Ra)	10μin or 5μin
Max. rated inlet pressure	600, 1000, 3500 psig (41.4, 69, 241 bar)
Outlet pressure ranges	30, 60, 100, 150, 250 Psig (2.1, 4.1, 6.9, 10.3, 17.3 bar)
Design proof pressure	150% of Maximum rated pressure
Max. Working Temperature	PCTFE: -26 ~ 80℃ (-15 ~ 176℉ / PFA, PI: -26 ~ 150℃ (-15 ~ 302℉)
Internal Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Particle Inspection (EP Only) (0.1μm and Larger)	No Count
Inner Surface Roughness	BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm

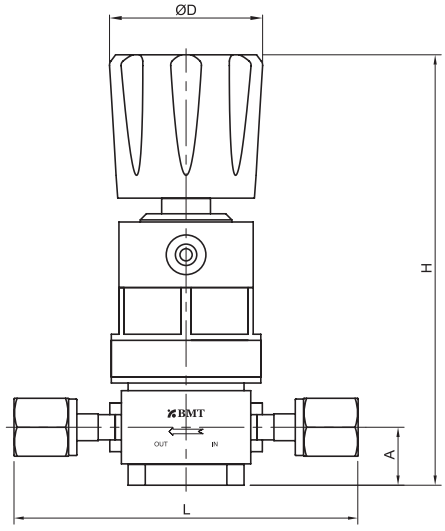
Material

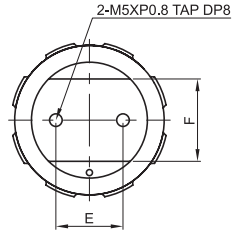


No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Seat Holder	316L Stainless Steel
3	Main Valve	316L Stainless Steel
4	Seat	PCTFE *(Standard)* / PFA / PI
5	Diaphragm	Ni-Co Alloy

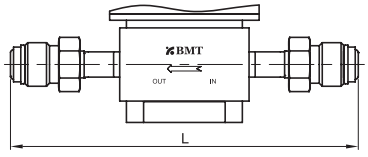
NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Dimensions

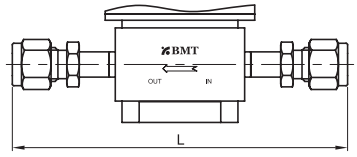




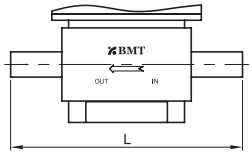
Bottom View



Male BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)					
		L	H	A	E	F	D
Male BVC	SMPRL1-VM4	114	134	19	22	27	52
Female BVC	SMPRL1-VF4	94					
SUPERLOK Tube Fitting	SMPRL1-S4	111					
Butt Weld	SMPRL1-TW4	76					

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

PRL2 Regulators

Tied Type

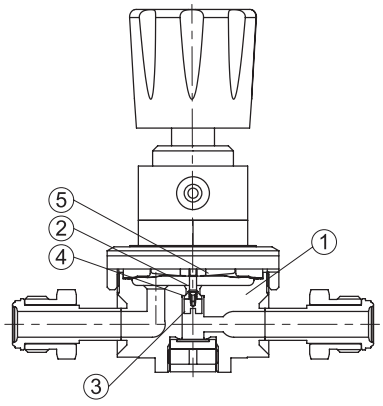
Part Number Examples

		SMPRL2-VM8-1010-10C16-P
Material	SM	316L Stainless Steel
Type	PRL2	PRL2 series
Connection Type	VM	BVC Male
Connection Size	8	1/2"
Max. Inlet Pressure	10	1000 psig (69 bar)
Outlet Pressure	10	100 psig (6.9 bar)
Inlet Gauge	10	1000 psig (69 bar)
Gauge Port*	C	Fig.B of ***Gauge Port Configurations***, Page 182
Outlet Gauge	16	0 ~ 160 psig
Grade	P	EP grade

Specifications

Size	1/2"
Cv Value	0.5
Surface finish (Ra)	10μin or 5μin
Max. rated inlet pressure	600, 1000, 3500 psig (41.4, 69, 241 bar)
Outlet pressure ranges	30, 60, 100, 150, 250 Psig (2.1, 4.1, 6.9, 10.3, 17.3 bar)
Design proof pressure	150% of Maximum rated pressure
Max. Working Temperature	PCTFE: -26 ~ 80℃ (-15 ~ 176℉ / PFA, PI: -26 ~ 150℃ (-15 ~ 302℉)
Internal Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Particle Inspection (EP Only) (0.1μm and Larger)	No Count
Inner Surface Roughness	BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm

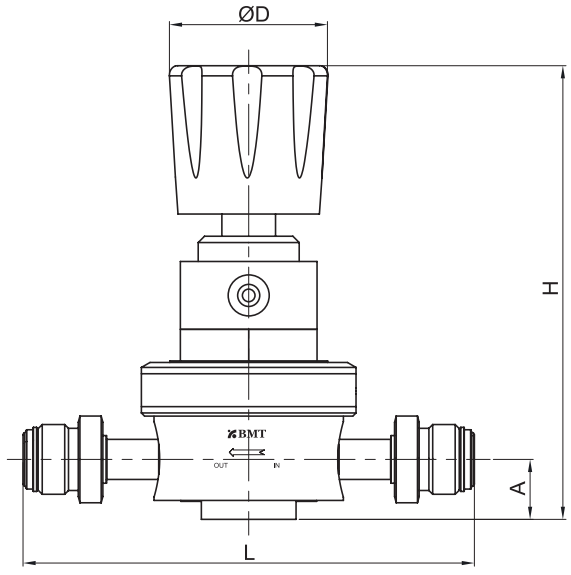
Material



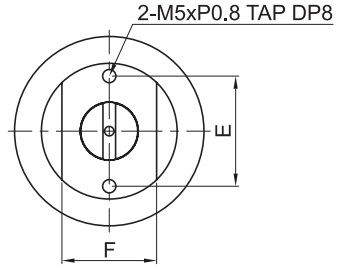
No.	Component	Material
1	Body	316L Stainless Steel 316L Stainless Steel VAR
2	Seat Holder	316L Stainless Steel
3	Main Valve	316L Stainless Steel
4	Seat	PCTFE *(Standard)* / PFA / PI
5	Diaphragm	Ni-Co Alloy

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

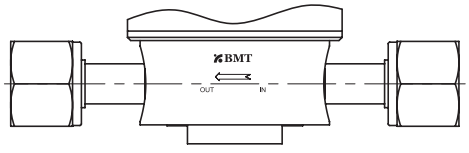
Dimensions



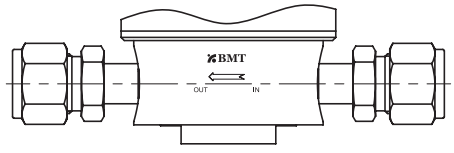
Male BVC



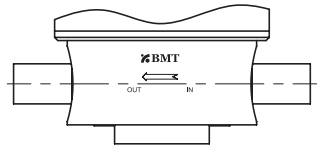
Bottom View



Female BVC



SUPERLOK Tube Fitting



Tube Butt Weld

End Connection	Part No.	Dimensions (mm)					
		L	H	A	E	F	D
Male BVC	SMPRL2-VM8	142	142	19	34.9	30	52
Female BVC	SMPRL2-VF8	142					
SUPERLOK Tube Fitting	SMPRL2-S8	136.8					
Butt Weld	SMPRL2-TW8	98					

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ultra High Purity

FILTERS

FT Gas Filters

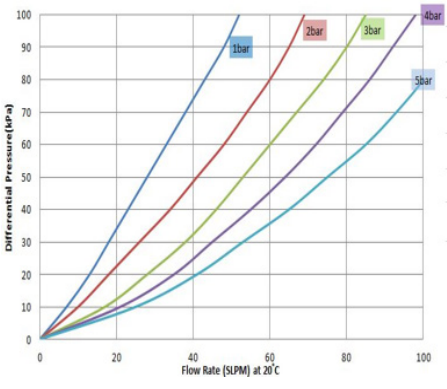
Low Pressure Gas Filters

Specifications

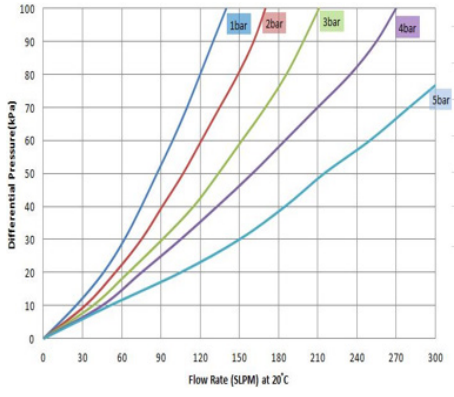
Size	1/4", 1/2"	
Removal Rating	≥0.002μm	
Retention	Greatier than 99.9999999% Removal of all particles dow to 0.002μm	
Rated Flow @ 10^9	60 SLPM 120 SLPM 200 SLPM	
Material	Filter element	316L Stainless Steel Hastelloy C-22
	Electropolished housing	316L Stainless Steel 316L Stainless Steel VAR Hastelloy C-22
Element Operating Condition	Maximum inlet pressure Maximum differential pressure Maximum operating temperature	12 Mpa (122kgf/cm^2) at 20°C 10 Mpa (101kgf/cm^2) at 20°C 460°C (Inert gas)
Helium Leak Rating	1 x 10^{-9} atm·cc/sec	
Surface Finish Interior	BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm	

Flow Curve

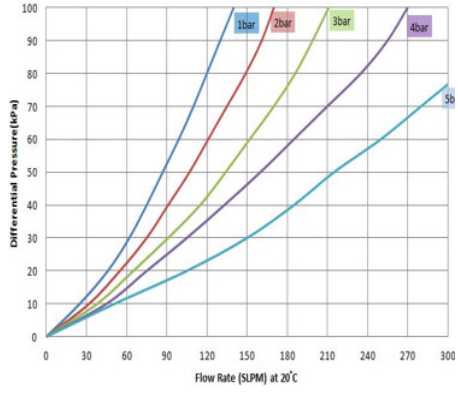
[FT-60 SLM]



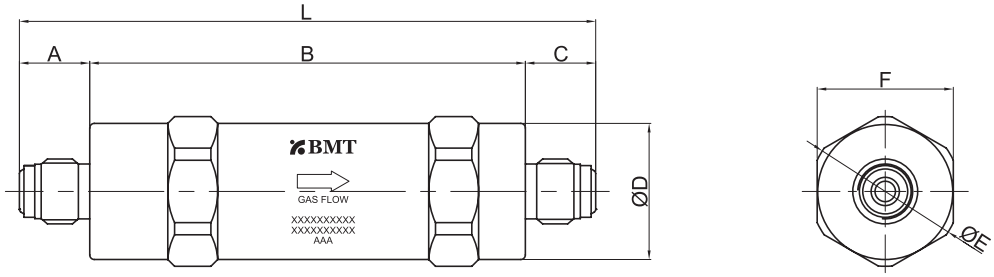
[FT-120 SLPM]



[FT-200 SLPM]



Dimensions



Male BVC

Connection Size	Part No.	Dimensions (mm)						
		A	B	C	D (Φ)	E (Φ)	F	L
Male BVC	FT-SMS-VM4-60-P FT-HMH-VM4-60-P	15.5	53	15.5	28	32	28	84
	FT-SMS-VM8-60-P FT-HMH-VM8-60-P	19	53	19	28	32	28	91
	FT-SMS-VM4-120-P FT-HMH-VM4-120-P	15.5	96	15.5	30	33	30	127
	FT-SMS-VM8-120-P FT-HMH-VM8-120-P	19	96	19	30	33	30	134
	FT-SMS-VM4-200-P FT-HMH-VM4-200-P	15.5	98	15.5	33	37	33	129
	FT-SMS-VM8-200-P FT-HMH-VM8-200-P	19	98	19	33	37	33	136

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

FT	-	A	B	-	C	D	-	E	-	F
FT		SM	S		VM	4	-	60	-	P

Standard feature
Optional

A	Materials	
	SM	316L Stainless Steel
	DM	316L Stainless Steel VAR
	HM	Hastelloy C-22

B	Element Material	
	S	316l Stainless Steel
	H	Hastelloy C-22

C	Connection Type	
	VM	Male BVC (BMT Vacuum Coupling)
	S	SUPERLOK Tube Fitting

D	Connection Size			
	ASTM Tube			
	Designator	Nominal Size	Outside Diameter	Wall Thickness
	4	1/4 in.	6.35 mm	1.00 mm
	6	3/8 in.	9.53 mm	1.00 mm
	8	1/2 in.	12.7 mm	1.24 mm
	12	3/4 in.	19.05 mm	1.65 mm

E	Rated Flow(SLPM)	
	60	60 SLPM
	120	120 SLPM
	200	200 SLPM

F	Wetted Surface Grade	
	BA is standard. No part designator needed.	
	P	EP

Part Number Examples

	FT-SMS-VM4-60-P		FT-HMH-VM8-60-P	
Series	**FT**	FT series	**FT**	FT series
Material	**SM**	316L Stainless Steel	**HM**	Hastelloy C-22
Element Material	**S**	316L Stainless Steel	**H**	Hastelloy C-22
Connection Type	**VM**	BVC Male	**VM**	BVC Male
Connection Size	**4**	1/4”	**8**	1/2”
Rated Flow(SLPM)	**60**	60 SLPM	**60**	60 SLPM
Grade	**P**	EP grade	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

FTH Gas Filters

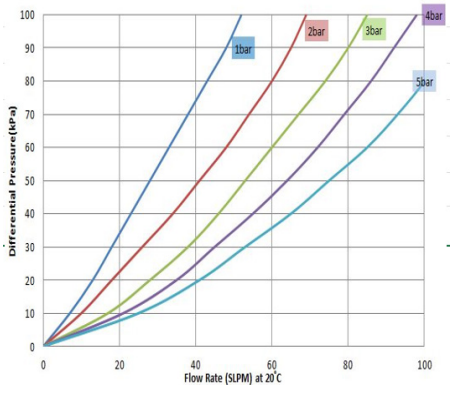
High Pressure Gas Filters

Specifications

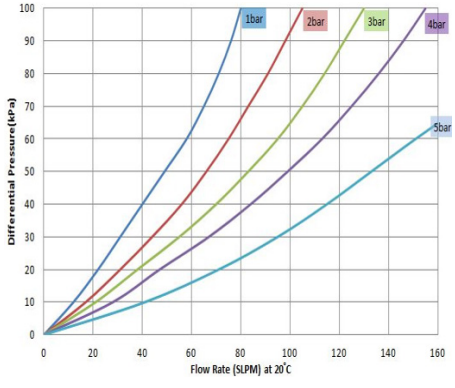
Size	1/4", 1/2"	
Removal Rating	≥0.002μm	
Retention	Greatier than 99.9999999% Removal of all particles dow to 0.002μm	
Rated Flow @ 10^9	60 SLPM 120 SLPM 200 SLPM	
Material	Filter element	316L Stainless Steel Hastelloy C-22
	Electropolished housing	316L Stainless Steel 316L Stainless Steel VAR Hastelloy C-22
Element Operating Condition	Maximum inlet pressure Maximum differential pressure Maximum operating temperature	21 Mpa (210kgf/cm^2) at 20°C 15 Mpa (153kgf/cm^2) at 20°C 460°C (Inert gas)
Helium Leak Rating	1 x 10^{-9} atm·cc/sec	
Surface Finish Interior	BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm	

Flow Curve

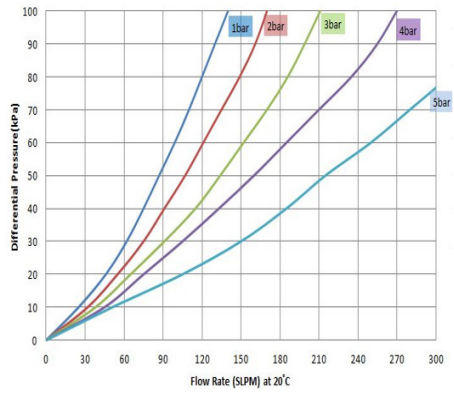
[FTH-60 SLM]



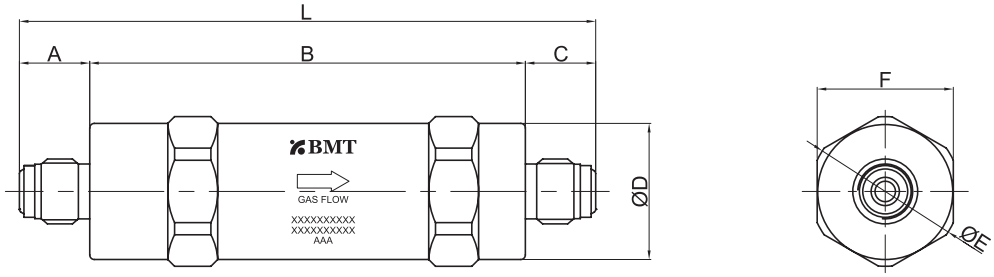
[FTH-120 SLPM]



[FTH-200 SLPM]



Dimensions



Male BVC

Connection Size	Part No.	Dimensions (mm)						
		A	B	C	D (Φ)	E (Φ)	F	L
Male BVC	FTH-SMS-VM4-60-P FTH-HMH-VM4-60-P	15.5	53	15.5	32	36	32	84
	FTH-SMS-VM8-60-P FTH-HMH-VM8-60-P	19	53	19	32	36	32	91
	FTH-SMS-VM4-120-P FTH-HMH-VM4-120-P	15.5	96	15.5	34	37	34	127
	FTH-SMS-VM8-120-P FTH-HMH-VM8-120-P	19	96	19	34	37	34	134
	FTH-SMS-VM4-200-P FTH-HMH-VM4-200-P	15.5	98	15.5	37	41	37	129
	FTH-SMS-VM8-200-P FTH-HMH-VM8-200-P	19	98	19	37	41	37	136

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

Ordering Information

FTH	-	A	B	-	C	D	-	E	-	F
FTH		SM	S		VM	4		60	-	P

Standard feature
Optional

A	Materials	
	SM	316L Stainless Steel
	DM	316L Stainless Steel VAR
	HM	Hastelloy C-22

B	Element Material	
	S	316l Stainless Steel
	H	Hastelloy C-22

C	Connection Type	
	VM	Male BVC (BMT Vacuum Coupling)
	S	SUPERLOK Tube Fitting

D	Connection Size			
	ASTM Tube			
	Designator	Nominal Size	Outside Diameter	Wall Thickness
	4	1/4 in.	6.35 mm	1.00 mm
	6	3/8 in.	9.53 mm	1.00 mm
	8	1/2 in.	12.7 mm	1.24 mm
	12	3/4 in.	19.05 mm	1.65 mm

E	Rated Flow(SLPM)	
	60	60 SLPM
	120	120 SLPM
	200	200 SLPM

F	Wetted Surface Grade	
	BA is standard.	
	P	EP

Part Number Examples

	FTH-SMS-VM4-60-P		FTH-HMH-VM8-60-P	
Series	**FTH**	FTH series	**FTH**	FTH series
Material	**SM**	316L Stainless Steel	**HM**	Hastelloy C-22
Element Material	**S**	316L Stainless Steel	**H**	Hastelloy C-22
Rated Flow(SLPM)	**60**	60 SLPM	**60**	60 SLPM
Connection Type	**VM**	BVC Male	**VM**	BVC Male
Connection Size	**4**	1/4"	**8**	1/2"
Grade	**P**	EP grade	**P**	EP grade

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.

FTF Gas Filters

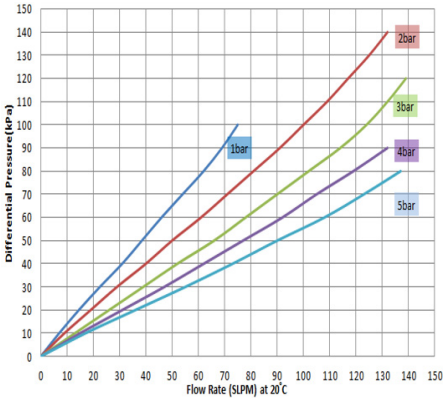
High Flow Gas Filters

Specifications

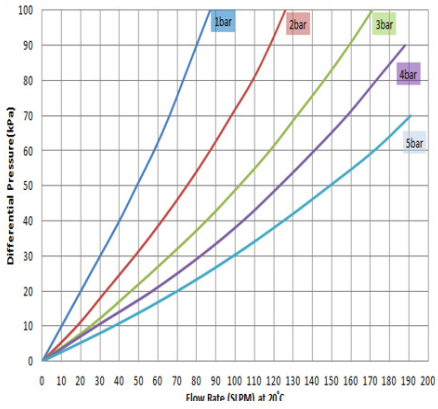
Size	1/4", 1/2"	
Removal Rating	≥0.002μm	
Retention	Greatier than 99.9999999% Removal of all particles dow to 0.002μm	
Rated Flow @ 10^9	100 SLPM 150 SLPM 600 SLPM	
Material	Filter element	316L Stainless Steel Hastelloy C-22
	Electropolished housing	316L Stainless Steel 316L Stainless Steel VAR Hastelloy C-22
Element Operating Condition	Maximum inlet pressure Maximum differential pressure Maximum operating temperature	12 Mpa (122kgf/cm^2) at 20°C 10 Mpa (101kgf/cm^2) at 20°C 460°C (Inert gas)
Helium Leak Rating	1 x 10^{-9} atm·cc/sec	
Surface Finish Interior	BA: Ra ≤ 10 μin, Ry ≤ 3 μm EP: Ra ≤ 5 μin, Ry ≤ 0.7 μm	

Flow Curve

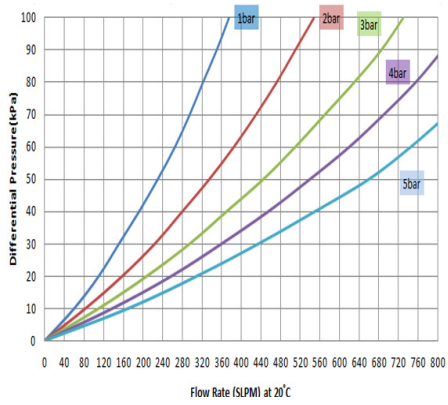
[FTF-60 SLM]



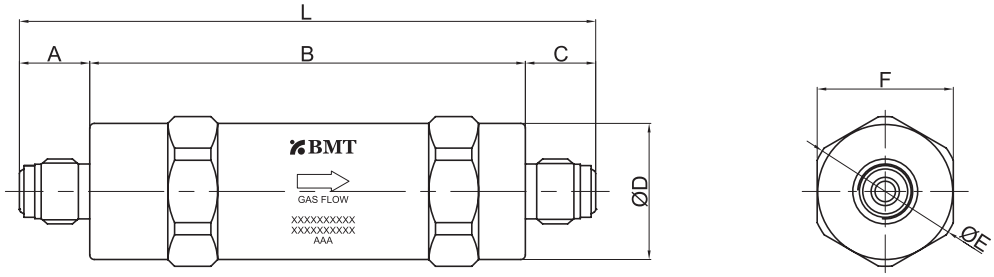
[FTF-120 SLPM]



[FTF-200 SLPM]



Dimensions



Male BVC

Connection Size	Part No.	Dimensions (mm)						
		A	B	C	D (Φ)	E (Φ)	F	L
Male BVC	FTF-SMS-VM4-100-P FTF-HMH-VM4-100-P	15.5	53	15.5	33	36	33	84
	FTF-SMS-VM8-100-P FTF-HMH-VM8-100-P	19	53	19	33	36	33	91
	FTF-SMS-VM4-150-P FTF-HMH-VM4-150-P	15.5	53	15.5	33	36	33	84
	FTF-SMS-VM8-150-P FTF-HMH-VM8-150-P	19	53	19	33	36	33	91
	FTF-SMS-VM8-600-P FTF-HMH-VM8-600-P	19	96	19	33	37	33	134

NOTE:
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Ordering Information

FTF	-	A	B	-	C	D	-	E	-	F
FTF		SM	S		VM	4		100	-	P

Standard feature
Optional

A	Materials	
	SM	316L Stainless Steel
	DM	316L Stainless Steel VAR
	HM	Hastelloy C-22

B	Element Material	
	S	316l Stainless Steel
	H	Hastelloy C-22

C	Connection Type	
	VM	Male BVC (BMT Vacuum Coupling)
	S	SUPERLOK Tube Fitting

D	Connection Size			
	ASTM Tube			
	Designator	Nominal Size	Outside Diameter	Wall Thickness
	4	1/4 in.	6.35 mm	1.00 mm
	6	3/8 in.	9.53 mm	1.00 mm
	8	1/2 in.	12.7 mm	1.24 mm
	12	3/4 in.	19.05 mm	1.65 mm

E	Rated Flow(SLPM)	
	100	100 SLPM
	150	150 SLPM
	600	600 SLPM

F	Wetted Surface Grade	
	BA is standard.	
	P	EP

Part Number Examples

	FTF-SMS-VM4-100-P		FTF-HMH-VM8-100-P	
Series	FTF	FTF series	FTF	FTF series
Material	SM	316L Stainless Steel	HM	Hastelloy C-22
Element Material	S	316L Stainless Steel	H	Hastelloy C-22
Rated Flow(SLPM)	100	100 SLPM	100	100 SLPM
Connection Type	VM	BVC Male	VM	BVC Male
Connection Size	4	1/4"	8	1/2"
Grade	P	EP grade	P	EP grade

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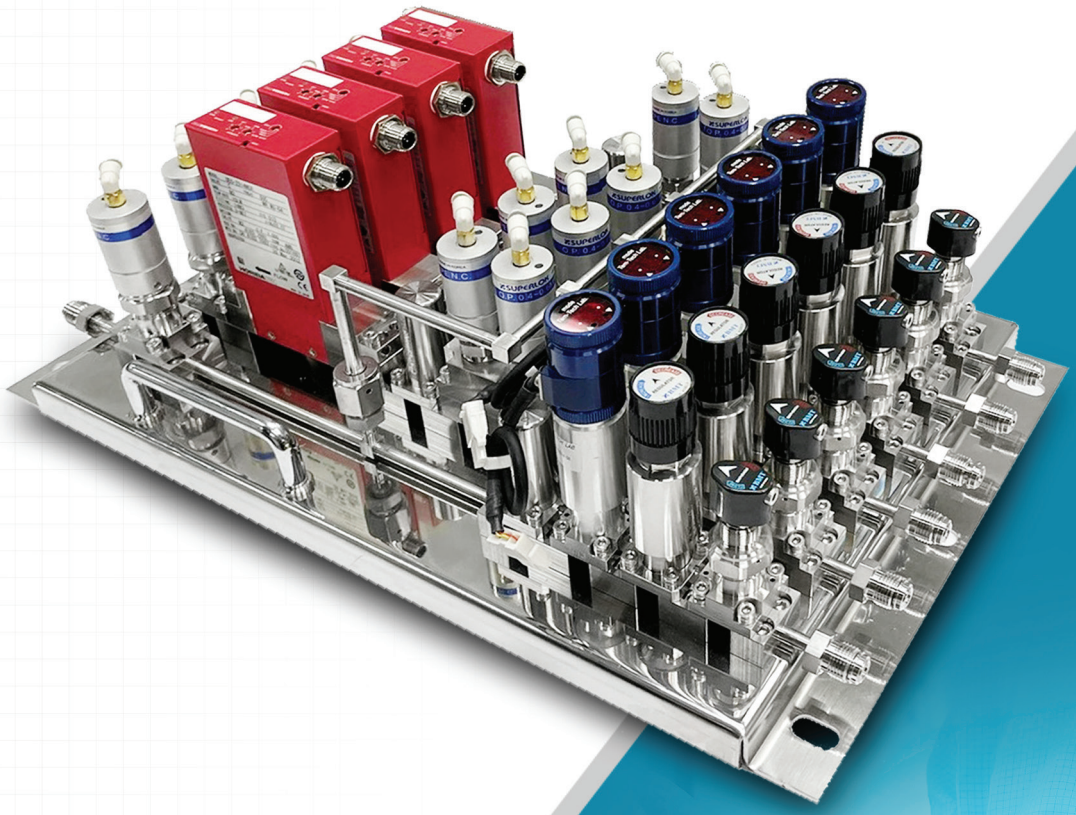
Ultra High Purity

HGS® (High-integrated Gas System)



BMT www.superlok.com

HGS® Valves

Ordering Information

A	HG	B	C	-	D	E	-	F	-	G	-	H	-	P
DM	HG	HGSODV1			W	18								P

Standard feature
Optional

A Materials

DM	316L Stainless Steel VAR

B Product Series

HGSODV1	Manual Diaphragm Valve (Shutoff Type)
HGPDV1	Pneumatic Diaphragm Valve
HGPBDV1	Pneumatic Diaphragm Valve (Block Type)
HGCVSE	Check Valve (Seal Type)
HGCVSP	Check Valve (Spring Type)

C Operation Method (for Pneumatic Valves)

Add an operation method designator for **Pneumatic Valves**.

C	Normally Closed
O	Normally Open

D Connection Type

W	W-Seal

E Body Size

Designator	Nominal Size
18	1.125"
24	1.5"

F Flow Path (for Block Diaphragm Valves)

Add a Flow Path designator for **Block Diaphragm Vales**.

1F23	1F23

G Seat Material

PCTFE for Diaphragm Valves, **RUBBER** for Check Valves.
No part designator are needed.

Blank	PCTFE	For Diaphragm Valves
PA	PFA	
Blank	RUBBER	For Check Valves
F	FKM	
FF	FFKM	

H Flow Rate

Cv 0.1 is standard. No part designator needed.

F	High Flow Type (Cv 0.2)

Part Number Examples

	DMHGSODV1-W18-P		DMHGCVSE-W18-P	
Material	**DM**	316L Stainless Steel VAR	**DM**	316L Stainless Steel VAR
Product Series	**HGSODV1**	HGSODV1 series	**HGCVSE**	HGCVSE series
Operation Method		*for Pneumatic Valves*		*for Pneumatic Valves*
Connection Type	**W**	W-Seal	**W**	W-Seal
Body Size	**18**	1.125"	**18**	1.125"
Flow Path		*Omit for HGSODV1 series*		*Omit for HGCVSE series*
Seat Material		PCTFE *(standard)*		Rubber *(standard)*
Grade	**P**	EP grade	**P**	EP grade

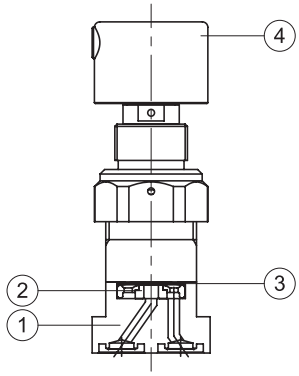
HGSODV1 Diaphragm Valves

HGS® Low Pressure Manual Diaphragm Valves (Shutoff Type)

Specifications

Size	1.125"	1.5"
Cv Value	0.1 (Standard Type) / 0.2 (High-flow Type)	
Max. Working Pressure	1 MPa (145 psig)	
Working Temperature	PCTFE: -10 ~ 80°C (14 ~ 176°F) PFA: -10 ~ 150°C (14 ~ 302°F)	
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count	
Inner Surface Roughness	Ra ≤ 5 µin, Ry ≤ 0.7 µm	

Material



No.	Component	Material
1	Body	316L Stainless Steel VAR
2	Seat	PCTFE *(standard)*
3	Diaphragm	Ni-Co Alloy
4	Handle	ABS

NOTE:
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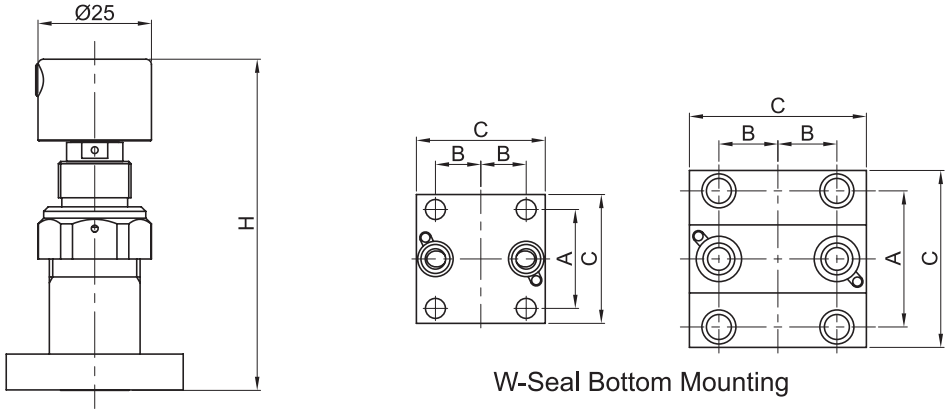
Dimensions



W-Seal Bottom Mounting

Body Size	Connection Type	Part No.	Dimensions (mm)			
			H	A	B	C
1.125″	W-Seal	DMHGSODV1-W18-P DMHGSODV1-W18-F-P	73	21.8	10	28.4
1.5″	W-Seal	DMHGSODV1-W24-P DMHGSODV1-W24-F-P	73	30	13	39

NOTE:
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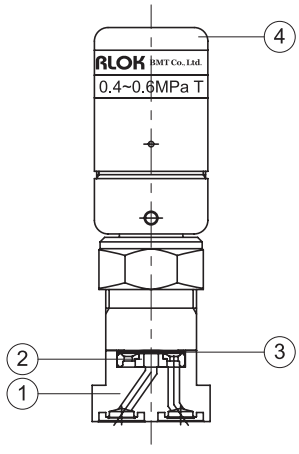
HGPDV1 Diaphragm Valves

HGS® Low Pressure Pneumatic Diaphragm Valves

Specifications

Size	1.125"	1.5"
Cv Value	0.1 (Standard Type) / 0.2 (High-flow Type)	
Max. Working Pressure	1 MPa (145 psig)	
Operating Pressure	0.4 ~ 0.6 MPa (58 ~ 87 psig)	
Working Temperature	PCTFE: -10 ~ 80°C (14 ~ 176°F) PFA: -10 ~ 150°C (14 ~ 302°F)	
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1μm and Larger)	No Count	
Inner Surface Roughness	Ra ≤ 5 μin, Ry ≤ 0.7 μm	

Material



No.	Component	Material
1	Body	316L Stainless Steel VAR
2	Seat	PCTFE *(standard)*
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminium

NOTE:
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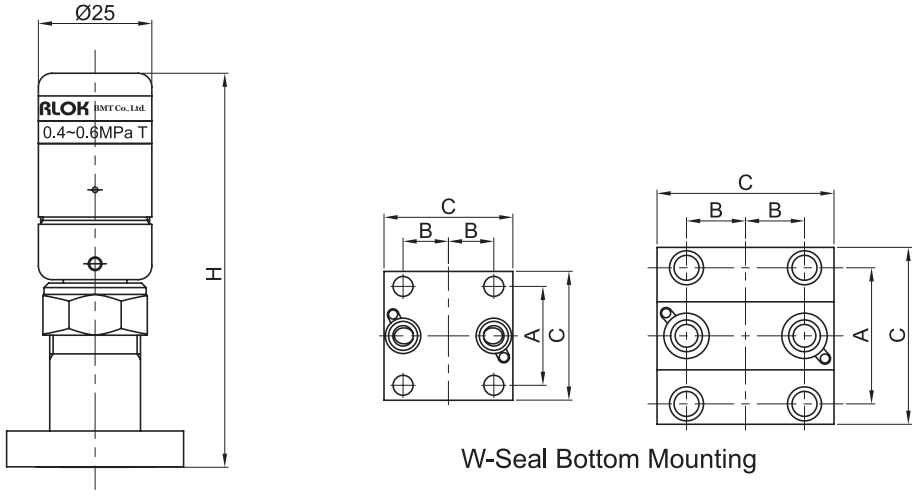
Dimensions



W-Seal Bottom Mounting

Body Size	Connection Type	Part No.	Dimensions (mm)			
			H	A	B	C
1.125″	W-Seal	DMHGPDV1C-W18-P DMHGPDV1C-W18-F-P	86	21.8	10	28.4
1.5″	W-Seal	DMHGPDV1C-W24-P DMHGPDV1C-W24-F-P	88	30	13	39

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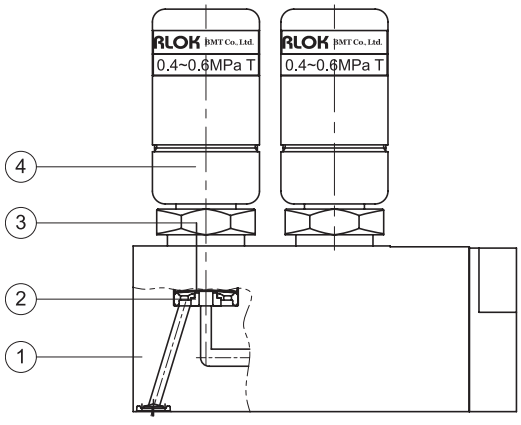
HGPBDV1 Diaphragm Valves

HGS® Low Pressure Pneumatic Diaphragm Valves (Block)

Specifications

Size	1.125"	1.5"
Cv Value	0.1 (Standard Type) / 0.2 (High-flow Type)	
Max. Working Pressure	1 MPa (145 psig)	
Operating Pressure	0.4 ~ 0.6 MPa (58 ~ 87 psig)	
Working Temperature	PCTFE: -10 ~ 80°C (14 ~ 176°F) PFA: -10 ~ 150°C (14 ~ 302°F)	
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Across the Seat Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1μm and Larger)	No Count	
Inner Surface Roughness	Ra ≤ 5 μin, Ry ≤ 0.7 μm	

Material



No.	Component	Material
1	Body	316L Stainless Steel VAR
2	Seat	PCTFE *(standard)*
3	Diaphragm	Ni-Co Alloy
4	Actuator	Aluminium

NOTE:
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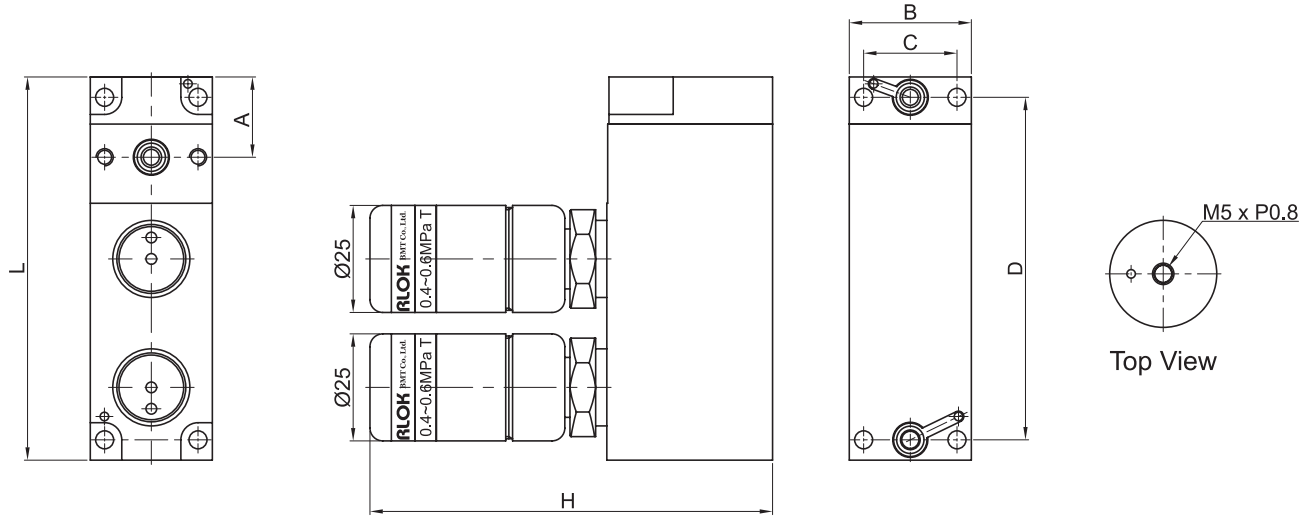
Dimensions



Body Size	Connection Type	Part No.	Dimensions (mm)					
			L	H	A	B	C	D
1.125″	W-Seal	DMHGPBDV1C-W18-1F23-P DMHGPBDV1C-W18-1F23-F-P	89.5	94	18.75	28.5	21.8	80
1.5″	W-Seal	DMHGPBDV1C-W24-1F23-P DMHGPBDV1C-W24-1F23-F-P	93	100.5	24	39	30	78.5

NOTE:
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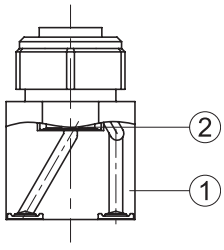
HGCVSE Check Valves

HGS® Check Valves (Seal Type)

Specifications

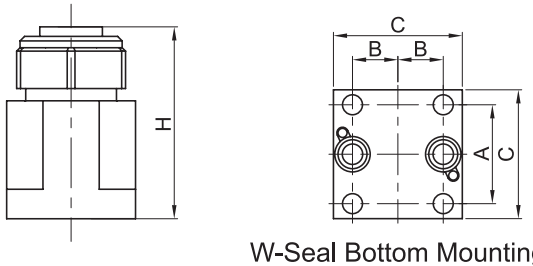
Size	1.125"
Cv Value	0.25
Max. Working Pressure	1 MPa (145 psig)
Working Temperature	-10 ~ 80℃ (14 ~ 176℉)
Cracking Pressure	2.3 kPa
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count
Inner Surface Roughness	Ra ≤ 5 μin, Ry ≤ 0.7 μm

Material



No.	Component	Material
1	Body	316L Stainless Steel VAR
2	Seat	NBR *(standard)* FKM FFKM

Dimensions



W-Seal Bottom Mounting

Body Size	Connection Type	Part No.	Dimensions (mm)			
			H	A	B	C
1.125"	W-Seal	DMHGCVSE-W18-P	42.3	21.8	10	28.4

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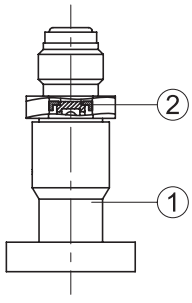
HGCVSP Check Valves

HGS® Check Valves (Spring Type)

Specifications

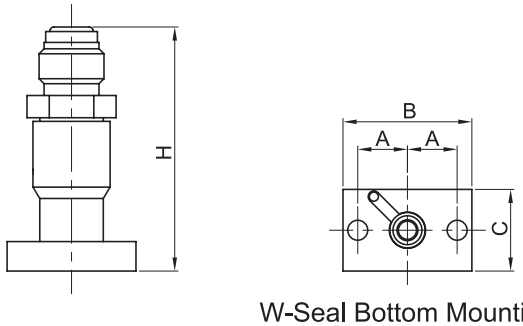
Size	1.125"
Cv Value	0.25
Max. Working Pressure	1 MPa (145 psig)
Working Temperature	-10 ~ 80℃ (14 ~ 176℉)
Cracking Pressure	2.3 kPa
Inboard Leak Test Rates (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count
Inner Surface Roughness	Ra ≤ 5 μin, Ry ≤ 0.7 μm

Material



No.	Component	Material
1	Body	316L Stainless Steel VAR
2	Seat	NBR *(standard)* FKM FFKM

Dimensions



W-Seal Bottom Mounting

Body Size	Connection Type	Part No.	Dimensions (mm)			
			H	A	B	C
1.125″	W-Seal	DMHGCVSP-W18-P	54	10.9	28.4	18

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HGS® Regulators

Ordering Information

A	HG	B	-	C	D	-	E	F	-	G	-	H	-	P
DM	HG	HGPR1		W	18	-	A	03					-	P

Standard feature
Optional

A Materials

DM	316L Stainless Steel VAR
HM	Hastelloy

B Product Series

HGPR1	Regulator
HGPRL1	Regulator (Tied Type)

C Connection Type

W	W-Seal

D Body Size

Designator	Nominal Size
18	1.125"
24	1.5"

E Maximum Inlet Pressure

A	150 psig

F Outlet Pressure

03	30 psig
06	60 psig
10	100 psig

G Seat Material

PCTFE is standard. No part designator needed.

PA	PFA
PI	PI

H Flow Rate

Cv 0.04 is standard. No part designator needed.

F	High Flow Type (Cv 0.08)

Part Number Examples

	DMHGPR1-W18-A03-P		DMHGPRL1-W24-A06-P	
Material	**DM**	316L Stainless Steel VAR	**DM**	316L Stainless Steel VAR
Product Series	**HGPR1**	HGPR1 series	**HGPRL1**	HGPRL1 series
Connection Type	**W**	W-SEAL	**W**	W-SEAL
Body Size	**18**	1.125"	**24**	1.5"
Max. Inlet Pressure	**A**	150 psig	**A**	150 psig
Outlet Pressure	**03**	30 psig	**06**	60 psig
Seat Material		PCTFE *(standard)*		PCTFE *(standard)*
Flow Rate		0.04 *(standard)*		0.04 *(standard)*
Grade	**P**	EP grade	**P**	EP grade

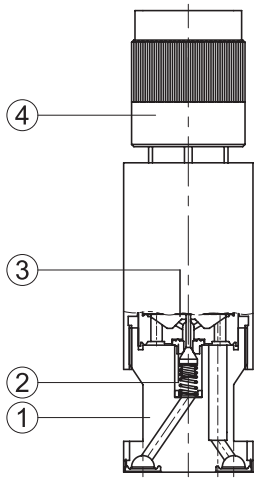
HGPR1 Regulators

HGS® Regulators (Standard Type)

Specifications

Size	1.125"	1.5"
Cv Value	0.04 (Standard Type) / 0.08 (High-flow Type)	
Max. Inlet Pressure	150 psig	
Outlet Pressure Range	3~30, 3~60, 3~100 psig (0.2~2.1, 0.2~4.1, 0.2~6.9 bar)	
Design Proof Pressure	150% of Maximum rated pressure	
Max. Working Temperature	-40 to 70°C (-40 to 158°F)	
Inboard Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count	
Inner Surface Roughness	Ra ≤ 5 μin, Ry ≤ 0.7 μm	

Material



No.	Component	Material
1	Body	316L Stainless Steel VAR
2	Seat	PCTFE *(standard)*
3	Diaphragm	Hastelloy
4	Handle	ABS

NOTE:
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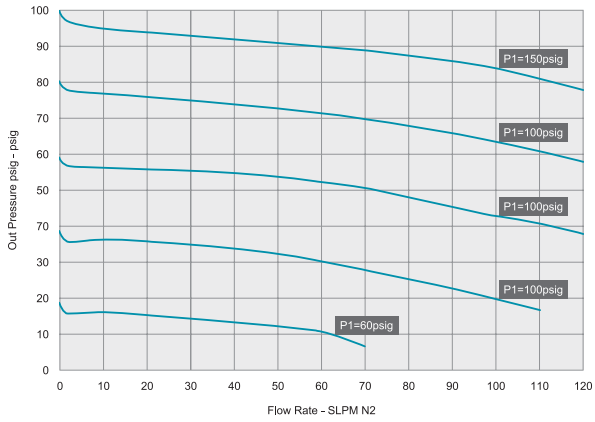
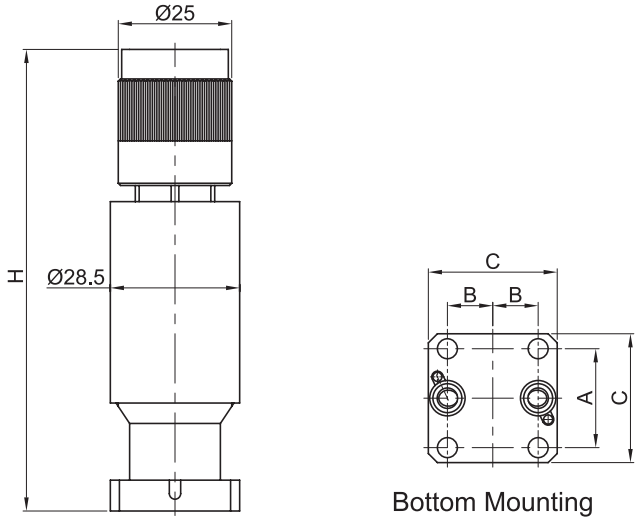
Flow Charts



Dimensions



Bottom Mounting

Body Size	Connection Type	Part No.	Dimensions (mm)			
			H	A	B	C
1.125″	W-Seal	DMHGPR1-W18-A03-P DMHGPR1-W18-A03-F-P	101.7	21.8	10	28.4
1.5″	W-Seal	DMHGPR1-W24-A03-P DMHGPR1-W24-A03-F-P	108.5	30	13	39

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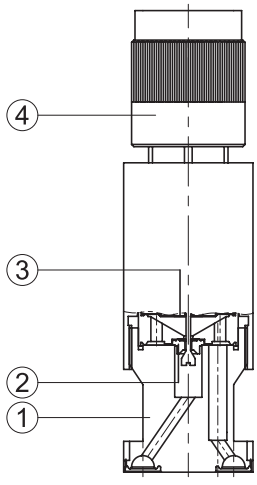
HGPRL1 Regulators

HGS® Regulators (Tied Type)

Specifications

Size	1.125"	1.5"
Cv Value	0.04 (Standard Type) / 0.08 (High-flow Type)	
Max. Inlet Pressure	150 psig	
Outlet Pressure Range	3~30, 3~60, 3~100 psig (0.2~2.1, 0.2~4.1, 0.2~6.9 bar)	
Design Proof Pressure	150% of Maximum rated pressure	
Max. Working Temperature	-40 to 70°C (-40 to 158°F)	
Inboard Leakage Allowance (He) (Holding Time ≥ 15 sec.)	≤1x10^{-9} atm.cc/s	
Particle Inspection (EP Only) (0.1㎛ and Larger)	No Count	
Inner Surface Roughness	Ra ≤ 5 μin, Ry ≤ 0.7 μm	

Material



No.	Component	Material
1	Body	316L Stainless Steel VAR
2	Seat	PCTFE *(standard)*
3	Diaphragm	Hastelloy
4	Handle	ABS

NOTE:
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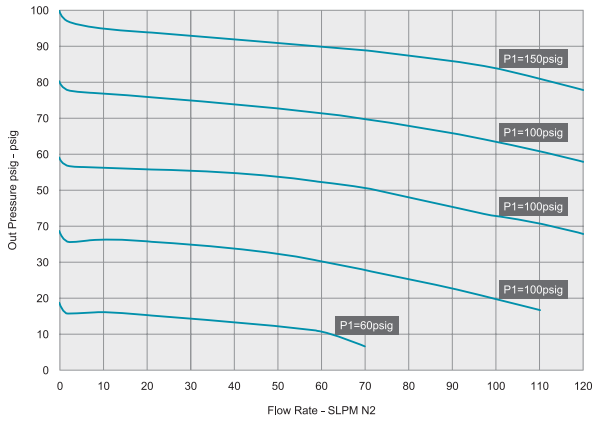
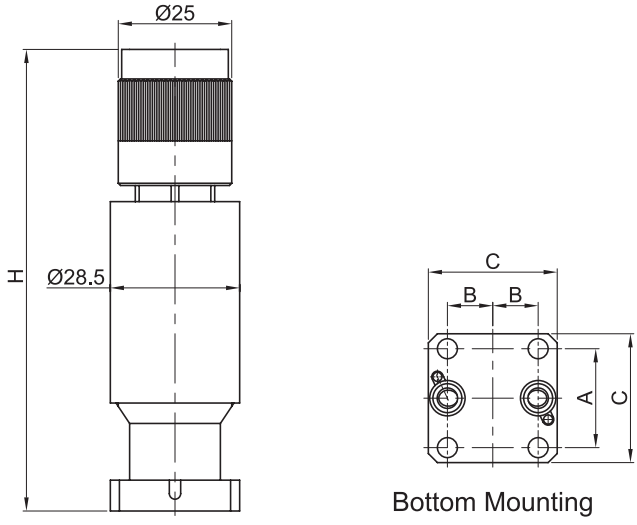
Flow Charts



Dimensions



Bottom Mounting

Body Size	Connection Type	Part No.	Dimensions (mm)			
			H	A	B	C
1.125″	W-Seal	DMHGPRL1-W18-A03-P DMHGPRL1-W18-A03-F-P	101.7	21.8	10	28.4
1.5″	W-Seal	DMHGPRL1-W24-A03-P DMHGPRL1-W24-A03-F-P	108.5	30	13	39

NOTE:
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HGS® Filters

Ordering Information

A	HG	B	-	C	D	-	E	-	P
DM	HG	HGFT1		W	18		60		P

Standard feature
Optional

A	Body Materials	
	DM	316L Stainless Steel VAR
	HM	Hastelloy C-22

B	Element Series	
	HGFT1	Stainless Steel Element
	HGFT2	HASTELLOY C-22 Element

C	Connection Type	
	W	W-Seal

D	Body Size	
	Designator	Nominal Size
	18	1.125"
	24	1.5"

E	Rated Flow (SLPM)	
	30	30 SLPM
	60	60 SLPM
	120	120 SPLM

E	Rated Flow (SLPM)	
	30	30 SLPM
	60	60 SLPM
	120	120 SPLM

D	Body Size	
	Designator	Nominal Size
	18	1.125"
	24	1.5"

Part Number Examples

	DMHGFT1-W18-60-P		HMHGFT2-W18-120-P	
Material	**DM**	316L Stainless Steel VAR	**HM**	Hastelloy C-22
Product Series	**FT1**	HGFT1 series	**FT2**	HGFT2 series
Connection Type	**W**	W-Seal	**W**	W-Seal
Body Size	**18**	1.125"	**18**	1.125"
Rated Flow	**60**	60 SLPM	**120**	120 SLPM
Grade	**P**	EP grade	**P**	EP grade

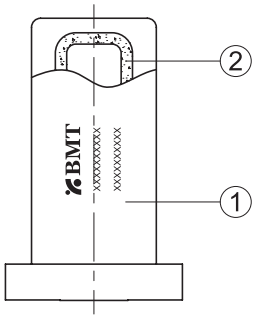
HGFR1 Filters

HGS® Filters

Specifications

Size	1.125"	1.5"
Max. Inlet pressure	0.98Mpa (10kgf/m²) at 20℃	
Max. Differential pressure	0.7Mpa (7kgf/m²) at 20℃	
Max. Working Temp.	460℃	
Removal rating	≥0.002㎛	
Retention	Greater than 99.9999999% Removal of all particles down to 0.002㎛	
Rated Flow @10^9	30, 60, 120 SLPM	
Helium leak rating	≤1x10^{-9} atm.cc/s	
Inner Surface Roughness	Ra ≤ 5 μin, Ry ≤ 0.7 μm	

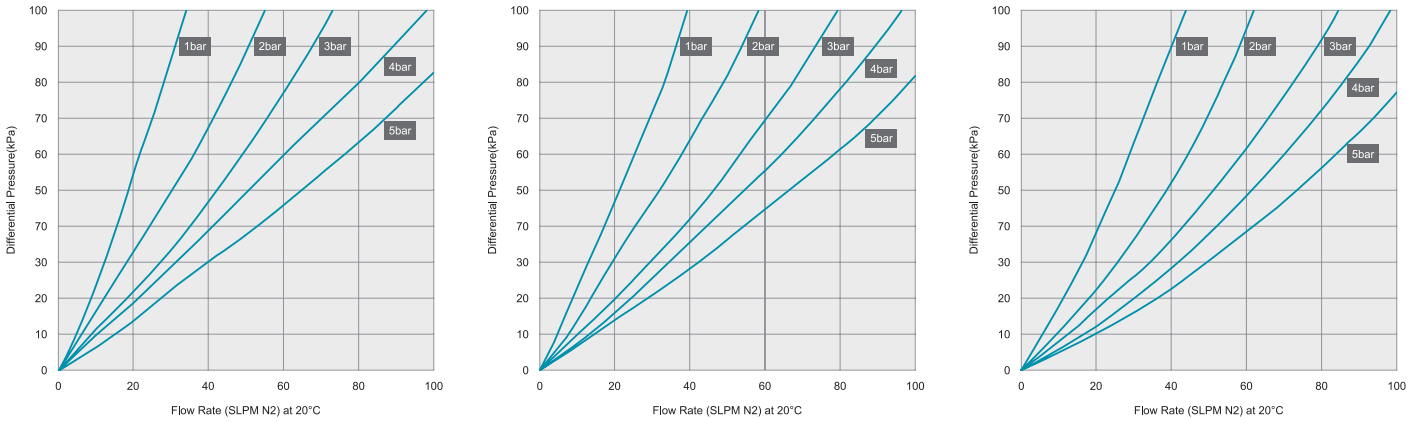
Material



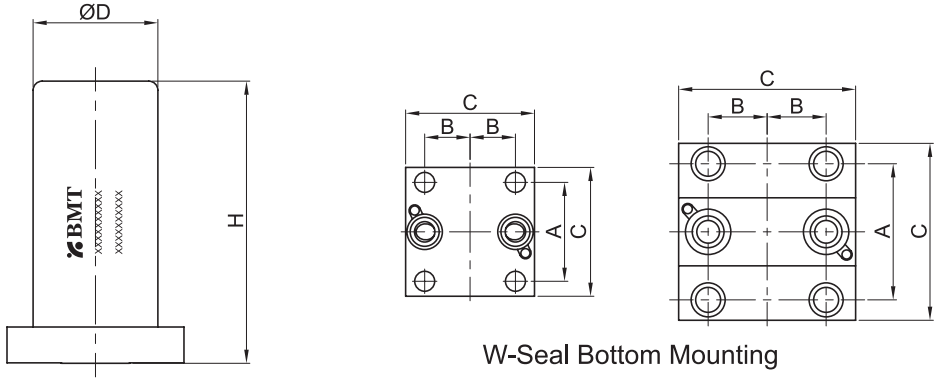
No.	Component	Material
1	Body	316L Stainless Steel VAR
2	Element	316L Stainless Steel VAR

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
·Unless otherwise specified, all dimensions are in millimeters.
·HGS® : Trademark registered in Republic of Korea (as of April 2024)

Flow Charts



Dimensions



Body Size	Connection Type	Part No.	Dimensions (mm)				
			H	A	B	C	D
1.125″	W-Seal	DMHGFT1-W18-30-P	45.5	21.8	10	28.4	21.5
		DMHGFT1-W18-60-P	58.5				
		DMHGFT1-W18-120-P	92				
1.5″	W-Seal	DMHGFT1-W24-60-P	62	30	13	39	27.5
		DMHGFT1-W24-120-P	96				

NOTE:
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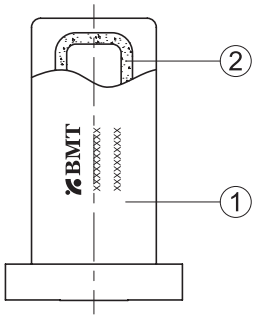
HGFR2 Filters

HGS® Filters

Specifications

Size	1.125"	1.5"
Max. Inlet pressure	0.98Mpa (10kgf/m²) at 20℃	
Max. Differential pressure	0.7Mpa (7kgf/m²) at 20℃	
Max. Working Temp.	460℃	
Removal rating	≥0.002㎛	
Retention	Greater than 99.9999999% Removal of all particles down to 0.002㎛	
Rated Flow @10^9	30, 60, 120 SLPM	
Helium leak rating	≤1x10^{-9} atm.cc/s	
Inner Surface Roughness	Ra ≤ 5 μin, Ry ≤ 0.7 μm	

Material



No.	Component	Material
1	Body	Hastelloy C-22
2	Element	Hastelloy C-22

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
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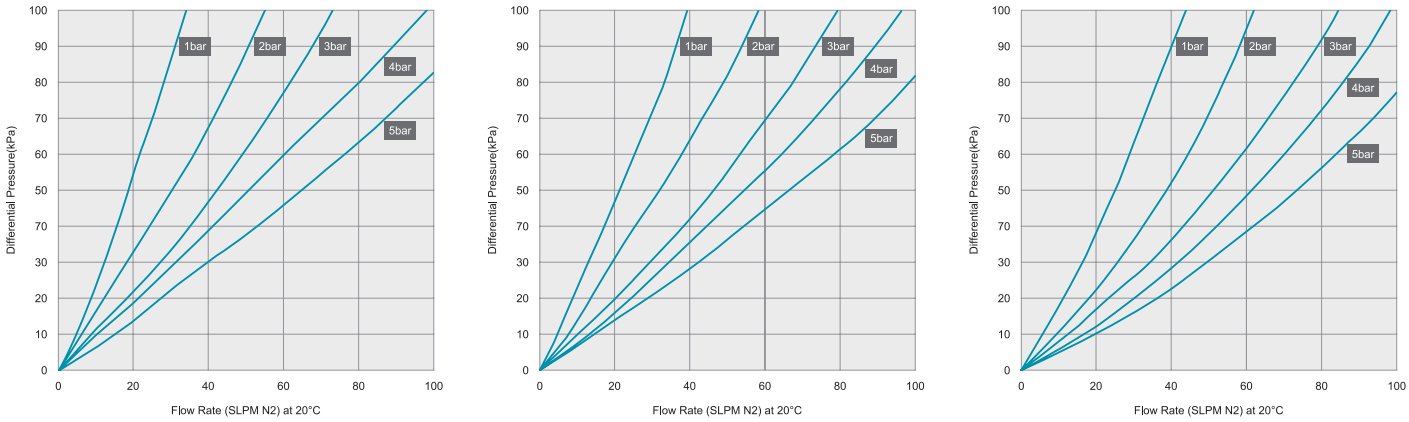
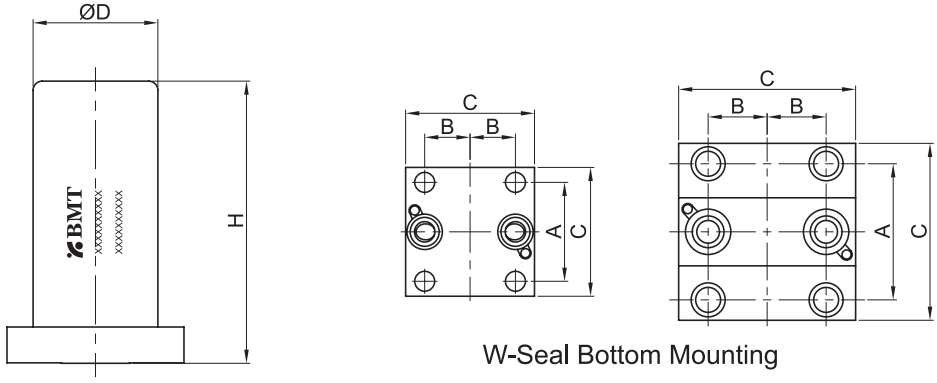
Flow Charts



Dimensions



Body Size	Connection Type	Part No.	Dimensions (mm)				
			H	A	B	C	D
1.125″	W-Seal	HMHGFT2-W18-30-P	45.5	21.8	10	28.4	21.5
		HMHGFT2-W18-60-P	58.5				
		HMHGFT2-W18-120-P	92				
1.5″	W-Seal	HMHGFT2-W24-60-P	62	30	13	39	27.5
		HMHGFT2-W24-120-P	96				

NOTE:
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HGS® Base Block & Gasket

Ordering Information

A	HG	B	-	C	D	E	-	P
DM	HG	B		W	18	V	-	P

Standard feature
Optional

A	Materials	
	DM	316L Stainless Steel VAR

B	Product Series	
	B	Base Block
	GK	Gasket

C	Connection Type	
	W	W-Seal

D	Body Size	
	Designator	Nominal Size
	18	1.125"
	24	1.5"

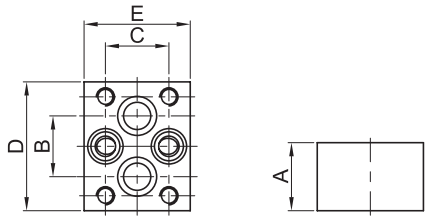
E	Body Type (for Base Block)	
	V	V Type
	WL	WL Type
	L	L Type

Part Number Examples

	DMHGB-W18V-P		DMHGB-W24V-P	
Material	**DM**	316L Stainless Steel VAR	**DM**	316L Stainless Steel VAR
Product Series	**B**	Base Block series	**B**	Base Block series
Connection Type	**W**	W-Seal	**W**	W-Seal
Body Size	**18**	1.125"	**24**	1.5"
Body Type	**V**	V Type	**V**	V Type
Grade	**P**	EP grade	**P**	EP grade

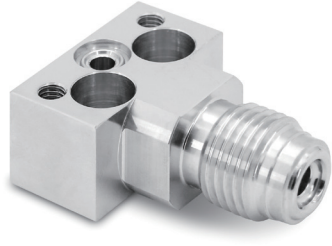
HGS® Base Block

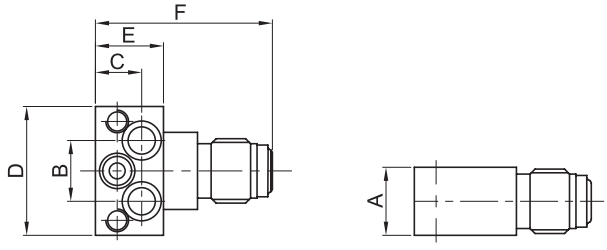
V-Type



Body Size	Connection Type	Part No.	Dimensions (mm)					Material
			A	B	C	D	E	
1.125″	W-Seal	DMHGB-W18V-P	15	13.4	14	28.4	23.4	316L Stainless Steel VAR
1.5″	W-Seal	DMHGB-W24V-P	20	16	20.5	39	32.5	316L Stainless Steel VAR

WL-Type





Body Size	Connection Type	Part No.	Dimensions (mm)						Material
			A	B	C	D	E	F	
1.125″	W-Seal	DMHGB-W18WL-P	15	13.4	10.2	28.4	15	39	316L Stainless Steel VAR
1.5″	W-Seal	DMHGB-W24WL-P	20	16	5	39	12.5	37	316L Stainless Steel VAR

NOTE:
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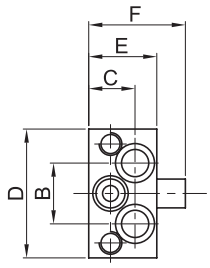
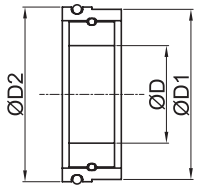
L-Type

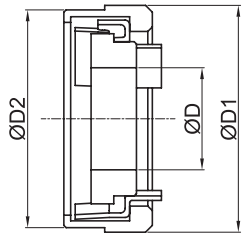


Body Size	Connection Type	Part No.	Dimensions (mm)						Material
			A	B	C	D	E	F	
1.125″	W-Seal	DMHGB-W18L-P	15	13.4	10.2	28.4	15	21.3	316L Stainless Steel VAR
1.5″	W-Seal	DMHGB-W24L-P	20	16	5	39	12.5	18.8	316L Stainless Steel VAR

HGS® Gasket



1.125” HGS Gasket



1.5” HGS Gasket

Body Size	Connection Type	Part No.	Dimensions (mm)				Material
			ØD	ØD1	ØD2	L	
1.125″	W-Seal	DMHGGK-W18-P	4.3	7.5	7.7	2.6	316L Stainless Steel VAR
1.5″	W-Seal	DMHGGK-W24-P	4.5	10	9.6	3.9	316L Stainless Steel VAR

NOTE:
·Dimensions and Drawings are for reference only and are subject to change without prior notice.
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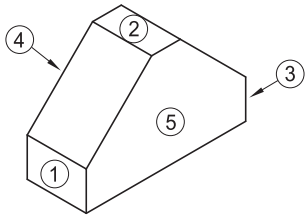
·HGS® : Trademark registered in Republic of Korea (as of April 2024)

Appendix

Flow Paths

For Block Type Valves



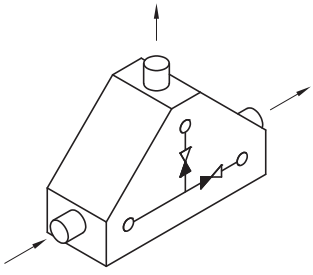


Figure A | **1F23**

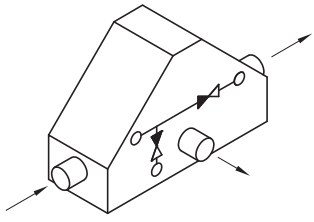


Figure B | **1F35**

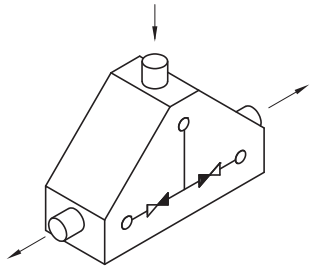


Figure C | **2F13**

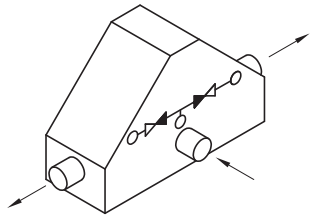
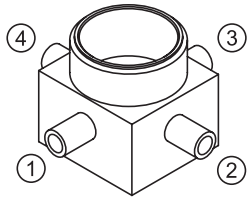


Figure D | **5F13**

For 3-way Type Valves



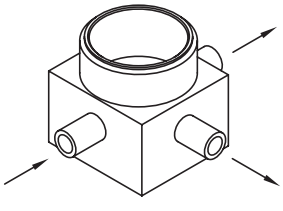


Figure E | **1F23**

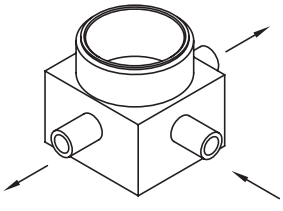


Figure F | **2F13**

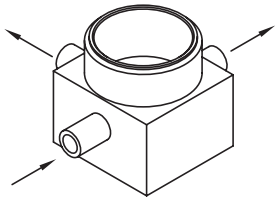


Figure G | **1F34**

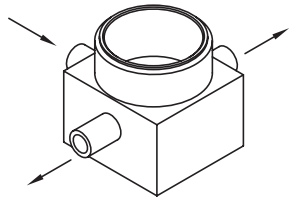
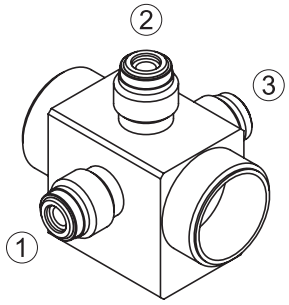


Figure H | **4F13**

For Mono Type Valves



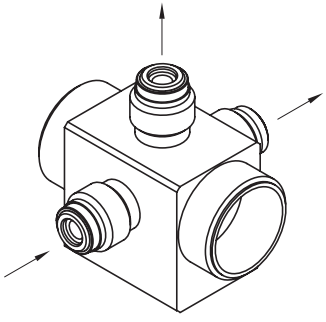


Figure A | **1F23**

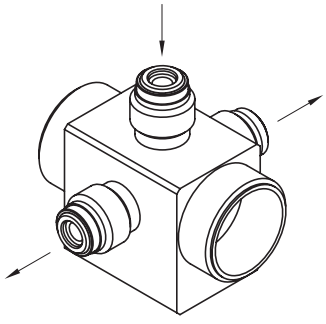


Figure B | **1F35**

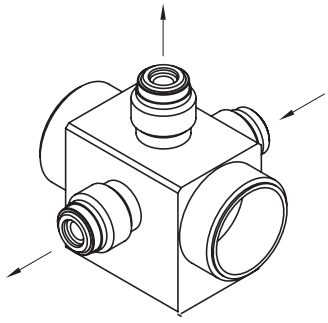


Figure C | **2F13**

Gauge Port Configurations

Figure A

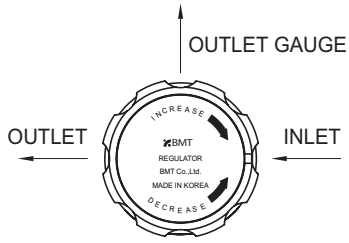


Figure B

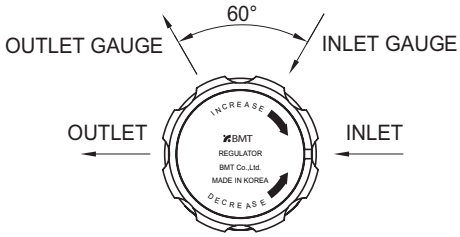


Figure C

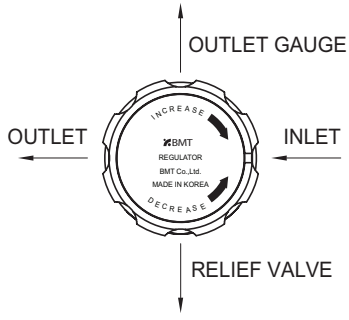


Figure D

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- Compact Switchboard
- Motor Control Center (MCC)
- Smart Distribution Board
- Energy Management System (EMS)

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