SUPERLOKUSA

BLOCK & BLEED VALVE

High Technology Valve, Flange & Fitting Series

SUPERLOK®

SUPERLOKUSA

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High Technology Valve & Fitting Series

INTEGRAL BLOCK & BLEED VALVES

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INTRODUCTION

SUPERLOK's response to the demand for reduction in leakage paths has been the combination of primary and secondary valves into one compact unit. The combining of piping and instrument valves into a single unit has benefited various markets.

SUPERLOK can offer the special combination of double block and bleed valve systems together with fittings. Choice of this combination results in the elimination of tapered thread connections and the need for thread sealant.

APPLICATION & INSTALLATION

SOLUTIONS

SUPERLOK instrumentation products provided the ultimate suitable solutions for an integral block & bleed valves, which consists of a one piece forged body, featuring a choice of end connections and body style.

Conventional Installation <1>

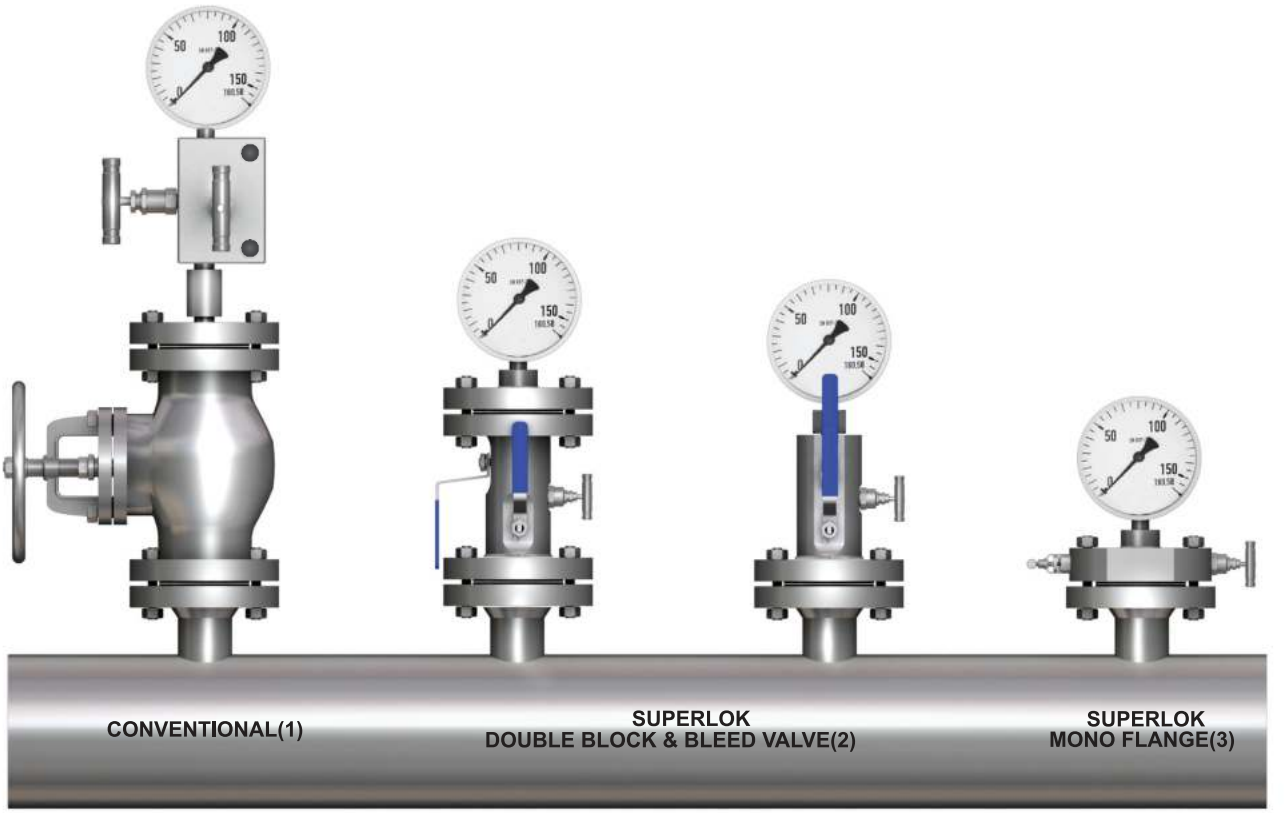
- A welded flange, connected to a primary ANSI class isolating valve. The primary valve will be connected to a secondary instrument valve. A pressure gauge or transmitter will then be installed downstream of the instrument valve.

SUPERLOK BLOCK & BLEED Valve <2>

- A one-piece integral forging incorporating up to 3 ball valve or mixture of ball and needle design.
- Improved safety : leak paths reduced by up to 60%
- Reduced costs : installation and component costs reduced by up to 70%
- Reduced weight : by up to 80%
- Reduced susceptibility to problems caused by vibration.

SUPERLOK Monoflange <3>

- More compact then SUPERLOK DBB valve, adding further space and weight saving possibilities.
- Improved safety : leak paths reduced by up to 60%, less susceptibility to vibration
- Reduced costs : installation and component costs saving up to 80%
- Reduced weight : up to 85%

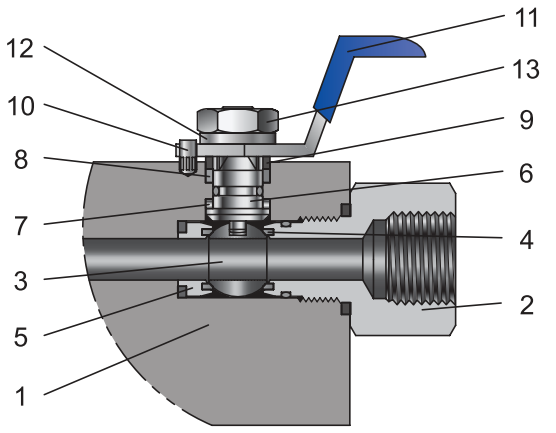


SPECIFICATION

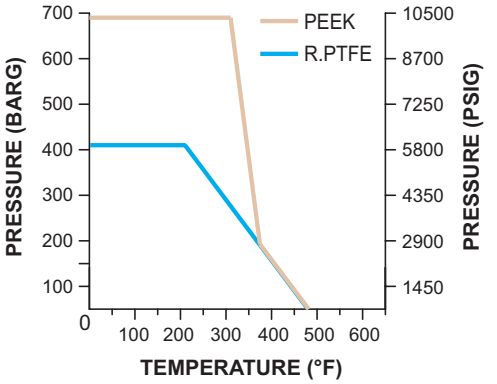
Design codes

- ANSI / ASME B 16.34 - Designed to meet the pressure and temperature requirements
- ANSI / ASME B 16.5 - Flange dimensions
- ANSI / ASME B 1.20.1 - National pipe threads
- API 607 / BS 6755 - Fire safe designed

Ball Valve



	DESCRITION	BODY MATERIAL		
		STAINLESS STEEL	CARBON STEEL	DUPLEX STAINLESS STEEL
1	BODY	A182 F316	A350 LF2	A182 F51
2	OULET CONNECTOR	A182 F316	A350 LF2	A182 F51
3	BALL	A479 TP316		S31803
4	BALL SEAL	PTFE / R.PTFE / PEEK		
5	SEAT CAPSULE	A479 TP316		S31803
6	STEM	A479 TP316		S31803
7	LOWER STEM SEAL	PTFE		
8	UPPER STEM SEAL	GRAPHITE		
9	PACKING GLAND	A479 TP316		S31803
10	STOP PIN	SS 316		S31803
11	HANDLE	SS 316		
12	STEM WASHER	SS 316		
13	STEM NUT	A194 8M		

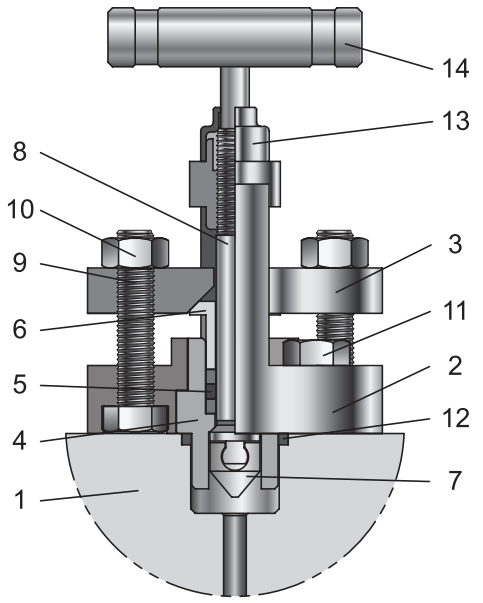


- 316 Stainless steel as standard.
- Pressure rating up to 10,000 psig (690bar).
- Temperature rating -71°F to 482°F (-57°C to 250°C).

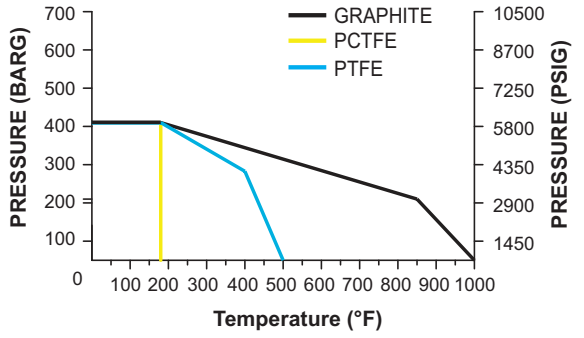
Features

- One piece or two piece body design -minimize leakage paths.
- Ball seat choice of seat materials : PTFE (virgin or filled) , PCTFE , PEEK.
- End connector threads are fully isolated from process.
- Fully encapsulated ball seat.
- Superior finished ball for low operating torque.
- Floating ball design providing seat wear compensation.
- Anti static design as standard.
- Blowout proof stem design.
- Colour coded & function identified handle.
- Bore size : Full bore, Reducer bore , 10mm , 14mm , 20mm.
- Optional : handle locking available , NACE compliance.

Outside screw and yoke(OS&Y) needle valve



	DESCRIPTION	BODY MATERIAL		
		STAINLESS STEEL	CARBON STEEL	DUPLEX STAINLESS STEEL
1	BODY	A182 F316	A350 LF2	A182 F51
2	OS & Y BONNET	A351 CF8M	A352 LCC	A182 F51
3	GLAND FLANGE	A351 CF8M	A352 LCC	A182 F51
4	INSERT	A479 TP316		S31803
5	PACKING	GRAPHITE		
6	BUSHING	A479 TP316		S31803
7	VEE TIP	SS630 + Hard Cr		
8	STEM	A479 TP316		S31803
9	FLANGE BOLT	A193 B8M	A320 L7M	A453 Gr.660
10	FLANGE NUT	A194 8M	A194 Gr.7	
11	BONNET BOLT	A193 B8M	A320 L7M	
12	BONNET SEAL	GRAPHITE		
13	DUST CAP	NYLON		
14	BAR HANDLE	A276 TP316		S31803

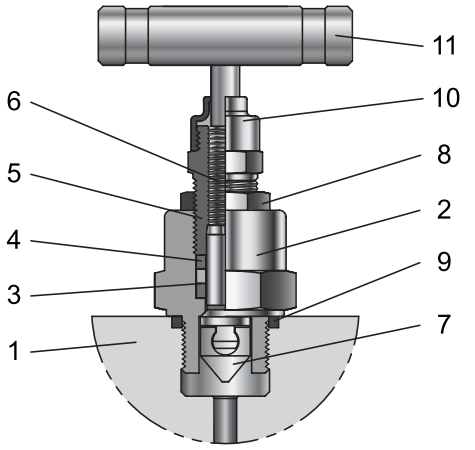


- 316 Stainless steel as standard.
- Pressure rating up to 6,000 psig (413bar).
- Temperature rating -65°F to 1000°F (-54°C to 538°C).

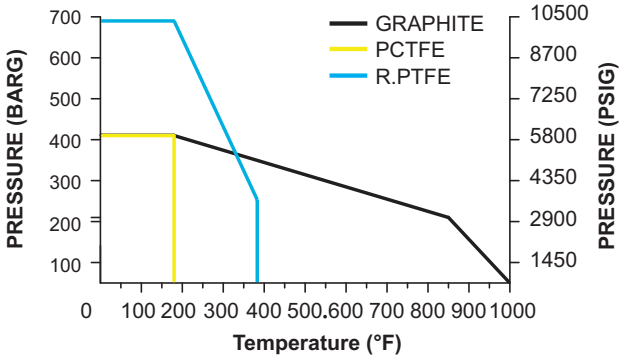
Features

- Externally adjustable gland.
- PTFE or Graphite packing for bubble tight sealing.
- Self centering crimped needle tip for bubble tight shut off and repeatability.
- Back seat design provides secondary stem sealing and prevents stem blow out.
- Color coded close contact dust cap and function label for easy identification.
- Bonnet seal ensures a bubble tight between body and bonnet.
- Stem threads are completely isolated from the process.
- Yoke of investment casting is precision casted for strength and perfect stem alignment.
- Bolted bonnet for strength.

Globe style needle valve



	DESCRITION	BODY MATERIAL		
		STAINLESS STEEL	CARBON STEEL	DUPLEX STAINLESS STEEL
1	BODY	SS 316	A350 LF2	A182 F51
2	BONNET	SS 316	A350 LF2	A182 F51
3	PACKING	GRAPHITE		
4	PACKING GLAND	A479 TP316		S31803
5	PACKING BOLT	SS 316	A350 LF2	S31803
6	STEM	A479 TP316		S31803
7	VEE TIP	SS630 + Hard Cr		
8	LOCK NUT	SS 316	A350 LF2	S31803
9	BONNET SEAL	GRAPHITE		
10	DUST CAP	NYLON		
11	BAR HANDLE	A276 TP316		S31803



- 316 Stainless steel as standard.
- Pressure rating up to 10,000 psig (690bar).
- Temperature rating -65°F to 1000°F (-54°C to 538°C).

Features

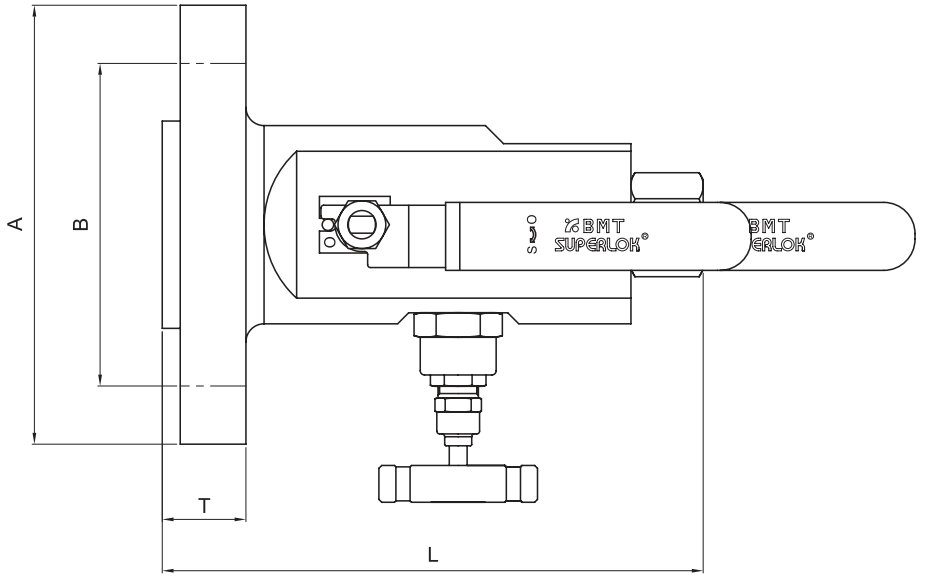
- Rolled stem operating threads for low torque operation.
- Gland packing in PTFE or Graphite for bubble tight sealing.
- Color coded close contact dust cap and function label for easy identification.
- Self centering crimped needle tip for bubble tight seat sealing.
- Close contact dust cap for operating thread protection.
- Back seat design provides secondary stem sealing and prevents stem blowout.
- Stem threads are completely isolated from the process.
- Packing bolt with easy access.
- Lock nut for vibration protection.

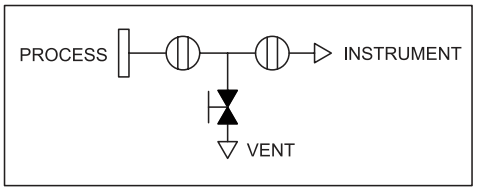
Block & Bleed valve

Features

- ANSI B16.5 flanged inlet connections 1/2" to 3" sizes Class 150 rated to class 2500 rated.
- 1/2" -1" F.NPT Thread outlet to ANSI/ASME B1.20.1 (depending on bore size).
- 1/2" F.NPT Thread vent connection to ANSI/ASME B1.20.1
- Standard materials of Stainless steel ASTM A182 F316/F316L, Carbon steel ASTM A350 LF2/A105, Duplex ASTM A182 F51.
- Optional materials include Super Duplex, Monel, Hastelloy, Inconel.
- Raised face and ring type joint flange styles.
- One-piece forged construction flange as standard.
- Fire safe designed (and tested) to meet BS 6755 Part 2/API 607.
- DBB & SBB Products meet the relevant code requirement of ASME VIII, ASMEB 16.34, B16.5, B31.3 and API 6D.
- Bubble tight shut off.
- Locking and anti tamper devices for all valve types available option.
- Positive lever stop.
- User preferred handles.
- Permanent affixed reference label.

DB1 SERIES





Dimensions

(10mm BORE)

SIZE (inch)	RATING (lb)	DIMENSION (mm)			
		L (RF)	A	B	T
1/2 (DN15)	150	170	89	60.3	11.2
	300		96	66.7	14.2
	600	179			20.6
	900/1500	186	121	82.5	28.8
	2500		134	88.9	36.6
3/4 DN(20)	150	175	99	69.8	12.7
	300		118	82.5	15.7
	600				22.1
	900/1500	179	130	88.9	31.8
	2500	186	140	95.2	38.2
1 (DN25)	150	170	108	79.4	14.2
	300		124	88.9	17.5
	600	179			23.9
	900/1500	186	150	101.6	34.8
	2500		159	108.0	41.5
1-1/2 (DN40)	150	170	127	98.4	17.5
	300	179	156	114.3	20.6
	600				28.8
	900/1500	186	178	124.0	38.2
	2500	200	203	146.1	50.9
2 (DN50)	150	179	152	120.6	19.1
	300		165	127.0	22.4
	600	186			31.8
	900/1500	200	216	165.1	44.5
	2500	208	235	171.5	57.2

*Dimensions are for reference only and are subject to change.

Dimensions

(14mm BORE)

SIZE (inch)	RATING (lb)	DIMENSION (mm)			
		L (RF)	A	B	T
3/4 DN(20)	150	208	99	69.8	12.7
	300		118	82.5	15.7
	600				22.1
	900/1500	218	130	88.9	31.8
	2500	224	140	95.2	38.2
1 (DN25)	150	208	108	79.4	14.2
	300		124	88.9	17.5
	600	218			23.9
	900/1500	224	150	101.6	34.8
	2500	227	159	108.0	41.5
1-1/2 (DN40)	150	208	127	98.4	17.5
	300	218	156	114.3	20.6
	600				28.8
	900/1500	224	178	124.0	38.2
	2500	238	203	146.1	50.9
2 (DN50)	150	218	152	120.6	19.1
	300		165	127.0	22.4
	600	224			31.8
	900/1500	238	216	165.1	44.5
	2500	246	235	171.5	57.2

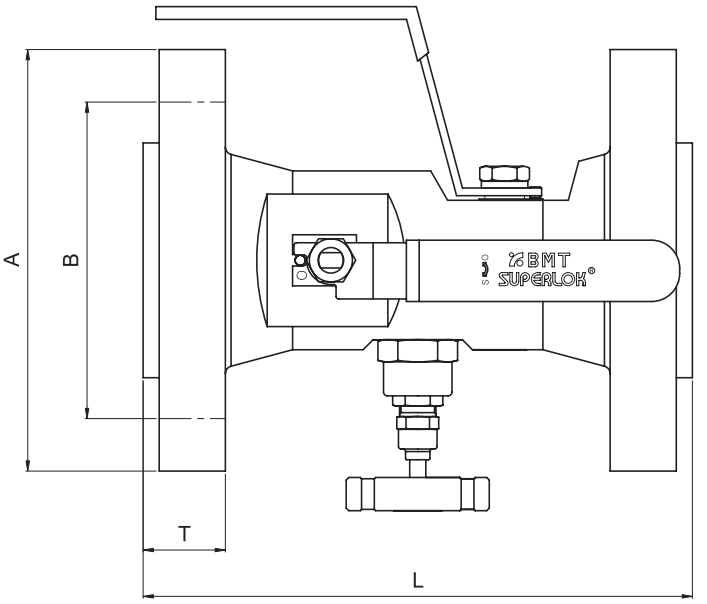
*Dimensions are for reference only and are subject to change.

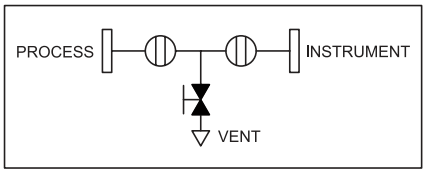
(20mm BORE)

SIZE (inch)	RATING (lb)	DIMENSION (mm)			
		L (RF)	A	B	T
1 (DN25)	150	235	108	79.4	14.2
	300		124	88.9	17.5
	600	244			23.9
	900/1500	251	150	101.6	34.8
	2500		159	108.0	41.5
1-1/2 (DN40)	150	235	127	98.4	17.5
	300	244	156	114.3	20.6
	600				28.8
	900/1500	251	178	124.0	38.2
	2500	265	203	146.1	50.9
2 (DN50)	150	244	152	120.6	19.1
	300		165	127.0	22.4
	600	251			31.8
	900/1500	265	216	165.1	44.5
	2500	273	235	171.5	57.2

*Dimensions are for reference only and are subject to change.

DB2 SERIES





Dimensions

(10mm BORE)

SIZE (inch)	RATING (lb)	DIMENSION (mm)			
		L (RF)	A	B	T
1/2 (DN15)	150	235	89	60.3	11.2
	300		96	66.7	14.2
	600				20.6
	900/1500	254	121	82.5	28.8
	2500	267	134	88.9	36.6
3/4 DN(20)	150	235	99	69.8	12.7
	300		118	82.5	15.7
	600				22.1
	900/1500	254	130	88.9	31.8
	2500	267	140	95.2	38.2
1 (DN25)	150	235	108	79.4	14.2
	300		124	88.9	17.5
	600	254			23.9
	900/1500	267	150	101.6	34.8
	2500		159	108.0	41.5
1-1/2 (DN40)	150	235	127	98.4	17.5
	300	254	156	114.3	20.6
	600				28.8
	900/1500	267	178	124.0	38.2
	2500	314	203	146.1	50.9
2 (DN50)	150	254	152	120.6	19.1
	300		165	127.0	22.4
	600	267			31.8
	900/1500	314	216	165.1	44.5
	2500	334	235	171.5	57.2

*Dimensions are for reference only and are subject to change.

Dimensions

(14mm BORE)

SIZE (inch)	RATING (lb)	DIMENSION (mm)			
		L (RF)	A	B	T
3/4 DN(20)	150	235	99	69.8	12.7
	300		118	82.5	15.7
	600				22.1
	900/1500	254	130	88.9	31.8
	2500	267	140	95.2	38.2
1 (DN25)	150	235	108	79.4	14.2
	300		124	88.9	17.5
	600	254			23.9
	900/1500	267	150	101.6	34.8
	2500	273	159	108.0	41.5
1-1/2 (DN40)	150	235	127	98.4	17.5
	300	254	156	114.3	20.6
	600				28.8
	900/1500	267	178	124.0	38.2
	2500	334	203	146.1	50.9
2 (DN50)	150	254	152	120.6	19.1
	300		165	127.0	22.4
	600	267			31.8
	900/1500	334	216	165.1	44.5
	2500		235	171.5	57.2

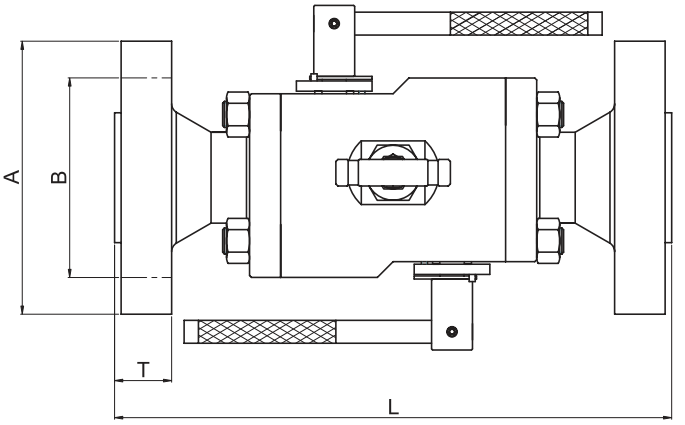
*Dimensions are for reference only and are subject to change.

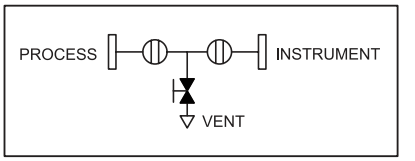
(20mm BORE)

SIZE (inch)	RATING (lb)	DIMENSION (mm)			
		L (RF)	A	B	T
1 (DN25)	150	235	108	79.4	14.2
	300		124	88.9	17.5
	600	254			23.9
	900/1500	267	150	101.6	34.8
	2500	273	159	108.0	41.5
1-1/2 (DN40)	150	235	127	98.4	17.5
	300	254	156	114.3	20.6
	600				28.8
	900/1500	268	178	124.0	38.2
	2500	334	203	146.1	50.9
2 (DN50)	150	254	152	120.6	19.1
	300		165	127.0	22.4
	600	173			31.8
	900/1500	334	216	165.1	44.5
	2500		235	171.5	57.2

*Dimensions are for reference only and are subject to change.

Dimensions





(REDUCER BORE)

SIZE (inch)	BORE (mm)	RATING (lb)	DIMENSIONS (mm)					
			RF FLANGE		RTJ FLANGE		A	B
			L	T	L	T		
1-1/2 (DN40)	25.4	150	280	17.5	290	22.3	127	98.4
		300	285	20.6	295	25.4	156	114.3
		600	300	28.8	300	28.8		
		900/1500	370	38.2	370	38.2	178	124.0
		2500	400	50.9	403	52.4	203	146.1
2 (DN50)	38.1	150	365	19.1	375	23.9	152	120.6
		300	375	22.4	388	28.7	165	127.0
		600	390	31.8	393	33.3		
		900/1500	415	44.5	418	46.0	216	165.1
		2500	475	57.2	478	58.7	235	171.5
3 (DN80)	50.8	150	400	23.9	413	28.7	191	152.4
		300	410	28.4	423	34.7	210	168.1
		600	430	38.2	433	39.7		
		900/1500	440	54.2	443	55.7	241 / 267	190.5 / 203.2
		2500	500	72.9	506	76.1	305	228.6

*Dimensions are for reference only and are subject to change.

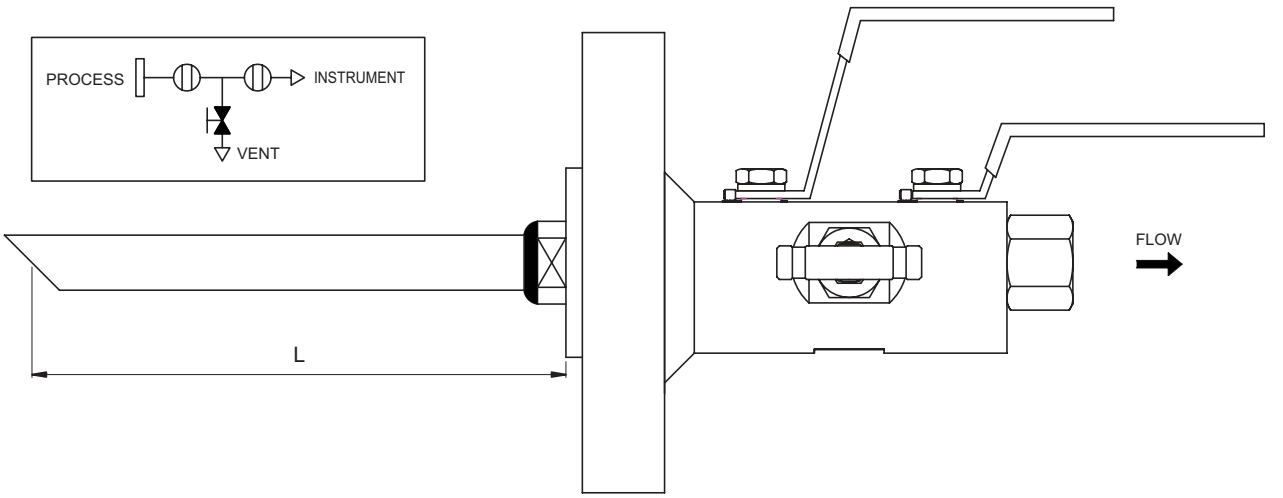
(FULL BORE)

SIZE (inch)	BORE (mm)	RATING (lb)	DIMENSIONS (mm)					
			RF FLANGE		RTJ FLANGE		A	B
			L	T	L	T		
1 (DN25)	25.4	150	270	14.2	280	19.0	108	79.4
		300	280	17.5	290	22.3	124	88.9
		600	290	23.9	290	23.9		
		900/1500	365	34.8	365	34.8	150	101.6
		2500	380	41.5	380	41.5	159	108.0
1-1/2 (DN40)	38.1	150	360	17.5	370	22.3	127	98.4
		300	370	20.6	380	25.4	156	114.3
		600	385	28.8	385	28.8		
		900/1500	400	38.2	400	38.2	178	124.0
		2500	460	50.9	463	52.4	203	146.1
2 (DN50)	50.8	150	390	19.1	400	23.9	152	120.6
		300	400	22.4	413	28.7	165	127.0
		600	415	31.8	418	33.3		
		900/1500	480	44.5	483	46.0	216	165.1

*Dimensions are for reference only and are subject to change.

SAMPLING VALVE

This manifold range is designed to replace conventional multiple-valve installations where sampling of the process stream is required. This design has been developed to remove a sample directly from the process stream at full system pressure.

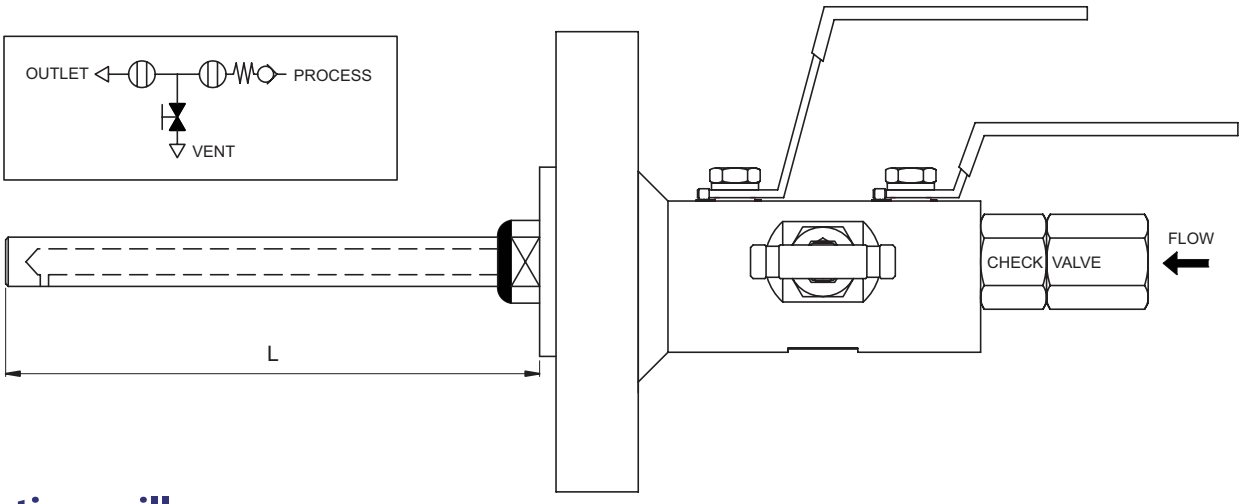


Sampling probe

The probe length must be specified from the raised face to the end of the probe in mm , to the nearest mm.
Probes are supplied to suit the insertion length required by the pipeline and thus must be specified by the customer

CHEMICAL INJECTION VALVE

This manifold range is designed to replace conventional multiple-valve installations where injection into the process stream is required. This design has been developed to inject directly into the process stream at full system pressure.



Injection quill

The probe length must be specified from the raised face to the end of the probe in mm .
Probe length shall be decided on consideration of injection insert length in the pipeline and customer's request.

Non return check valve

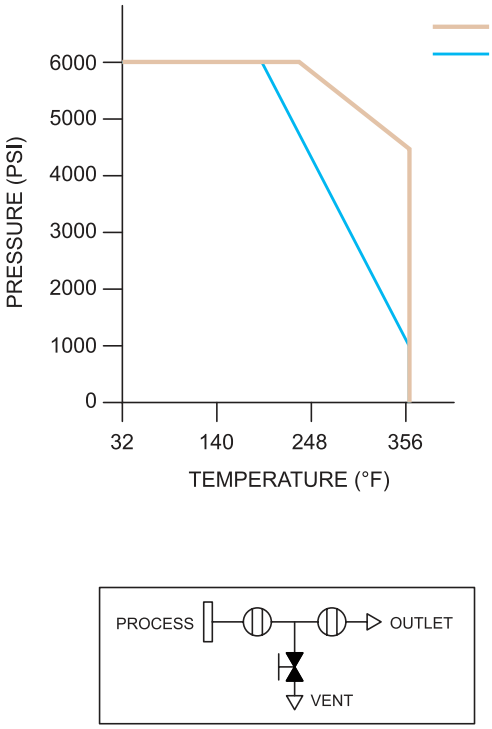
This poppet type spring return valve has a viton soft seal(SUPERLOK standard)

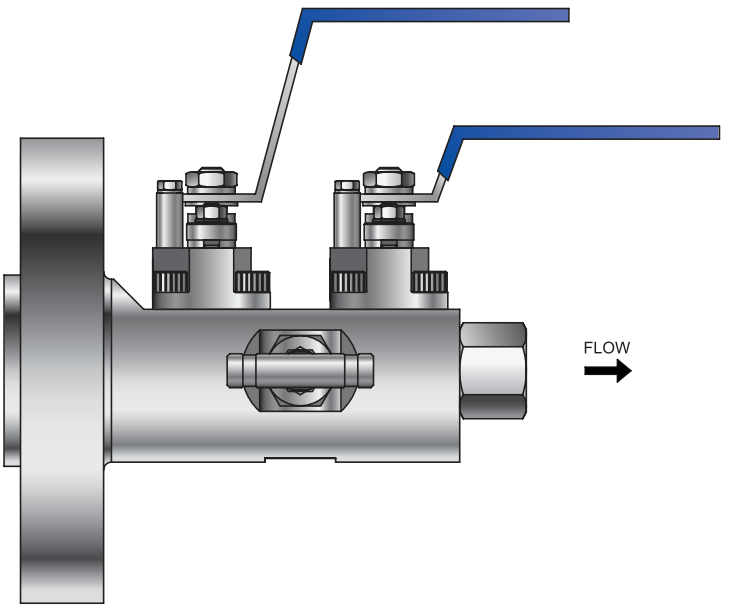
FUGITIVE EMISSION

ISO 15848 parts 1&2 (defining a classification system and qualification procedures, and production acceptance test of industrial valves, respectively) specify new ultra low standards for emissions. This standard is becoming the requirement for oil and gas and petrochemical organizations worldwide. The standard was originally created for process valves and control valves but is now being applied to Instrument valves which include primary isolation valves, especially on environmentally sensitive projects.
Meeting these low levels is a challenge, which BMT Instrument has solved with the new ball and needle valve designs used in these DBB valves and mono flanges.
These designs meet the highest class 'A' level over the temperature range -29°C to +180°C, alongside the standard instrumentation manifold pressure ranges.
Production testing and certification is available upon request. Please specify sample quantity required for production testing with your order.

Valve Specification

- Tightness class A >1 x 10-6 mg.s-1.m-1.
- Maximum cold working pressure rating 6,000 psig.
- Temperature rating -50°C to 180°C (-58°F to 356°F)
- ISO15848-1 prototype tested using global helium vacuum method.





The ISO 15848 standard effectively sets a requirement for zero emissions for processes involving volatile air pollutants and hazardous fluids.This design has been developed to minimise fugitive emissions.

Ordering Information

Example-1) : DB211-R8C-B111-LF2
1 2 3 4 5 6 7 8

Example-2) : SB111-R8A8-D111-AB
1 2 3 4 5 6 5 7 8

1. Valves
SB - SINGLE BLOCK & BLEED VALVE
DB - DOUBLE BLOCK & BLEED VALVE

2. Valve type
1 - FLANGE X FNPT
2 - FLANGE X FLANGE
3 - MNPT X FNPT
4 - FNPT X FNPT
5 - MSW X FNPT
6 - SW X FNPT

3. Valve Series

IDENTIFY		1st ISOLATE	2st ISOLATE	VENT
SINGLE BLOCK TYPE	1	BALL	-	NEEDLE
	2			OS & Y
	3			BALL
	4	NEEDLE		NEEDLE
	5	OS & Y		
	6			OS & Y
DOUBLE BLOCK TYPE	1	BALL	BALL	NEEDLE
	2			OS & Y
	3			BALL
	4	NEEDLE	NEEDLE	NEEDLE
	5	OS & Y	OS & Y	NEEDLE
	6			OS & Y
	7	TR BALL	TR BALL	NEEDLE
	8			OS & Y
*A		FUGITIVE EMISSION CL-A		
*B		FUGITIVE EMISSION CL-B		

* To select the Fugitive Emission type, please add suffix of "A" or "B" to the part number of Valve Series.

4. Bore size (mm)
(BLANK) - 10mm(STANDARD)
1 - 14mm
2 - 20mm
3 - 25mm
4 - 32mm
5 - 38mm
6 - 50mm

5. Connection size
R - RAISED FACE FLANGE
J - RING JOINT FLANGE
F - FLAT FACE FLANGE
AF - AP16B FLANGE
SA - SAE J518 FLANGE
IS - IS06164 FLANGE
JF - JIS FLANGE
+
4 - 1/4″
6 - 3/8″
8 - 1/2″
12 - 3/4″
16 - 1″
24 - 1-1/2″
32 - 2″
48 - 3″

6. Pressure class
A - 150
B - 300
C - 600
D - 900
E - 1500
F - 2500
S - 800
G - 2000psi
H - 3000psi
I - 5000psi
J - 10000psi

8. Body material
(BLANK) - SS316
15 - A105
LF2 - A350 LF2
F51 - A182 F51
M40 - MONEL ALLOY 400

7. Option + Trim + Seat + O-Ring

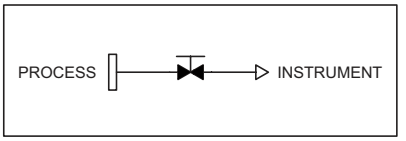
Option		TRIM		SEAT		O-RING	
TYPE	IDENTIFY	TYPE	IDENTIFY	TYPE	IDENTIFY	TYPE	IDENTIFY
STANDARD(FIRE SAFETY)	BLANK(A)	Body = Trim	BLANK(0)	PTFE	BLANK(0)	NBR	BLANK(0)
SAMPLING PROBE	B	SS316	1	R.PTFE+GLASS	1	VITON	1
CHEMICAL INJECTION	C	CF8M	2	R.PTFE+CARBON	2	EPDM	2
LOCKING DEVICE	D	SS316L	3	PEEK	3	KALREZ	3
ANTI TAMPER KEY	E	SS304	4	PCTFE	4	CR	4
-	-	A105 + ENP	5	POM	5	SILICON	5
-	-	A105 + CR	6	DEVLON-V	6	AED	6
-	-	MONEL 400	7	DELIN	7	HNBR	7
-	-	316 + Stellite	8	METAL	8		

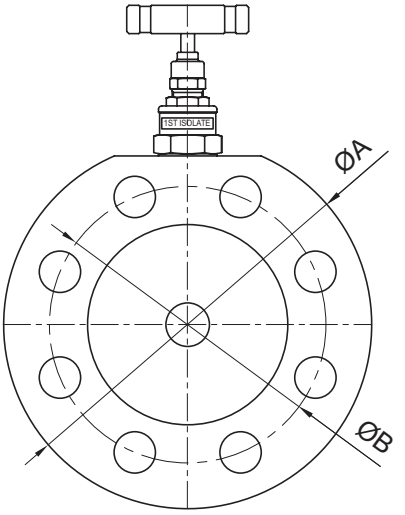
Monoflange valve

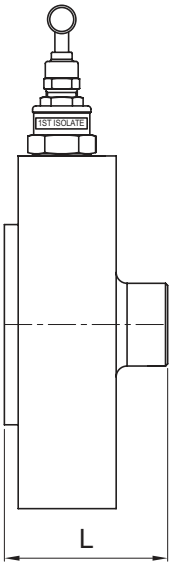
Features

- ANSI B16.5 flanged inlet connections 1/2" to 2" sizes Class 150 rated to class 2500 rated.
- 1/2"-14 NPT(female) standard outlet.
- 1/4"-18 NPT(female) standard vent.
- Standard materials of Stainless steel ASTM A182 F316/F316L, Carbon steel ASTM A350 LF2/A105, Duplex ASTM A182 F51.
- Optional materials include Super Duplex, Monel, Hastelloy, Inconel.
- Combined needle and OS & Y valves available.
- Raised face and ring type joint flange styles.
- One-piece forged construction flange as standard.
- Fire safe designed to meet BS 6755 Part 2 / API 607. (As option)
- Pressure boundary designs calculated to ASME VIII Div 1 and verified by testing.
- Heat code traceable material to EN 10204.3.1.
- Bubble tight shut off valve seats 17-4 PH tips standard.
- Color coded functional valves.
- Locking and anti tamper devices for all valve types available. (as option)
- Permanent marked body with full order and specification details.

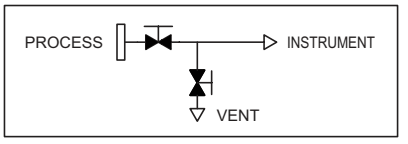
MF1V1 Series

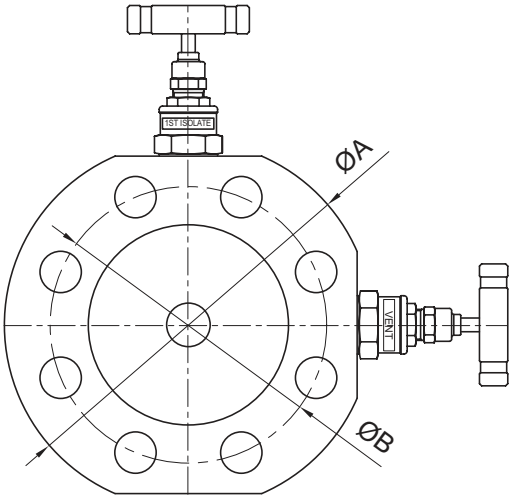


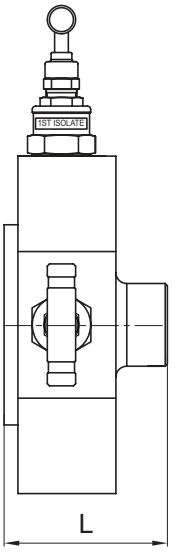




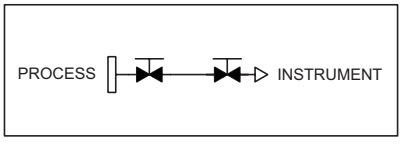
MF1V2 Series

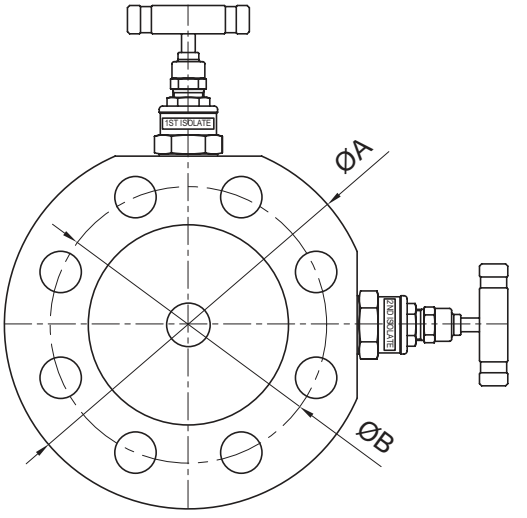


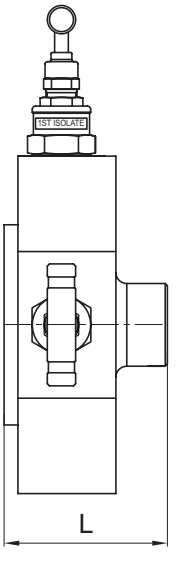




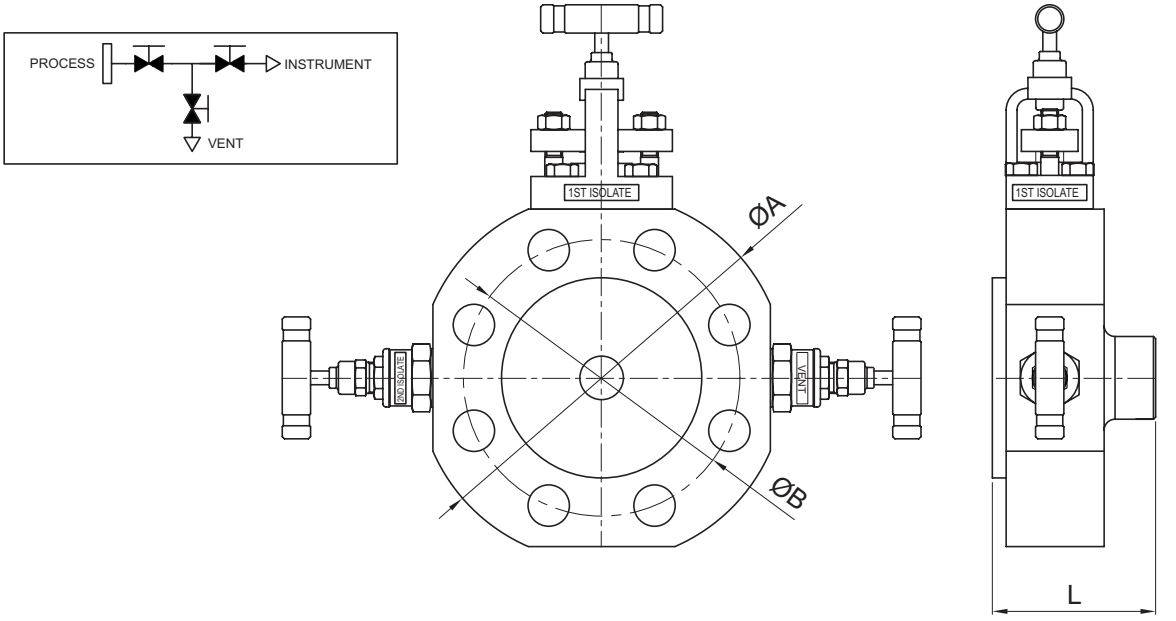
MF1V3 Series







MF1V4 SERIES



Dimensions

SIZE (inch)	RATING (lb)	DIMENSION (mm)			
		L(RF)	L(RTJ)	A	B
1/2 (DN15)	150	64	-	89	60.3
	300		64	96	66.7
	600	68			
	900/1500			121	82.5
	2500			134	88.9
3/4 DN(20)	150	64	-	99	69.8
	300		68	118	82.5
	600	68			
	900/1500			130	88.9
	2500	73	73	140	95.2
1 (DN25)	150	64	68	108	79.4
	300			124	88.9
	600	68			
	900/1500	73	73	150	101.6
	2500			159	108.0
1-1/2 (DN40)	150	64	68	127	98.4
	300	69	69	156	114.3
	600	73	73		
	900/1500			178	123.8
	2500	82	84	203	146.1
2 (DN50)	150	69	73	152	120.6
	300		75	165	127.0
	600	73			
	900/1500	82	84	216	165.1

*Dimensions are for reference only and are subject to change.

Ordering Information

Example-1) : MF1V41-J8C8-E-AB
1 2 3 4 3 5 6

Example-2) : MF1V11-R8C8-LF2
1 2 3 4 3 6

1. Valves
MF - MONO FLANGE

2. Valve type

IDENTIFY			1st ISOLATE	2st ISOLATE	VENT
1 - FLANGE X FNPT 2 - FLANGE X FLANGE	V1	1	NEEDLE	-	-
		2	OS & Y		
	V2	1	NEEDLE	-	NEEDLE
		2	OS & Y		
	V3	1	NEEDLE	NEEDLE	-
		2	OS & Y		
	V4	1	NEEDLE	NEEDLE	NEEDLE
		2	OS & Y	NEEDLE	
		3		OS & Y	

3. Connection size
R - RAISED FACE FLANGE (BLANK)
J - RING JOINT FLANGE
F - FLAT FACE FLANGE
AF - AP16B FLANGE
SA - SAE J518 FLANGE
IS - IS06164 FLANGE
JF - JIS FLANGE

+

8 - 1/2"
12 - 3/4"
16 - 1"
24 - 1-1/2"
32 - 2"
48 - 3"

4. Pressure class
A - 150
B - 300
C - 600
D - 900
E - 1500
F - 2500

5. Option
A - STANDARD (FIRE SAFETY)
D - LOCKING DEVICE
E - ANTI TAMPER KEY
F - BOLTED BONNET

6. Body material
(BLANK) - SS316
15 - A105
LF2 - A350 LF2
F51 - A182 F51
M40 - MONEL ALLOY 400