

TVI MEDIUM & HIGH PRESSURE VALVES



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MEDIUM & HIGH PRESSURE VALVES & FITTINGS

quality and reliability, backed by one of the best service organizations in the industry.

Pipe Valves and Fittings to 15,000 psi (1,034 bar)

TVI offers a complete line of pipe fittings, pipe hex nipples, pipe check valves and pipe line filters. All pipe valves use the NPT and BSP connection, fittings use the NPT connection.

- Sizes 1/4, 3/8, 1/2, 3/4 and 1 inch NPT Connection

Medium Pressure to 20,000 psi (1,380 bar)

A complete line of medium pressure valves, fittings, tubing, Line fittings, angle filters, anti-vibration fittings and safety head assemblies are available through our catalog.

- Sizes 1/4, 3/8, 9/16, 3/4 and 1 inch Medium Pressure Connection



High Pressure to 60,000 psi (4,140 bar)

Whatever your high pressure needs, PMT is the source. We supply a complete line of high pressure valves, fittings, tubing, check valves, line filters, angle filters, anti-vibration fittings and safety head assemblies.

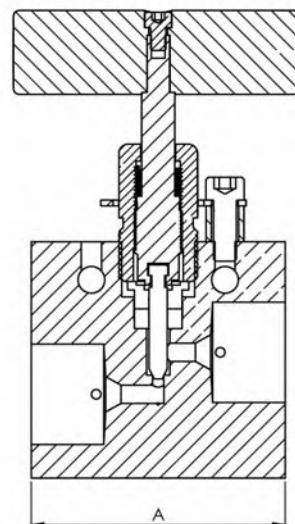
- Sizes 1/4, 3/8 and 9/16 inch High Pressure Connection

TVI pipe valves with metal to metal seats have a high level of safety and reliability under adverse operating conditions. These valves may be used both with gases and liquids.

TVI offers a complete line of medium pressure fittings, tubing, check valves, line filters, anti-vibration fittings and safety head assemblies. All medium pressure valves and fittings use the medium pressure style connection. This coned and threaded connection features orifice sizes to match the high flow characteristics of the medium pressure valve, fitting and tubing line.

Medium Pressure Valves feature:

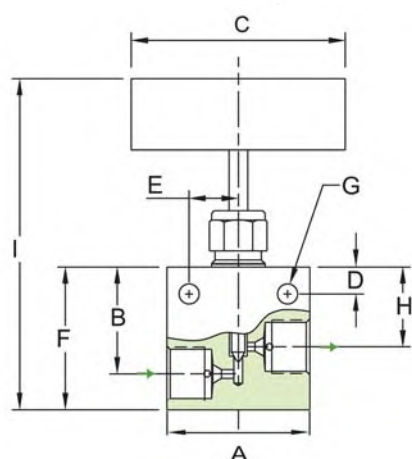
- Rising stem design.
- 316 L (1.4404) wetted parts for excellent corrosion resistance.
- Standard valves are supplied with Teflon/Carbon packing and may be operated to 450°F (230°C).
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem and seat life, greater durability for repeated open and close cycles.
- PTFE and carbon packing with metal back-up rings offers reliable stem to body sealing.
- Non-rotating stem prevents stem to seat galling. Stem sleeve and packing gland materials have been selected to achieve optimum thread cycle life and reduced handle torque. All stem sleeve threads are rolled, assuring smooth operation.
- Safety weep holes for all pressure connections and packing area.



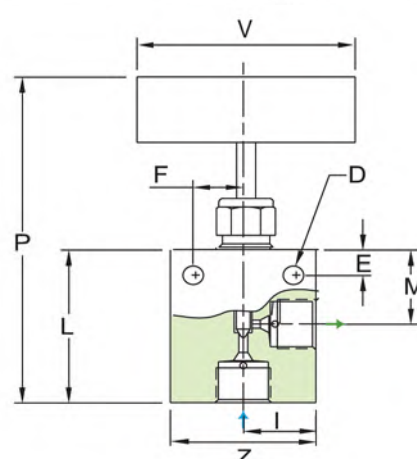
Medium Pressure Needle Valves

Pressures to 20,000 psi (1,380 bar)

Part Number	O.D. Tube in.	Orifice (mm)	Dimensions in mm									Valve Panel Hole	Block Thick-ness
			I	F	B	G	D	E	C	H	A		
2-Way Straight													
20N-4MP2S	1/4	2.7	122.3	51	41.1	6	9.5	15.8	75	30.2	51	19.1	20.1
20N-6MP2S	3/8	5	126.2	51	41.1	6	9.5	15.8	75	30.2	51	19.1	20.1
20N-9MP2S	9/16	7.8	160.2	73.2	60.5	9	11.5	17.5	100	44.5	63.5	25.4	25.9
20N-12MP2S	3/4	11	179.5	95	76	11	16	22.3	262	57.2	76	31.8	35
20N-16MP2S	1	14.5	251	118	95.3	14	28.7	31.8	262	71.4	105	41.1	45



2- Way Straight

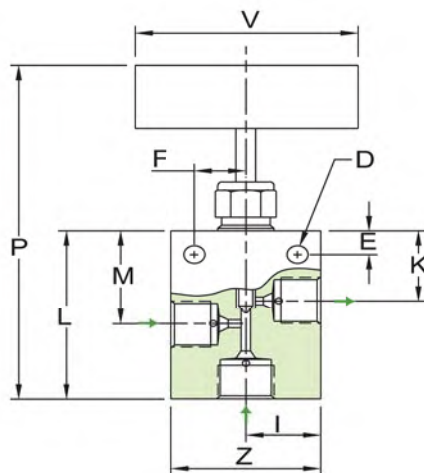


2-Way Angle

Part Number	O.D. Tube in.	Orifice (mm)	Dimensions in. (mm)										Valve Panel Hole	Block Thickness
			P	L	M	D	E	F	V	I	Z	K		
2-Way Angle														
20N-4MP2A	1/4	2.7	134	61.7	30.2	6	9.5	15.8	75	25.4	51		19.1	20.1
20N-6MP2A	3/8	5	134	61.7	30.2	6	9.5	15.8	75	25.4	51		19.1	20.1
20N-9MP2A	9/16	7.8	176.1	85.9	44.5	9	11.5	17.5	100	31.8	63.5		25.4	25.9
20N-12MP2A	3/4	11	195	108	57.2	11	16	22.3	262	38	76		31.8	35
20N-16MP2A	1	14.5	256	130	71.4	14	28.7	31.8	262	52.5	105		41.1	45

Medium Pressure Needle Valves

Pressures to 20,000 psi (1,380 bar)



3-Way/ 2 On Pessure

Part Number	O.D. Tube in.	Orifice (mm)	Dimensions in. (mm)										Valve Panel Hole	Block Thick-ness
			P	L	M	D	E	F	V	I	Z	K		
3-Way/ 2 On Pessure														
20N-4MP3W	1/4	2.7	134	66.5	41.1	6	9.5	15.8	75	25.4	51	30.2	19.1	20.1
20N-6MP3W	3/8	5	134	66.5	41.1	6	9.5	15.8	75	25.4	51	30.2	19.1	20.1
20N-9MP3W	9/16	7.8	175.9	92	60.5	9	11.5	17.5	100	31.8	63.5	44.5	25.4	25.9
20N-12MP3W	3/4	11	205	117.5	76	11	16	22.3	262	38	76	57.2	31.8	35
20N-16MP3W	1	14.5	259	149	95.3	14	28.7	31.8	262	52.5	105	71.4	41.1	45

TVI MEDIUM & HIGH PRESSURE VALVES

Medium Pressure Fittings

Pressures to 20,000 psi (1,380 bar)

All medium pressure fittings are supplied with glands and collars. Refer to the catalog for order when using the plug, the collar is not needed.

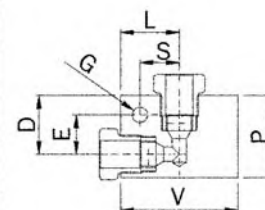
Connection Components

Tubing Size	GLAND	COLLER	PLUG	TUBING CAP
1/4	20-G4H	20-C4H	20-P4H	20-TC4H
3/8	20-G6H	20-C6H	20-P64H	20-TC6H
9/16	20-G9H	20-C9H	20-P9H	20-TC9H
3/4	20-G12H	20-C12H	20-P12H	20-TC12H
1	20-G16H	20-C16H	20-P16H	20-TC16H



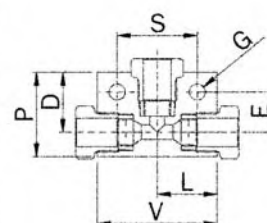
Part Number	Connection Type	O.D. Tube Size in.	Orifice (mm)	Dimensions in(mm)							Block Thickness
				L	P	V	D	E	S	G	
Elbow											

L4MF-20	4MF	1/4	2.7	19	28	39	19	12.5	12.5	5.6	16
L6MF-20	6MF	3/8	5	25.4	35	50.8	25.4	16	16	6.6	20
L9MF-20	9MF	9/16	7.8	31.8	44.5	63.5	31.8	21.3	21.3	8.4	26
L12MF-20	12MF	3/4	11	38	57.2	76	38	25.4	25.4	8.9	35
L16MF-20	16MF	1	14.5	52.5	76	105	52.5	35	35	13.5	45



Tee											
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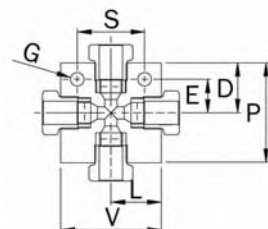
T4MF-20	4MF	1/4	2.7	19	28	39	19	12.5	12.5	5.6	16
T6MF-20	6MF	3/8	5	25.4	35	50.8	25.4	16	16	6.6	20
T9MF-20	9MF	9/16	7.8	31.8	44.5	63.5	31.8	21.3	21.3	8.4	26
T12MF-20	12MF	3/4	11	38.1	57.5	76	38.1	25.4	25.4	8.9	35
T16MF-20	16MF	1	14.5	52.5	76	105	52.5	35	35	13.5	45



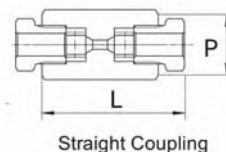
Medium Pressure Fittings

Pressures to 20,000 psi (1,380 bar)

Part Number	Connection Type	O.D. Tube Size in.	Orifice (mm)	Dimensions in (mm)							Block Thickness
				L	P	V	D	E	S	G	
Cross											
X4MF-20	4MF	1/4	2.7	19.5	39	39.1	19.5	12.5	25	5.6	16
X6MF-20	6MF	3/8	5.1	25.4	50.8	50.8	25.4	16	32	6.6	20
X9MF-20	9MF	9/16	7.8	31.8	63.5	63.5	31.8	21.3	42.6	8.4	26
X12MF-20	12MF	3/4	11.1	38.1	76	76	38.1	25.4	50.8	8.9	35
X16MF-20	16MF	1	14.3	52.5	105	105	52.5	35	70	13.5	45

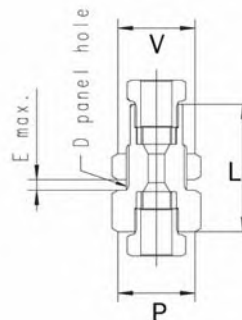


Straight Coupling											
F4MF-20	4MF	1/4	2.7	41	17.5						
F6MF-20	6MF	3/8	5.1	44.5	22.5						
F9MF-20	9MF	9/16	7.8	53.8	27						
F12MF-20	12MF	3/4	11.1	63.5	36.5						
F16MF-20	16MF	1	14.3	89	50.8						



Straight Coupling

Bulkhead Coupling											
BHF4MF-20	4MF	1/4	2.7	47.6	27	27	20.5	17			
BHF6MF-20	6MF	3/8	5	51	27	27	24	9.8			
BHF9MF-20	9MF	9/16	7.8	60.5	36.5	36.5	28.5	9.8			
BHF12MF-20	12MF	3/4	11	71.5	41.5	41.5	34.8	12			
BHF16MF-20	16MF	1	14.5	90	50.8	50.8	42.5	13			



Medium Pressure Nipples And Tubing

Pressures to 20,000 psi (1,380 bar)

Coned and Threaded Nipples

TVI stocks pre-cut coned and threaded nipples in lengths up to 12" (305 mm). In addition, nipples can be purchased in any custom length.

Connection	Length							MAWP
	2.75" (69.9)	3.00" (76.2)	4.00" (101.6)	6.00" (152.4)	8.00" (203.2)	10.00" (254.0)	12.00" (304.8)	
1/4" M/P	20N4M2-*	20N4M3-*	20N4M4-*	20N4M6-*	20N4M8-*	20N4M10-*	20N4M12-*	20,000 PSI 1380 bar
3/8" M/P		20N6M3-*	20N6M4-*	20N6M6-*	20N6M8-*	20N6M10-*	20N6M12-*	20,000 PSI 1380 bar
9/16" M/P			20N9M4-*	20N9M6-*	20N9M8-*	20N9M10-*	20N9M12-*	20,000 PSI 1380 bar
3/4" M/P				20N12M6-*	20N12M8-*	20N12M10-*	20N12M12-*	20,000 PSI 1380 bar
1" M/P				20N16M6-*	20N16M8-*	20N16M10-*	20N16M12-*	20,000 PSI 1380 bar

Tubing

Catalog Number	Connection	O.D.	I.D.	MAWP
20TU4M*	1/4" M/P	0.750" (19.1)	0.109" (2.8)	20,000 PSI 1380 bar
20TU6M*	3/8" M/P	0.375" (9.5)	0.203" (5.2)	20,000 PSI 1380 bar
20TU9M*	9/16" M/P	0.562" (14.3)	0.312" (7.9)	20,000 PSI 1380 bar
20TU12M*	3/4" M/P	0.750" (19.1)	0.438" (11.1)	20,000 PSI 1380 bar
20TU16M*	1" M/P	1.000" (25.4)	0.562" (14.3)	20,000 PSI 1380 bar

*Complete catalog number by adding suffix 316 for 316 stainless steel or suffix 304 for 304 stainless steel. Other materials are also available, please consult factory.

TVI offers a complete selection of austenitic seamless cold-drawn stainless steel tubing for high pressure applications where both high strength and corrosion resistance are desired. Tubing is available in standard 20-24 foot lengths (6-7 meters), however, longer lengths are available on request.



Pipe Fittings

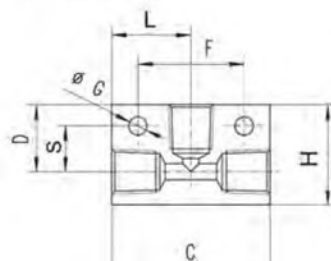
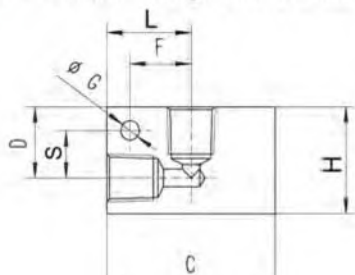
Pressures to 15,000 psi (1,034 bar)

Pipe Fittings are designed for liquid and gas applications.

Part Number	Connection Type	Orifice (mm)	Dimensions in (mm)							Thick-ness
			L	H	C	D	S	F	G	
Pipe Elbow										
PF15L4P	1/4" NPT	5	19	29	39	19	12.5	12.5	5.5	20
PF15L6P	3/8" NPT	7.9	25.4	38	51	25.4	16	16	6.5	26
PF15L8P	1/2" NPT	7.9	38	48	76	31.5	21.3	27.5	8.5	35
PF15L12P	3/4" NPT	17.5	38	57	76	38	25.4	25.4	9	35
PF15L16P	1" NPT	17.5	52.5	64	105	40	28	35	13.5	45

Pipe Tee										
PF15T4P	1/4" NPT	5	19.5	29	39	19	12.5	26	5.5	20
PF15T6P	3/8" NPT	7.9	25.4	38	51	25.4	16	32	6.5	26
PF15T8P	1/2" NPT	7.9	38	48	76	32	22	51	9	35
PF15T12P	3/4" NPT	17.5	38	56	76	38	25.4	51	9	35
PF15PT16P	1" NPT	17.5	52.5	64	105	40	28	70	13.5	45

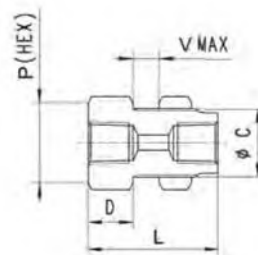
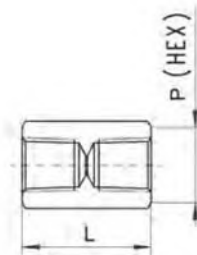
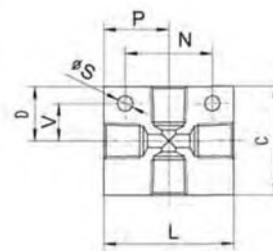
The P Series Fittings are available from 1/4" to 1"NPT to 15,200 psi



Pipe Fittings

Pressures to 15,000 psi (1,034 bar)

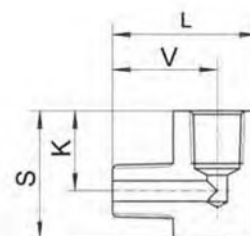
Part Number	Connection Type	Orifice (mm)	Dimensions in (mm)							Thick-ness
			L	P	C	D	V	N	S	
Pipe Cross										
PF15X4P	1/4" NPT	5	39.5	19.5	39	19.5	12.5	25	5.6	20
PF15X6P	3/8" NPT	7.9	51	25.4	51	25.4	16	32	6.6	26
PF15X8P	1/2" NPT	7.9	76.1	38	64	32	22	51	9	35
PF15X12P	3/4" NPT	17.5	76.1	38	76	38	25.4	51	9	35
PF15X16P	1" NPT	17.5	105	52.5	80	40	28	70	13.6	45
Pipe Coupling										
PF15F4P	1/4" NPT	5	38	20.5						
PF15F6P	3/8" NPT	7.9	41	27						
PF15F8P	1/2" NPT	7.9	52	30.5						
PF15F12P	3/4" NPT	17.5	69	36.5						
PF15F16P	1" NPT	17.5	64	50.8						
Pipe Bulkhead Coupling										
PF15BF4P	1/4" NPT	5	50.8	27	23	16	18			
PF15BF6P	3/8" NPT	7.9	60.5	36.5	29	20	16			
PF15BF8P	1/2" NPT	7.9	66.5	41.30	35.5	23	16			
PF15BF12P	3/4" NPT	17.5	66.5	50.8	43	23	12			
PF15BF16P	1" NPT	17.5	89	50.8	50	38	10			



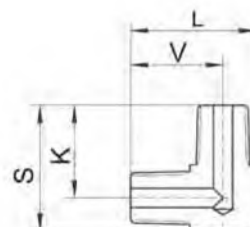
Pipe Fittings

Pressures to 15,000 psi (1,034 bar)

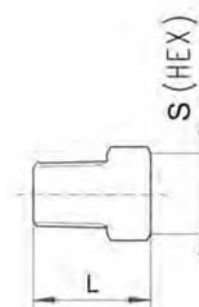
Part Number	Connection Type	Orifice (mm)	Dimensions in (mm)				Block Thickness
			L	S	V	K	
Street Pipe Elbow							
PF15SPL4P	1/4" NPT	5	38	38	28.5	25.4	20
PF15SPL6P	3/8" NPT	7.9	44.5	38	31.5	25.4	26
PF15SPL8P	1/2" NPT	7.9	57.2	50.8	41.5	31.8	26
PF15SPL12P	3/4" NPT	17.5	63.5	66.6	46	43.5	39
PF15SPL16P	1" NPT	17.5	76	76	54	51	45



Male Pipe Elbow							
PF15MPL4P	1/4" NPT	5	38	38	28.5	28.5	20
PF15MPL6P	3/8" NPT	7.9	44.5	44.5	31.8	31.8	26
PF15MPL8P	1/2" NPT	7.9	50.8	50.8	37.4	37.4	26
PF15MPL12P	3/4" NPT	17.5	66.6	66.6	47.5	47.5	39
PF15MPL16P	1" NPT	17.5	76	76	54	54	45



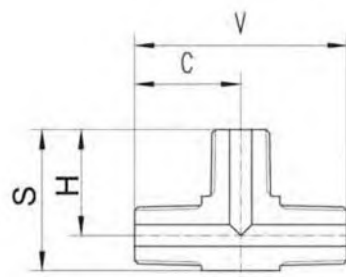
Pipe Plugs							
PF15P4P	1/4" NPT		28	17.8			
PF15P6P	3/8" NPT		28	22.5			
PF15P8P	1/2" NPT		39	27			
PF15P12P	3/4" NPT		39	36.5			
PF15P16P	1" NPT		49	36.5			



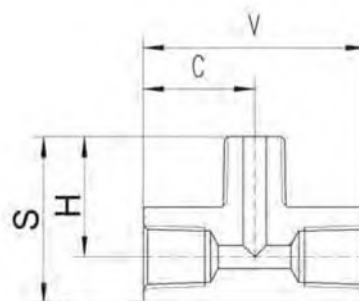
Pipe Fittings

Pressures to 15,000 psi (1,034 bar)

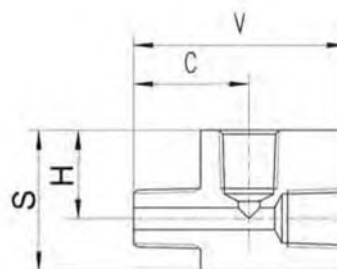
Part Number	Connection Type	Orifice (mm)	Dimensions in (mm)				Block Thickness
			V	S	C	H	
Male Pipe Tee							
PF15MPT4P	1/4" NPT	5	57.5	38	28.5	28.5	20
PF15MPT6P	3/8" NPT	7.9	63.5	44.5	32	32	26
PF15MPT8P	1/2" NPT	7.9	76.5	50.8	38	33	26
PF15MPT12P	3/4" NPT	17.5	89	66.6	44.5	44.5	39
PF15MPT16P	1" NPT	17.5	105	76	52.5	55	45



Male Branch Tee							
PF15BPT4P	1/4" NPT	5	50.8	38	25.4	28.5	20
PF15BPT6P	3/8" NPT	7.9	50.8	44.5	25.4	31.8	26
PF15BPT8P	1/2" NPT	7.9	76.5	57.5	38	41.2	32
PF15BPT12P	3/4" NPT	17.5	76.5	66.6	38	47.5	39
PF15BPT16P	1" NPT	17.5	105	76	52.5	54	45



Street Pipe Tee							
PF15SPT4P	1/4" NPT	5	50.8	35	29.5	25.4	20
PF15SPT6P	3/8" NPT	7.9	63.5	38	38	25.4	26
PF15SPT8P	1/2" NPT	7.9	76.5	50.8	41.5	31.5	32
PF15SPT12P	3/4" NPT	17.5	80	66.6	47	43.3	39
PF15SPT16P	1" NPT	17.5	105	76	54	54	45

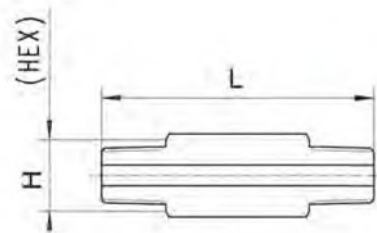


Pipe Hex Nipples

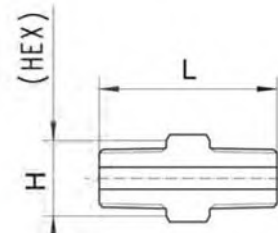
Pressures to 15,000 psi (1,034 bar)

Part Number	Connection Type	Working Pressure psi (bar)	Orifice (mm)	Dimensions in (mm)	
				L	H (Hex.)
Pipe Hex Nipples					

PF15M4P-4	1/4" NPT	15,000 (1,034)	5	101.5	17.46
PF15M4P-6				152.5	
PF15M4P-8				203.5	
PF15M6P-4	3/8" NPT	15,000 (1,034)	7.9	101.5	22.2
PF15M6P-6				152.5	
PF15M6P-8				203.5	
PF15M8P-4	1/2" NPT	15,000 (1,034)	7.9	101.5	27
PF15M8P-6				152.5	
PF15M8P-8				203.5	
PF15M12P-4	3/4" NPT	15,000 (1,034)	17.5	101.5	36.5
PF15M12P-6				152.5	
PF15M12P-8				203.5	
PF15M16P-4	1" NPT	15,000 (1,034)	17.5	101.5	36.5
PF15M16P-6				152.5	
PF15M16P-8				203.5	

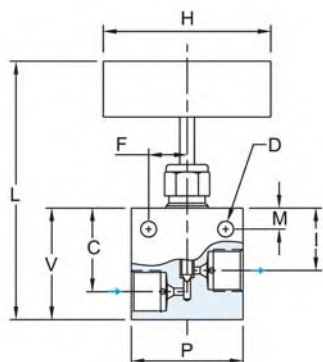


Pipe Hex Close Nipple					
PF15M4P	1/4" NPT	15,000 (1,034)	5	47	17.46
PF15M6P	3/8" NPT	15,000 (1,034)	7.9	48	22.2
PF15M8P	1/2" NPT	15,000 (1,034)	7.9	63.5	27
PF15M12P	3/4" NPT	15,000 (1,034)	17.5	71.5	36.5
PF15M16P	1" NPT	15,000 (1,034)	17.5	81	36.5

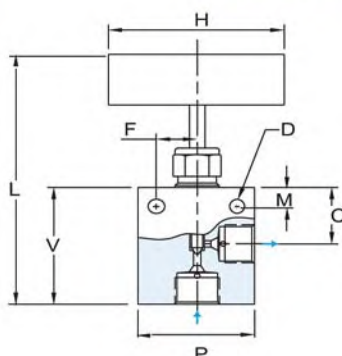


High Pressure Needle Valves

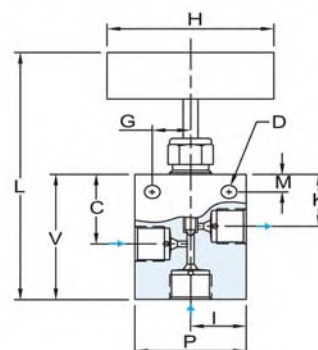
Pressures to 30,000 psi (2,068 bar)



2-Way Stright



2-Way Angle

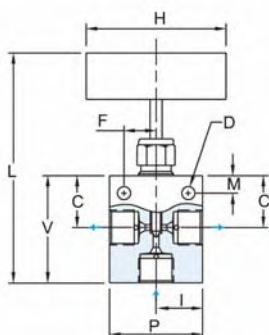


3-Way / 2 on Pressure

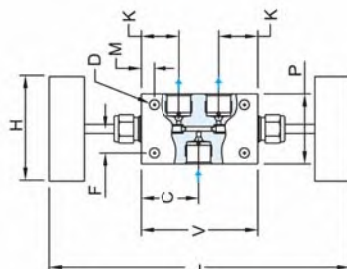
Part Number	O.D. Tube in.	Orifice (mm)	Dimensions in (mm)										Valve Panel Hole	Block Thick-ness
			L	V	C	D	M	F	H	I	P	K		
2-Way Stright														
30N-4HP2S	1/4	2.4	125	51	38	6	9.5	17.5	75	28.5	51		25.4	25.9
30N-6HP2S	3/8	3.2	125	51	38	6	9.5	17.5	75	28.5	51		25.4	25.9
30N-9HP2S	9/16	3.2	133	62	39.6	6	9.5	17.5	75	28.5	67		25.4	39.1
2-Way Angle														
30N-4HP2A	1/4	2.4	124	51	28.5	6	9.5	7.5	75	25.4	51		25.4	25.9
30N-6HP2A	3/8	3.2	128	56	28	6	9.5	17.5	75	25.4	51		25.4	25.9
30N-9HP2A	9/16	3.2	133	62	8.5	6	9.5	7.5	75	33.5	67		25.4	39.1
3-Way / 2 on Pressure														
30N-4HP3W	1/4	2.4	125	54.1	38	6	9.5	17.5	75	25.4	51	28.5	25.4	25.9
30N-6HP3W	3/8	3.2	133	63.5	38	6	9.5	17.5	75	25.4	51	28.5	25.4	25.9
30N-9HP3W	9/16	3.2	144	72.9	39.6	6	9.5	17.5	75	33.5	67	28.5	25.4	39.1

High Pressure Needal Valves

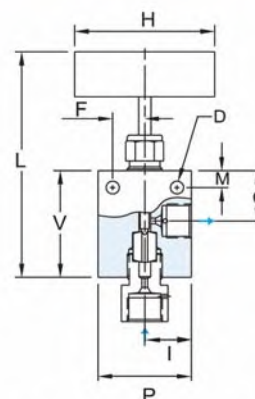
Pressures to 30,000 psi (2,068 bar)



3-Way / 1 on Pressure



3-Way / 2-Stem Manifold

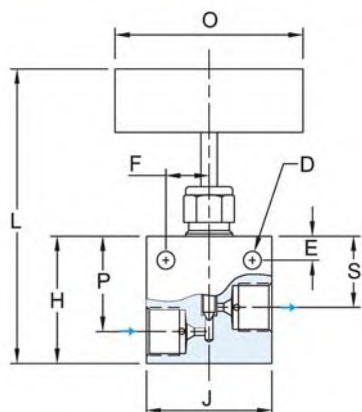


2-Way Angle / Replaceable Seat

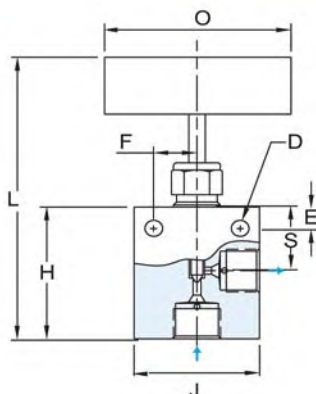
Part Number	O.D. Tube in.	Orifice (mm)	Dimensions in (mm)										Valve Panel Hole	Block Thickness
			L	V	C	D	M	F	H	I	P	K		
3-Way / 1 on Pressure														
30N-4HP4W	1/4	2.3	121	51	28.5	5.6	9.5	17.5	75	25.4	51		25.4	25.9
30N-6HP4W	3/8	3.2	124.5	56	28.5	5.6	9.5	17.5	75	25.4	51		25.4	25.9
30N-9HP4W	9/16	3.2	132	62	28.5	5.6	9.5	17.5	75	33.5	67		25.4	39.1
3-Way / 2-Stem Manifold														
30N-4HP5S	1/4	2.3	217	78	39.1	5.6	9.5	17.5	75	25.4	51	28.5	25.4	25.9
30N-6HP5S	3/8	3.2	221.5	82.5	41.5	5.6	9.5	17.5	75	25.4	51	28.5	25.4	25.9
30N-9HP5S	9/16	3.2	234	95	47.8	5.6	9.5	17.5	75	33.5	67	28.5	25.4	39.1
2-Way Angle / Replaceable Seat														
30N-4HP2AR	1/4	2.3	126	60.5	28.5	5.6	9.5	17.5	75	25.4	51		25.4	25.9
30N-6HP2AR	3/8	3.2	126	60.5	28.5	5.6	9.5	17.5	75	25.4	51		25.4	25.9
30N-9HP2AR	9/16	3.2	125	62	30	5.6	9.5	17.5	75	33.5	67		25.4	39.1

TVI MEDIUM & HIGH PRESSURE VALVES

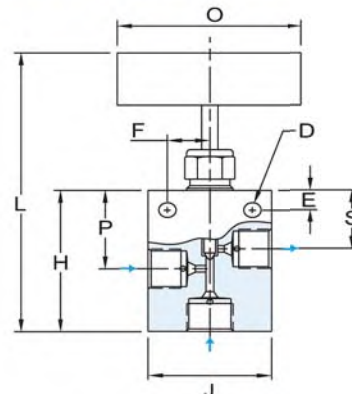
Pressures to 60,000 psi (4,140 bar)



2-Way Straight



2-Way Angle

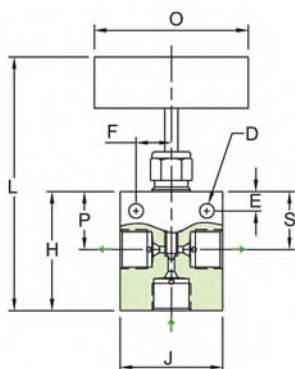


3-Way / 2 on Pressure

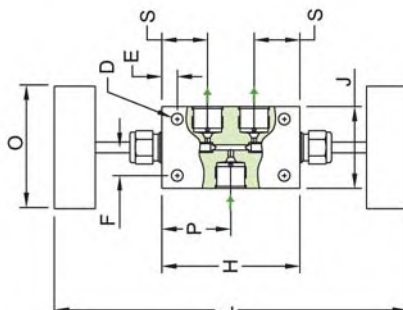
Part Number	O.D. Tube in.	Orifice (mm)	Dimensions in (mm)										Valve Panel Hole	Block Thick-ness
			L	H	P	D	E	F	O	S	J	K		
2-Way Straight														
60N-4HP2S	1/4	1.6	118.6	54.1	43	6	9.5	17.5	75	33.5	51		25.4	25.9
60N-6HP2S	3/8	1.6	122	56.9	43	6	9.5	17.5	75	33.5	51		25.4	25.9
60N-9HP2S	9/16	2	128	63.5	44.5	6	9.5	17.5	75	33	67		25.4	39.1
2-Way Angle														
60N-4HP2A	1/4	1.6	126	60.5	34	6	9.5	17.5	75	25.4	51		25.4	25.9
60N-6HP2A	3/8	1.6	131	66.5	33.5	6	9.5	17.5	75	25.4	51		25.4	25.9
60N-9HP2A	9/16	2	136	71.1	33.5	6	9.5	17.5	75	33.5	67		25.4	39.1
3-Way / 2 on Pressure														
60N-4HP3W	1/4	1.6	126	60.5	43	6	9.5	17.5	75	25.4	51	33.5	25.4	25.9
60N-6HP3W	3/8	1.6	135.5	70.1	43	6	9.5	17.5	75	25.4	51	33.5	25.4	25.9
60N-9HP3W	9/16	2	145	80	44.5	6	9.5	17.5	75	33.5	67	33	25.4	39.1

High Pressure Needle Valves

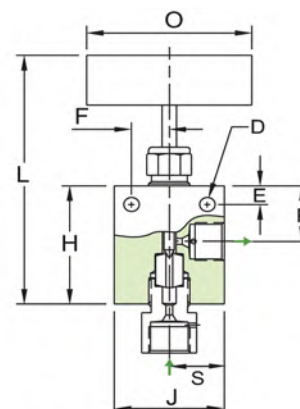
Pressures to 60,000 psi (1,380 bar)



3-Way / 1 on Pressure



3-Way / 2-Stem Manifold



2-Way Angle / Replaceable Seat

Part Number	O.D. Tube in.	Orifice (mm)	Dimensions in (mm)										Valve Panel Hole	Block Thick-ness
			L	H	P	D	E	F	O	S	J	K		
3-Way / 1 on Pressure														
60N-4H4W	1/4	1.6	126	60.5	33.5	6	9.5	17.5	75	25.4	51		25.4	25.9
60N-6HP4W	3/8	1.6	131	66.5	33.5	6	9.5	17.5	75	25.4	51		25.4	25.9
60N-9HP4W	9/16	2	136	71.1	33.5	6	9.5	17.5	75	33.5	67		25.4	39.1
3-Way / 2-Stem Manifold														
60N-4HP5S	1/4	1.6	217.4	87.4	43.7	6	9.5	17.5	75	25.4	51	33.5	25.4	25.9
60N-6HP5S	3/8	1.6	217.4	95.5	48	6	9.5	17.5	75	25.4	51	33.5	25.4	25.9
60N-9HP5S	9/16	2	235	105	2.6	6	9.5	17.5	75	33.5	67	33	25.4	39.1
2-Way Angle / Replaceable Seat														
60N-4HP2AR	1/4	1.6	131	66.5	33.5	6	9.5	17.5	75	25.4	51		25.4	25.9
60N-6HP2AR	3/8	1.6	131	66.5	33.5	6	9.5	17.5	75	25.4	51		25.4	25.9
60N-9HP2AR	9/16	2	131	66.5	33.5	6	9.5	17.5	75	33.5	67		25.4	39.1

Pressures to 60,000 psi (1,380 bar)

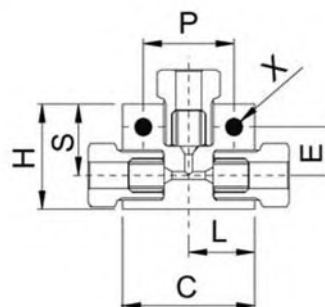
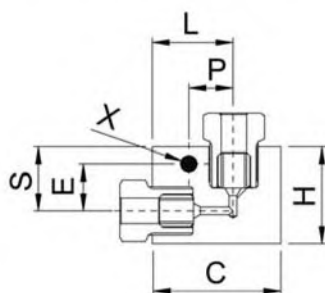
Connection Components

Tubing Size	GLAND	COLLER	PLUG	TUBING CAP
1/4	60-G4H	60-C4H	60-P4H	60-TC4H
3/8	60-G6H	60-C6H	60-P6H	60-TC6H
9/16	60-G9H	60-C9H	60-P9H	60-TC9H

Part Number	Connection Type	O.D. Tube Size in.	Orifice (mm)	Dimensions (mm)							Block Thick-ness
				L	H	C	S	E	P	X	
ELBOW											
L4HF-60	4HF	1/4	2.3	22.5	26	39	16	11.7	16.5	5.5	26
L6HF-60	6HF	3/8	3.3	32	38	51	25	18.5	17.5	6.5	26
L9HF-60	9HF	9/16	5	48	48	67	28	21	24	8.5	39

TEE											
T4HF-60	4HF	1/4	2.3	25.4	34	51	22.5	11.7	33	5.5	26
T6HF-60	6HF	3/8	3.3	25.4	39.7	51	27	18.5	35	6.5	26
T9HF-60	9HF	9/16	5	33.5	54	67	35	21	48	8.5	39

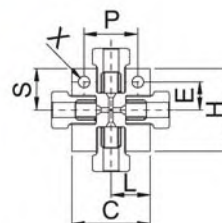
All high pressure fittings have coned and threaded type connections.



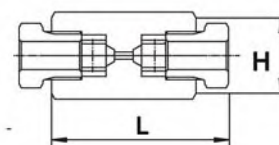
High Pressure Fittings

Pressures to 60,000 psi (1,380 bar)

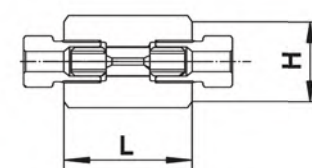
Part Number	Connection Type	O.D. Tube Size in.	Orifice (mm)	Dimensions in (mm)							Block Thickness
				L	H	C	S	E	P	X	
Cross											
X4HF-60	4HF	1/4	2.3	25.4	32	51	16	11.5	33	5.6	26
X6HF-60	6HF	3/8	3.3	25.4	54	51	27	18.5	35	6.5	26
X9HF-60	9HF	9/16	5	33.5	70	67	35	21	48	8.5	39



Straight Coupling											
F4HF-60	4HF	1/4	2.3	35	27						
F6HF-60	6HF	3/8	3.3	45	27						
F9HF-60	9HF	9/16	5	55.5	36.5						
Union Coupling											
UF4HF-60	4HF	1/4	2.3	35	27						
UF6HF-60	6HF	3/8	3.3	45	27						
UF9HF-60	9HF	9/16	5	55.5	36.5						

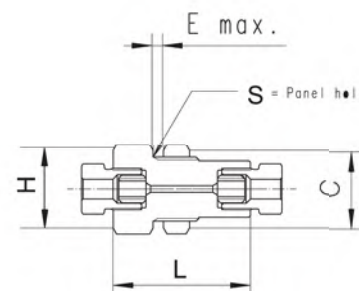


Straight Coupling



Union Coupling

Bulkhead Coupling											
BHF4HF-60	4HF	1/4	2.3	48	27	27	24	4			
BHF6HF-60	6HF	3/8	3.3	60.6	36.5	36.5	28.5	8.9			
BHF9HF-60	9HF	9/16	5	70	41.5	41.5	36.5	17			



High Pressure NIPPLES AND TUBING

Pressures to 60,000 psi (1,380 bar)

Coned and Threaded Nipples

stocks pre-cut coned and threaded nipples in lengths up to 12" (305 mm). In addition, nipples can be purchased to any custom length.

Connection	Length							MAWP
	2.75" (69.9)	3.00" (76.2)	4.00" (101.6)	6.00" (152.4)	8.00" (203.2)	10.00" (254.0)	12.00" (304.8)	
1/4" H/P	60N4H2-*	60N4H3-*	60N4H4-*	60N4H6-*	60N4H8-*	60N4H10-*	60N4H12-*	60,000 PSI 4140 bar
3/8" H/P		60N6H3-*	60N6H4-*	60N6H6-*	60N6H8-*	60N6H10-*	60N6H12-*	60,000 PSI 4140 bar
9/16" H/P			60N9H4-*	60N9H6-*	60N9H8-*	60N9H10-*	60N9H12-*	60,000 PSI 4140 bar
9/16" H/P			40N9H4-*	40N9H6-*	40N9H8-*	40N9H10-*	40N9H12-*	40,000 PSI 2760 bar
1" H/P				30N16H6-*	30N16H8-*	30N16H10-*	30N16H12-*	30,000 PSI 2070 bar

Tubing

offers a complete selection of austenitic seamless cold-drawn stainless steel tubing for high pressure applications where both high strength and corrosion resistance are desired. Tubing is available in standard 20-24 foot lengths (6-7 meters), however, longer lengths are available on request.



Catalog Number	Connection	O.D.	I.D.	MAWP
60TU4H-*	1/4" H/P	0.250" (6.4)	0.083" (2.1)	60,000 PSI 4140 bar
60TU6H-*	3/8" H/P	0.375" (9.5)	0.125" (3.2)	60,000 PSI 4140 bar
60TU9H-*	9/16" H/P	0.562" (14.3)	0.188" (4.8)	60,000 PSI 4140 bar
40TU9H-*	9/16" H/P	0.562" (14.3)	0.250" (6.4)	40,000 PSI 2760 bar
30TU16H-*	1" H/P	1.000" (25.4)	0.438" (11.1)	30,000 PSI 2070 bar

*Complete catalog number by adding suffix **316** for 316 stainless steel or suffix **304** for 304 stainless steel. Other materials are also available, please consult factory.

Check Valves

Pressures to 15,000 psi (1,380 bar)

Features & Benefits

- Prevents reverse flow where leak-tight shutoff is required
- Two styles to fit most applications:
 - Ball Seat Poppet — Metal-to-metal seat for rapid cycling or severe environments
 - Soft Seat Poppet — O-ring seat for fast shut-off and reliable seal; standard material is Nitrile. A variety of seal materials are available for even the harshest media
- Complete material traceability on all components
- Equipment can be manufactured to meet NACE MR-01-75 and American Petroleum Institute standards.

specifications

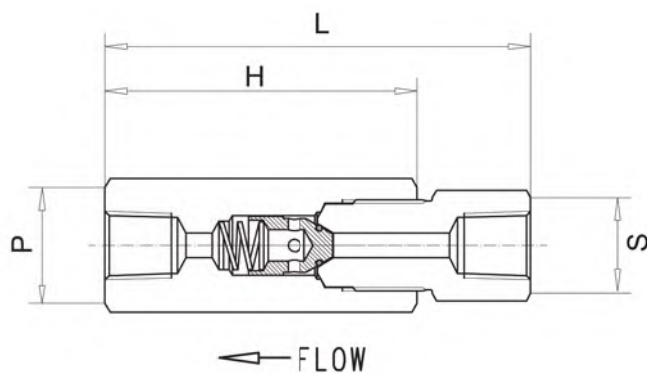
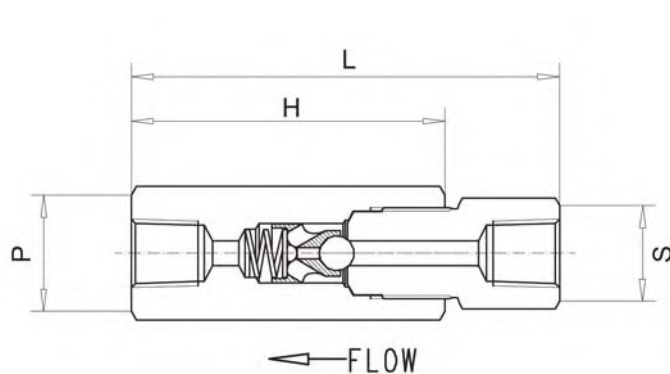
Max. Working Pressure:
Up to 60,000 PSI (4140 bar)

Temperature Ratings:
Ball Seat Poppet – -420° to 1200°F
(-251° to 648°C)
Soft Seat Poppet – -65° to 250°F
(-54° to 121°C) (with standard Nitrile seal)

Nominal Cracking Pressure:
15 PSI (1 bar)
Optional cracking pressures up to 100 PSI
(7 bar)

Materials: 316 stainless steel

Part Number		Connection Type	Pressure Rating psi (bar)	Orifice (mm)	Rated (Cv)	Dimensions (mm)			
O'RING PUPPET	BALL PUPPET					L	H	P (Hex.)	S (Hex.)
15OCV-4P	15BCV-4P	1/4" NPT	15,000 (1,034)	5	0.28	85.2	62	22.2	22.2
15OCV-6P	15BCV-6P	3/8" NPT	15,000 (1,034)	7.9	0.84	100	76	36.5	36.5
15OCV-8P	15BCV-8P	1/2" NPT	15,000 (1,034)	7.9	2.30	135.5	98	36.5	36.5
15OCV-12P	15BCV-12P	3/4" NPT	15,000 (1,034)	17.5	4.70	159.5	125	50.8	50.8
15OCV-16P	15BCV-16P	1" NPT	15,000 (1,034)	17.5	7.40	186	145	50.8	50.8



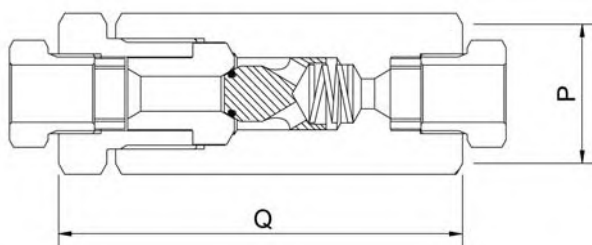
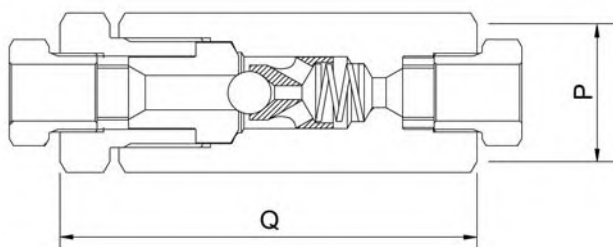
Check Valves

Pressures to 20,000 psi (1380 bar)

Part Number		Connection Type	Pressure Rating psi (bar)	Orifice (mm)	Rated (Cv)	Dimensions (mm)	
						P-Hex	Q
O'RING PUPPET	BALL PUPPET						
20-OCV4M	20-BCV4M	4MF	20,000 (1380)	2.9	0.28	22.3	74
20-OCV6M	20-BCV6M	6MF	20,000 (1380)	5	0.84	27	84
20-OCV9M	20-BCV9M	9MF	20,000 (1380)	7.9	2.30	36.5	109
20-OCV12M	20-BCV12M	12MF	20,000 (1380)	11	4.70	50.8	138.5
20-OCV16M	20-BCV16M	16MF	20,000 (1380)	14.5	7.40	50.8	167

Pressures to 60,000 psi (4,140 bar)

Part Number		Connection Type	Pressure Rating psi (bar)	Orifice (mm)	Rated (Cv)	Dimensions in (mm)	
						P-HEX	Q
O'RING PUPPET	BALL PUPPET						
60-OCV4H	60-BCV4H	4HF	60,000 (4140)	2.5	0.28	30.2	86.5
60-OCV6H	60-BCV6H	6HF	60,000 (4140)	3.1	0.84	30.2	96.5
60-OCV9H	60-BCV9H	9HF	60,000 (4140)	5	2.30	41.4	117



Relief Valves

PSR Series

20,000 psig (1380 bar)

PMR Series

60,000 psig (4140 bar)

PAR Series

20,000 psig (1380 bar)

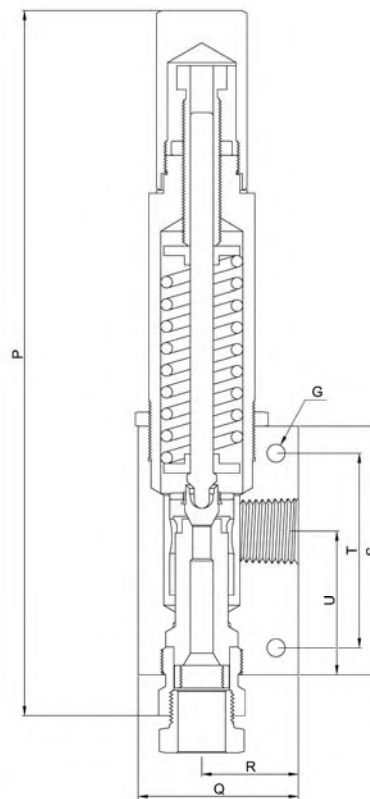
PSR Series 20,000 psig (1380 bar)

Features

- Set pressure: 1,500 to 20,000 psig (103 to 1380bar)
- Working temperature range: 32°F to 400°F (0°C to 204°C)
- Liquid or gas service
- Soft seat design to provide bubble tight shut-off of gas
- Factory-set, test, locked, and tagged with the set pressure
- Lock wire the cap and body together to maintain relief setting
- Free assembly positions

Typical Material

- 316 Stainless Steel



Dimensions, in.(mm)						
P	Q	R	S	T	U	G
9.46 (240.4)	2.00 (50.8)	1.19 (30.2)	3.25 (82.6)	2.25 (57.1)	1.94 (49.3)	0.28 (7.1)

Ordering Number	Inlet		Outlet Connection F NPT	Orifice in. (mm)	Cv	Minimum Set Pressure psig (bar)	Maximum Set Pressure psig (bar)	Maximum Back Pressure psig (bar)
	Tube O.D. in.	Connection						
PSR-9-3-1	9/16	9MF	3/4	0.312 (7.92)	1.2	1,500 (103)	5,000 (345)	500 (34.5)
PSR-9-3-2	9/16	9MF	3/4	0.25 (6.35)	0.8	5,000 (345)	10,000 (690)	500 (34.5)
PSR-9-3-3	9/16	9MF	3/4	0.156 (3.96)	0.3	10,000 (690)	20,000 (1379)	500 (34.5)

- NOTES: 1. Please specify the required set pressure when ordering.
2. Maximum system operating pressure should not exceed 90% of the set pressure.

Relief Valves

PMR Series

60,000 psig (4140 bar)

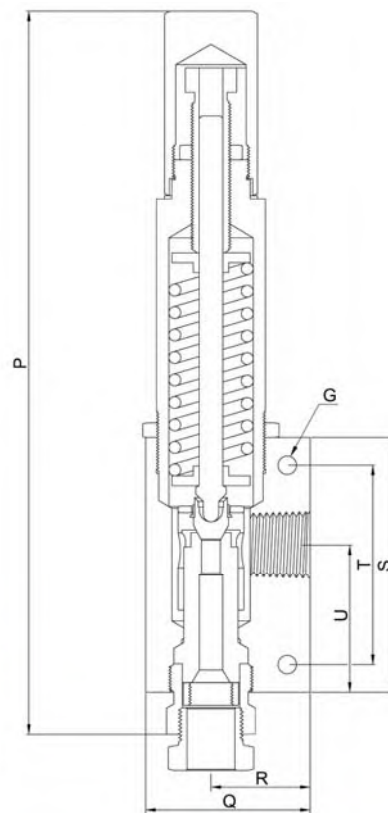
Features

- Set pressure: 3,000 to 60,000 psig (207 to 4140 bar)
- Working temperature range: -110°F to 400°F (-79°C to 204°C)
- Liquid or gas service
- Metal-to-metal seating to provide shut-off of liquids and gases under pressure to commercial tightness standards
- Factory-set, test, locked, and tagged with the set pressure
- Lock wire the cap and body together to maintain relief setting
- Free assembly positions

Typical Material

- 316 Stainless Steel

Dimensions, in.(mm)						
P	Q	R	S	T	U	G
(240.4)	2.00 (50.8)	1.19 (30.2)	3.25 (82.6)	2.25 (57.1)	1.94 (49.3)	0.28 (7.1)



Ordering Number	Inlet		Outlet Connection F NPT	Orifice Size in. (mm)	Cv	Minimum Set Pressure psig (bar)	Maximum Set Pressure psig (bar)	Maximum Back Pressure psig (bar)
	Tube O.D. in.	Connection						
PMR-9-3-1	9/16	9MF	3/4	0.312 (7.92)	1.2	3,000 (207)	5,000 (345)	500 (34.5)
PMR-9-3-2	9/16	9MF	3/4	0.250 (6.35)	0.8	5,000 (345)	10,000 (690)	500 (34.5)
PMR-9-3-3	9/16	9MF	3/4	0.188 (4.78)	0.45	10,000 (690)	15,000 (1034)	500 (34.5)
PMR-9-3-4	9/16	9MF	3/4	0.156 (3.96)	0.3	15,000 (1034)	20,000 (1379)	500 (34.5)
PMR-6-3-5	3/8	6HF	3/4	0.125 (3.18)	0.2	20,000 (1379)	30,000 (2068)	500 (34.5)
PMR-6-3-6	3/8	6HF	3/4	0.093 (2.36)	0.1	25,000 (1724)	45,000 (3103)	500 (34.5)
PMR-6-3-7	3/8	6HF	3/4	0.078 (1.98)	0.07	30,000 (2068)	60,000 (4137)	500 (34.5)

- NOTES: 1. Please specify the required set pressure when ordering.
2. Maximum system operating pressure should not exceed 90% of the relief valve set pressure.

Relief Valves

PAR Series 20,000 psig (1380 bar)

Features

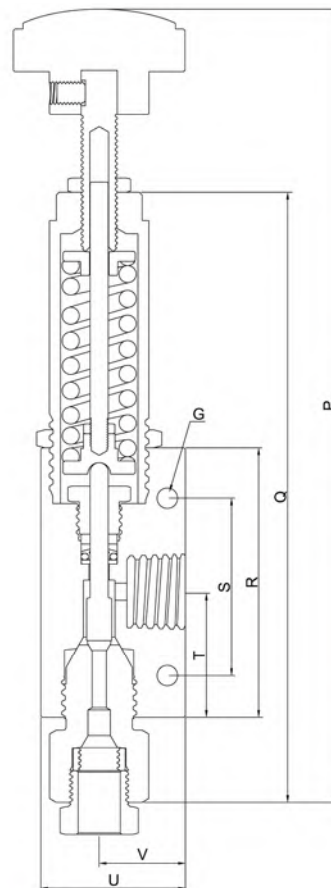
- Set pressure: 3,000 to 20,000 psig (207 to 1379 bar)
- Working temperature range: 32°F to 400°F (0°C to 204°C)
- Field adjustable
- Liquid or gas service
- Soft seat design to provide bubble tight shut-off of gas
- Easily exchangeable seat
- Free assembly positions

Typical Applications:

- Pressure gas systems
- Cryogenic systems
- Petro chemical applications

Typical Materials:

- 316 Stainless Steel



Dimensions, in.(mm)							
P	Q	R	S	T	U	V	G
10.98 (278.8)	8.45 (214.6)	3.74 (95.0)	2.46 (62.6)	1.75 (44.4)	2.00 (50.8)	1.19 (30.3)	0.28 (7.1)

Ordering Number	Inlet		Outlet Connection F NPT	Orifice Size in. (mm)	Cv	Minimum Set Pressure psig (bar)	Maximum Set Pressure psig (bar)	Maximum Back Pressure psig (bar)
	Tube O.D. in.	Connection						
PAR-9-3-1	9/16	9MF	3/4	0.197 (5.0)	0.5	3,000 (207)	10,000 (690)	500 (34.5)
PAR-9-3-2	9/16	9MF	3/4	0.093 (2.36)	0.1	10,000 (690)	20,000 (1379)	500 (34.5)

NOTE: Maximum system operating pressure should not exceed 90% of the relief valve set pressure.

Line Filter

Pressures to 15,000 psi (1,380 bar)

Dual-Disc Line Filters

sintered cup filters offer maximum filtration surface area for removal of contaminating particles from the fluid system. They may be used in systems which require high flow rates with minimum pressure drop.

Standard materials of construction are 316 stainless steel with 300 series stainless steel filter discs. Available in nominal ratings of: A, B, C

A=5/8, B=8/30, C=30/56

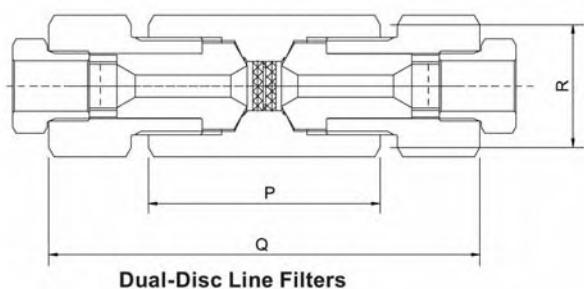
Cup-Type Line Filters

line filters are used in system lines to remove contaminating particles from the system fluid. Upstream filter of larger micron rating than downstream filter to prevent clogging of downstream filter.

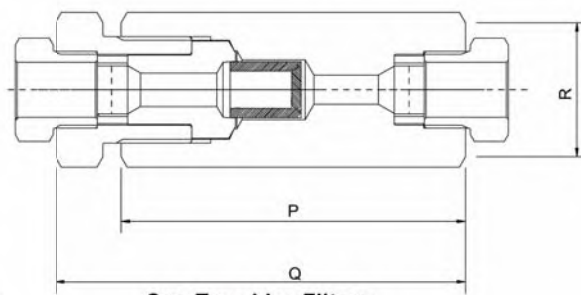
Standard materials of construction are 316 stainless steel with 300 series stainless steel filter discs. Available in nominal ratings of: I, J, K,

I=5, J=30, K=56

Part Number	Pressure Rating psi (bar)	Orifice (mm)	Connection Type	Filter Element Area in. ² (mm ²)	Dimensions (mm)			
					L	H	P (Hex.)	S (Hex.)
Line Filter								
15PLF4P-I	15,000 (1,034)	0.201 (5)	1/4" NPT	540	82.4	60	22.2	22.2
15PLF4P-J								
15PLF4P-K								
15PLF6P-I	15,000 (1,034)	0.312 (7.9)	3/8" NPT	1,000	93.80	72	30.2	36.5
15PLF6P-J								
15PLF6P-K								
15PLF8P-I	15,000 (1,034)	0.312 (7.9)	1/2" NPT	1,000	112.5	85	36.5	36.5
15PLF8P-J								
15PLF8P-K								
15PLF12P-I	15,000 (1,034)	0.685 (17.5)	3/4" NPT	3,650	66.90	130	50.8	50.8
15PLF12P-J								
15PLF12P-K								
15PLF16P-I	15,000 (1,034)	0.685 (17.5)	1" NPT	3,650	172	135	50.8	50.8
15PLF16P-J								
15CF16P-K								



Dual-Disc Line Filters



Cup-Type Line Filters

TVI MEDIUM & HIGH PRESSURE VALVES

Line Filter

Pressures to 20,000 psi (1380 bar)

Catalog Number	Pressure Rating psi (bar)	Orifice in. (mm)	Connection Type	Filter Element Area in ² (mm ²)	Dimensions in(mm)		
					P	Q	R
Dual-Disc Line Filters							
20DLF9M - A	20,000 (1380)	0.255 (6.5)	9MF	0.25 (160)	2.68 (68.1)	4.96 (126)	1.44 (36.5)
20DLF9M - B							
20DLF9M - C							
Cup-Type Line Filters							
20CLF4M-I	20,000 (1380)	0.106 (2.7)	4MF	0.82 (530)	2.38 (60.5)	2.88 (73)	0.89 (22.6)
20CLF4M-J							
20CLF4M-K							
20CLF6M-I	20,000 (1380)	0.201 (5.1)	6MF	0.83 (530)	2.84 (72)	3.35 (85.1)	1.06 (27)
20CLF6M-J							
20CLF6M-K							
20CLF9M-I	20,000 (1380)	0.307 (7.8)	9MF	1.55 (1,000)	3.64 (92.4)	4.34 (110.2)	1.44 (36.5)
20CLF9M-J							
20CLF9M-K							
20CLF12M-I	20,000 (1380)	0.438 (11.1)	12MF	6.14 (3,960)	5.75 (146)	6.58 (167)	2.00 (50.8)
20CLF12M-J							
20CLF12M-K							
20CLF16M-I	20,000 (1380)	0.562 (14.3)	16MF	6.14 (3,960)	5.75 (146)	6.58 (167)	2.00 (50.8)
20CLF16M-J							
20CLF16M-K							

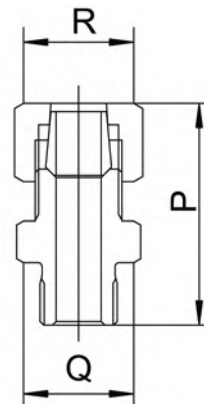
Pressures to 60,000 psi (4140 bar)

Catalog Number	Pressure Rating psi (bar)	Orifice in. (mm)	Connection Type	Filter Element Areas in² (mm²)	Dimensions . (mm)		
					P	Q	R (Hex.)
Dual-Disc Line Filters							
60DLF4H-A	60,000 (4140)	0.094 (2.3)	4HF	0.07 (50)	2.99 (76)	4.9 (121)	1.19 (30.2)
60DLF4H-B							
60DLF4H-C							
60DLF6H-A	60,000 (4140)	0.125 (3.2)	6HF	0.07 (50)	2.99 (76)	5.30 (134.6)	1.19 (30.2)
60DLF6H-B							
60DLF6H-C							
60DLF9H-A	60,000 (4140)	0.188 (4.8)	9HF	0.15 (95)	3.39 (86.1)	5.76 (146.3)	1.44 (36.6)
60DLF9H-B							
60DLF9H-C							
Cup-Type Line Filters							
60CLF4H-I	60,000 (4140)	0.094 (2.3)	4HF	0.82 (530)	3.39 (86.1)	4.3 (109)	1.44 (36.6)
60CLF4H-J							
60CLF4H-K							
60CLF6H-I	60,000 (4140)	0.125 (3.2)	6HF	0.82 (530)	3.39 (86.1)	4.45 (113)	1.44 (36.6)
60CLF6H-J							
60CLF6H-K							
60CLF9H-I	60,000 (4140)	0.188 (4.8)	9HF	0.82 (530)	4.06 (103.1)	5.30 (134.6)	1.63 (41.3)
60CLF9H-J							
60CLF9H-K							

Anti vibration collet and gland assembly

Pressures to 20,000 psi (1,380 bar)

In standard high pressure connection systems, the bending stresses imposed by excessive vibration or shock on the the threaded area of the tubing may cause premature fatigue failure at the back of the thread. By using a PMT Anti-Vibration Collet Gland, the stress concentration is transferred back to the unthreaded section of the tubing. This transfer and the spring-type gripping action of the collet, strengthens the entire assembly, resulting in virtually unlimited vibration fatigue life. Anti-Vibration Collet Glands are recommended whenever locating a valve or fitting on an unsupported line near a compressor, on equipment subjected to road vibrations, or areas where extreme shock is present.

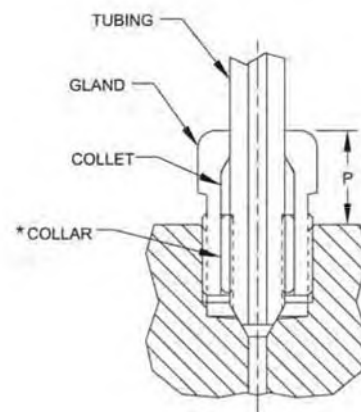


Catalog Number	Part	O.D. Tubing Size in.	Dimensions in(mm)		
			P	Q (Hex.)	R(Hex.)
20-AVGA4M	Complete Assembly	1/4	1.26 (32)	0.50 (12.7)	0.62 (15.7)
20-AVCB4M	Collet Body				
20-AVSC4M	Slotted Collet				
20-AVGN4M	Gland Nut				
20-AVGA6M	Complete Assembly	3/8	1.53 (39)	0.62 (15.7)	0.81 (20.6)
20-AVCB6M	Collet Body				
20-AVSC6M	Slotted Collet				
20-AVGN6M	Gland Nut				
20-AVGA9M	Complete Assembly	9/16	1.83 (46.4)	0.94 (23.9)	0.94 (23.9)
20-AVCB9M	Collet Body				
20-AVSC9M	Slotted Collet				
20-AVGN9M	Gland Nut				
20-AVGA12M	Complete Assembly	3/4	2.00 (50.8)	1.19 (30.2)	1.25 (31.8)
20-AVCB12M	Collet Body				
20-AVSC12M	Slotted Collet				
20-AVGN12M	Gland Nut				
20-AVGA16M	Complete Assembly	1	2.44 (62)	1.38 (35)	1.50 (38.1)
20-AVCB16M	Collet Body				
20-AVSC16M	Slotted Collet				
20-AVGN16M	Gland Nut				

Anti vibration collet and gland assembly

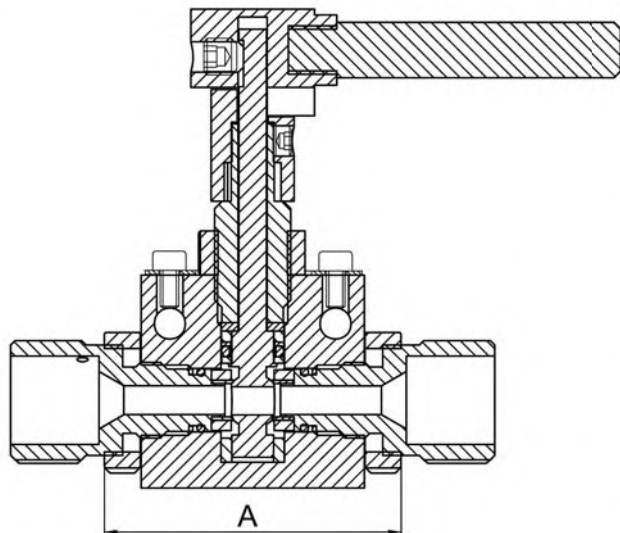
Pressures to 20,000 psi (1,380 bar)

In standard high pressure connection systems, the bending stresses imposed by excessive vibration or shock on the the threaded area of the tubing may cause premature fatigue failure at the back of the thread. By using a PMT Anti-Vibration Collet Gland, the stress concentration is transferred back to the unthreaded section of the tubing. This transfer and the spring-type* gripping action of the collet, strengthens the entire assembly, resulting in virtually unlimited vibration fatigue life. Anti-Vibration Collet Glands are recommended whenever locating a valve or fitting on an unsupported line near a compressor, on equipment subjected to road vibrations, or areas where extreme shock is present.



Catalog Number	Part	O.D. Tubing Size in.	Dimensions in(mm)		
			P	Q (Hex.)	R(Hex.)
20-AVGA4M	Complete Assembly	1/4	1.26 (32)	0.50 (12.7)	0.62 (15.7)
20-AVCB4M	Collet Body				
20-AVSC4M	Slotted Collet				
20-AVGN4M	Gland Nut				
20-AVGA6M	Complete Assembly	3/8	1.53 (39)	0.62 (15.7)	0.81 (20.6)
20-AVCB6M	Collet Body				
20-AVSC6M	Slotted Collet				
20-AVGN6M	Gland Nut				
20-AVGA9M	Complete Assembly	9/16	1.83 (46.4)	0.94 (23.9)	0.94 (23.9)
20-AVCB9M	Collet Body				
20-AVSC9M	Slotted Collet				
20-AVGN9M	Gland Nut				
20-AVGA12M	Complete Assembly	3/4	2.00 (50.8)	1.19 (30.2)	1.25 (31.8)
20-AVCB12M	Collet Body				
20-AVSC12M	Slotted Collet				
20-AVGN12M	Gland Nut				
20-AVGA16M	Complete Assembly	1	2.44 (62)	1.38 (35)	1.50 (38.1)
20-AVCB16M	Collet Body				
20-AVSC16M	Slotted Collet				
20-AVGN16M	Gland Nut				

Two Way Ball Valves- 20,000 psi



TVI 2-Way Ball Valves have 1/4" orifices and are capable of safe handling of liquids and gases up to 20,000 psi(1,380 bar) pressure. Their 90° handle rotation allows for full flow capabilities with minimal pressure drop. Robust one piece trunnion style stem design eliminates shear failure that is found in a two-piece stem design. Ball seats are made of Torlon material providing excellent sealing capabilities with low handle operating torque. Re-torqueable seat glands provide longer valve life and dependability. Standard valves are supplied with Viton O-Rings rated to 300°F (150°C).

TVI ball valves provide superior quality and performance with a variety of valve styles and process connections. All medium and high pressure connections are supplied with glands and collars.

Ball Valves feature:

One-piece, trunnion mounted style stem design eliminates shear failure found in two-piece stem designs.

Choice of 3/16" and 1/4" ball orifices provides minimal pressure drops.

Re-torqueable seat glands for longer seat life and dependability.

Torlon Ball Seat material offers excellent sealing capabilities.

316 cold worked stainless steel body, and 17-4 PH stem offers excellent corrosion resistance.

Ball valves are available in 90° and 180° open to close with a positive stop.

Available with Pneumatic or Electric actuators.

Available in medium, high and FNPT pressure connections.

Full materials traceability.

Safety weep holes for all pressure connections and packing area.

offers a complete line of high pressure components to compliment the 2-way and 3-way Ball Valve line.

Note: When selecting multiple items, the pressure rating would be that of the lowest rated component.

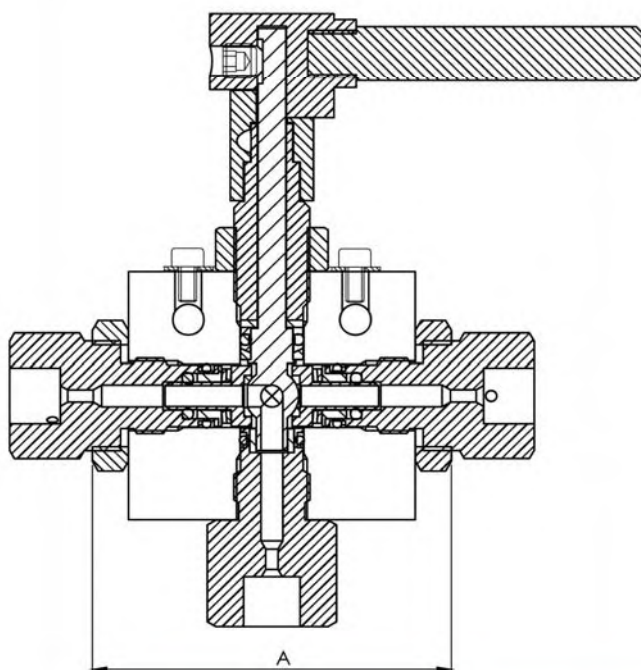
Catalog Number	Pressure Rating @ RT psi. (bar)	O.D Tubing Size in.	Connection Type	Orifice Size in. (mm)	Cv	Dimension A in. (mm)
20B2W4M	20,000(1,380)	1/4	4MF	0.11 (2.8)	0.31	4.17(106)
20B2W6M	20,000(1,380)	3/8	6MF	0.205 (5.3)	1.70	4.17(106)
20B2W9M	20,000(1,380)	9/16	9MF	0.250 (6.4)	2.70	4.17(106)
20B2W4H	20,000(1,380)	1/4	4HF	0.091 (2.3)	0.20	4.17(106)
20B2W6H	20,000(1,380)	3/8	6HF	0.118 (3.0)	0.45	4.17(106)
20B2W9H	20,000(1,380)	9/16	9HF	0.188 (4.8)	1.45	4.84 (123)
15B2W2P	15,000 (1,034)	1/8	FNPT	0.270 (6.5)	2.70	4.17(106)
15B2W4P	15,000 (1,034)	1/4	FNPT	0.270 (6.5)	2.70	4.17(106)
15B2W6P	15,000 (1,034)	3/8	FNPT	0.270 (6.5)	2.70	4.17(106)
15B2W8P	15,000 (1,034)	1/2	FNPT	0.270 (6.5)	2.70	4.84 (123)

3 Way Ball Valves - 20,000 psi

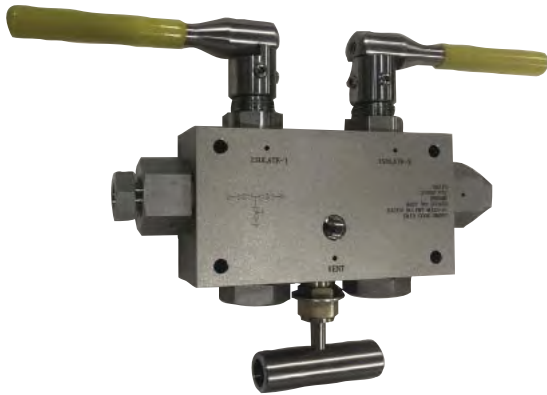
TVI 3-Way Ball Valves have $\frac{3}{16}$ " orifices and are capable of safe handling of liquids and gases up to 20,000psi (1,380 bar) pressure. Robust one-piece trunnion style stem design eliminates shear failure that is found in a two piece stem design.

There are two styles in the 3-way design:

- The 180° rotating Switching Ball Valve is designed to have fluid enter in through the bottom connection and can be switched to either side connection. Also, the valve can be closed in the center "Off" position.
- The 90° rotating Diverting Ball Valve is designed to have fluid enter in through the bottom connection and can be diverted to either side connection. There is no center off position in the diverting design.



Catalog Number		Pressure Rating @ RT psi. (bar)*	O.D. Tubing Size in.	Connection Type	Orifice Size in. (mm)	Cv
3-Way 180° Switching	3-Way 90°					
20B3WS4M	20B3WD4M	20,000 (1,380)	1/4	4MF	0.109 (2.8)	0.15
20B3WS6M	20B3WD6M	20,000 (1,380)	3/8	6MF	0.121 (4.8)	0.71
20B3WS9M	20B3WD9M	20,000 (1,380)	9/16	9MF	0.121 (4.8)	0.71
20B3WS4H	20B3WD4H	20,000 (1,380)	1/4	4HF	0.094 (2.4)	0.10
20B3WS6H	20B3WD6H	20,000 (1,380)	3/8	6HF	0.125 (3.2)	0.22
20B3WS9H	20B3WD9H	20,000 (1,500)	9/16	9HF	0.121 (4.8)	0.71
15B3WS2P	15B3WD2P	15,000 (1,034)	1/8	FNPT	0.121 (4.8)	0.71
15B3WS4P	15B3WD4P	15,000 (1,034)	1/4	FNPT	0.121 (4.8)	0.71
15B3WS6P	15B3WD6P	15,000 (1,034)	3/8	FNPT	0.121 (4.8)	0.71
15B3WS8P	15B3WD8P	15,000 (1,034)	1/2	FNPT	0.121 (4.8)	0.71



These are double block and bleed ball valves specifically design for chemical injection and drain line isolation of high pressure systems. They are panel mountable and require only a simple quarter turn to operate. They are available with up to 20,000 psig MAWP. They come standard with 316SS construction and are available in Super Duplex 2507.

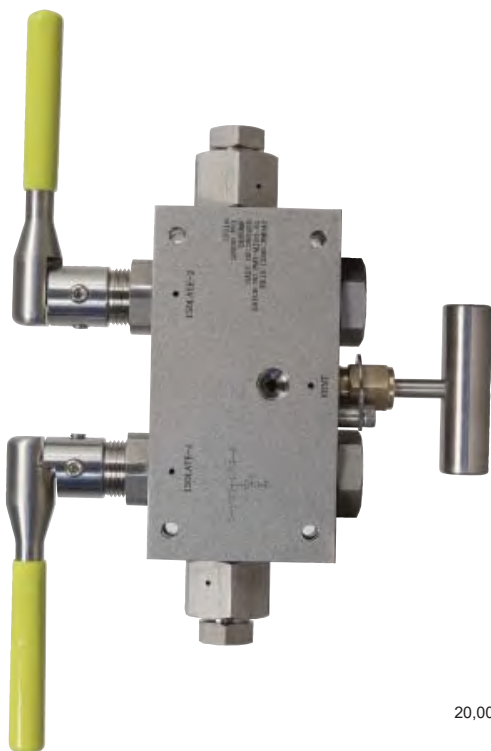
MP DOUBLE BLOCK & BLEED FEATURES:

- 316 SS construction is standard
Super Duplex 2507 & others available
- PEEK-carbon filled seats
- Full port construction
- FKM o-rings are standard; others available
- Single piece trunnion mounted stem
- Packing glands may be torqued
- Metal seated vent valve
- Robust stem handles

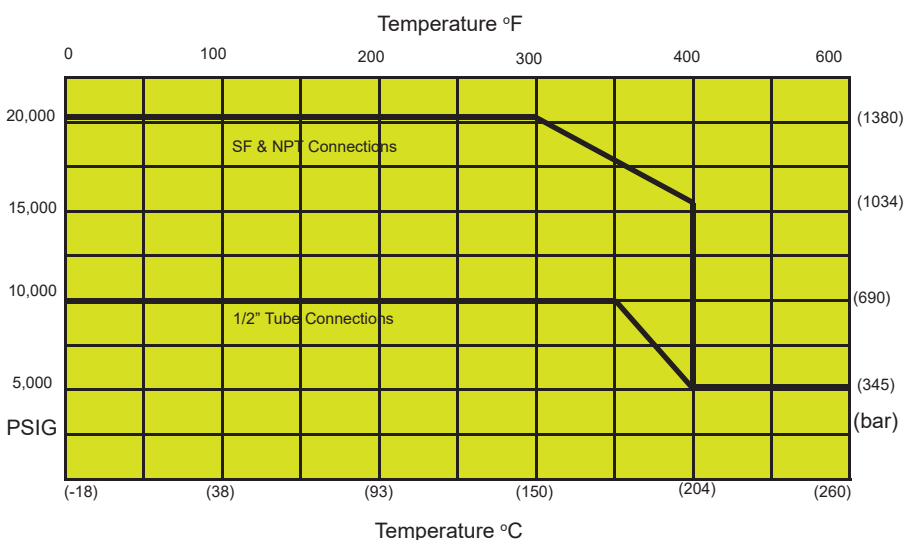
General Performance Specifications:

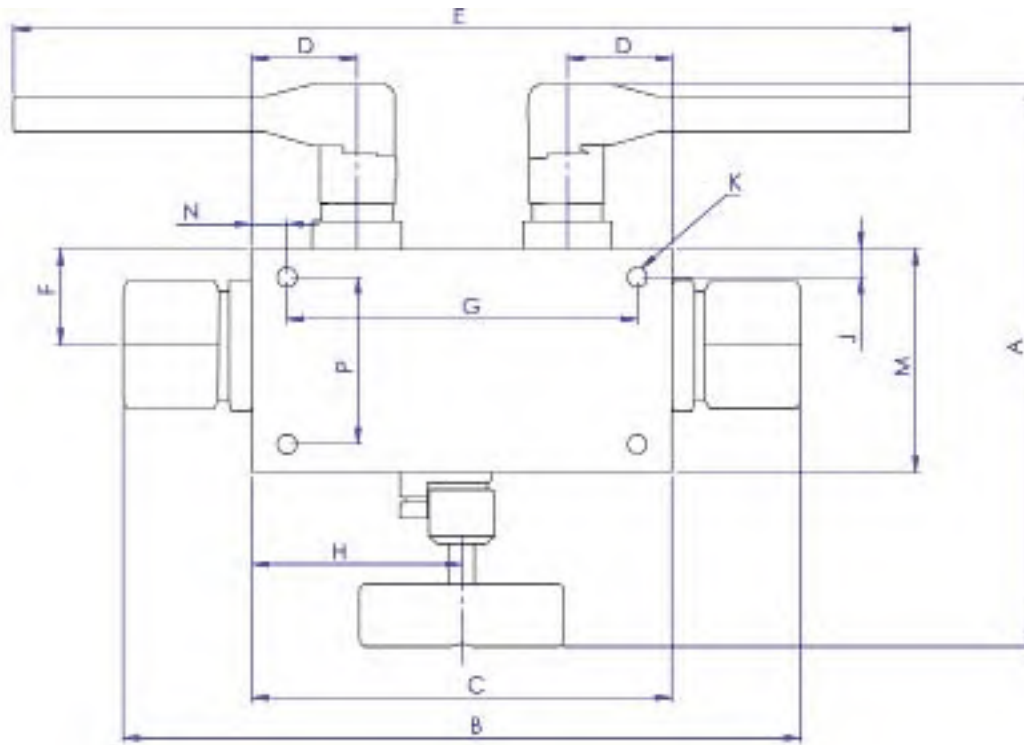
End Connection	MAWP @ 70°F psig (bar)	Orifice in(mm)
1/2" Tube	10,000 (690)	0.328 (8.33)
SF3750CX20	20,000 (1380)	0.203 (5.16)
SF5620CX20	20,000 (1380)	0.312 (7.92)
SF7500CX20	20,000 (1380)	0.328 (8.33)
SF1000CX20	20,000 (1380)	0.416 (10.57)
1/4" FNPT	20,000 (1380)	0.328 (8.33)
3/8" FNPT	20,000 (1380)	0.328 (8.33)
1/2" FNPT	20,000 (1380)	0.328 (8.33)
Cv = 2.3		

Maximum Working Pressure@ 70°F



Temperature Constraints

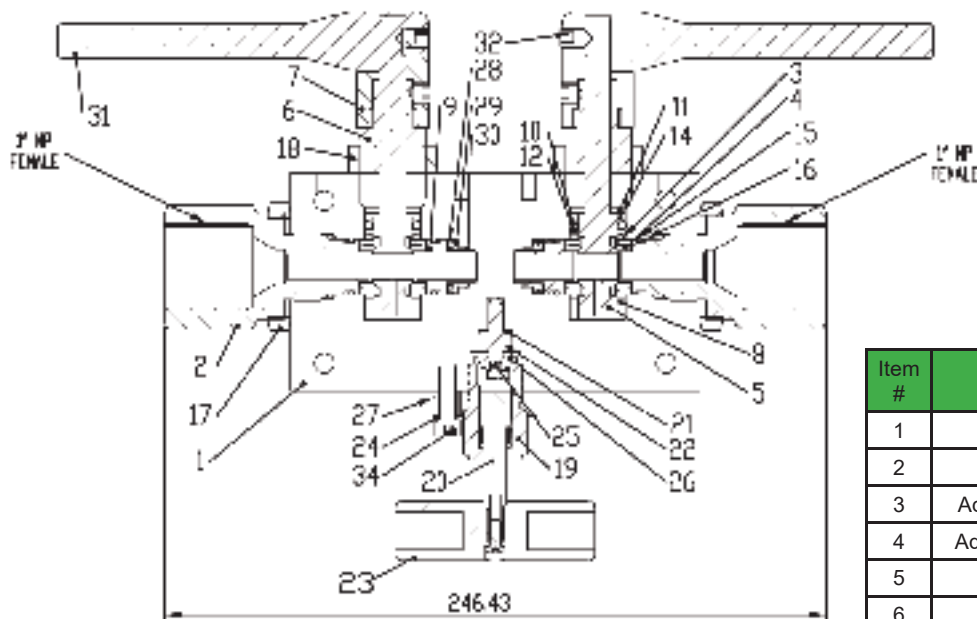


Basic Dimensions

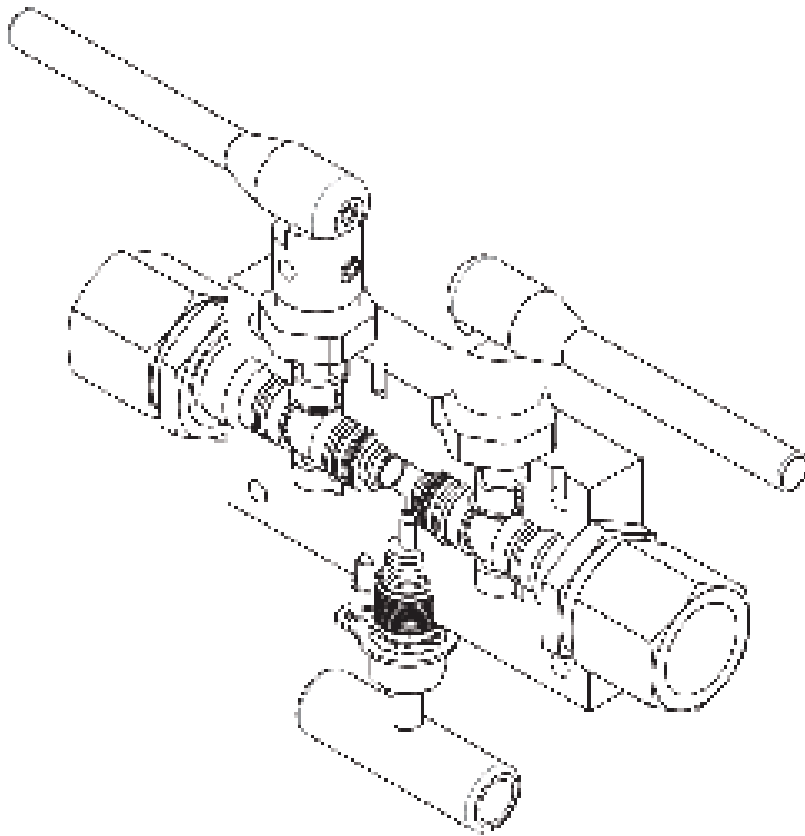
**Model TDBB Valve Dimension
in (mm)**

A	7.17 (181.4)
B	8.81 (223.8) 1" size- 9.7(246.4)
C	6.00 (152.4)
D	1.5 (38.1)
E	12.94 (32.87)
F	1.38 (34.9)
G	5.00 (127.0)
H	3.00 (76.2)
J	0.41 (10.3)
K	0.28 (7.14)
L	3.19 (81.0)
M	2.38 (60.4)
N	0.50 (12.7)
Body Width	1.75 (44.5)
Aprox Wt.	10.5 lb (23.1kg)

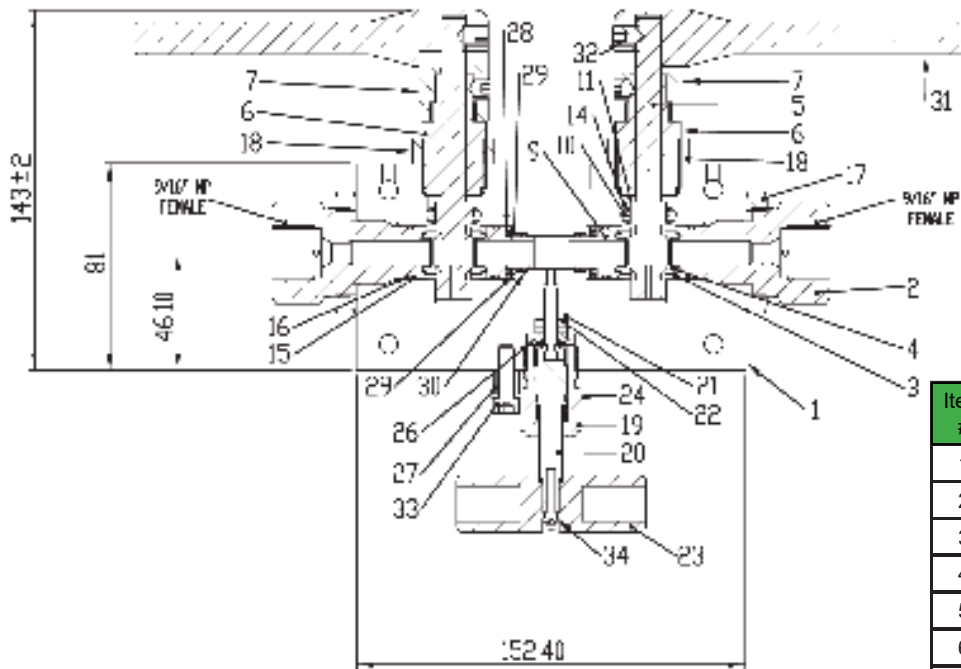
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Model TDBB-16-20
1.0" MP Connection - 20,000 psig

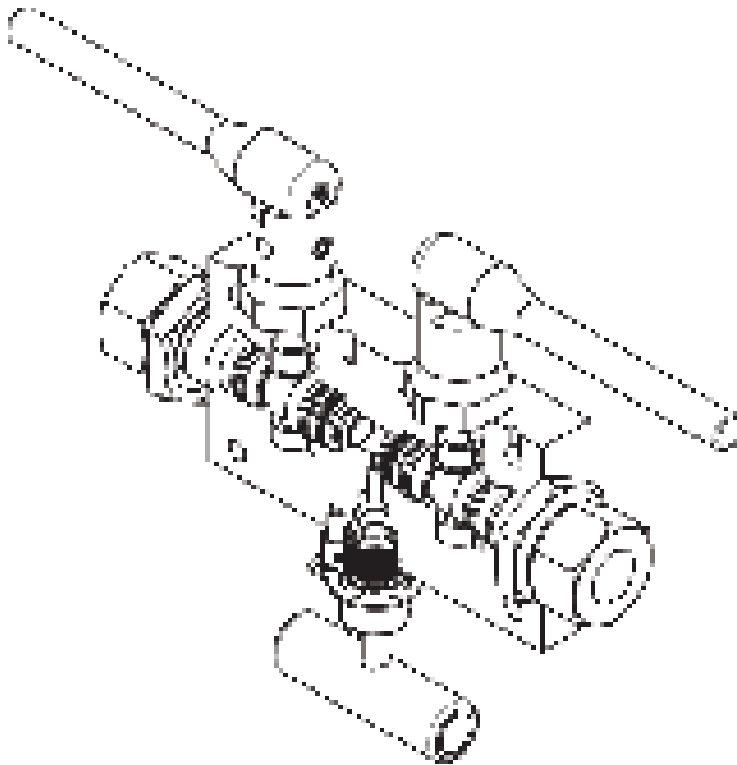


Item #	Part	Material	Qty
1	Body	316SS	1
2	Adaptor	316SS	2
3	Adaptor Collar	316SS	4
4	Adj Collar Seat	PEEK	4
5	Ball Stem	Duplex 2205	2
6	Bonnet	316SS	2
7	Bonnet Head	316SS	2
8	Stem Seat	PEEK	2
9	Adj Seat Gland	316SS	2
10	Gland O-ring	FKM	2
11	Gland Washer	316SS	2
12	Gland Packing	PEEK	2
13	Gland Packing	PTFE	2
14	Gland Packing	PEEK	2
15	O-ring	FKM	8
16	Adj Seat Retainer	PTFE	8
17	Adaptor Nut	316SS	2
18	Bonnet Nut	316SS	2
19	NV-Bonnet	AL-Bronze	1
20	Spindle	316SS	1
21	Riser	316SS	1
22	Packing Washer	316SS	2
23	NV - Handle	316SS	1
24	NV-Lock	Steel	1
25	NV- Stem	17-4PH	1
26	Packing Ring	PTFE	1
27	NV-Spacer	316SS	1
28	Spring Washer	Steel	4
29	Spring Retainer	316SS	2
30	O-Ring	FKM	2
31	Handle	V	2
32	Screw	Steel	4
33	Screw	Steel	1
34	Screw	Steel	1

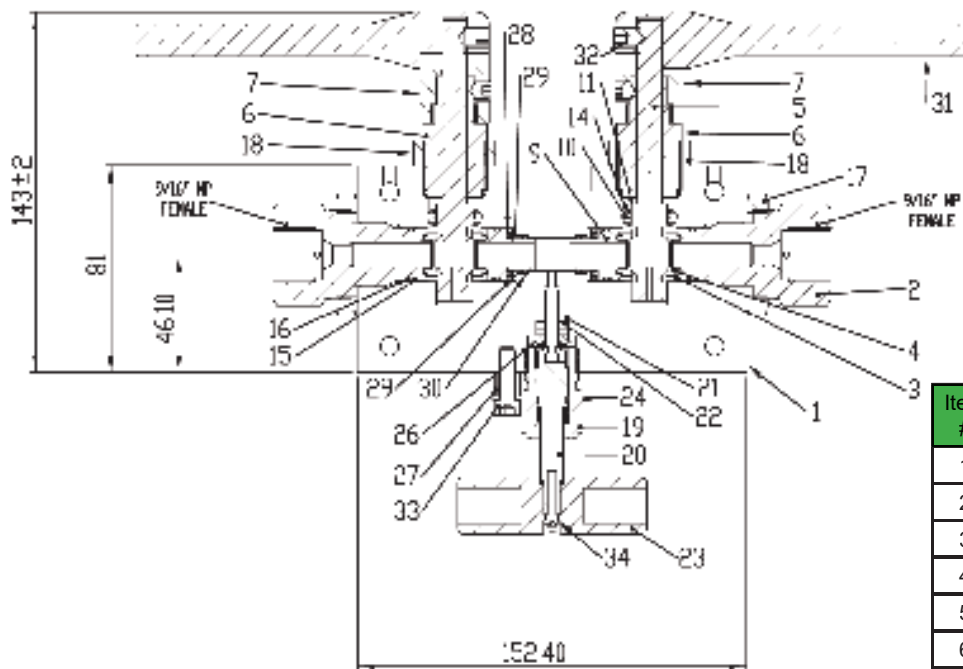


Model TDBB-09-20

9/16" & 3/4" MP Connection - 20,000 psig

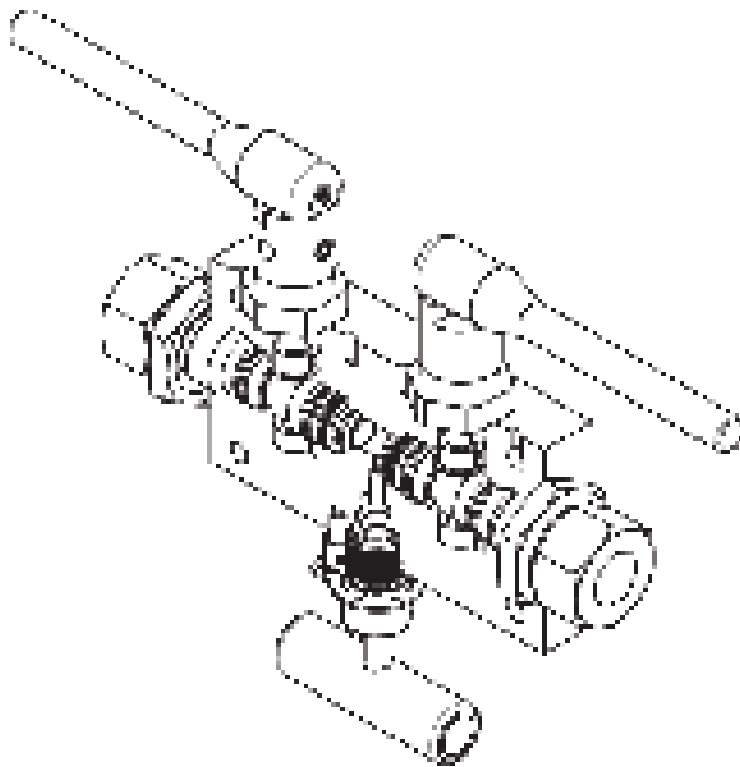


Item #	Part	Material	Qty
1	Body	316SS	1
2	Adaptor	316SS	2
3	Adaptor Collar	316SS	4
4	Adj Collar Seat	PEEK	4
5	Ball Stem	Duplex 2205	2
6	Bonnet	316SS	2
7	Bonnet Head	316SS	2
8	Stem Seat	PEEK	2
9	Adj Seat Gland	316SS	2
10	Gland O-ring	FKM	2
11	Gland Washer	316SS	2
12	Gland Packing	PEEK	2
13	Gland Packing	PTFE	2
14	Gland Packing	PEEK	2
15	O-ring	FKM	8
16	Adj Seat Retainer	PTFE	8
17	Adaptor Nut	316SS	2
18	Bonnet Nut	316SS	2
19	NV-Bonnet	AL-Bronze	1
20	Spindle	316SS	1
21	Riser	316SS	1
22	Packing Washer	316SS	2
23	NV - Handle	316SS	1
24	NV-Lock	Steel	1
25	NV- Stem	17-4PH	1
26	Packing Ring	PTFE	1
27	NV-Spacer	316SS	1
28	Spring Washer	Steel	4
29	Spring Retainer	316SS	2
30	O-Ring	FKM	2
31	Handle	V	2
32	Screw	Steel	4
33	Screw	Steel	1
34	Screw	Steel	1

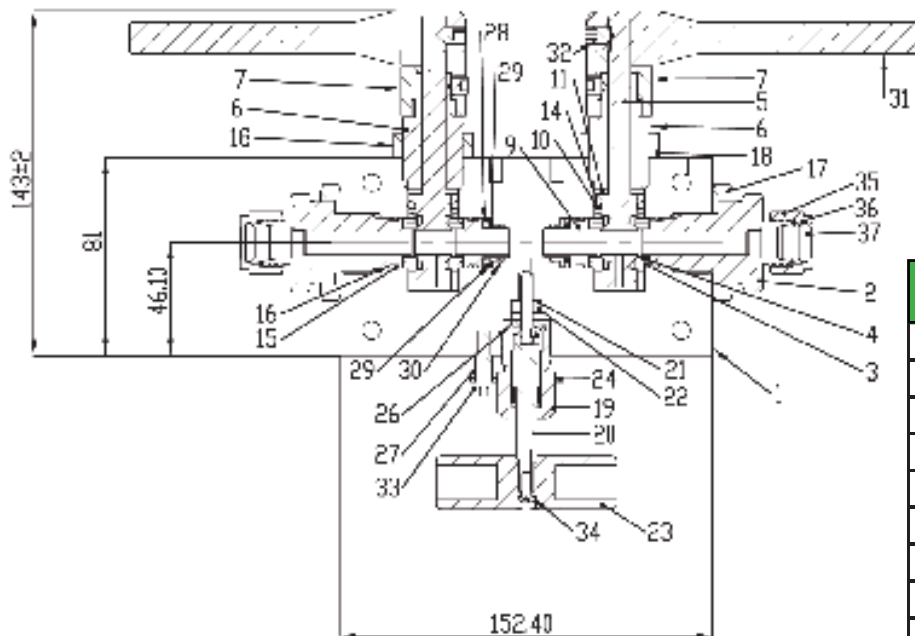


Model TDBB-06-20

3/8" MP Connection - 20,000 psig

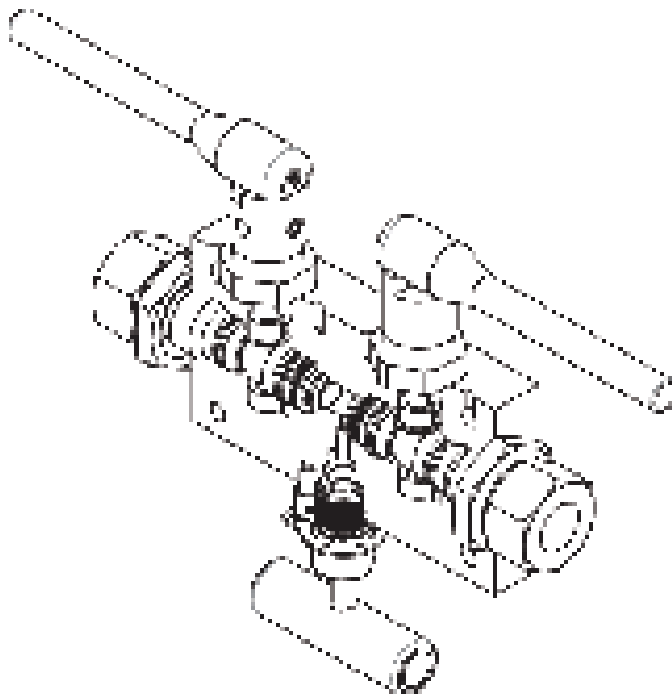


Item #	Part	Material	Qty
1	Body	316SS	1
2	Adaptor	316SS	2
3	Adaptor Collar	316SS	4
4	Adj Collar Seat	PEEK	4
5	Ball Stem	Duplex 2205	2
6	Bonnet	316SS	2
7	Bonnet Head	316SS	2
8	Stem Seat	PEEK	2
9	Adj Seat Gland	316SS	2
10	Gland O-ring	FKM	2
11	Gland Washer	316SS	2
12	Gland Packing	PEEK	2
13	Gland Packing	PTFE	2
14	Gland Packing	PEEK	2
15	O-ring	FKM	8
16	Adj Seat Retainer	PTFE	8
17	Adaptor Nut	316SS	2
18	Bonnet Nut	316SS	2
19	NV-Bonnet	AL-Bronze	1
20	Spindle	316SS	1
21	Riser	316SS	1
22	Packing Washer	316SS	2
23	NV - Handle	316SS	1
24	NV-Lock	Steel	1
25	NV- Stem	17-4PH	1
26	Packing Ring	PTFE	1
27	NV-Spacer	316SS	1
28	Spring Washer	Steel	4
29	Spring Retainer	316SS	2
30	O-Ring	FKM	2
31	Handle	V	2
32	Screw	Steel	4
33	Screw	Steel	1
34	Screw	Steel	1



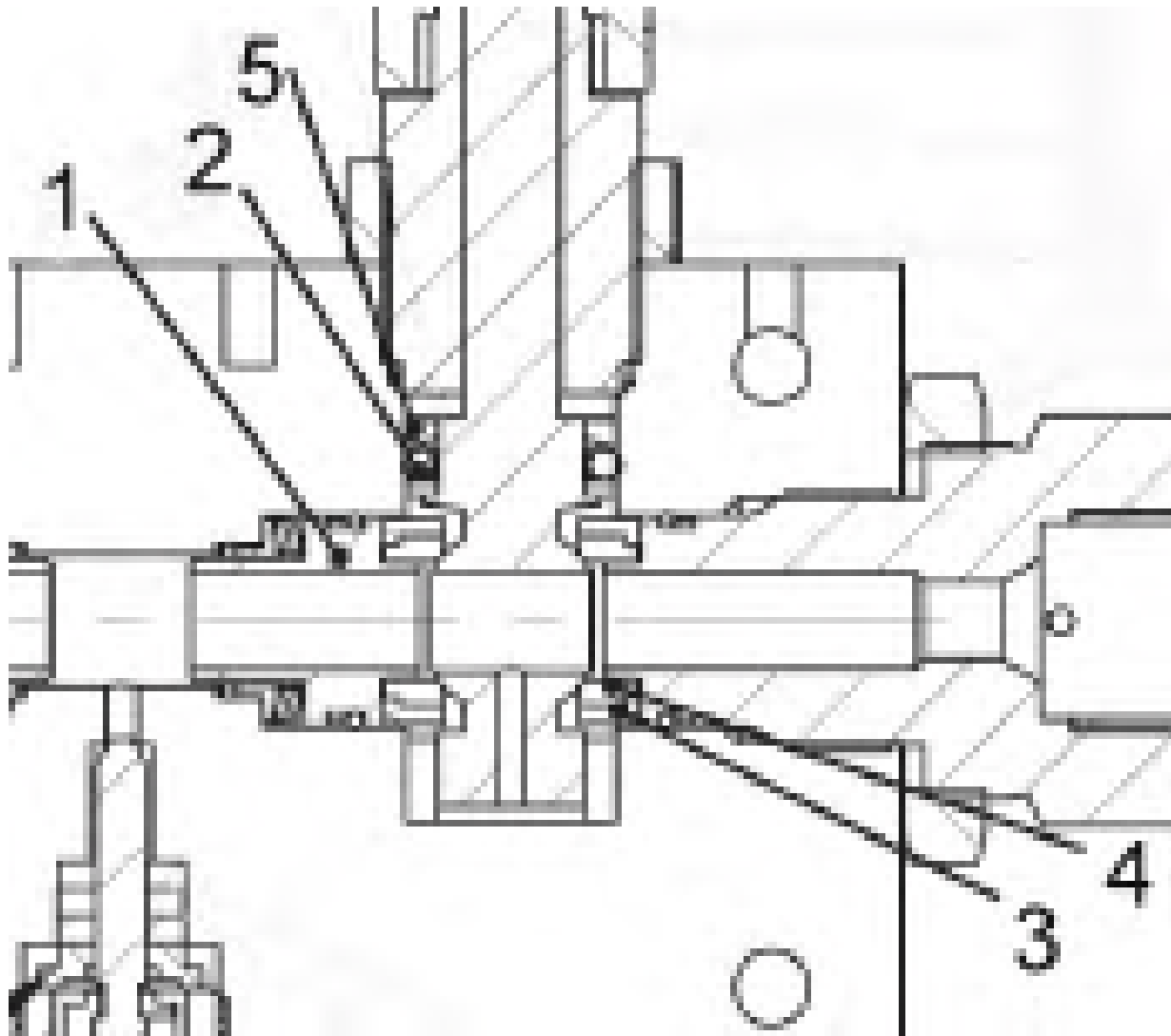
Model TDBB-08-10

1/2" Tube Connection - 10,000 psig



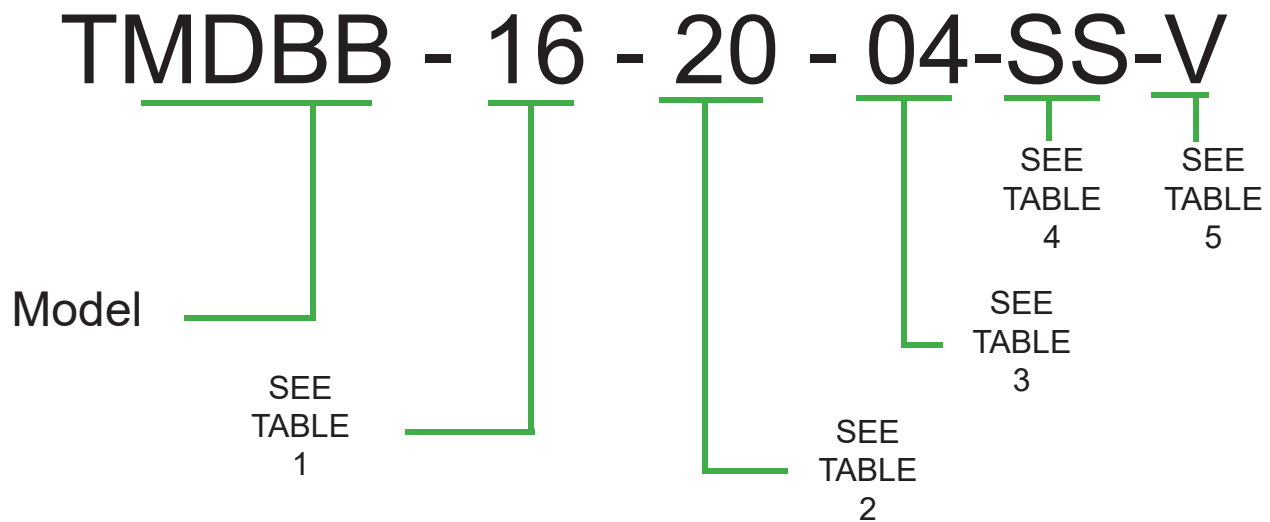
Item #	Part	Material	Qty
1	Body	316SS	1
2	Adaptor	316SS	2
3	Adaptor Collar	316SS	4
4	Adj Collar Seat	PEEK	4
5	Ball Stem	Duplex 2205	2
6	Bonnet	316SS	2
7	Bonnet Head	316SS	2
8	Stem Seat	PEEK	2
9	Adj Seat Gland	316SS	2
10	Gland O-ring	FKM	2
11	Gland Washer	316SS	2
12	Gland Packing	PEEK	2
13	Gland Packing	PTFE	2
14	Gland Packing	PEEK	2
15	O-ring	FKM	8
16	Adj Seat Retainer	PTFE	8
17	Adaptor Nut	316SS	2
18	Bonnet Nut	316SS	2
19	NV-Bonnet	AL-Bronze	1
20	Spindle	316SS	1
21	Riser	316SS	1
22	Packing Washer	316SS	2
23	NV - Handle	316SS	1
24	NV-Lock	Steel	1
25	NV- Stem	17-4PH	1
26	Packing Ring	PTFE	1
27	NV-Spacer	316SS	1
28	Spring Washer	Steel	4
29	Spring Retainer	316SS	2
30	O-Ring	FKM	2
31	Handle	V	2
32	Screw	Steel	4
33	Screw	Steel	1
34	Screw	Steel	1
35	Nut	316SS	2
36	Front Ferrule	316SS	2
37	Back Ferrule	316SS	2

DBB SEAL DETAILS



Item #	Part	Material
1	Adapter Seat Gland	316 SS
2	Gland O-ring	Viton
3	Adapter Collar	316 SS
4	Gland Packing	PEEK
5	Gland Washer	316 SS

Ordering Tree



End Connections

Table 1

Code	End Connection	MAWP @ 70°F psig (bar)
08	1/2" Tube	10,000 (690)
06	3/8"-SF3750CX20	20,000 (1380)
09	9/16"-SF5620CX20	20,000 (1380)
12	3/4"-SF7500CX20	20,000 (1380)
16	1"-SF1000CX20	20,000 (1380)
4P	1/4"FNPT	20,000 (1380)
6P	3/8" FNPT	20,000 (1380)
8P	1/2" FNPT	20,000 (1380)

Max Design Pressure

Table 2

Code	Pressure Range
10	10,000 psig
20	20,000 psig

Vent Connection

Table 3

Code	Vent Connections
04	SP250CX20
4P	1/4" NPT

Wetted Metal

Table 4

Code	Material
SS	316SS
SD	Super Duplex 2507

Soft Goods

Table 5

Code	Material
V	FKM
E	Ethylene-Propylene