

TVI MEDIUM & HIGH PRESSURE VALVES

MEDIUM & HIGH PRESSURE VALVES AND FITTINGS



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MEDIUM & HIGH PRESSURE VALVES & FITTINGS

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.

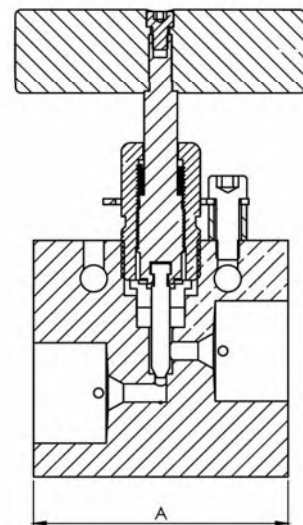
- Sizes 1/4, 3/8 and 9/16 inch High Pressure Connection

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:

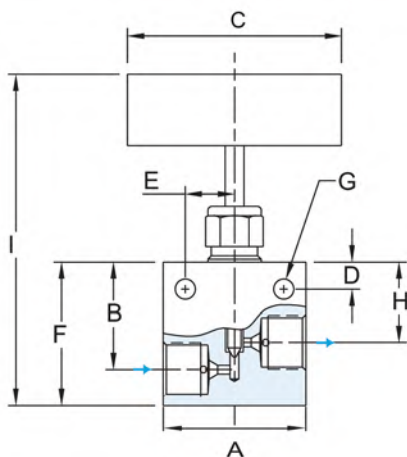
- Rising stem design.
- 316 L (1.4404) wetted parts for excellent corrosion resistance.
- Standard valves are supplied with Teflon/Carbon packing and may be operated to 450°F (230°C).
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem and seat life, greater durability for repeated open 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.



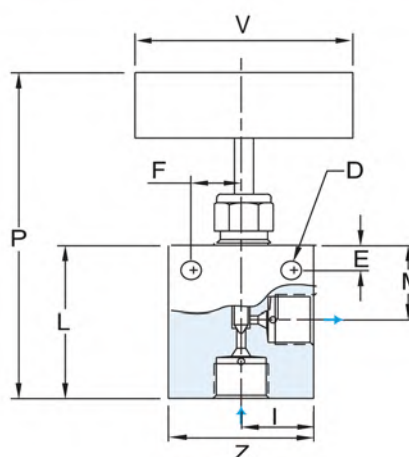
Medium Pressure Needle Valves

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

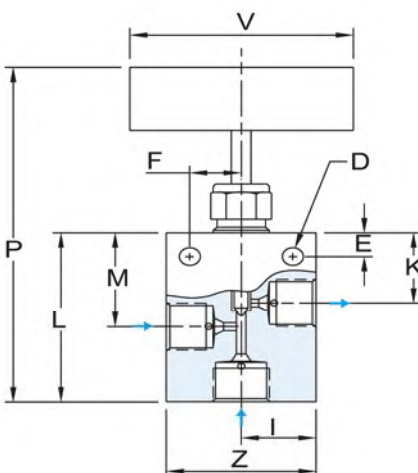


2-Way Angle

Part Number	O.D. Tube in.	Orifice (mm)	Dimensions in. (mm)										Valve Panel Hole	Block Thick-ness
			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 Pressure

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		
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

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.

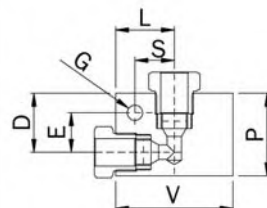
Connection Components

Tubing Size	GLAND	COLLER	PLUG	TUBING CAP
1/4	20-G4H	20-C4H	20-P4H	20-TC4H
3/8	20-G6H	20-C6H	20-P6H	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



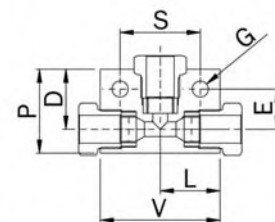
Part Number	Connection Type	O.D. Tube Size in.	Orifice (mm)	Dimensions in(mm)							Block Thick ness
				L	P	V	D	E	S	G	
Elbow											

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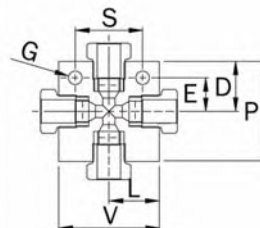
T4MF-20	4MF	1/4	2.7	19	28	39	19	12.5	12.5	5.6	16
T6MF-20	6MF	3/8	5	25.4	35	50.8	25.4	16	16	6.6	20
T9MF-20	9MF	9/16	7.8	31.8	44.5	63.5	31.8	21.3	21.3	8.4	26
T12MF-20	12MF	3/4	11	38.1	57.5	76	38.1	25.4	25.4	8.9	35
T16MF-20	16MF	1	14.5	52.5	76	105	52.5	35	35	13.5	45



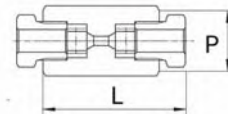
Medium Pressure Fittings

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

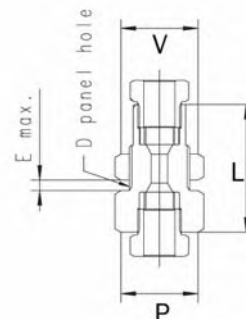


Straight Coupling											
F4MF-20	4MF	1/4	2.7	41	17.5						
F6MF-20	6MF	3/8	5.1	44.5	22.5						
F9MF-20	9MF	9/16	7.8	53.8	27						
F12MF-20	12MF	3/4	11.1	63.5	36.5						
F16MF-20	16MF	1	14.3	89	50.8						



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 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" 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	0.250" (6.4)	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

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.

*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.



Pipe Fittings

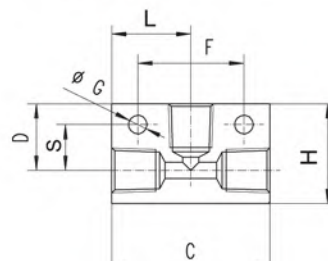
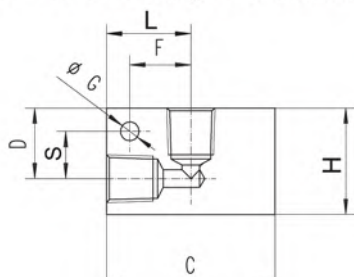
Pressures to 15,000 psi (1,034 bar)

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

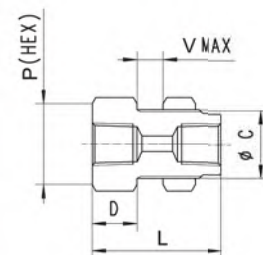
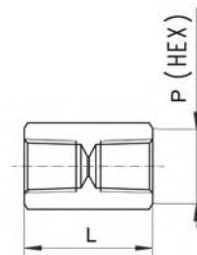
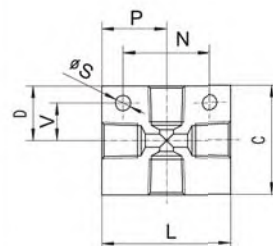
The P Series Fittings are available from 1/4" to 1"NPT to 15,200 psi



Pipe Fittings

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

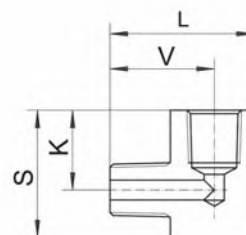
Part Number	Connection Type	Orifice (mm)	Dimensions in (mm)							Thick-ness
			L	P	C	D	V	N	S	
Pipe Cross										
PF15X4P	1/4" NPT	5	39.5	19.5	39	19.5	12.5	25	5.6	20
PF15X6P	3/8" NPT	7.9	51	25.4	51	25.4	16	32	6.6	26
PF15X8P	1/2" NPT	7.9	76.1	38	64	32	22	51	9	35
PF15X12P	3/4" NPT	17.5	76.1	38	76	38	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			



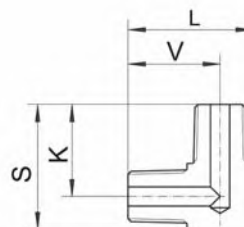
Pipe Fittings

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

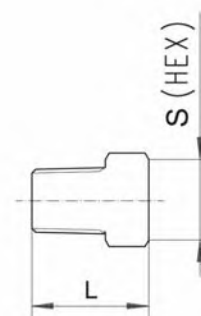
Part Number	Connection Type	Orifice (mm)	Dimensions in (mm)				Block Thickness
			L	S	V	K	
Street Pipe Elbow							
PF15SPL4P	1/4" NPT	5	38	38	28.5	25.4	20
PF15SPL6P	3/8" NPT	7.9	44.5	38	31.5	25.4	26
PF15SPL8P	1/2" NPT	7.9	57.2	50.8	41.5	31.8	26
PF15SPL12P	3/4" NPT	17.5	63.5	66.6	46	43.5	39
PF15SPL16P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



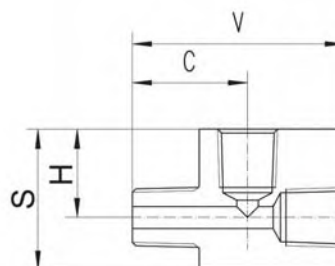
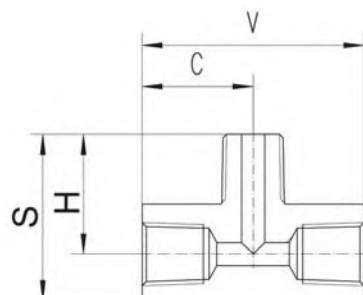
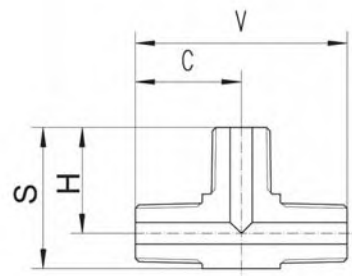
Pipe Plugs							
PF15P4P	1/4" NPT		28	17.8			
PF15P6P	3/8" NPT		28	22.5			
PF15P8P	1/2" NPT		39	27			
PF15P12P	3/4" NPT		39	36.5			
PF15P16P	1" NPT		49	36.5			



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	38	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

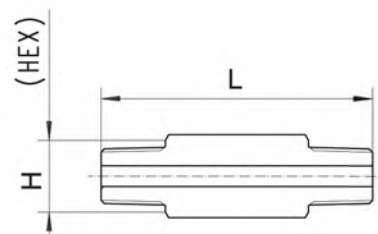


Pipe Hex Nipples

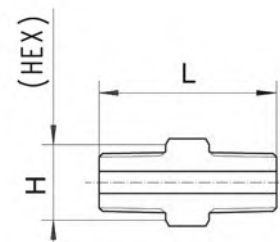
Pressures to 15,000 psi (1,034 bar)

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	

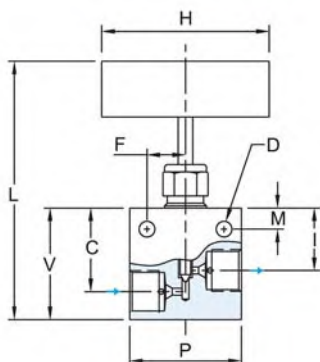


Pipe Hex Close Nipple					
PF15M4P	1/4" NPT	15,000 (1,034)	5	47	17.46
PF15M6P	3/8" NPT	15,000 (1,034)	7.9	48	22.2
PF15M8P	1/2" NPT	15,000 (1,034)	7.9	63.5	27
PF15M12P	3/4" NPT	15,000 (1,034)	17.5	71.5	36.5
PF15M16P	1" NPT	15,000 (1,034)	17.5	81	36.5

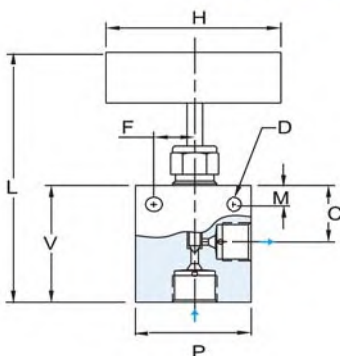


High Pressure Needle Valves

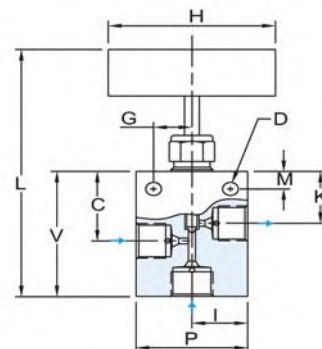
Pressures to 30,000 psi (2,068 bar)



2-Way Stright



2-Way Angle

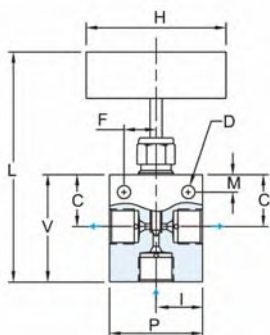


3-Way / 2 on Pressure

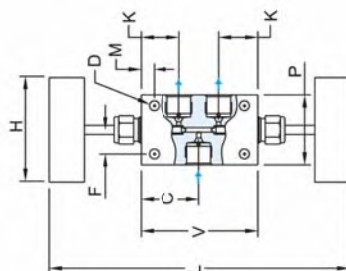
Part Number	O.D. Tube in.	Orifice (mm)	Dimensions in (mm)										Valve Panel Hole	Block Thick-ness
			L	V	C	D	M	F	H	I	P	K		
2-Way Stright														
30N-4HP2S	1/4	2.4	125	51	38	6	9.5	17.5	75	28.5	51		25.4	25.9
30N-6HP2S	3/8	3.2	125	51	38	6	9.5	17.5	75	28.5	51		25.4	25.9
30N-9HP2S	9/16	3.2	133	62	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 Needle Valves

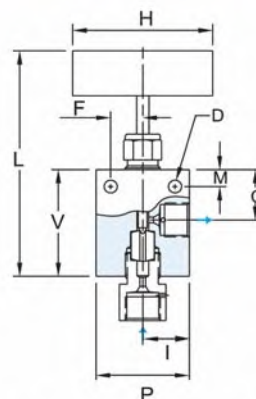
Pressures to 30,000 psi (2,068 bar)



3-Way / 1 on Pressure



3-Way / 2-Stem Manifold

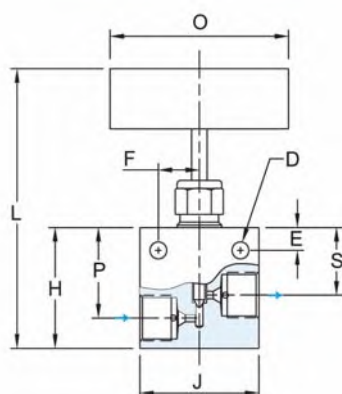


2-Way Angle / Replaceable Seat

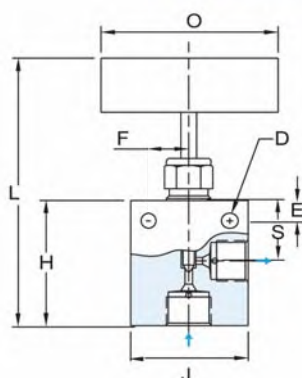
Part Number	O.D. Tube in.	Orifice (mm)	Dimensions in (mm)										Valve Panel Hole	Block Thickness
			L	V	C	D	M	F	H	I	P	K		
3-Way / 1 on Pressure														
30N-4HP4W	1/4	2.3	121	51	28.5	5.6	9.5	17.5	75	25.4	51		25.4	25.9
30N-6HP4W	3/8	3.2	124.5	56	28.5	5.6	9.5	17.5	75	25.4	51		25.4	25.9
30N-9HP4W	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

High Pressure Needle Valves

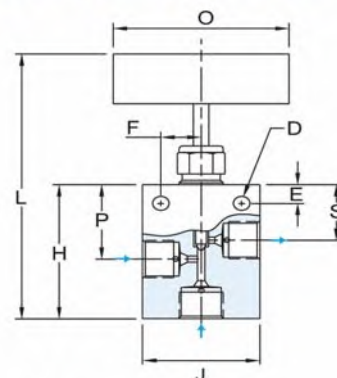
Pressures to 60,000 psi (4,140 bar)



2-Way Straight



2-Way Angle

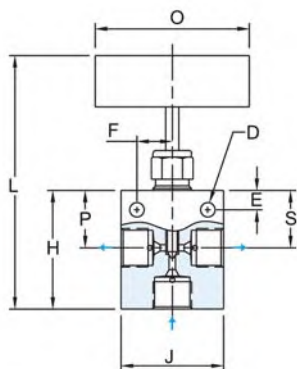


3-Way / 2 on Pressure

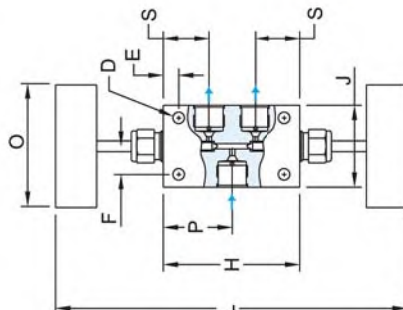
Part Number	O.D. Tube in.	Orifice (mm)	Dimensions in (mm)										Valve Panel Hole	Block Thick-ness
			L	H	P	D	E	F	O	S	J	K		
2-Way Straight														
60N-4HP2S	1/4	1.6	118.6	54.1	43	6	9.5	17.5	75	33.5	51		25.4	25.9
60N-6HP2S	3/8	1.6	122	56.9	43	6	9.5	17.5	75	33.5	51		25.4	25.9
60N-9HP2S	9/16	2	128	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

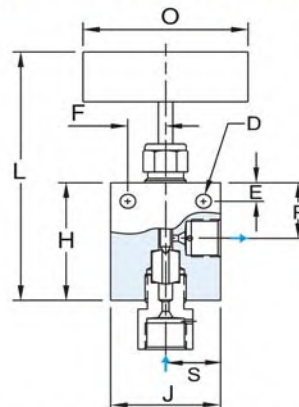
Pressures to 60,000 psi (4,140 bar)



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

High Pressure Fittings

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

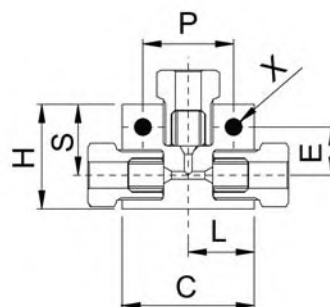
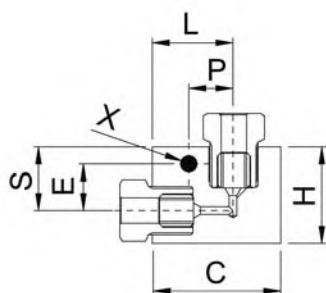
Connection Components

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 Thickness
				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

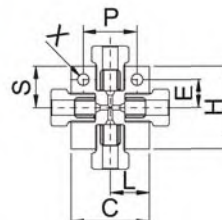
All high pressure fittings have coned and threaded type connections.



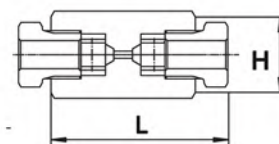
High Pressure Fittings

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

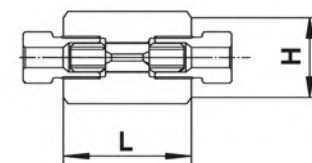
Part Number	Connection Type	O.D. Tube Size in.	Orifice (mm)	Dimensions in (mm)							Block Thickness
				L	H	C	S	E	P	X	
Cross											
X4HF-60	4HF	1/4	2.3	25.4	32	51	16	11.5	33	5.6	26
X6HF-60	6HF	3/8	3.3	25.4	54	51	27	18.5	35	6.5	26
X9HF-60	9HF	9/16	5	33.5	70	67	35	21	48	8.5	39



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						

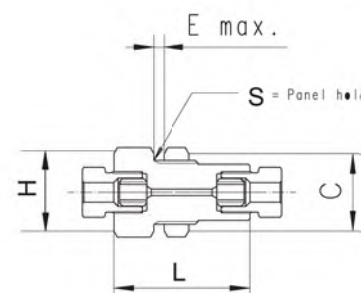


Straight Coupling



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 (4,140 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 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

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.



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 (1034 bar)

Check Valves prevent reverse flow where bubble tight shutoff is not mandatory. These check valves are designed to operate to 660°F(350°C). These check valves are not to be used as a relief device. The opening pressure of the Check Valves is approx. 10 psi (1.5 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)

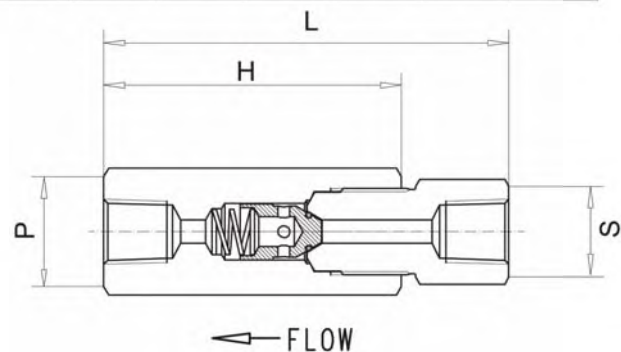
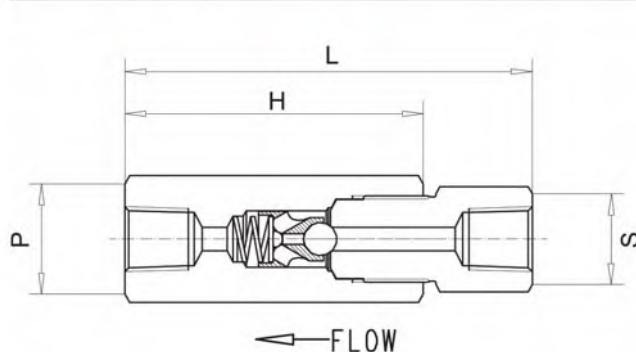
Nominal Cracking Pressure:

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



Relief Valves

PSR Series

20,000 psig (1380 bar)

PMR Series

60,000 psig (4140 bar)

PAR Series

20,000 psig (1380 bar)

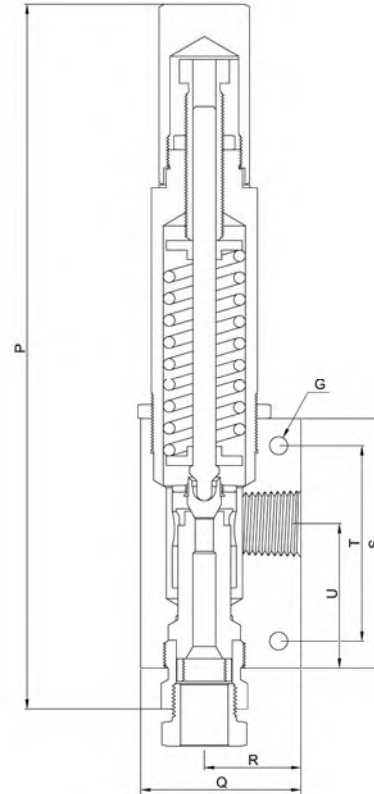
PSR Series 20,000 psig (1380 bar)

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)

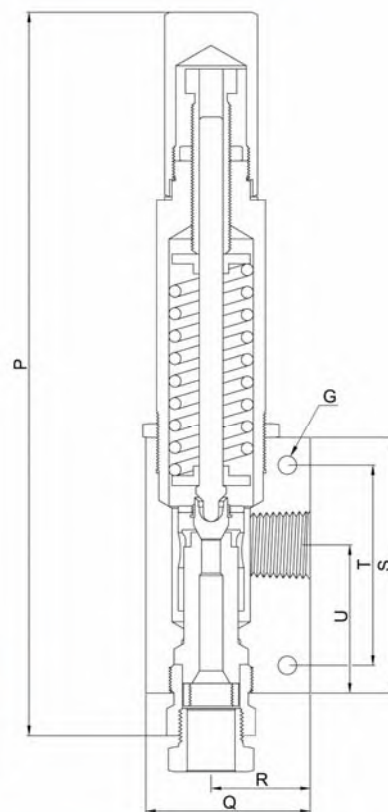
Features

- 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

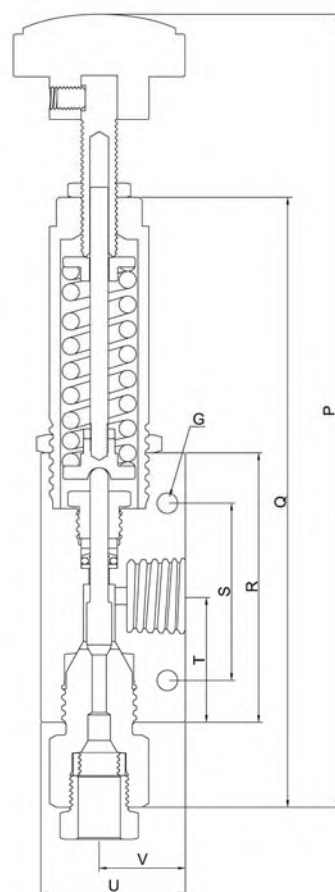
- Set pressure: 3,000 to 20,000 psig (207 to 1379 bar)
- Working temperature range: 32°F to 400°F (0°C to 204°C)
- Field adjustable
- Liquid or gas service
- Soft seat design to provide bubble tight shut-off of gas
- Easily exchangeable seat
- Free assembly positions

typical application

- Pressure gas systems
- Cryogenic systems
- Petro chemical applications

typical Material

- 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

Dual-Disc Line Filters

TVI 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

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

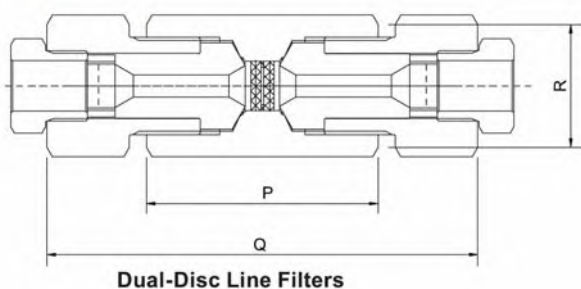
Cup-Type Line Filters

TVI 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.

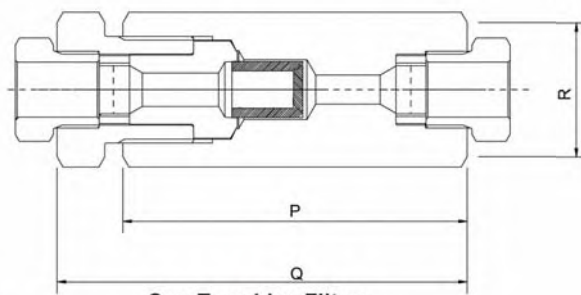
Standard materials of construction are 316 stainless steel with 300 series stainless steel filter discs. Available in nominal ratings of: I, J, K,

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

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 in ² (mm ²)	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							

Safety Head and Rupture Disk

TVI safety head assemblies serve as holders for standard rupture discs (sold separately). Safety heads with rupture discs are used as simple and inexpensive overpressure relief devices. System pressure is relieved as a result of rupture of the replaceable disc.

The safety head assemblies shown are designed for use in high pressure systems up to 20,000 to 60,000 psi. They can be installed directly into any of our standard couplings, elbows, tees, or crosses. Their versatility also allows direct installation into a standard 3-way valve. The result is a combination valve/safety head with beneficial cost and space advantages.

Standard material of construction is 316 stainless steel.

Safety head assemblies and rupture discs are available in two styles :

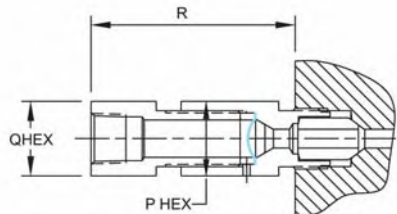
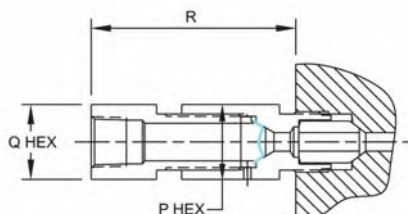
The **1/4A** style features a 1/4" blow-out diameter, an angular seat and can be ordered in pressures from 900 to 60,000 PSI (62 to 4140 bar)

Pressures to 20,000 psi (1380 bar)

Rupture discs are available in a wide range of burst ratings. Factors such as corrosion, fatigue and temperature may affect the burst pressure of the disc and cause premature failure. This problem may sometimes be overcome by frequent replacement of the disc. All discs rated over 500 PSI (34 bar) have a manufacturing tolerance of 3% under to 6% over the specified rupture pressure rating.

Rupture Discs are not included in the safety head assembly. To order discs separately

The **1/2F** style features a 1/2" blow-out diameter, a flat seat and can be ordered in pressures from 500 to 10,000 PSI (34 to 689 bar). This style also has a reversible hold-down ring which greatly reduces the possibility of premature disc failure associated with installation errors inherent in some designs.



Catalog Number without Disc	Connection Type	Pressure Rating psi (bar)	Dimensions in. (mm)		
			P (Hex.)	Q (Hex.)	R (LG.)
20-SHA4M	4MF	20,000 (1380)	1.06 (27)	0.88 (22.3)	2.49 (63.2)
20-SHA6M	6MF	20,000 (1380)	1.06 (27)	0.88 (22.3)	2.73 (69.3)
20-SHA9M	9MF	20,000 (1380)	1.06 (27)	0.88 (22.3)	2.52 (64)
20-SHA12M	12MF	20,000 (1380)	1.19 (30.2)	0.88 (22.3)	2.73 (69.3)
20-SHA16M	16MF	20,000 (1380)	1.44 (36.6)	0.88 (22.3)	2.73 (69.3)

Rupture Discs are not included in the safety head assembly. To order discs separately

Safety Head and Rupture Disk

Pressures to 60,000 psi (4140 bar)

Catalog Number without Disc	Connection Type	Pressure Rating psi(bar)	Dimensions in. (mm)		
			P (Hex.)	Q (Hex.)	R (LG.)
60-SHA4M	4MF	60,000 (4140)	1.06 (27)	0.88 (22.3)	2.5 (63.5)
60-SHA6M	6MF	60,000 (4140)	1.06 (27)	0.88 (22.3)	2.54 (64.5)
60-SHA9M	9MF	60,000 (4140)	1.19 (30.2)	0.88 (22.3)	2.48 (63)

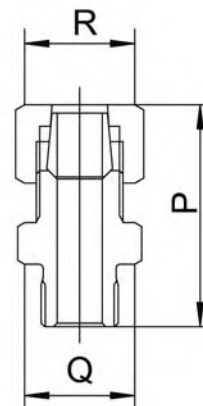
Rupture Discs are not included in the safety head assembly

To order discs separately add suffix to part no ;; as for example 60SH4M-1/4"A

Anti vibration collet and gland assembly

Pressures to 20,000 psi (1380 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.

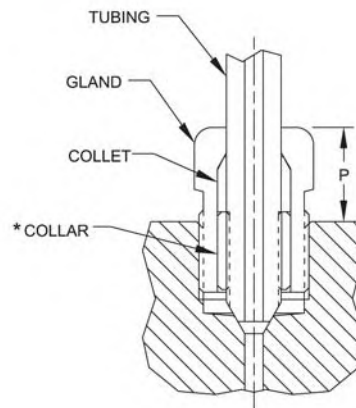


Catalog Number	Part	O.D. Tubing Size in.	Dimensions in(mm)		
			P	Q (Hex.)	R(Hex.)
20-AVGA4M	Complete Assembly	1/4			
20-AVCB4M	Collet Body		1.26	0.50	0.62
20-AVSC4M	Slotted Collet		(32)	(12.7)	(15.7)
20-AVGN4M	Gland Nut				
20-AVGA6M	Complete Assembly	3/8			
20-AVCB6M	Collet Body		1.53	0.62	0.81
20-AVSC6M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

Anti vibration collet and gland assembly

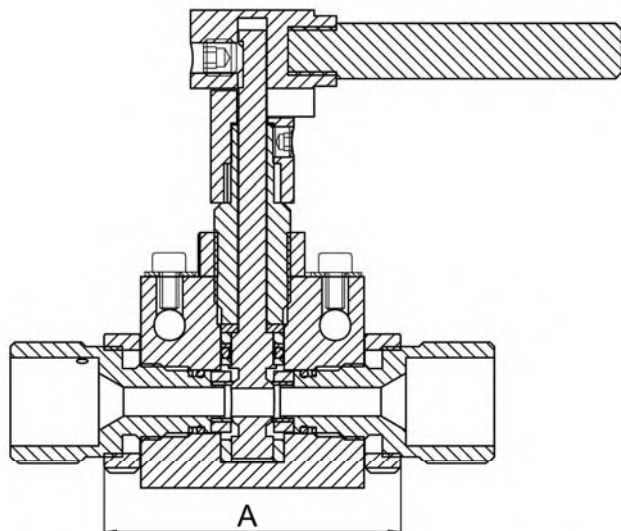
Pressures to 60,000 psi (4140 bar)

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.)
60-AVGA4M	Complete Assembly	1/4	0.50 (12.4)	0.62 (15.7)
60-AVCB4M	Collet Body			
60-AVSC4M	Slotted Collet			
60-AVGN4M	Gland Nut			
60-AVGA6M	Complete Assembly	3/8	0.76 (19.3)	0.81 (20.6)
60-AVCB6M	Collet Body			
60-AVSC6M	Slotted Collet			
60-AVGN6M	Gland Nut			
60-AVGA9M	Complete Assembly	9/16	0.95 (23)	1.18 (30.0)
60-AVCB9M	Collet Body			
60-AVSC9M	Slotted Collet			
60-AVGN9M	Gland Nut			
60-AVGA12M	Complete Assembly	1	1.76 (44.7)	1.50 (38.1)
60-AVCB12M	Collet Body			
60-AVSC12M	Slotted Collet			
60-AVGN12M	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)

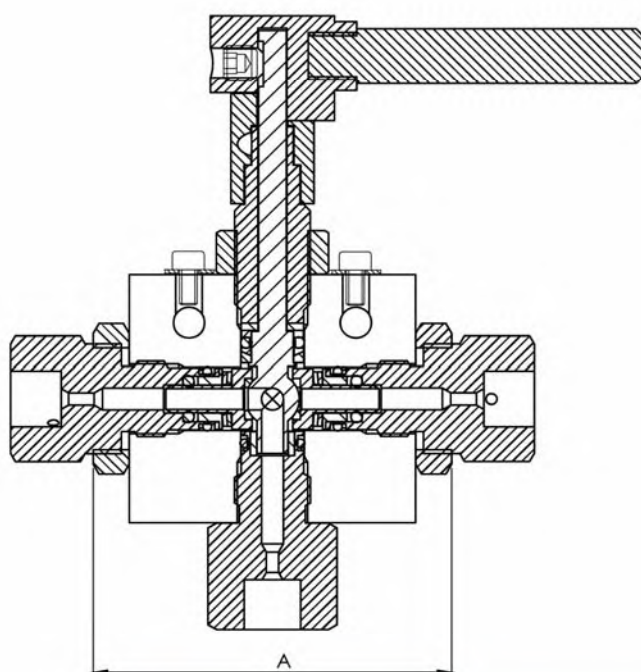
3 Way Ball Valves - 20,000 psi

TVI 3-Way Ball Valves have 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.



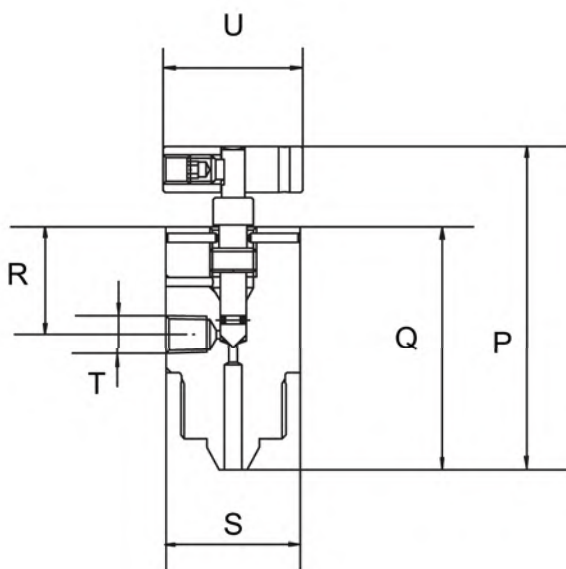
Catalog Number		Pressure Rating @ RT psi. (bar)*	O.D Tubing Size in.	Connection Type	Orifice Size in. (mm)	Cv
3-Way 180° Switching	3-Way 90°					
20B3WS4M	20B3WD4M	20,000 (1,380)	1/4	4MF	0.109 (2.8)	0.15
20B3WS6M	20B3WD6M	20,000 (1,380)	3/8	6MF	0.121 (4.8)	0.71
20B3WS9M	20B3WD9M	20,000 (1,380)	9/16	9MF	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

Bleed valves

Features

- One piece hex construction compact design allows easy installation
- Fluorocarbon FKM O-ring for operation from 0°F to 400°F (-17.8°C to 204°C),
- 1/8" Female NPT outlet connection
- High tensile 316 Stainless Steel body material
- Easy to assemble and replace O-ring
- Positive locking screw design prevents accidental removal of the stem
- PMT bleed valve designed reliable pressure up to 36,000 psi

Catalog Number	OD Tube in.	Orifice (mm)	Dimensions in. (mm)					
			P	Q	R	S	T	U
36BV9H	9/16	0.094	3.60	2.60	1.19	1.45	1/8 NPT	1.5



Block and Bleed valves

Features

Compact design offers advantages over configurations with multiple valves and fittings

Minimal space for installation and operation

Cost savings from fewer components required

Reduced potential for leakage

Metal-to-metal seating achieves ideal shutoff, longer stem/seat service lifetime for abrasive flow, excellent corrosion resistance and greater durability for repeated on/off cycles

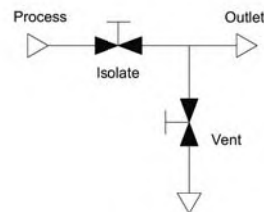
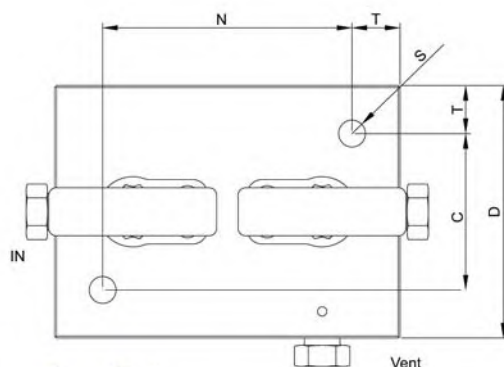
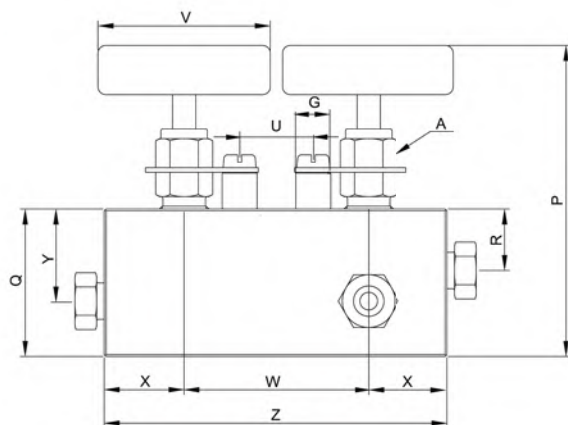
Non rotating stem and bar stock body design

Selected materials for packing gland and upper stem for reduced handle torque and extended thread cycle life

Packing located under stem threads

Reliable locking device for packing gland

Catalog Number	OD Tube in.	Orifice in. (mm)	Dimensions in. (mm)														
			P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D
20-BBV4M	1/4	0.11 (2.8)	3.11 (79)	1.54 (39)	0.94 (24)	0.3 (7.5)	0.5 (12.8)	0.43 (11)	1.58 (40.2)	1.81 (46)	0.85 (21.5)	1.22 (31)	3.5 (89)	0.82 (20.8)	3.0 (76.3)	1.62 (41.3)	2.64 (67)
20-BBV6M	3/8																

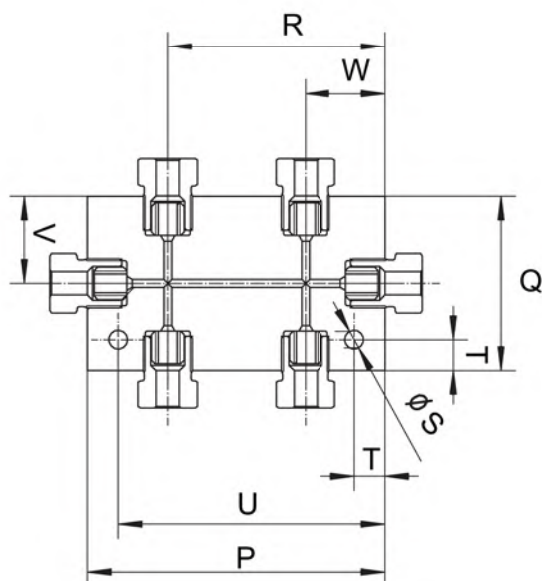


Manifold Blocks

PMT Manifold Block Series allows reducing parts and potential leakages in high pressure piping systems.

The Manifold Blocks are very compact and have 6 connections.

Catalog Number	Pressure psi (bar)	OD Tube in.	Orifice in. (mm)	Dimensions in. (mm)							Block Thickness
				P	Q	R	S	T	U	V	
20-MB4M	20,000 (1,380)	1/4	0.11 (2.8)	3.39 (86)	1.54 (39)	2.6 (66)	0.23 (5.51)	0.28 (7)	3.11 (79)	0.78 (19.6)	0.63 (16)
20-MBM	20,000 (1,380)	3/8	0.2 (50)	3.39 (86)	2.01 (51)	2.38 (60.5)	0.26 (6.5)	0.37 (9.5)	3.01 (76.5)	1.0 (25.5)	0.79 (20)
20-MB9M	20,000 (1,380)	9/16	0.307 (7.9)	5.12 (130)	2.5 (63.5)	3.86 (98)	0.33 (8.5)	0.42 (10.7)	4.6 (119.7)	1.25 (31.75)	1.02 (26)
20-MB12M	20,000 (1,380)	3/4	0.438 (11.0)	6.5 (165)	2.99 (76)	5.0 (127)	0.35 (9)	0.5 (12.5)	6.0 (152.5)	1.5 (38)	1.38 (35)
20-MB16M	20,500 (1,380)	1	0.563 (14.5)	7.25 (191)	4.13 (105)	5.45 (138.5)	0.53 (13.5)	0.69 (17.5)	6.82 (173.5)	2.07 (52.5)	1.77 (45)
60-MB4H	60,000 (4,140)	1/4	0.094 (2.3)	3.44 (87.5)	2.01 (51)	2.52 (64)	0.22 (5.4)	0.35 (9)	3.1 (78.5)	1.0 (25.5)	1.02 (26)
60-MB6H	60,000 (4,140)	3/8	0.125 (3.2)	3.76 (95.5)	2.01 (51)	2.66 (67.5)	0.26 (6.5)	0.35 (9)	3.41 (86.5)	1.0 (25.5)	1.02 (26)
60-MB9H	60,000 (4,140)	9/16	0.20 (4.9)	5.12 (130)	2.64 (67)	3.74 (95)	0.33 (8.5)	0.38 (9.7)	4.74 (120.5)	1.32 (33.5)	1.54 (39)



Pressure gauge

provides pressure gauges up to max. 36,000 psi (2500 bar)

high pressure program see the table below

All pressure gauges are liquid damped and conform to accuracy class 1.0.

feature

measuring system high corrosion resistant material

rugged construction

corrosion resistant

fulfills highest safety requirements

Pressure range bar (psi)	Catalog Number	Connection Type	Diameter in. (mm)
0–1,000 bar (0–15,000 psi)	PG-0015	9/16"-18 L.H.	3.9" (100)
0–1,000 bar (0–15,000 psi)	PG-0016	9/16"-18 L.H.	6.3" (160)
0–1,600 bar (0–23,200 psi)	PG-0017	9/16"-18 L.H.	3.9" (100)
0–1,600 bar (0–23,200 psi)	PG-0018	9/16"-18 L.H.	6.3" (160)
0–2,500 bar (0–36,000 psi)	PG-0019	9/16"-18 L.H.	3.9" (100)
0–2,500 bar (0–36,000 psi)	PG-0020	9/16"-18 L.H.	6.3" (160)



Quick disconnect coupling

offer variety of Quick disconnect coupling in multiple thread style pressure up to 30,000 psi



Screw type Quick disconnect (no check valve)

Catalog Number	connection	pressure
QDC-8P-SET	1/2" NPT female screw together Quick disconnect set	15,000psi
QDC-9P-SET	9/16" MP female screw together Quick disconnect set	20,000psi

Screw type Quick disconnect (with check valve)-hydraulic service

Catalog Number	connection	pressure
QDC-600-4P	1/4" NPT male screw together Quick disconnect set	10,000psi
QDC-700-4P	1/4"NPT female screw together Quick disconnect set	10,000psi
QDC-600-6P	3/8" NPT male screw together Quick disconnect set	10,000psi
QDC-700-6P	3/8"NPT female screw together Quick disconnect set	10,000psi

Push/pull Quick disconnect (no check valve) -water blast service

Catalog Number	connection	pressure
QDC-800-8P	1/2" NPT female screw together Quick disconnect set	15,000psi
QDC-900-9P	9/16"MP female screw together Quick disconnect set	20,000psi

TVI MEDIUM & HIGH PRESSURE VALVES

- series disconnect coupling have maximum working pressure 30,000 psi and .25" inner diameter port size
- rated for full maximum working pressure when disconnected
- stainless still construction

Quick disconnect female coupler with check valve

Catalog Number	Connection type	Pressure range bar (psi)
HPQD-600-9M	Coupler with check valve x 9/16" - 18 type M	30,000
HPQD-600-12M	Coupler with check valve x 3/4" - 16 type M	30,000
HPQD-600-16M	Coupler with check valve x 1" - 12 type M	30,000
HPQD-600-J4M	Coupler with check valve x 1/4" JIC M	10,000
HPQD-600-J6M	Coupler with check valve x 3/8" JIC M	10,000
HPQD-600-J8M	Coupler with check valve x 1/2" JIC M	10,000
HPQD-600-N4M	Coupler with check valve x 1/4" NPT M	15,000
HPQD-600-N6M	Coupler with check valve x 3/8" NPT M	15,000
HPQD-600-N8M	Coupler with check valve x 1/2" NPT M	15,000
HPQD-600-N4F	Coupler with check valve x 1/4" NPT F	15,000
HPQD-600-N6F	Coupler with check valve x 3/8" NPT F	15,000
HPQD-600-N8F	Coupler with check valve x 1/2" NPT F	15,000
HPQD-600-4M	Coupler with check valve x 1/4" MP M	20,000
HPQD-600-6M	Coupler with check valve x 3/8" MP M	20,000
HPQD-600-9M	Coupler with check valve x 9/16" MP M	20,000
HPQD-600-4H	Coupler with check valve x 1/4" HP M	30,000
HPQD-600-6H	Coupler with check valve x 3/8" HP M	30,000
HPQD-600-9H	Coupler with check valve x 9/16" HP M	30,000
HPQD-600-3L	Coupler with check valve x low angle M	30,000



Quick disconnect male nipple with check valve

Catalog Number	Connection type	Pressure range bar (psi)
HPQD-600-1-9M	Coupler with check valve x 9/16" - 18 type M	30,000
HPQD-600-1-12M	Coupler with check valve x 3/4" - 16 type M	30,000
HPQD-600-1-16M	Coupler with check valve x 1" - 12 type M	30,000
HPQD-600-1-J4M	Coupler with check valve x 1/4" JIC M	10,000
HPQD-600-1-J6M	Coupler with check valve x 3/8" JIC M	10,000
HPQD-600-1-J8M	Coupler with check valve x 1/2" JIC M	10,000
HPQD-600-1-N4M	Coupler with check valve x 1/4" NPT M	15,000
HPQD-600-1-N6M	Coupler with check valve x 3/8" NPT M	15,000
HPQD-600-1-N8M	Coupler with check valve x 1/2" NPT M	15,000
HPQD-600-1-N4F	Coupler with check valve x 1/4" NPT F	15,000
HPQD-600-1-N6F	Coupler with check valve x 3/8" NPT F	15,000
HPQD-600-1-N8F	Coupler with check valve x 1/2" NPT F	15,000
HPQD-600-1-4M	Coupler with check valve x 1/4" MP M	20,000
HPQD-600-1-6M	Coupler with check valve x 3/8" MP M	20,000
HPQD-600-1-9M	Coupler with check valve x 9/16" MP M	20,000
HPQD-600-1-4H	Coupler with check valve x 1/4" HP M	30,000
HPQD-600-1-6H	Coupler with check valve x 3/8" HP M	30,000
HPQD-600-1-9H	Coupler with check valve x 9/16" HP M	30,000
HPQD-600-1-3L	Coupler with check valve x low angle M	30,000



Quick disconnect male nipple with out check valve

Catalog Number	Connection type	Pressure range bar (psi)
HPQD-600-2-9M	Coupler with check valve x 9/16" - 18 type M	30,000
HPQD-600-2-12M	Coupler with check valve x 3/4" - 16 type M	30,000
HPQD-600-2-16M	Coupler with check valve x 1" - 12 type M	30,000
HPQD-600-2-J4M	Coupler with check valve x 1/4" JIC M	10,000
HPQD-600-2-J6M	Coupler with check valve x 3/8" JIC M	10,000
HPQD-600-2-J8M	Coupler with check valve x 1/2" JIC M	10,000
HPQD-600-2-N4M	Coupler with check valve x 1/4" NPT M	15,000
HPQD-600-2-N6M	Coupler with check valve x 3/8" NPT M	15,000
HPQD-600-2-N8M	Coupler with check valve x 1/2" NPT M	15,000
HPQD-600-2-N4F	Coupler with check valve x 1/4" NPT F	15,000
HPQD-600-2-N6F	Coupler with check valve x 3/8" NPT F	15,000
HPQD-600-2-N8F	Coupler with check valve x 1/2" NPT F	15,000
HPQD-600-2-4M	Coupler with check valve x 1/4" MP M	20,000
HPQD-600-2-6M	Coupler with check valve x 3/8" MP M	20,000
HPQD-600-2-9M	Coupler with check valve x 9/16" MP M	20,000
HPQD-600-2-4H	Coupler with check valve x 1/4" HP M	30,000
HPQD-600-2-6H	Coupler with check valve x 3/8" HP M	30,000
HPQD-600-2-9H	Coupler with check valve x 9/16" HP M	30,000
HPQD-600-2-3L	Coupler with check valve x low angle M	30,000

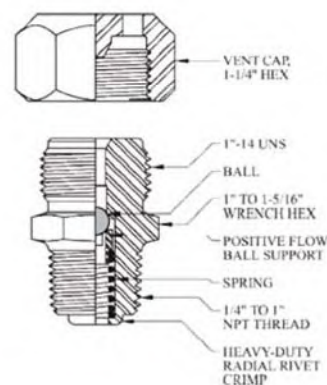
Vented Cap Body Grease Fitting

(Four Service 10,000 psi)

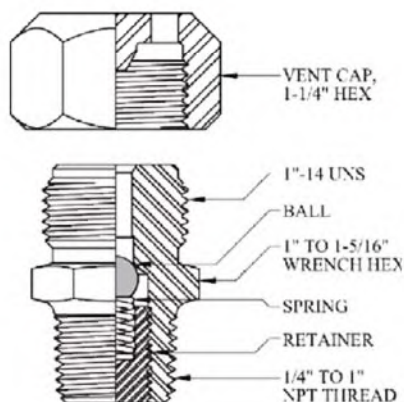
Vented Cap Body Grease Fitting Adaptor

(No giant button head-screw on adaptor is needed)

Thread Size -NPT	Material	Part No	Plating	Heat Treatment	Ball	Spring
1"P	1215	VGf16-1	Zn-Cd		Crom Alloy	302 SS
	316 SS	VGf16-2		Anneled (NACE)	K -Monel	Inconel
	4140	VGf16-3	Zn-Cd	Rc 22 Max (NACE)		X-750
3/4"P	1215	VGf6-1	Zn-Cd		Crom Alloy	302 SS
	316 SS	VGf6-2		Anneled (NACE)	K -Monel	Inconel
	4140	VGf6-3	Zn-Cd	Rc 22 Max (NACE)		X-750
1/2"P	1215	VGf8-1	Zn-Cd		Crom Alloy	302 SS
	316 SS	VGf8-2		Anneled (NACE)	K -Monel	Inconel
	4140	VGf8-3	Zn-Cd	Rc 22 Max (NACE)		X-750
3/8"P	1215	VGf14-1	Zn-Cd		Crom Alloy	302 SS
	316 SS	VGf14-2		Anneled (NACE)	K -Monel	Inconel
	4140	VGf14-3	Zn-Cd	Rc 22 Max (NACE)		X-750
1/4"P	1215	VGf4-1	Zn-Cd		Crom Alloy	302 SS
	316 SS	VGf4-2		Anneled (NACE)	K -Monel	Inconel
	4140	VGf4-3	Zn-Cd	Rc 22 Max (NACE)		X-750



Vented Cap Body Grease Fitting With Giant Button Head

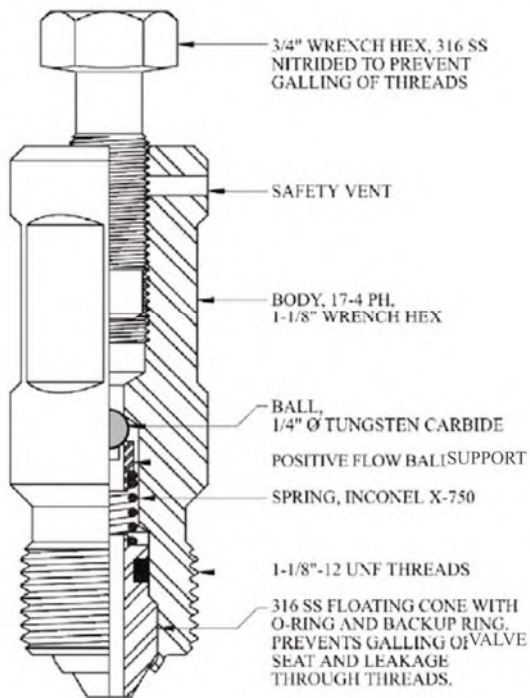


Thread Size-NPT	Material	Part No	Plating	Heat Treatment	Ball	Spring
1"P	1215	VGFG16-1	Zn-Cd		Crom Alloy	302 SS
	316 SS	VGFG16-2		Anneled (NACE)	K -Monel	Inconel
	4140	VGFG16-3	Zn-Cd	Rc 22 Max (NACE)		X-750
3/4"P	1215	VGFG6-1	Zn-Cd		Crom Alloy	302 SS
	316 SS	VGFG6-2		Anneled (NACE)	K -Monel	Inconel
	4140	VGFG6-3	Zn-Cd	Rc 22 Max (NACE)		X-750
1/2"P	1215	VGFG8-1	Zn-Cd		Crom Alloy	302 SS
	316 SS	VGFG8-2		Anneled (NACE)	K -Monel	Inconel
	4140	VGFG8-3	Zn-Cd	Rc 22 Max (NACE)		X-750
3/8"P	1215	VGFG14-1	Zn-Cd		Crom Alloy	302 SS
	316 SS	VGFG14-2		Anneled (NACE)	K -Monel	Inconel
	4140	VGFG14-3	Zn-Cd	Rc 22 Max (NACE)		X-750
1/4"P	1215	VGFG4-1	Zn-Cd		Crom Alloy	302 SS
	316 SS	VGFG4-2		Anneled (NACE)	K -Monel	Inconel
	4140	VGFG4-3	Zn-Cd	Rc 22 Max (NACE)		X-750

High Pressure Fittings

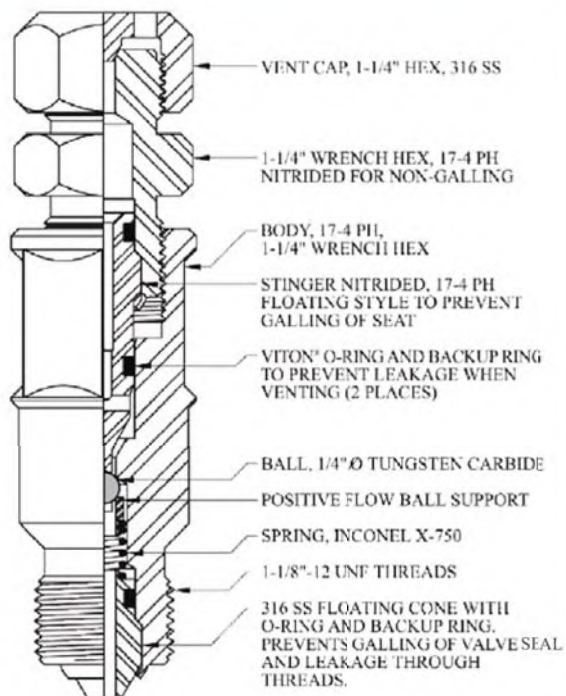
Packing Injection Fitting 9/16" Autoclave Style

- For service to 20,000 PSI
- Part Number:



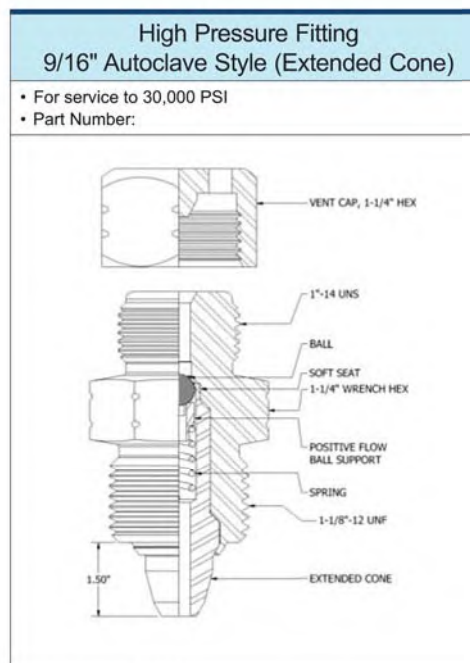
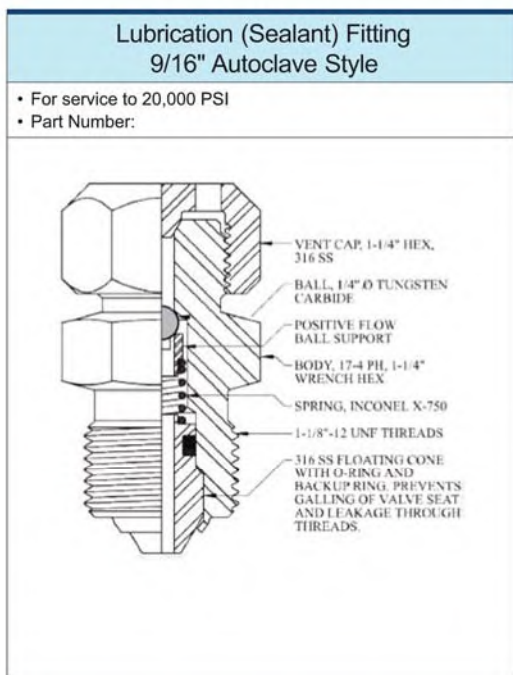
Blow Down Fitting 9/16" Autoclave Style

- For service to 20,000 PSI
- Part Number:



High Pressure Fittings

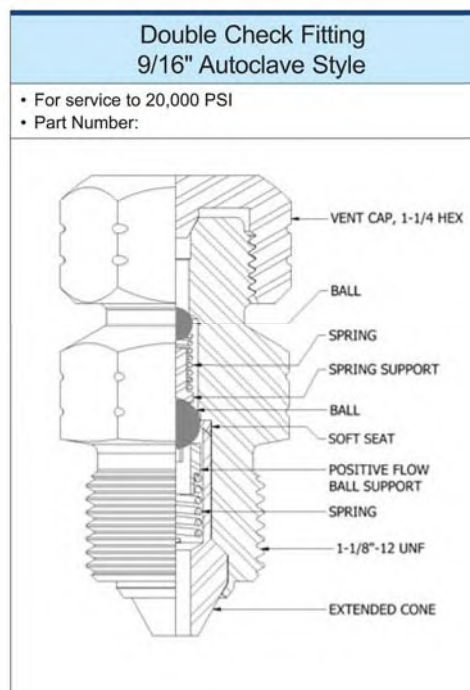
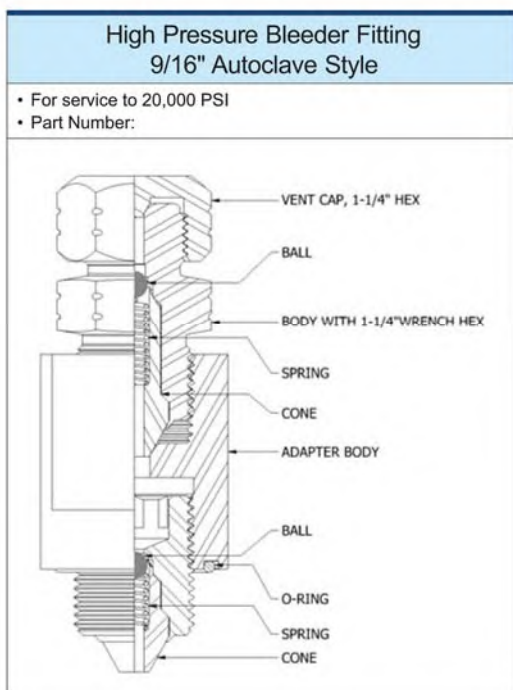
High Pressure Lubrication and Sealant Fittings



Soft Seat material is PEEK

Consult the factory for other extended cone lengths.

Double Ball Fittings can be used with existing Pressure Relief Tool

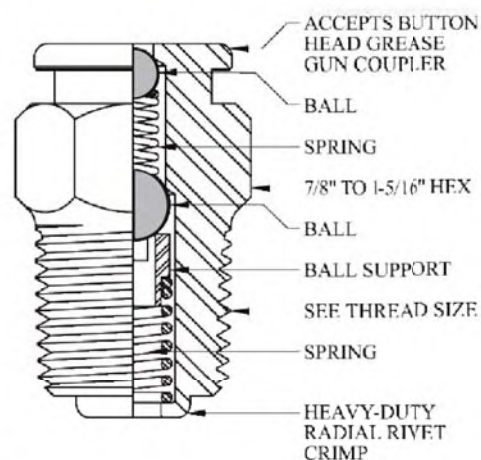


Giant Button Head Fitting

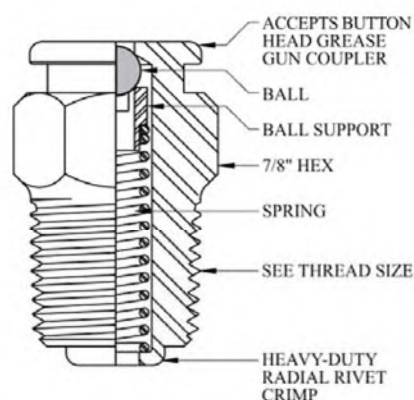
(Four Service 10,000 psi)

Double Ball Check

Thread Size-NPT	Material	Part No	Plating	Heat Treatment	Ball	Spring
1"P	1215	GB216-1	Zn-Co		Crom Alloy	302 SS
	316 SS	GB216-2		Anneled (NACE)	K -Monel	Inconel
	4140	GB216-3	Zn-Co	Rc 22 Max (NACE)		X-750
3/4"P	1215	GB26-1	Zn-Co		Crom Alloy	302 SS
	316 SS	GB26-2		Anneled (NACE)	K -Monel	Inconel
	4140	GB26-3	Zn-Co	Rc 22 Max (NACE)		X-750
1/2"P	1215	GB28-1	Zn-Co		Crom Alloy	302 SS
	316 SS	GB28-2		Anneled (NACE)	K -Monel	Inconel
	4140	GB28-3	Zn-Co	Rc 22 Max (NACE)		X-750
3/8"P	1215	GB214-1	Zn-Co		Crom Alloy	302 SS
	316 SS	GB214-2		Anneled (NACE)	K -Monel	Inconel
	4140	GB214-3	Zn-Co	Rc 22 Max (NACE)		X-750
1/4"P	1215	GB24-1	Zn-Co		Crom Alloy	302 SS
	316 SS	GB24-2		Anneled (NACE)	K -Monel	Inconel
	4140	GB24-3	Zn-Co	Rc 22 Max (NACE)		X-750
3/4"-10UNC	1215	GB2-10	Zn-Co		Crom Alloy	302 SS
5/8"-11UNC	1215	GB2-11	Zn-Co		Crom Alloy	302 SS



Single Ball Check



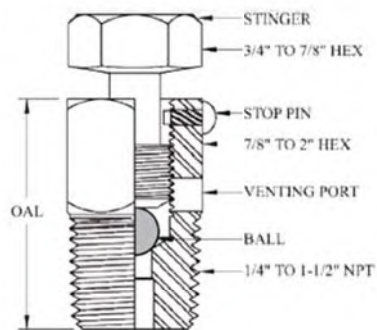
Thread Size-NPT	Material	Part No	Plating	Heat Treatment	Ball	Spring
3/4"P	1215	GB16-1	Zn-Co		Crom Alloy	302 SS
	316 SS	GB16-2		Anneled (NACE)	K -Monel	Inconel
	4140	GB16-3	Zn-Co	Rc 22 Max (NACE)		X-750
1/2"P	1215	GB18-1	Zn-Co		Crom Alloy	302 SS
	316 SS	GB18-2		Anneled (NACE)	K -Monel	Inconel
	4140	GB18-3	Zn-Co	Rc 22 Max (NACE)		X-750
3/8"P	1215	GB114-1	Zn-Co		Crom Alloy	302 SS
	316 SS	GB114-2		Anneled (NACE)	K -Monel	Inconel
	4140	GB114-3	Zn-Co	Rc 22 Max (NACE)		X-750
1/4"P	1215	GB14-1	Zn-Co		Crom Alloy	302 SS
	316 SS	GB14-2		Anneled (NACE)	K -Monel	Inconel
	4140	GB14-3	Zn-Co	Rc 22 Max (NACE)		X-750
3/8"-16UNC	1215	GB1-16	Zn-Co		Crom Alloy	302 SS

Body Vent -Bleeder Fittings

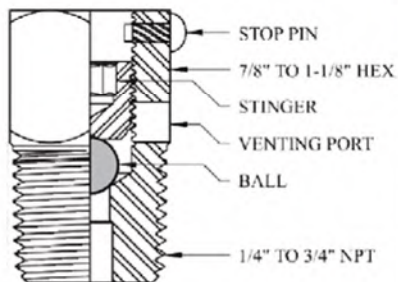
(Four Service 10,000 psi)

Standard Hex Head style

Thread Size-NPT	Material	Part No	Plating	Heat Treatment	Hex	Ball	OAL
1-1/4"P	1215	BVB18-1	Zn-Co		2"	440SS	2-5/8"
	316 SS	BVB18-2		Anneled (NACE)	2"	TC*	
	4140	BVB18-3	Zn-Co	Rc 22 Max (NACE)			
1-1/2"P	1215	BVB20-1	Zn-Co		1-3/4"	440SS	2-5/16"
	316 SS	BVB20-2		Anneled (NACE)	1-3/4"	TC*	
	4140	BVB20-3	Zn-Co	Rc 22 Max (NACE)			
1"P	1215	BVB16-1	Zn-Co		1-5/16"	440SS	2-3/16"
	316 SS	BVB16-2		Anneled (NACE)	1-5/16"	TC*	
	4140	BVB16-3	Zn-Co	Rc 22 Max (NACE)			
3/4"P	1215	BVB6-1	Zn-Co		1-1/8"	440SS	1-5/8"
	316 SS	BVB6-2		Anneled (NACE)	1-1/8"	TC*	
	4140	BVB6-3	Zn-Co	Rc 22 Max (NACE)			
1/2"P	1215	BVB8-1	Zn-Co		7/8"	440SS	1-1/2"
	316 SS	BVB8-2		Anneled (NACE)	7/8"	TC*	
	4140	BVB8-3	Zn-Co	Rc 22 Max (NACE)			
3/8"P	1215	BVB14-1	Zn-Co		7/8"	440SS	1-9/16"
	316 SS	BVB14-2		Anneled (NACE)	7/8"	TC*	
	4140	BVB14-3	Zn-Co	Rc 22 Max (NACE)			
1/4"P	1215	BVB4-1	Zn-Co		7/8"	440SS	1-5/8"
	316 SS	BVB4-2		Anneled (NACE)	7/8"	TC*	
	4140	BVB4-3	Zn-Co	Rc 22 Max (NACE)			



Hex Socket Head Style



Thread Size-NPT	Material	Part No	Plating	Heat Treatment	Spring	Ball	OAL
3/4"P	1215	BVHS6-1	Zn-Co		1-1/8"	440SS	1-5/8"
	316 SS	BVHS6-2		Anneled (NACE)	1-1/8"	TC*	
	4140	BVHS6-3	Zn-Co	Rc 22 Max (NACE)			
1/2"P	1215	BVHS8-1	Zn-Co		7/8"	440SS	1-1/2"
	316 SS	BVHS8-2		Anneled (NACE)	7/8"	TC*	
	4140	BVHS8-3	Zn-Co	Rc 22 Max (NACE)			
3/8"P	1215	BVHS14-1	Zn-Co		7/8"	440SS	1-9/16"
	316 SS	BVHS14-2		Anneled (NACE)	7/8"	TC*	
	4140	BVHS14-3	Zn-Co	Rc 22 Max (NACE)			
1/4"P	1215	BVHS4-1	Zn-Co		7/8"	440SS	1-5/8"
	316 SS	BVHS4-2		Anneled (NACE)	7/8"	TC*	
	4140	BVHS4-3	Zn-Co	Rc 22 Max (NACE)			

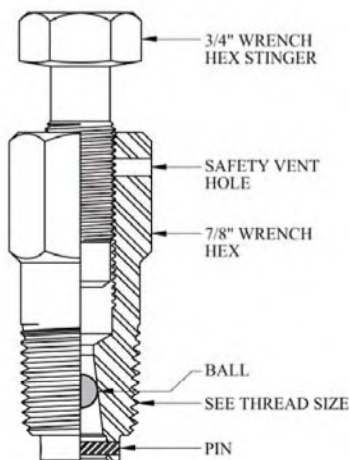
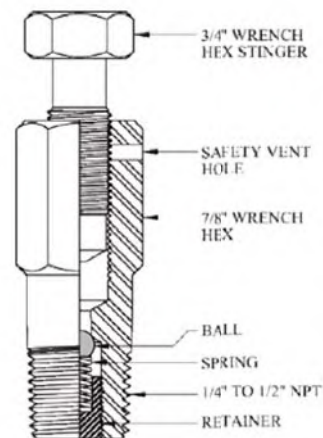
Pecking Injection Fitting

(Four Service 10,000 psi)

Packing Injection Fitting

(Spring Assisted Ball Check)

Thread Size-NPT	Material	Part No	Plating	Heat Treatment	Ball	Spring
1/2"P	1215	PISB8-1	Zn-Co		Crom Alloy	302 SS
	316 SS	PISB8-2		Anneled (NACE)	K -Monel	Inconel X-750
	4140	PISB8-3	Zn-Co	Rc 22 Max (NACE)		
3/8"P	1215	PISB14-1	Zn-Co		Crom Alloy	302 SS
	316 SS	PISB14-2		Anneled (NACE)	K -Monel	Inconel X-750
	4140	PISB14-3	Zn-Co	Rc 22 Max (NACE)		
1/4"P	1215	PISB4-1	Zn-Co		Crom Alloy	302 SS
	316 SS	PISB4-2		Anneled (NACE)	K -Monel	Inconel X-750
	4140	PISB4-3	Zn-Co	Rc 22 Max (NACE)		



Packing Injection Fitting

(Floating Ball Taper Cavity)

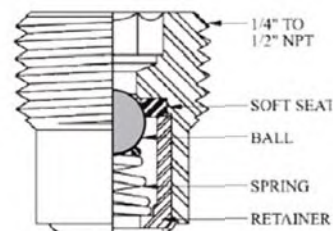
Thread Size-NPT	Material	Part No	Plating	Heat Treatment	Ball
1/2"P	1215	PIBT8-1	Zn-Co		Crom Alloy
	316 SS	PIBT8-2		Anneled (NACE)	K -Monel
	4140	PIBT8-3	Zn-Co	Rc 22 Max (NACE)	
3/8"P	1215	PIBT14-1	Zn-Co		Crom Alloy
	316 SS	PIBT14-2		Anneled (NACE)	K -Monel
	4140	PIBT14-3	Zn-Co	Rc 22 Max (NACE)	
1/4"P	1215	PIBT4-1	Zn-Co		Crom Alloy
	316 SS	PIBT4-2		Anneled (NACE)	K -Monel
	4140	PIBT4-3	Zn-Co	Rc 22 Max (NACE)	
3/8"-16UNC	1215	PIBT-16	Zn-Co		302 SS
5/8"-11UNC	1215	PIBT-11	Zn-Co		302 SS

Internal Check Fitting

(Four Service 10,000 psi)

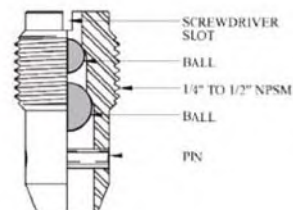
Single Ball Check ,Soft Seat ,Spring Biased

Thread Size-NPT	Material	Part No	Plating	Heat Treatment	Ball	Spring	OAL
1/2"P	316 SS	IC8-2		Anneled (NACE)	K -Monel	Inconel	15/16"
	4140	IC8-3	Zn-Co	Rc 22 Max (NACE)	K -Monel	X-750	
3/8"P	316 SS	IC6-2		Anneled (NACE)	K -Monel	Inconel	7/8"
	4140	IC6-3	Zn-Co	Rc 22 Max (NACE)	K -Monel	X-750	
1/4"P	316 SS	IC6-2		Anneled (NACE)	K -Monel	Inconel	3/4"
	4140	IC4-3	Zn-Co	Rc 22 Max (NACE)	K -Monel	X-750	
1/4"P	316 SS	IC4FB-2		Anneled (NACE)	K -Monel	Inconel	21/32"
	4140	IC4FB-3	Zn-Co	Rc 22 Max (NACE)	K -Monel	X-750	

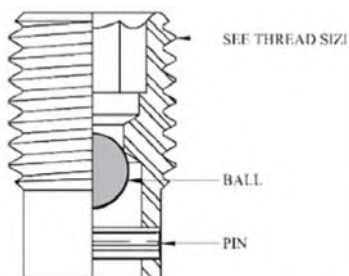


Double Ball Check (Floating)

Thread Size	Material	Part No	Plating	Heat Treatment	Ball	Spring	OAL
1/2" NPSM	316 SS	IC2B8-2		Anneled (NACE)	K -Monel	Inconel	1 5/8"
	1215	IC2B8-1	Zn-Co		K -Monel	X-750	
3/8"NPSM"	316 SS	IC2B6-2		Anneled (NACE)	K -Monel	Inconel	1 9/32"
	1215	IC2B6-1	Zn-Co		K -Monel	X-750	
1/4"NPSM	316 SS	IC2B6-2		Anneled (NACE)	K -Monel	Inconel	1"
	1215	IC2B4-1	Zn-Co		K -Monel	X-750	



Single Ball Check (Floating)

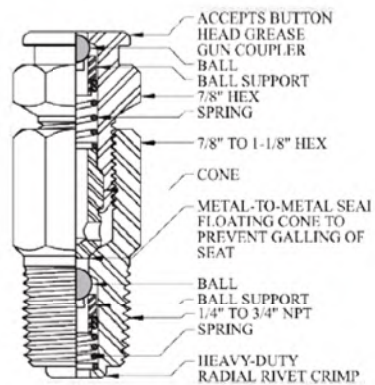


Thread Size	Material	Part No	Plating	Heat Treatment	Ball	Spring	OAL
1"-8UNC	1215	ICB-8-1	Zn-Co		Crom Alloy	302 SS	1 9/16"
	316 SS	IC2-8-2		Anneled (NACE)	K -Monel	Inconel	
	4140	ICB-8-3	Zn-Co	Rc 22 Max (NACE)		X-750	
7/8"-9UNC	1215	ICB-9-1	Zn-Co		Crom Alloy	302 SS	1 7/16"
	316 SS	ICB-9-2		Anneled (NACE)	K -Monel	Inconel	
	4140	ICB-9-3	Zn-Co	Rc 22 Max (NACE)		X-750	
3/4"-10UNC	1215	ICB-10-1	Zn-Co		Crom Alloy	302 SS	1 1/4"
	316 SS	ICB-10-2		Anneled (NACE)	K -Monel	Inconel	
	4140	ICB-10-3	Zn-Co	Rc 22 Max (NACE)		X-750	

Lock Seal Fitting

Double Ball Check

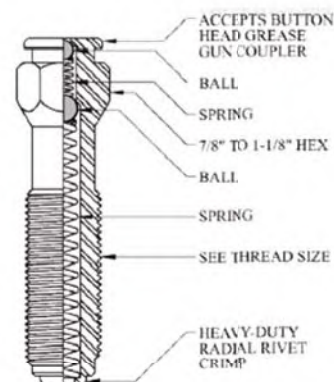
Thread Size-NPT	Material	Part No	Plating	Heat Treatment	Ball	Spring
3/4"P	1215	LSDB6-1	Zn-Cd		Crom Alloy	302 SS
	316 SS	LSDB6-2		Anneled (NACE)	K -Monel	Inconel
	4140	LSDB6-3				X-750
1/2"P	1215	LSDB8-1	Zn-Cd		Crom Alloy	302 SS
	316 SS	LSDB8-2		Anneled (NACE)	K -Monel	Inconel
	4140	LSDB8-3	Zn-Cd	Rc 22 Max (NACE)		X-750
3/8"P	1215	LSDB14-1	Zn-Cd		Crom Alloy	302 SS
	316 SS	LSDB14-2		Anneled (NACE)	K -Monel	Inconel
	4140	LSDB14-3	Zn-Cd	Rc 22 Max (NACE)		X-750
1/4"P	1215	LSDB4-1	Zn-Cd		Crom Alloy	302 SS
	316 SS	LSDB4-2		Anneled (NACE)	K -Monel	Inconel
	4140	LSDB4-3	Zn-Cd	Rc 22 Max (NACE)		X-750



Combination Lube/Sealant Fittings

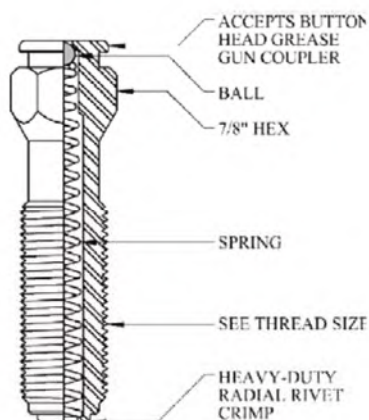
Double Ball Check

Thread Size	Material	Part No	Plating	Heat Treatment	Ball	Spring	OAL
3/4"NPSM	1215	CL2B6-1	Zn-Co		Crom Alloy	302 SS	4-5/8"
	316 SS	CL2B6-2		Anneled (NACE)	K -Monel	Inconel	
	4140	CL2B6-3	Zn-Co	Rc 22 Max (NACE)		X-750	
1/2"NPSM	1215	CL2B8-1	Zn-Co		Crom Alloy	302 SS	3-9/16"
	316 SS	CL2B8-2		Anneled (NACE)	K -Monel	Inconel	
	4140	CL2B8-3	Zn-Co	Rc 22 Max (NACE)		X-750	
3/8"NPSM	1215	CL2B14-1	Zn-Co		Crom Alloy	302 SS	3-1/4"
	316 SS	CL2B14-2		Anneled (NACE)	K -Monel	Inconel	
	4140	CL2B14-3	Zn-Co	Rc 22 Max (NACE)		X-750	
1/4"NPSM	1215	CL2B4-1	Zn-Co		Crom Alloy	302 SS	2-7/16"
	316 SS	CL2B4-2		Anneled (NACE)	K -Monel	Inconel	
	4140	CL2B4-3	Zn-Co	Rc 22 Max (NACE)		X-750	
7/8"-9UNC	1215	CL2B-9-1	Zn-Co		Crom Alloy	302 SS	3-1/8"
3/4"-10UNC	1215	CL2B4-10-1	Zn-Co		Crom Alloy	302 SS	3-1/16"
5/8"-11UNC	1215	CL2B4-11-1	Zn-Co		Crom Alloy	302 SS	2-7/16"



Single Ball Check

Thread Size	Material	Part No	Plating	Heat Treatment	Ball	Spring	OAL
3/4"NPSM	1215	CL1B6-1	Zn-Co		Crom Alloy	302 SS	4-3/4"
	316 SS	CL1B6-2		Anneled (NACE)	K -Monel	Inconel	
	4140	CL1B6-3	Zn-Co	Rc 22 Max (NACE)		X-750	
1/2"NPSM	1215	CL1B8-1	Zn-Co		Crom Alloy	302 SS	3-5/8"
	316 SS	CL1B8-2		Anneled (NACE)	K -Monel	Inconel	
	4140	CL1B8-3	Zn-Co	Rc 22 Max (NACE)		X-750	
3/8"NPSM	1215	CL1B14-1	Zn-Co		Crom Alloy	302 SS	3-1/32"
	316 SS	CL1B14-2		Anneled (NACE)	K -Monel	Inconel	
	4140	CL1B14-3	Zn-Co	Rc 22 Max (NACE)		X-750	
1/4"NPSM	1215	CL1B4-1	Zn-Co		Crom Alloy	302 SS	2-3/8"
	316 SS	CL1B4-2		Anneled (NACE)	K -Monel	Inconel	
	4140	CL1B4-3	Zn-Co	Rc 22 Max (NACE)		X-750	
1"-10UNC	1215	CL1B-10-1	Zn-Co		Crom Alloy	302 SS	4-5/8"
3/4"-10UNC	1215	CL1B12-10-1	Zn-Co		Crom Alloy	302 SS	3-9/32"
1/2"-13UNC	1215	CL1B-13-1	Zn-Co		Crom Alloy	302 SS	2-1/8"
3/8"-16UNC	1215	CL1B-16-1	Zn-Co		Crom Alloy	302 SS	1-1/2"



Well Head Fittings

Wellhead and Tree Components

Lockscrews

Other materials, plating, and configurations are available upon request. Please consult the factory for product availabilities.

A Thread	B Length	C Diameter	D Flats	E Length	Part No.
1-1/2"-8 UN	10-1/8"	1-1/8"	1"	7-5/16"	LS18-8-1
1-1/2"-8 UN	12"	1-1/8"	1"	9-5/32"	LS18-8-2
1-1/4"-12 UNF	6-7/8"	1"	3/4"	5-1/2"	LS20-12-1
1-1/4"-12 UNF	7-5/8"	1"	3/4"	6-13/65"	LS20-12-2
1-1/4"-12 UNF	9"	1"	3/4"	7-9/16"	LS20-12-3
1-1/4"-12 UNF	10"	1"	3/4"	8-9/16"	LS20-12-4
1-1/4"-12 UNF	11"	1"	3/4"	9-9/16"	LS20-12-5
1-1/4"-12 UNF	12-1/4"	1"	3/4"	10-15/16"	LS20-12-6
1-1/4"-12 UNF	13-1/2"	1"	3/4"	12-1/8"	LS20-12-7
1-1/4"-12 UNF	7"	7/8"	11/16"	5-5/8"	LS20-12-8
1-1/4"-7 UNC	7-1/4"	1"	3/4"	5-3/4"	LS20-7-1
1-1/4"-7 UNC	9-1/2"	1"	3/4"	8-1/16"	LS20-7-2
1-1/4"-7 UNC	10-1/2"	1"	3/4"	8-9/16"	LS20-7-3
1-1/4"-7 UNC	7"	7/8"	11/16"	5-1/2"	LS20-7-4
1-1/4"-7 UNC	9-3/4"	7/8"	11/16"	8-1/4"	LS20-7-5
1-1/4"-8 UN	6-3/4"	7/8"	11/16"	5-1/4"	LS20-8-1
1-1/4"-8 UN	7-3/8"	7/8"	11/16"	5-7/8"	LS20-8-2
1-1/4"-8 UN	8-3/4"	7/8"	11/16"	7-1/4"	LS20-8-3
1-1/4"-8 UN	10-1/8"	7/8"	11/16"	8-3/16"	LS20-8-4
1-1/4"-8 UN	11-1/2"	7/8"	11/16"	10-1/16"	LS20-8-5
1-1/8"-8 UN	7-1/4"	13/16"	11/16"	5-51/64"	LS22-8-6
1-1/8"-8 UN	8-3/4"	13/16"	11/16"	7-5/16"	LS22-8-7
1-1/8"-8 UN	9-3/4"	13/16"	11/16"	7-3/4"	LS22-8-8

Standard lockscrews are produced from AISI 4140 material and heat treated to meet the requirements of ASTM A193 Grade B-7. Plating is zinc.

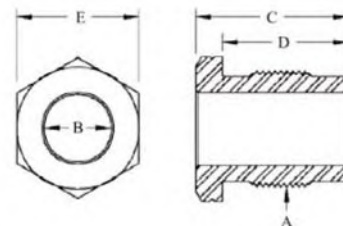


Packing Glands - Type A

A Thread	B Bore	C Length	D Length	E Hex	Part No.	Junk Ring Required
1-1/2"-6 UNC	57/64"	1-1/4"	7/8"	1-5/8"	G6-6	JR-18
1-1/2"-8 UNC	57/64"	1-7/8"	1-1/4"	1-5/8"	G7-8	JR-22 or JR-18
1-1/2"-10 UNC	57/64"	1-7/8"	1-1/4"	1-5/8"	G8-10	JR-18
1-3/4"-8 UNC	1-5/32"	2-3/4"	1-5/16"	2"	G9-8-8	JR-24

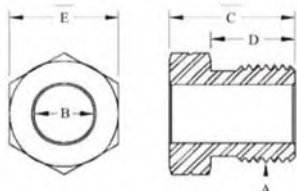
Standard glands are produced from 1215 material and zinc plated.

NOTE: Consult factory for configurations not shown.



Well Head Fittings

Packing Glands

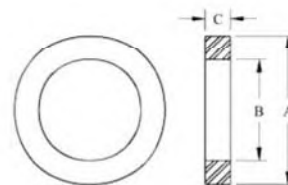


A Thread	B Bore	C Length	D Length	E Hex	Part No.	Junk Ring Required
1-5/8"-12 UN	1-1/64"	2-1/8"	1-3/4"	1-3/4"	G10-12.	JR-20
1-1/2"-12 UNF	53/64"	2-11/16"	1-15/16"	1-1/2"	G11-12	JR-22 or JR-26
1-3/4"-12 UN	1-1/64"	2-11/16"	1-15/16"	1-3/4"	G12-12	JR-20

Standard glands are produced from 1215 material and zinc plated.

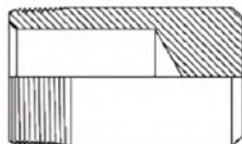
Junk Rings

A O.D.	B I.D.	C Thickness	Part No.
1-1/2"	1-1/64"	1/4"	JR-20
1-1/4"	57/64"	1/4"	JR-18
1-3/8"	57/64"	1/4"	JR-22
1-5/8"	1-9/64"	1/4"	JR-24
1-3/8"	53/64"	1/4"	JR-26



Standard junk rings are produced from 1215 material and zinc plated.

Bull Plugs



FITTING	Thread Type	Process Connection	Material
BULL PLUG	LP=Line Pipe	1-1/4"	1=1215
	UT=Non-Upset Tubing	1-1/2"	2=316 SS
	ET=External Upset Tubing	2"	3=4140
		2-1/2"	4=17-4Ph
		3"	5=A105
			6=Inconel 718

Pressure Rating

Process Connection	Thread Type	Pressure
1-1/4", 1-1/2", 2"	LP=Line Pipe	5000 PSI
2-1/2", 3"	LP=Line Pipe	3000 PSI
1-1/4", 1-1/2", 2", 2-1/2", 3"	UT=Non-Upset, ET=External Upset	5000 PSI

* Other material and plating available upon request
API monogramable versions are available

Nipples

Thread Type and Size	Material	Part No.	OAL	Tube O.D.	Tube I.D.
2" LP Plain	A106 Grade B XXH Seamless Pipe	N-106-6	6"	2.40"	1-1/2"
		N-106-8	8"		1-1/2"



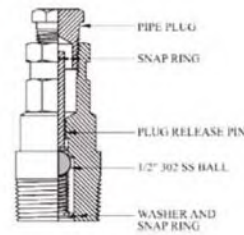
Well Head Fittings

Valve Removal Plugs

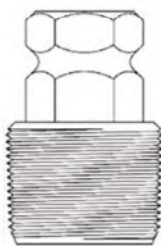
FITTING	Thread Type	Process Connection	Material
VRP	LP=Line Pipe*	20=1-1/4" - 11-1/2 TPI	1=1215
		SV=Sharp Vee**	2=316 SS
		22=2" - 11-1/2 TPI	3=4140
		24=2-1/2" - 11-1/2 TPI	4=17-4Ph
		26=3" - 11-1/2 TPI	5=A105
			6=Inconel 718

* Available for 1-1/4" process connections only

** Not available for 1-1/4" process connections



Bleeder Style

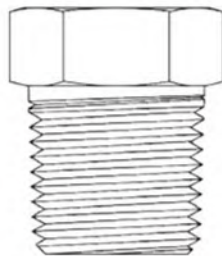


Solid Style

FITTING	Thread Type	Process Connection	Material
VRP	AC=ACME	19=1-3/4" - 6 TPI Stub	1=1215
		22=2" - 11-1/2 TPI	2=316 SS
			3=4140
		24=2-1/2" - 11-1/2 TPI	4=17-4Ph
		26=3" - 11-1/2 TPI	5=A105
			6=Inconel 718

* Other materials and plating available upon request
API monoprogrammable versions are available

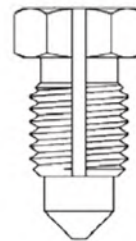
Cavity Plugs



Thread Size-NPT	Material	Part No.	Heat Treatment	Plating
1" P	1215	CP16-1	---	Zinc
	316 SS	CP16-2	Annealed (NACE)	---
	4140	CP16-3	Rc 22 Max (NACE)	Zinc
3/4" P	1215	CP12-1	---	Zinc
	316 SS	CP12-2	Annealed (NACE)	---
	4140	CP12-3	Rc 22 Max (NACE)	Zinc
1/2" P	1215	CP8-1	---	Zinc
	316 SS	CP8-2	Annealed (NACE)	---
	4140	CP8-3	Rc 22 Max (NACE)	Zinc

Packing Injection / Bleeder Plugs

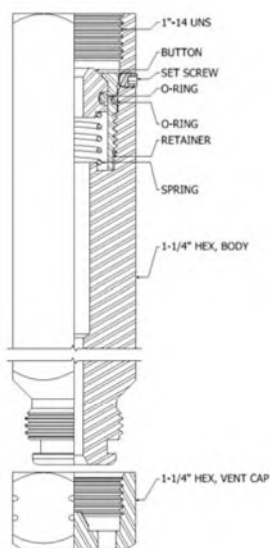
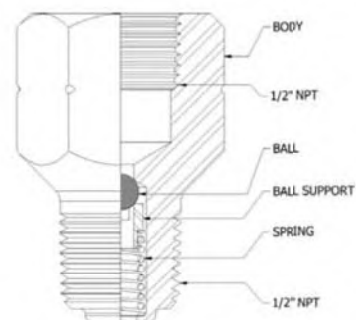
Thread Size	Material	Part No.	Heat Treatment	Plating
7/8" - 9 UNC	1215	PIB9-1	---	Zinc
	4140	PIB9-3	Rc 22 Max (NACE)	Zinc
	17-4 pH	PIB9-4	HH1150 (NACE)	---
1/2" - 13 UNC	1215	PIB13-1	---	Zinc
	4140	PIB13-3	Rc 22 Max (NACE)	Zinc
	17-4 pH	PIB13-4	HH1150 (NACE)	---



Accessories

Adapter

FITTING	Thread Size-NPT	Material*
AD	2=1/8"P	1=1215
	4=1/4"P	2=316 SS
	6=3/8"P	3=4140
	8=1/2"P	4=17-4Ph
	5=5/8"P	5=1018
	12=3/4"P	6=Inconel 600
	7=7/8"P	7=Inconel 718
	16=1"P	



Giant Button Body Extensions

FITTING	Thread Size	Material*
GBE	2=1/8"	1=1215
	4=1/4"	2=316 SS
	6=3/8"	3=4140
	8=1/2"	4=17-4Ph
	5=5/8"	5=1018
	12=3/4"	6=Inconel 600
	7=7/8"	7=Inconel 718
	16=1"	

Part No Specification For Example

PART NO	FITTING	Thread Size-NPT	Material*
AD-2-1	AD	2=1/8"P	1=1215

Catalog Part No Generator

Pressure	Component Type	Input Connection		Body Pattern (only for needle valves)
		Size	Type	
15 = 15,000 psi (1,034 bar)	AD = Adapter (male / female)	2 = 1/8"	H = High Pressure	2S = Two-way stright 2A = Two -ways angle 3W = Three-way-two on pressure 4W = Three-way-one on pressure 5S = Three-way -two stem manifold
20 = 20,000 psi (1,380 bar)	AVGA = Anti-Vibration Collet Gland Assembly	4 = 1/4"	M = Medium Pressure	
30 = 30,000 psi (2,070 bar)	B2W = 2-Way Ball Valve	5 = 5/8"	P = NPT Pipe	
35 = 35,000 psi (2,500 bar)	B3WD = 3-Way Diverter Ball Valve (90°)	6 = 3/8"		
60 = 60,000 psi (4,140 bar)	B3WS = 3-Way Switching Ball Valve (180°)	7 = 7/8"		
	BCV = Ball Check Valve	8 = 1/2"		
	BHF = Bulkhead Coupling	9 = 9/16"		
	C = Collar	12 = 3/4"		
	CLF = Cup Type Filter	16 = 1"		
	DLF = Dual Disc Line Filter			
	F = Coupling (female / female)			
	G = Gland			
	L = Elbow			
	M = Adapter (male / male)			
	N = Nipple			
	OCV = O-Ring Check Valve			
	P = Plug			
	PG = Pressure Gauge			
	RD = Rupture Disc			
	SHA = Safety Head Assembly			
	T = Tee			
	TC= Tubing Cap			
	TU = Tubing			
	UF = Union Coupling			
	V = Valve			
	X = Cross			

TVI MEDIUM & HIGH PRESSURE VALVE

