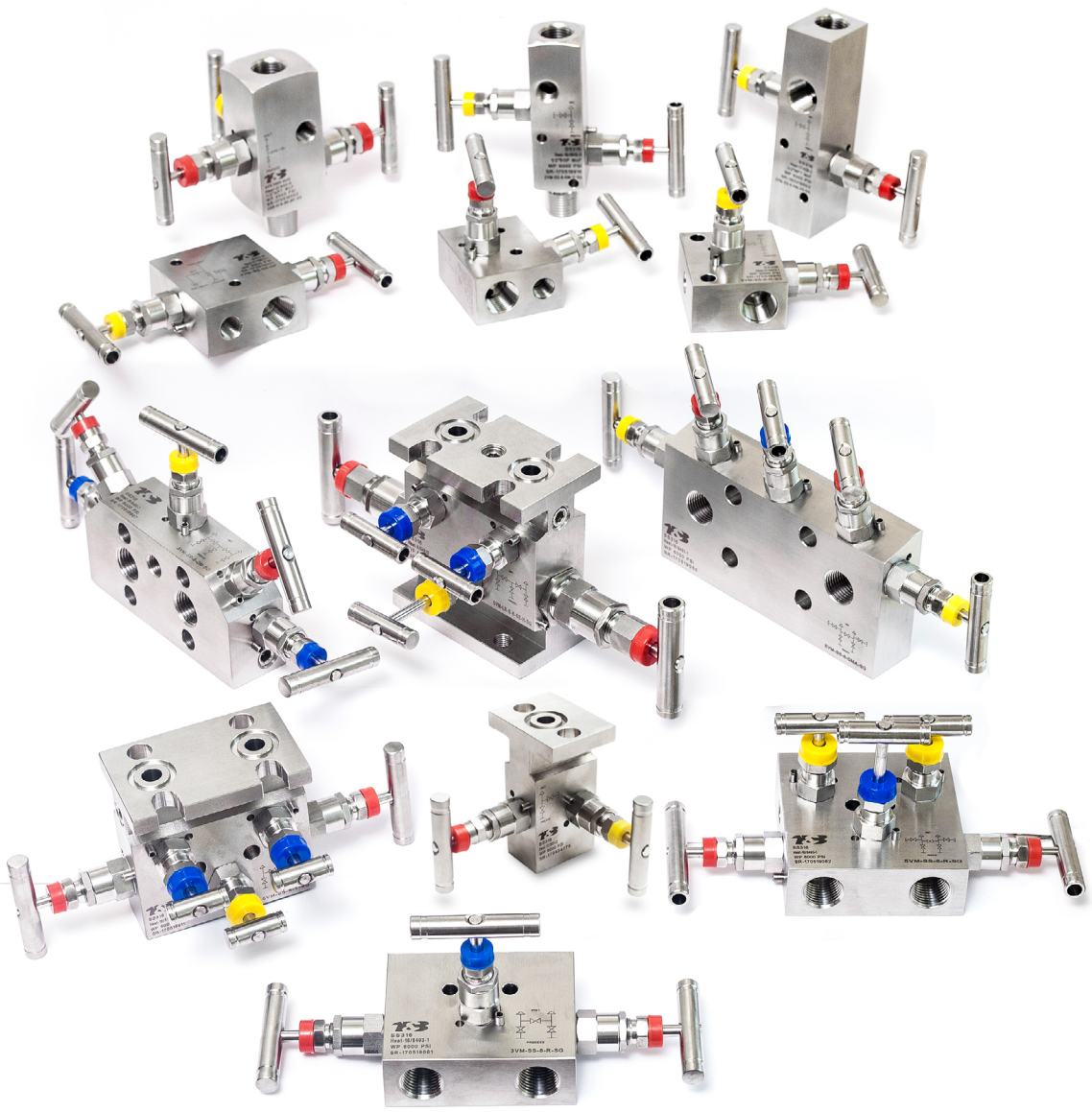
Powerlok™

Manifolds

Thomas & Brian | INNOVATE . TEST . DELIVER

Table Of Content

Manifolds



Material Ordering Information

Add a material designator to the basic ordering number.

Designator	Materials
S6	SS316L
SH	SS316 (Minimum 2.5 % Molybdenum)
SA	6MO
N1	INCONEL 625
N2	INCONEL 825
SB	DUPLEX
SD	SUPER DUPLEX

Minimum order quantities may apply to certain materials and configurations.

Contact your authorized Powerlok™ sales and service representative for information about additional sizes and special alloys.

Plating and Coating

To resist corrosion, all steel fittings are treated with an electrodeposited zinc plating.

Cleaning

Components are cleaned to remove oil, grease, and loose particles.

Material Standards

Sr. no.	Materials	Bar Stock	Forgings
1	SS316L	ASTM A276, ASME SA479, EN 1.4401	ASTM A182, ASME SA182, EN 1.4401
2	SS316 (Minimum 2.5 % Molybdenum)	ASTM A276, ASME SA479, EN 1.4401	ASTM A276, ASME SA479, EN 1.4401
3	6MO	UNS S31254, UNS N08367, UNS N08926	UNS S31254, UNS N08367, UNS N08926
4	INCONEL 625	B 446 UNS N06625	B 446 UNS N06625
5	INCONEL 825	B 446 UNS N08825	B 446 UNS N08825
6	DUPLEX	UNS S31803, UNS S32250	A 182 Grade F51, A 182 Grade F60
7	SUPER DUPLEX	UNS S32550, UNS S32750. UNS S32760	A 182 Grade F53, A 182 Grade F55

Features:

Powerlok offers a variety of 2-, 3-, and 5-valve instrument manifolds. The 2-valve manifolds are designed for static pressure and liquid level applications; the 3- and 5-valve manifolds are designed for differential pressure applications.

The V, VB, and VL series manifolds feature a horizontal body design. Manifold connections include 1/2 in. and 12 mm female Powerlok tube fitting, 1/2 in. female pipe, and flange.

Powerlok range of manifolds offer a safe and economical method of installation to control and measure pressure of liquid and gaseous media. They are ruggedly manufactured and precision machined to the most exciting dimensional tolerance, ensuring perfect installation and application.

Powerlok manifolds are functionally installed to control, measure, isolate, equalize, calibrate, drain, vent or differentiate the pressure of liquids and gases. Powerlok manifold series
offer optional 2,3 and 5 valves configurations which come in remote mounting (pipe to pipe) , direct mounting (Pipe to Flange, Flange to Flange) on to the instrument on 2 1/8” (54mm) centre

Valve Features:

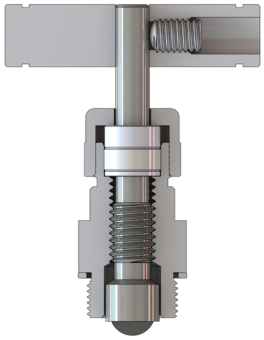
- 2 Valve Instrument Manifolds designed for Liquid Level and Static Pressure applications.
- 3 / 5 Valve Instrument Manifolds designed for Differential Pressure Applications
- RuggedOne-Piece Forged Body construction
- Maximum working pressure up to 6000 PSI (413 bar) at 38o C (100oF) with PTFE Stem packing.
- Temperatures up to 6400C / 12000 F with Graphite stem packing (M & MV Series only)
- Metal to metal Bonnet to Body Seal
- Bonnet Lock pin prevents accidental disunion of bonnet from body
- Flange design as per MSS-SP-99
- Standard Flange Seal is PTFE and Graphite for High Temperature applications.
- MOC: SS316L, Carbon Steel, Monel-400 and Inconel
- Optional Sour Gas service available conforms to N.A.C.E. MR-01-75-90

Bonnet Features:

Powerlok manifolds uses series of valves for varied purposes like isolation, equalization, bleed.

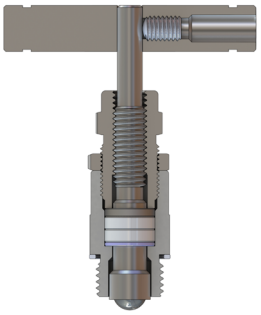
Small and Large Bonnets are used in our range of manifolds.

Small bonnet:



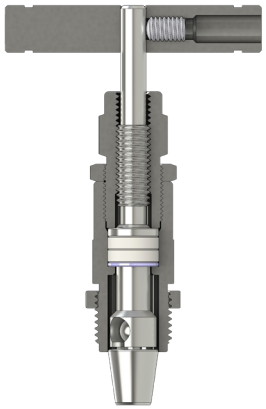
- ◊ Non-Rotating Ball Tip as standard in all variants, SS440C ball used in Stem tip provides consistent shutoff.
- ◊ Rolled spindle thread for extended service life and superior flow control.
- ◊ Safety backseat provides secondary stem seal and prevents stem blow-out.
- ◊ Rugged Stainless Steel handle provides positive stem actuation

Large bonnet:



- ◊ Non-Rotating 440C ball tipprovides smooth axial rotation and consistent zero leak shutoff
- ◊ Rolled spindle thread for extended service life and superior flow control.
- ◊ Packing below stem threads prevents lubrication washout and isolates threads from system fluids.
- ◊ Safety back seating provides secondary seal and prevents stem blow out.
- ◊ Rugged Stainless Steel handle provides positive stem actuation

Soft bonnet:

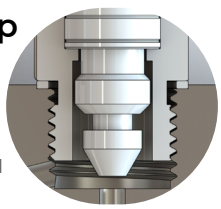


- ◊ Non-rotating Plug tip promotes smooth axial rotation and consistent zero leak shutoff
- ◊ Rolled spindle thread for extended service life and superior flow control.
- ◊ Packing below stem threads prevents lubrication washout and isolates threads from system fluids.
- ◊ Safety back seating provides secondary seal and prevents stem blow out.
- ◊ Rugged Stainless Steel handle provides positive stem actuation
- ◊ Offers full bore in ¼” (6.4mm) and 3/8” (9.5mm) orifice, for excellent flow response
- ◊ Allows repetitive shutoff and easy maintenance, Roddable to enable easy cleaning
- ◊ Plug tip Seat available in POM as standard, Available in PEEK upon request.

Hardened V tip

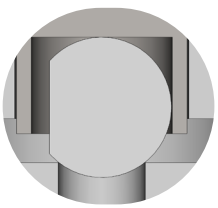
MOC: 17.4 pH / Inconel / Monel and SS Hardened

Non Rotating V-Tip stem provides superior control and consistent shut-off.



Ball Tip

Non-Rotating Ball Tip as standard in all variantis

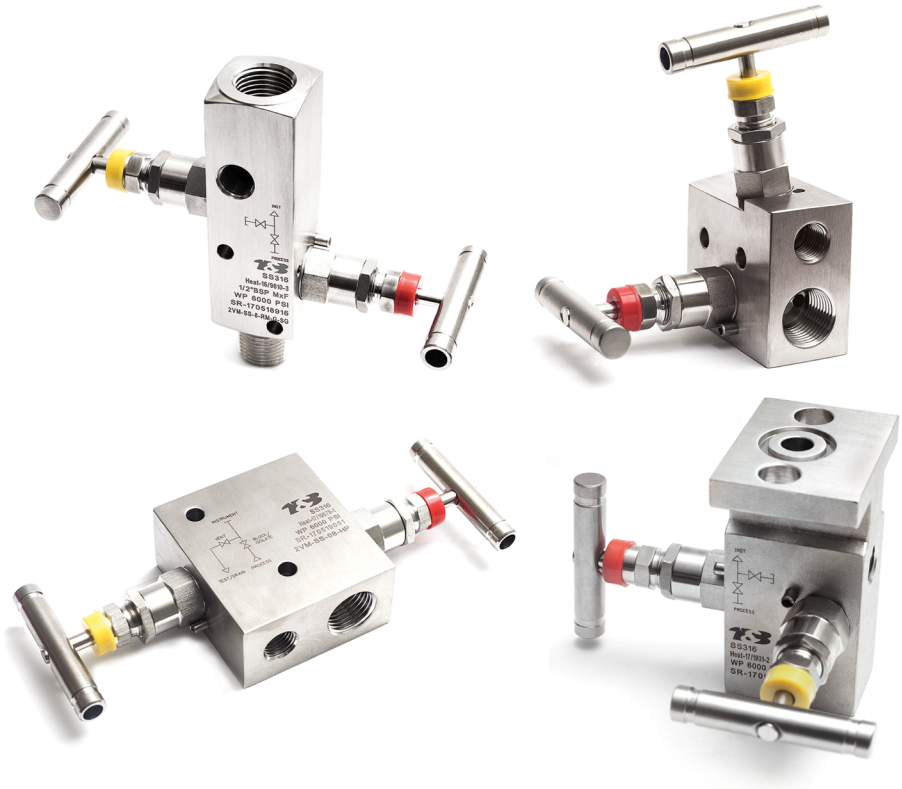


Soft Seat

Offers full bore in ¼”(6.4mm) and 3/8”(9.5mm) orifice, for excellent flow response

Allows repetitive shutoff and easy maintenance, Roddable to enable easy cleaning.

2 Valve Manifold



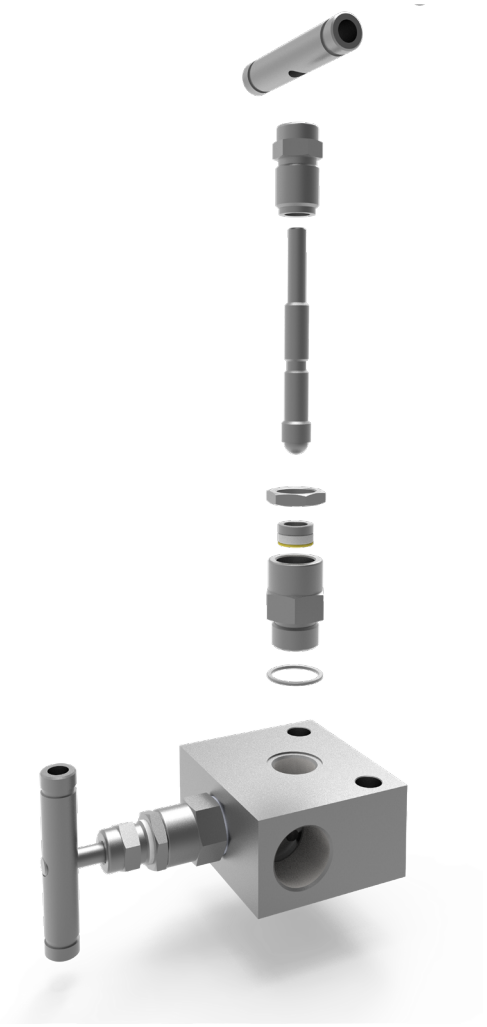
Features & Benefits:

- Compact design.
- SS316 Construction for superior corrosion resistance and maximum service life.
- Metal Seat is Standard in all variants.
- Block and Bleed Construction.
- Used for calibration of gauges or absolute pressure transmitter.
- Optional graphite packing are available to meet the fire testing leakage requirementof API 607.
- Direct Mount and Remote mount variants.
- Series of end connections i.e. Female Pipe NPT, Flanged (MSS-SP-99), ½" and 12mm Powerlok Tube Fitting.
- Bolt and Flange Seals included.
- 100% factory tested.

2 Valve Manifold

Material Of Construction:

Component	Material Grade/ ASTM Specification
Handle	SS 202
Retainer	SS 316
Stem	SS 316
TIp	SS 440C
Lock Nut	SS 316
Upper Packing	SS 316
Middle Packing	PTFE
Lower Packing	POM
Gland Body	SS 316
Thurst Ring	SS 316
Main Body	SS 316



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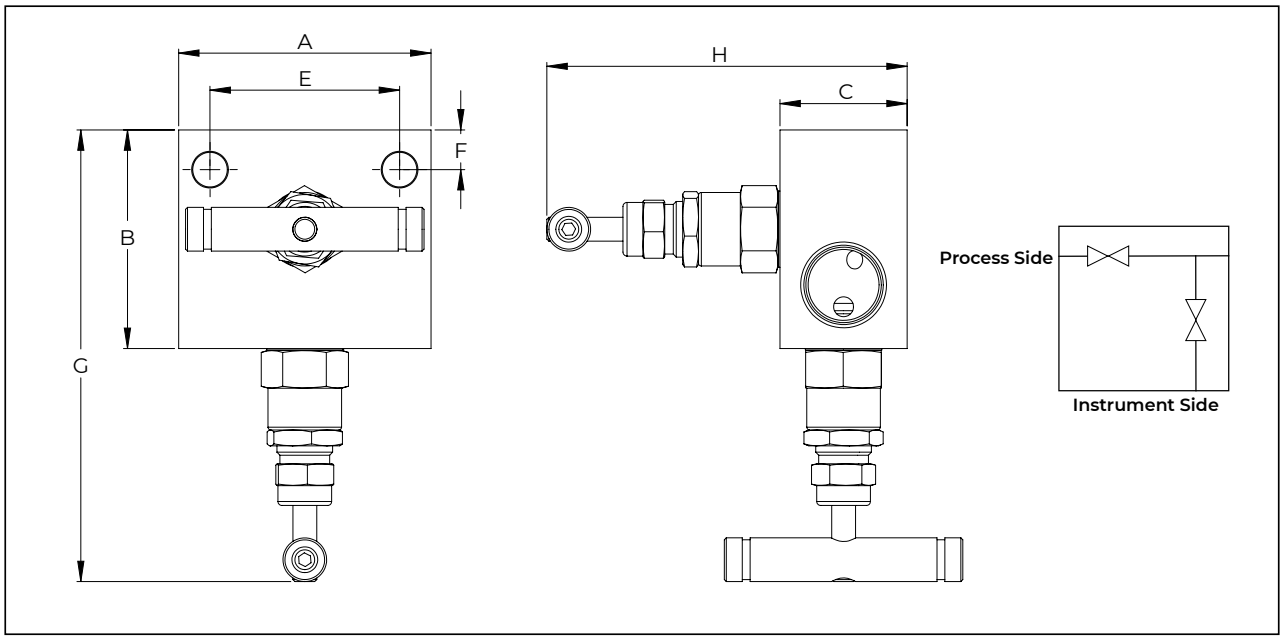
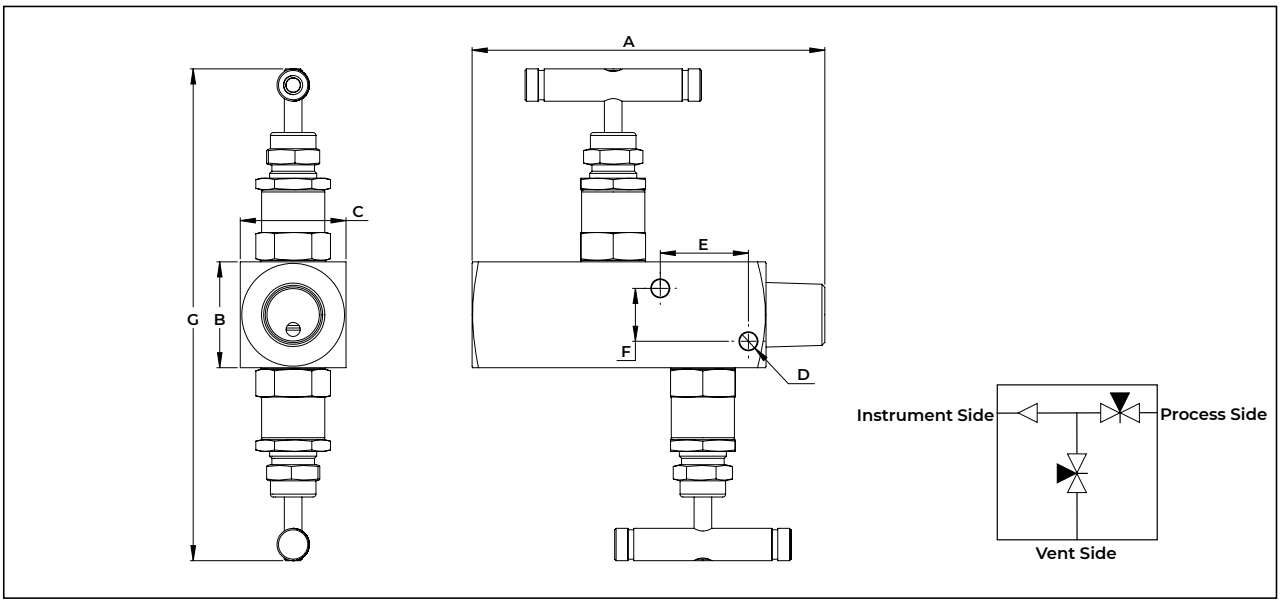
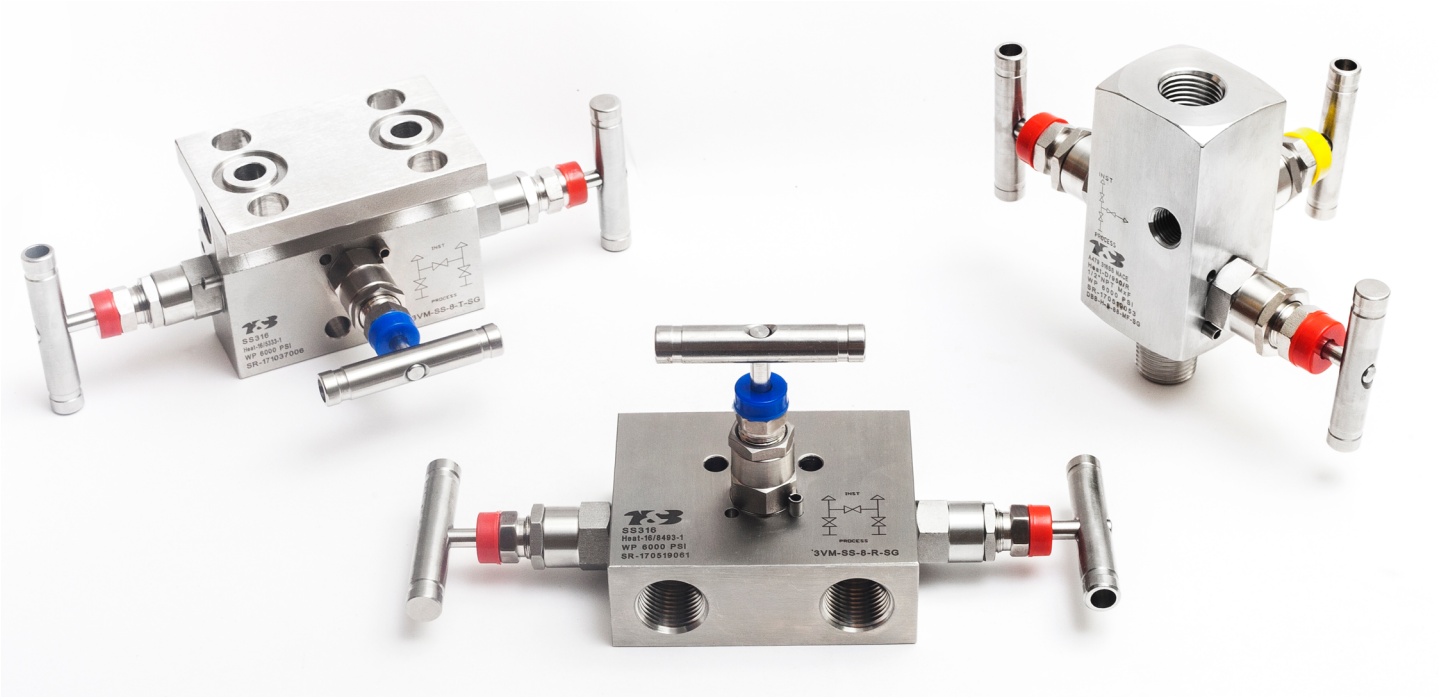


End Connection			Dimesnions (mm)							
Process	Instrument	Bleed	A	B	C	D	E	F	G	H
1/2" Female NPT		1/4" Female NPT	63.5	55	32	8.7	47.7	10	117.9	94.6
1/2" Female NPT			63.5	55	32	8.7	47.7	10	117.9	94.6
1/2" Female BSP		1/4" Female NPT	63.5	55	32	8.7	47.7	10	117.9	94.6
1/2" Female BSPT		1/4" Female NPT	63.5	55	32	8.7	47.7	10	117.9	94.6
1/2" Female NPT	Flange(MSS)	1/4" Female NPT	90	45	30	-	-	-	107.9	92.6
Flange(MSS)		1/4" Female NPT	92	45	32	-	-	-	109.9	92.6



End Connection			Dimesnions (mm)						
Process	Instrument	Bleed	A	B	C	D	E	F	G
1/2" Male NPT	1/2" Female NPT	1/4" Female NPT	120	32	32	6	30	26	157.8
1/2" Female NPT		1/4" Female NPT	120	32	32	6	30	26	157.8
1/2" Female NPT			120	32	40	6	30	26	157.8
1/2" Male BSP	1/2" Female BSP	1/4" Female NPT	120	32	32	6	30	26	157.8
1/2" Male BSP	1/2" Female NPT	1/4" Female NPT	120	32	32	6	30	26	157.8
3/4" Male NPT	1/2" Male NPT	1/4" Female NPT	125	32	32	6	30	26	157.8
3/4" Male NPT	1/2" Female NPT	1/4" Female NPT	120	32	32	6	30	26	157.8
1/4" Male NPT	1/4" Female NPT	1/4" Female NPT	120	32	32	6	30	26	157.8
1/4" Female NPT	1/4" Male NPT	1/4" Female NPT	120	32	32	6	30	26	157.8
1/2" Male NPT	M20 X 1.5 Female	1/4" Female NPT	120	32	32	6	30	26	157.8
M20 X 1.5 Female	M20 X 1.5 Female	1/4" Female NPT	120	32	32	6	30	26	157.8

3 Valve Manifold



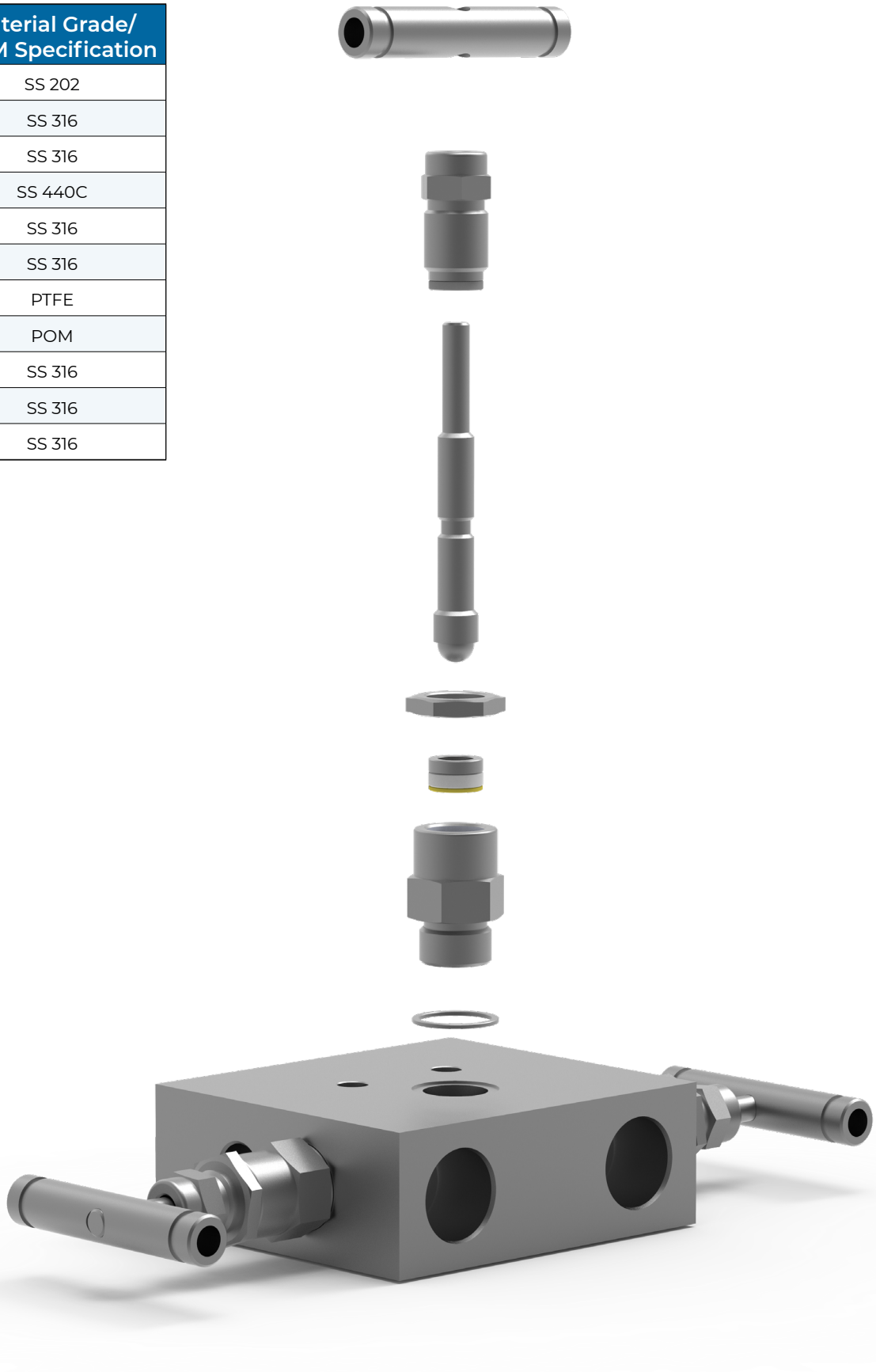
Features & Benefits:

- Compact design.
- Metal Seat is Standard in all variants.
- Block and Bleed Construction.
- Used for calibration of gauges or absolute pressure transmitter.
- Optional graphite packing are available to meet the fire testing leakage requirementof API 607.
- Direct Mount and Remote mount variants.
- Series of end connections i.e. Female Pipe NPT, Flanged (MSS-SP-99), ½" and 12mm Powerlok Tube Fitting.
- Bolt and Flange Seals included.
- 100% factory tested.

3 Valve Manifold

Material Of Construction:

Component	Material Grade/ ASTM Specification
Handle	SS 202
Retainer	SS 316
Stem	SS 316
Tlp	SS 440C
Lock Nut	SS 316
Upper Packing	SS 316
Middle Packing	PTFE
Lower Packing	POM
Gland Body	SS 316
Thurst Ring	SS 316
Main Body	SS 316



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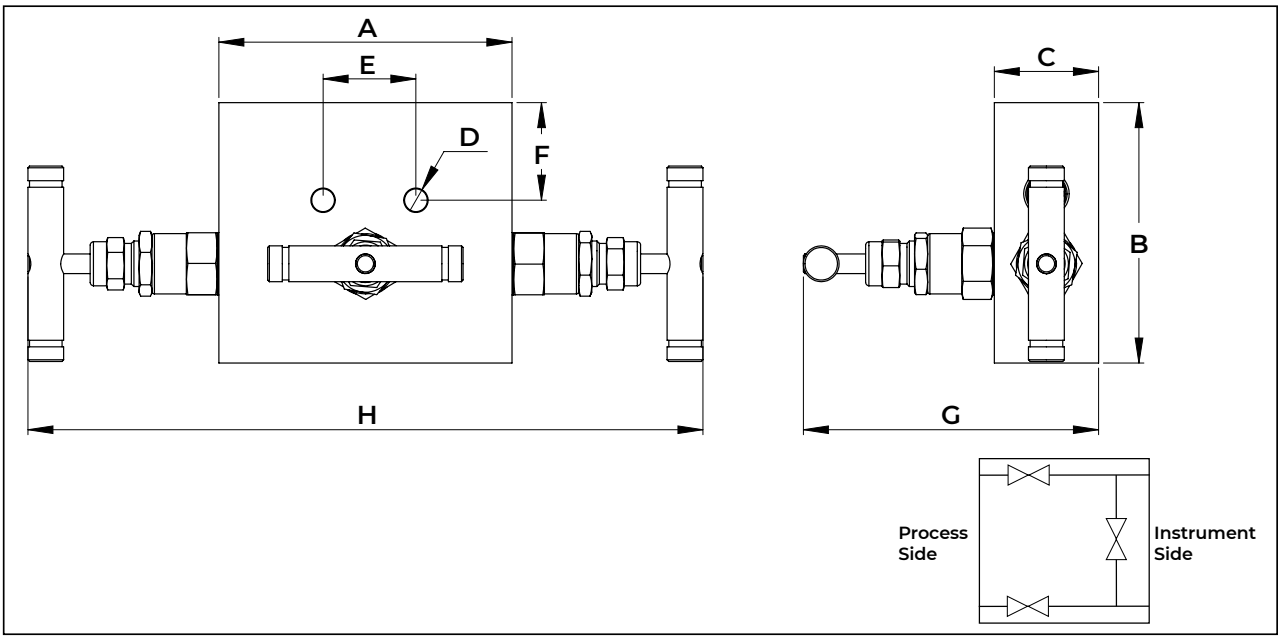
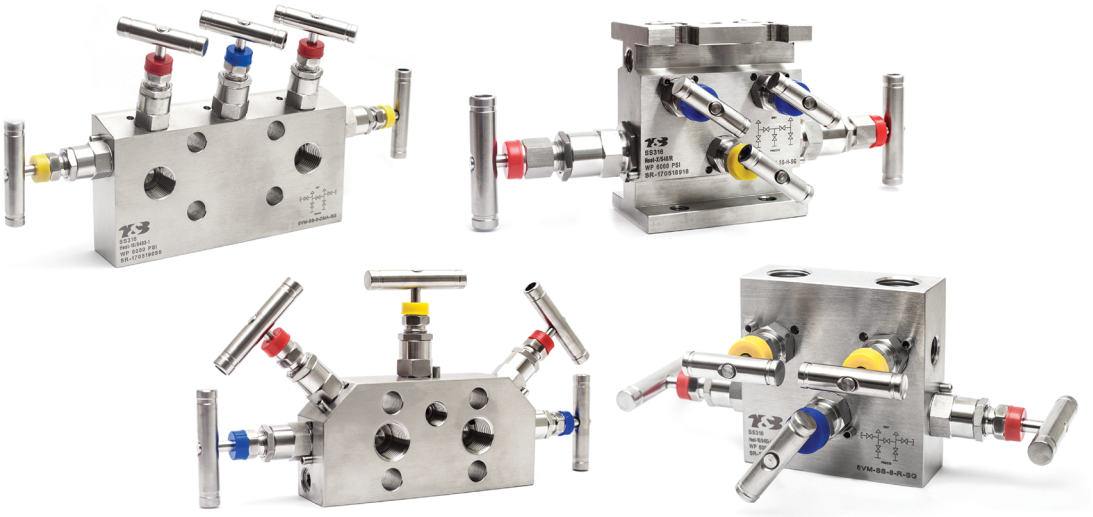


End Connection			Dimesnions (mm)							
Process	Instrument	Bleed	A	B	C	D	E	F	G	H
1/2" Female NPT		-	90	70	32	7	28.5	25	94.6	215.8
1/2" Female NPT		1/4" Female NPT	90	80	32	7	28.5	30	94.6	215.8
1/2" Female NPT	Flange(MSS)	1/4" Female NPT	88	70	30	8.5	17	10	92.9	214
1/2" Female NPT	Flange(MSS)	1/4" Female NPT	88	70	30	8.5	17	10	92.9	214
Flange(MSS)		1/4" Female NPT	86	86	28	-	-	-	90.9	211.8
Flange(MSS)		1/4" Female NPT	86	86	28	-	-	-	90.6	211.8
Flange(MSS)		1/4" Female NPT	86	86	28	-	-	-	90.6	211.8
Flange(MSS)		1/4" Female NPT	86	86	28	-	-	-	90.6	211.8

5 Valve Manifold



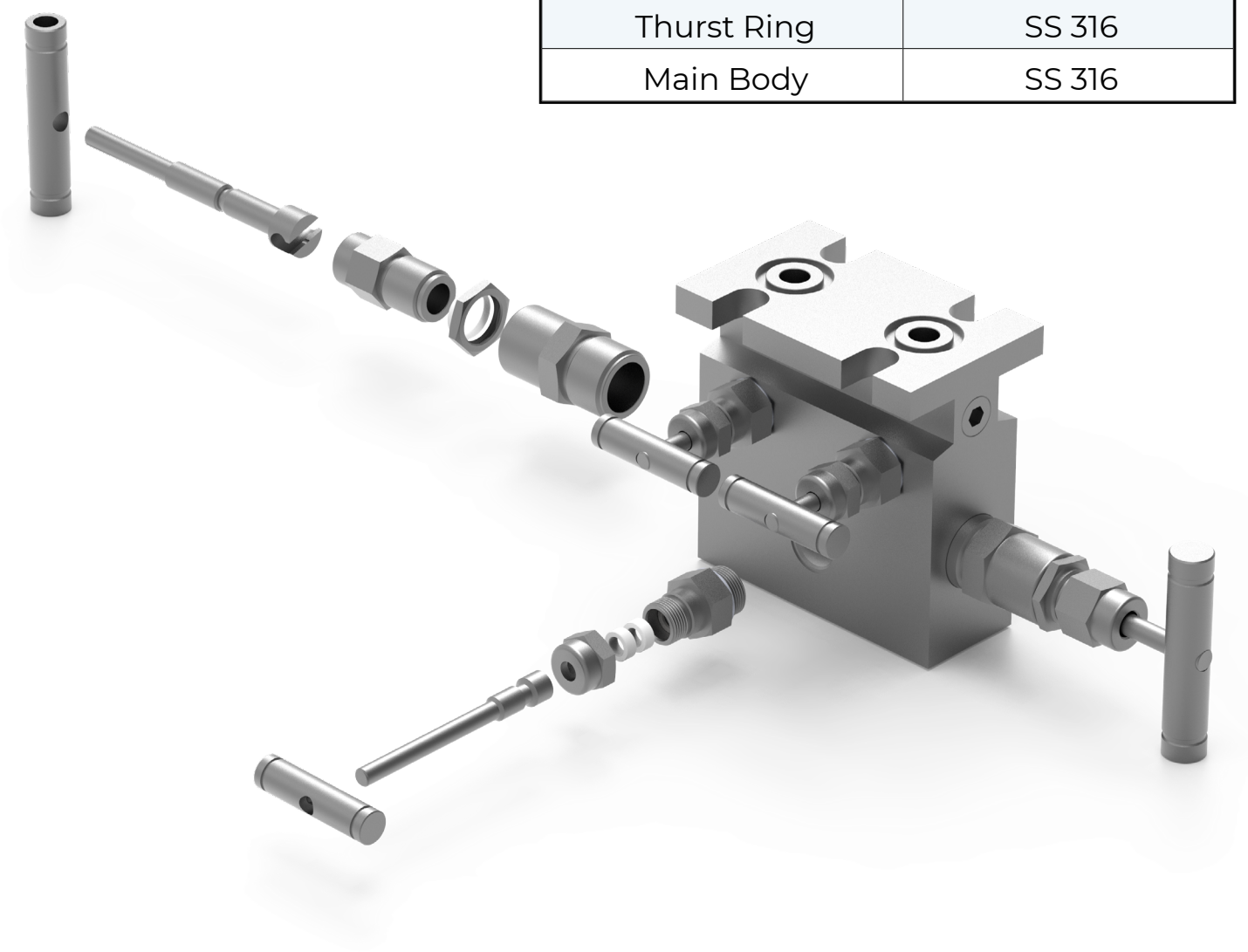
Features & Benefits:

- Compact design.
- Metal Seat is Standard in all variants.
- Block and Bleed Construction.
- Used for calibration of gauges or absolute pressure transmitter.
- Optional graphite packing are available to meet the fire testing leakage requirementof API 607.
- Direct Mount and Remote mount variants.
- Series of end connections i.e. Female Pipe NPT, Flanged (MSS-SP-99), ½" and 12mm Powerlok Tube Fitting.
- Bolt and Flange Seals included.
- 100% factory tested.

5 Valve Manifold

Material Of Construction:

Component	Material Grade/ ASTM Specification
Handle	SS 202
Retainer	SS 316
Stem	SS 316
TIp	SS 440C
Lock Nut	SS 316
Upper Packing	SS 316
Middle Packing	PTFE
Lower Packing	POM
Gland Body	SS 316
Thurst Ring	SS 316
Main Body	SS 316



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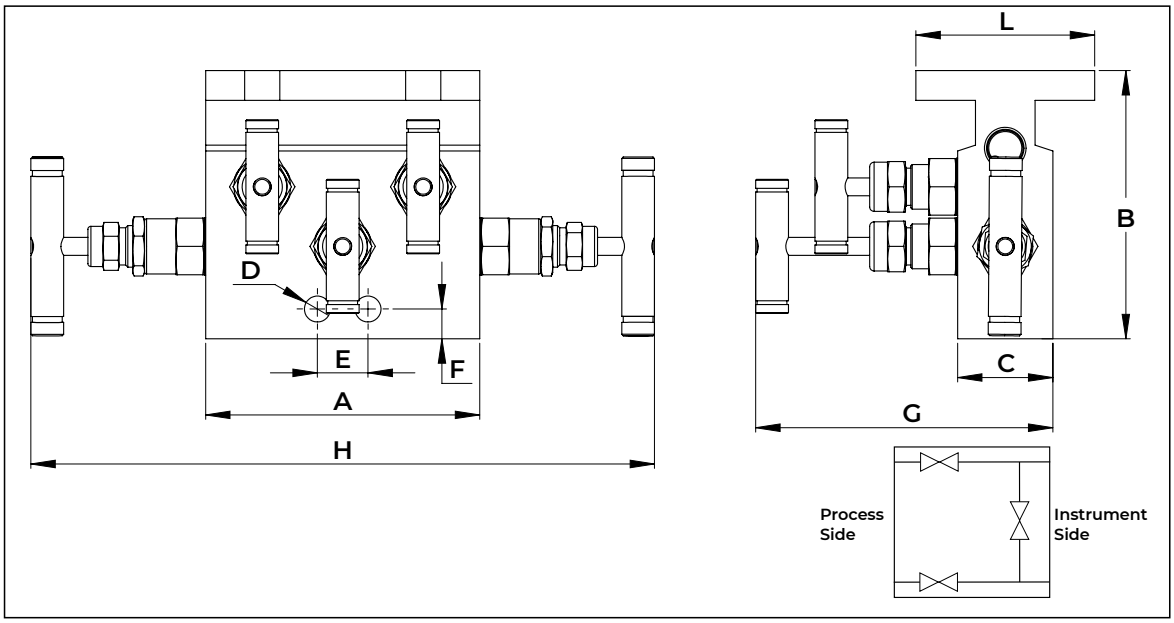
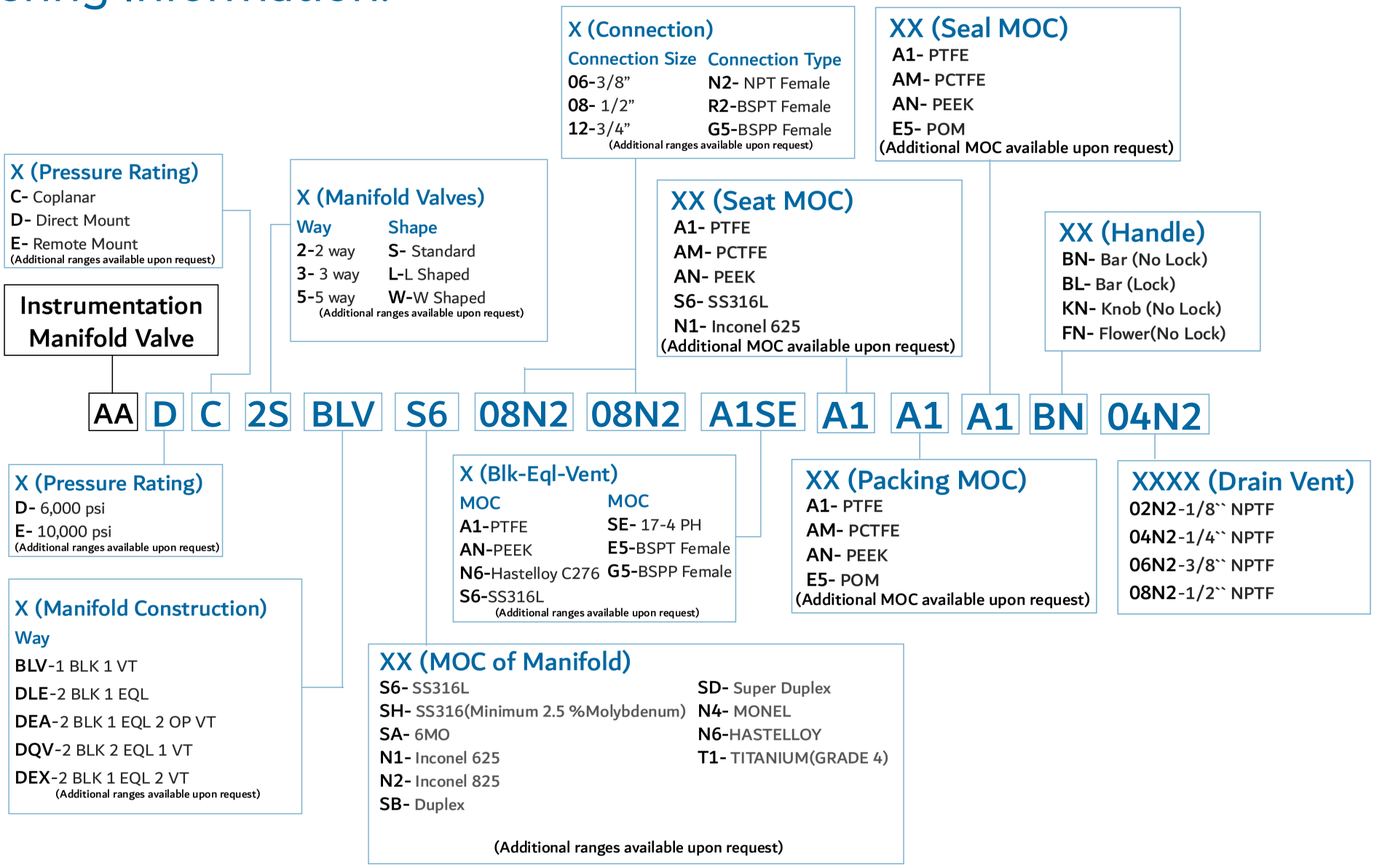


End Connection			Ordering Information	Dimesnions (mm)							
Process	Instrument	Bleed		A	B	C	D	E	F	G	H
1/2” Female NPT		1/4” Female NPT		90	90	32	8.7	28.5	43	83.1	-
1/2” Female NPT		1/4” Female NPT		90	90	32	8.5	17	48	83.1	-
1/2” Female NPT	Flange(MSS)	1/4” Female NPT		92	90	32	8.7	28.5	36	83.1	60
1/2” Female NPT	Flange(MSS)	1/4” Female NPT		92	90	32	8.7	28.5	36	83.1	60
1/2” Female NPT	Flange(MSS)	1/4” Female NPT		92	90	32	8.7	17	10	103.1	60
1/2” Female NPT	Flange(MSS)	1/4” Female NPT		92	90	32	8.7	17	10	103.1	60
Flange(MSS)		1/4” Female NPT		92	110	32	-	-	-	83.1	60
Flange(MSS)		1/4” Female NPT		92	90	32	-	-	-	83.1	60
1/2” Female NPT	Flange(MSS)	1/4” Female NPT		98	101	38	-	-	-	109.1	60
Flange(MSS)		1/4” Female NPT		98	110	38	-	-	-	109.1	60
Flange(MSS)		1/4” Female NPT		98	110	38	-	-	-	109.1	60

Ordering Information:



Testing:

Pneumatic and Hydraulic testing:

Every Powerlok instrument manifold is factory tested with Air at 1000 psig (69 bar).
Seats have a maximum allowable leak rate of 0.1 std cm3/min.
Shell testing is performed with a liquid leak detector to a require ment of no detectable leakage.

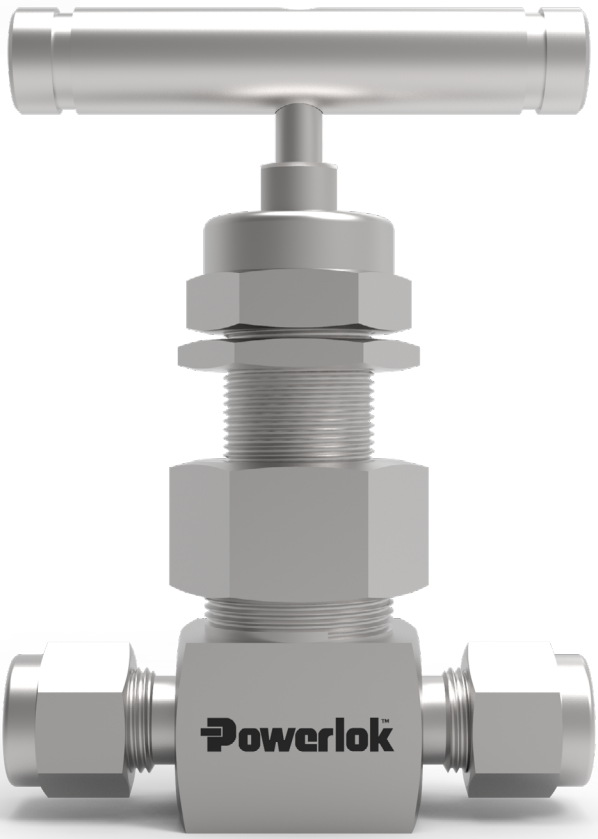
Cleaning & Packaging:

Every Powerlok instrument manifold is cleaned and packaged in accordance with Powerlok Standard Cleaning and Packaging

Pressure-Temperature Rating:

ASME Class	2500
Material Group	2.2
Material Name	316 SS
Temperature °C (°F)	Working Pressure Bar (Psig)
-53 (-65) to 37 (100) 93 (200) 121 (250) 148 (300) 176 (350) 204 (400)	413 (6000) 355 (5160) 338 (4910) 321 (4660) 307 (4470) 294 (4280)
232 (450) 260 (500) 260 (550) 315 (600)	284 (4130) 274 (3980) 266 (3870) 259 (3760)
343 (650) 371 (700) 398 (750) 426 (800)	254 (3700) 248 (3600) 242 (3520) 238 (3460)
454 (850) 482 (900) 510 (950) 537 (1000)	232 (3380) 225 (3280) 221 (3220) 208 (3030)
565 (1050) 593 (1100) 621 (1150) 648 (1200)	206 (3000) 184 (2685) 157 (2285) 118 (1715)

Needle Valves



Features

Stem Designs
Vee- All Series
Soft Seat- All Series
Regulating- All Series

Orifice Sizes
0.080 to 0.375 in.

Flow Coefficients(Cv)
0.09 to 1.80

Panel Mounting
All Series

Flow Patterns
Straight, angle patterns

Pressure-Temperature Ratings

Ratings are limited to:
- 200°F (93°C) max with soft-seat stem with PCTFE stem tip.
- 250°F (121°C) max with UHMWPE packing.
- 450°F (232°C) max with PFA packing.
- 600°F (315°C) max with PEEK packing.

ASME Class	2080	N/A
Material Group	2.2	N/A
Material Name	SS316	Brass
Temp.°C (°F)	Working Pressure psig. (bar)	
-53 (-65) to -28 (-20)	5000 (344)	3000 (206)
-28 (-20) to 37 (100)	5000 (344)	3000 (206)
93 (200)	4295 (295)	2350 (161)
121 (250)	4085 (281)	2200 (151)
148 (300)	3875 (266)	2050 (141)
176 (350)	3715 (255)	1470 (101)
204 (400)	3560 (245)	390 (26)
232 (450)	3435 (236)	-
260 (500)	3310 (228)	-
315 (600)	3130 (215)	-

ASME Class	2500
Material Group	2.2
Material Name	SS316
Temp.°C (°F)	Working Pressure psig. (bar)
-53 (-65) to 37 (100)	6000 (413)
93 (200)	5160 (355)
121 (250)	4910 (338)
148 (300)	4660 (321)
176 (350)	4470 (307)
204 (400)	4280 (294)
232 (450)	4130 (284)
260 (500)	3980 (274)
315 (600)	3760 (259)

Testing

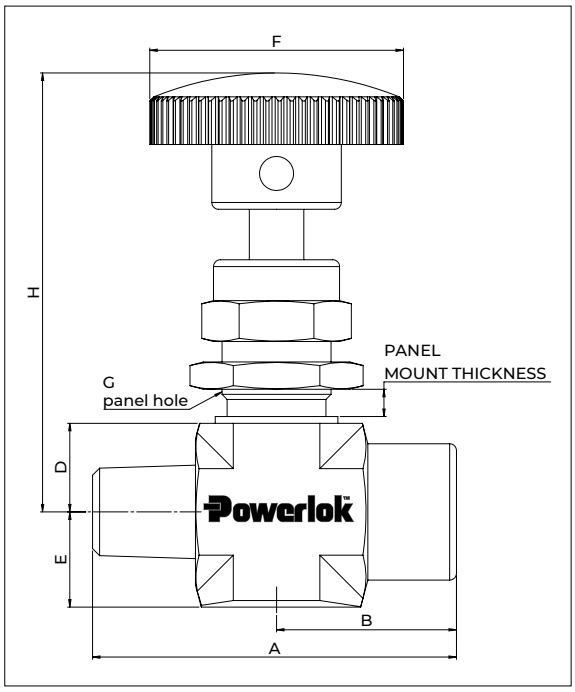
Every integral-bonnet needle valve is factory tested with nitrogen at 1000 psig (69 bar). Seats have a maximum allowable leak rate of 0.1 std cm3/min. Shell testing is performed to a requirement of no detectable leakage with a liquid leak detector.

Cleaning and Packaging

All integral-bonnet needle valves are cleaned and packaged in accordance with Powerlok standard cleaning and packaging specification (SC-10), MS-06-62. Cleaning and packaging in accordance with Powerlok Special Cleaning and Packaging (SC-11), MS-06-63 to ensure compliance with product cleanliness requirements stated in ASTM G93 Level C are available as an option.

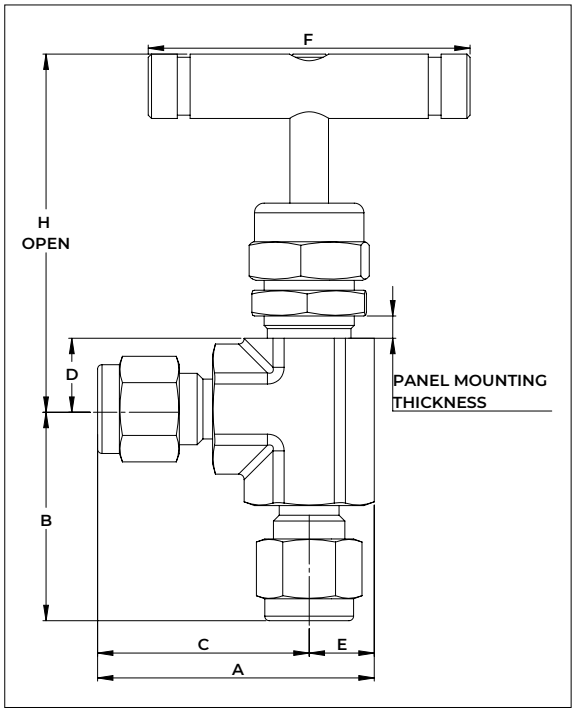
Interal Bonnet Needle Valve

Straight Type



End Connections		Dimensions, (mm)						
Inlet/Outlet	Size	A	B	C	D	E	F	G
Fractional Powerlok Tube Fitting	1/4"	41.5	55.2	10.5	15	62	50	15
	3/8"	44	58.5	10.5	15	60	50	15
	1/2"	53	72	13	17	82.5	50	22
Metric Powerlok Tube Fitting	6 mm	20.5	55.2	10.5	15	62	50	15
	8 mm	22	58.5	10.5	15	60	50	15
	10 mm	27.5	67	13	17	82.5	50	22
	12 mm	26.5	72	13	17	82.5	50	22
Female NPT	1/4"	53	-	13	17	82.5	50	22
	3/8"	54	-	15	17	85	50	25
	1/2"	64	-	18	19	87	60	32
Male NPT	1/4"	47	-	10.5	17	62	50	15
	3/8"	54	-	13	17	82.5	50	22
	1/2"	68	-	16	17	85.5	50	22.5
Male/ Female NPT	1/4"	53	-	13	17	82.5	50	22
	3/8"	54	-	15	17	85.5	50	25
	1/2"	70.5	-	18	19	87.7	60	32

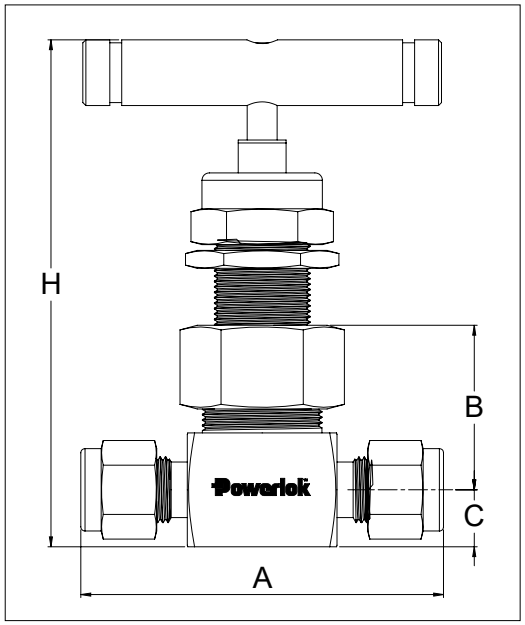
Angled Type



End Connections		Dimensions, (mm)					
Inlet/Outlet	Size	A	B	C	D	E	F
Fractional Powerlok Tube Fitting	1/4"	38.4	28.7	28.7	11.2	9.7	50
	3/8"	45.5	32.8	32.8	14.0	12.7	50
	1/2"	48.3	35.6	35.6	14.0	12.7	50
Metric Powerlok Tube Fitting	6 mm	38.4	28.7	28.7	11.2	9.7	50
	8 mm	39.1	29.7	29.7	11.2	9.7	50
	10 mm	45.7	33.0	33.0	14.0	12.7	50
	12 mm	48.3	35.6	35.6	14.0	12.7	50
Female NPT	1/4"	39.6	26.9	26.9	11.2	7.9	50
	3/8"	57.2	38.1	38.1	14.0	9.7	50
	1/2"	57.2	38.1	38.1	14.0	12.7	50
Male NPT	1/4"	34.5	24.9	24.9	11.2	7.9	50
	3/8"	41.1	28.4	28.4	14.0	9.7	50
	1/2"	57.2	38.1	38.1	19.2	12.7	50
Male/Female NPT	1/4"	39.6	28.4	28.4	14.0	12.7	50
	1/2"	57.2	38.1	38.1	19.1	19.1	50

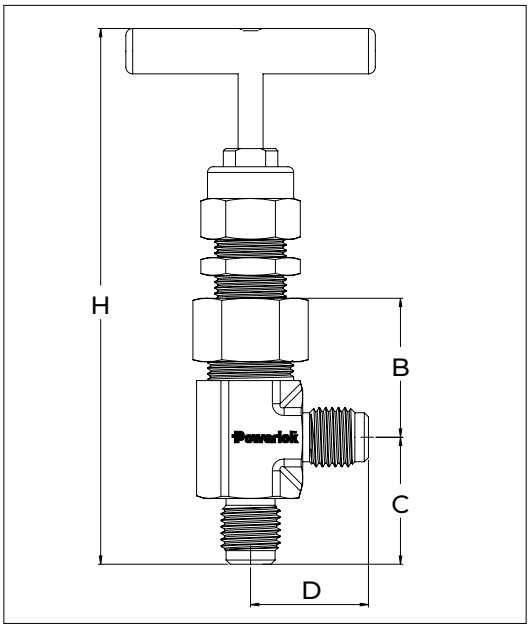
Union Bonnet Needle Valve

Straight Type



End Connections		Orifice	Dimensions, (mm)				
Inlet/Outlet	Size		A	B	C	G	H
Fractional Powerlok Tube Fitting	1/8”	2 mm	58	30	12	16.5	105
	1/4”	4 mm					
	3/8”	6 mm	50	33		19	109
	1/2”						
Metric Powerlok Tube Fitting	6 mm	4 mm	58	30	12	16.5	105
	8 mm						
	10 mm	6 mm	50	33		19	109
	12 mm						
Female NPT	1/4”	4 mm	58	30	12	16.5	105
	3/8”	6 mm	55	33		19	109
	1/2”	8 mm	70	50.5	20		152
Male NPT	1/4”	4 mm	58	30	12	16.5	105
	3/8”						
	1/2”	8 mm	80	50.5	20	19	152
Male/Female NPT	1/4”	4 mm	58	30	12	16.5	105
	3/8”	6 mm	55			19	109
	1/2”	8 mm	80	50.5	20		152

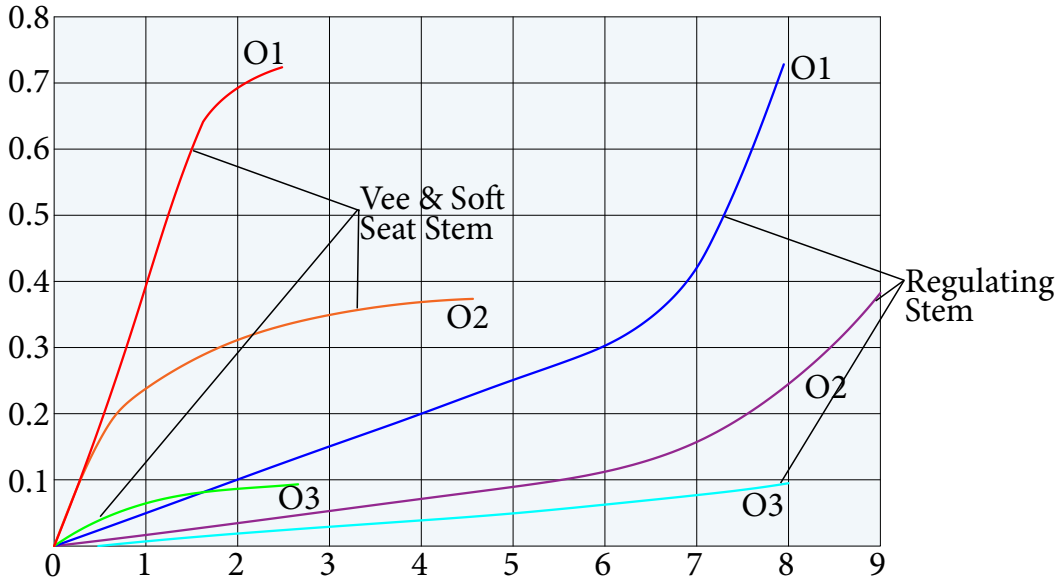
Angled Type

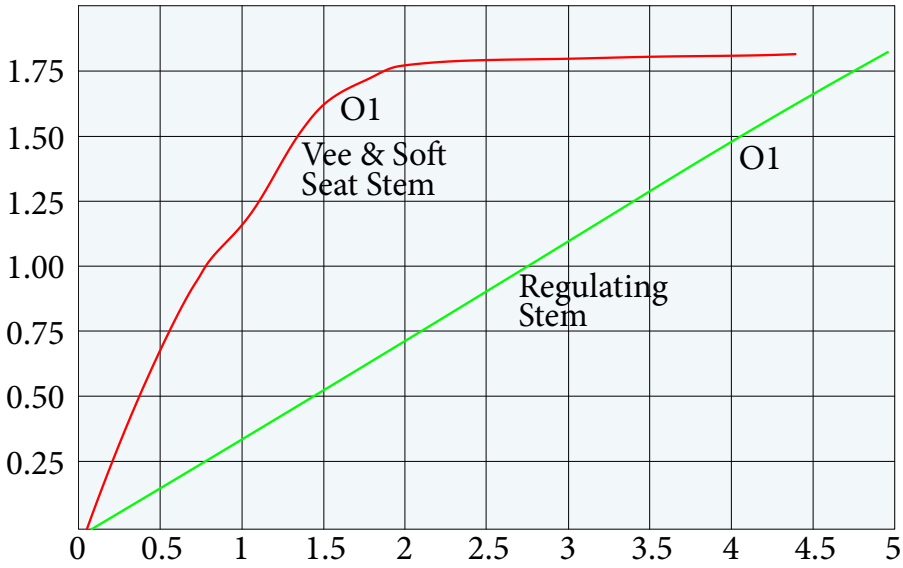


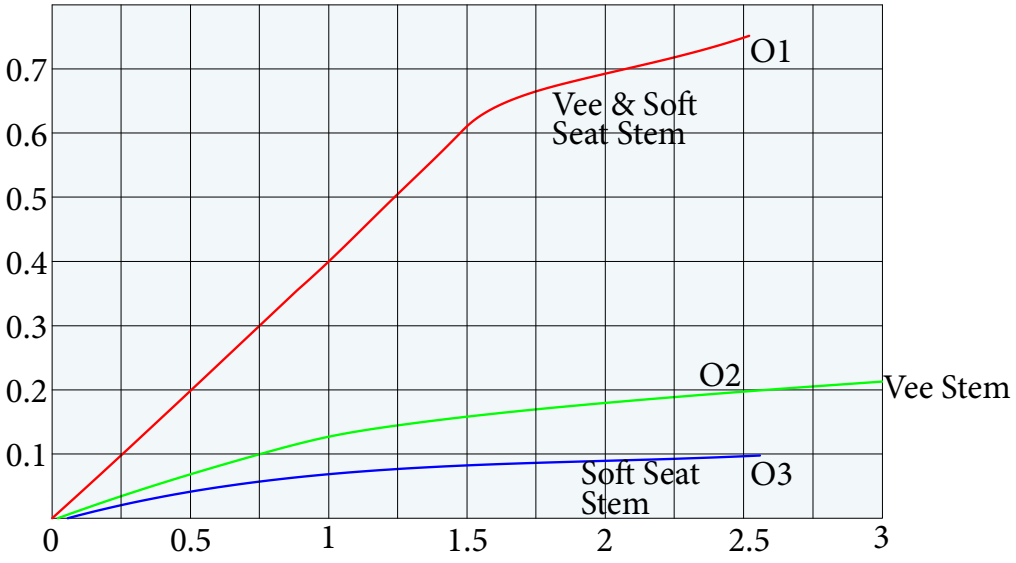
End Connections		Orifice	Dimensions, (mm)				
Inlet/Outlet	Size		D	E	F	G	H
Fractional Powerlok Tube Fitting	1/8”	2 mm	30	30.5	28	16.5	121.5
	1/4”	4 mm					
	3/8”	6 mm	28	33		19	124
	1/2”						
Metric Powerlok Tube Fitting	6 mm	4 mm	30	30.5	28	16.5	121.5
	8 mm						
	10 mm	6 mm	28	33		19	124
	12 mm						
Female NPT	1/4”	4 mm	30	30.5	28	16.5	121.5
	3/8”	6 mm	28	33	28	19	124
	1/2”	8 mm	24	50.5	40	26	172
Male NPT	1/4”	4 mm	30	30.5	28	16.5	121.5
	3/8”						
	1/2”	8 mm	41	50.5	45	26	177
Male/Female NPT	1/4”	4 mm	30	30.5	28	16.5	121.5
	3/8”	6 mm	28	33	28	19	124
	1/2”	8 mm	24	50.5	45	26	177

Flow Data at 100°F (37°C)

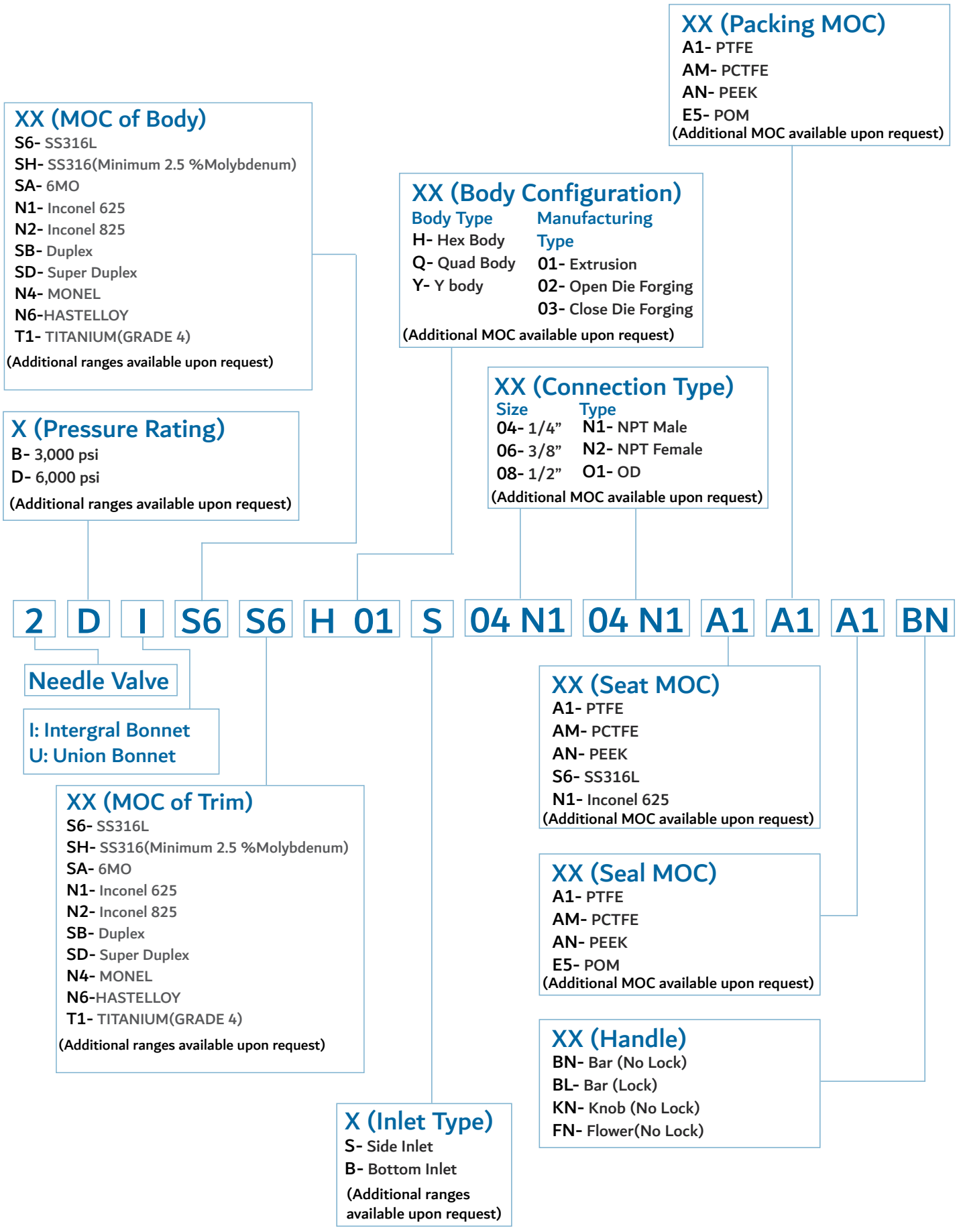
Flow Coefficient at Turns Open



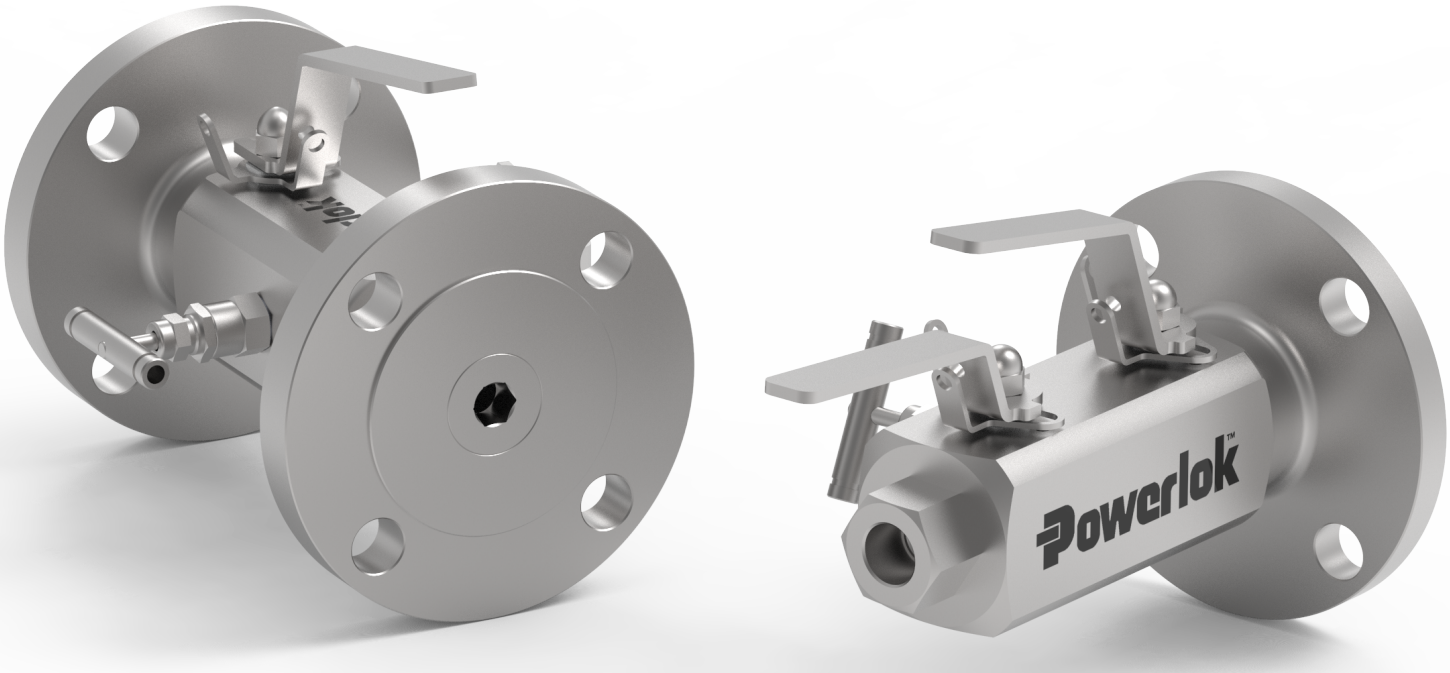




Ordering Information



Instrument DBB



Double Block and Bleed Valves

Process Interface Valves

- Process to instrument interface in one compact valve assembly
- One-piece forged body configuration provides fewer leak points, reduced size and weight over conventional hook-up
- Two 3/8 in. (9.5 mm) bore isolation valves
- Flanged connections according to ASME 16.5 RF and RTJ
- Threaded NPT connections
- Pressure ratings according to ASME B 16.34 Class 150 through 2500
- Temperature range from –50 to 400°F (–46 to 204°C)
- Anti-blowout ball valve stems and needles
- Non-rotating tip needle vent valve
- Hydrostatic test certificates complete with full chemical and
- physical material certifications available

Testing

- Every valve assembly is factory tested hydrostatically; a shell test at 1.5 times maximum rated working pressure and a seat test at 1.1 times maximum rated working
- pressure, in accordance with BS EN 12266-1 (formerly BS 6755 part 1).

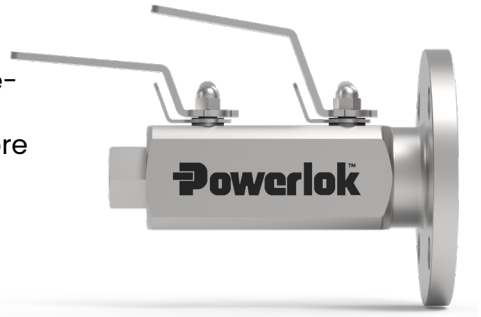
Materials of Construction

- Wetted components for stainless steel valves

Component	Material
Body	316 stainless steel
Needle stem tip	S17400 SS
Seats	PEEK
Spring-loaded stem seals	PTFE

Double Block and Bleed Valves One-Piece Forged Design

- Process Interface Valves
- Process interface in one compact ball/needle/ball valve assembly
- 3/8, 1/2, and 3/4 in. (9.5, 14, and 20 mm) bore options available
- Flanged connections in accordance with ASME B16.5 RF and RTJ
- Pressure ratings in accordance with ASME B16.34 Class 150 through 2500



Features

- One-piece forged body provides fewer potential leak points and reduced size and weight compared to conventional installations
- Temperature range from −58 to 400°F (−50 to 204°C) for stainless steel and duplex valve assemblies
- Temperature range from −51 to 400°F (−46 to 204°C) for carbon steel valve assemblies
- Antiblowout valve stems and needles
- Nonrotating needle vent valve
- Hydrostatic test certificates complete with full chemical and physical material certifications available

Testing

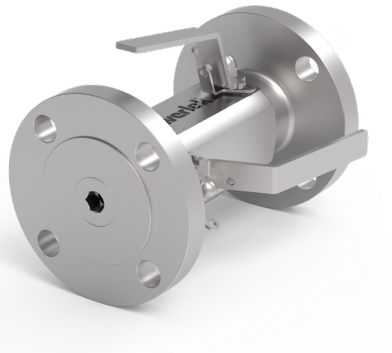
- Every valve assembly is factory tested hydrostatically. A shell test is performed at 1.5 times maximum rated working pressure and a seat test is performed at 1.1 times maximum rated working pressure, in accordance with BS EN 12266-1 and API 598.

MATERIAL CONSTRUCTION

COMPONENT	VALVE BODY MATERIALS		
	Stainless Steel	Carbon Steel	Duplex Stainless Steel
	Material Grade/Specification		
Body	Stainless steel/ASTM A182 F316, F316L SS	Steel/ ASTM A350 LF2	Duplex stainless steel/ ASTM A182 F51
Balls, ball valve stems, ball valve end connections, needle valve bonnet	316, 316L SS/ ASTM A479		S31803/ ASTM A479
Body seals, needle valve packing, needle valve bonnet seal	PTFE, Graphite(For higher Temperatures)		
Needle	S17400 SS		
Ball valve seat	PEEK		
Ball valve Seal	PTFE outer jacket		
All other components	316 SS		

Double Block and Bleed Valves
Large-Bore, Three-Piece Bolted Design

- Process to instrument interface in one compact ball/needle/ball valve assembly
- Suitable for process interface vent and drain connections
- 1, 1 1/2, and 2 in. (25, 38, and 50 mm) bore options available
- Flanged connections in accordance with ASME B16.5 RF and RTJ
- Pressure ratings in accordance with ASME B16.34 Class 150 through 2500



Features

- Three-piece, bolted-body construction in accordance with ASME VIII provides fewer potential leak points and reduced size and weight compared to conventional installations
- Temperature range from –58 to 400°F (–50 to 204°C) for stainless steel and duplex valve assemblies
- Temperature range from –51 to 400°F (–46 to 204°C) for carbon steel valve assemblies
- Antiblowout valve stems and needles
- Nonrotating needle vent valve
- Hydrostatic test certificates complete with full chemical and physical material certifications available

Testing

- Every valve assembly is factory tested hydrostatically. A shell test is performed at 1.5 times maximum rated working pressure and a seat test is performed at 1.1 times maximum rated working pressure, in accordance with BS EN 12266-1 (formerly BS 6755 part 1).

Options and Accessories

- Integral check valves are available. For additional materials, options, and accessories, contact your authorized Powerlok sales and service representative for more information.

COMPONENT	VALVE BODY MATERIALS		
	Stainless Steel	Carbon Steel	Duplex Stainless Steel
	Material Grade/Specification		
Body	Stainless steel/ASTM A182 F316, F316L SS	Steel/ ASTM A350 LF2	Duplex stainless steel/ ASTM A182 F51
Body seals	Graphite		
Balls, ball valve stems,	316, 316L SS/ ASTM A479		S31803/ ASTM A479
Body Valve Seat	Peek		
Ball Valve lip seals	PTFE outer jacket		
Needle	S17400 SS		
Needle valve packing, needle valve bonnet seal	Graphite		
Body Bolts	B8M/A320	L7M/A320	PTFE-coated L7M/A320
All other components	316 SS		
All other components	316 SS		

Gauge Root Valve

gauge Root Valve are Used for safes instalation in pressure switches ,gauge and differential pressure transmitters, suitable for block and bleed assemblies to test pressure source required in sampling line or purge valve.

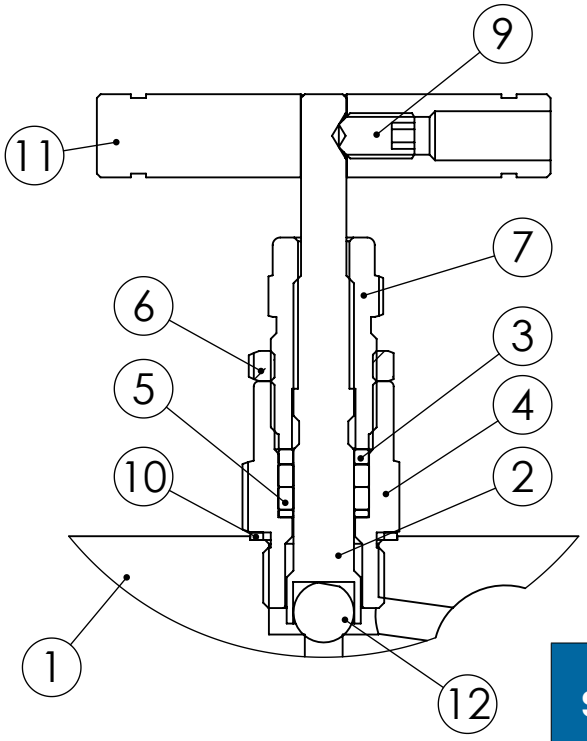
Features

- SS316L Construction For Corrosion Resistance.
- Non rotating Vee or ball tip.
- Extended body for insulation clearance.
- Scheduled 160 or heavier pipe valve inlet for strength.
- Optional graphoil packing available for high temperatures with all ball/vee tip design which forms a bearing joint with the stem which eliminates rotation between ball/vee tip & seat at closure , this prevents scoring and galling on the valve seat at ensures long life in repetitive shut off service.

Testing

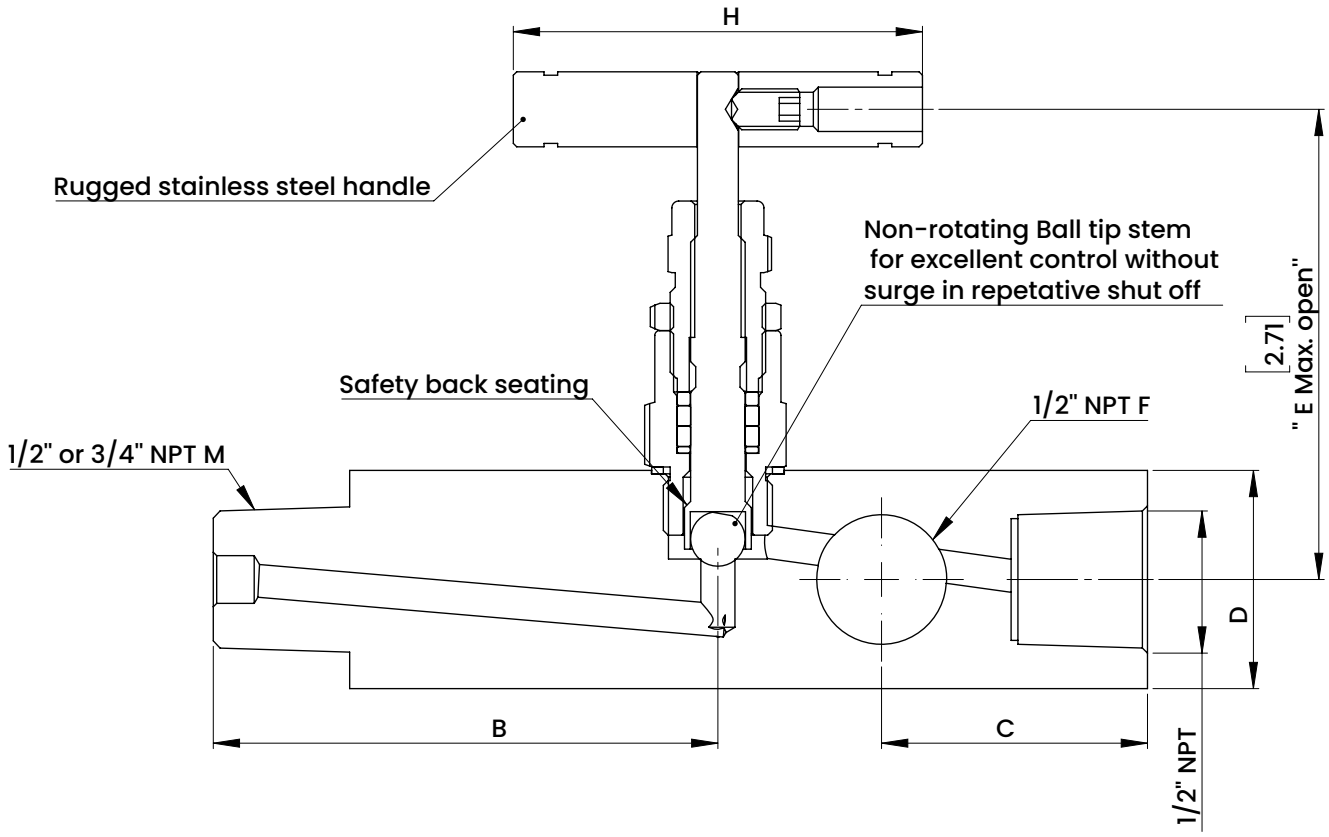
- Each valve is hydrostatically tested in accordance with MSS-SP-99. This procedure includes testing of the body cavity.hydrostatically test is performed with pure water or other liquids of similar or lower viscosity at 1.5 times and seat leakage test at 1.1 times od the maximum working pressure .
- Each valve also tested with nitogen gas at 1000 psi for seat, seal and shell leakage .
- Other tests like vibration , Temperature Helium are available upon request.

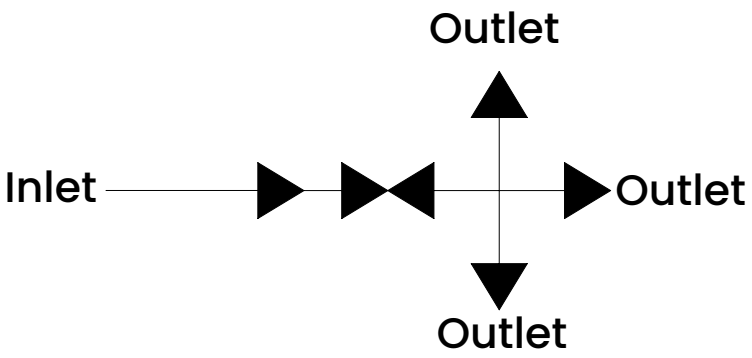
Materials



Sr.No	Part	Material
1	Body	ASTM A-479 SS316/A-105
2	Stem	ASTM A-479 SS316/A-105
3	Spacer	ASTM A-479 SS316/A-105
4	Gland Body	ASTM A-479 SS316/A-105
5	Gland Packing	Teflon/Graphoil
6	Gland lock NUT	ASTM A-479 SS316/A-105
7	Gland Retainer	ASTM A-479 SS316/A-105
8	Dust cap	Plastic
9	Grub Screw	Stell Plated
10	Washer	ASTM A-479 SS316/A-105
11	Handle	SS202/SS314
12	VEE/BALL TIP	SS440 C

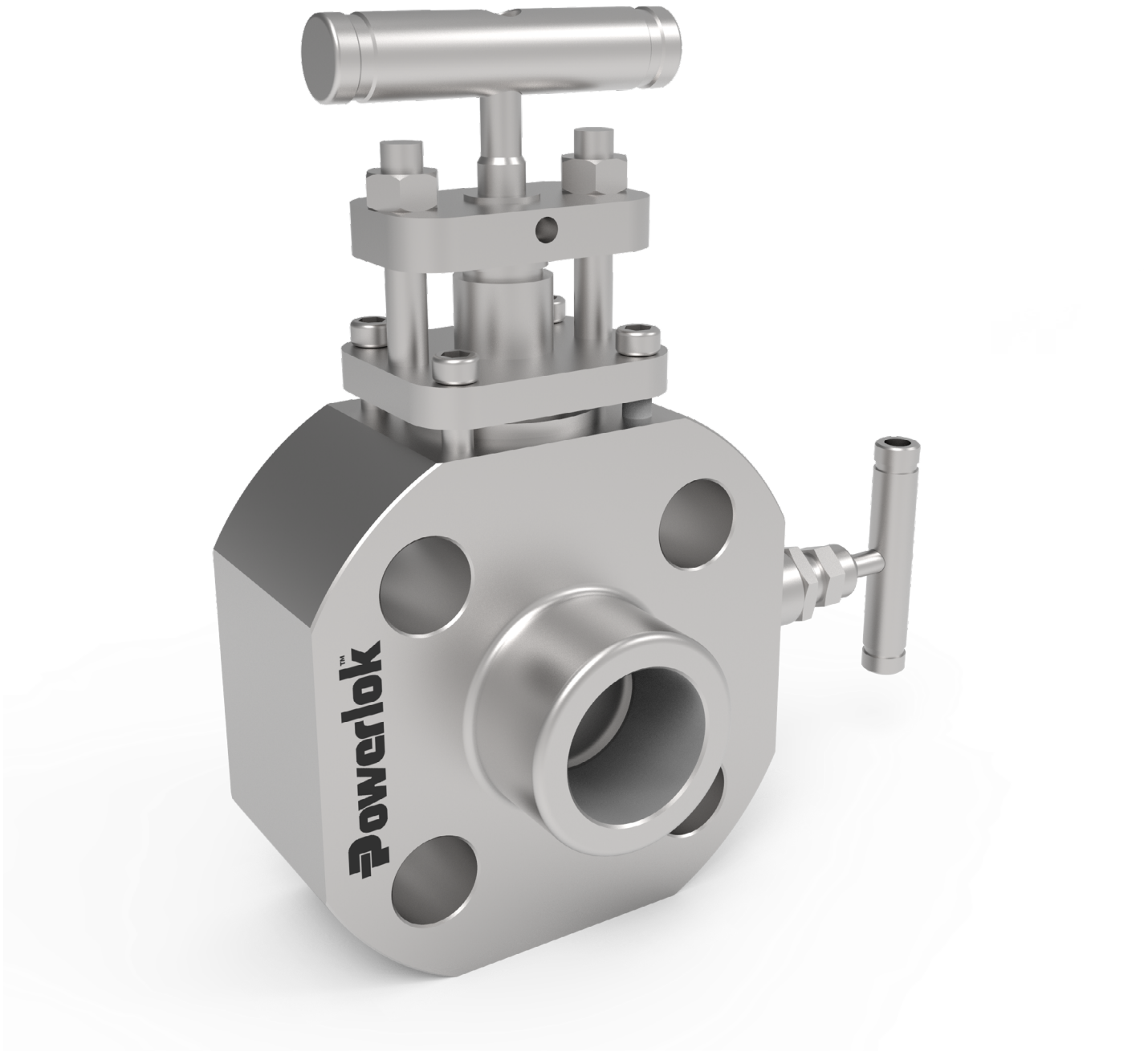
Dimensions





BODY	Orifice mm	Connecting Size		Dimensions					
		Inlet	Outlet	A	B	C	D	E	H
Short	5	1/2″	1/2″ NPT	137	76	38	SQ 32	90	64
Lagging Extension		3/4″		184	123	38	SQ 32	90	64

Monoflange(Slimline Type)



Features:

Compact assembly
Minimal potential leak points
Easy installation and maintenance
Full range of ASME B16.5-compatible flanged connections
Wide range of instrument and process connections
Full test and material certification available
BS 6755 Part 2 fire-tested design
NACE certification available

Pressure Temperature Ratings

Working Pressures
150 class to 2500 class in accordance with ASME B16.5
Working Temperatures
204°C (400°F)—PTFE packing
454°C (850°F)—graphite packing

Standard Specification

Standard specification:
Outlet - 1/2" FNPT
Vent - plugged 1/4" FNPT
Seat - metal to metal
Packing - PTFE

Monoflange Features:

• 1/2" to 2" N.B. Flanges (15 to 50 DN)
• ANSI B16.5 150 to 2500 flange class and API10,000
• 1/2-14 NPT (female) standard outlet
• 1/4-18 NPT (female) standard vent
• Variety of optional end connection sizes and thread forms including tube connections 1/2"/12mm diameter
• Standard materials of construction: Stainless steel ASTM A182 F316/F316L, Carbon steel ASTM A350 LF2/A105, Duplex ASTM A182 F51
• Optional materials include Super Duplex, Monel, Hastelloy, 6Mo, Inconel
• Combined needle and O.S.&Y. valves available
• Instrument connections Double Compression Ferrule Fitting
available
• Raised face and ring type joint flange face styles
• One-piece forged construction flange as standard
• H needle design with retro fit handle options
• Optional fire safe designed (and tested) to meet BS6755 part 2/API 607
• Pressure boundary designs calculated to ASME VIII Div. 1 and verified by testing
• 4:1 Factor of Safety
• Heat code traceable material to EN10204.3.1
• Bubble tight shut off valve seats 17-4 PH tips standard
• Optional PEEK tips available
• Colour coded functional valves
• Optional locking and anti tamper devices for all valve types available
• NACE MR 0175/ISO 15156 compliant material available on request
• Permanent marked body with full order and specification details
• Available with various non-threaded connections, please contact us

Process Monoflange Assemblies

Outside Screw and Yoke (OS&Y) Bolted-Bonnet Needle Valve

Block Valve

OS&Y bolted-bonnet primary isolating process valve

Block and Bleed Valve

OS&Y bolted-bonnet primary isolating process valve

Needle valve vent (T-bar or antitamper operated)

Double Block and Bleed Valve

OS&Y bolted-bonnet primary isolating process valve

Needle valve vent and secondary isolating valve (T-bar or antitamper operated)

Bolted-Bonnet Needle Valve

Block Valve

Bolted-bonnet primary isolating process needle valve

Block and Bleed Valve

Bolted-bonnet primary isolating process needle valve

Needle valve vent (T-bar or antitamper operated)

Double Block and Bleed Valve

Bolted-bonnet primary isolating process needle valve

Needle valve vent and secondary isolating valve (T-bar or antitamper operated)

Integral Screwed -Bonnet Needle Valve

Block Valve

Screwed-bonnet primary isolating needle valve

Block and Bleed Valve

Screwed-bonnet primary isolating needle valve

Needle valve vent (T-bar or antitamper operated)

Double Block and Bleed Valve

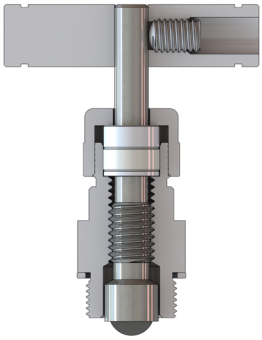
Screwed-bonnet primary isolating needle valve

Needle valve vent and secondary isolating valve (T-bar or antitamper operated)

Bonnet Features:

Powerlok manifolds uses series of valves for varied purposes like isolation, equalization, bleed.
Small and Large Bonnets are used in our range of manifolds.

Small bonnet:



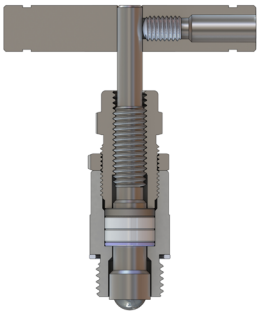
Non-Rotating Ball Tip as standard in all variants, SS440C ball used in Stem tip provides consistent shutoff.

Rolled spindle thread for extended service life and superior flow control.

Safety backseat provides secondary stem seal and prevents stem blow-out.

Rugged Stainless Steel handle provides positive stem actuation

Large bonnet:



Non-Rotating 440C ball tipprovides smooth axial rotation and consistent zero leak shutoff

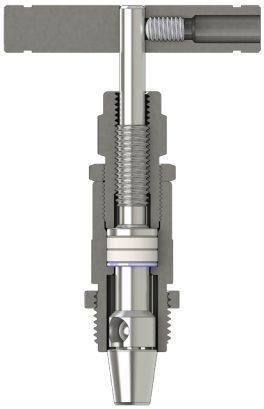
Rolled spindle thread for extended service life and superior flow control.

Packing below stem threads prevents lubrication washout and isolates threads from system fluids.

Safety back seating provides secondary seal and prevents stem blow out.

Rugged Stainless Steel handle provides positive stem actuation

Soft bonnet:



Non-rotating Plug tip promotes smooth axial rotation and consistent zero leak shutoff

Rolled spindle thread for extended service life and superior flow control.

Packing below stem threads prevents lubrication washout and isolates threads from system fluids.

Safety back seating provides secondary seal and prevents stem blow out.

Rugged Stainless Steel handle provides positive stem actuation

Offers full bore in ¼" (6.4mm) and 3/8" (9.5mm) orifice, for excellent flow response

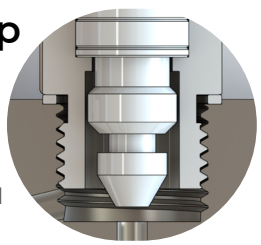
Allows repetitive shutoff and easy maintenance, Roddable to enable easy cleaning

Plug tip Seat available in POM as standard, Available in PEEK upon request.

Hardened V tip

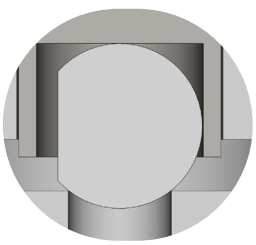
MOC: 17.4 pH / Inconel / Monel and SS Hardened

Non Rotating V-Tip stem provides superior control and consistent shut-off.

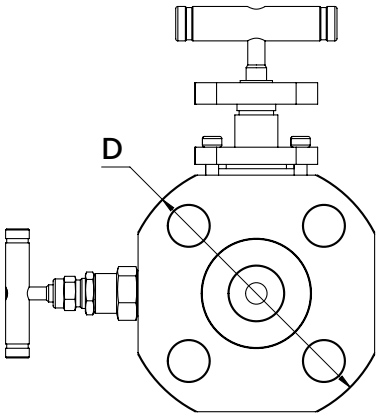


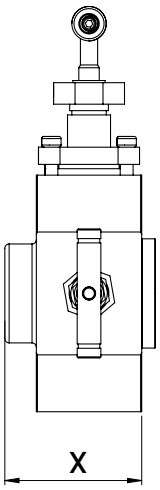
Ball Tip

Non-Rotating Ball Tip as standard in all variantis



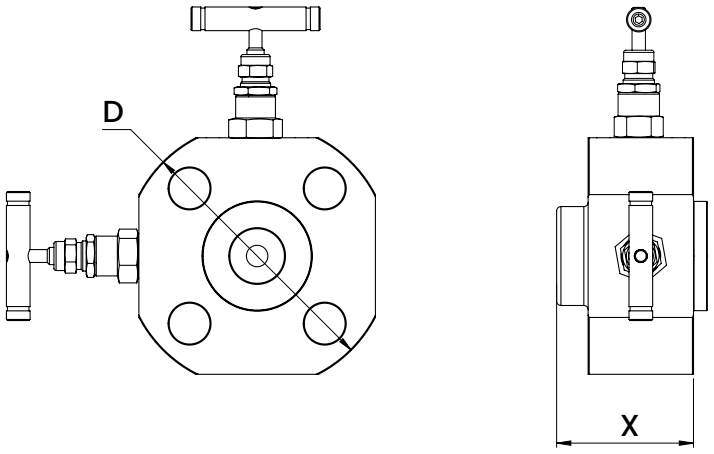
Process Monoflange





Flange Size (in)	Flange Class	ØD (mm)	Flange Face	
			RF x (mm)	RTJ x (mm)
1/2	150	98.6	36.6	--
1/2	300	98.6	36.6	40.6
1/2	600	98.6	41.4	40.6
1/2	900/1500	120.7	41.4	41.4
1/2	2500	133.4	41.4	41.4
3/4	150	98.6	36.6	--
3/4	300	117.3	36.6	41.4
3/4	600	117.3	41.4	41.4
3/4	900/1500	130.0	41.4	41.4
3/4	2500	139.7	41.4	41.4
1	150	108.0	36.6	41.4
1	300	124.0	36.6	41.4
1	600	124.0	41.4	41.4
1	900/1500	149.3	41.4	41.4
1	2500	158.8	42.4	42.4
1 1/2	150	127.0	36.6	41.4
1 1/2	300	155.4	36.6	41.4
1 1/2	600	155.4	41.4	41.4
1 1/2	900/1500	177.8	41.4	41.4
1 1/2	2500	203.2	51.4	52.9
2	150	152.4	36.6	41.4
2	300	165.1	36.6	42.9
2	600	165.1	41.4	42.9
2	900/1500	215.9	45.4	46.9
2	2500	235.0	58.4	59.9

Instrument Monoflange



Flange Size (in)	Flange Class	ØD (mm)	Flange Face	
			RF x (mm)	RTJ x (mm)
1/2	150	88.9	36.6	--
1/2	300	95.3	36.6	40.6
1/2	600	95.3	41.4	40.6
1/2	900/1500	120.7	41.4	41.4
1/2	2500	133.4	41.4	41.4
3/4	150	98.6	36.6	--
3/4	300	117.3	36.6	41.4
3/4	600	117.3	41.4	41.4
3/4	900/1500	130.0	41.4	41.4
3/4	2500	139.7	41.4	41.4
1	150	108.0	36.6	41.4
1	300	124.0	36.6	41.4
1	600	124.0	41.4	41.4
1	900/1500	149.3	41.4	41.4
1	2500	158.8	42.4	42.4
1 1/2	150	127.0	36.6	41.4
1 1/2	300	155.4	36.6	41.4
1 1/2	600	155.4	41.4	41.4
1 1/2	900/1500	177.8	41.4	41.4
1 1/2	2500	203.2	51.4	52.9
2	150	152.4	36.6	41.4
2	300	165.1	36.6	42.9
2	600	165.1	41.4	42.9
2	900/1500	215.9	45.4	46.9
2	2500	235.0	58.4	59.9

Options

High-Temperature Packing

Grafoil valve packing material for high-temperature service.
See Pressure-Temperature Ratings, page 3.

Includes Grafoil flange seals on MSS flangeS.

Flange Seal Materials

MSS flange seals are available in Grafoil, virgin PTFE, and reinforced PTFE for system compatibility.
Temperature ratings are included in the table below.
To order a manifold with an optional MSS fl ange seal material, add a material designator to the manifold ordering number.

Mounting Kits

Mounting Bracket Kit

Kit contains stainless steel bracket, U-bolts, cap screws, nuts, lock washers, spacer, andinstructions. Kit does not fit 3-valve manifolds with flange to flange end connections.

Steam-Trace Block Kits

Kit contains plated steel trace block with two 1/4 in. female NPT ports, cap screws, nuts, lock washers, block retainer plate, heat transfer gasket, and
instructions.

MSS Flange Fasteners

Optional long studs or short bolts are available for specialflange mounting applications. See table below for flange fastener length comparison.

All fasteners are stainless steel with 7/16-20 threads.
Optional fasteners are available for all series
manifolds with MSS fl anges.

Mounting Hole Center Line

Elongated mounting holes on the instrument flange allow for center line installations between 2 1/8 and 2 1/4 in. (54.0 and 57.2 mm). Available on 3- and 5-valve V and VB series manifolds with MSS fl anges.
Pressure rating is 3600 psig at 100°F (248 bar at 37°C) and 2480 psig at 450°F (170 bar at 232°C).

Hydrostatic Testing

Hydrostatic testing is available as an option

Maintenance Kits

Flange Seal and Bolt Kits

Kit contains flange seals, flange bolts, lubricant, and instructions.

Accessories

Bleed Valve

Powerlok Bleed Valve used on Instrument side of the Manifold to release spiked system pressures.

Gauge Adaptor

Powerlok Guage adaptors used to adapt Male NPT Thread to Female ISO/BSP parallel threads.

Available in ¼", 3/8" and ½" NPT suitable for any Guage Connections.

Oval Flange

Powerlok Oval Flanges are used in 'Flange to Flange' and 'Flange to Pipe' Manifolds to permit connection of Flange taps and Root valves of process side.

Provides offset connection of 1/16"(1.6mm) from bolt centre line

Di-Electric Kit

Powerlok POM Di-Electric Kit used to isolate Valve Manifold and Instrument from electric current.

Powerlok™ products are backed by The Powerlok™ Limited 18 month
for more information contact your authorized Powerlok™ representative.

Safe Product Selection
When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

Warranty Information

Powerlok™, India—a brand by Thomas & Brian®
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Thomas & Brian

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Eta Endüstri

Endüstriyel Test ve Servis Ekipmanları

ETA TURKEY ENDÜSTRİ MÜHENDİSLİK
TEST VE SERVİS HİZMETLERİ TİCARET LİMİTED ŞİRKETİ

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