PHOENIX™ PRECISION Ltd.

P3M5S™, P4M5S™, P6M5S™
5-VALVE SOFT SEAT MANIFOLD

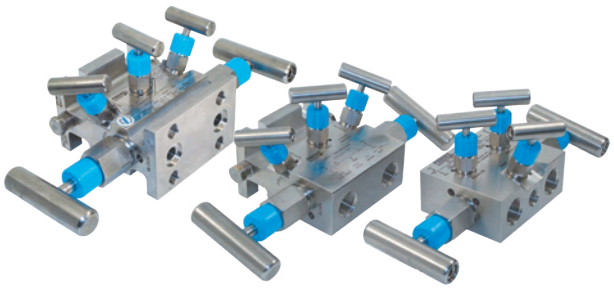
GAS STYLE MANIFOLD

US PATENT NO.: US 7,225,832 B2

5-Valve Gas Style Manifold

The 5-valve manifold features 2 isolation valves, 2 equalizer valves and 1 vent valve in a single body for isolation and calibration of differential pressure transmitters. The manifold bonnets are configured in an innovative Radial Pattern™ for easy operation. Additional features include a body manufactured from extruded solid bar, robust stems and Phoenix's innovative design which ensures a bubble tight seal in a variety of conditions.

RADIAL PATTERN™

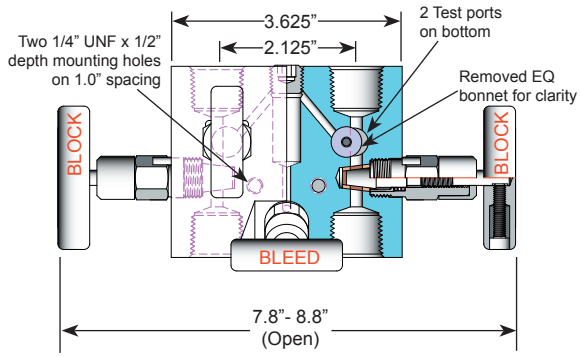


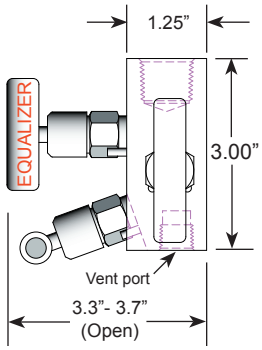
Standard Features

Benefits

Standard Features	Benefits
Hydrotested at 150% of rated pressure (shell test). Nitrogen gas tested to 2000 psi.	Complies with ASME B31.1 & B31.3 shell testing procedures as standard. Ensures structural integrity of valve.
Seat tightness (zero leakage) verified to 110% of rated pressure. Nitrogen gas tested to 2000 psi.	Complies with ASME B31.1 & B31.3 seat testing procedures as standard. Ensures zero leakage at seats for proper calibration.
Packing below stem threads	Prevents corrosion of critical stem threads
Metal body-to-bonnet seals are in compression, not tension	Mitigates risk of stress cracking
Stem threads are rolled, not cut	Higher quality stem for longer service life
Non-rotating tapered tip stem (3/8" bore only)	Extended soft seat life and a reliable soft seat shut off
8 RMS stem finish	Extended packing life
V-Style Teflon™ packing	30-40% less operational torque and less frequent packing adjustments than traditional Teflon™ packed valves.
Pressure component materials sourced from the US, Canada or Europe	Reliable material traceability. MTR's provided with every order for pressure containing components.

3/16” Bore Configuration

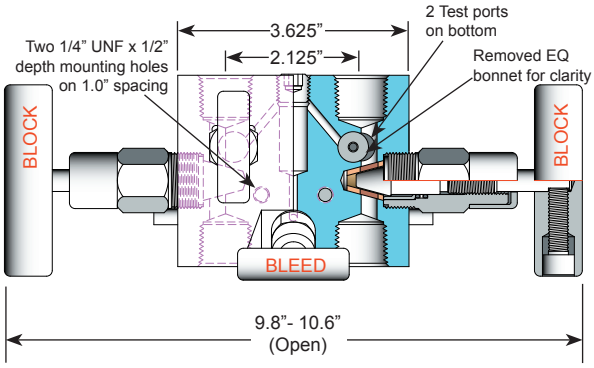


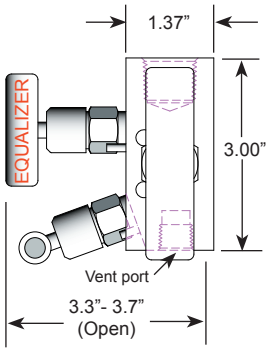


Specifications:
Type: **P3M5S** PxP Manifold, Roddabe Pattern
Rating: Up to 6000 psi @ 100ºF
(41370 kPa @ 38°C)
Stem: Taper Tip and Flat Tip
Packing: Viton™ O-ring or Teflon™
Seat: Delrin™ or Peek™
Handle: Removable
Bore Size: 3/16” (Primary), 1/8” (EQ., Bleed)
Inlet Connections: 1/2” FNPT
Outlet Connections: 1/2” FNPT
Bonnet Lock: Pin or Plate
Body Stock: 3.625” x 3.00” x 1.25”
Weight: 4.1 - 4.3 lbs
Special Service: O_2 or CL cleaning available*

*Other specifications or services may be available.

1/4” Bore Configuration

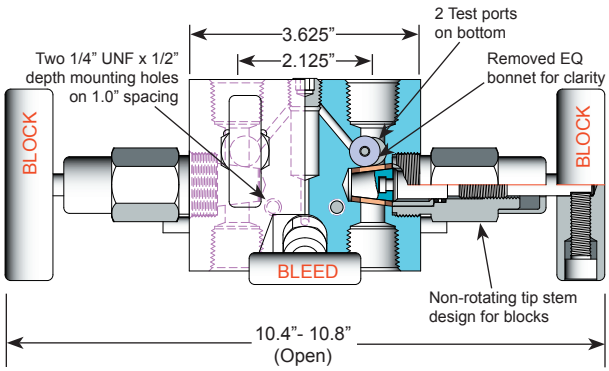


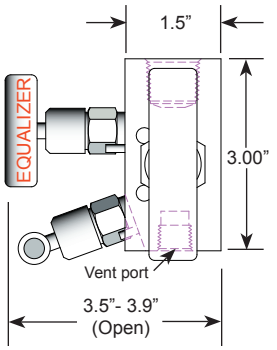


Specifications:
Type: **P4M5S** PxP Manifold, Roddable Pattern
Rating: Up to 6000 psi @ 100ºF
(41370 kPa @ 38°C)
Stem: Taper Tip and Flat Tip
Packing: Viton™ O-ring or Teflon™
Seat: Delrin™ or Peek™
Handle: Removable
Bore Size: 1/4” (Primary), 1/8” (EQ., Bleed)
Inlet Connections: 1/2” FNPT
Outlet Connections: 1/2” FNPT
Bonnet Lock: Pin or Plate
Body Stock: 3.625” x 3.00” x 1.37”
Weight: 5.0 - 5.2 lbs
Special Service: O_2 or CL cleaning available*

*Other specifications or services may be available.

3/8” Bore Configuration





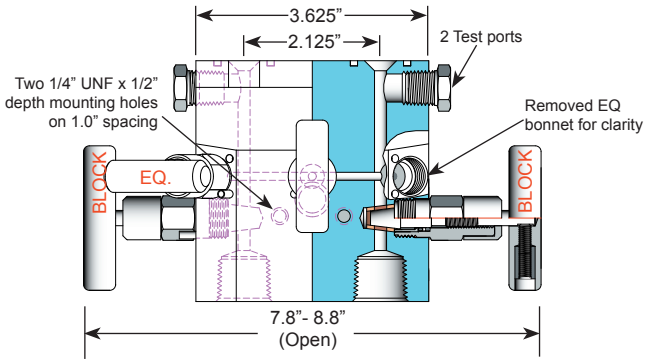
Specifications:
Type: **P6M5S** PxP Manifold, Roddable Pattern
Rating: Up to 6000 psi @ 100ºF
(41370 kPa @ 38°C)
Stem: Taper Tip and Flat Tip
Packing: Viton™ O-ring or Teflon™
Seat: Delrin™, Peek™ and Tefzel™ (for blocks)
Handle: Removable
Bore Size: 3/8” (Primary), 1/8” (EQ., Bleed)
Inlet Connections: 1/2” FNPT
Outlet Connections: 1/2” FNPT
Bonnet Lock: Pin or Plate
Body Stock: 3.625” x 3.00” x 1.5”
Weight: 5.9 - 6.1 lbs
Special Service: O_2 or CL cleaning available*

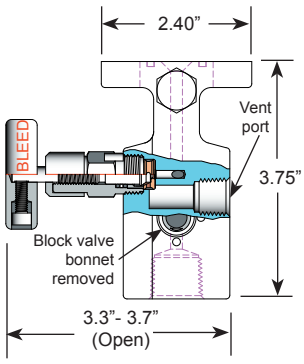
*Other specifications or services may be available.

PHOENIX PRECISION Ltd.™

P3M5S™, P4M5S™, P6M5S™
Pipe x Flange Technical Specifications

3/16” Bore Configuration

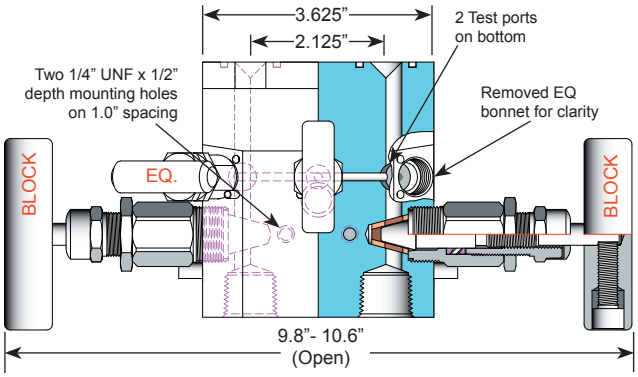


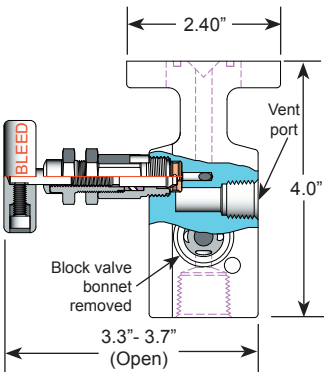


Specifications:
Type: **P3M5S** PxF Manifold, Roddabe Pattern
Rating: Up to 6000 psi @ 100ºF
(41370 kPa @ 38°C)
Stem: Taper Tip and Flat Tip
Packing: Viton™ O-ring or Teflon™
Seat: Delrin™ or Peek™
Handle: Removable
Bore Size: 3/16” (Primary), 1/8” (EQ., Bleed)
Inlet Connections: 1/2” FNPT
Outlet Connections: 4-Bolt Flange
Bonnet Lock: Pin or Plate
Body Stock: 3.625” x 3.75” x 1.5 x 2.4”
Weight: 5.9 - 6.1 lbs
Special Service: O_2 or CL cleaning available*

*Other specifications or services may be available.

1/4” Bore Configuration

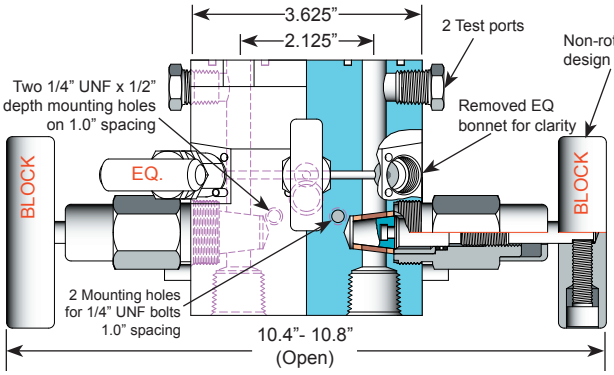


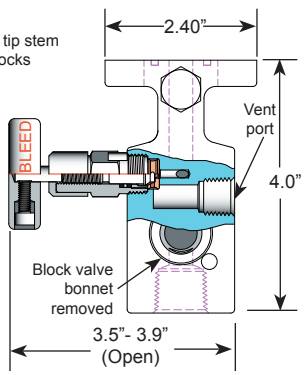


Specifications:
Type: **P4M5S** PxF Manifold, Roddable Pattern
Rating: Up to 6000 psi @ 100ºF
(41370 kPa @ 38°C)
Stem: Taper Tip and Flat Tip
Packing: Viton™ O-ring or Teflon™
Seat: Delrin™ or Peek™
Handle: Removable
Bore Size: 1/4” (Primary), 1/8” (EQ., Bleed)
Inlet Connections: 1/2” FNPT
Outlet Connections: 4-Bolt Flange
Bonnet Lock: Pin or Plate
Body Stock: 3.625” x 4.0” x 1.7 x 2.4”
Weight: 7.5 - 7.7 lbs
Special Service: O_2 or CL cleaning available*

*Other specifications or services may be available.

3/8” Bore Configuration





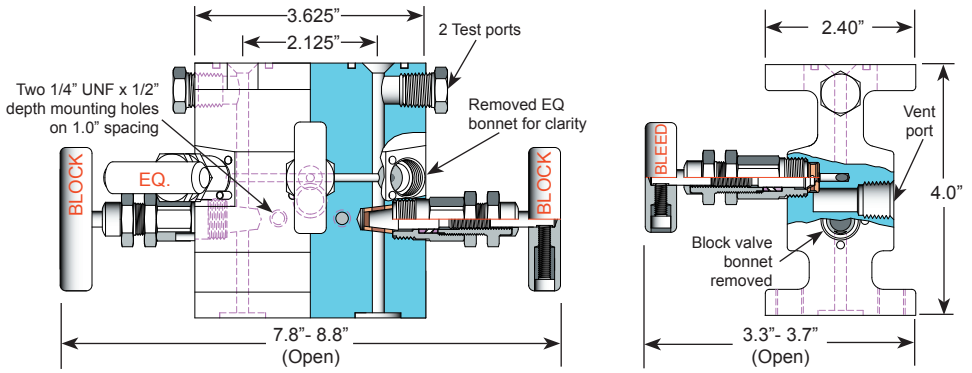
Specifications:
Type: **P6M5S** PxF Manifold, Roddable Pattern
Rating: Up to 6000 psi @ 100ºF
(41370 kPa @ 38°C)
Stem: Non-rotatingTaper Tip and Flat Tip
Packing: Viton™ O-ring or Teflon™
Seat: Delrin™, Peek™ or Tefzel™ (for blocks)
Handle: Removable
Bore Size: 3/8” (Primary), 1/8” (EQ., Bleed)
Inlet Connections: 1/2” FNPT
Outlet Connections: 4-Bolt Flange
Bonnet Lock: Pin or Plate
Body Stock: 3.625” x 4.0” x 1.7 x 2.4”
Weight: 7.5 - 7.7 lbs
Special Service: O_2 or CL cleaning available*

*Other specifications or services may be available.

PHOENIX PRECISION Ltd.™

P3M5S™, P4M5S™, P6M5S™
Flange x Flange Technical Specifications

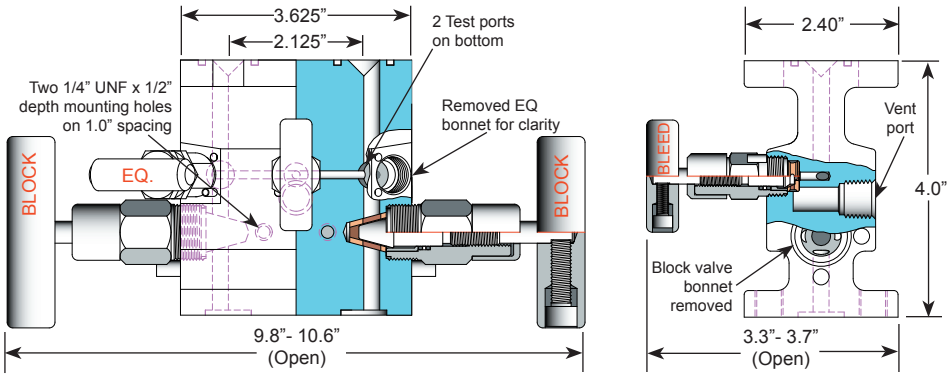
3/16” Bore Configuration



Specifications:
Type: **P3M5S** FxF Manifold, Roddabe Pattern
Rating: Up to 6000 psi @ 100ºF
(41370 kPa @ 38°C)
Stem: Taper Tip and Flat Tip
Packing: Viton™ O-ring or Teflon™
Seat: Delrin™ or Peek™
Handle: Removable
Bore Size: 3/16” (Primary), 1/8” (EQ., Bleed)
Inlet Connections: 4-Bolt Flange
Outlet Connections: 4-Bolt Flange
Bonnet Lock: Pin or Plate
Body Stock: 3.625” x 4.0” x 1.7 x 2.4”
Weight: 6.9 - 7.1 lbs
Special Service: O_2 or CL cleaning available*

*Other specifications or services may be available.

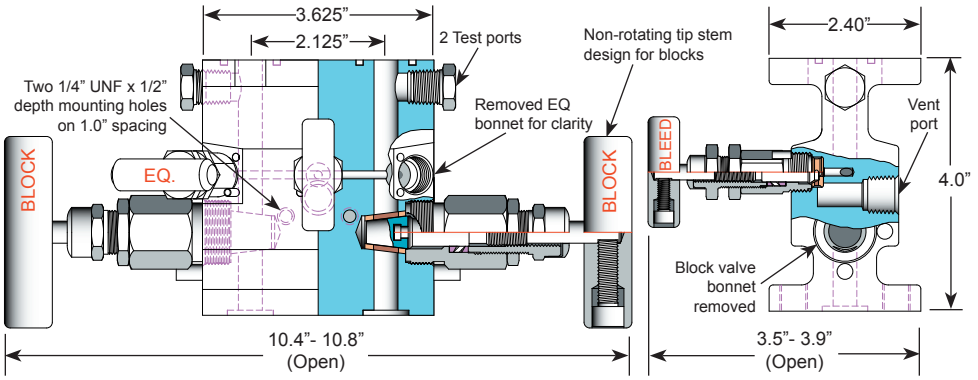
1/4” Bore Configuration



Specifications:
Type: **P4M5S** FxF Manifold, Roddable Pattern
Rating: Up to 6000 psi @ 100ºF
(41370 kPa @ 38°C)
Stem: Taper Tip and Flat Tip
Packing: Viton™ O-ring or Teflon™
Seat: Delrin™ or Peek™
Handle: Removable
Bore Size: 1/4” (Primary), 1/8” (EQ., Bleed)
Inlet Connections: 4-Bolt Flange
Outlet Connections: 4-Bolt Flange
Bonnet Lock: Pin or Plate
Body Stock: 3.625” x 4.0” x 1.7 x 2.4”
Weight: 7.6 - 7.8 lbs
Special Service: O_2 or CL cleaning available*

*Other specifications or services may be available.

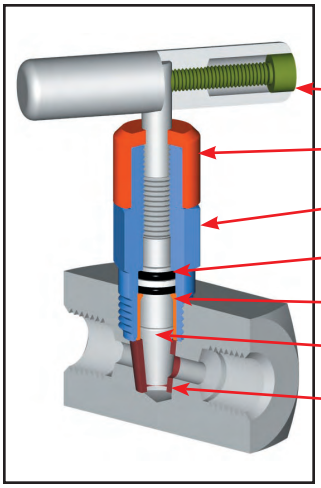
3/8” Bore Configuration



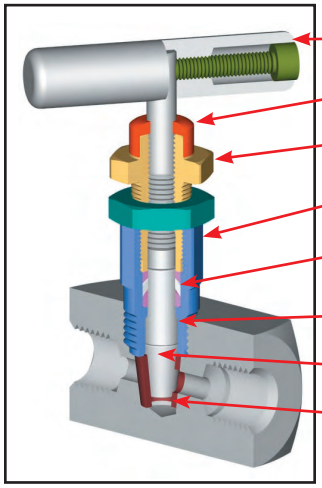
Specifications:
Type: **P6M5S** FxF Manifold, Roddable Pattern
Rating: Up to 6000 psi @ 100ºF
(41370 kPa @ 38°C)
Stem: Taper Tip and Flat Tip
Packing: Viton™ O-ring or Teflon™
Seat: Delrin™, Peek™ or Tefzel™ (for blocks)
Handle: Removable
Bore Size: 3/8” (Primary), 1/8” (EQ., Bleed)
Inlet Connections: 4-Bolt Flange
Outlet Connections: 4-Bolt Flange
Bonnet Lock: Pin or Plate
Body Stock: 3.625” x 4.0” x 1.7 x 2.4”
Weight: 7.6 - 7.8 lbs
Special Service: O_2 or CL cleaning available*

*Other specifications or services may be available.

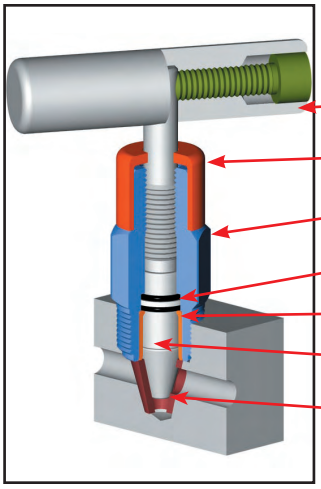
3/16” Bore O-ring and Packed Bonnet Assembly



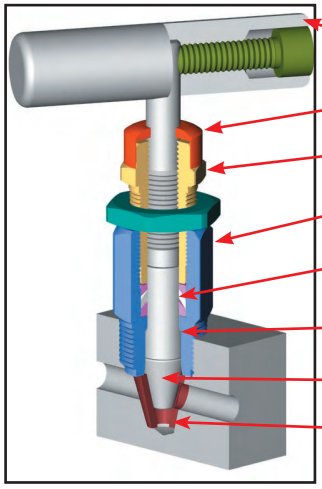
NOTE: BONNET LOCK PIN NOT SHOWN



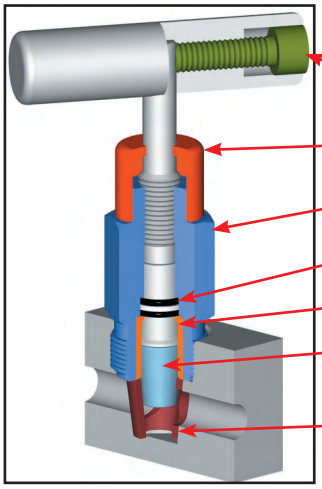
1/4” Bore O-ring and Packed Bonnet Assembly



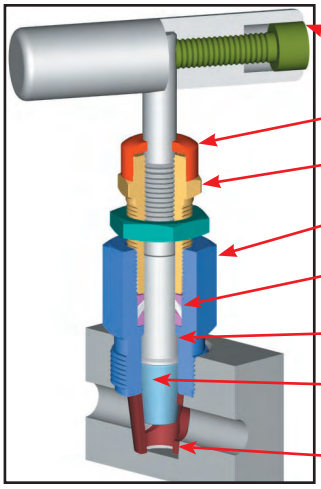
NOTE: BONNET LOCK PIN NOT SHOWN



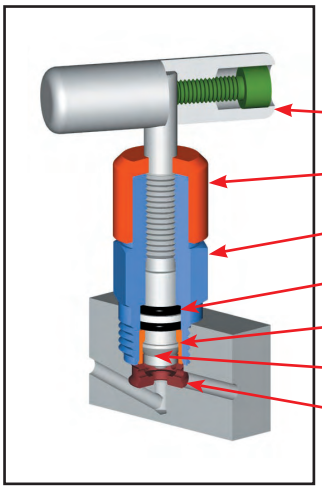
3/8” Bore O-ring and Packed Bonnet Assembly



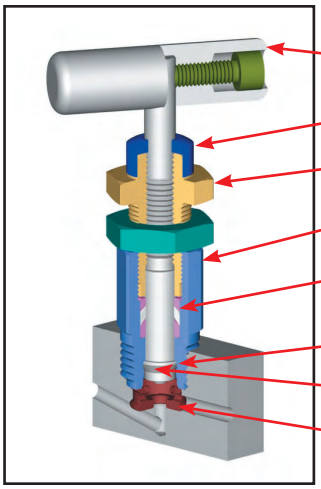
NOTE: BONNET LOCK PIN NOT SHOWN



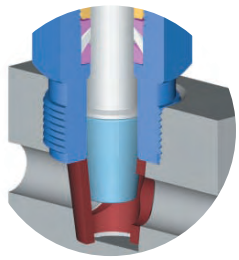
1/8” Bore O-ring and Packed Bonnet Assembly for Bleed and Equalizer



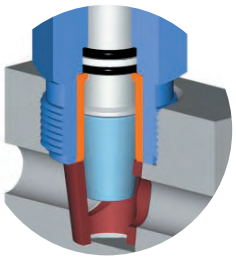
NOTE: BONNET LOCK PIN NOT SHOWN



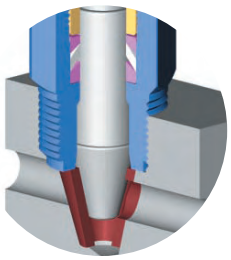
Stem and Seat Configurations



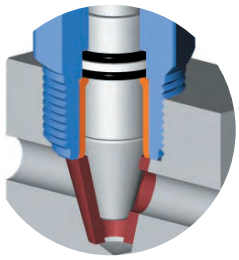
3/8” Bore
Non-rotating Packed
for Block



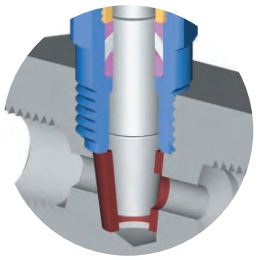
3/8” Bore
Non-rotating O-ring
for Block



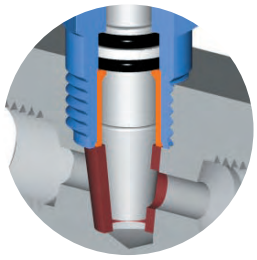
1/4” Bore
Packed
for Block



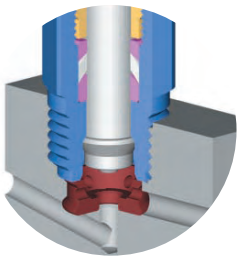
1/4” Bore
O-ring
for Block



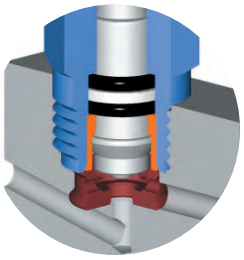
3/16” Bore
Packed
for Block



3/16” Bore
O-ring
for Block

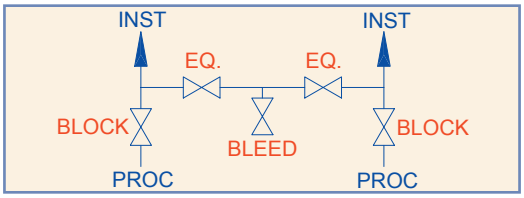


1/8” Bore
Packed
for Equalize or Bleed

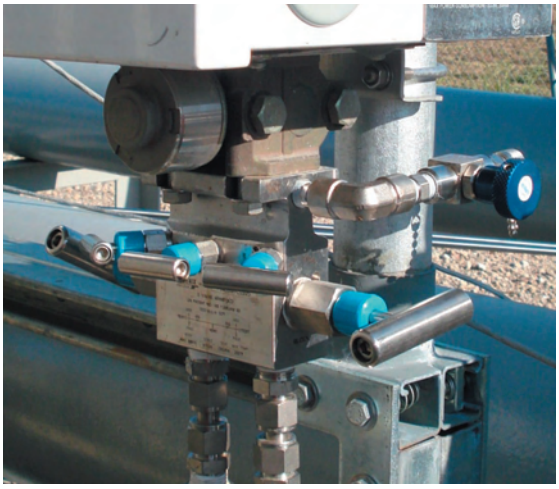


1/8” Bore
O-ring
for Equalize or Bleed

Flow Diagram for All Manifolds

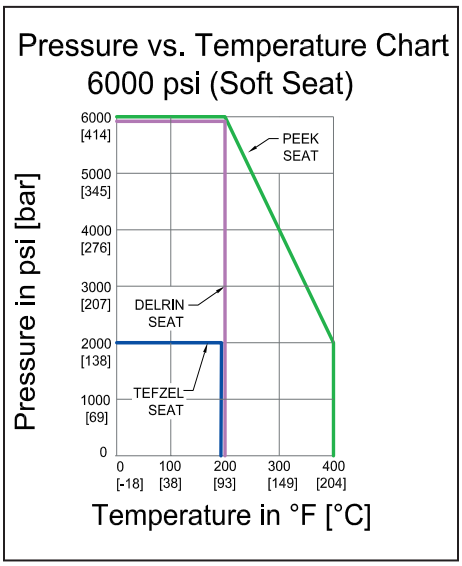


Manifold Applications



Phoenix Precision Products Meet the Following Specifications:

- ASME B31.1 Power Piping
- ASME B31.3 Process Piping
- ASME B16.34 Valves - Flanged, Thread, and Welding End
- API 598 Valve Inspection and Testing
- MSS SP-25 Standard Marking Systems for Valves, Fittings and Flange Unions
- MSS SP-99 Instrument Valves
- MSS SP-105 Instrument Valves for Code Applications
- NACE MR0175/ISO15156 for all 316SS valves and A105cs body/316SS bonnet (SC-Material Code) when in service with less than 50 PPM of chlorides



Seal & Seat Temperature Rating

Code	Description	Min. Temp.	Max. Temp.
A	Aflas™	15°F (-10°C)	400°F (204°C)
V	Viton™	-20°F (-29°C)	400°F (204°C)
T	Teflon™	-65°F (-54°C)	450°F (232°C)
D	Delrin™	-40°F (-40°C)	200°F (93°C)
P	Peek™	-40°F (-40°C)	400°F (204°C)
Z	Tefzel™	-300°F (-185°C)	300°F (150°C)

Materials of Construction

Code	SS	SC	CS
Body	ASTM A182 316SS	ASTM A105 CS	ASTM A108 CS
Bonnet	ASTM A182 316SS	ASTM A182 316SS	ASTM A108 CS
Stem	ASTM A182 316SS	ASTM A182 316SS	ASTM A582 303SS
Adjuster	ASTM A582 303SS	ASTM A582 303SS	ASTM A108 CS
Insert	ASTM A182 316SS	ASTM A182 316SS	ASTM A108 CS
Handle	ASTM A582 303SS	ASTM A582 303SS	ASTM A108 CS

Note: Packing material ratings based on manufacturer's specifications. Approximations only. Phoenix does not represent these values as finite. They are provided only as representative values.

P3M5S™, P4M5S™, P6M5S™
Model Numbering System

Phoenix	Orifice Size	Type	Inlet Size	Inlet Type	Outlet Size	Outlet Type	Material	Packing	Seat	Option Code
P	3=3/16”	M5S	8=1/2” Only for NPT	F= FNPT	8=1/2” Only for NPT	F= FNPT	SS=ASTM A182 316/316L	A=Aflas™	D=Delrin™	DI=Dielectric
	4=1/4”			FL= Flange		FL= Flange	SC=ASTM A105 CS*	V=Viton™ (FKM)	P=Peek™	OR=Viton™ O-ring Flange Seal
	6=3/8”						CS=ASTM A108 CS*	T=Teflon™ (PTFE)	Z=Tefzel™ **	
EXAMPLE: P6M5SFLFLSSVD = 3/8” Orifice, Flange Inlet, Flange Outlet, 316SS Body, Viton™ packing, Delrin™ Seats, Needle Tip Stem										
P	**6**	**M5S**		**FL**		**FL**	**SS**	**V**	**D**	

*For code applications, A108 CS is unacceptable, A105 CS must be selected for CS valves.
**For block bonnet only.
Note: **Standard Bolting Options**, **CS** - carbon steel, Gr.8, zinc plated bolts; **SS** - stainless steel, 18.8 (304SS) bolts.

BOLT OPTIONS

			BOLT MATERIAL DESIGNATION		
Application	**Description**	**Length**	**CS**	**304 SS**	**316 SS**
DP Transmitter	Bi-planar Design: Rosemount™ 1151, Honeywell™ 900 etc.	1”	Blank: Standard for CS Manifolds	Blank: Standard for SS Manifolds	-S6
	Coplanar Design: Rosemount™ 3051, 3095, 2024 with coplanar flange.	2 1/4”	-225CS	-225S4	-225S6
Flow Computer	ABB Total Flow, Thermo Fisher™ (with Honeywell™ Transducer Module), Barton Scanner, Bristol Teleflow & TeleTrans	1”	Blank: Standard for CS Manifolds	Blank: Standard for SS Manifolds	-S6
	Fisher™, Flow Automation™ (with Rosemount™ transducer module), Daniel, Dynamic Fluid	2 1/4”	-225CS	-225S4	-225S6
DP Transmitter with DP to GP Adapter	DP Bi-planar design used in combination with DP to GP Adapter (DPG6S)	2”	-200CS	-200S4	-200S6
	DP Coplanar design used in combination with DP to GP Adapter (DPG6S)	3 1/4”	-325CS	325S4	-325S6

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