PHOENIX™ PRECISION Ltd.

P3M5H™ 5-VALVE GAS STYLE MANIFOLD

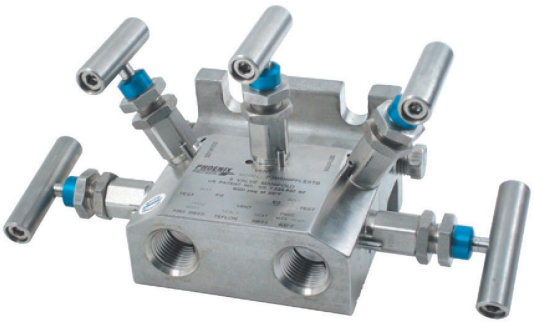
5-VALVE MANIFOLD - GAS STYLE

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

3/16” Bore 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 a 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. All Phoenix valves are manufactured and designed in accordance with MSS-SP105.

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
8 RMS stem finish	Extended packing life
True globe pattern valve	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.

Solutions for Oil & Gas and Petrochemical Processing

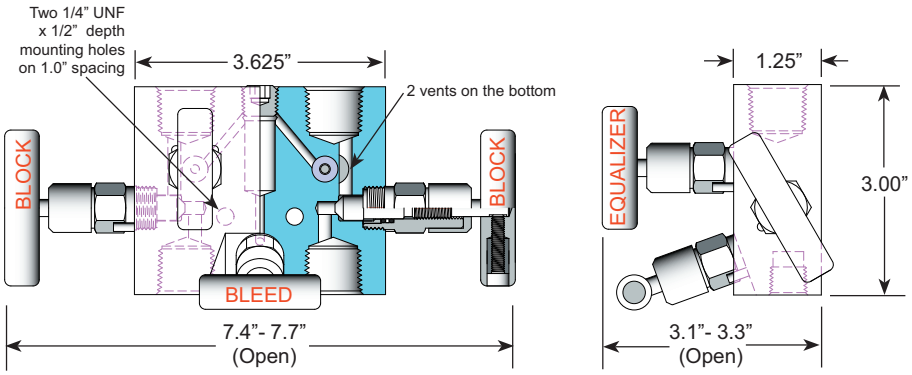
www.phoenixprecisionvalves.com

ISO 9001:2008 Certified System

PHOENIX PRECISION Ltd.™

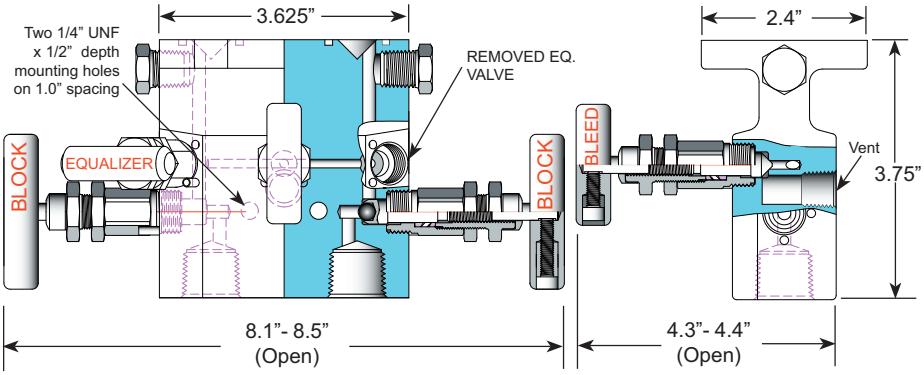
P3M5H™ 5-Valve Gas Style Manifold
Technical Specifications

Pipe x Pipe Configuration



Specifications:
Type: **P3M5H** 5-Valve Manifold, Globe Pattern
Rating: Up to 6000 psi @ 100ºF
(41370 kPa @ 38°C)
Stem: Needle tip or Ball tip
Packing: Viton™ O-ring, Teflon™ or Grafoil™
Seat: Integral
Handle: Removable
Bore Size: 3/16" (Primary), 1/8" (EQ., Bleed)
Inlet Connections: FNPT
Outlet Connections: 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.

Pipe x Flange Configuration



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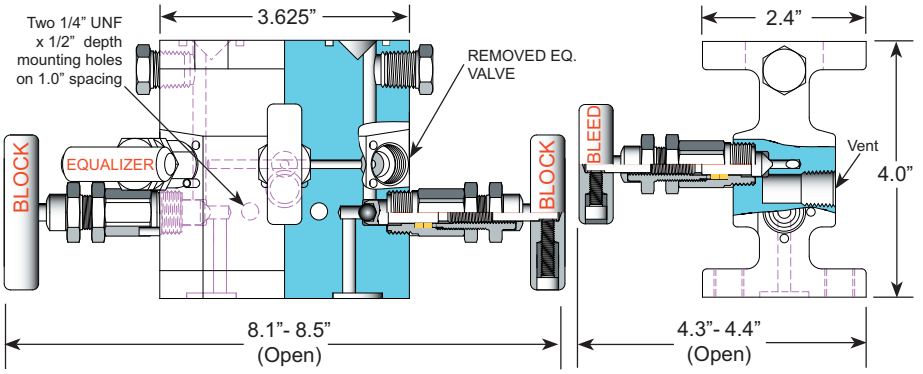
Packing: Viton™ O-ring, Teflon™ or Grafoil™
Seat: Integral
Handle: Removable
Bore Size: 3/16" (Primary), 1/8" (EQ., Bleed)
Inlet Connections: FNPT
Outlet Connections: Flange
Bonnet Lock: Pin or Plate
Body Stock: 3.625" x 3.750" x 2.4" x 1.5"
Weight: 5.8 - 6.1 lbs
Special Service: O_2 or CL cleaning available*
*Other specifications or services may be available.

Flange x Flange Configuration



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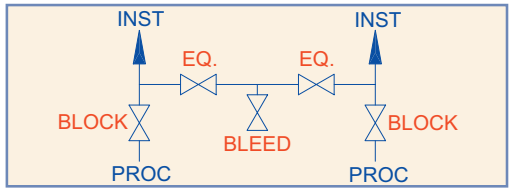
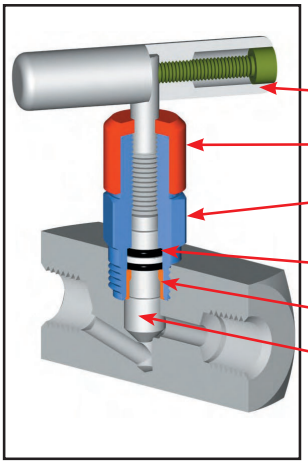
Packing: Viton™ O-ring, Teflon™ or Grafoil™
Seat: Integral
Handle: Removable
Bore Size: 3/16" (Primary), 1/8" (EQ., Bleed)
Inlet Connections: Flange
Outlet Connections: Flange
Bonnet Lock: Pin or Plate
Body Stock: 3.625" x 4.0" x 2.4" x 1.5"
Weight: 6.7 - 7.0 lbs
Special Service: O_2 or CL cleaning available*
*Other specifications or services may be available.



P3M5H™ 5-Valve Gas Style Manifold
Bonnet, Stem and Seat Characteristics

O-Ring Bonnet Assembly

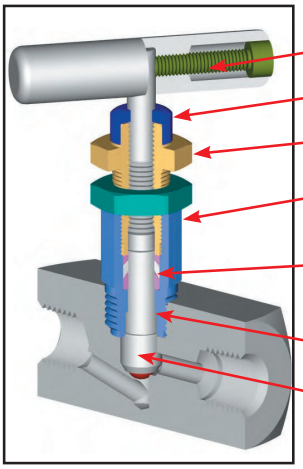
Standard Materials					
Valve	Body	Bonnet	Stem	Ball	Packing
CS	ASTM A108CS	ASTM A108CS	ASTM A582 303SS	SEE OPTION CODES ON PAGE 4	Dual Viton™ O-ring with Teflon™ backup ring
SC	ASTM A105CS	ASTM A182 316SS	ASTM A182 316SS		
316SS	ASTM A182 316SS	ASTM A182 316SS	ASTM A182 316SS		

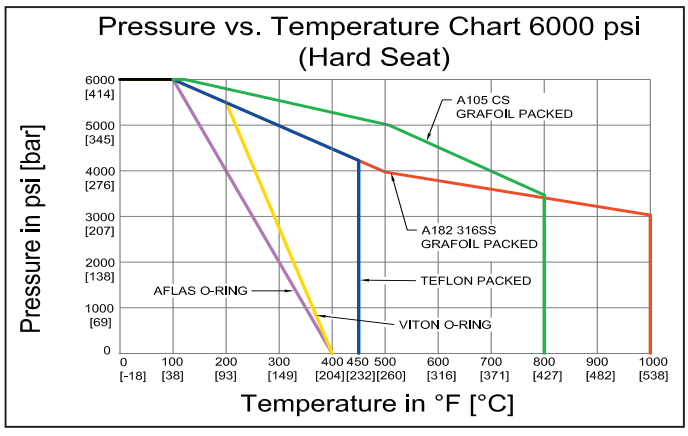


Teflon™ or Grafoil™ Bonnet Assembly

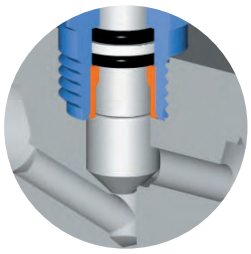
Standard Materials					
Valve	Body	Bonnet	Stem	Ball	Packing
CS	ASTM A108CS	ASTM A108CS	ASTM A582 303SS	SEE OPTION CODES ON PAGE 4	Teflon™ and Grafoil™
SC	ASTM A105CS	ASTM A182 316SS	ASTM A182 316SS		
316SS	ASTM A182 316SS	ASTM A182 316SS	ASTM A182 316SS		

NOTE: Optional low torque Grafoil™ available (G4 Packing Code)

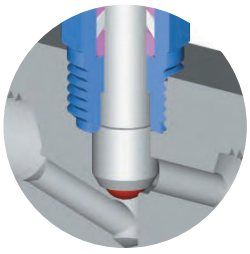




Stem and Seat Configurations



Needle Tip
(Standard)



Ball Tip
(Optional)

Note: Body material specifications based on ASME B16.34 - 2009. 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.

P3M5H™ 5-Valve Gas Style Manifold
Model Numbering System

Phoenix	Orifice Size	Type	Inlet Size	Inlet Type	Outlet Size	Outlet Type	Material	Packing	Seat	Stem Tip
P	3=3/16"	M5H	8=1/2"	F=FNPT	8=1/2"	F=FNPT	SS=ASTM A182 316/316L	A=Aflas™	Integral (leave blank)	Needle Tip Standard (leave blank)
				FL=Flange		FL=Flange	SC=ASTM A105 CS*	V=Viton™ (FKM)		B=316SS Ball Tip
				FT=Female Tube Fitting		FT=Female Tube Fitting	CS=ASTM A108 CS*	T=Teflon™ (PTFE)		BC=Ceramic Ball Tip
							C5=ASTM A350 LF2	G=Grafoil™		BM=Monel™ Ball Tip
							N4=Monel™ 400	G4=Low Torque Grafoil™		
							N6=Inconel™ 625			
							N8=Inconel™ 825			
							N2=Hastelloy™ C276			
EXAMPLE: P3M5H8FFLSSTB = 3/16" Orifice, 5-Valve Manifold, 1/2" FNPT Inlet, Flange Outlet, 316 SS Body, Teflon™ Packing, Integral Seat, Ball Tip Stem										
P	**3**	**M5H**	**8**	**F**		**FL**	**SS**	**T**		**B**

*For code applications, A105 CS must be selected for CS valves. Code grade bolts must be specified for code applications.
Note: **Standard Bolting Options**, **CS** - carbon steel, Gr.8, zinc plated bolts; **SS** - stainless steel, 18.8 (304SS) bolts.

Option Codes	Description
LB	Bonnet Lock
CC	Chlorine Clean
OC	Oxygen Clean
TG	SS Tag
SGI	Sour Gas ISO NACE Latest Rev.
N4	Monel™ 400 Stem
N5	Monel™ 500 Stem
N6	Inconel™625 Stem
N8	Inconel™825 Stem
N2	Hastelloy™ C276 Stem
H(V)MB	Horizontal (Vertical) Mounting Bracket
H(V)MBS	SS Horizontal (Vertical) Mounting Bracket
S6	316 SS Bolts
225CS	2.25" CS Bolts
225S4	2.25" 304 SS Bolts
225S6	2.25" 316 SS Bolts
TB	1/4" FNPT Test Ports Bottom
PB	1/4" FNPT Purge Ports Bottom
B7	AISI 4140/4142 QT
B8C1	Class 1, 304SS, ST
B8MC1	Class 1, 316SS, ST
B8C2	Class 2, 304SS, ST, SH
B8MC2	Class 2, 316SS, ST, SH

Use with Confidence, 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

Code Bolting Information

1. B7, B8C1, B8MC1, B8C2, B8MC2 are code grades to ASTM A193;
2. To specify code grade bolting, example: 225B7, indicates 2.25" bolt length; B7 grade, alloy steel, AISI 4140/4142
3. **QT**-Quenched & Tempered; **ST**-Carbide Solution Treated; **SH**-Strain Hardened

Seal and Seat Material 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)
G	Grafoil™ (SS Body) (CS Body)	 -70°F (-56°C) -70°F (-56°C)	 1000°F (537°C) 800°F (427°C)

Note: Grafoil™ is suitable for services in excess of 1000°F in a non-oxidizing environment.

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