

Instrument Manifold Valves

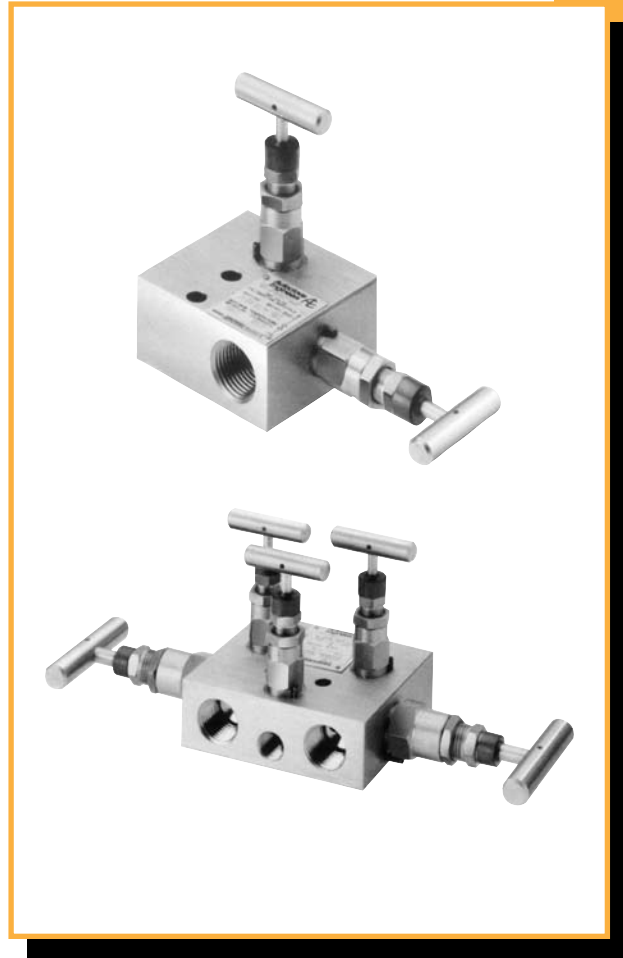
Series 5000

Accurate flow measurement is of primary importance in achieving an efficient process system. Autoclave Engineers offers a complete line of needle, gauge and instrument manifold valves designed to provide accurate, safe and dependable flow measurement. Manufactured for Autoclave Engineers, the design of these valves reflects extensive engineering and manufacturing experience, resulting in attainment of the highest standards for valve quality and reliability.

AE Series 5000 needle, gauge and instrument manifold valves have been engineered to provide versatility in meeting specific process requirements. Several standard bonnet assemblies offer different stem, seal and material selections. Bonnets are installed in hard seat, soft seat and roddable valve models of varied body designs to accommodate the process control, flow measurement and mounting requirements of specific applications. Most valves are rated for pressure service to 6,000 psi (414 bar) with certain models rated to 10,000 psi (690 bar).

Features:

- One piece bar stock construction with full material traceability.
- Back seating of stems in a fully open position prevents stem backout.
- Permanent locking of valve bonnet prevents accidental removal while operating valve.
- Stem seal isolates the lubricated stem threads from the process.
- Stainless steel models of needle, gauge and instrument manifold valves, equipped with needle stems, meet NACE MR-01-75.
- Optional high temperature packing for compatibility to 1000°F (538°C) on certain models.
- All valves are designed in accordance with ASME/ANSI B16.34-1988 and ASME Section VIII, Div. 1.



Instrument Manifold Valves - Series 5000

**Autoclave
Engineers** 

Fluid Components
Division of Snap-tite, Inc.

www.autoclave.com

Instrument Manifold Valves - General Information

Needle Valves - Gauge Valve - Instrument Manifold Valves - Customer Support

Needle Valves

Autoclave needle valves are engineered to provide a reliable method for isolating instrumentation from the process and for throttling or shut-off requirements. AE Series 5000 Valves are bubble tight in both the seated and back seated positions. Both hard and soft seated models are available. These needle valves will accept a variety of pipe sizes from 1/4" to 1" and are rated for either 6,000 psi (414 bar) or 10,000 psi (690 bar).

Gauge Valves

Gauge valves are primarily used to isolate the process from instrumentation such as gauges or transducers. These valves are typically used in conjunction with block and bleed valves. AE Series 5000 gauge valves are available with an extended length between the inlet and the bonnet centerline to ensure the valve extends far enough from the process connection to clear the pipeline insulation or to distance a socket weld end from the bonnet. Autoclave gauge valves accept a variety of bonnet styles, threaded pipe sizes and socket welds and are rated for service to 6,000 psi (414 bar).

Instrument Manifold Valves

Autoclave instrument manifold valves provide a safe, economical and convenient method of isolating, blocking, bleeding and calibrating instruments, meters and pressure transmitters. These valves are available in numerous body, bonnet and seal configurations with FNPT, tube fittings and/or instrument flange connections.

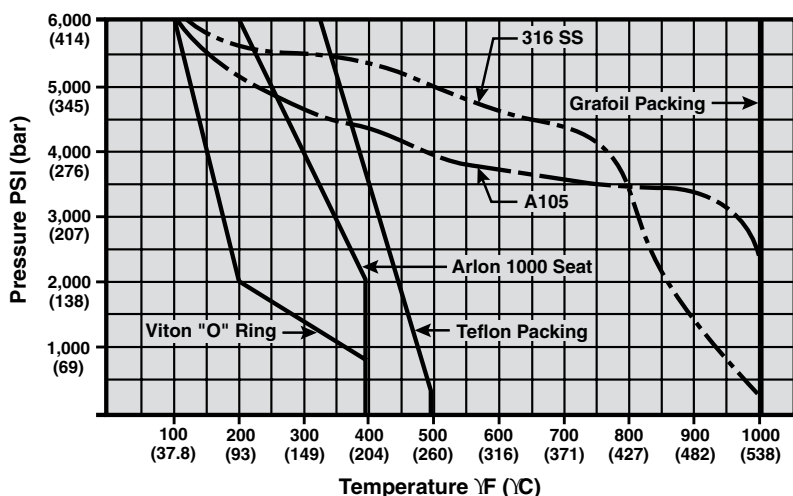
AE Series 5000 instrument manifold valves operate to pressures of 6,000 psi (414 bar) and offer excellent flexibility with different body patterns and hard seat models utilizing either a vee, ball or non-rotating stem. Valve models include 2, 3 and 5 bonnet remote line mounting; 2, 3 and 5 bonnet direct mounting single flange; and 2 and 3 bonnet direct mounting, dual flange. Vee, ball and non-rotating tips are available in hard seat models; soft seats use only vee tip stems.

Customer Support

Autoclave Engineers is prepared to assist you in every phase of the design/application cycle. Our technical sales specialists will work with your design team to ensure the correct valve configuration is selected, and/or to custom engineer a special valve for your individual requirements. Our worldwide sales and service organization is available to conduct any on-site review/analysis of your application requirements or to provide timely installation and repair services. Whatever your need, Autoclave's engineering experience and customer oriented focus will help you find a solution.

Pressure vs. Temperature

Ratings for body, seat and packing materials



Note: Soft seats are bubble-tight at pressure vs. temperature ratings shown above.
Metal seat meets ANSI B16.104 Class V.

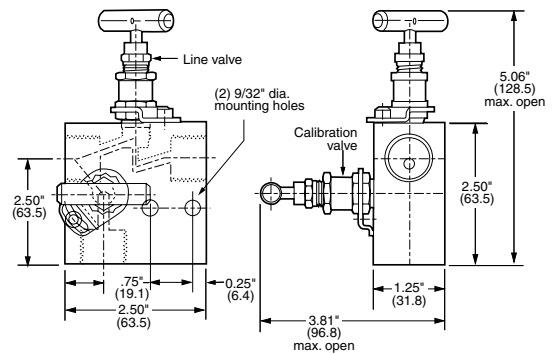
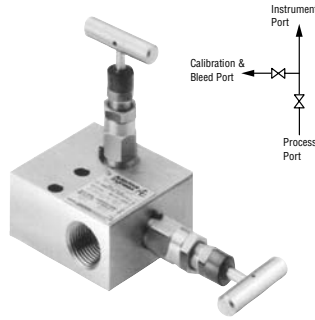
Instrument Manifold Valves - **Manifold Valves**

Two Valve Calibration Manifold - Model 6M2R

Model 6M2R two valve calibration manifold provides an economical and convenient method of blocking, bleeding and calibrating pressure transmitters. This valve may be mounted rigidly to a mounting bracket, providing a safe isolation valve, while reducing the number of fittings and space required for installation.

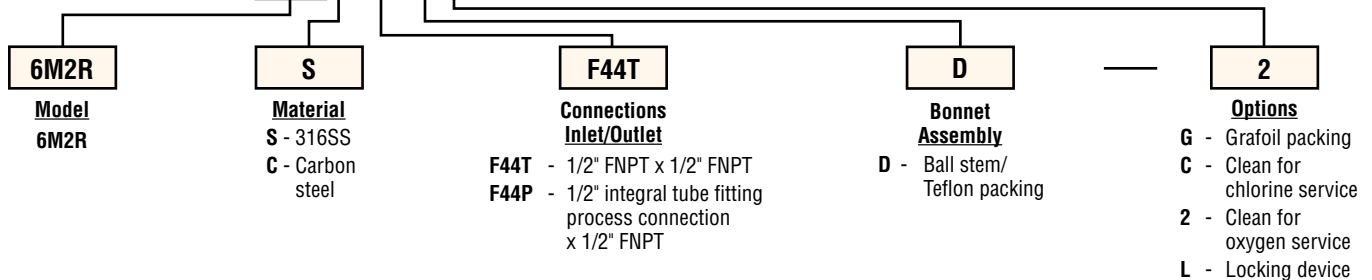
Features

- Pressures to 6,000 psi (414 bar)
- Available with needle or self aligning ball stem
- 3/16" bore



Ordering Procedure

Typical ordering number: **6M2RSF44TD-2**

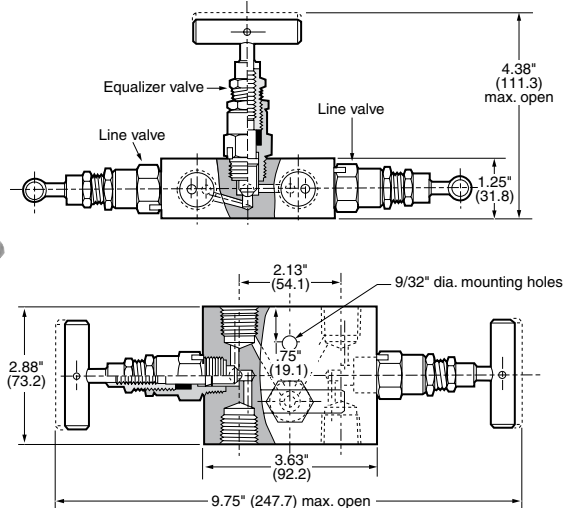
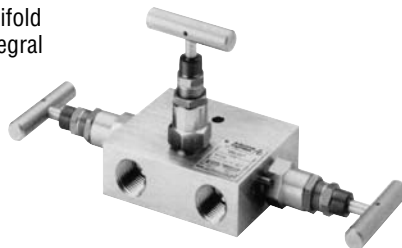


Three Valve Manifold - Model 6M3R

Model 6M3R three valve manifold features over-sized Type "C" bonnets to provide maximum durability. Two block valves and one equalizing valve are designed in a single body, making the manifold ideal for on-line instrument calibration. Integral valve construction eliminates the use of numerous valves, nipples and fittings.

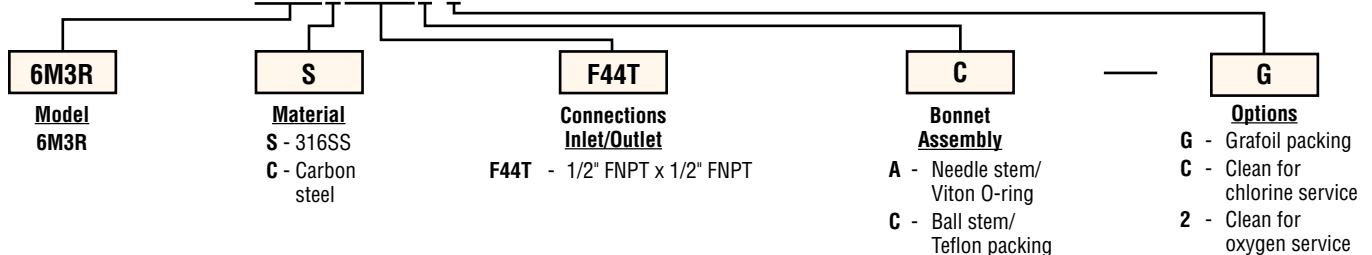
Features

- Pressures to 6,000 psi (414 bar)
- Large 3/16" diameter equalizing ports for viscous fluid service applications
- 3/16" bore



Ordering Procedure

Typical ordering number: **6M3RSF44TC-G**



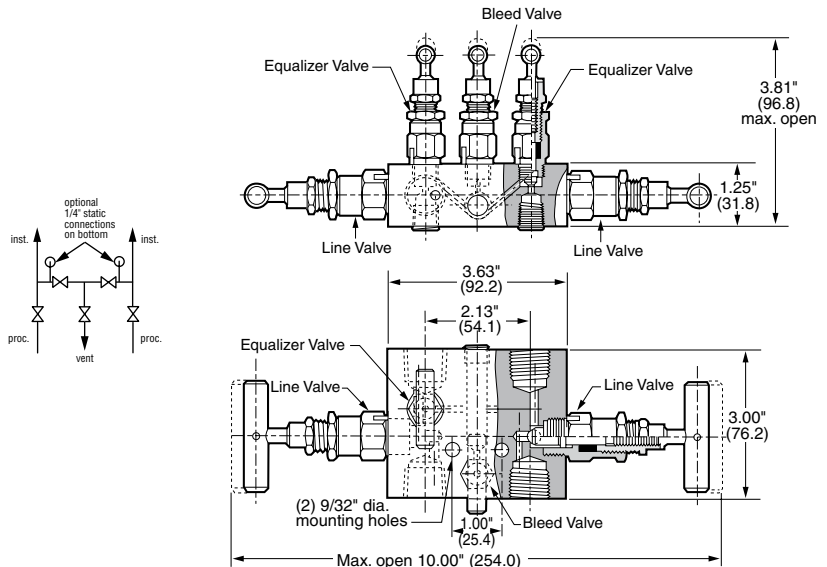
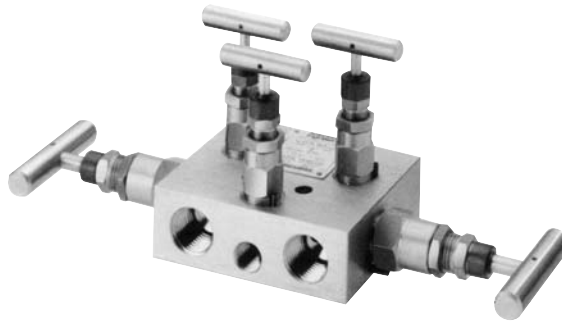
Instrument Manifold Valves - Manifold Valves

Five Valve Metering Manifold - 6M5R

Model 6M5R five valve metering manifold consists of two shut off valves, two equalizing valves and a single vent valve. This single unit takes the place of the conventional piped up 5-valve manifold generally found on field meters or gas service differential transmitters.

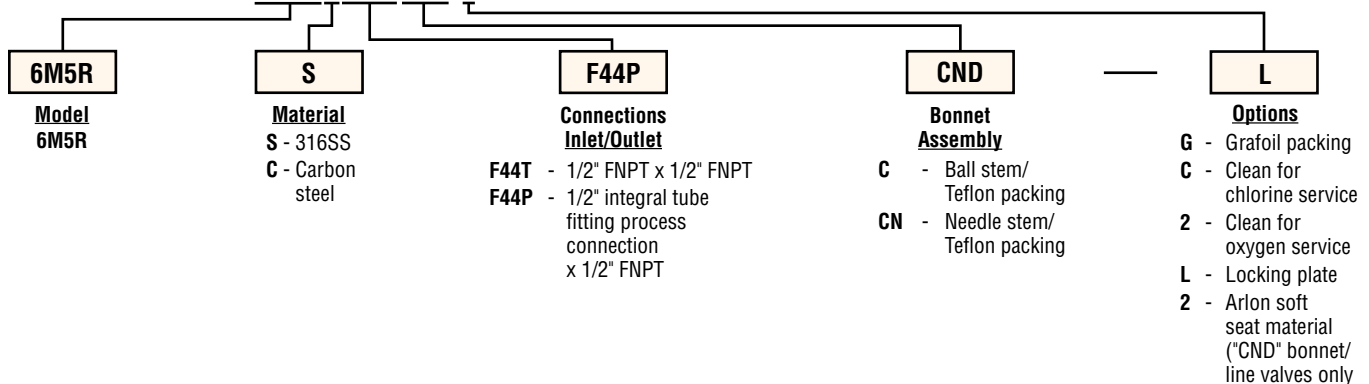
Features

- Pressures to 6,000 psi (414 bar)
- Replaceable soft seats of Arlon with rodding out capability on block valves with C & D bonnets
- Arlon soft seat inserts available for equalizers and bleed valve with CN bonnets
- 3/16" bore



Ordering Procedure

Typical ordering number: **6M5RSF44PCND-L**



Instrument Manifold Valves - Manifold Valves

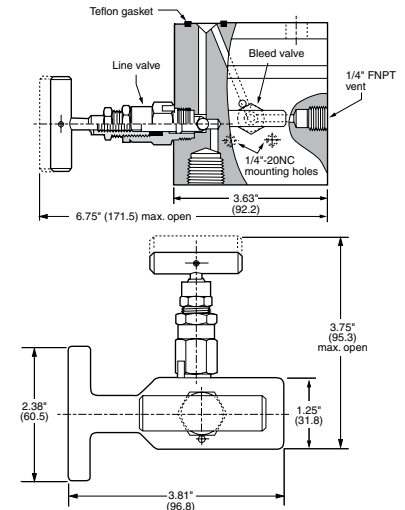
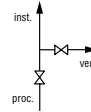
Two Valve Manifold Single Flanged - Model 6M2D

Model 6M2D two valve, single-flanged manifold is designed for direct mounting to static pressure instruments where calibration capability is required. Rugged one piece construction is ideal for applications where remote mounting from the process is desired without compromising instrument stability.

This calibration manifold features compact design and secure installation by eliminating unnecessary piping, valves and fittings. A rigid mounting kit is provided for convenient pipe stand unit assembly.

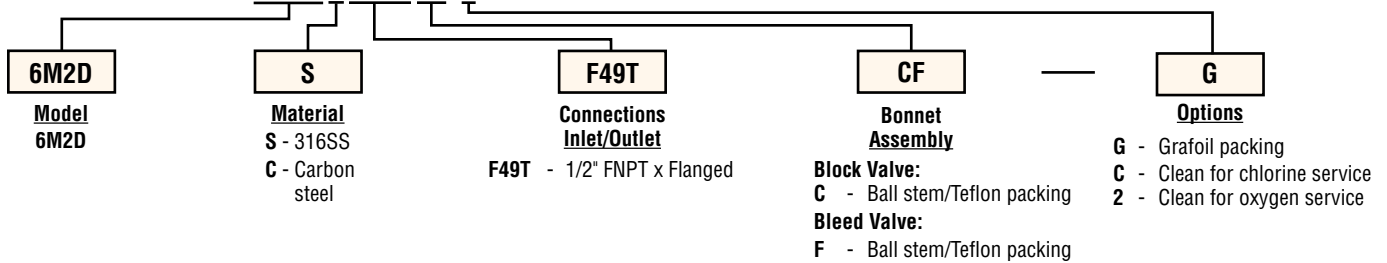
Features

- Pressures to 6,000 psi (414 bar)
- Type "C" & "F" valve bonnets feature self centering ball stem, providing positive shut-off capability
- 3/6" bore



Ordering Procedure

Typical ordering number: **6M2DSF49TCF-G**

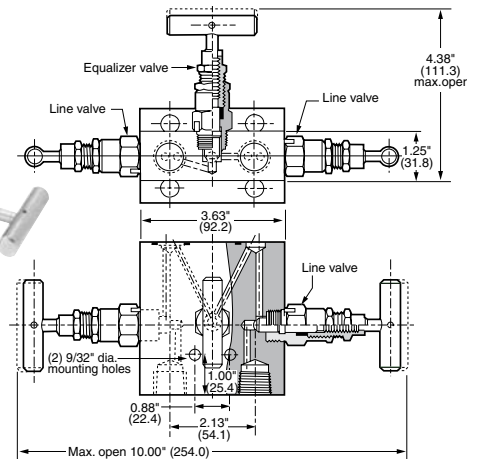
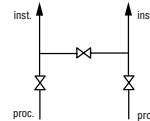
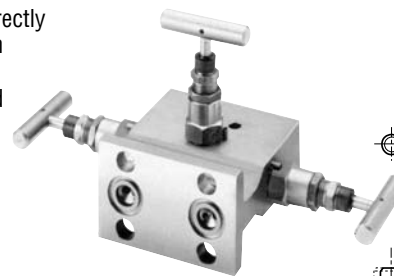


Three Valve Manifold Single Flanged - Model 6M3D

Model 6M3D three valve, single flanged manifold bolts directly to the pressure differential transmitter. This unit is used in applications where close coupling to orifice flanges is not desired. These manifold valves provide safe operation and eliminate the need for unnecessary piping, valves and fittings. The manifold comes complete with mounting kit for quick and easy installation.

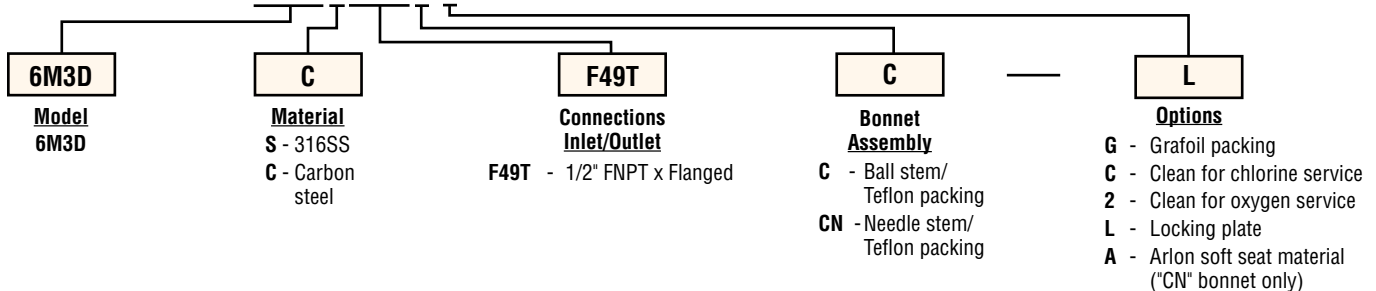
Features

- Pressures to 6,000 psi (414 bar)
- Standard 2.13" (54.1mm) center-to-center inlets and outlets
- Special 2.19" (55.6mm) center-to-center instrument flange outlets available
- 3/16" bore



Ordering Procedure

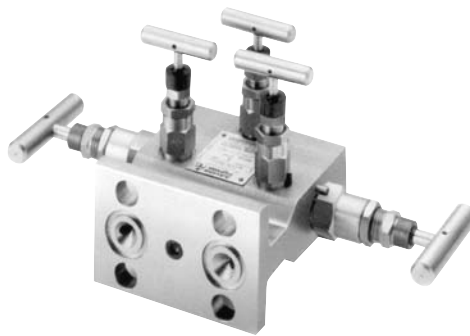
Typical ordering number: **6M3DCF49TC-L**



Instrument Manifold Valves - Manifold Valves

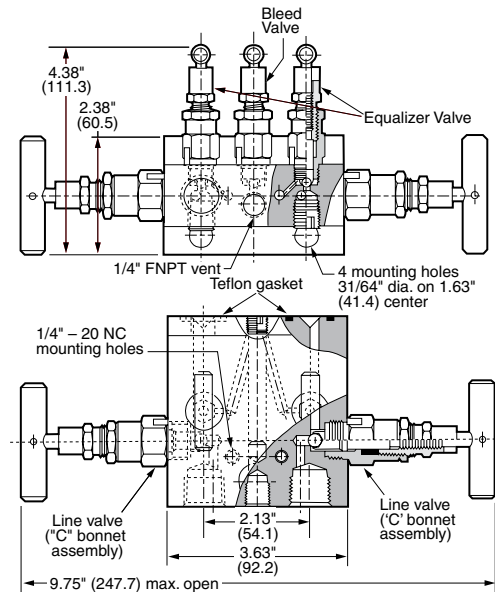
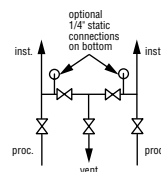
Five Valve Manifold Single Flanged - Model 6M5D

Model 6M5D five valve manifold mounts directly to the differential pressure transmitter. The two horizontal block valves allow easy removal of the instrument for servicing and the three valves on top of the manifold provide an easy method for accurate field calibration using the manifold vent connection rather than the instrument drain connections. Manifolds are shipped complete with mounting kit for quick and easy installation.



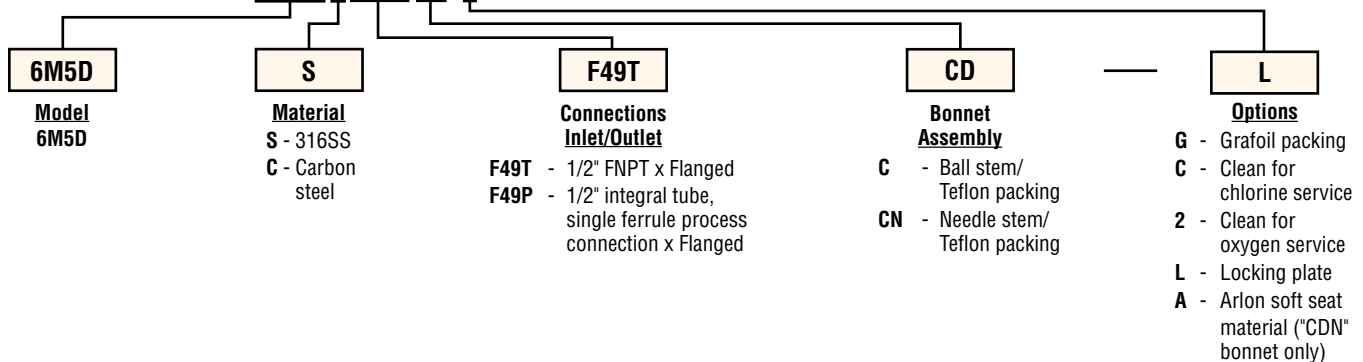
Features

- Pressures to 6,000 psi (414 bar)
- Self-centering ball seats provide positive shut-off
- Standard 2.13" (54.1) center-to-center inlets and outlets
- Special 3.11" (79.0) center-to-center instrument flange outlet available
- 3/16" bore



Ordering Procedure

Typical ordering number: **6M5DSF49TCD-L**



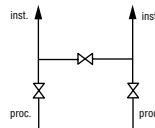
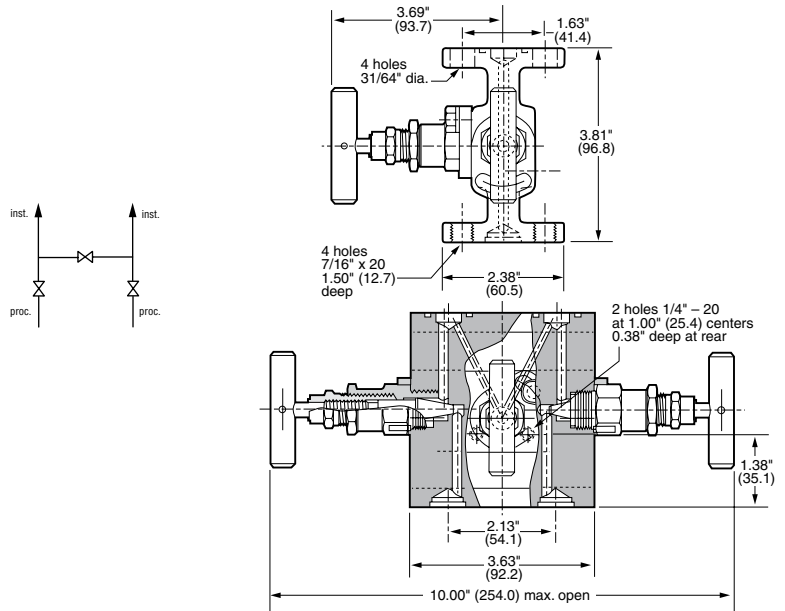
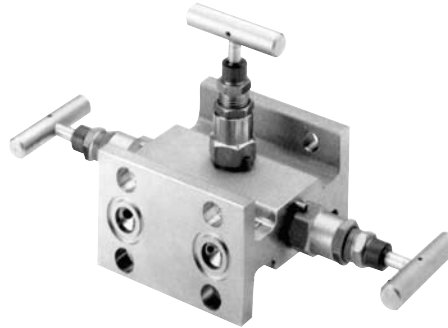
Instrument Manifold Valves - Manifold Valves

Three Valve Manifold Dual Flanged - Model 6M3F

Model 6M3F three valve, dual flanged manifolds is designed for close mounting differential pressure instruments to orifice flanges or orifice changer fittings. The flanged valve outlet is bolted directly to the pressure transmitter body. By bolting standard football flanges to the manifold inlet, the complete assembly can be close coupled to orifice flange taps using eccentric solid bar stock nipples. These manifold valves provide a simple, rugged and dependable installation.

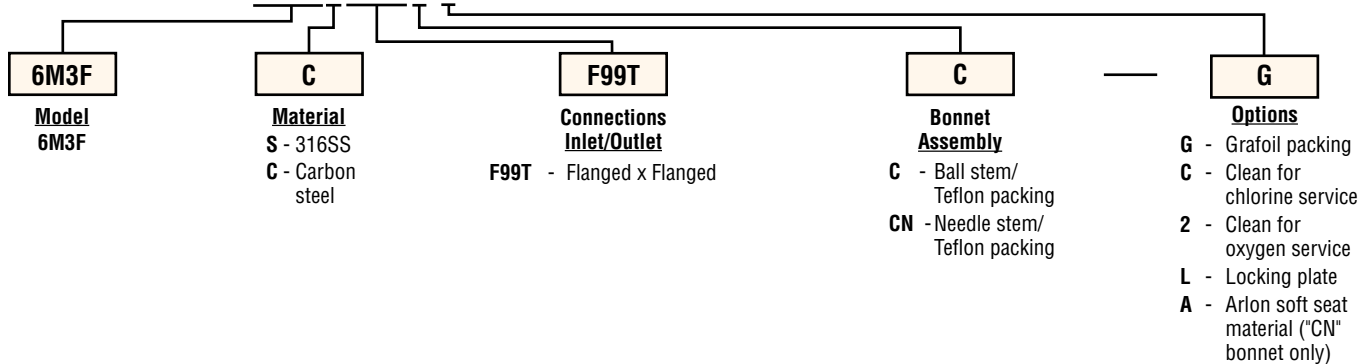
Features

- Pressures to 6,000 psi (414 bar)
- Available with needle or self-aligning ball stems
- Standard 2.13" (54.1) center-to-center inlets and outlets
- 3/16" bore



Ordering Procedure

Typical ordering number: **6M3FSF99TC-G**



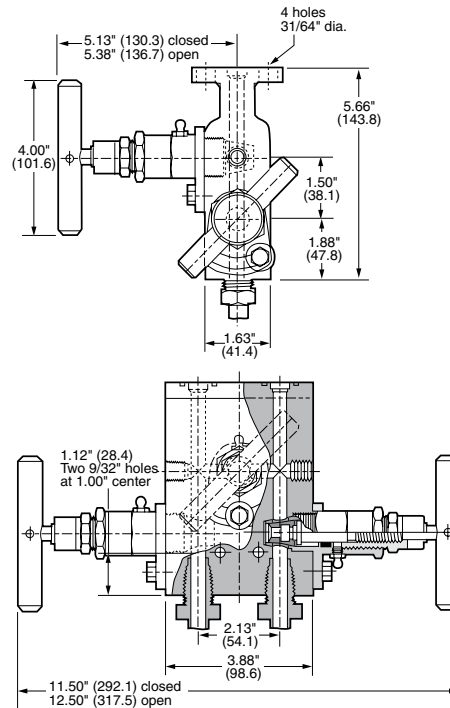
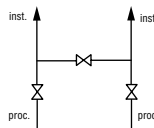
Instrument Manifold Valves - **Manifold Valves**

3/8" Bore Roddable Manifold Valve - Model 6M3S

Model 6M3S three valve single or double flanged manifold bolts directly to the pressure differential transmitter. This unit is used in applications where close coupling to orifice flanges is desired. These manifold valves provide safe operation and eliminate the need for unnecessary piping valves and fittings. The manifold comes complete with mounting kit for quick and easy installation. The bonnet assembly is suitable for severe service applications.

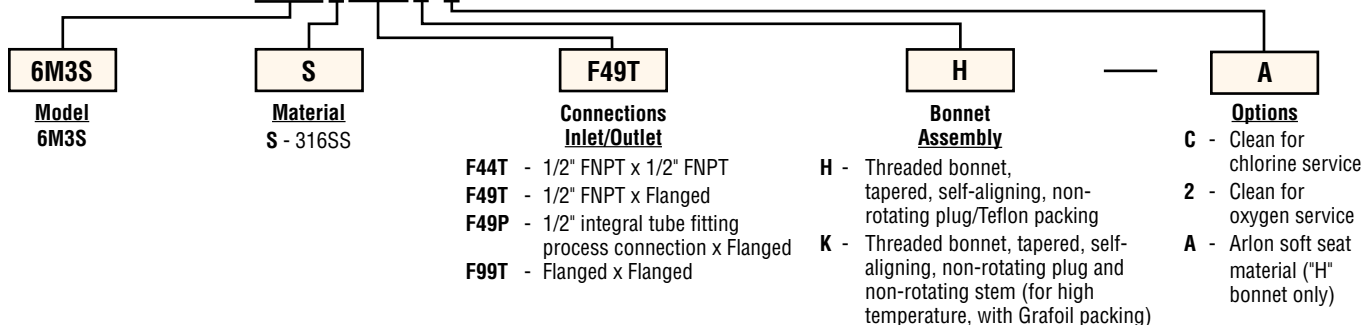
Features

- Pressures to 6,000 psi (414 bar)
- Standard 2.13" (54.1) center-to-center inlets and outlets
- Special 3.11" (79.0) center-to-center instrument flange outlet available



Ordering Procedure

Typical ordering number: **6M3SSF49TH-A**



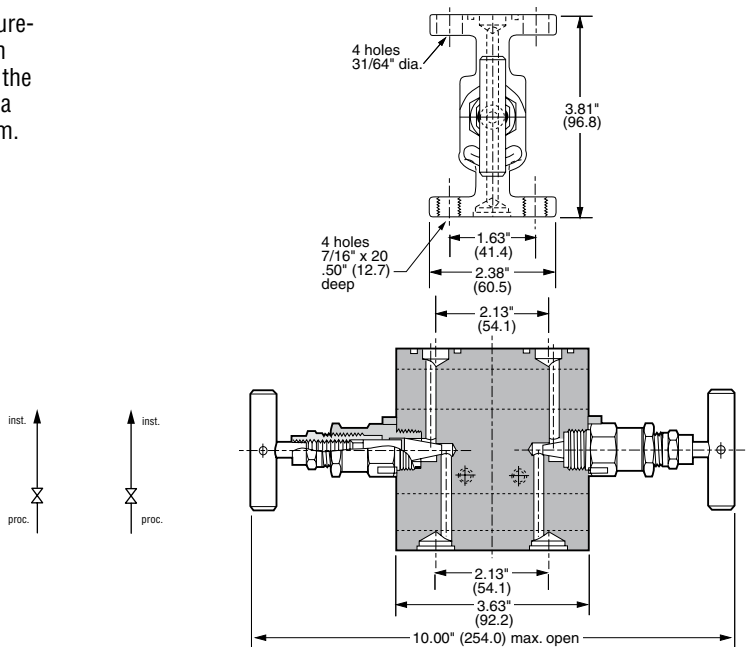
Instrument Manifold Valves - Manifold Valves

3/16" Orifice Liquid Level Manifold - Model 6M2L

Model 6M2L manifold uses the hydrostatic head technique to efficiently utilize a differential pressure transmitter for level measurement. The 6M2L reduces the number of vessel entry points which eliminates the need for instrument piping supports. This reduces the installation cost on pressurized or atmospheric vessels requiring a "wet log" or "diptube" utilizing the 6M2L's unique mounting system.

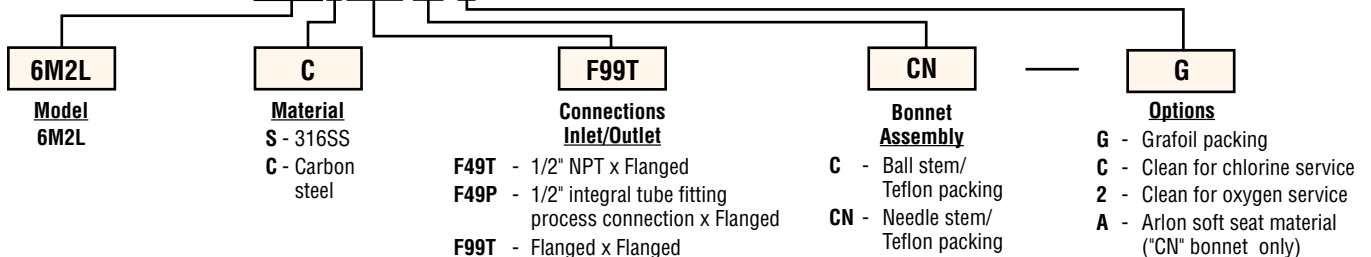
Features

- Pressures to 6,000 psi (414 bar)
- Optional Arlon soft seats
- Available with needle or self-aligning ball stems
- Standard 2.13" (54.1) center-to-center inlets and outlets



Ordering Procedure

Typical ordering number: **6M2LCF99TCN-A**



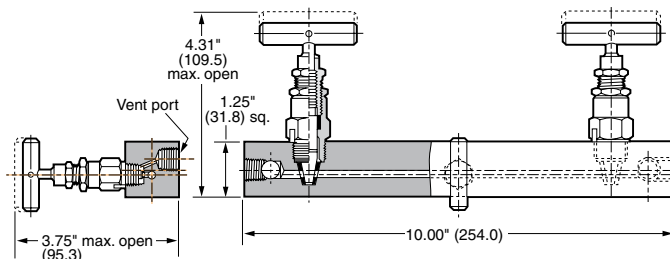
Instrument Manifold Valves - Manifold Valves

Three Valve Meter Manifold - Model 6M3M

Model 6M3M three valve meter manifold is designed for convenient isolation, venting and on-line calibration of local chart recording meters. Durable bar stock body construction with integral equalizing and vent valves is ideally suited for mounting beneath field meter cases.

Features

- Pressures to 6,000 psi (414 bar)
- Replaceable Arlon soft seats are field serviceable and feature positive shut-off capability
- Multi-ported pressure taps allow static pressure measurement to be taken upstream or downstream

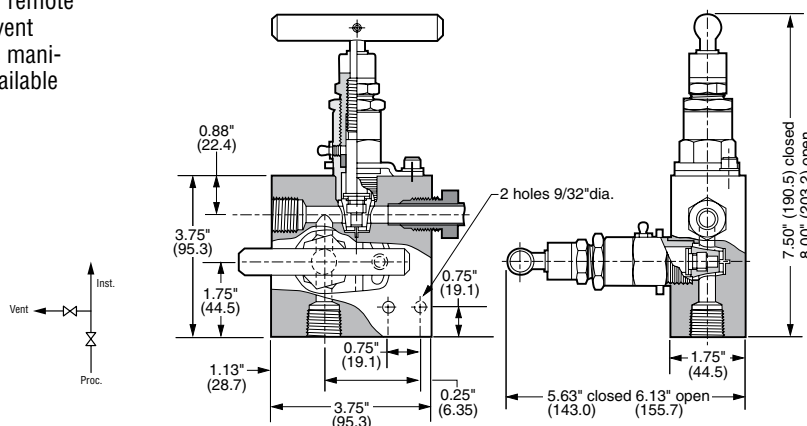


Two Valve Calibration Manifold 3/8" Bore, Roddable - Model 6M2C

Model 6M2C two valve pressure manifold is designed for remote mounting, single-instrument applications. Both line and vent valves are integral with the single piece body making this manifold ideal for on-line calibrations and testing. It is also available with process tube connections.

Features

- Pressures to 6,000 psi (414 bar)
- One-piece solid barstock construction
- High temperature model available
- Optional, replaceable, roddable Arlon soft seats



Ordering Procedure

Typical ordering number: **6M3MSF22TCN-2**

6M3M	S	F22T	CN	Options
Model 6M3M	Material S - 316SS C - Carbon steel	Connections Inlet/Outlet F22T - 1/4" FNPT x 1/4" FNPT	Bonnet Assembly Equalizing valves: CN - Needle stem/ Teflon packing Vent Valves D - Ball stem/ Teflon packing	(For both 6M3M and 6M2C) G - Grafoil packing (except "H" bonnet) C - Clean for chlorine service 2 - Clean for oxygen service A - Arlon soft seat material ("H" bonnet only)
6M2C	S - 316SS	F44T - 1/2" FNPT x 1/2" FNPT F44P - 1/2" integral tube fitting process connecton x 1/2" FNPT	H - Threaded bonnet, tapered, self-aligning non-rotating plug/ Teflon packing K - Threaded bonnet, tapered, self-aligning, non-rotating plug and non-rotating stem (with Grafoil packing)	

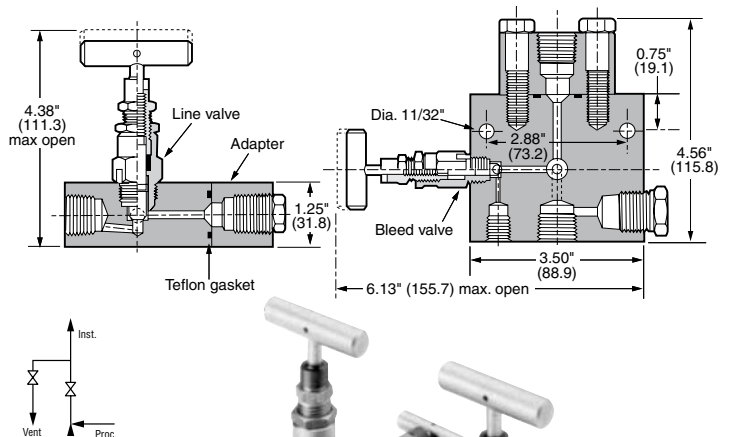
Instrument Manifold Valves - Manifold Valves

Two Valve Single Mount Calibration Manifold - Model 6M2M

Model 6M2M two valve pressure manifold is designed for direct mounting, single instrument applications. Secure installation is ensured by a rigid mounting block manifold. Both line and vent valves are integral with the single piece body making this manifold ideal for on-line calibration and testing.

Features

- Pressures to 6,000 psi (414 bar)
- Type "C" and "F" bonnets feature self centering ball stem, providing positive shut-off capability
- 3/16" bore

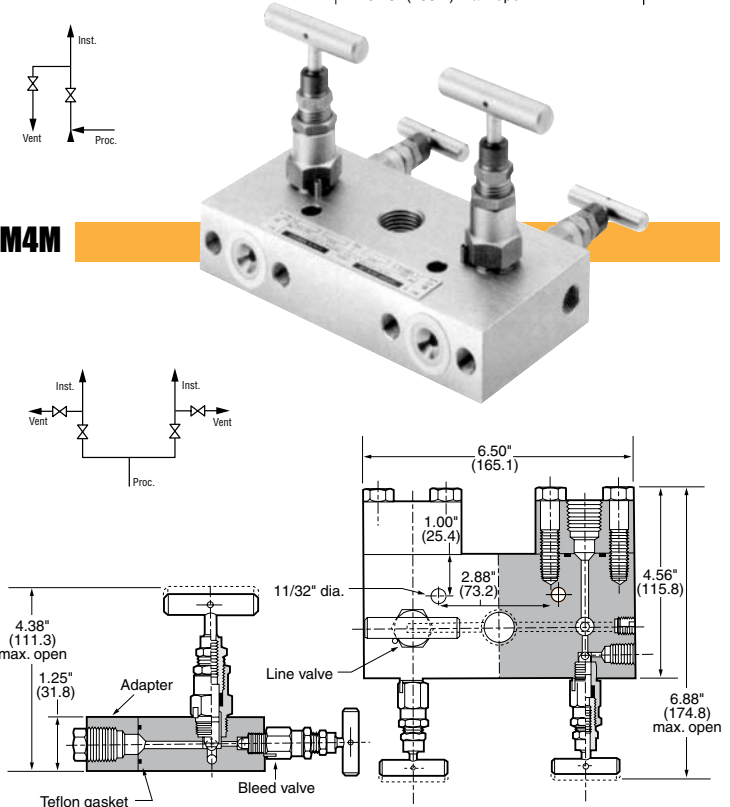


Two Valve Dual Mount Manifold - Model 6M4M

Model 6M4M two valve dual mount manifold connects two separate pressure instruments to a single process connection and assures secure installation. Twin sets of integral block and bleed valves are provided in a single piece body allowing independent instrument operation and servicing.

Features

- Pressures to 6,000 psi (414 bar)
- Separate integral bleed valves with 1/4" lower side vent connections
- Type "C" and "F" valve bonnets feature self-centering ball stem, providing positive shut-off capability



Ordering Procedure

Typical ordering number: **6M4MSF44TCN-2**

6M4M	S	F44T	CN	G
Model 6M2M	Material S - 316SS C - Carbon steel	Connections Inlet/Outlet F44T - 1/2" FNPT x 1/2" FNPT	Bonnet Assembly C - Ball stem/ Teflon packing CN - Needle stem/ Teflon packing	Options (For both 6M2M and 6M4M) G - Grafoil packing C - Clean for chlorine service 2 - Clean for oxygen service
6M4M	S - 316SS C - Carbon steel	F44T - 1/2" FNPT x 1/2" FNPT	Block valves: C - Ball stem/ packing Bleed valves: CN - Needle stem/ packing	

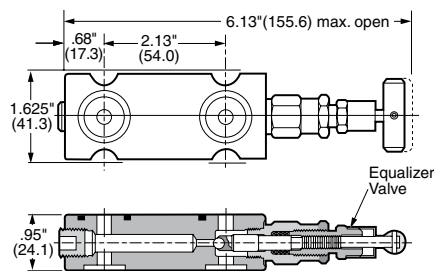
Instrument Manifold Valves - Manifold Valves

Equalizing Valve - Model 6M1D

The 6M1D equalizing valve is an economical valve with compact body, designed to mount between the differential pressure transmitter and the flanges which are generally supplied with the transmitter. A mounting kit is provided for quick and easy installation.

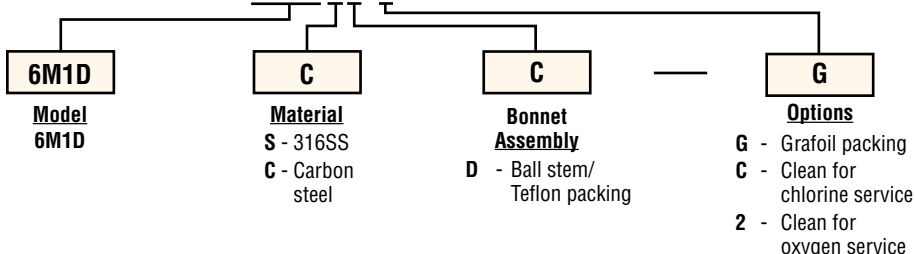
Features

- Pressures to 6,000 psi (414 bar)
- Replaceable Arlon soft seats are field serviceable and feature positive shut-off capability
- Multi-ported pressure taps allow static pressure measurement to be taken upstream or downstream



Ordering Procedure

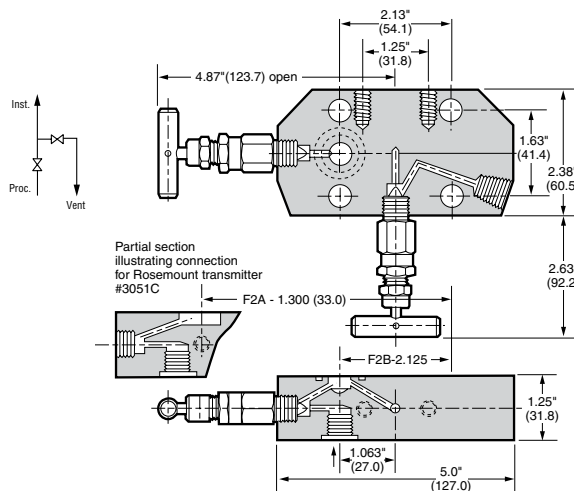
Typical ordering number: **6M1DSD-**



Two Valve Direct Mounting Miniature Manifold - *6,000 psig (414 bar) - Model 6M2P

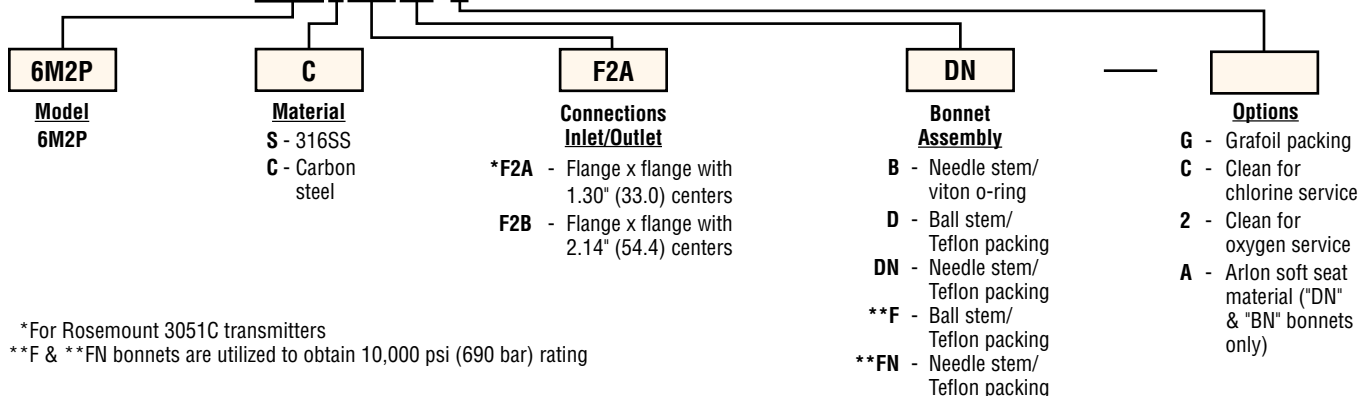
Features

- Rated to 10,000 psi (690 bar)
- Direct mounting to miniature transmitters without utilizing mating flange
- Integral vent for process isolation & removal



Ordering Procedure

Typical ordering number: **6M2PSF2ADN-**



*For Rosemount 3051C transmitters

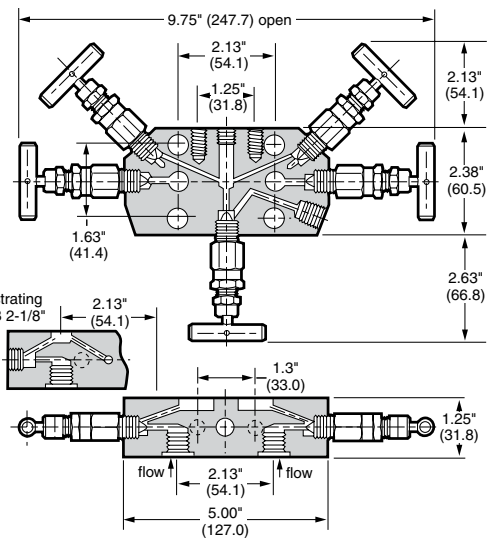
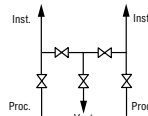
**F & **FN bonnets are utilized to obtain 10,000 psi (690 bar) rating

Instrument Manifold Valves - **Manifold Valves**

Five Valve Direct Mounting Miniature Manifold - 6,000 psig (414 bar) - Model 6M5P

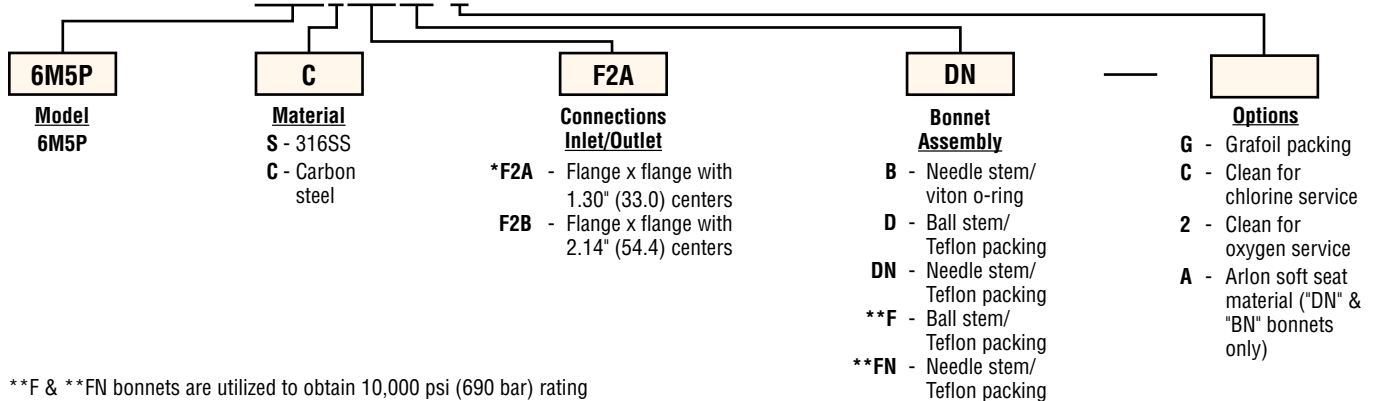
Features

- Direct mounting to miniature transmitters without utilizing mating flange
- Integral vent for process isolation & removal



Ordering Procedure

Typical ordering number: **6M5PSF2ADN-**



**F & **FN bonnets are utilized to obtain 10,000 psi (690 bar) rating

Instrument Manifold Valves - Bonnets

Bonnet Assemblies

Autoclave Engineers needle, gauge and instrument manifold valves utilize several different bonnet styles to increase operational flexibility and process compatibility. These bonnets offer both adjustable and non-adjustable packing as well as designs incorporating ball or needle stems, non-rotating stems and a non-rotating plug. Standard materials for bonnet, stem and handle construction are offered in either carbon steel or stainless steel with monel available as an option. Handles are pinned to the stem and are designed to shear the pin to prevent over torquing. Standard seal materials are Viton O-rings or Teflon packing with Grafoil packing available as an option.

Features

- Stem back seat the bonnet for a metal-to-metal seal isolating the packing from the process.
- All stem packing is located below the stem threads thereby isolating stem threads from process fluids.
- All bonnets include color-coded dust covers to prevent abrasive materials from entering the stem threads. The color coding identifies the packing materials.
- All threaded bonnets include a lock pin to prevent accidental removal of the bonnet.
- Lockplates also available as an option and are standard on the "H" and "K" bonnets.



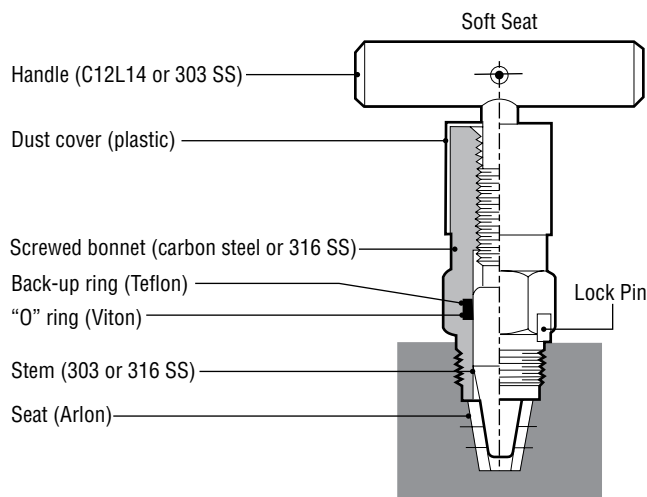
Seal Temperature Limits

Material	Type	Minimum Temperature	Maximum Temperature	Cover Color
Viton	O-ring	-20°F (-29°C)	400°F (204°C)	orange
Teflon	Packing	-100°F (-73°C)	500°F (260°C)	red
Grafoil	Packing	-40°F (-40°C)	1000°F (538°C)	silver

For NACE requirements-needle stem required

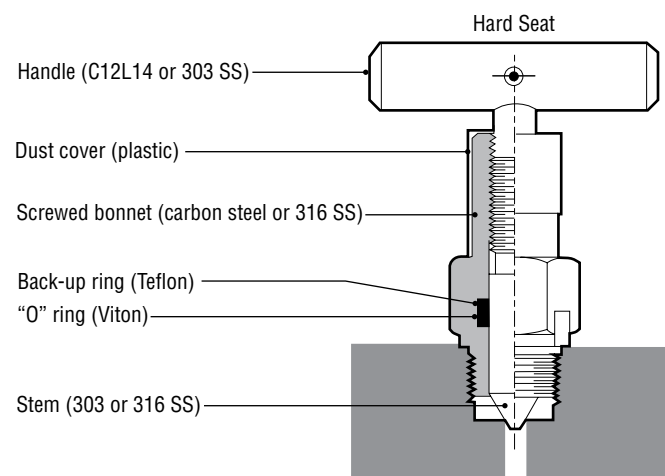
Type "A" Bonnet Assembly

(Interchangeable with "C" bonnet)



Type "B" Bonnet Assembly

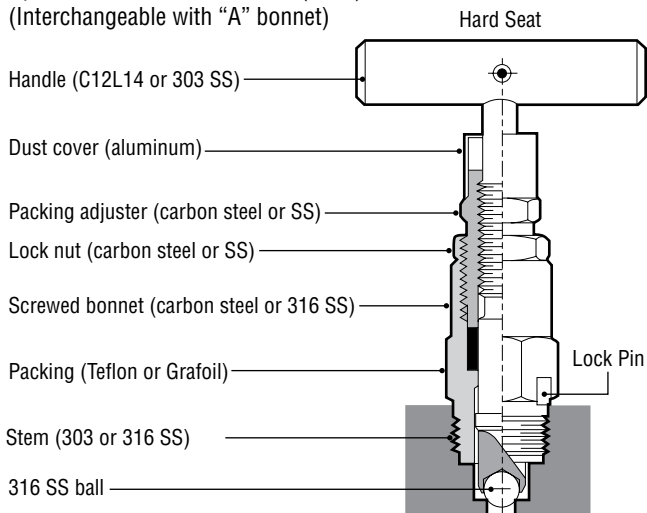
(Interchangeable with "D" bonnet)



Instrument Manifold Valves - Bonnets

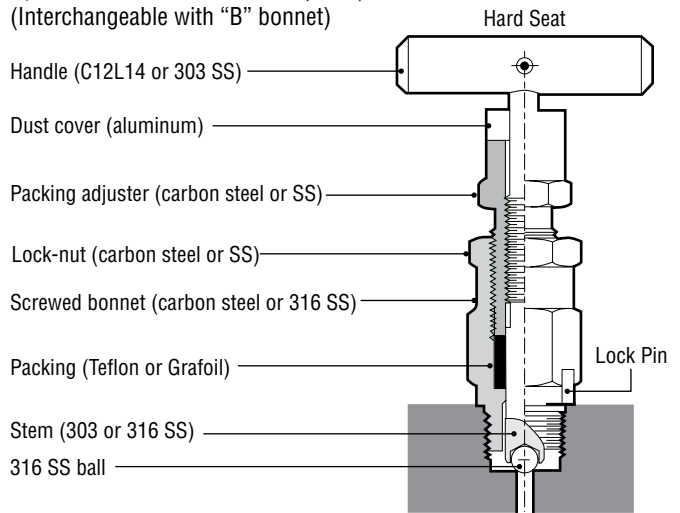
Type "C" Bonnet Assembly

Optional needle stem available ("CN")
(Interchangeable with "A" bonnet)

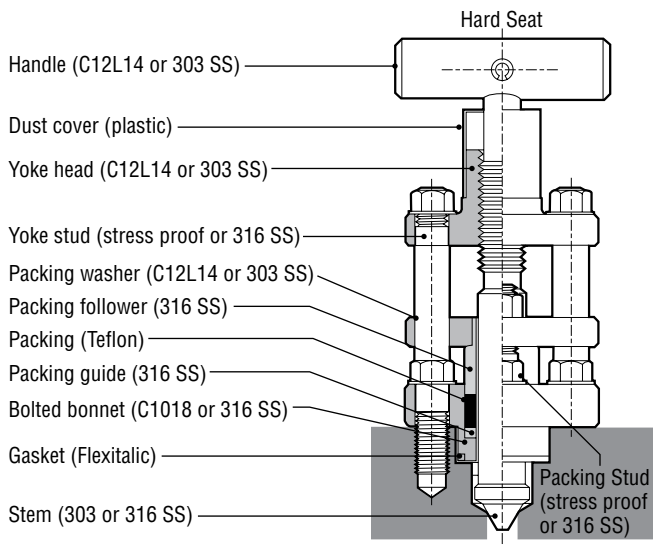


Type "D" Bonnet Assembly

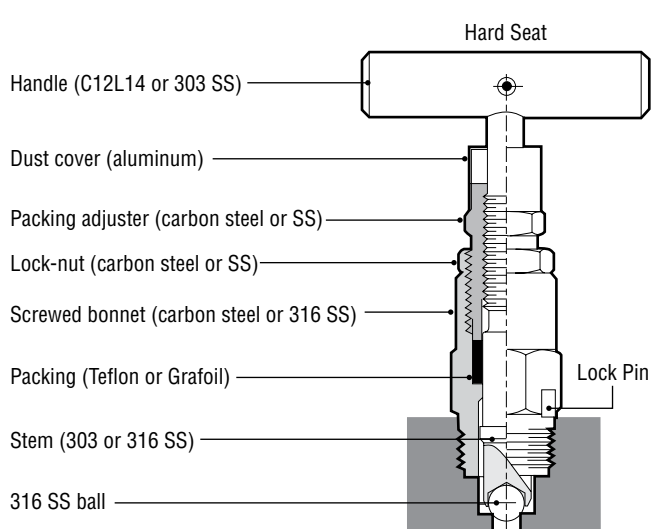
Optional needle stem available ("DN")
(Interchangeable with "B" bonnet)



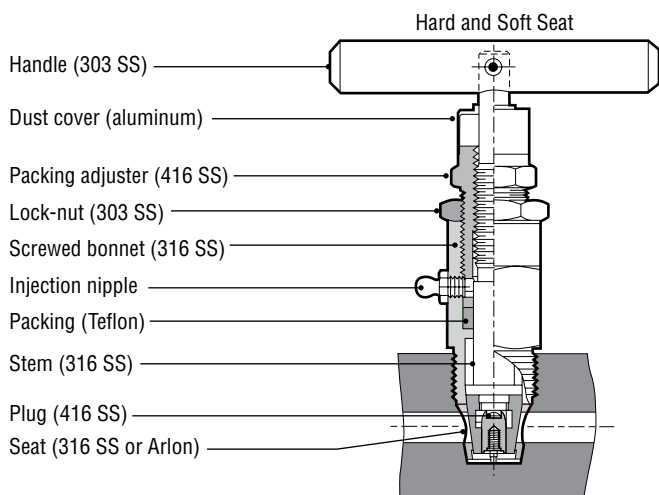
Type "E" Bonnet Assembly



Type "G" Bonnet Assembly

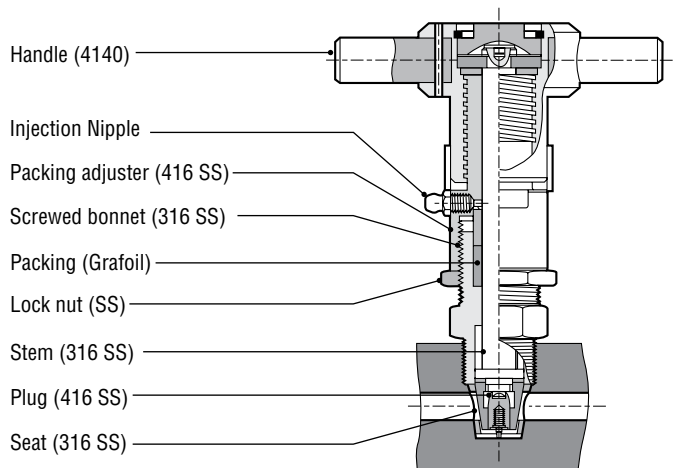


Type "H" Bonnet Assembly



Type "K" Bonnet Assembly

(For high temperature and severe service applications)

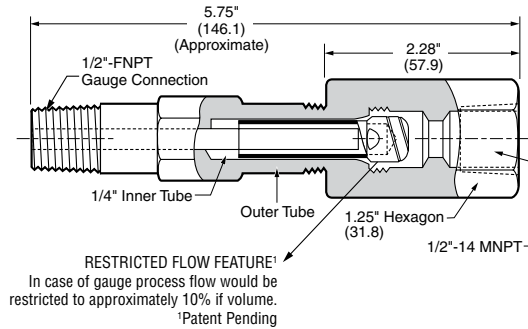


Instrument Manifold Valves - Accessories

Gauge Siphon-Model 6GS

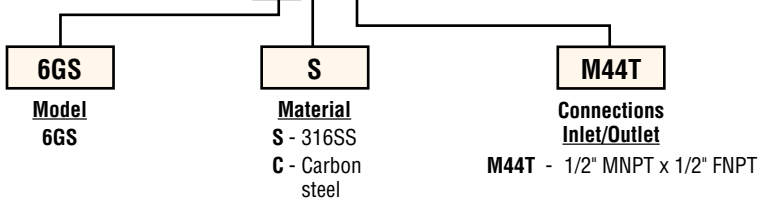
Features

- Pressures to 6,000 psi (414 bar)



Ordering Procedure

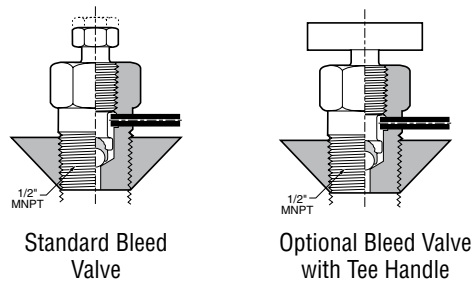
Typical ordering number: **6GSSM44T**



Bleed Valve with Integral Vent-Model 6BV

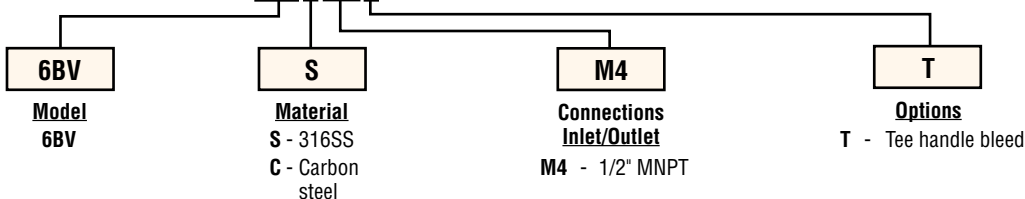
Features

- Pressures to 6,000 psi (414 bar)



Ordering Procedure

Typical ordering number: **6BVSM4T**



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! WARNING !

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