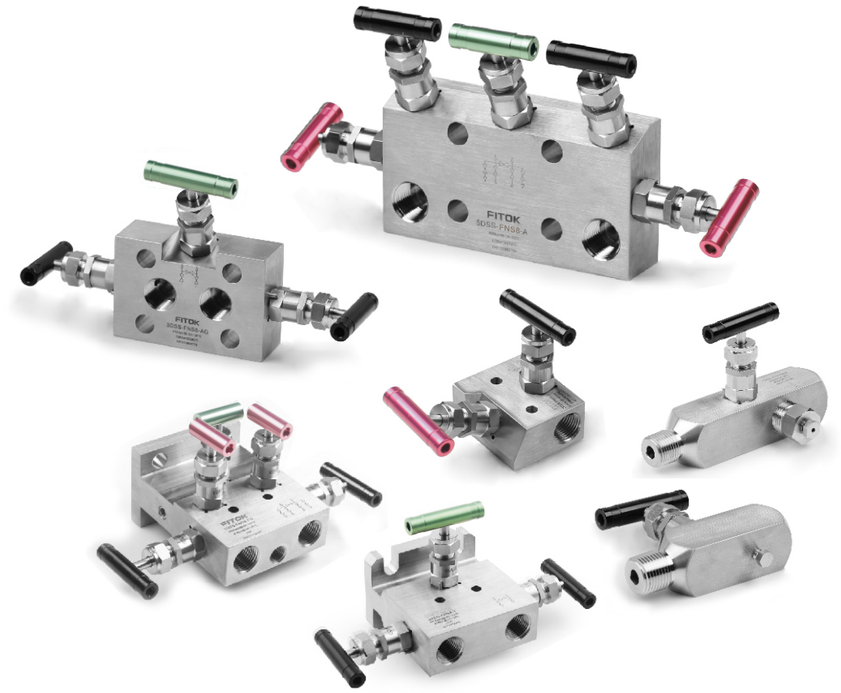
Gauge Valves and Instrument Manifolds

GV, GR Series
2-valve, 3-valve and 5-valve Manifold Series



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FITOK
Valves and Fittings

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Gauge Valves

GV Series and GR Series

Features

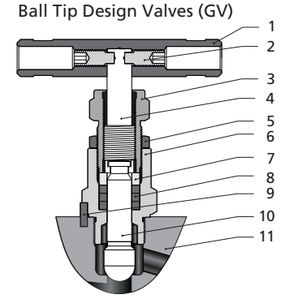
- Maximum working pressure:
  Stainless steel: up to 6000 psig (414 bar)
  Alloy 400: up to 5000 psig (345 bar)
- GV series working temperature:
  PTFE packing: -65°F to 450°F (-54°C to 232°C)
  Graphite packing: -65°F to 1200°F (-54°C to 649°C)
- GR series working temperature:
  Acetal seat: -20°F to 250°F (-28°C to 121°C)
  PEEK seat: -20°F to 400°F (-28°C to 204°C)
  PFA seat: -20°F to 400°F (-28°C to 204°C)
- Non-rotating lower stem, ball tip and plug tip designs
- Variety of materials for seat and packing
- Safety back seating seals in fully open position
- Rolled spindle operating threads
- Lubricant for stem thread isolated from the media
- Externally adjustable gland
- Bonnet locking pin fitted as standard
- Low torque operating T bar handle
- Option for different colored handles
- Steady and durable fastening of the handle by double lock-pins
- Leak-tight performance testing for every valve with nitrogen at the maximum working pressure

Standard Materials of Construction

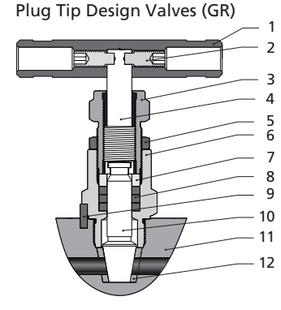
Item	Part	Valve Body Material		
		316 SS	Alloy 400	NACE MR0175
1	Handle	Anodized aluminum		
2	Set Screw	Stainless steel		
3	Packing Bolt	304 SS		
4	Upper Stem	316 SS/A276		
5	Lock Nut	17-4PH		
6	Bonnet	316 SS/A479	Alloy R-405/B164	Annealed 316 SS/A479
7	Gland	316 SS/A276		
8	Packing	PTFE or graphite		
9	Lock Pin	Stainless steel		
10	Lower Stem	Chrome-plated 316 SS/A276	Alloy R-405/B164	Alloy R-405/B164
11	Body	316 SS/A479 316 SS/A182	Alloy 400/B164, B127,B564	Annealed 316 SS/A479
12	Seat	Acetal or PEEK or PFA		
	Lubricant	Molybdenum disulfide-based		

Process interface valves for sour gas service are available. Materials are selected in accordance with NACE MR0175/ISO 15156. Contact the authorized representative or FITOK Group if any request.

Ball Tip Design Valves (GV)



Plug Tip Design Valves (GR)



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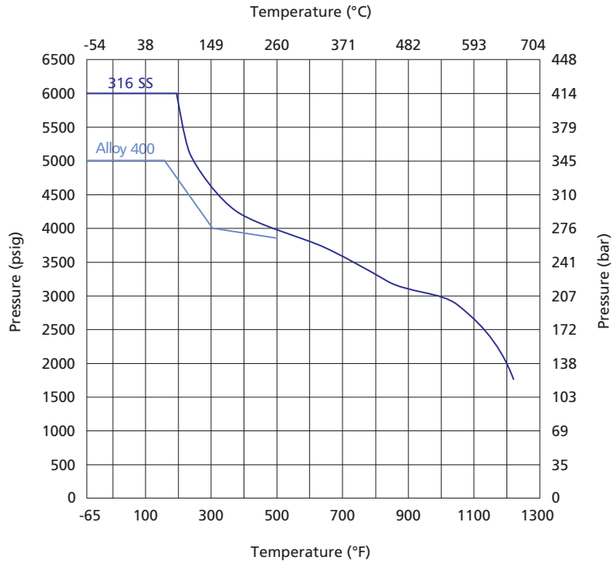
Ball Tip Design Valves

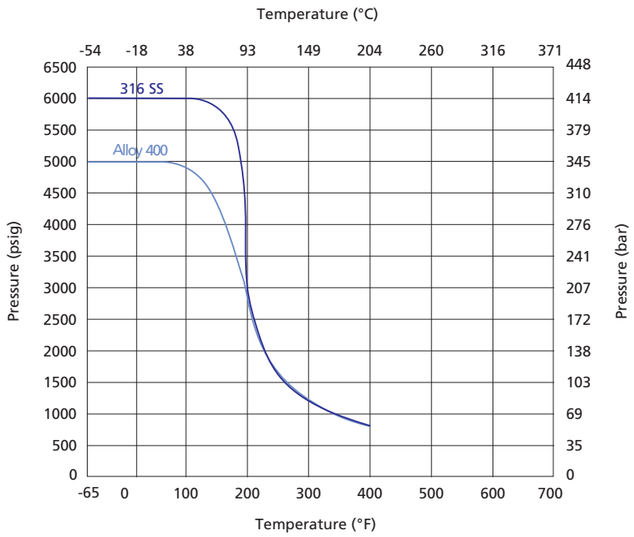
Pressure vs. Temperature



Based on graphite stem packing.

Plug Tip Design Valves

Pressure vs. Temperature

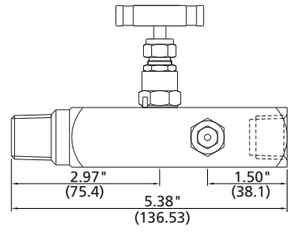


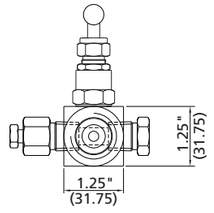
1. *Rating limited to 250°F (121°C) max. with acetal seat material, not recommended for temperature higher than 200°F (93°C) for water and steam application.*
2. *Based on PEEK seat and PTFE stem packing.*

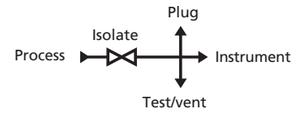
Types and Dimensions

Standard Type

Basic Ordering Number	Design	Inlet/Process	Outlet/Instrument	Test/Vent/Plug
GV□□-NS8-FNS8	Ball Tip	1/2 Male NPT	1/2 Female NPT	1/2 Female NPT
GR□□-NS8-FNS8	Plug Tip			
GV□□-NS12-FNS12	Ball Tip	3/4 Male NPT	3/4 Female NPT	1/2 Female NPT
GR□□-NS12-FNS12	Plug Tip			

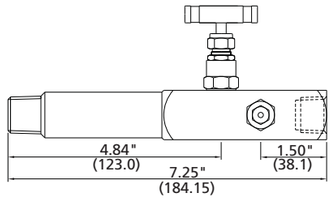


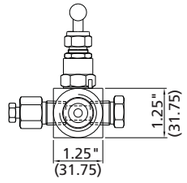


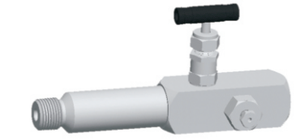


Lagging Extension Body Type

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent/Plug
GV□□-NS8-FNS8-E	1/2 Male NPT	1/2 Female NPT	1/2 Female NPT
GR□□-NS8-FNS8-E			



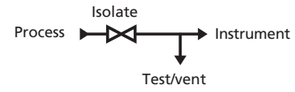


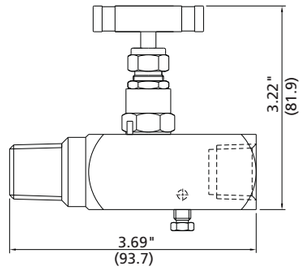


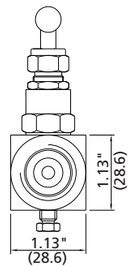
Lagging extension body is inserted through pipe for insulation.

Miniature Type

Basic Ordering Number	Inlet/Process	Outlet/Instrument
GV□□-NS8-FNS8-C	1/2 Male NPT	1/2 Female NPT
GR□□-NS8-FNS8-C		







Part Number Description

GRSS – NS8 – FNS8 – CPW – GR – SF2

Series	Body Material	Inlet Type	Inlet Size	Outlet Type	Outlet Size	Body Style	Seal Material	Tip Material	Packing Material	Handle	Special Application	Cleaning and Packaging
GV Ball Tip Design	SS 316 SS	FNS Female NPT	8 1/2"	Same as Inlet	Same as Inlet	Standard Type	Same as Body / GV Series	Same as Body	PTFE	Black Aluminum Bar	NO	FC-01
GR Plug Tip Design	6L 316L SS	NS Male NPT	12 3/4"	Specify in the same way as inlet type and size		C Miniature Type	1 Stellite / GV Series	W Stellite	G Graphite	R Red Aluminum Bar	S NACE MR0175	F2 FC-02
	S4 304 SS	FRT Female BSPT	20 M20 x 1.5			E Extended Type	Acetal / GR Series	D5 Duplex 2205	PTFE	M 321 Stainless Steel Bar		
	4L 304L SS	RT Male BSPT					P PEEK	TI Titanium Gr.4		O Black Knob		
	S1 321 SS	FMS Female Metric Thread (for RP)					F PFA	A20 Alloy 20	GV Series / GR Series			
	D5 Duplex 2205	MS Male Metric Thread (for RG)						INC Alloy 600	PTFE			
	TI Titanium Gr.4	FRP Female BSPP (for RP)						HC Alloy C-276	GR Series / PTFE			
	A20 Alloy 20											
	M Alloy 400											
	INC Alloy 600											
	HC Alloy C-276											
	B Brass											
	CS Carbon Steel											
	904L 904L SS											

Note: "Part Number Description" is used for composition rules of FITOK product model,
Not suitable for specific product part number selection, not random combinations.
If in doubt, please contact FITOK company or authorized agents.

Cleaning and Packaging:
FC-01: Standard cleaning and packaging for general industrial procedures.
FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement as stated in ASTM G93 Level C.

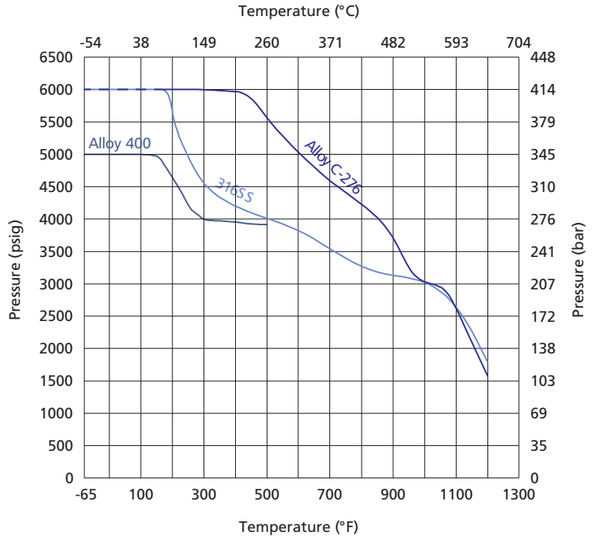
Instrument Manifolds

General Information

Features

- Maximum working pressure:
  Stainless steel: up to 6000 psig (414 bar)
  Alloy C-276: up to 6000 psig (414 bar)
  Alloy 400: up to 5000 psig (345 bar)
- Working temperature:
  PTFE packing: -65°F to 450°F (-54°C to 232°C)
  Graphite packing: -65°F to 1200°F (-54°C to 649°C)
- Orifice: 0.157" (4.0 mm), CV: 0.35
- Two-stem design: thread hardened upper stem and smooth surface hardened lower stem
- Upper stem thread lubricant isolated from system media
- Linear instead of helical movement of the nonrotating lower stem avoids galling damage to the seat and tip, as well as reduces the total friction area between the packing and the lower stem
- Safety back seating seals in fully open position
- Steady and durable fastening of the handle by double lock-pins
- Leak-tight performance testing for every valve with nitrogen at the maximum working pressure

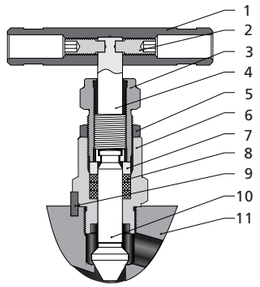
Pressure vs. Temperature



1. Based on graphite stem packing.
2. Contact the authorized representative or FITOK Group for curve graph of other materials.

Standard Materials of Construction

Item	Part	Valve Body Material		
		316 SS	Alloy 400	Alloy C-276
1	Handle	Anodized aluminum		
2	Set Screw	Stainless steel		
3	Packing Bolt	304 SS/A276		
4	Upper Stem	316 SS/A276		
5	Lock Nut	17-4PH		
6	Bonnet	316 SS/A479	Alloy R-405/B164	Alloy C-276/B574
7	Gland	316 SS/A276		
8	Packing	PTFE or PEEK or graphite		
9	Lock Pin	304 SS/A276		
10	Lower Stem	Chrome-plated 316 SS/A276	Alloy R-405/B164	Alloy C-276/B574
11	Body	316 SS/A479 316 SS/A182	Alloy 400/B164, B127,B564	Alloy C-276/B564
Lubricant		Molybdenum disulfide-based		



Handle color codes for functions:
BLACK=Isolate/block
RED=Test/vent
GREEN=Equalize

Process interface valves for sour gas service are available. Materials are selected in accordance with NACE MR0175/ISO 15150. Contact the authorized representative or FITOK Group if any request.

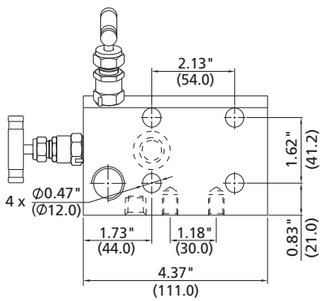
Instrument Manifolds

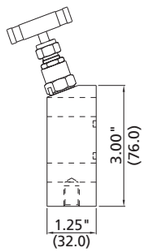
- Instrument manifolds are manufactured in accordance with ANSI B31.1 and B31.3, specifications meet MSS-SP-105. Flange design meets the requirements of MSS SP-99.
- 2-valve manifold is used with pressure gauges or pressure transmitters.
- 3-valve and 5-valve manifolds are used with differential pressure transmitters.

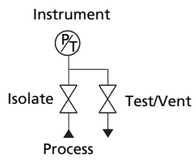
2-valve Manifolds

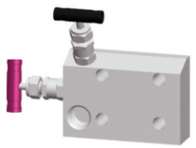
Consist of one block valve and one bleed valve

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
2D□□-FNS8-A	1/2 Female NPT	Flanged	1/4 Female NPT



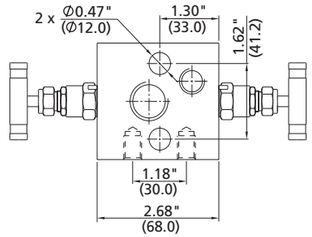


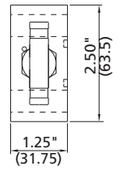


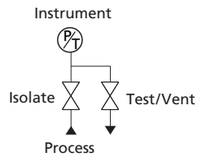


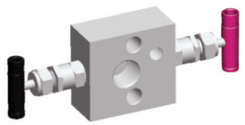
Every manifold is supplied with one PTFE sealing ring for manifold-to-instrument and four 7/16" UNF x 1.75" high tensile bolts.

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
2D□□-FNS8-L	1/2 Female NPT	Flange	1/4 Female NPT



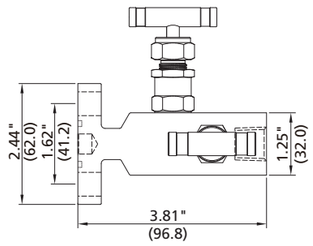


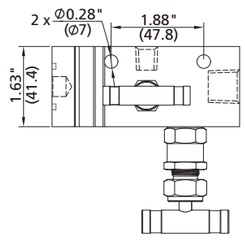


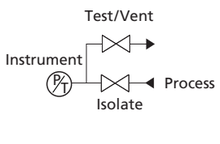


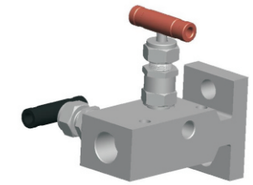
Every manifold is supplied with one PTFE sealing ring for manifold-to-instrument and two 7/16" UNF x 1.75" high tensile bolts.

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
2D□□-FNS8-T	1/2 Female NPT	Flange	1/4 Female NPT



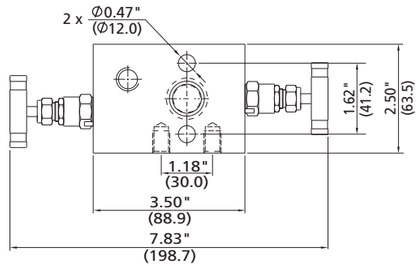


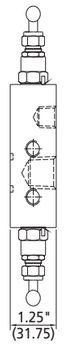


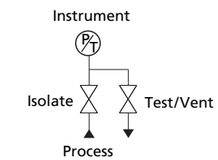


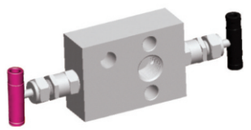
Every manifold is supplied with one PTFE sealing ring for manifold-to-instrument and two 7/16" UNF x 24 mm high tensile bolts.

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
2D□□-FNS8-H	1/2 Female NPT	Flange	1/4 Female NPT



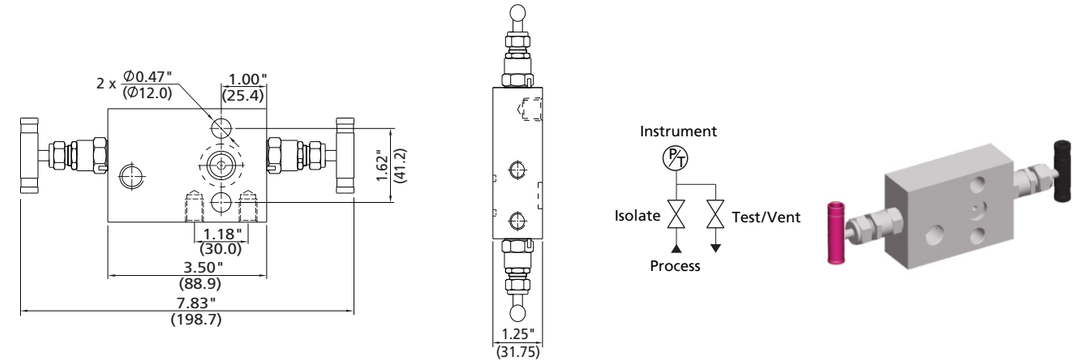






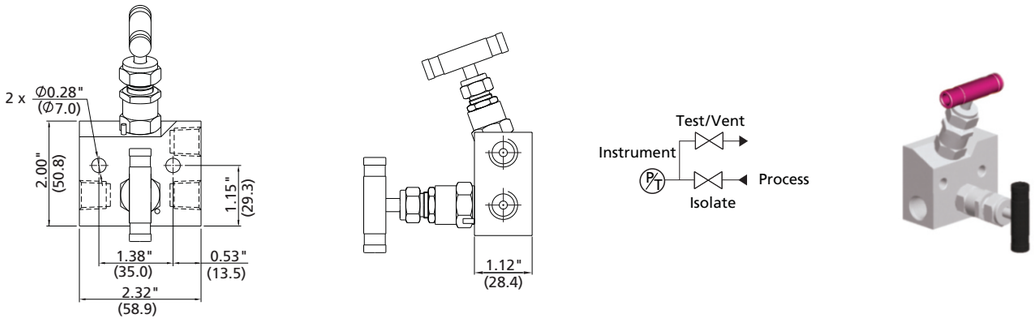
Every manifold is supplied with one PTFE sealing ring for manifold-to-instrument and two 7/16" UNF x 1.75" high tensile bolts.

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
2D□□-F-H	Flange	Flange	1/4 Female NPT

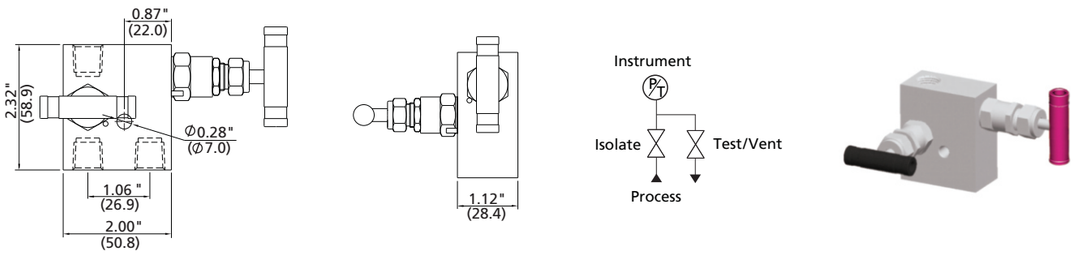


Every manifold is supplied with one PTFE sealing ring for manifold-to-instrument and two 7/16" UNF x 1.75" high tensile bolts.

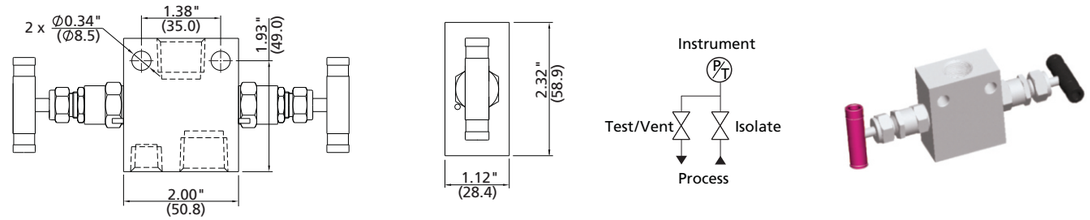
Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
2R□□-FNS4-A	1/4 Female NPT	1/4 Female NPT	1/4 Female NPT



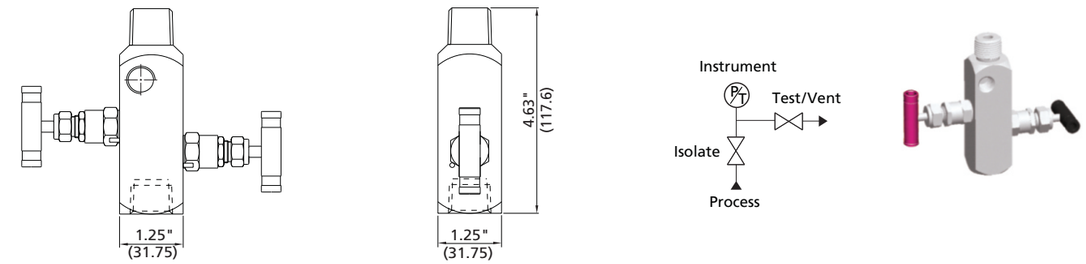
Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
2R□□-FNS4-C	1/4 Female NPT	1/4 Female NPT	1/4 Female NPT



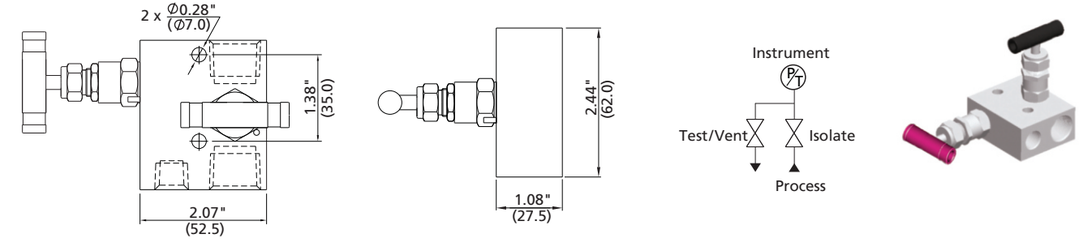
Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
2R□□-FNS8-L	1/2 Female NPT	1/2 Female NPT	1/4 Female NPT



Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
2R□□-FNS8-NS8-H	1/2 Female NPT	1/2 Male NPT	1/4 Female NPT
2R□□-NS8-H	1/2 Male NPT	1/2 Male NPT	1/4 Female NPT



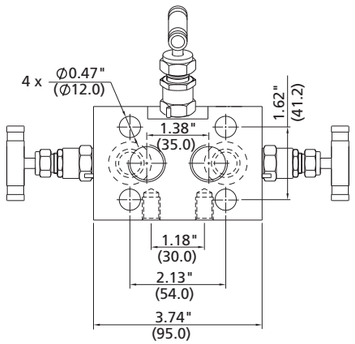
Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
2R□□-FNS8-V	1/2 Female NPT	1/2 Female NPT	1/4 Female NPT

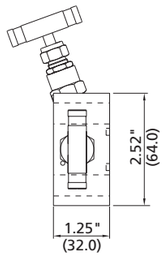


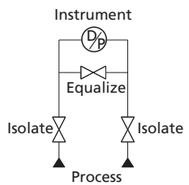
3-valve Manifolds

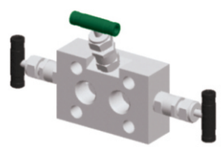
Consist of two block valves and one equalizer valve

Basic Ordering Number	Inlet/Process	Outlet/Instrument
3D□□-FNS8-A	1/2 Female NPT	Flange



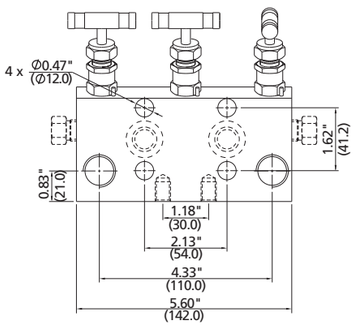


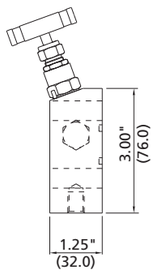


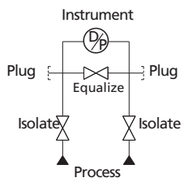


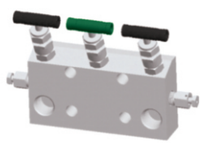
Every manifold is supplied with two PTFE sealing rings manifold-to-instrument and four 7/16" UNF x 1.75" high tensile bolts.

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
3D□□-FNS8-L	1/2 Female NPT	Flange	Optional



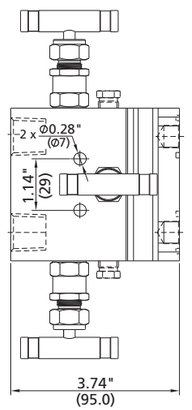


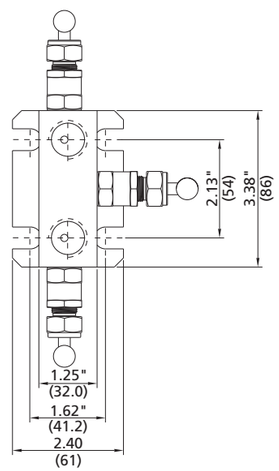


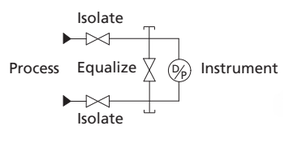


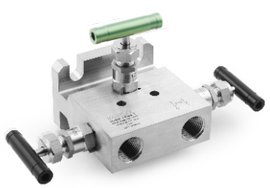
Every manifold is supplied with two PTFE sealing rings for manifold-to- instrument and four 7/16" UNF x 1.75" high tensile bolts.

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
3D□□-FNS8-T	1/2 Female NPT	Flanged	Optional



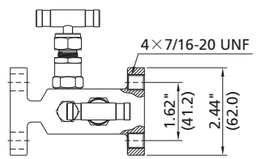


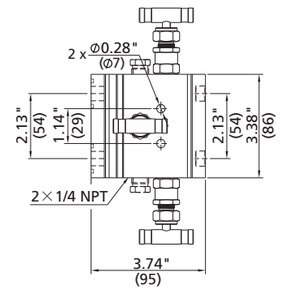


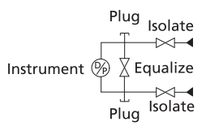


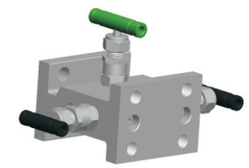
Every manifold is supplied with two PTFE sealing ring for manifold-to-instrument and four 7/16" UNF x 24 mm high tensile bolts.

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
3D□□-F-I	Flanged	Flanged	Optional



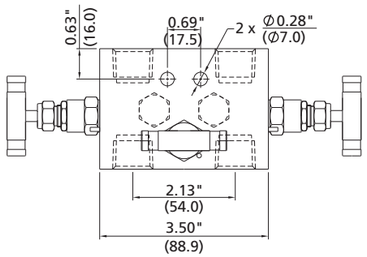


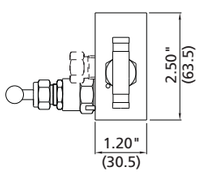


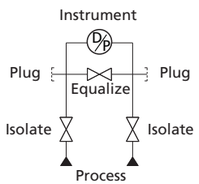


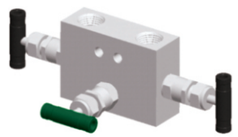
Every manifold is supplied with two PTFE sealing ring for manifold-to-instrument and four 7/16" UNF x 24 mm high tensile bolts.

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
3R□□-FNS8-V	1/2 Female NPT	1/2 Female NPT	Optional







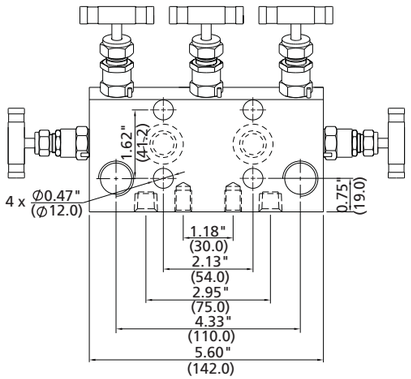


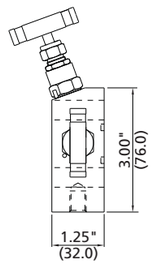
5-valve Manifolds

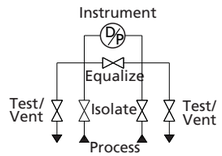
Double-bleed Function of 5-valve Manifold

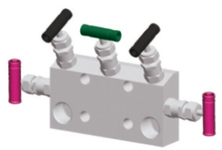
Consist of two block valves, two bleed valves, and one equalizer valve

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
5D□□-FNS8-A	1/2 Female NPT	Flange	1/4 Female NPT



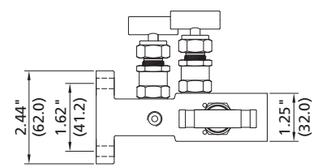


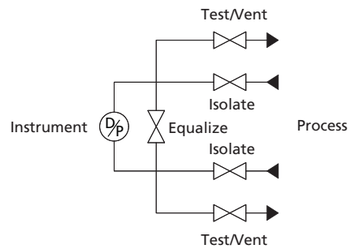


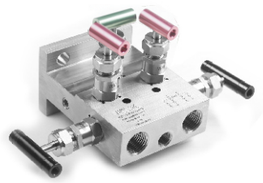


Every manifold is supplied with two PTFE sealing rings for manifold-to-instrument and four 7/16" UNF x 1.75" high tensile bolts.

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
5D□□-FNS8-F	1/2 Female NPT	Flange	1/4 Female NPT

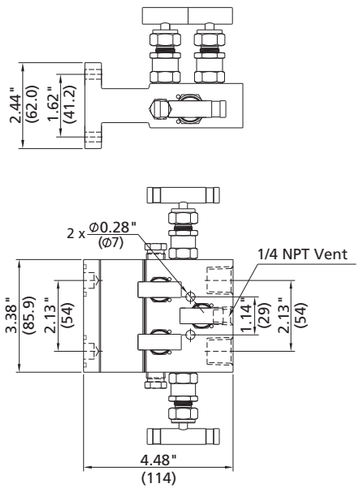


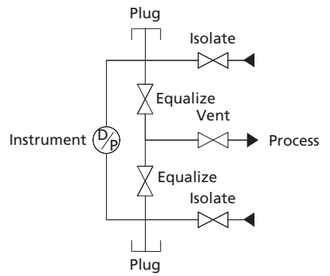


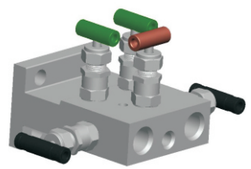


Every manifold is supplied with two PTFE sealing ring for manifold-to-instrument and four 7/16" UNF x 24 mm high tensile bolts.

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Vent	Test
5D□□-FNS8-TB	1/2 Female NPT	Flange	1/4 Female NPT	Optional

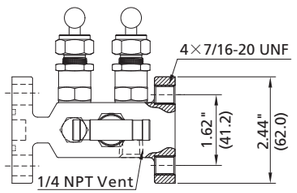


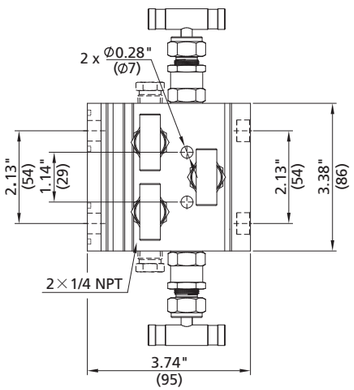


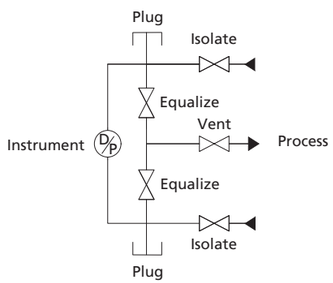


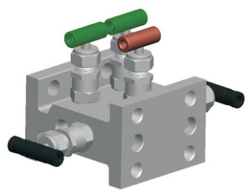
Every manifold is supplied with two PTFE sealing ring for manifold-to-instrument and four 7/16" UNF x 24 mm high tensile bolts.

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Vent	Test
5D□□-F-I	Flanged	Flanged	1/4 Female NPT	Optional



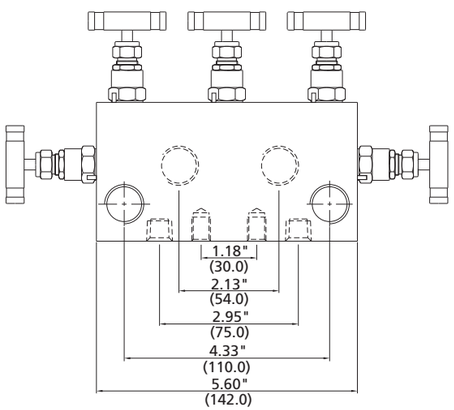


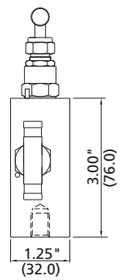


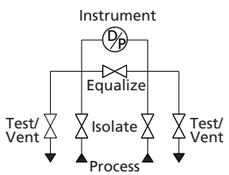


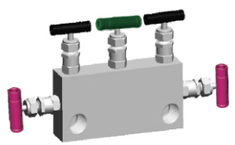
Every manifold is supplied with two PTFE sealing ring for manifold-to-instrument and four 7/16" UNF x 24 mm high tensile bolts.

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
5R□□-FNS8-L	1/2 Female NPT	1/2 Female NPT	1/4 Female NPT





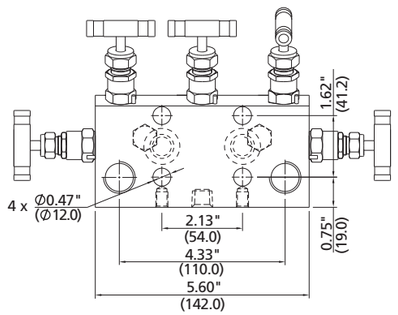


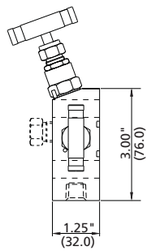


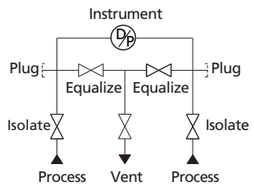
5-valve Custody Transfer/Fiscal Metering Manifold

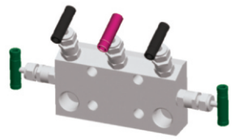
Consist of two block valves, one bleed valve, and two equalizer valves

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Vent	Test
5D□□-FNS8-B	1/2 Female NPT	Flanged	1/4 Female NPT	Optional



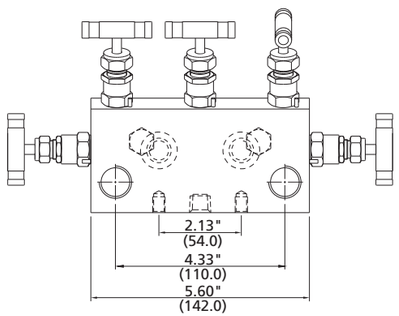


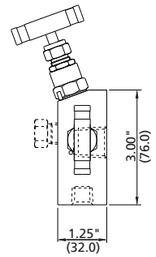


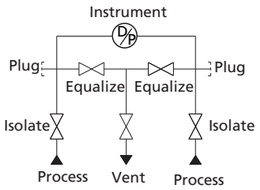


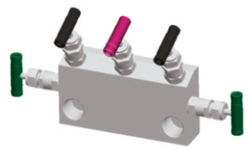
Every manifold is supplied with two PTFE sealing rings for manifold-to-instrument and four 7/16" UNF x 1.75" high tensile bolts.

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Vent	Test
5R□□-FNS8-B	1/2 Female NPT	1/2 Female NPT	1/4 Female NPT	Optional







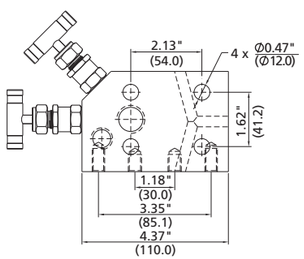


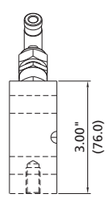
C Integral Manifolds

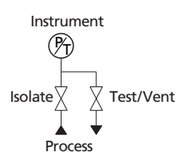
C Integral Manifold is specifically designed for the pressure transmitters of Rosemount® coplanar™, including Model 3051C, 3051P, 2024 and 3095.
Each of the following manifold contains four 7/16" UNF x 1.75" high tensile bolts.

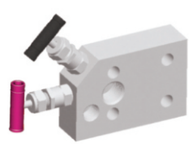
2-valve Manifold

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
2D□□-FNS8-C	1/2 Female NPT	Flanged	1/4 Female NPT



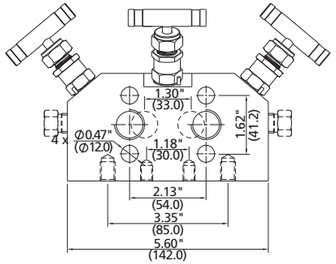


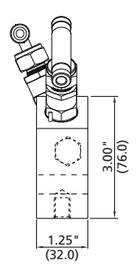


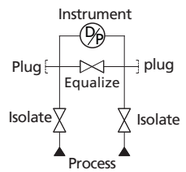


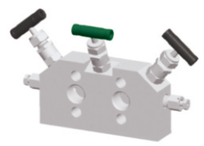
3-valve Manifold

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
3D□□-FNS8-C	1/2 Female NPT	Flange	Optional



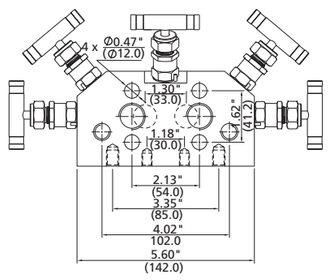


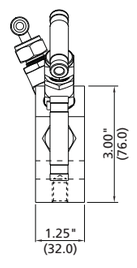


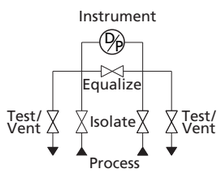


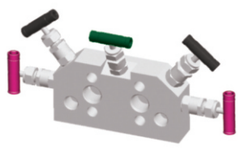
5-valve Manifold

Basic Ordering Number	Inlet/Process	Outlet/Instrument	Test/Vent
5D□□-FNS8-C	1/2 Female NPT	Flange	1/4 Female NPT





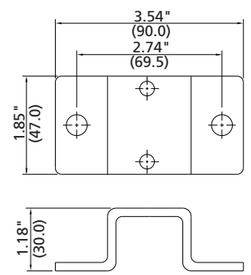




Manifold Bracket Supports

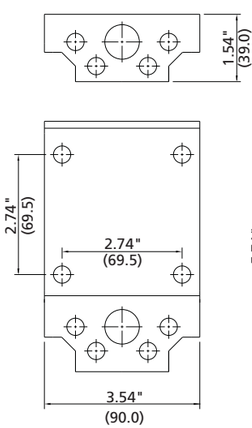
SS-M2P-2BK

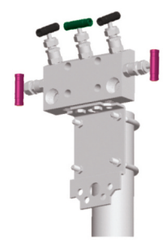
1. The integral assembly including: bracket, U-bolts, bolts, gaskets, nuts
2. Used to fix 2R□□-XX-A, 2R□□-XX-C, 2R□□-XX-L, 2R□□-XX-V



SS-M2P-4BK

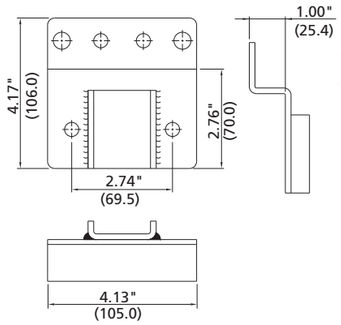
1. Install support design is available for horizontal or vertical installation
2. The integral assembly including: bracket, U-bolts, bolts, gaskets, nuts
3. Used to fix 2D□□-XX-A, 2D□□-XX-L, 2D□□-XX-H, 3D□□-XX-A, 3D□□-XX-L, 5D□□-XX-A, 5D□□-XX-B, 5R□□-XX-L, 5R□□-XX-B

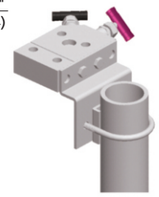




SS-M2P-6BK

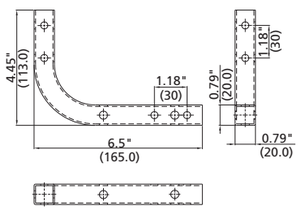
1. The integral assembly including: bracket, U-bolts, bolts, gaskets, nuts
2. Used to fix 2D□□-XX-C, 3D□□-XX-C, 5D□□-XX-C

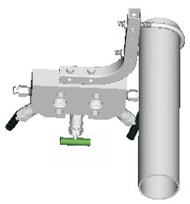




SS-M2P-8BK

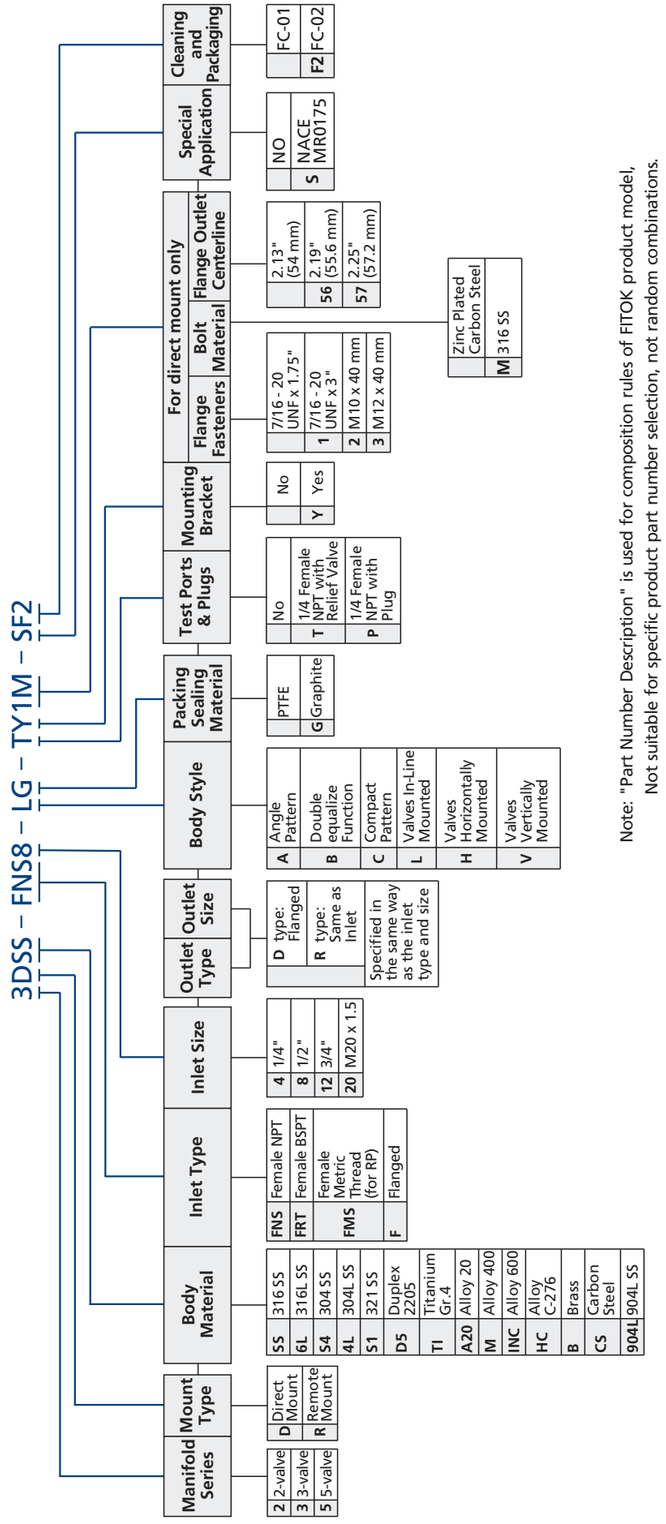
1. Install support design is available for horizontal or vertical installation
2. The integral assembly including: bracket, U-bolts, bolts, gaskets, nuts
3. Used to fix 2D□□-XX-A, 2D□□-XX-L, 2D□□-XX-H, 2D□□-XX-V, 3D□□-XX-A, 3D□□-XX-L, 5D□□-XX-A, 5D□□-XX-B





For more installation information regarding other manifolds, please contact the authorized representative or FITOK Group.

Part Number Description



Note: "Part Number Description" is used for composition rules of FITOK product model,
Not suitable for specific product part number selection, not random combinations.
If in doubt, please contact FITOK company or authorized agents.

1. *The standard center line distance of direct mounting flange outlet of 3-valve manifold and 5-valve manifold is 2.13" (54 mm).*
   Center line distance of 2.188" (55.6 mm) is suitable for range 6 and 7, 1151 series transmitter.
   Center line distance of 2.250" (57.2 mm) is suitable for range 8, 1151 series transmitter.
2. *The standard configuration of direct mounting manifold contains PTFE flange seal ring and 7/16-20 UNF X 1.75" high tensile bolts, can be connected with transmitters under main brands,*
   such as EJA, Honeywell, Foxboro 843 dlp, and Rosemount® 151, 2024, 3051H series.
3. *7/16-20 UNF x 3" high tensile bolts can be supplied, can be used for Rosemount® 3051C transmitter with process flange and coplanar mounting manifold.*
4. *Cleaning and Packaging :*
   FC-01: Standard cleaning and packaging for general industrial procedures.
   FC-02: Special cleaning and packaging for wetted system components to ensure compliance with product cleanliness requirement as stated in ASTM G93 Level C.

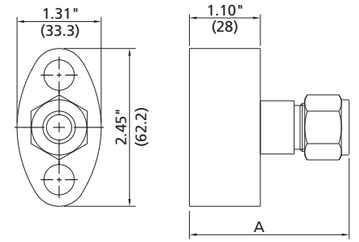
Accessories

Kidney Flange and Eccentric Flange

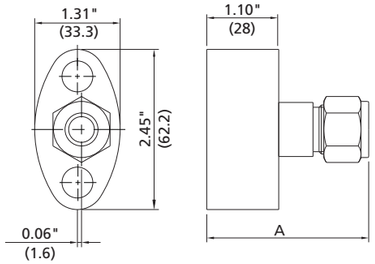
Features

- Working temperature:
  PTFE: -65°F to 450°F (-54°C to 232°C)
  Graphite: -65°F to 1000°F (-54°C to 538°C)
- Integral forged body
- Standard material: A182 F316

Kidney Flange



Eccentric Flange



The process connection type of transmitter can be transformed to other connection types.

Ordering Information

Basic Ordering Number	Connection Type and Size	Dimension in. (mm)
		A
SS-KF-FNS4	1/4 Female NPT	1.10 (28)
SS-KF-FNS8	1/2 Female NPT	1.10 (28)
SS-KF-FL8	1/2" FITOK	2.48 (63)
SS-KF-PB8	1/2 PB	2.10 (53.3)

A kidney flange set contains a PTFE flange seal ring and two 7/16 - 20 UNF high tensile bolts.

Ordering Information

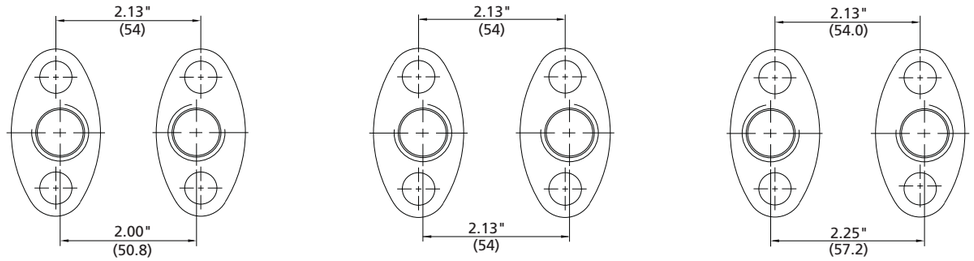
Basic Ordering Number	Connection Type and Size	Dimension in. (mm)
		A
SS-EF-FNS4	1/4 Female NPT	1.10 (28)
SS-EF-FNS8	1/2 Female NPT	1.10 (28)
SS-EF-FL8	1/2" FITOK	2.48 (63)
SS-EF-PB8	1/2 PB	2.10 (53.3)

1. *Eccentric flange needs to be ordered in whole set.*
2. *A whole eccentric flange set contains two eccentric flanges, two PTFE flange seal rings and four 7/16 - 20 UNF high tensile bolts.*

The Selection of Flange Seal Materials

The standard flange seal material is PTFE, graphite is an option. To order graphite flange seal material, add - G as a suffix.

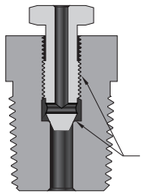
Various Combinations of Eccentric Flange Set



Combinations of eccentric flange set can give different center line distances of 2.0" (50.8 mm), 2.13" (54 mm) and 2.25" (57 mm).

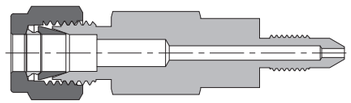
Relief Valve

- RB series RBSS-NS4 Bleed Valve is used as standard test/vent valve.
- For more information, refer to FITOK Bleed Valve RB series.



Calibration Fitting

- The calibration fittings can be connected directly with the bleed port of transmitter so that the calibration process can be simplified.
- For more information, refer to FITOK Calibration Fitting.



The auxiliary installation for manifolds and transmitters of different brands

Model of Transmitters \ Model of FITOK Manifolds	3(5)DXX-XX-X	3(5)RXX-FXXX-X	2DXX-XXX-X	2RXX-FXXX-X
Rosemount Transmitters				
3051 CD X X 2 (3, 4, 5, 7, 8) X X X X	A4			
3051 CD X X 0 X X X X H2 (H3, H4, H7, HJ)	A1			
3051 CD X X 0 X X X X HK	A2			
3051 CD X X 0 X X X X HL	A3			
3051 CD X X 0 X X X X DF	A5	A		
3051 CG (CA) X X 2 (3, 4, 5, 7, 8) X X X X			A4	
3051 CG (CA) X X 0 X X X X H2 (H3, H4, H7, HJ)			A1	
3051 CG (CA) X X 0 X X X X HK			A2	
3051 CG (CA) X X 0 X X X X HL			A3	
3051 CG (CA) X X 0 X X X X DF			A5	A
1151 D (H) P 3 (4, 5) X XX XX	A1			
1151 A (G) P 3 (4, 5) X XX XX			A1	
1151 D (H) P X X XX XX DF	A5	A		
EJA Transmitters				
EJA1X0A-XXX0 (5) X-XXXX	A1			
EJA1X0A-XXX1 (2, 3, 4) X-XXXX	A5	A		
EJA3 (4, 5) X0A-XXX0 (5)X-XXXX			A1	
EJA3 (4, 5) X0A-XXX1 (2,3,4)X-XXXX			A5	A
Honeywell Transmitters				
STDXXX-XXA-XXX	A1			
STDXXX-XXH-XXX	A5	A	A5	
STXXXX-XXG-XXX			A1	A
STGXXX-XXA-XXX				
SMXXXX-XXA-XXX	A1			
SMXXXX-XXH-XXX	A5	A		
SIEMENS Transmitters				
7MF433X-XXX0 (4) X-XXXX			A2	A
7MF433X-XXX2 (6) X-XXXX			A1	A
7MF44 (5) 3X-XXX0 (4) X-XXXX	A2			
7MF44 (5) 3X-XXX2 (3, 6, 7) X-XXXX	A1			
7MF44 (5) 3X-XXX1 (5) X-XXXX	A3			

A: Connecting with fittings
A1: Connecting with flange and sealing rings, using 7/16 - 20 UNF x 1.75" bolts
A2: Connecting with flange and sealing rings, using M10 x 40 mm bolts
A3: Connecting with flange and sealing rings, using M12 x 40 mm bolts
A4: Connecting with flange and sealing rings, using 7/16 - 20 UNF x 3" bolts
A5: Remove the kidney flanges and then connect with flange and sealing rings