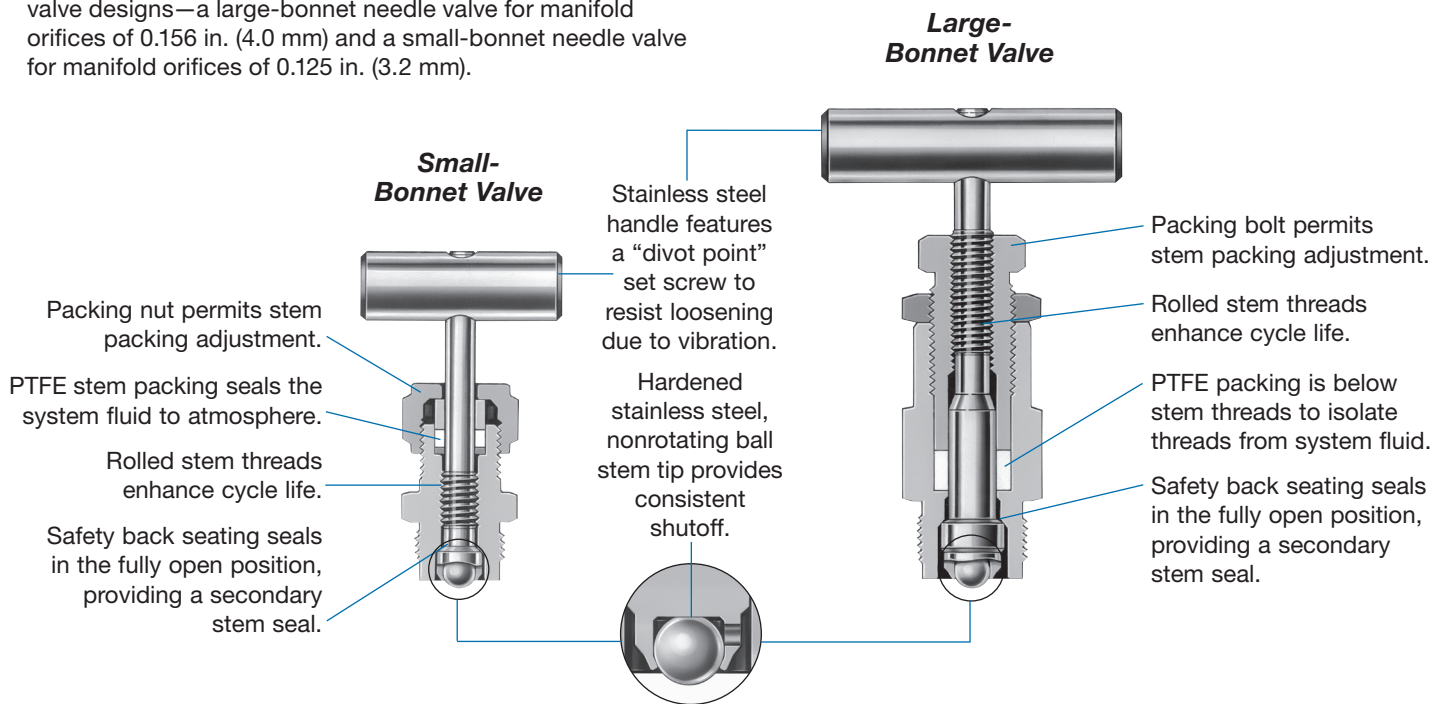


Valve Features

The flow through a Swagelok manifold is controlled by a series of stainless steel needle valves. Each valve has a specific function—to block pressure, to bleed off pressure, or to equalize pressure—depending on its location on the manifold.

The control of all these functions is shared by two needle valve designs—a large-bonnet needle valve for manifold orifices of 0.156 in. (4.0 mm) and a small-bonnet needle valve for manifold orifices of 0.125 in. (3.2 mm).

On both designs, the stem packing is externally adjustable in the open position. PTFE is the standard packing material; optional Grafoil packing is available for high-temperature applications.



Technical Data

Traditional Body Manifolds

Orifice Size (isolation valve)	0.125 in. (3.2 mm) for all 2-valve V series
	0.156 in. (4.0 mm) for all others
Weight	2-valve: 2.0 to 3.5 lb (0.9 to 1.6 kg)
	3-valve: 3.2 to 6.4 lb (1.5 to 2.9 kg)
	5-valve: 6.0 to 8.0 lb (2.7 to 3.6 kg)

Compact Body Manifolds

Orifice Size	Vent valves—0.125 in. (3.2 mm)
	Isolation valves—0.156 in. (4.0 mm)
Weight	Block and bleed valves— 2.75 to 3.00 lb (1.25 to 1.36 kg)
	Double block and bleed valves— 3.10 to 3.35 lb (1.41 to 1.52 kg)

Pressure-Temperature Ratings^①

ASME Class	2500	
Material Group	2.2	
Material Name	316 SS	
Temperature °F (°C)	Working Pressure psig (bar)	
-65 (-53) to 100 (37)	200 (93)	6000 (413)
	250 (121)	5160 (355)
	300 (148)	4910 (338)
	350 (176)	4660 (321)
	400 (204)	4470 (307)
	450 (232)	4280 (294)
450 (232)	500 (260)	4130 (284)
	550 (287)	3980 (274)
	600 (315)	3870 (266)
	650 (343)	3760 (259)
	700 (371)	3700 (254)
700 (371)	750 (398)	3600 (248)
	800 (426)	3520 (242)
	850 (454)	3460 (238)
	900 (482)	3380 (232)
900 (482)	950 (510)	3280 (225)
	1000 (537)	3220 (221)
	1050 (565)	3030 (208)
1050 (565)	1100 (593)	3000 (206)
	1150 (621)	2685 (184)
	1200 (648)	2285 (157)
		1715 (118)

① Ratings based on optional Grafoil packing. Ratings limited to:

- -20 to 450°F (-28 to 232°C) with standard fluorocarbon FKM flange seals.
- 450°F (232°C) with standard PTFE packing.
- 1000°F (537°C) with Grafoil packing and MSS flange end connection.

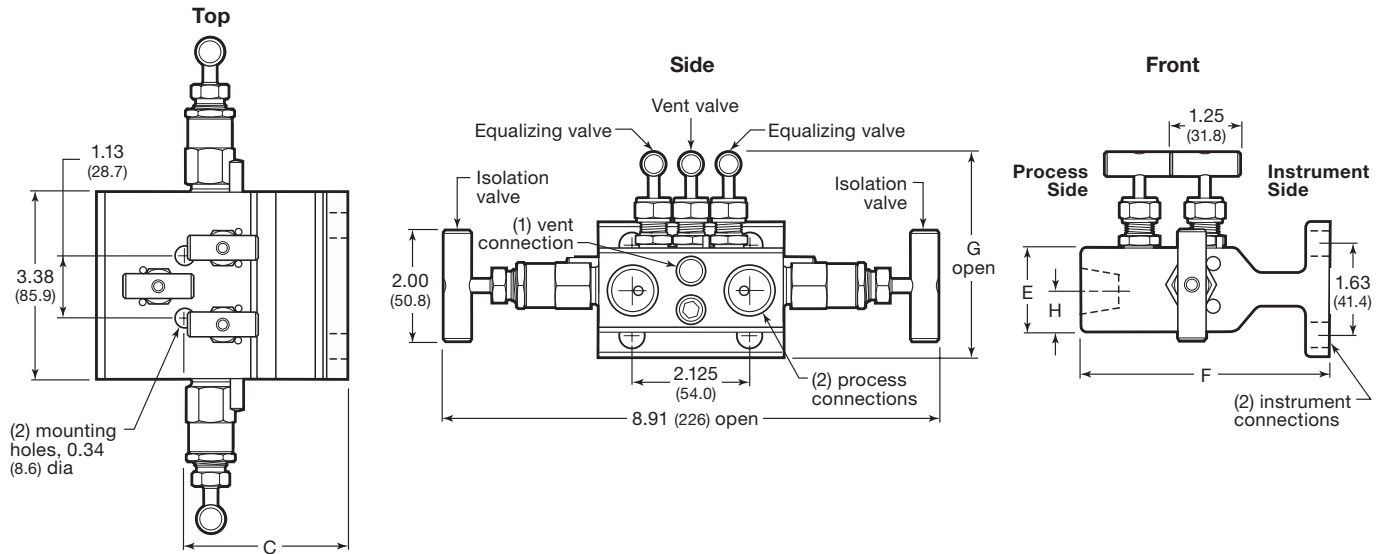
V and VB Series 5-Valve Manifolds

Ordering Information and Dimensions

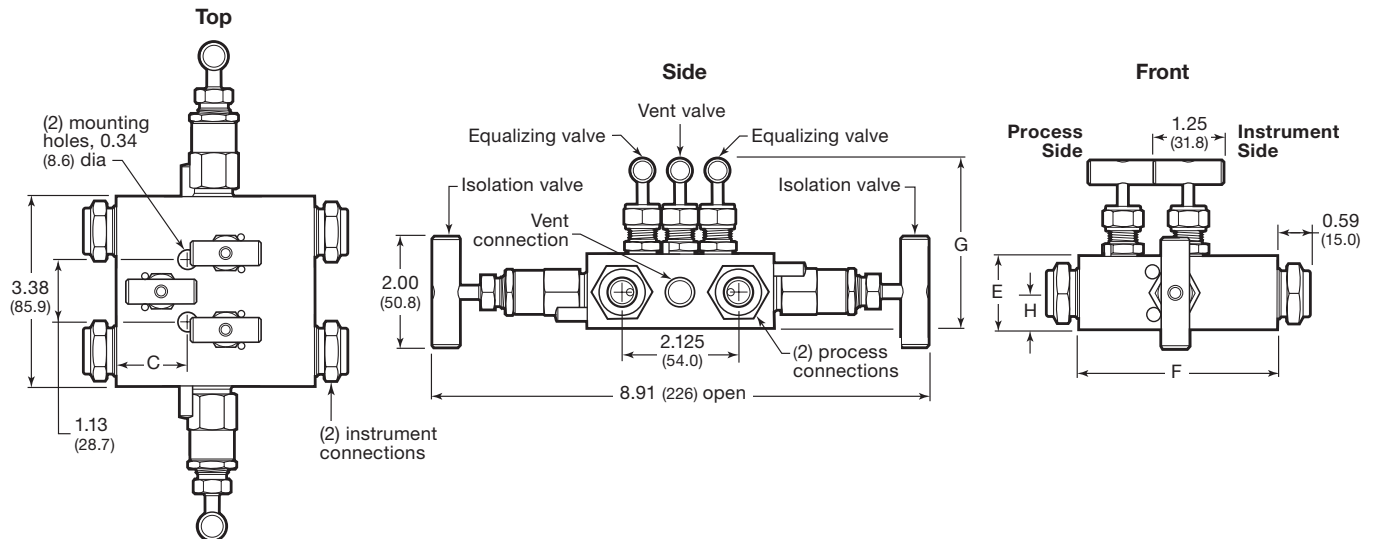
Dimensions, in inches (millimeters), are for reference only and are subject to change.

V Series

Direct Instrument Mount Manifolds with Flange Connections



Manifolds with Female Swagelok Tube Fitting and Pipe Connections



End Connections			Ordering Number	Dimensions, in. (mm)					
Process	Instrument	Vent		C	E	F	G	H	
1/2 in. female Swagelok tube fitting		1/4 in. female NPT	SS-V5NBFS8	1.28 (32.5)	1.31 (33.3)	3.55 (90.2)	3.05 (77.5)	0.63 (16.0)	
1/2 in. female Swagelok tube fitting	Flange (MSS)		SS-V5NBFS8-FL	2.88 (73.2)	1.49 (37.8)	4.43 (114)	3.64 (92.5)	0.75 (19.1)	
12 mm female Swagelok tube fitting			SS-V5NBFS12MM	1.28 (32.5)	1.31 (33.3)	3.55 (90.2)	3.05 (77.5)	0.63 (16.0)	
12 mm female Swagelok tube fitting	Flange (MSS)		SS-V5NBFS12MM-FL	2.88 (73.2)	1.49 (37.8)	4.43 (114)	3.64 (92.5)	0.75 (19.1)	
1/2 in. female NPT				SS-V5NBF8	1.42 (36.0)	1.31 (33.3)	3.62 (91.9)	3.05 (77.5)	0.63 (16.0)
1/2 in. female NPT	Flange (MSS)			SS-V5NBF8-FL	2.88 (73.2)	1.49 (37.8)	4.47 (114)	3.66 (93.0)	0.75 (19.1)
Flange (MSS)		1/8 in. female NPT	SS-V5NBFL	2.98 (75.7)	1.50 (38.1)	5.00 (127)		—	

Options

High-Temperature Packing

- Grafoil valve packing material for high-temperature service. See **Pressure-Temperature Ratings**, page 3.
- Includes Grafoil flange seals on MSS flanges.

To order a manifold with optional Grafoil packing, add **-G** to the manifold ordering number.

Example: SS-V3NBF8-FL-G

Flange Seal Materials

- MSS flange seals are available in Grafoil, virgin PTFE, and reinforced PTFE for system compatibility.
- Temperature ratings are included in the table below.

To order a manifold with an optional MSS flange seal material, add a material designator to the manifold ordering number.

Example: SS-V3NBF8-FL-T

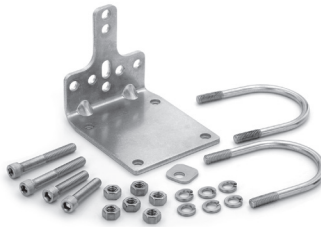
MSS Flange Seal Material	Material Designator	Lubricant/Sealant	Temperature Rating °F (°C)	Packing Material
Fluorocarbon FKM	—	Silicone base	-20 to 450 (-28 to 232)	PTFE
Grafoil	-G	Fluorinated base	-65 to 1000 (-53 to 537)	Grafoil
Virgin PTFE	-T	Silicone base	-65 to 250 (-53 to 121)	PTFE
Reinforced PTFE	-TRL			PTFE

Mounting Kits

Mounting Bracket Kit

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

Ordering number: **SS-MB-VBK**



Steam-Trace Block Kits

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



Manifold Styles	Kit Ordering Number
3-valve, flange	S-MB-M3SK
3-valve, pipe-to-pipe	S-MB-M5SK
3-valve, tube-to-tube	
5-valve, all styles	

MSS Flange Fasteners

- Optional long studs or short bolts are available for special flange mounting applications. See table below for flange fastener length comparison.
- All fasteners are stainless steel with 7/16-20 threads.
- Optional fasteners are available for all V, VB, and VL series manifolds with MSS flanges.

To order a manifold with optional flange fasteners, add a fastener designator to the manifold ordering number.

MSS Flange Fasteners	Length in. (mm)	Hex Size in.	Fastener Designator
Standard hex head bolt	1.0 (25.4)	5/8	—
Long stud with hex nut	2.6 (66.0)	11/16	-LGB
Short hex head bolt	0.875 (22.2)	5/8	-SHB

Example: SS-V3NBF8-FL-LGB

Mounting Hole Center Line

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

To order, add **-EH** to the manifold ordering number.

Example: SS-V5NBF8-FL-EH

Hydrostatic Testing

Hydrostatic testing is available as an option.

To order, add **-W20** to the manifold ordering number.

Example: SS-V2BF8-W20

Maintenance Kits

Flange Seal and Bolt Kits

- Kit contains flange seals, flange bolts, lubricant, and instructions.
- Select a kit ordering number from the tables below based on the manifold series, flange style, and seal material.



V, VB, and VL Series with MSS Flanges

Flange Seal Material	Kit Ordering Number	
	2-Valve	3- and 5-Valve
Fluorocarbon FKM	SS-MK-V2V	SS-MK-V3V
Grafoil	SS-MK-V2G	SS-MK-V3G
Virgin PTFE	SS-MK-V2T	SS-MK-V3T
Reinforced PTFE	SS-MK-V2R	SS-MK-V3R