

Anderson Greenwood Instrumentation Manifolds - Five Valve

Lightweight and compact 5 valve manifolds designed for direct mounting to differential pressure transmitters for pressures to 6000 psig (414 barg)

General Application

The M24A and M24T are five-valve manifolds that enable instrument operation, isolation, zeroing, calibration and venting to close the system in a single unit. They are suitable for liquid or vapor service

TECHNICAL DATA

Materials

316 SS, Monel®

Seats:

Metal

Connections:

Pipe x flanged to instrument

Flanged x flanged to instrument

Instrument: Flanged

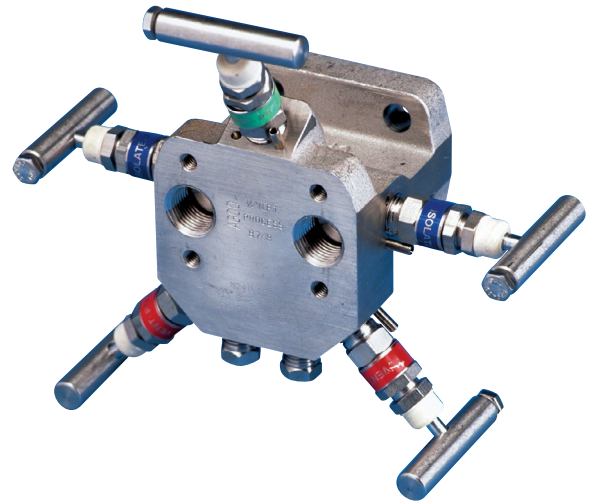
Process: Flanged or 1/2" NPT

Pressure (max):

6000 PSI (414 bar)

-313°F to 1000°F

(-192°C to 538°C)



Features

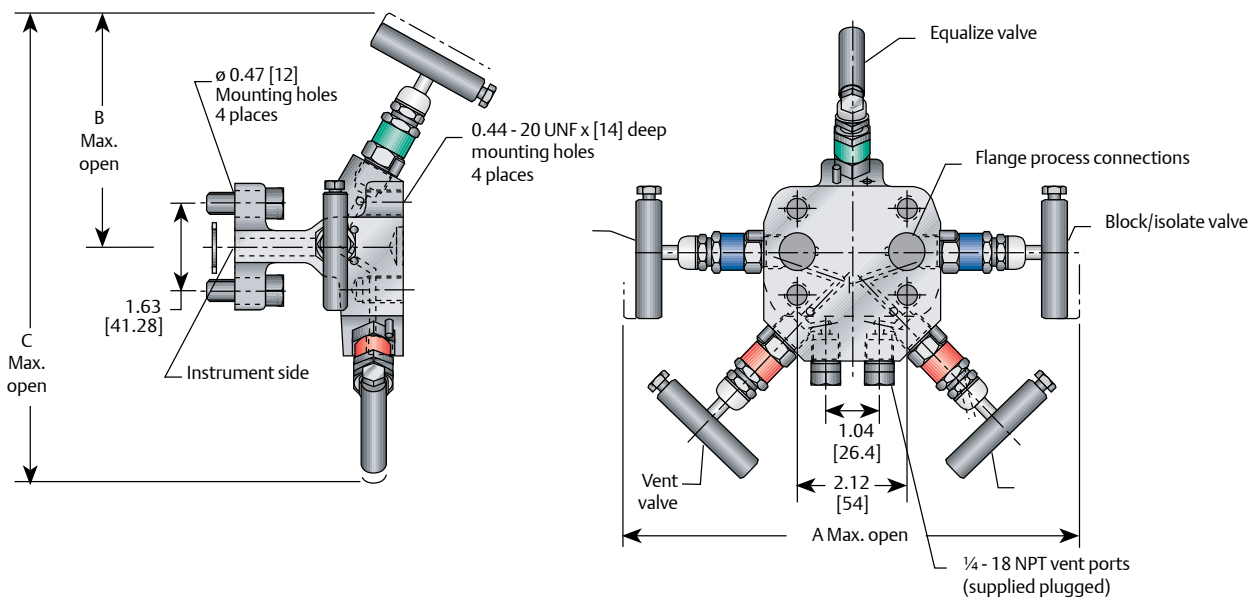
- Direct mounting compact design requires minimum space for operation and installation with fewer potential leak points.
- Cost savings when manifolding the valves by eliminating several parts used in conventional methods of 'piping up'.
- Free-swivelling ball end stem ensures perfect alignment, providing repetitive bubble-tight shutoff and long life.
- PTFE or graphite packing below stem threads prevents lubricant washout and thread corrosion.
- Back seat stem prevents blowout or removal while in operation.
- Threaded vent ports allow vent to be piped away safely. Supplied plugged as standard.
- Direct mounting via standard flanged connections at 2^{1/8}" (54 mm) centers. Non-standard centers also available.
- Standard pipe bracket bolts directly to the manifold providing a rigid support for the transmitter. Instrument can be removed easily for service or repair

M24A/M24T SERIES

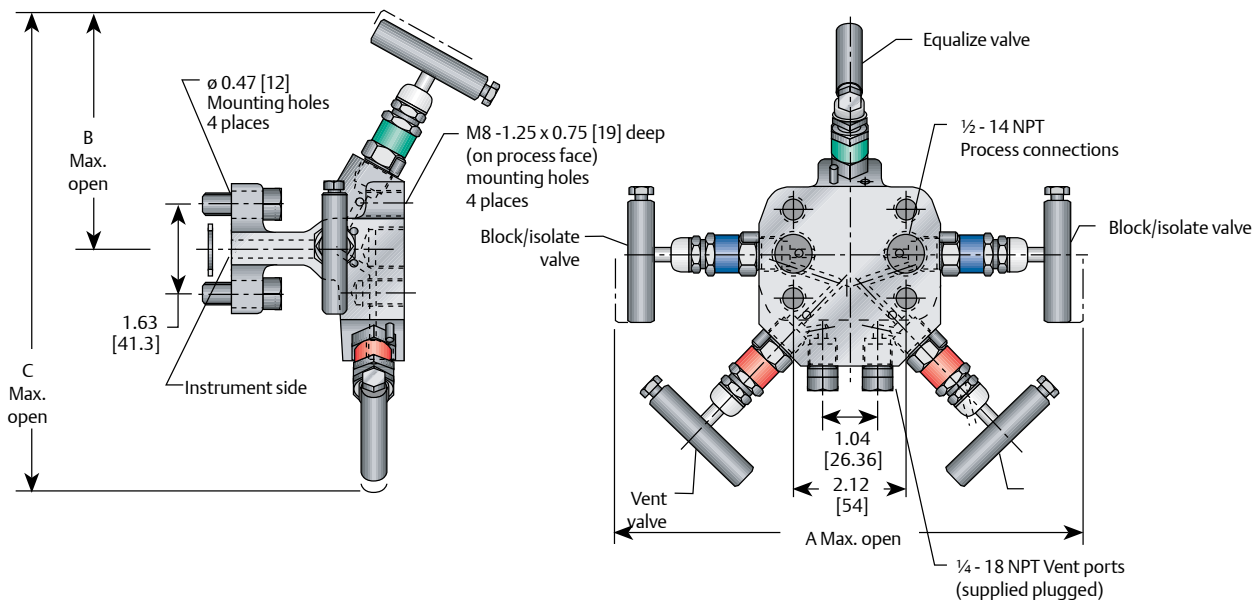
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M24A/M24T Dimensions

M24A Dimensions, inches [mm] - Flanged x flanged

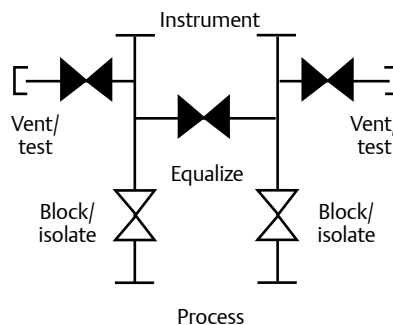


M24T Dimensions, inches [mm] - Threaded x flanged



Maximum Dimensions, inches [mm]

Valve	A	B	C
PTFE packing	8.65 [220]	4.35 [110]	8.65 [220]
Graphite packing	9.75 [248]	4.80 [122]	9.60 [244]



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Bonnet Assemblies

The metal-seated bonnet assemblies have a rotating stem with free swivel ball-type seat for long service life. The specially hardened ball seat is ideal for both gas and liquid service.

All stem threads are rolled and lubricated to prevent galling and reduce operating torque. The stem seal is a patented PTFE packing gland which is adjustable in service. All bonnets are assembled with a bonnet locking pin to prevent accidental removal while in service and a protective dust cap is fitted to contain stem lubricant and prevent the influx of contaminants.

The M24's high-temperature bonnet assemblies use a strengthened stem and bonnet incorporating adjustable graphite rings and back-up pressure rings to ensure a leak-free stem seal and are fitted with larger size T-bar handles.

Standard Materials

Valve ^[1]	Body	Bonnet	Stem	Ball Seat
316 SS ^[2]	A351 CF8M	316 SS	316 SS	316 SS
SG ^[2]	A351 CF8M	316 SS	Monel® 400	Monel® K500

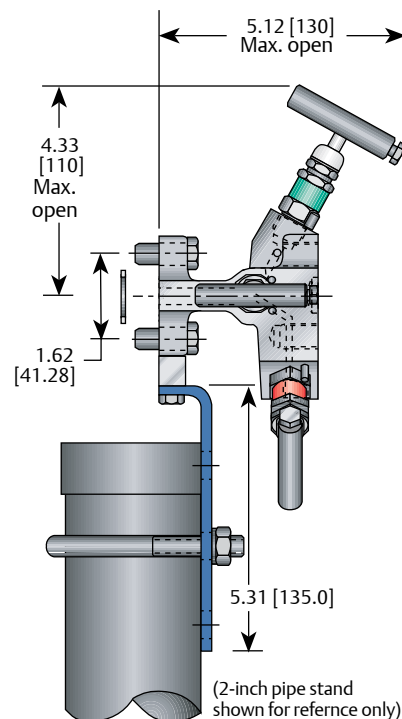
NOTES

1. Approximate valve weight: 6.0 lb [2.7 kg]. 0.187-inch [4.8 mm] diameter orifice. Valve Cv 0.52 maximum.
2. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for Chloride conditions ≤ 50 mg/l [ppm]) and NACE MR0103.
3. For any other material requirements, please consult the factory.

AGCO Mount (AM)

The AGCO mount principle is to mount the manifold not the transmitter enabling easier instrument loop installations and lower on-going maintenance costs. The transmitter is simply removed by releasing the four mounting bolts and disconnecting signal leads. M24 utilizes an AGCO Mount, suitable for 2-inch [50 mm] NB pipestand. Supplied in zinc plated CS as standard, also available in stainless steel.

AGCO MOUNT DIMENSIONS, inches [mm]



M24A/M24T SERIES

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Bonnet Lock (BL) (Patented)

- Anderson Greenwood's Bonnet Lock prevents accidental loosening of the bonnet-to-body seal.
- A high-strength, short bonnet pin aligns a hex collar over the bonnet. A standard panel nut (Graphite packed) then locks the collar against the valve.
- Tests indicate the minimum torque required to break the collar loose is greater than the torque required to twist off handle.
- Available on Graphite packed bonnets.



Graphite Packed Bonnet Lock^[1]

NOTE

1. Standard on power plant manifolds.

Valve Bonnet Identification

Ring labels: the valve bonnets have color coded ring labels for service identification.

- Red: Vent valves
- Blue: Isolate valves
- Green: Equalize valves

Connections

Standard connections

- Process:** Threaded 1/2-inch NPT to ANSI/ASME B1-20-1 on 2 1/8-inch [54 mm] centers.
- Instrument:** Flanged for direct mounting to transmitters on 2 1/8-inch [54 mm] centers.
Flanged connections are on 2 1/8-inch [54 mm] centers.
- Vent:** Threaded 1/4-inch NPT to ANSI/ASME B1-20-1.

Futbol flanges

Futbol flanges are available for bolting to the process side of a flanged manifold. This provides the ideal solution to welded connection requirements, allowing the flanges to be welded to process piping while keeping the flexibility to remove the manifold when required, for maintenance or repair.

Connection	CS	316 SS
1/2" FNPT	KFC-4	KFS-4
1/2" MNPT	KFC-4M	KFS-4M
1/2" Buttweld	KFC-4BW	KFS-4BW
1/2" Socket weld	KFC-4B	KFS-4B

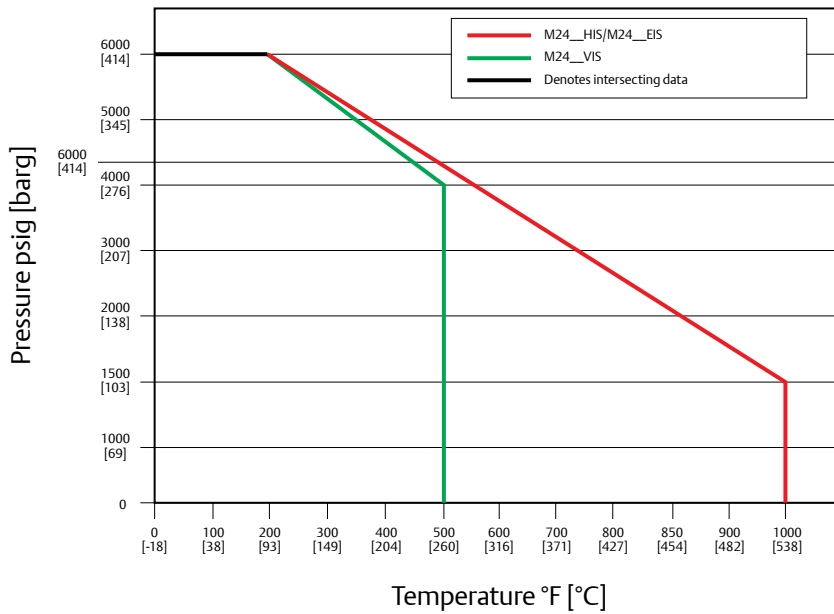
NOTES

1. Threaded connection: vent supplied with blanking plug as standard.
2. All manifolds are supplied with seal rings and four 7/16-inch UNF HT steel mounting bolts. PTFE seal rings are supplied with the standard bonnet; Graphite seal rings are supplied with high temperature bonnet.
3. Ring labels are not provided on the Graphite bonnets

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Pressure vs. Temperature

Pressure vs. Temperature



Pressure and Temperature Ratings

Valve	PTFE bonnet
316 SS	6000 psig at 200°F [414 barg at 93°C]
Valve	High temperature
316 SS	6000 psig at 200°F [414 barg at 93°C] 1500 psig at 1000°F [103 barg at 538°C]

Minimum temperature

316 SS, PTFE packed	-70°F (-57°C)
316 SS, Graphite packed	-313°F (-192°C)

M24A/M24T SERIES

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Selection Guide

M24T	V	I	S	-4	-SG
BASIC SERIES	BONNET PACKING	SEAT	BODY MATERIAL	PROCESS CONNECTIONS (M24T ONLY)	OPTIONS
M24A Flanged x flanged	V PTFE	I Integral (body material)	S 316 SS	4 1/2-inch FNPT	BL Bonnet lock device (H or E packing, for V packing contact factory)
M24T Threaded x flanged	H Graphite E Low emissions graphite				CB Ceramic ball ended stem AM AGCO Mount kit OC00 Cleaned for oxygen service R3V ⁽¹⁾ Add for use with Rosemount® Model 3051C (SS 18-8 bolts) SSA ⁽¹⁾ SS flange bolt (grade 18-8) - maximum pressure rating 4500 psi [310 barg] SSB 316 SS flange bolt (B8M Class 2) - will provide full pressure rating SSC ⁽¹⁾ 316 flange bolt (B8M) - maximum pressure rating 4500 psi [310 barg] SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for Chloride conditions ≤ 50 mg/l [ppm]) and NACE MR0103 (SS valves only) SS All 316 SS material on non wetted components T Large Gasket LT Low Temperature for integral seat 316SS -313°F (-192°C) @ 2500 psi (1782 bar) for integral seat (I) graphite packing. Must include -SBB option to use

NOTE

1. 316 SS bolts lower pressure ratings to a maximum of 4500 psi [310 barg]. Consult factory for full rating with 316 SS bolts.

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Selection Guide - Power Industry Applications^[1]

M24THP		S	-4	-XP	-AM	
BASIC SERIES	BODY MATERIAL	CONNECTIONS ^[3] (PROCESS X INSTRUMENT X VENT)			OPTIONS	
M24AHP	S 316 SS	4	1/2-inch FNPT x flanged x 1/4-inch FNPT		AM	AGCO Mount kit
M24THP					SSB	316 SS flange bolt (B8M Class 2) - will provide full pressure rating
					SS	All 316 SS material on non wetted components
					R3V	Add for use with Rosemount® model 3051C (with -XP B8M Class 2 SS bolts)
					XP	Meets requirements of B31.1

NOTES

- All manifolds come standard with Graphite packing, integral seats, bonnet locks, and are subjected to hydrostatic testing.
- Manifold ratings:
 - SST 6000 psig at 100°F
 - [414 barg at 38°C]
 - 3030 psig at 1000°F
 - [209 barg at 538°C]
- M24A connections are flange x flange x 1/4 -inch FNPT vents.