

Anderson Greenwood Instrumentation Manifolds - Two Valve

A single-flanged, two-valve manifold consisting of two block valves with no equalizer passage suitable for pressures up to 6000 psig (414 barg)

General Application

The manifold is designed for direct mounting to ΔP -style differential pressure transmitters in liquid level service on pressurized vessels.



TECHNICAL DATA

Materials:

CS, 316 SS, Hastelloy®

Seats:

Metal or soft

Connections:

1/2" NPT

Pressure (max):

6000 psig (414 barg)

Temperature (min/max):

-313°F to 1000°F
(-192°C to 538°C)

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Features

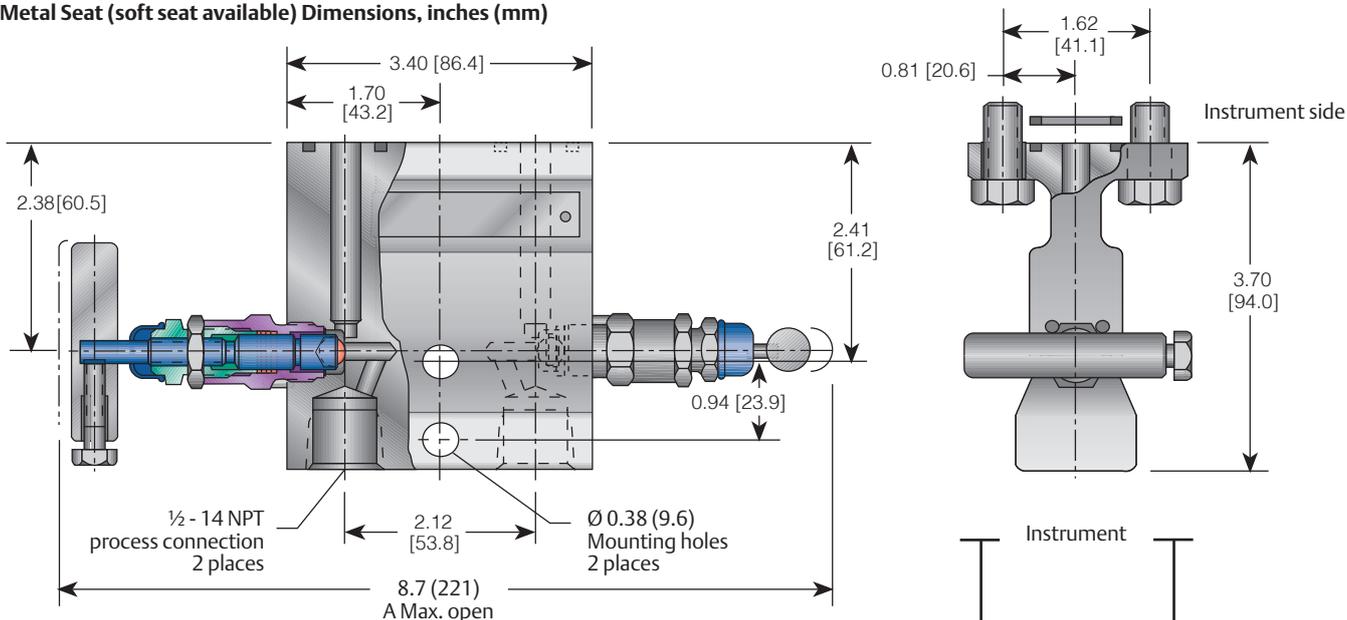
- Cost savings of 20-30% when manifolding instruments by eliminating several parts used in conventional methods of 'piping up'.
- Compact design requires minimum space for operation and installation.
- Free-swivelling ball end stems ensure bubble-tight valve closure without seat galling.
- Easy instrument removal due to direct bolting to the manifold. Signal lines, purge lines, etc. are left undisturbed, facilitating repairs, service and calibration.
- Immediate installation with AGI Mount as the manifold, steam block, bracket and all associated piping can be installed without the instrument at the time of plant construction.
- Secure mounting ensured by the AGI Mount. Instrument piping stability is enhanced when supported directly by the pipe stand through the manifold.
- All packing is below stem threads, body-to-bonnet seal is below the threads, minimizing process fluid corrosion.
- Reduced chance of instrument damage. With the AGI Mount, the instrument can be warehoused safely until final 'loop' checkout.

M4TL SERIES

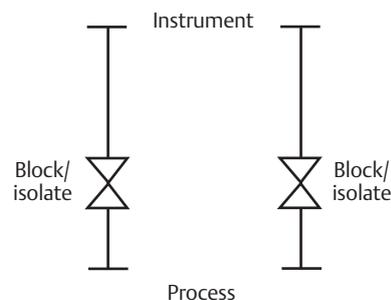
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M4TL Dimensions

Metal Seat (soft seat available) Dimensions, inches (mm)



Color of Cap	Type of Valve
	Block / Isolate



Bonnet Lock (BL)

The Anderson Greenwood bonnet lock prevents accidental loosening of the bonnet-to-body seal. A high-strength, short bonnet pin aligns a hex collar over the bonnet. Tests indicate the minimum torque required to break the collar loose is greater than the torque required to twist off the handle.



Standard Materials

Valve	Packing	Body	Bonnet	Stem	Ball	Bolts
CS ^[2]	PTFE	A576-1018	A108	A276-316	17-4 PH	A193-B7
CS ^[2]	Graphite/ Low emissions graphite	A105	A479-316/A105	A276-316	17-4 PH	A193-B7
316 SS	PTFE	A479-316	A479-316	A276-316	316	A193-B7
316 SS	Graphite/ Low emissions graphite	A479-316	A479-316	A276-316	316	A193-B7
SG ^[3]	PTFE	A479-316	Monel [®] 400	Monel [®] K500	A193-B7	PTFE
SG ^[3]	Graphite/ Low emissions graphite	A479-316	A479-316	Monel [®] 400	Monel [®] K500	A193-B7
SG3 ^[4]	PTFE	Hastelloy [®] C-276	Hastelloy [®] C-276	Hastelloy [®] C-276	Elgiloy [®]	A193-B7

NOTES

1. **Approximate valve weight:** 5.0 lb (2.3 kg).
Metal seat: 0.156-inch (4.0 mm) diameter orifice.
Valve Cv 0.36 maximum.
Soft seat: 0.187-inch (4.8 mm) diameter orifice.
Valve Cv 0.83 maximum.
2. CS is zinc TCP plated to prevent corrosion.
3. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions ≤ 50 mg/l (ppm)) and NACE MR0103-2005.
4. SG3 (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions > 50 mg/l (ppm)).
5. 316 SS bolts lower pressure ratings to a maximum of 4500 psig (310 barg). Consult factory for full ratings.



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Bonnet Assembly Options

The M4TL has metal seats as standard with the option of soft seated designs. All stem threads are rolled and lubricated to prevent galling and reduce operating torque. The stem seal is a PTFE or Graphite 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.

Metal-Seated Bonnet Assembly

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.

Optional Soft-Seated Bonnet Assembly

The soft-seated bonnet assemblies have a one-piece rotating stem and plug. In addition to the adjustable PTFE packing gland, the bonnets are available with a FKM O-ring and PTFE back-up ring.

Pressure and Temperature Ratings

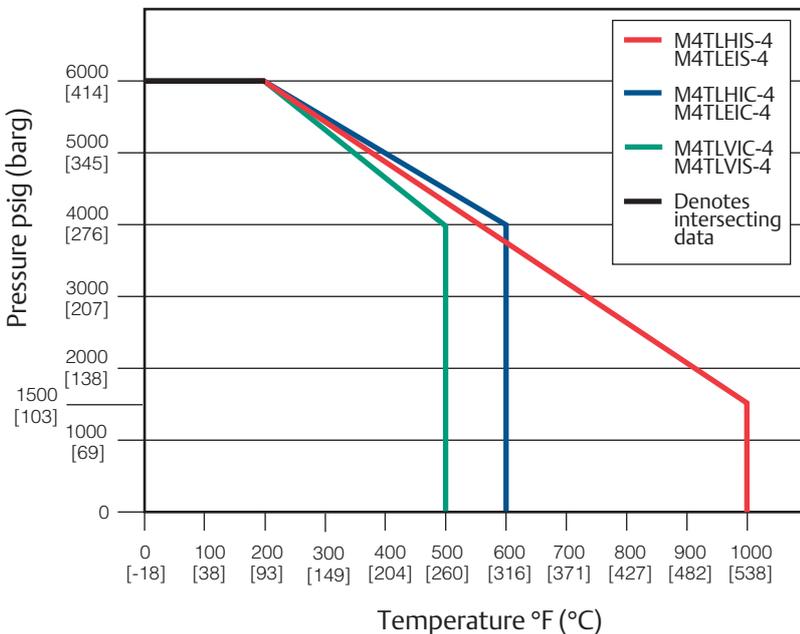
Valve	Packing	Ratings
CS ^[1]	PTFE	6000 psig at 200°F (414 barg at 93°C) 4000 psig at 500°F (276 barg at 260°C)
CS ^[1]	Graphite/ Low emissions graphite	6000 psig at 200°F (414 barg at 93°C) 4000 psig at 600°F (276 barg at 316°C)
316 SS	PTFE	6000 psig at 200°F (414 barg at 93°C) 4000 psig at 500°F (276 barg at 260°C)
316 SS	Graphite/ Low emissions graphite	6000 psig at 200°F (414 barg at 93°C) 1500 psig at 1000°F (103 barg at 538°C)
SG ^[2] , SG3 ^[3]	PTFE	6000 psig at 200°F (414 barg at 93°C) 4000 psig at 500°F (276 barg at 260°C)
SG ^[2] , SG3 ^[3]	Graphite/ Low emissions graphite	6000 psig at 200°F (414 barg at 93°C) 1500 psig at 1000°F (103 barg at 538°C)

NOTES

1. CS is zinc TCP plated to prevent corrosion.
2. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions ≤ 50 mg/l (ppm)) and NACE MR0103-2005.
3. SG3 (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions > 50 mg/l (ppm)).
4. 316 SS bolts lower pressure ratings to a maximum of 4500 psig (310 barg). Consult factory for full ratings.
5. Minimum temperature: -70°F (-57°C). Carbon Steel and O-ring -20°F (-29°C), 316SS with Delrin® seat -40°F (-40°C). 316SS integral metal seat minimum temperature -313°F (-192°C) @ 2500 psi (172 bar)

Pressure and Temperature

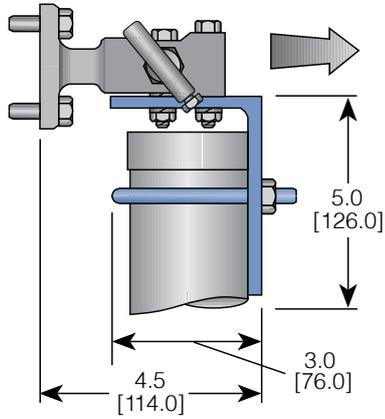
Pressure vs. Temperature



M4TL SERIES

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AGI Mount Kits



AGI Mount kits are available for all manifolds where they apply. See AM option for each manifold.

AGI Mount kits for liquid level manifold

Manifold style	Description	Material
M4TL AM	Standard kit For bottom test ports With steam block	CS, zinc TCP plated
M4TL AMS	Standard kit For bottom test ports With CS steam block	316 SS

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Selection Guide

M4TL	V	I	C	-4	-AM
BASIC SERIES	PACKING	SEAT MATERIAL	BODY MATERIAL	CONNECTIONS	OPTIONS
M4TL	V PTFE	I Integral (body material)	C CS, A108, Graphite A105	4 Flange outlet x ½-inch FNPT (inlet)	AM CS AGI Mounting kit for 2 inch pipe stand mount
	H Graphite	Consult Factory for Soft Seat	S SS, A479-31 W 316L SS J Hastelloy®	STYLE B Female socket weld	AMS AGI 316SS Mounting kit to 2 inch pipe stand AMV AGI mount kit (verticle) AMVS AGI mount kit (verticle stainless steel) AMV AGI mount kit (wall mounting) BL Bonnet lock device HD Hydrostatic testing (100%) (MSS-SP-61) OC00 Oxygen clean (OC) PMI00 PMI Body PMI01 PMI Body and Bonnet PMI02 PMI Body, Bonnet and Stem PT Top purge port 1/4" R3V Add for use with Rosemount® model 305C (SS 18-8 Bolts) (B8M class 2 Bolts with -XP option) SB Steam block SG Meets the requirements of NACE MRO175/ ISO15156 (for chloride conditions <_ 50 mg/l (ppm)) and NACE MRO103-2005 SG3 Meets the requirements of NACE MRO175/ ISO15156 (for chloride conditions > 50 mg/l (ppm)) Hastelloy Material used for all wetted materials SSB 316 SS flange bolt (B8M Class 2) - will provide full pressure rating SSC 316 flange bolt (B8M) - maximum pressure rating 4500 psi [310 barg] SST 316SS Circular Tag (10 Characters max) T Larger diameter gasket groove TB Bottom test port 1/4" TF Top test ports 1/4" FNPT XP ASME B31.1 (with Graphite bonnets only) OR O-ring gasket LT Low Temperature for integral seat 316SS -313°F (-192°C) @ 2500 psi (1782 bar) Must use with -SSB option and Integral Seats and Graphite packing 316SS

NOTE

1. 316 SS bolts lower pressure ratings to a maximum of 4500 psig (310 barg). Consult factory for full ratings.