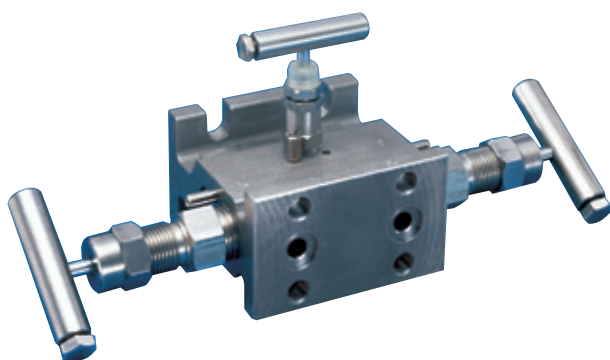


ANDERSON GREENWOOD M45A DIFFERENTIAL PRESSURE MANIFOLDS

Differential pressure manifolds with two 3/8" (9.5 mm) orifice soft-seated block valves and a metal seated equalizer valve for direct or remote mounting at pressures to 6000 psig (414 barg)



FEATURES

- Cost savings of 20-30% when unitizing the manifolding by eliminating several parts used in conventional methods of 'piping up'.
- Roddable block valve soft seats simplify maintenance and ensure accuracy.
- Back seat stem design eliminates stem blowout or accidental removal while in operation.
- Fewer leak points reduce the chances of leakage.
- Soft seat design enables field replacement without valve removal.
- Integral hard back seat protects against stem blowout and provides a secondary packing seal.
- Rolled stem threads provide a stronger, more durable thread area, increasing valve life.
- Mirror stem finish in the packing area enables smooth operation and extends packing life.
- Constant compression metal-to-metal bonnet-to-body seal below bonnet threads prevents corrosion, eliminates tensile breakage and creates a reliable seal point.
- Easily adjustable stem packing decreases downtime and provides long service life.
- Manifold mounts directly to the pipe stand. AGCO mount supports the transmitter, allows loop installation without the transmitter and easy removal for service or repair.

GENERAL APPLICATION

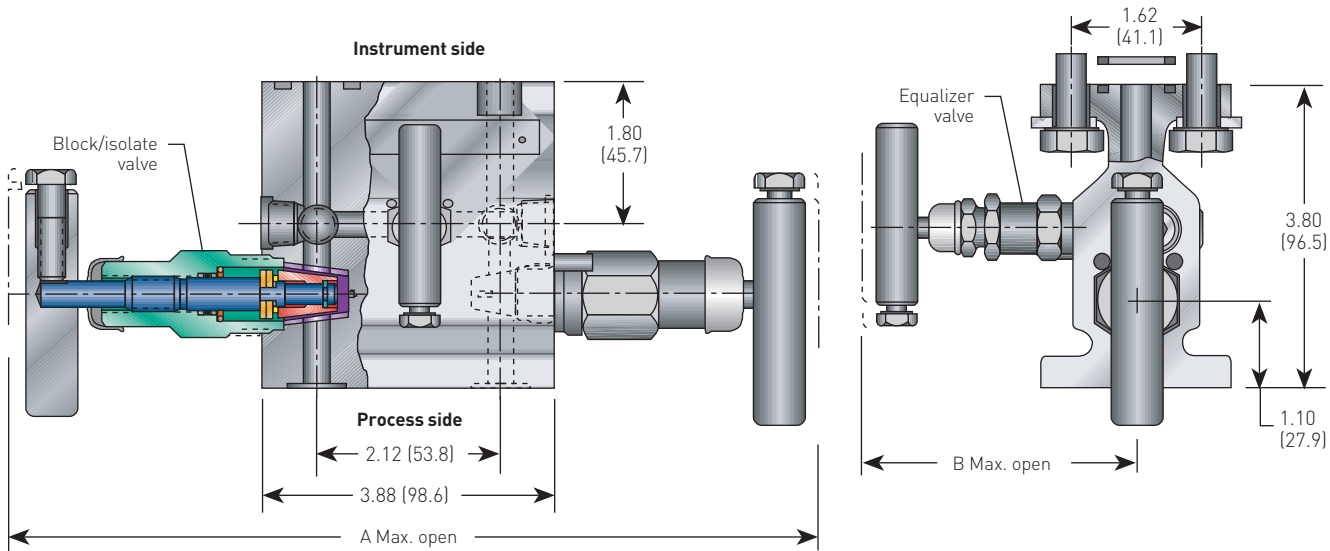
The M45A is designed for mounting on differential pressure transmitters with 2 1/8" (54 mm) center-to-center connections.

TECHNICAL DATA

Materials:	CS, SS
Seats:	Metal and soft
Connections	
Instrument:	Flanged
Process:	Flanged
Pressure (max.):	6000 psig (414 barg)
Temperature (max.):	1000°F (538°C)

ANDERSON GREENWOOD M45A DIFFERENTIAL PRESSURE MANIFOLDS

DIMENSIONS, INCHES [mm]

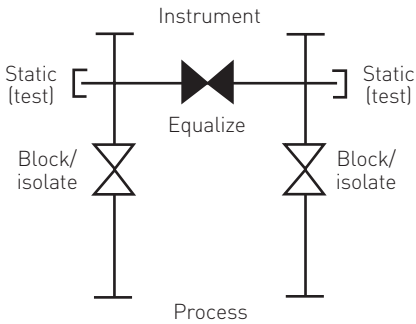


DIMENSIONS, INCHES (mm)

Packing	A	B
PTFE	11.90 (302.3)	3.40 (86.4)
GRAFOIL®	11.90 (302.3)	4.05 (102.9)
O-ring	11.36 (288.5)	3.40 (86.4)

NOTE

1. Bottom static (test) connection available.



MOUNTING

For direct or remote mounting, the M45A permits the transmitter's futbol flanges to connect the process signal lines to the manifold directly, with either 1/2" pipe or tubing connections.

ANDERSON GREENWOOD M45A DIFFERENTIAL PRESSURE MANIFOLDS

BONNET ASSEMBLIES

The M45A features two block valves with roddable soft seats and a metal-seated equalizer valve. 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.

Soft-seated bonnet assemblies

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.

Metal-seated bonnet assembly

The metal-seated bonnet assembly has 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. The high-temperature bonnet assembly uses a strengthened stem and bonnet incorporating adjustable graphite O-rings and back-up pressure rings to ensure a leak-free stem seal and is fitted with a larger size T-bar handle.

STANDARD MATERIALS

Valve ^[1]	Body	Bonnet		
		Block Valve	Equalizer Valve ^[2]	Stem
CS ^[4]	A105	A108	A108	A581-303
CS ^[4]	A105	A108	A105	A581-303
SS	A479-316	A479-316	316	A276-316
SS	A479-316	A479-316	316	A276-316
SG ^[5]	A479-316	A479-316	316	Monel [®]
SG3 ^[6]	Hastelloy [®] C276	Hastelloy [®] C276	Hastelloy [®] C276	Hastelloy [®] C276

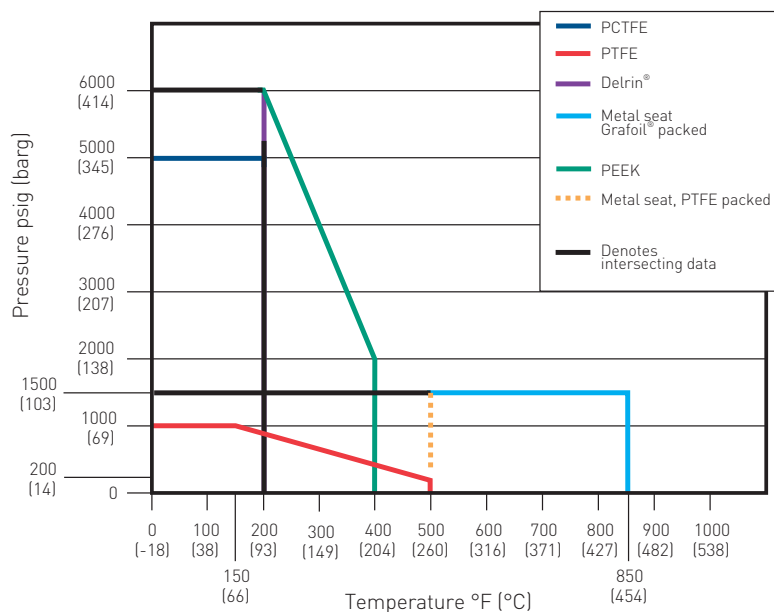
PRESSURE AND TEMPERATURE RATINGS

Valve	Packing	Seat	Pressure and temperature ratings
CS ^[4]	PTFE	Delrin [®] ^[3]	6000 psig at 200°F (414 barg at 93°C)
CS ^[4]	GRAFOIL [®]	SS	1500 psig at 850°F (103 barg at 454°C)
SS	PTFE	Delrin [®]	6000 psig at 200°F (414 barg at 93°C)
SS	GRAFOIL [®]	SS	1500 psig at 1000°F (103 barg at 538°C)
SG ^[5] , SG3 ^[6]	PTFE	Delrin [®] ^[3]	6000 psig at 200°F (414 barg at 93°C)

NOTES

1. Approximate valve weight: 7.1 lb (3.2 kg).
0.375-inch (9.5 mm) diameter orifice.
Valve C_v 3.0 maximum.
2. Equalizer valve utilizes free-swiveling ball ended stem. Equalizer orifice size 0.187-inch (4.8 mm).
3. PCTFE (Polychlorotrifluoroethylene is exact equivalent of Kel-F[®]), PEEK and PTFE also available.
4. CS is zinc cobalt plated to resist corrosion.
5. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions < 50 mg/l [ppm]) and NACE MR0103.
6. SG3 (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions > 50 mg/l [ppm]).
7. 316 SS bolts lower pressure ratings to a maximum of 4500 psi (310 barg). Consult factory for full rating with 316 SS bolts.

PRESSURE VS. TEMPERATURE

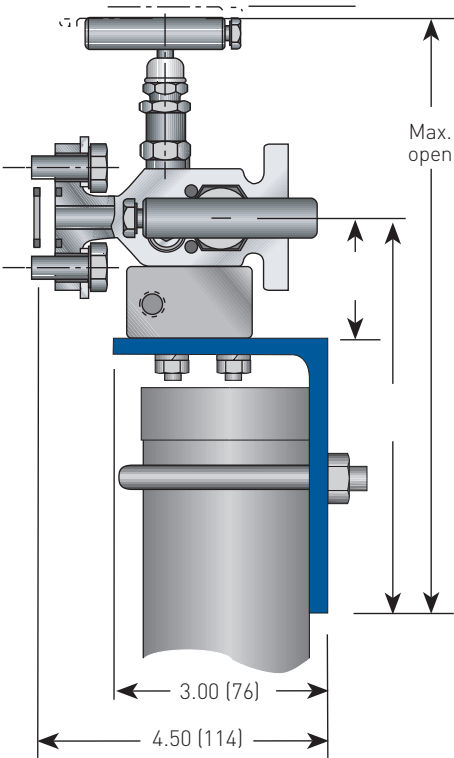


MINIMUM TEMPERATURE

Carbon steel	-20°F (-29°C)
316 SS O-ring seal	-20°F (-29°C)
316 SS, Monel, Hastelloy PTFE packed	-70°F (-57°C)
316 SS, Monel, Hastelloy Grafoil packed	-70°F (-57°C)

ANDERSON GREENWOOD M45A DIFFERENTIAL PRESSURE MANIFOLDS

AGCO MOUNT WITH M45A MANIFOLD DIMENSIONS, INCHES (mm)



FEATURES AND BENEFITS

- Lowers maintenance costs by simply removing four transmitter bolts, disconnecting signal leads and performing needed transmitter maintenance.
- Reduces potential environmental contamination and the possibility of signal-line damage.
- Reduces pipestand corrosion by using the bracket overhang and plastic rain hat to cover the pipestand.
- Optional steam heat block permits tracing the manifold and transmitter from a common connection.
- Shipped ready for assembly and installation; includes optional heat block and purge ports (if specified).
- AGCO Mount system is essentially free if you get credit from the transmitter company for the mounting bracket and futbol connectors.

AGCO MOUNT KITS

Manifold style	Model suffix	Material	Description
M45A ^[1]	AM	CS ^[2]	Standard kit
M45A ^[1]	AMS	SS	SS components

NOTES

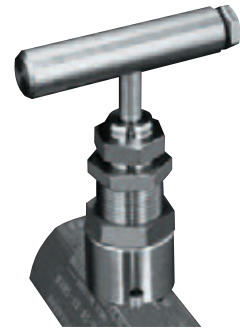
1. Zinc chromate plated.

ANDERSON GREENWOOD M45A DIFFERENTIAL PRESSURE MANIFOLDS

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 (GRAFOIL® 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 GRAFOIL® packed bonnets.

Note 1: Standard on power plant manifolds.



GRAFOIL® PACKED BONNET LOCK⁽¹⁾

ANDERSON GREENWOOD M45A DIFFERENTIAL PRESSURE MANIFOLDS

SELECTION GUIDE

Example:	M45A	V	D	S	- SG
Valve type					
M45A 3-Valve manifold, flange x flange					
Bonnet packing					
H GRAFOIL®					
V PTFE					
R O-ring (FKM) block valve only					
Seat					
D Delrin®					
E PEEK					
K PCTFE					
S 316 SS					
V PTFE					
Body material					
C CS, A576-10L18					
J Hastelloy®					
S SS, A479-316					
W SS, A479-316L - maximum pressure 5000 psig (345 barg)					
Options					
-AM AGCO Mount kit for 2-inch pipe stand mounting of manifold (see table p 4)					
-BC Accessory bracket - mount conduit with -AM					
-BL Bonnet lock device GRAFOIL® only					
-BP Accessory bracket - mount purge meters with -AM					
-CL00 Cleaned for chlorine service					
-HD Hydrostatic testing (100 percent) (MSS SP-61)					
-MS Monel® stem (standard on Monel and SG valves)					
-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) (not available for O-ring packed valves)					
-SG3 (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions > 50 mg/l [ppm])					
-TB Test ports - bottom of manifold (1/4-inch FNPT) (option not available with -AM)					

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.

