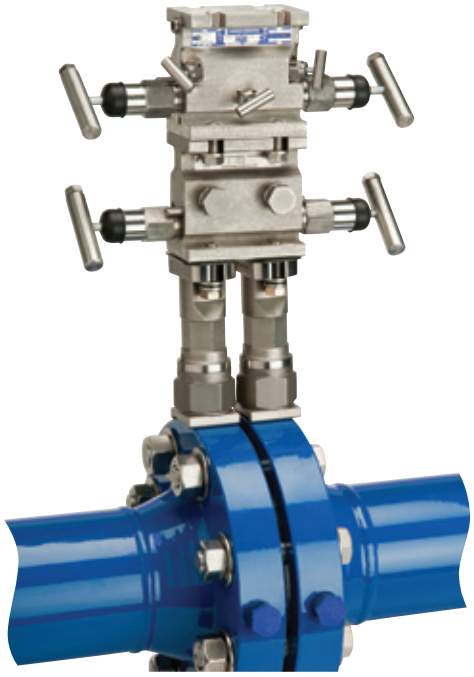
ANDERSON GREENWOOD ACCU-MOUNT® NATURAL GAS MANIFOLDS

A modular mounting system that provides close coupling to the orifice tap and full porting to reduce any possible measurement inaccuracy through induced square root error



FEATURES

- Remote mount and direct mounting for differential and gauge measurement applications.
- Multiple connection arrangement options.
- Patented Teflon® stem packing reduces operating torque.
- O-ring seal with dual Teflon® back-up rings that provide secondary seal should O-ring fail due to excessive debris in media.
- Back-seating to prevent stem blowout and metal-to-metal secondary stem seal in full 'open' position.
- Packing below stem threads to prevent corrosion and contamination of stem threads.
- 316 SS product stems are ENC plated for superior strength and long term reliability.
- Mirror stem finish burnished to a 16 RMS finish in the packing area enables smooth stem operation and extends packing life.
- Metal body-to-bonnet seal in compression, not tension.
- Stem threads are rolled for superior strength and to prevent galling.

GENERAL APPLICATION

The ACCU-Mount® system is designed for the installation of instruments on natural gas fiscal metering applications. It has a range of components to ensure the complete installation has full porting and the flexibility for single or multiple mounting of instruments.

TECHNICAL DATA

Materials:	316 SS, carbon steel
Sizes:	3/16", 1/4" and 3/8" orifice
Connections:	NPT, socket weld, flange inlet/ outlet(s), bolted, stabilized futbols
Max pressure:	6000 psig (414 barg)
Max temp:	500°F (260°C)

ACCURACY OF MEASUREMENT

The accuracy of measurement continues to be a major issue in the natural gas industry. Improvement in electronic flow measurement instruments, requirements for real-time data, new regulatory controls, EPA guidelines and custody transfer have influenced the requirement for enhanced accuracy and bubble-tight installation.

Field research and testing conducted at Southwest Research in San Antonio, Texas and the Pipeline Gas and Compressor Research Council (PCRC) confirmed that pulsations and transient-induced errors at the orifice meter can have a major effect on gas differential flow measurement accuracy.

The causes of errors when measuring pulsating flow are:
1. The inability to sample properly the square root of the differential pressures produced as the pulsation goes through its varying frequencies.
2. Gauge line errors between the outlet of the orifice flange and the instrument.

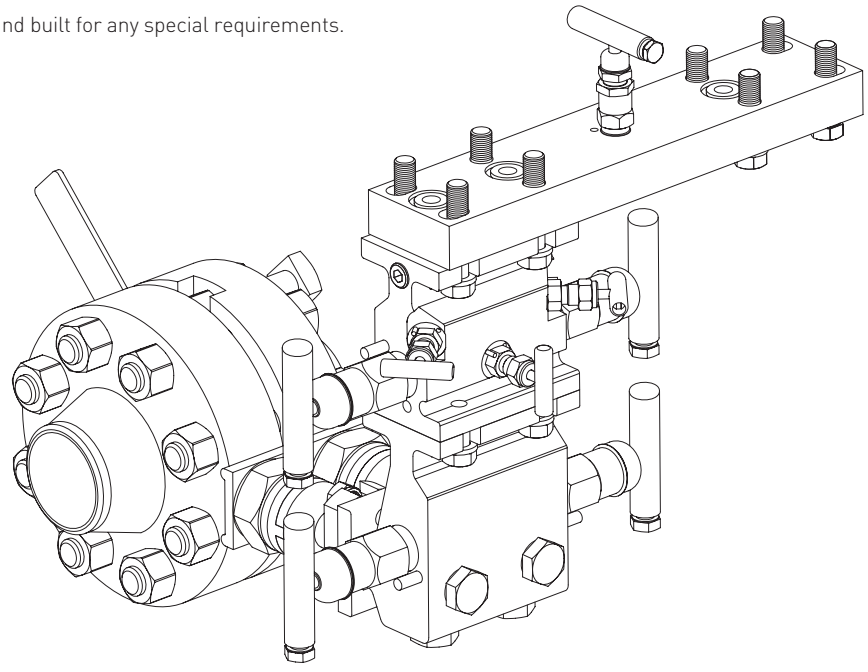
Each installation should be tested from the orifice fitting to the electronic flow computer to determine what degree of square root error might be present.

This flow measurement phenomenon has created the need for a full ported 5-valve manifold (process block valve positions) which serves to ensure transmission of the true differential pressure signal occurring at the orifice taps to the measurement device. Consideration must also be given to all components between the orifice taps and measuring device. These components should also be designed with large ⅜" orifice constant diameter full porting equivalent to the orifice meter porting, thereby improving the signal response time by eliminating the expansion and/or contraction delays caused by changing signal line diameters.

The ACCU-Mount system offers manifolds, stabilized connector/futbols, adapters and accessories that provide both close coupling to the orifice tap and full bore ⅜" orifice flow porting. It is designed to provide various installation options for both the system designer or engineer as well as field personnel.

A standard ACCU-Mount® system may include the following components:
1. Stabilized connecters or close coupled futbols.
2. Straight or angle spacers and block valves.
3. 5-valve manifolds - straight and angle designs.
4. Differential and static instrument adapters.

A customized ACCU-Mount® system can be designed and built for any special requirements. For information contact your sales representative.



TYPICAL HORIZONTAL TO VERTICAL GAS MEASUREMENT UNIT

ANDERSON GREENWOOD ACCU-MOUNT® NATURAL GAS MANIFOLDS

TESTING AND CERTIFICATION

ACCU-Mount® system products meet the following industry recommendations, testing and design requirements:

Large ⅜" (9.5 mm) orifice:
American Petroleum Institute (API) Report No. 3 Part I
Gas Processors Association (GPA) 8185-90-Part I
American Gas Association (AGA)

Small 3/16" (4.8 mm) orifice:
Instrumentation products for ultrasonic measurement devices
- Hand
- Gauge
- Block and bleed
- Multiport
- Manifolds
- Accessories

Engineering design specifications
- MSS SP-25 Standard marking systems for valves, fittings and flange unions
- MSS SP-99 Instrument valves
- MSS SP-105 Instrument valves for code applications
- ASME B31.1 Power piping - pertaining to MSS-SP-99 and MSS-SP-105 Instrumentation valves and manifolds
- ASME B31.3 Process piping - piping components found in petroleum refineries, chemical, pharmaceutical, textile, paper, semiconductor and cryogenic plants, related processing plants and terminals
- ANSI B1.20 Pipe threads, general purpose
- NACE Standard for metals in sour oil field environments:
  SG- (Sour Gas) meets requirements of NACE MR0175/ISO 15156
  (for chloride conditions ≤ 50 mg/1 [ppm]) and NACE MR103 (SS; Teflon® packed only)
  SG3- (Sour Gas) meets requirements of NACE MR0175/ISO 15156
  (for chloride conditions > 50 mg/1 [ppm])

Testing exceeds MSS SP-99 standard
- All products are 100% pressure tested using 2500 psig air

Components tested
- Body (shell)
- Bonnet
- Seat
- Bonnet seal and packing
- Body-to-bonnet connections

Testers stamp applied on body of valve/manifold verifying successful test completed.

Traceability
- Certified material test reports are available (body only)

Minimum temperature	
Carbon steel:	-20°F (-29°C)
316 SS O-ring seal:	-20°F (-29°C)
316 SS, Monel®, Hastelloy®; Teflon® packed:	-70°F (-57°C)
316 SS, Monel®, Hastelloy®; Grafoil® packed:	-70°F (-57°C)

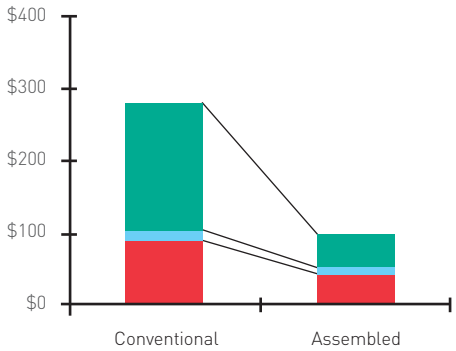
Confirmation specifications
Valves and manifolds are designed to meet or exceed applicable standards both International and North American standards:
- Canadian Registration (CRN)
- Alberta Boiler Safety Association (ABSA)
- National Association of Corrosion Engineers (NACE)
- American Society of Mechanical Engineers (ASME)
- MSS-SP 99 Instrument valves - 3/16", ¼" and ⅜" orifice products are SP-99 qualified
- MSS-SP105 Instrument valves for code applications
- MSS-SP25 Standard marking systems for valves, fittings and flange unions - all products meet specification

SELECTION CONSIDERATIONS

The following should be considered when designing your ACCU-Mount® system
- Orifice taps located on the top (vertical ACCU-Mount®) or side of fitting (horizontal to vertical ACCU-Mount®).
- Fitting description: (orifice flange union, Jr. or Sr. fitting).
- Size of orifice fitting for clearance and tap spacing requirements.
- Block valve upstream of the 3- or 5-valve manifold (optional - recommended).
- Use of a 3- or 5-valve manifold.
- Electronic measurement device - flow computer or DP and static transmitters.
- Intercompany, custody transfer, bi-directional or redundant measurement required.
- Pipeline pressure rating MOP (maximum operating pressure).
- H_2S/CO_2 present in natural gas.
- Environmental conditions (corrosive atmosphere).
- 'In the box systems' for easy, efficient installation.
  ACCU-Mount® systems can be provided with all components 'in the box' and shipped to the location of your choice. This customer-friendly service eliminates the need to wait for individual components and make multiple trips to various locations to gather the required components to install your measurement system. Pre-assembly is also available.

Contact your representative to discuss your 'in the box' system.

MOUNTING AND ASSEMBLY SAVINGS DETAIL



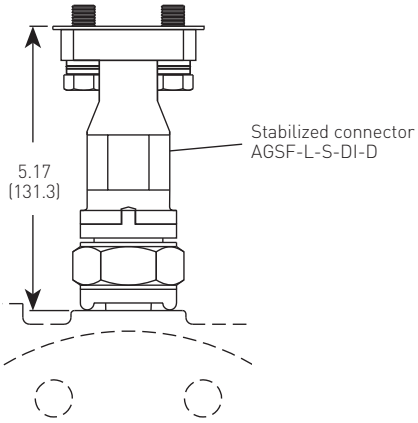
Assembly/installation: pre-assembled, calibrated and factory seal tested

Shipping: one shipment, less weight

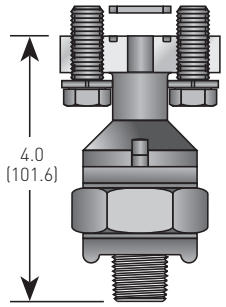
Purchasing/design: one purchase order, one vendor/model to specify

Selection considerations for vertical ACCU-Mount® systems
Stabilized connectors or non-stabilized futbols - these futbol/connectors are the foundation of your ACCU-Mount® system. Consider the size and weight of the electronic measurement device to be mounted. Additional considerations should be given to the environment and site location such as high winds and wildlife in the area with access to the measurement site.

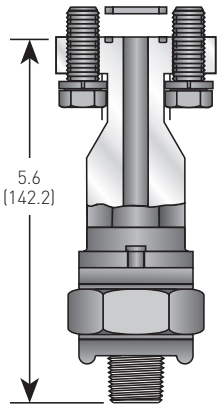
For ordering information for stabilized and non-stabilized connector/futbols, see page 11.



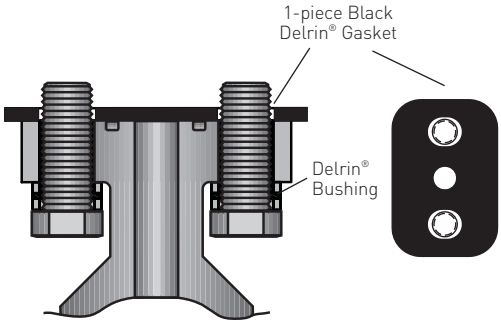
VERTICAL PIPING INSTALLATIONS
Specialty connection adapters (see page 20)



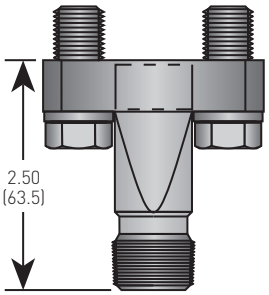
Stabilized connectors AGSF-S



Stabilized connectors AGSF-L



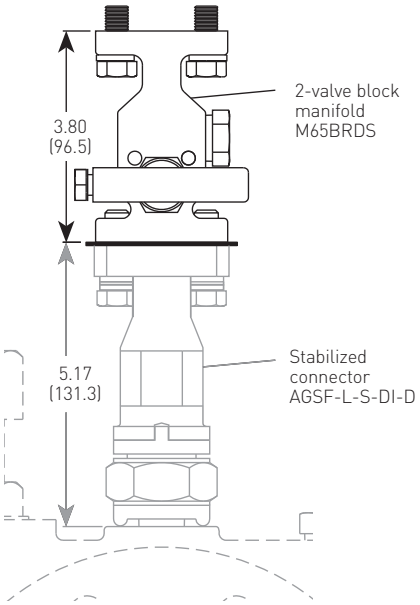
Dielectric option
Ratings: 2500 VDC
Resistance: 5 Megohms

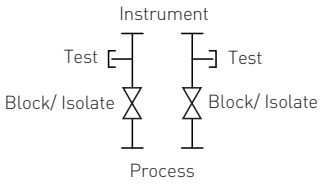


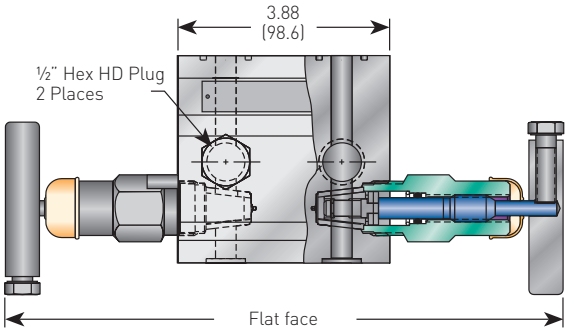
AGF close couple Futbol

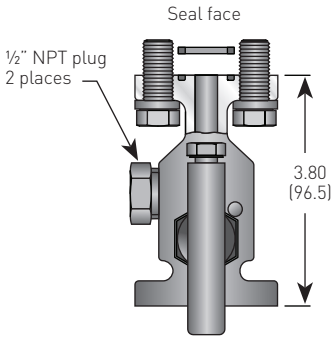
Selection considerations for vertical ACCU-Mount® systems
Block valve upstream of the 5-valve manifold (optional - recommended)
Block valves installed upstream of the 3- or 5-valve manifold are recommended to eliminate the need to blow down your meter tube when periodic maintenance is required on your 5-valve manifold seats when installed in dirty gas service. Spacers are also available to provide additional clearance between the orifice meter and your measurement device.

For ordering information for block valves and spacers, see page 21.



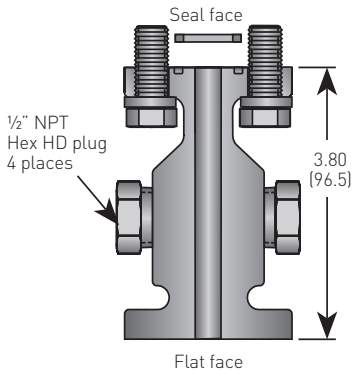






11.36 (288.5) max open O-ring packing
11.90 (302.3) max open Teflon® packing

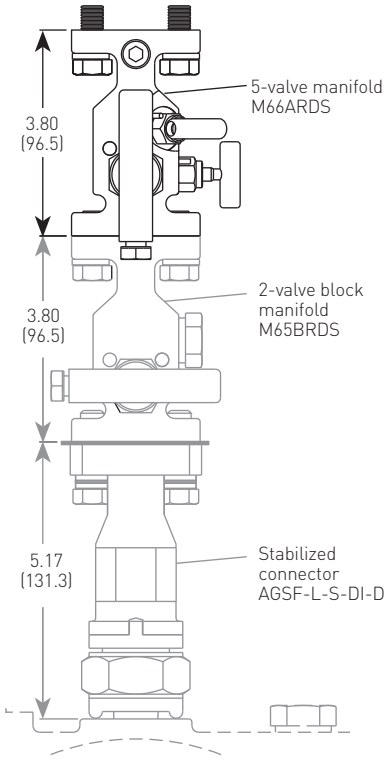
M65B

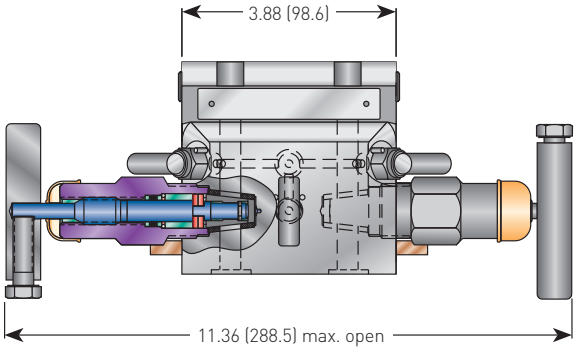


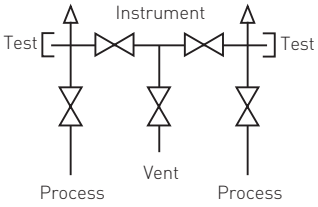
Valveless straight spacer M65C and M65C-4
(with 4½" plugs)

Selection considerations for vertical ACCU-Mount® systems
3- or 5-valve manifold considerations - In the 'run' position, the 5-valve natural gas style manifold provides 2 block valves between the high and low side process/communication ports and easily accessible vent/test ports for calibration of the instrument. A 3-valve manifold provides only 1 equalizing block valve between the high and low side. Vent and test ports are optional. Connecting the 'vent' port to known pressure sources to check the calibration of the instrument is common practice.

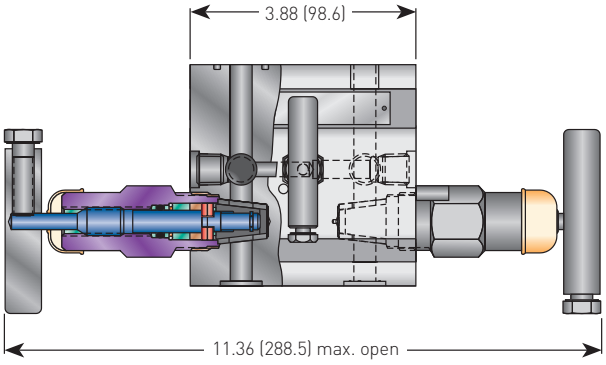
For ordering information for 3- or 5-valve manifold considerations, see page 24.

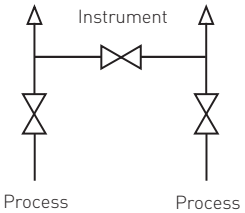






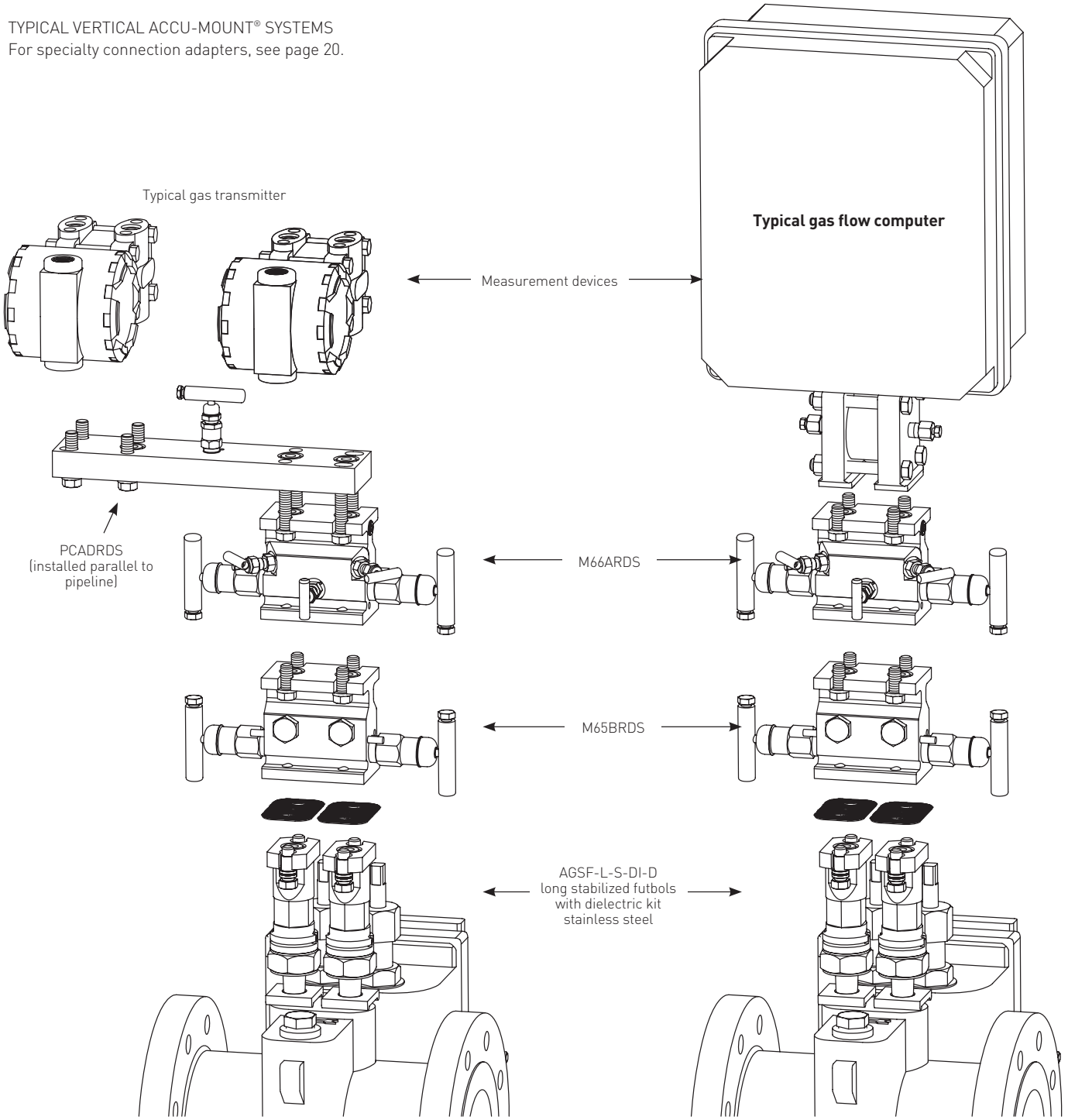
M66A 5-valve



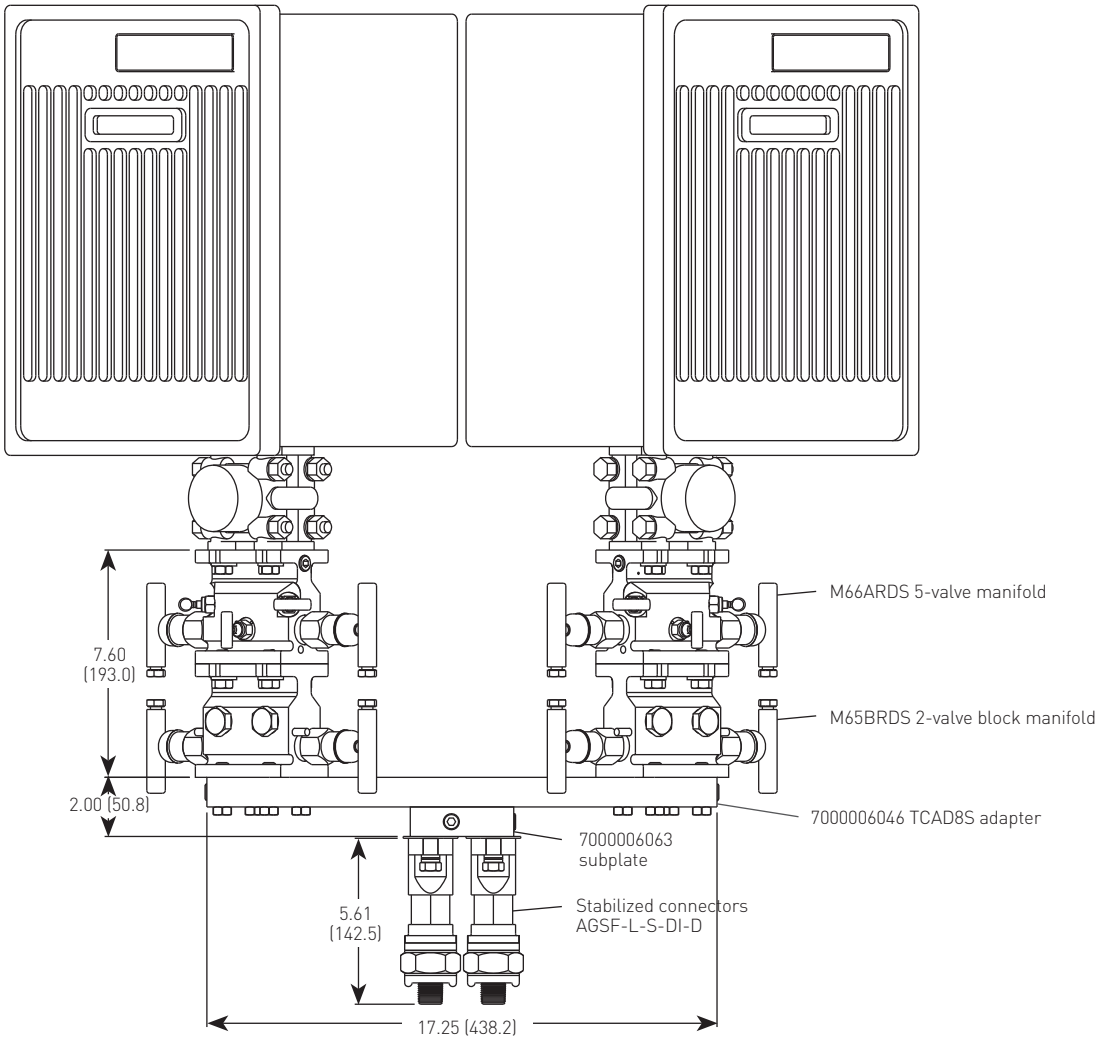


M45A 3-valve

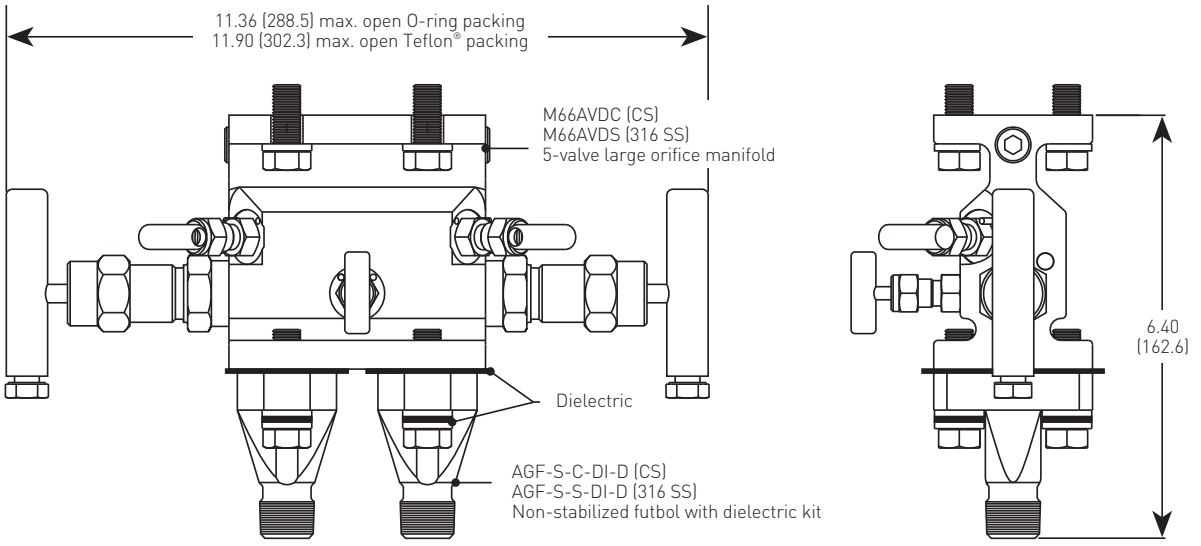
TYPICAL VERTICAL ACCU-MOUNT® SYSTEMS
For specialty connection adapters, see page 20.



TYPICAL VERTICAL ACCU-MOUNT® SYSTEMS - Dual flow computers for gas measurement



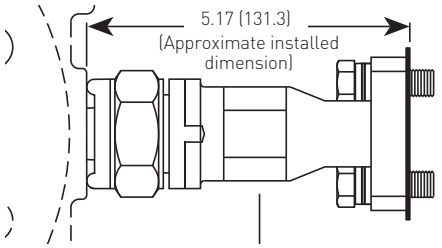
Dual flow computers with TCAD8 adapter and subplate,
2 M66ARDS 5-valve manifolds,
2 M65BRDS block manifolds and AGSF-L-S-DI-D stabilized connectors



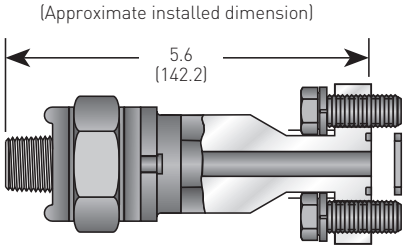
Selection considerations for horizontal to vertical ACCU-Mount® systems
(Senior fitting and long stabilized futbols shown)

Stabilized futbol connectors are recommended - these connectors are the foundation of your ACCU-Mount® system. Consider the size and weight of the electronic measurement device you will be mounting. Additional considerations should be given to the environment and site location such as high winds and wildlife in the area with access to the measurement site.

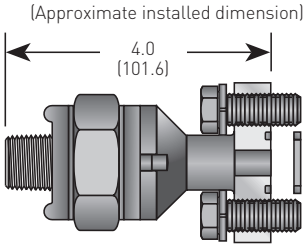
For ordering information for stabilized connector/futbols, see page 11.



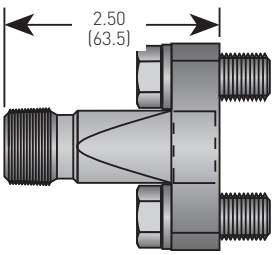
Stabilized connector with dielectric isolation (150 ft/lbs)
AGSF-L-S-DI-D (long stabilized futbol)



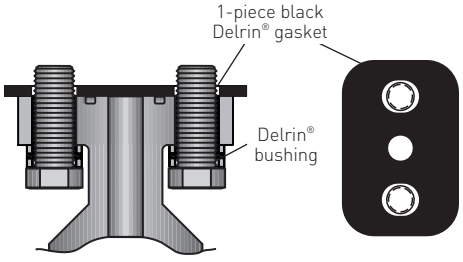
Stabilized connectors AGSF-L



Stabilized connectors AGSF-S



AGF close couple futbol



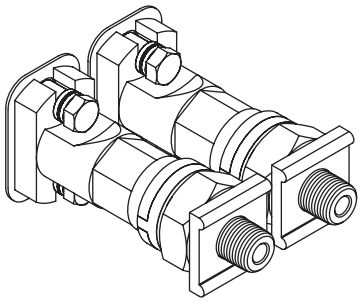
Dielectric option
Ratings: 2500 VDC
Resistance: 5 Megohms

ANDERSON GREENWOOD ACCU-MOUNT® NATURAL GAS MANIFOLDS

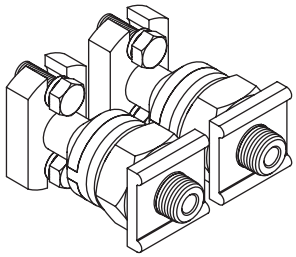
ORDERING INFORMATION

SELECTION GUIDE

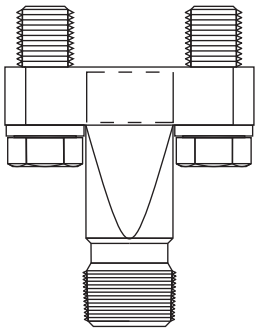
Example:	AGSF	L	C	DI-D
Stabilized and AGF close couple connector/futbol				
AGSF Stabilized (150 ft/lbs)				
AGF close couple futbol				
Length				
S Short - Overall length (4" (101.6 mm))				
L Long - Overall length (5.6" (142.4 mm))				
1L One piece long - Stabilized futbol overall length 5.6" (142.4 mm)				
Body material				
C Carbon steel A216-WCB				
S 316 SS A351-CF8M				
Options				
CL00 Chlorine cleaning				
DI-D Dielectric isolation (Delrin® rating 2500 VDC resistance 5 Megaohms)				
H GRAFOIL® gaskets (not available with incorporation of dielectric shielding option)				
HD Hydrostatic testing (100 percent) MSS SP-61				
OC00 Oxygen cleaning				
R Viton® O-ring flange seals (Teflon® standard)				
OAS Orifice plate spacing adapter (required for orifice plates over ¼" thick) Order TAD adapter separately (See speciality adapter page 22)				
SG Sour Gas meets the requirements of NACE MR0175/ISO 15156 for chloride conditions less than 50 mg/l (ppm) and NACE MR0103				
SSA 18-8/300 SS bolting material - max pressure rating 4500 psig				
SSB 316 SS flange bolt (B8M Class 2) - full pressure rating				
SSC B8M/316 SS bolting material - max pressure rating 4500 psig				



AGSF-L-DI-D



AGSF-S



AGF CLOSE COUPLE FUTBOL

NOTES

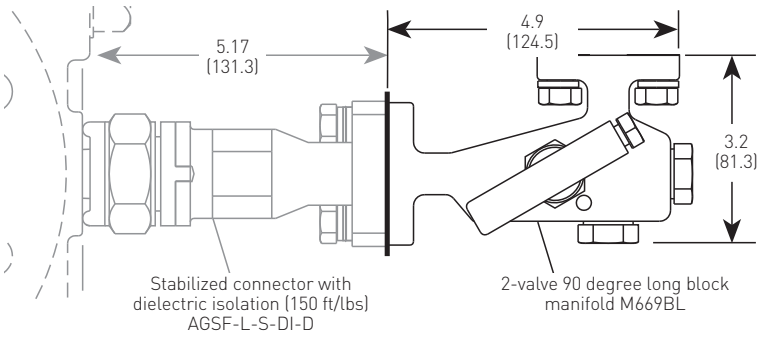
1. 316 SS bolts lower pressure ratings to a maximum of 4500 psi (310 barg)
2. All standard AG stabilized connectors/futbols include Teflon® gaskets.
3. All standard AG stabilized connectors/futbols include carbon steel A193 B7 bolts.

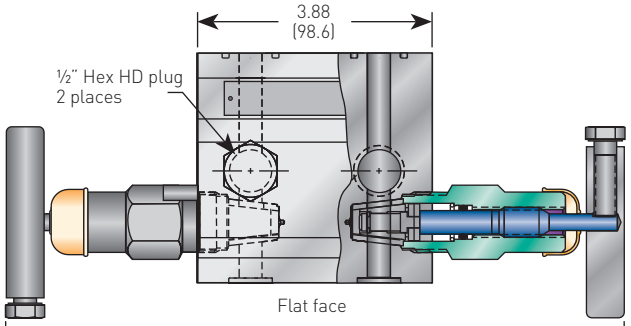
AGF CLOSE COUPLE FUTBOL (non-stabilized futbol connectors)

Quantity	Material description	Material of construction
2 Futbols per kit	AGF-S-S ½" MNPT	A351-CF8M. A193-B7 bolt, Teflon® gasket
2 Futbols per kit	AGF-S-S-SSA ½" MNPT	A351-CF8M, 316 bolt (4500 psi Max), Teflon® gasket
2 Futbols per kit	AGF-S-S-DI-D ½" MNPT	A351-CF8M, A193-B7 bolt, Delrin® isolation kit
2 Futbols per kit	AGF-S-S-DI-D-SSA ½" MNPT	A351-CF8M, 316 bolt (4500 psi Max), Delrin® isolation kit
2 Futbols per kit	AGF-S-S-SP ½" MNPT	A351-CF8M, A193-B7 bolt, Delrin® gasket isolator kit
2 Futbols per kit	AGF-S-S-SSA-SP ½" MNPT	A351-CF8M, 316 bolt (4500 psi Max), Delrin® gasket isolator kit
2 Futbols per kit	AGF-S-C ½" MNPT	CS A216-WCB , A193-B7 bolt, Teflon® gasket
1 Futbol per kit	AGF-1L-C ½" MNPT	CS A216-WCB, A193-B7 bolt, Teflon® gasket
1 Futbol per kit	AGF-1L-S ½" MNPT	A351-CF8M, A193-B7 bolt, Teflon® gasket

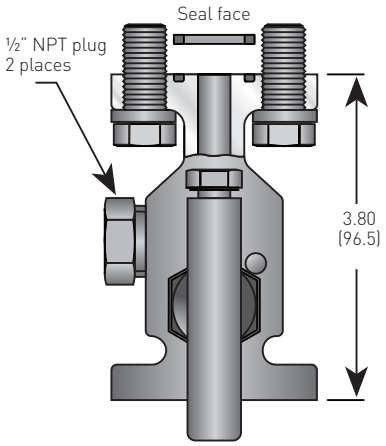
Selection considerations for horizontal to vertical ACCU-Mount® systems
Block valve upstream of the 5-valve manifold (optional - recommended)
Block valves installed upstream of the 3- or 5-valve manifold are recommended to eliminate the need to blow down your meter tube when periodic maintenance is required on your 5-valve manifold seats when installed in dirty gas service. Spacers are also available to provide additional clearance between the orifice meter and your measurement device.

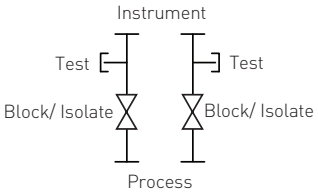
For ordering information for block valves and spacers, see page 21.

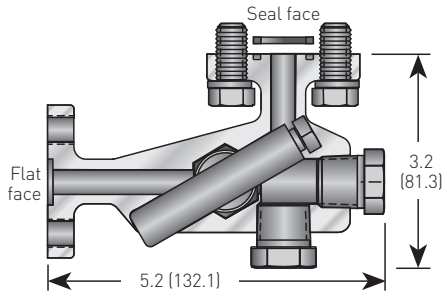




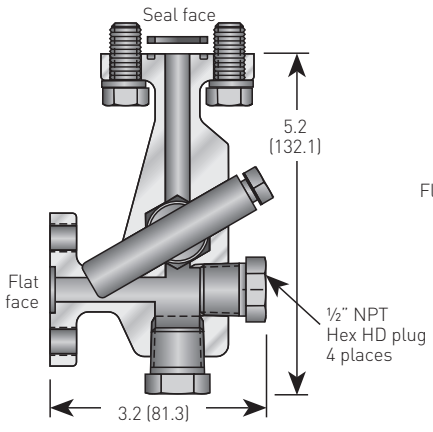
M65B



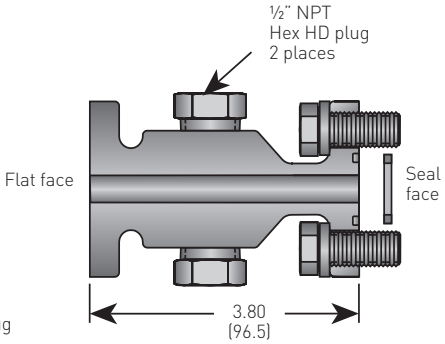




M669BL (long)



M669BS (short)

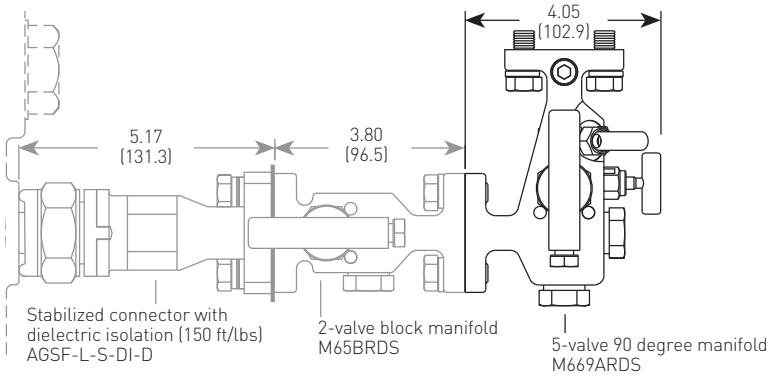


Valveless adapter M65C and M65C-4
(with 4½" plugs)

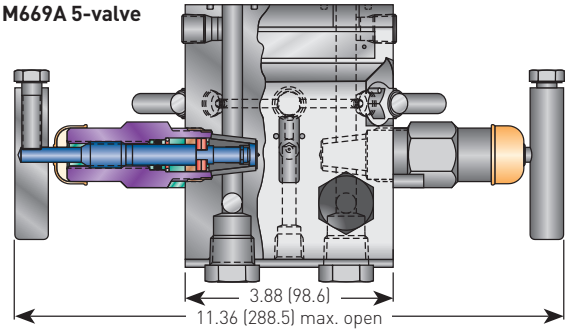
Selection considerations for horizontal to vertical ACCU-Mount® systems
3- or 5-valve manifold considerations - In the 'run' position, the 5-valve natural gas style manifold provides 2 block valves between the high and low side process/communication ports and easily accessible vent/test ports for calibration of the instrument. A 3-valve manifold provides only 1 equalizing block valve between the high and low side. Vent and test ports are optional. Connecting the 'vent' port to known pressure sources to check the calibration of the instrument is common practice.

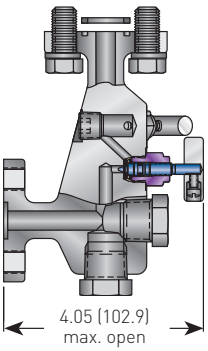
The M669A 5-Valve 90 degree manifold is provided as standard with rod-out ports where excessive debris, paraffin and coal fines are present in media. Caution should be exercised and the installation depressurized when rod-out is performed.

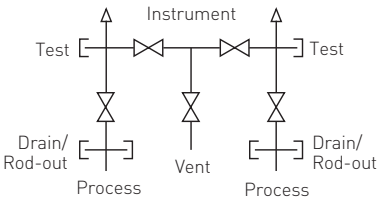
For ordering information for 3- or 5-valve manifold considerations, see page 24.



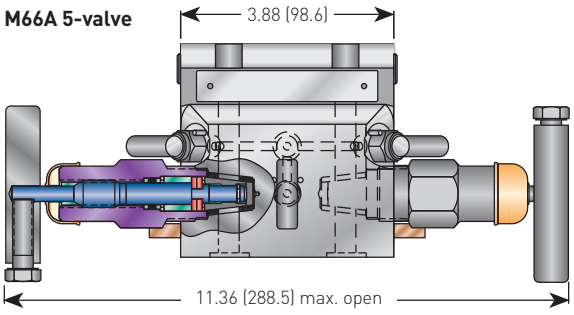
M669A 5-valve

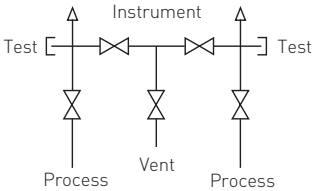




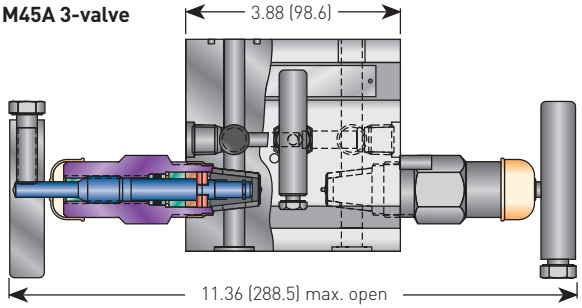


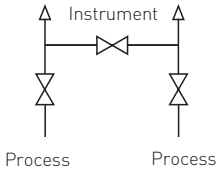
M66A 5-valve



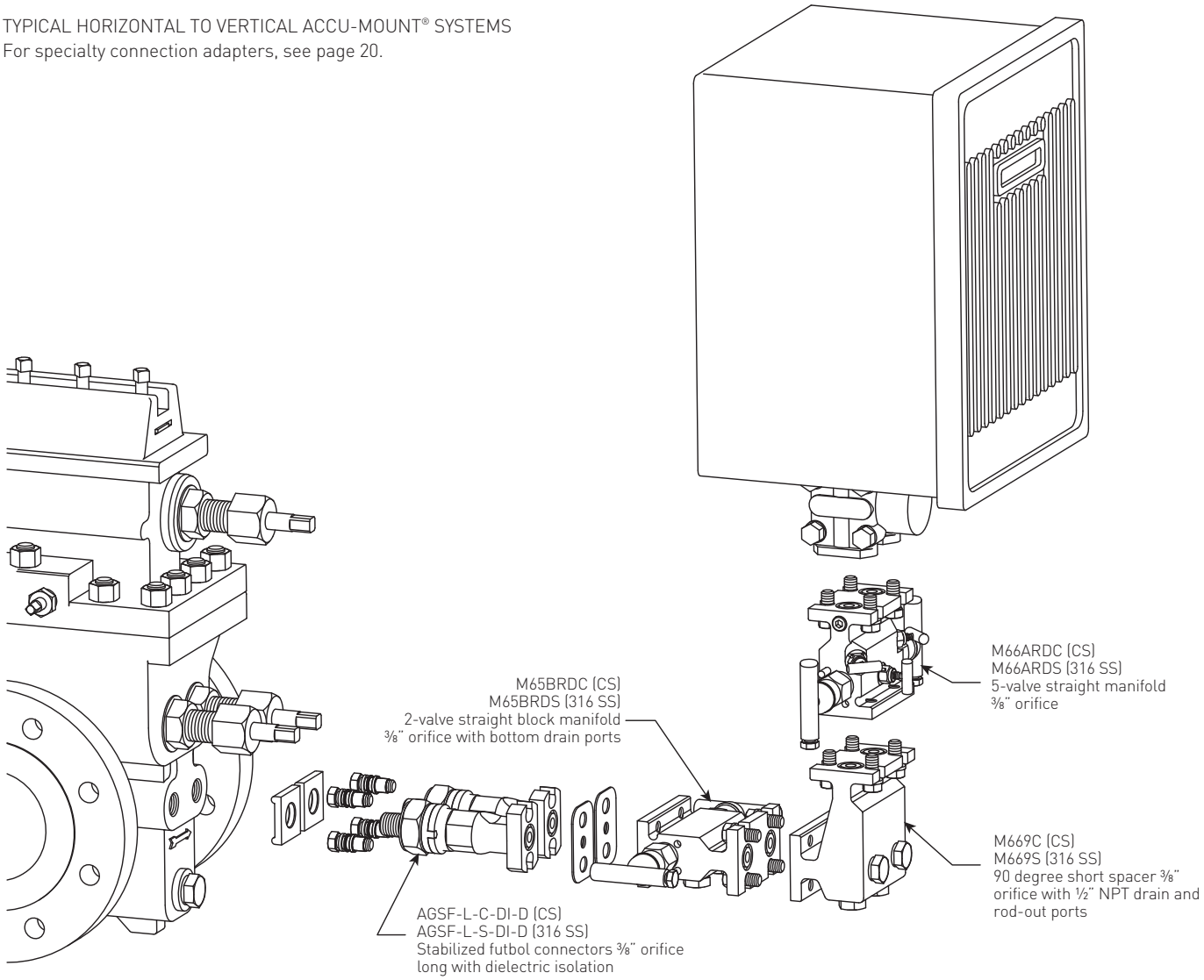


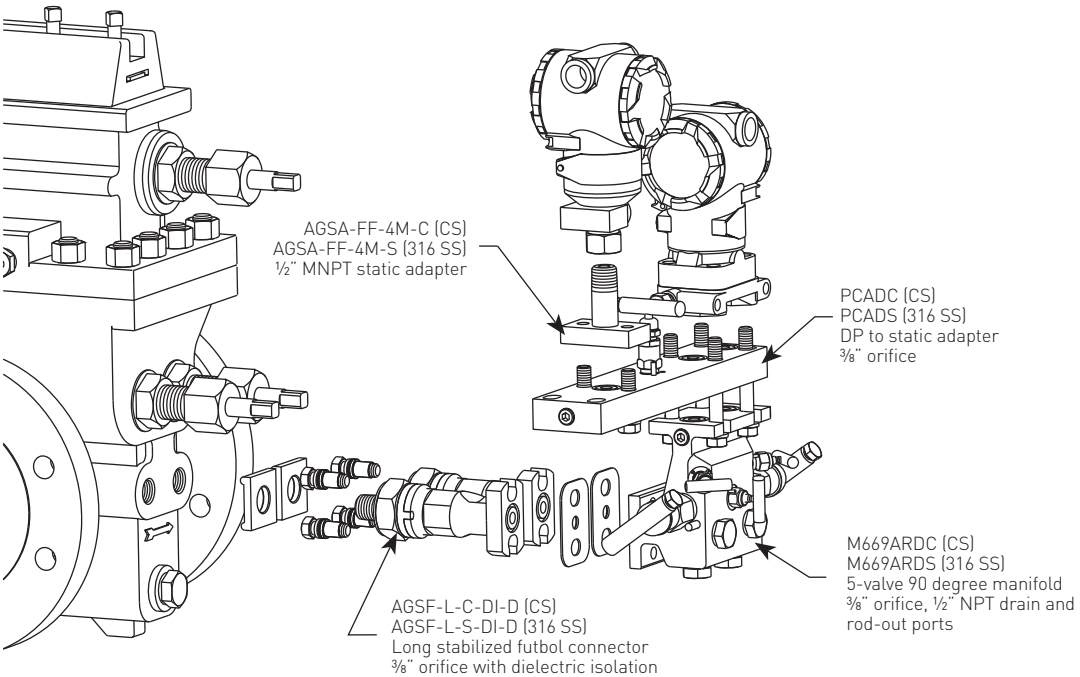
M45A 3-valve



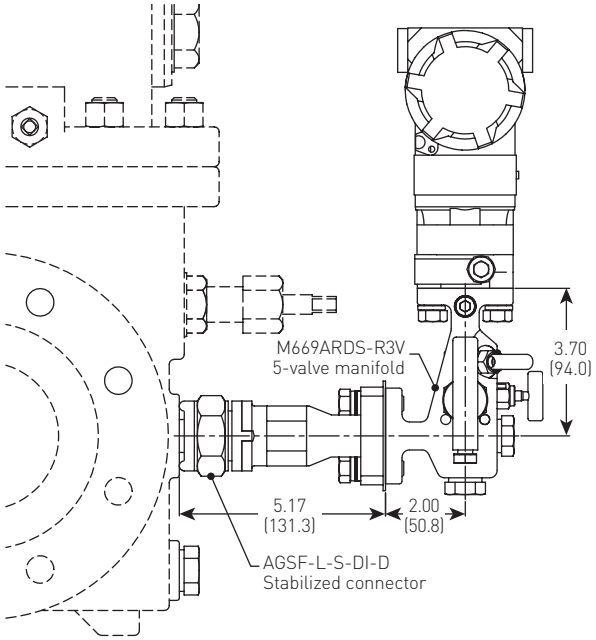


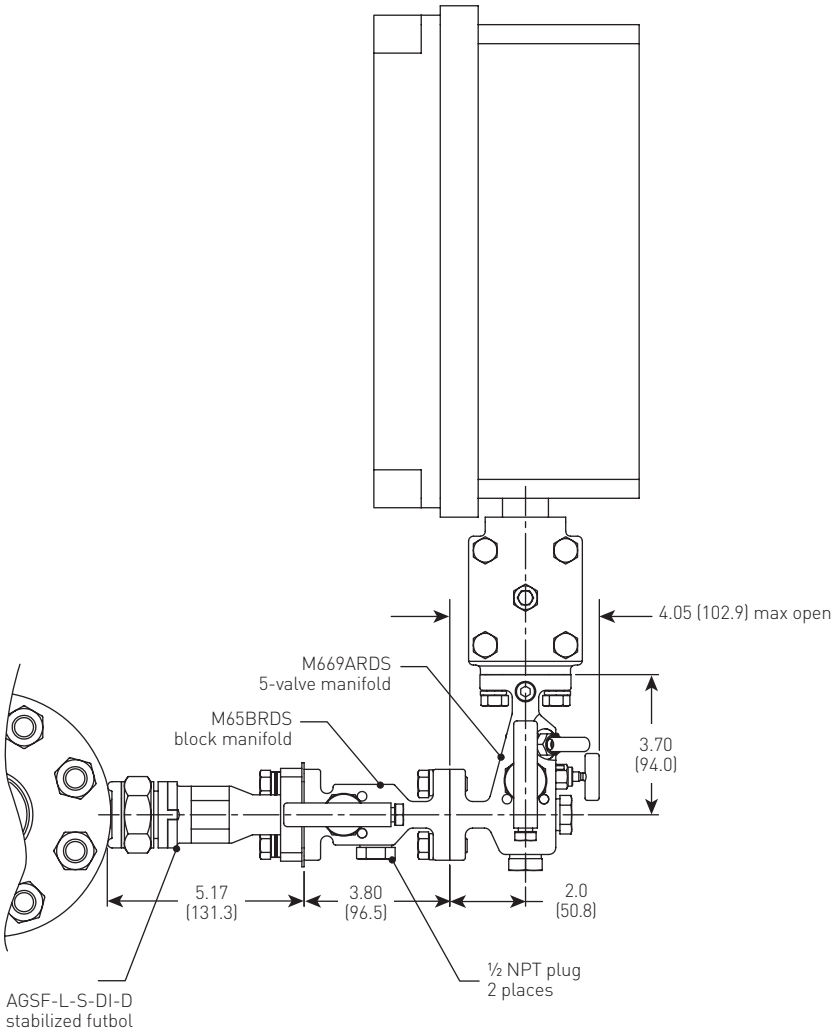
TYPICAL HORIZONTAL TO VERTICAL ACCU-MOUNT® SYSTEMS
For specialty connection adapters, see page 20.

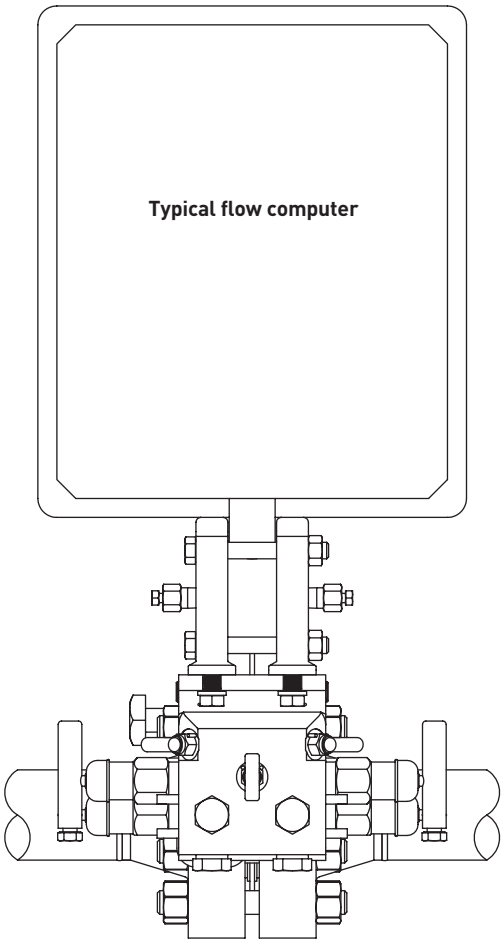




TYPICAL HORIZONTAL TO VERTICAL ACCU-MOUNT® SYSTEMS
For specialty connection adapters, see page 20.





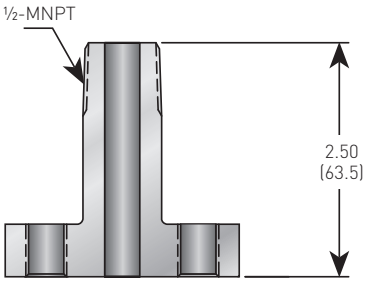


Selection considerations for ACCU-Mount® system DP to static adapters

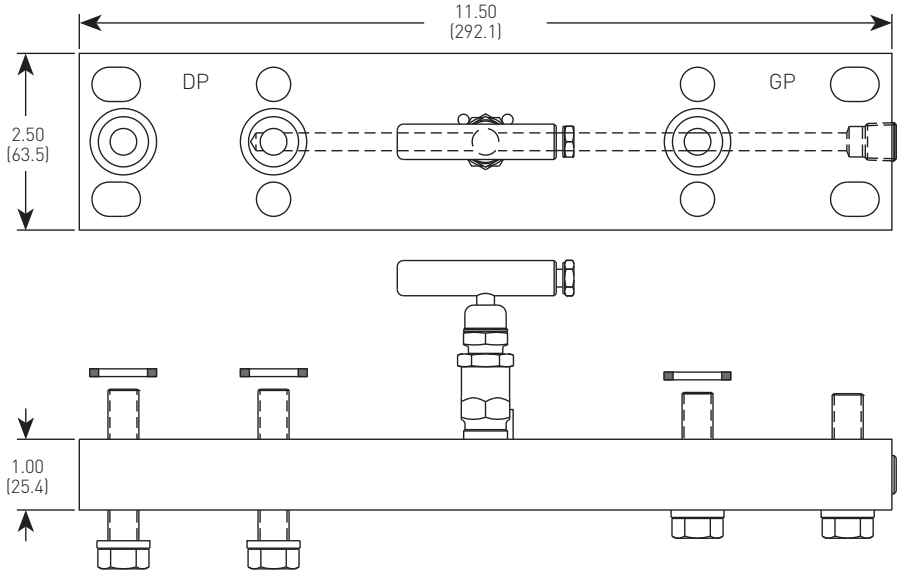
- Measurement device - flow computer or DP and static transmitters.
- Intercompany, custody transfer, bi-directional or redundant measurement required.

Various adapters are available to mount single or multiple instruments. See page 17.

For ordering information, see page 22.



Special close couple futbol or SA option for pressure measurement device (with mounting threads)



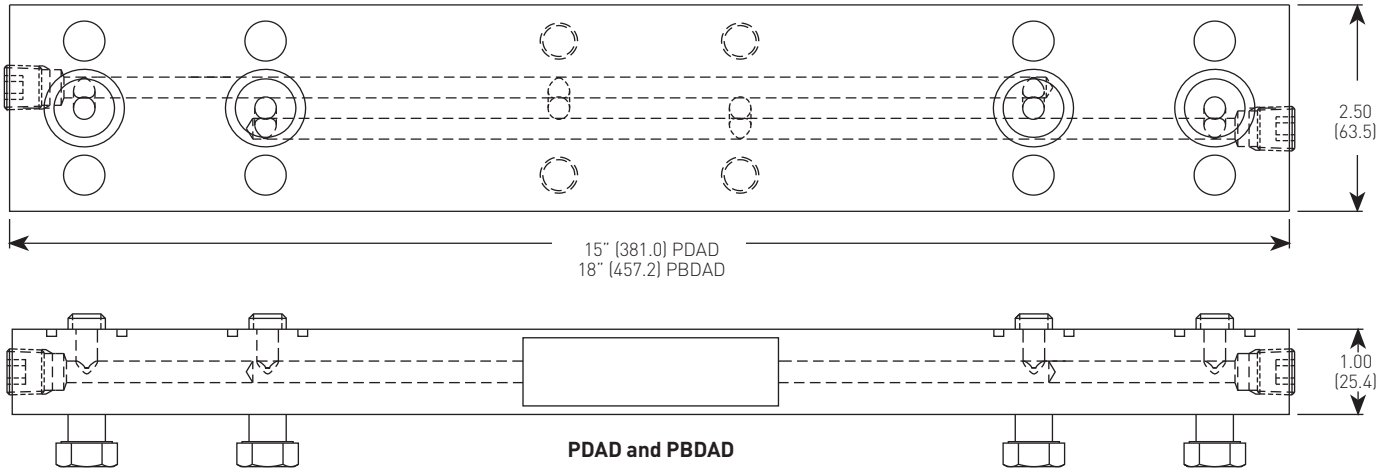
PCAD

Selection considerations for ACCU-Mount® system DP to DP adapters

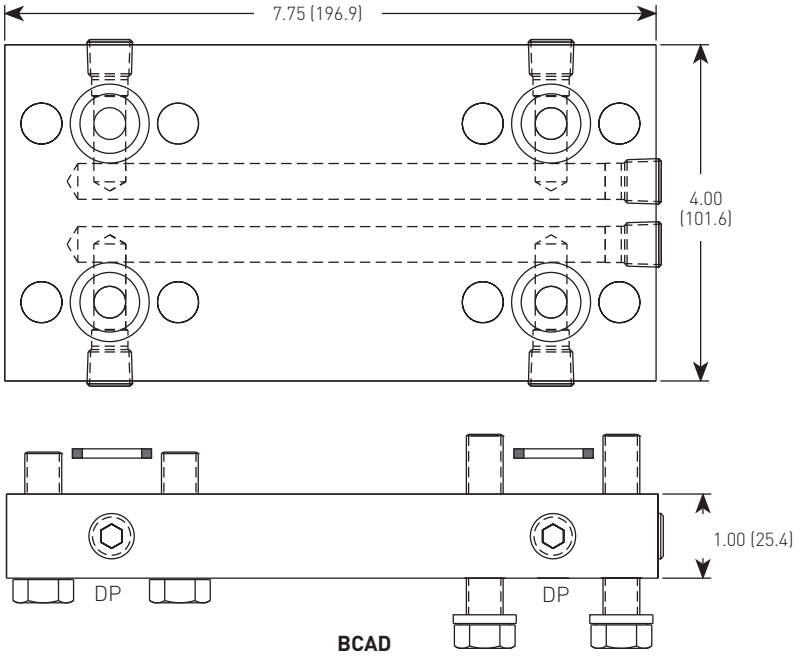
- Measurement device - flow computer or DP transmitters.
- Intercompany, custody transfer, bi-directional or redundant measurement required.

Various adapters are available to mount single or multiple instruments.

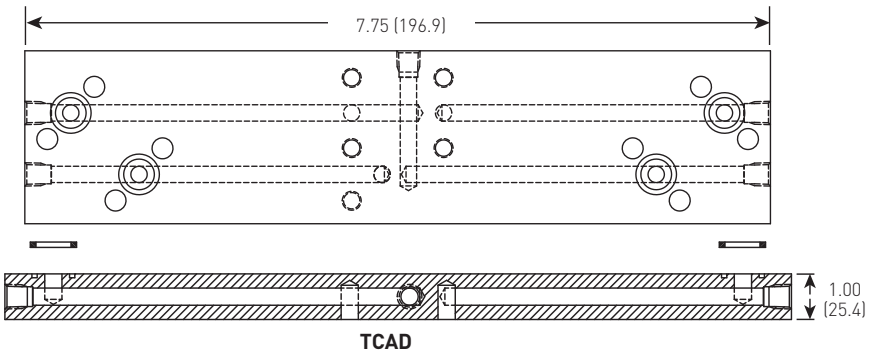
For ordering Information, see page 23.



PDAD and PBDAD



BCAD



TCAD

SPARE PARTS

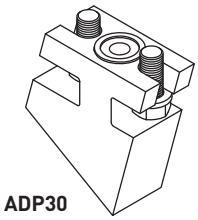
Stabilized and non-stabilized connector futbols - dielectric and flange seals	
Description	**Description**
Teflon® flange gasket	7/16-20 x 1" B7 bolts (standard)
18-8 Washer 'D' style	7/16-20 x 1" 18-8 bolts (SSA option)
7/16-20 x 2.25" B7 bolts (standard for R3V option)	7/16-20 x 1" B8M bolts (SSC option)
7/16-20 x 2.25" 18-8 bolts (SSA+ R3V option)	7/16-20 x 2.25" 18-8 bolts (SSC+ R3V option)
Dielectric, flange seal kit and bolt for manifold flange	
Dielectric Kit- Delrin® sleeve and flange seal (no bolt)	Dielectric bolt sleeve Delrin® (4 required)
7/16-20 x 1.25" B7 bolts (4 required)	Dielectric flange seal Delrin® (2 required)
7/16-20 x 1.25" 18-8 (SSA option) bolts (4 required)	316 SS Isolator washers (8 required)
7/16-20 x 1.25" B8M (SSC option) bolts (4 required)	
Flange gasket and bolt kit for AGSF stabilized connector	
Standard bolt kit - flange gasket with B7 bolts	7/16-20 x 1.25" B7 bolts (4 required)
SSA bolt kit - flange gasket with 18-8 bolts	7/16-20 x 1.25" 18-8 bolts (4 required)
SSC bolt kit - flange gasket with B8M bolts	7/16-20 x 1.25" B8M bolts (4 required)
SSB bolt kit - flange gasket with B8M class 2 bolts	Lock washer CS (4 required)
	Lock washer 18-8 SS (4 required)
	Lock washer 316 SS (4 required)
	Teflon® flange gasket (2 required)
Dielectric, flange seal and bolt kit for single stabilized AGSF and close couple AGF connector	
Dielectric kit - Delrin® sleeve and flange seal with B7 bolts	Dielectric bolt sleeve Delrin® (2 required)
Dielectric kit - Delrin® sleeve and flange seal with B8M bolts	Dielectric flange seal Delrin® (1 required)
Dielectric kit - Delrin® sleeve and flange seal with 18-8 bolts	316 SS isolator washers (4 required)
	7/16-20 x 1.5" B7 bolts (2 required)
	7/16-20 x 1.5" 18-8 bolts (2 required)
Large orifice 3/8" (9.5 mm) valve seat	
Delrin® (standard)	PCTFE
Teflon®	PEEK
Small orifice 3/16" (4.7 mm) valve seat	
Delrin® (standard)	PCTFE
Teflon®	PEEK
Mini orifice 0.136" (3.5 mm) valve seat	
Delrin® (standard)	PEEK
PCTFE	
Miscellaneous - spare parts	
1/4" CS hex head pipe plug	7/16-20 x 2.25" B7 bolts (Std.)
1/4" 316 SS hex head pipe plug	7/16-20 x 2.25" 18-8 bolts (SSA)
1/2" CS hex head pipe plug	7/16-20 x 2.25" B8M bolts (SSC)
1/2" 316 SS hex head pipe plug	7/16-20 x 2.75" B7 bolts (Std.)
	7/16-20 x 2.75" 18-8 bolts (SSA)
7/16-20 x 2" B7 bolts (Std.)	7/16-20 x 2.75" B8M bolts (SSC)
7/16-20 x 2" 18-8 bolts (SSA)	7/16-20 x 3.25" 18-8 bolts (SSA)
7/16-20 x 2" B8M bolts (SSC)	7/16-20 x 3.25" B8M bolts (SSC)

BOLT SELECTION GUIDE

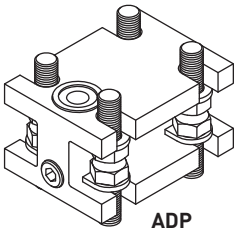
Models	Application	Bolt length
All AGSF stabilized connectors and AGF close couple futbols	Connecting to standard manifold inlet flange	1.25" (31.8 mm)
All AGSF stabilized connectors and AGF close couple futbols with dielectric option	Connecting to standard manifold inlet flange	1.5" (38.1 mm)
All manifolds including M6, M45, M65, M66, M669	Connecting to standard transmitter or flow computer	1" (25.4 mm)
All manifolds including M6, M45, M65, M66, M669 with R3V option	Connecting to Rosemount 3051C transmitter	2.25" (57.2 mm)
BCAD adapter	Connecting to standard D/P transmitter (process inlet side) Connecting to standard D/P transmitter (other side)	2.25" (57.2 mm) 1.5" (38.1 mm)
BCAD adapter with R3V option	Connecting to Rosemount 3051C D/P transmitter (process inlet side) Connecting to Rosemount 3051C D/P transmitter (other side)	3.25" (82.6 mm) 2.75" (69.9 mm)
PCAD adapter	Connecting to standard D/P transmitter (process inlet side) Connecting to standard G/P transmitter (other side)	2.25" (57.2 mm) 1.75" (44.5 mm)
PCAD adapter with R3V option	Connecting to Rosemount 3051C D/P transmitter (process inlet side) Connecting to Rosemount 3051C D/P transmitter (other Side)	3.25" (82.6 mm) 2.75" (69.9 mm)
PDAD and PBDAD adapter	Connecting to process inlet ports through underneath manifold in center Connecting to standard D/P transmitter (both sides)	1.25" (31.8 mm) 1.5" (38.1 mm)
PDAD and PBDAD adapter with R3V option	Connecting to process inlet ports through underneath manifold in center Connecting to Rosemount 3051C D/P Transmitter (Both Sides)	1.25" (31.8 mm) 2.75" (69.9 mm)
PBCAD adapter	Connecting to process inlet ports through underneath manifold in center Connecting to standard D/P transmitter (both sides) Connecting subplate to TCAD8 plate	1.5" (38.1 mm) 1.5" (38.1 mm) x 8 1.5" (38.1 mm) x 1
TCAD8 adapter	Connecting from process inlet ports underneath manifold in center through subplate Connecting to standard D/P transmitter (both sides)	2.25" (57.2 mm) x 4 1.5" (38.1 mm) x 8

PRESSURE AND TEMPERATURE RATINGS

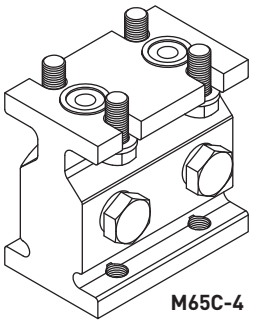
Valve	Packing	Seat material	Standard bolting B7 or SSB B8M Class 2 full rate	SS bolting SSA 18-8 Grade or SSC 316 SS down rate
CS, SS, SG, SG3, Monel®	Teflon® O-ring	Delrin® PCTFE	3000 psig at 200 °F (207 barg at 93 °C)	3000 psig at 200 °F (207 barg at 93 °C)
CS, SS, SG, SG3, Monel®	Teflon® O-ring	PEEK	6000 psig at 200 °F (414 barg at 93 °C) 3000 psig at 300 °F (207 barg at 149 °C)	4500 psig at 200 °F (310 barg at 93 °C) 3000 psig at 300 °F (207 barg at 149 °C)
Monel®	O-ring Teflon®	PEEK	5300 psig at 200 °F (365 barg at 93 °C) 3000 psig at 300 °F (207 barg at 149 °C)	4500 psig at 200 °F (310 barg at 93 °C) 3000 psig at 300 °F (207 barg at 149 °C)
CS, SS, SG, SG3, Monel®	Teflon®	Teflon®	1000 psig at 150 °F (69 barg at 66 °C) 200 psig at 500 °F (14 barg at 260 °C)	1000 psig at 150 °F (69 barg at 66 °C) 200 psig at 500 °F (14 barg at 260 °C)



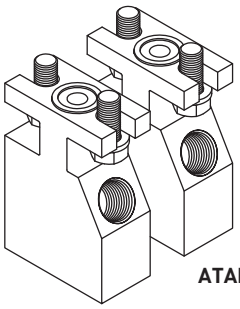
ADP30



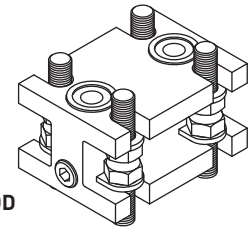
ADP



M65C-4



ATADPC-4



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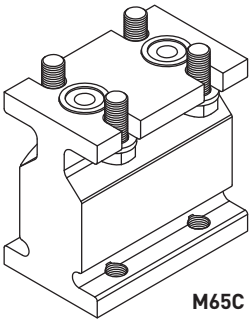
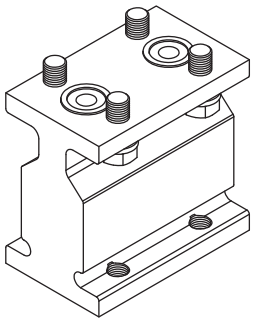
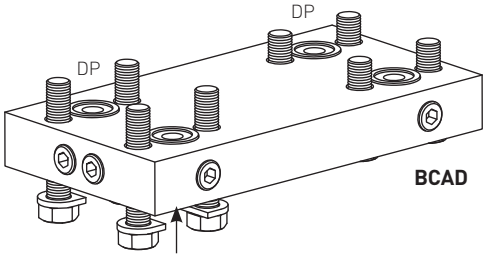


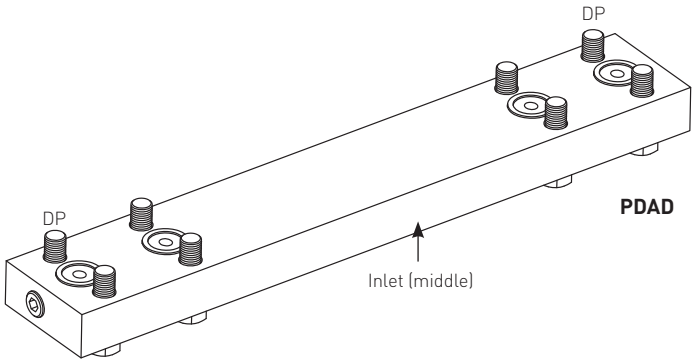
M65C



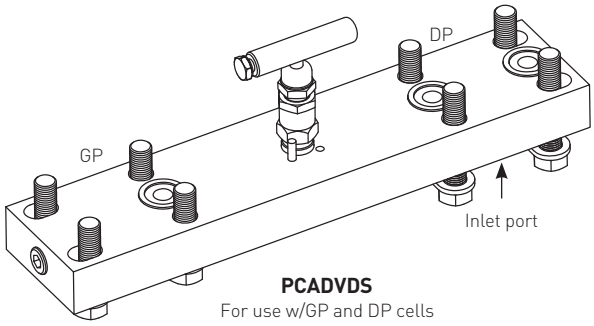
TAD-2



BCAD

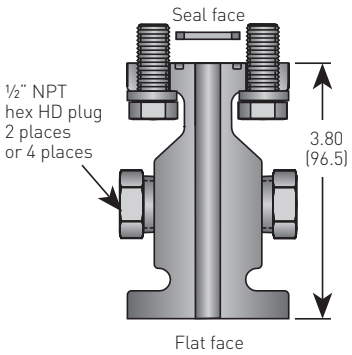


PDAD

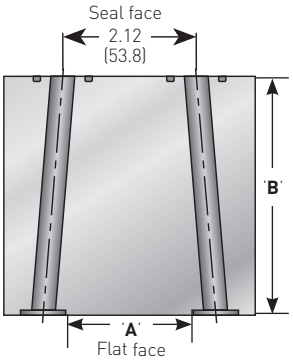


PCADVDS
For use w/GP and DP cells

Various adapters are available to mount single or multiple instruments. Additional adapters are available - contact your sales representative.



M65C - Valveless adapter
(Contact your sales representative)



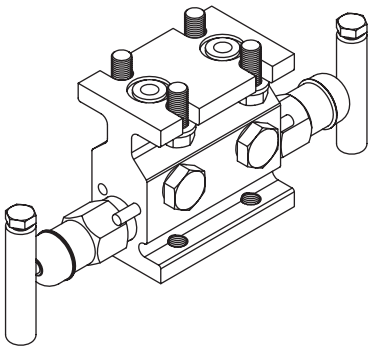
Transition adapter (TAD 2, 3, 4 or 6)

TRANSITION ADAPTER TADC (CS) TADS (316 SS)

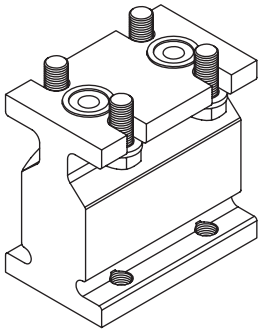
CS	316 SS	'A'	'B'
TADC-2	TADS-2	2.25 (57.2)	3.88 (98.6)
TADC-3	TADS-3	2.38 (60.4)	3.88 (98.6)
TADC-4	TADS-4	2.50 (63.5)	3.88 (98.6)
TADC-6	TADS-6	2.75 (69.9)	3.88 (98.6)

SELECTION GUIDE - BLOCK VALVES

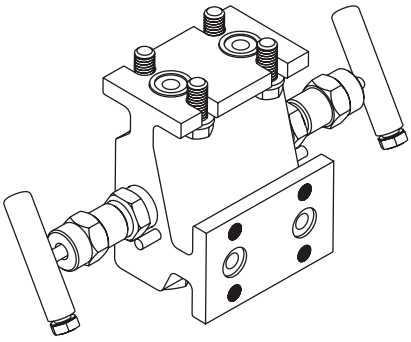
Example:		M65B	R	D	C	CL
Block valves and spacers						
M65B	Straight block valve					
M65C	Straight spacer					
M65C-4	Straight spacer - with (4) ½" NPT ports					
M669BL	90 degree block valve - long (standard)					
M669BS	90 degree block valve - short					
M669C	90 degree spacer					
Stem seal material - block valves only						
R	Viton® O-ring (standard)					
V	Teflon® packed					
Seat material - block valves only						
D	Delrin® (standard)					
K	Kel-F®					
P	PEEK					
Body material						
C	Carbon steel					
S	316 Stainless steel					
Options						
CL00	Chlorine cleaning					
OC00	Oxygen cleaning					
HD	Hydrostatic testing (100 percent) MSS SP-61					
R	Viton® O-ring flange seals (Teflon® standard)					
SG	Sour Gas trim for NACE MR0175/ISO 15156 (316 SS products only)					
SSA	18-8/300 series SS bolting material - max pressure rating 4500 psig					
SSB	316 SST flange bolt (B8M class 2) will provide full pressure rating					
SSC	B8M/316 SS bolting material - max pressure rating 4500 psig					



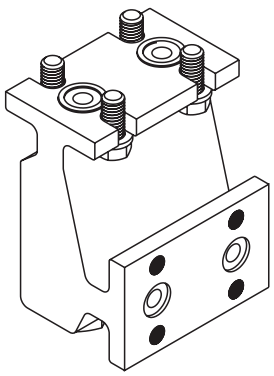
M65BRDS



M65C



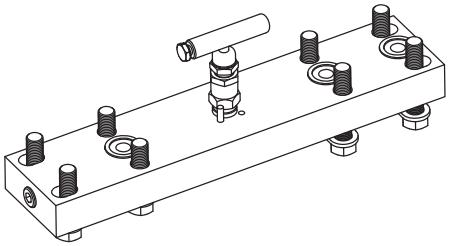
M669BS



M669C

SELECTION GUIDE - ADAPTER PLATE

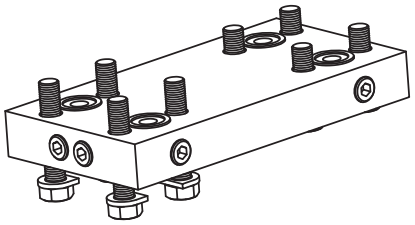
Example:		PCAD	R	D	S	SG
DP to static adapters						
PCAD	DP to static adapter, parallel to pipeline (11.5" [292.2 mm] OAL)					
Stem seal material - integral vent/test valve						
R	Viton® O-ring (standard)					
V	Teflon® packed					
Seat material - integral vent/test valve						
D	Delrin® (standard)					
K	Kel-F®					
P	PEEK					
Body material						
C	Carbon steel					
S	316 Stainless steel					
Options						
CL00	Chlorine cleaning					
OC00	Oxygen cleaning					
HD	Hydrostatic testing (100 percent) MSS SP-61					
R	Viton® O-ring flange seals (Teflon® standard)					
R3V	Rosemount 3051 DP and static transmitter requires (4) 31/4" (DP) and (4) 23/4" (GP) bolt lengths (standard for traditional flanges)					
SA	Static adapter					
SG	Sour Gas - meets the requirements of NACE MR0175/ISO 15156 for Chloride conditions less than 50 mg/l [ppm] and NACE MR0103					
SSA	18-8/300 series SS bolting material - max pressure rating 4500 psig					
SSB	316 SST flange bolt (B8M class 2) will provide full pressure rating					
SSC	B8M/316 SS bolting material - max pressure rating 4500 psig					



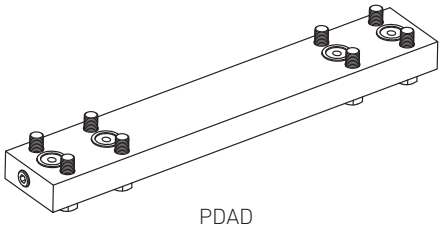
PCADRDS

SELECTION GUIDE - ADAPTER PLATE

Example:		PCAD	C	R3V
DP to DP adapters				
BCAD	Perpendicular to pipeline, (7.75" [196.85 mm])			
PBCAD	Parallel to pipeline, (18" [457.2 mm] OAL)			
PDAD	Parallel to pipeline, (15" [381.0 mm] OAL)			
TCAD8	Parallel to pipeline, (14.25" [362.0 mm])			
Body material				
C	Carbon steel			
S	316 Stainless steel			
Options				
CL00	Chlorine cleaning			
OC00	Oxygen cleaning			
HD	Hydrostatic testing (100 percent) MSS SP-61			
R	Viton® O-ring flange seals (Teflon® standard)			
R3V	Rosemount 3051 and 3095 series transmitters requires (8) 23/4" Bolts			
SSA	18-8/300 series SS bolting material - max pressure rating 4500 psig			
SSB	316 SST flange bolt (B8M Class 2) will provide full pressure rating			
SSC	B8M/316 SS bolting material - max pressure rating 4500 psig			



BCAD

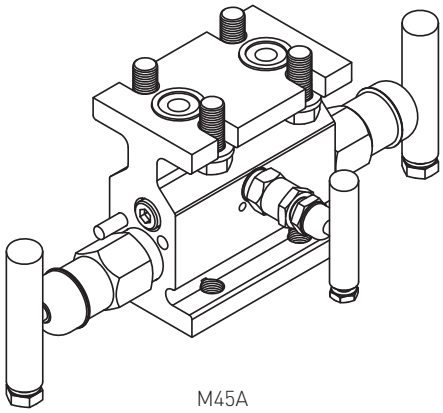


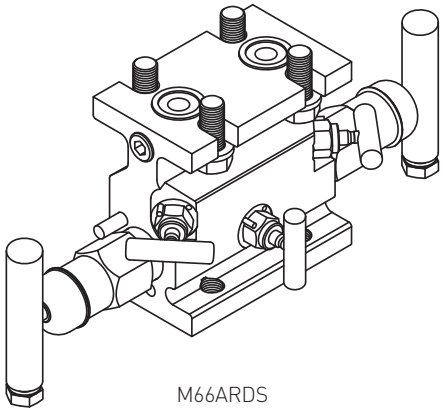
PDAD

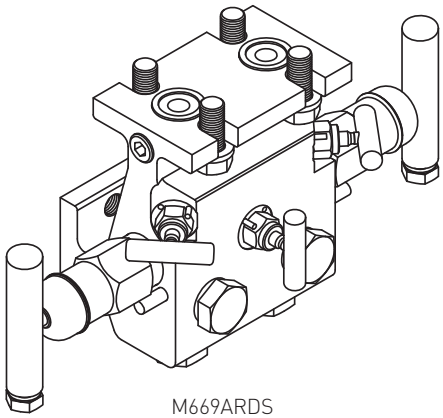
SELECTION GUIDE - MANIFOLD

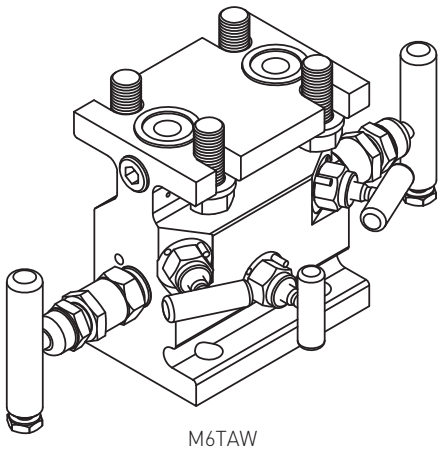
Example:		M66A	R	D	S	4	SG
Manifold type							
⅜" (9.5 mm) orifice							
M45A	Flange x flange (3-valve manifold)						
M66A	Flange x flange						
M669A	90 degree flange x flange						
3/16" (4.8 mm) orifice							
M6TAW	Flange x flange (5-valve manifold)						
Packing							
R	O-ring						
V	Teflon® (patent protected)						
Seat (cone)							
D	Delrin®						
E	PEEK						
K	PCTFE						
Body material							
C	Carbon steel						
S	316 SS - A479-316/316L						
Process connections - M66T and M6TW only							
4	½" FNPT						
Options							
AM	AGCO Mount Kit for 2" pipestand mounting of manifold (AGIMC-0344, pg 138)						
CL00	Cleaned for chlorine service						
DI-D	Dielectric isolation						
HD	Hydrostatic testing - includes test report (MSS-SP-61)						
OC00	Cleaned for oxygen service						
R3V	Add when mounting to Rosemount® Model #3051C, 2024, -3095. Specify on all components. Use SS columns for rating						
SG	NACE MR0175/ISO 15156 (for Chloride conditions ≤ 50 mg/l [ppm]) and NACE MR0103 (B7 mounting bolts standard, SS mounting bolts optional) (SS valves only) (not available for O-ring packed valves)						
SSA	18-8/300 series SS bolting material - max pressure rating 4500 psig						
SSB	316 SST flange bolt (B8M class 2) will provide full pressure rating						
SSC	B8M/316 SS bolting material - max pressure rating 4500 psig						
TB	Static/test ports (bottom of manifold) ¼" -18 NPT, 2 places, M66A, M66T only						

NOTE
All CS product is zinc chromate plated to resist corrosion.

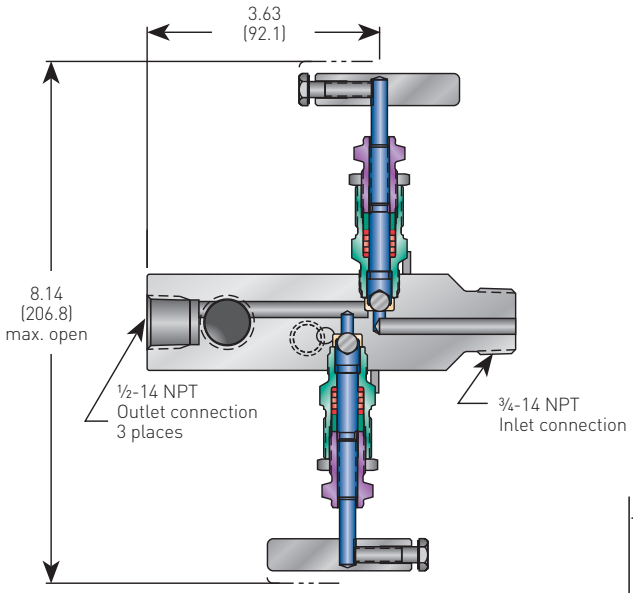

M45A


M66ARDS

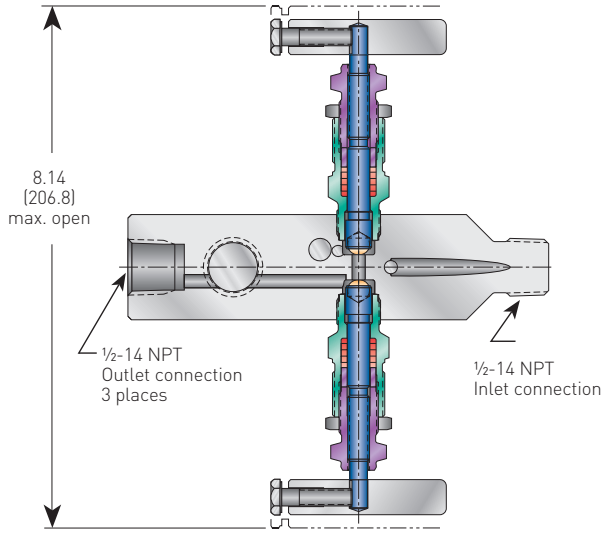

M669ARDS

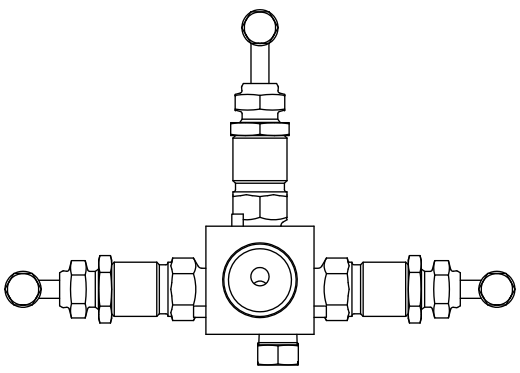

M6TAW

Close coupled flanged and NPT pressure transmitter installation
For ordering information, see pages 26 and 27.

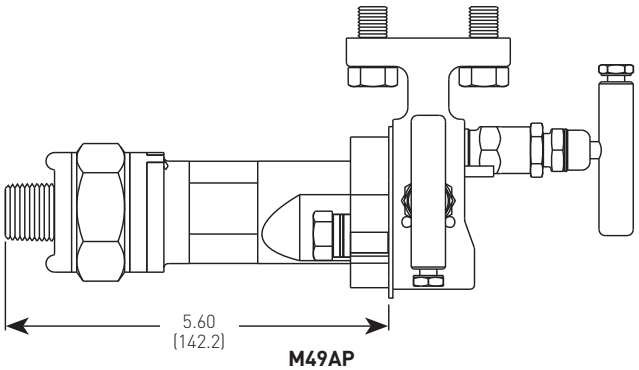


M25MP-46 (shown here)
M25MP-44 (also available)
(½" inlet)

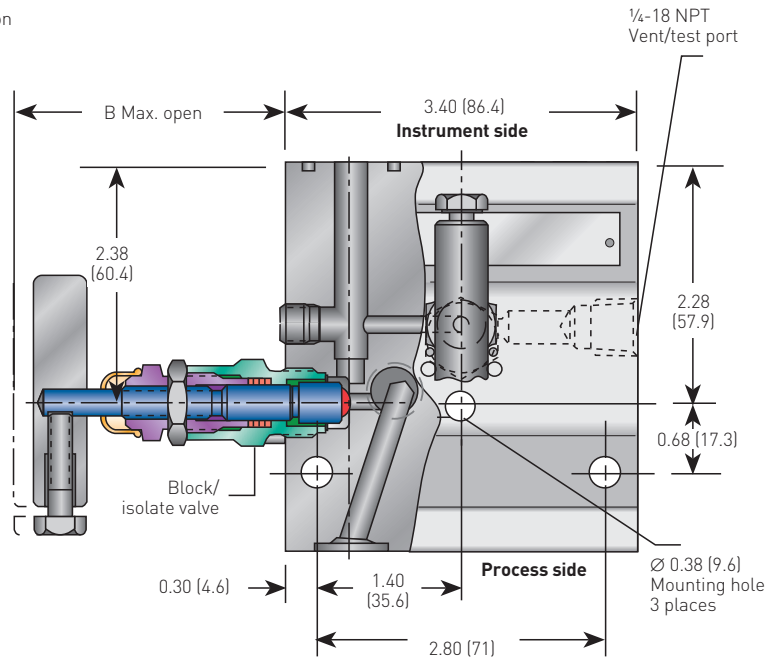




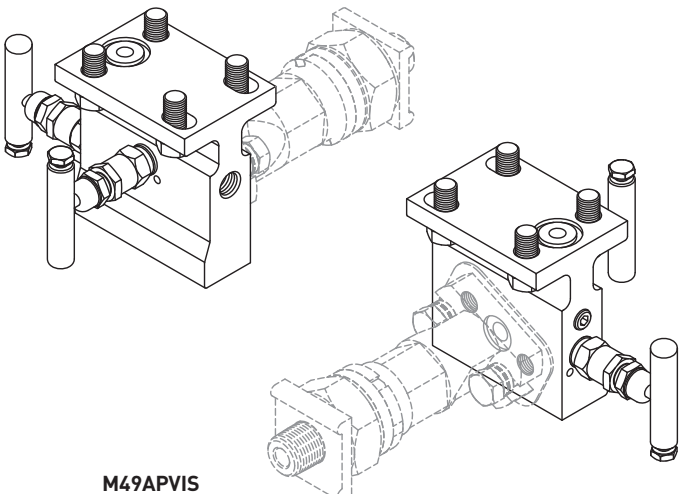
M25DBMPVIS-44



M49AP
With AGSF-L and DI-D



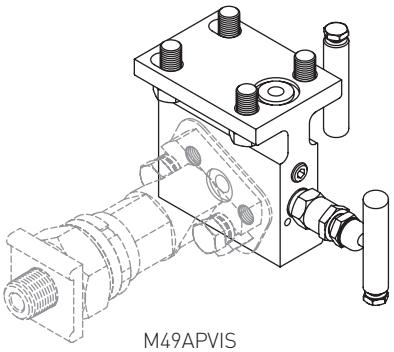
M4AP



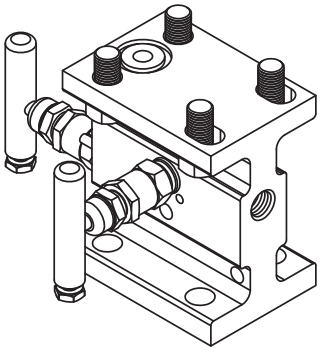
M49APVIS

SELECTION GUIDE

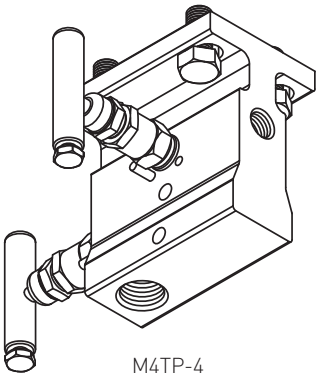
Example:		M49AP	R	D	S	4	R
Flange mount system - requires connector/futbol (see below)							
M4AP	2-Valve pressure manifold, straight flange x flange						
M49AP	2-Valve pressure manifold, 90 degree flange x flange						
M4TP	Straight ½" FNPT x flange						
Stem seal material							
R	Viton® O-ring						
V	Teflon® packed						
Seat material							
D	Delrin® (standard)						
I	Integral (standard hard seat)						
K	Kel-F®						
P	PEEK						
Body material							
C	Carbon steel						
S	316 Stainless steel						
Process connections							
4	½" FNPT (M4TP only)						
Options							
CL00	Chlorine cleaning						
DI-D	Dielectric isolation						
R	Viton® O-ring flange seals (Teflon® standard)						
R3V	Rosemount 3051 and 3095 Series transmitters require 2¼" bolt length						
SSA	18-8/300 Series SS bolting material - max pressure rating 4500 psig						
SSB	316 SST flange bolt (B8M Class 2) will provide full pressure rating						
SSC	B8M/316 SS bolting material - max pressure rating 4500 psig						



M49APVIS



M4AP



M4TP-4

STABILIZED CONNECTOR ORDERING INFORMATION

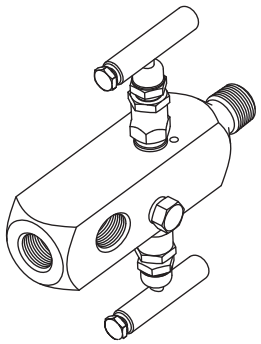
Part number (5 options, see below)	
AGSF-L-C	Long 5.61" OAL, Carbon steel bolts, Teflon® flange seals - body material carbon steel (long (2) piece stabilized futbols)
AGSF-L-S	Long 5.61" OAL, Carbon steel bolts, Teflon® flange seals - body material 316 SS (long (2) piece stabilized futbols)
AGSF-1L-C	Long 5.61" OAL, Carbon steel bolts, Teflon® flange seals - body material carbon steel (long one piece stabilized futbol)
AGSF-1L-S	Long 5.61" OAL, Carbon steel bolts, Teflon® flange seals - body material 316 SS (long one piece stabilized futbol)
AGSF-S-C	Short 4.00" OAL, Carbon steel bolts, Teflon® flange seals - body material carbon steel (short (2) piece stabilized futbols)
AGSF-S-S	Short 4.00" OAL, Carbon steel bolts, Teflon® flange seals - body material 316 SS (short (2) piece stabilized futbols)
AGSF-1S-C	Short 4.00" OAL, Carbon steel bolts, Teflon® flange seals - body material carbon steel (short one piece stabilized futbol)
AGSF-1S-S	Short 4.00" OAL, Carbon steel bolts, Teflon® flange seals - body material 316 SS steel (short one piece stabilized futbol)
AGF	Close couple futbol (one piece)
Options	
R	Viton® O-ring flange seals (Teflon® standard)
DI-D	Dielectric isolation
SSA	18-8/300 SS bolting material - max. pressure rating 4500 psig
SSB	316 SST flange bolt (B8M class 2) will provide full pressure rating
SSC	B8M/316 SS bolting material - max. pressure rating 4500 psig

ANDERSON GREENWOOD ACCU-MOUNT® NATURAL GAS MANIFOLDS

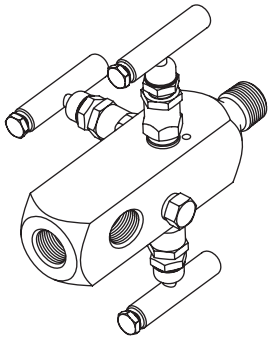
ORDERING INFORMATION

SELECTION GUIDE

Example:		M25MP	V	I	S	44C	SG
Model number							
M25DBMP	Double block and bleed multiport						
M25MP							
M251DBMP	1 = 10000 psig rating						
M251MP	1 = 10000 psig rating						
Packing							
E	Low emissions graphite						
H	GRAFOIL®						
V	Teflon®						
Seat material							
I	Integral						
Body material							
C	Carbon steel						
S	316 SS						
M	Monel®						
J	Hastelloy®						
W	316L SS (maximum pressure 5,000 psig [345 barg] at 200°F [93°C])						
Connections (inlet x outlet)							
4M	½" MNPT x ½" MNPT						
44	½" MNPT x ½" FNPT						
44F	½" FNPT x ½" MNPT						
46	¾" MNPT x ½" FNPT						
4	½" FNPT x ½" FNPT body length 4½" (114.5 mm)						
C	Male plain end (CS is black oxide coated)						
Options							
AM	AGCO Mount						
BL	Bonnet lock device (patent protected)						
CL00	Chlorine cleaning						
HD	Hydrostatic testing (100%) (MSS-SP-61)						
OC00	Oxygen cleaning						
SG	Sour Gas meets the requirements of NACE MR0175/ISO 15156 (for Chloride conditions ≤ 50 mg/l [ppm]) and NACE MR0103 (SS only)						
SG3	Sour Gas meets the requirements of NACE MR0175/ISO 15156 (for Chloride conditions > 50 mg/l [ppm])						



M25MP



M25DBMP

NOTES

1. For other body materials, consult factory.
2. Consult factory for other optional connections.
3. M251 not available in GRAFOIL® or Graphite.