

Anderson Greenwood Instrumentation Natural Gas Measurement Systems

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

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

Pressure (max):

6000 psig (414 barg)

Temperature range (min/max):

-70°F to 1000°F
(-57°C to 538°C)



Features

- Remote mount and direct mounting for differential and gauge measurement applications.
- Multiple connection arrangement options.
- Patented PTFE stem packing reduces operating torque.
- O-ring seal with dual PTFE 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 in the packing area enables smooth stem operation and extends packing life.
- Metal body-to-bonnet seal in compression, not tension.
- Stem threads are ENC plated and rolled for superior strength and to prevent galling.

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Overview

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.

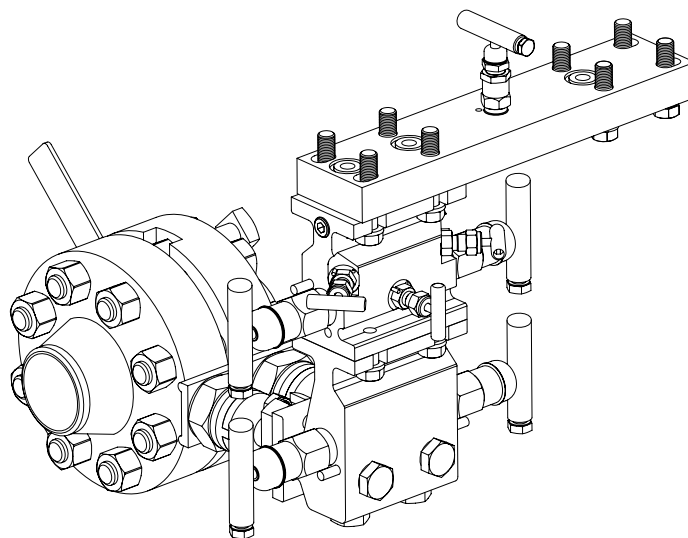
This flow measurement phenomenon has created the need for a full ported 5-valve manifold (process block valve positions) which serves to ensure transmission of the true differential pressure signal occurring at the orifice taps to the measurement device. Consideration must also be given to all components between the orifice taps and measuring device. These components should also be designed with large 3/8" 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 3/8" 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 connectors 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

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Testing and Certification

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

Large 3/8" (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

Minimum temperature

Carbon steel:	-20°F (-29°C)
316 SS O-ring seal:	-20°F (-29°C)
316 SS, Monel®, Hastelloy®;	-70°F (-57°C)
PTFE packed:	
Delrin® seat	-40°F (-40°C)
316 SS, Monel®, Hastelloy®;	-70°F (-57°C)
GRAFOIL® packed:	

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; PTFE 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)

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", 1/4" and 3/8" 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

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Selection considerations

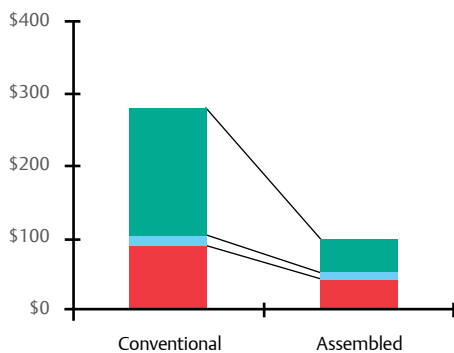
The following should be considered when designing your ACCU-Mount® system

- 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).
- H₂S/CO₂ 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



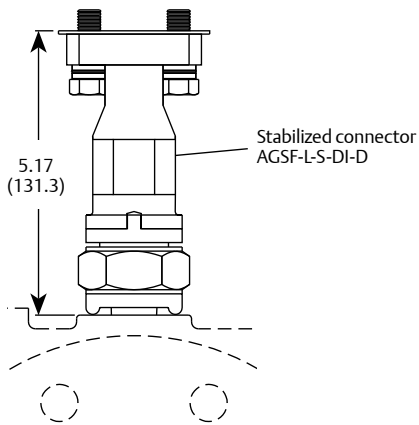
- Assembly/installation: pre-assembled, calibrated and factory seal tested
- Shipping: one shipment, less weight
- Purchasing/design: one purchase order, one vendor/model to specify

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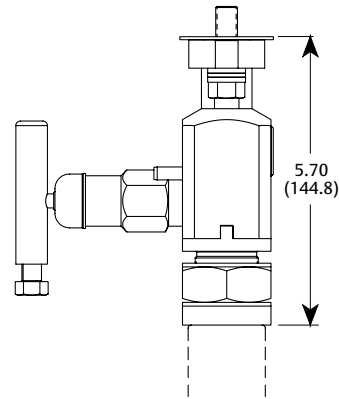
Selection considerations for vertical ACCU-Mount® systems

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.

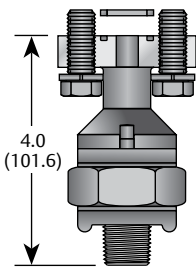
For ordering information for stabilized and non-stabilized connector/futbols, see page 11.



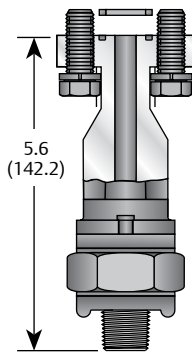
Vertical Piping Installations
Specialty connection adapters (see page 20)



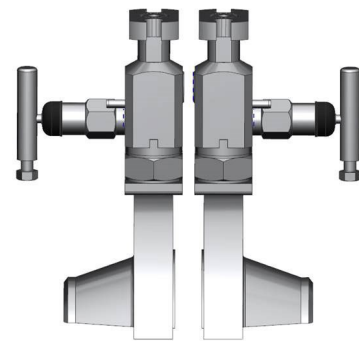
Stabilized Connector Integral Block Valve



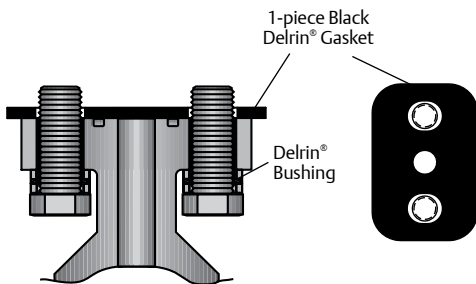
Stabilized connectors AGSF-S



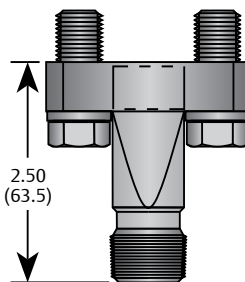
Stabilized connectors AGSF-L



Stabilized Futbol with Block Valve AGSFB



Dielectric option
Ratings: 2500 VDC
Resistance: 5 Megohms



AGF close couple Futbol

ACCU MOUNT SERIES

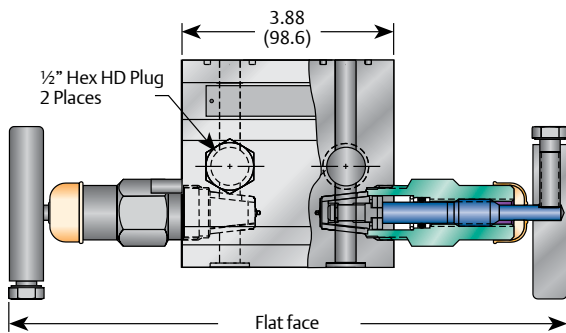
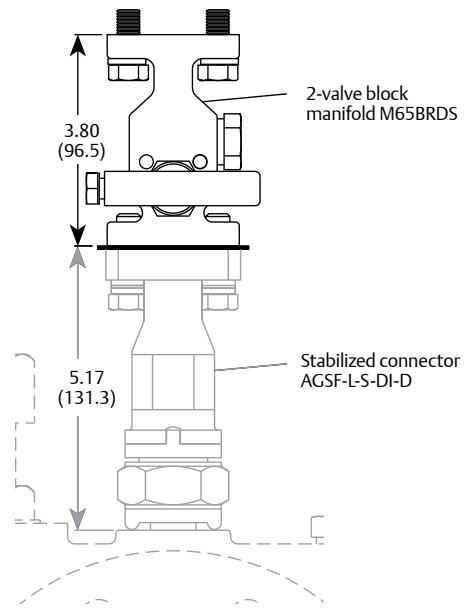
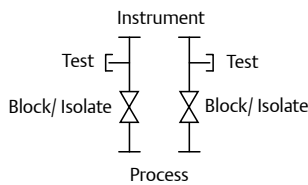
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Selection considerations for vertical ACCU-Mount® systems

Block valve upstream of the 5-valve manifold (optional - recommended)

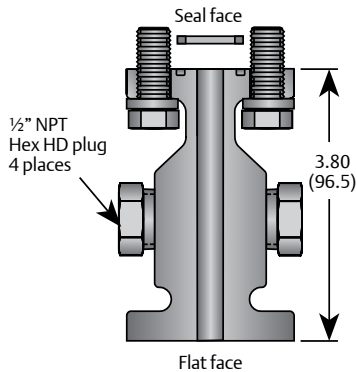
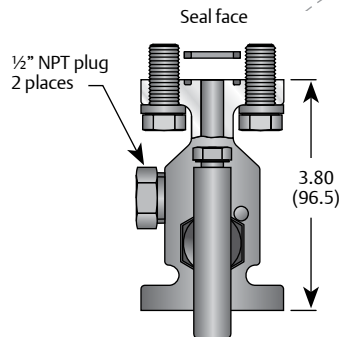
Block valves installed upstream of the 3- or 5-valve manifold are recommended to eliminate the need to blow down your meter tube when periodic maintenance is required on your 5-valve manifold seats when installed in dirty gas service. Spacers are also available to provide additional clearance between 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 PTFE packing

M65B



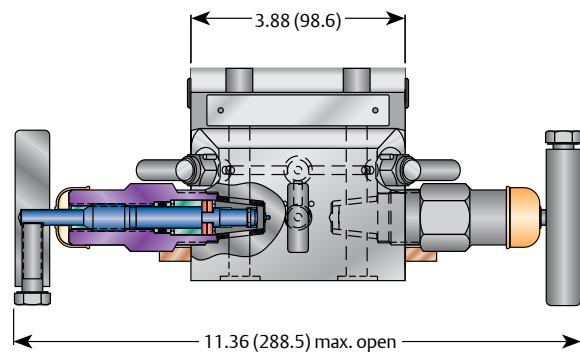
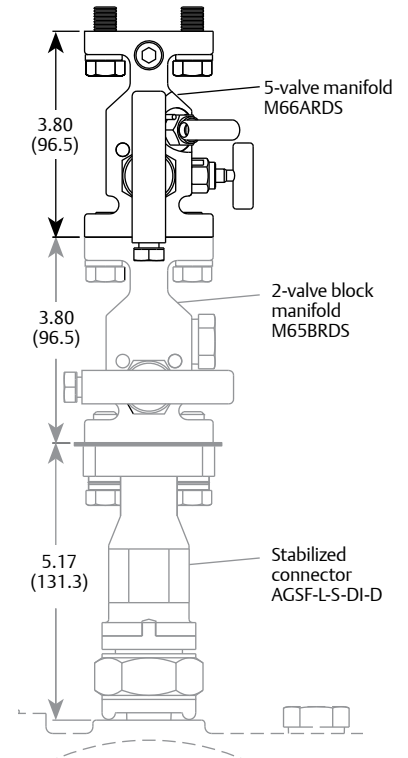
Valveless straight spacer M65C and M65C-4
(with 4 1/2" plugs)

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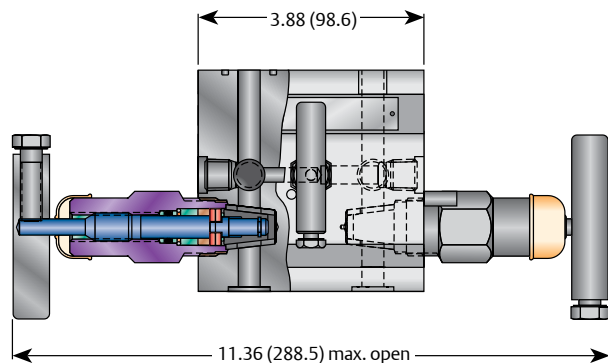
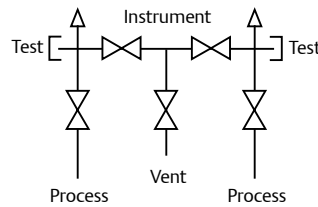
Selection considerations for vertical ACCU-Mount® systems

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.

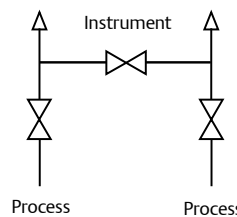
For ordering information for 3- or 5-valve manifold considerations, see page 24.



M66A 5-valve



M45A 3-valve

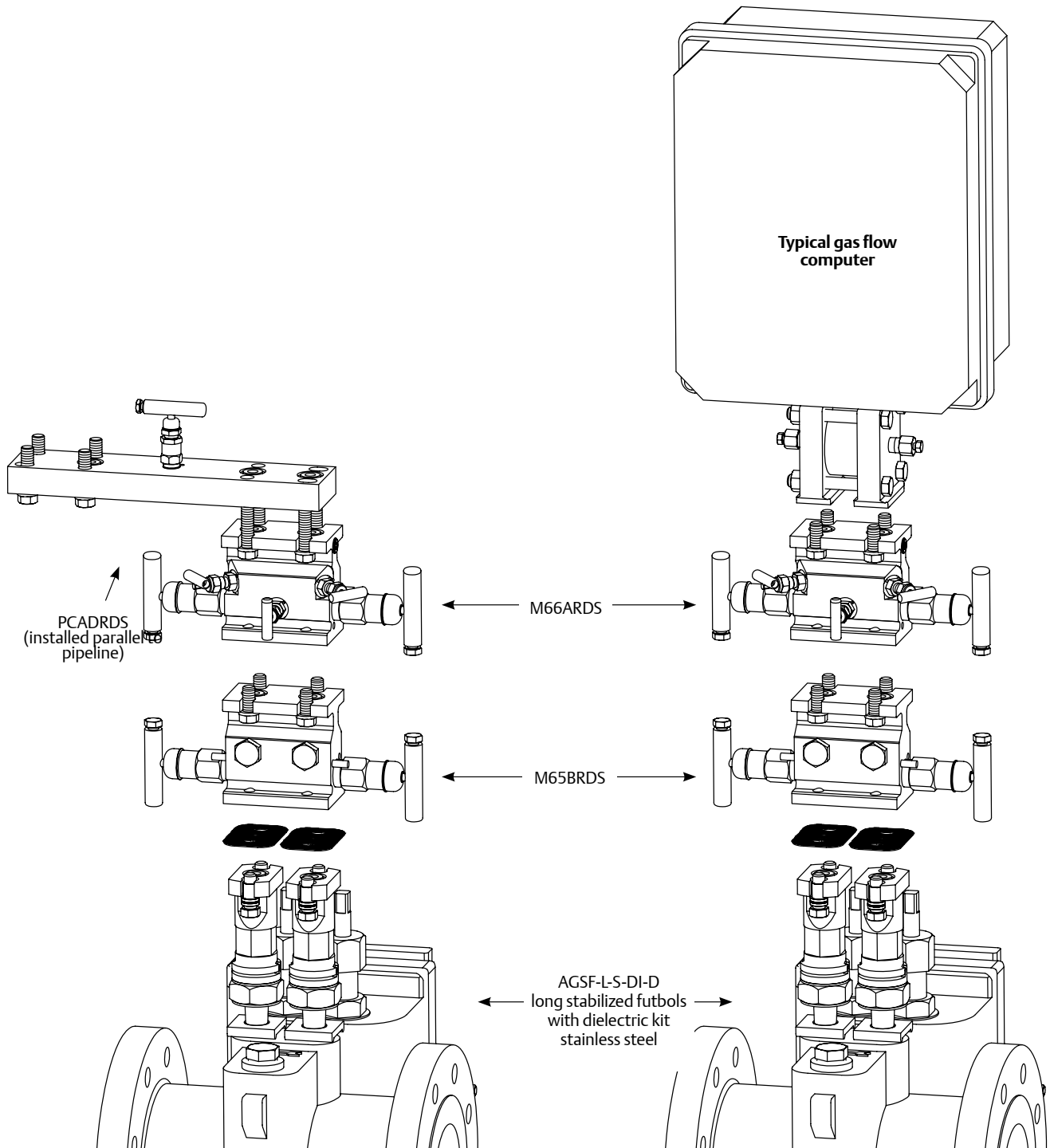


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Typical Vertical ACCU-Mount® Systems

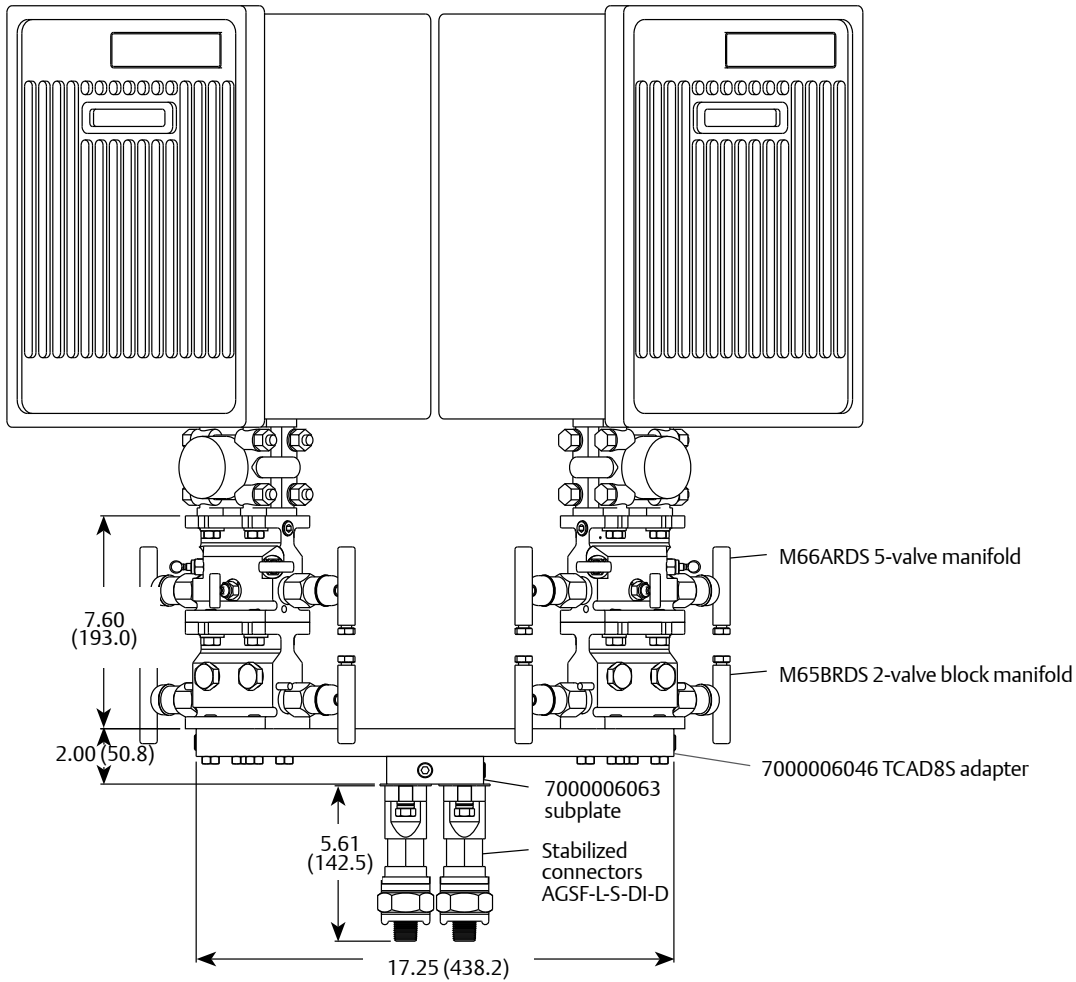
For specialty connection adapters, see page 20.



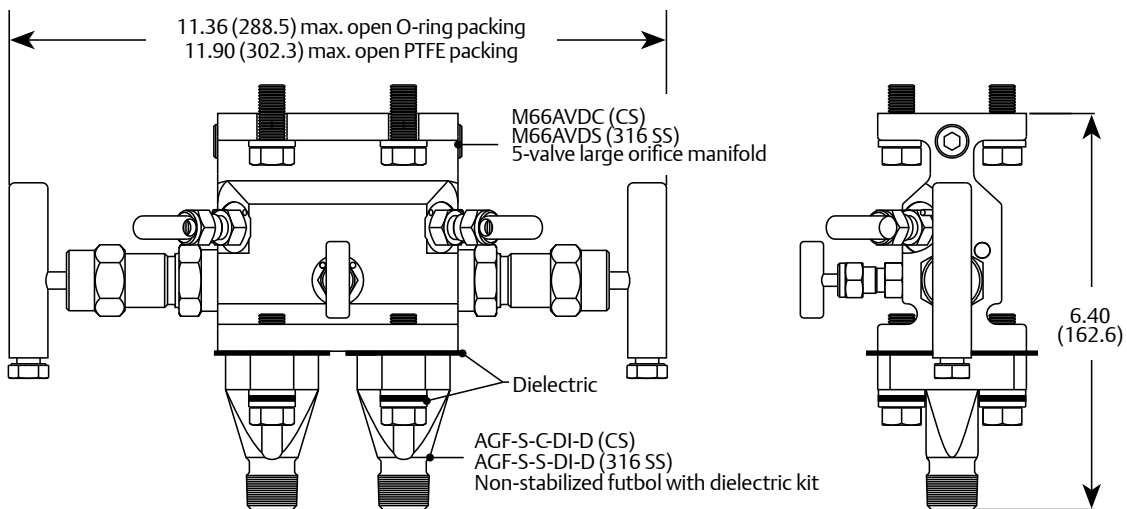
Anderson Greenwood Instrumentation Natural Gas Measurement Systems

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



ACCU MOUNT SERIES

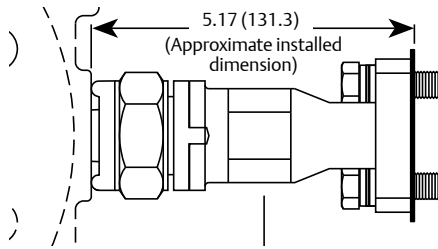
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Selection considerations for horizontal to vertical ACCU-Mount® systems

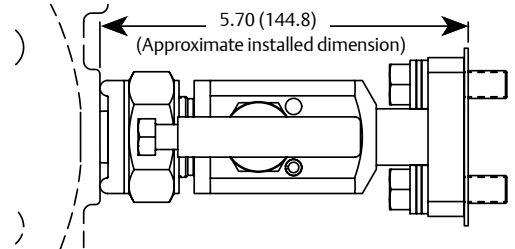
(Senior fitting and long stabilized futbols shown)

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.

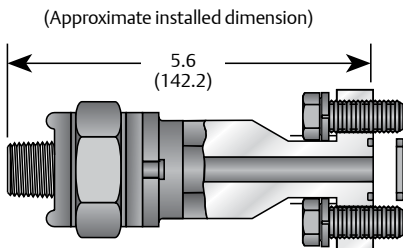
For ordering information for stabilized connector/futbols, see page 11.



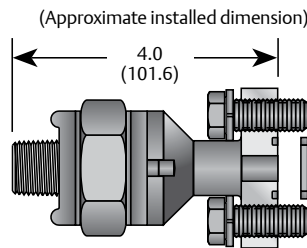
Stabilized connector with dielectric isolation (150 ft/lbs)
AGSF-L-S-DI-D (long stabilized futbol)



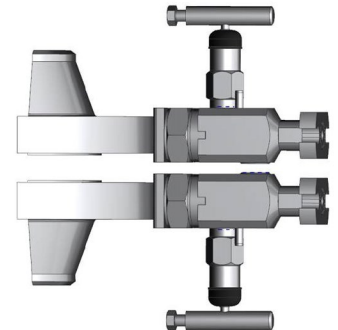
Stabilized connector Integral Block Valve



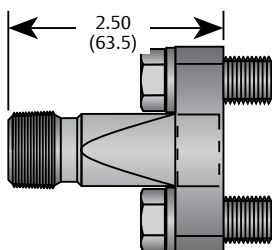
Stabilized connectors AGSF-L



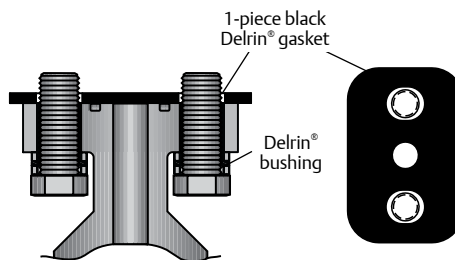
Stabilized connectors AGSF-S



Stabilized Futbol with Block Valve AGSFB



AGF close couple futbol



Dielectric option
Ratings: 2500 VDC
Resistance: 5 Megohms

Anderson Greenwood Instrumentation Natural Gas Measurement Systems

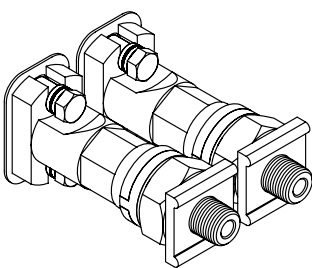
Selection Guide

AGSF	L	C	DI-D
BASIC SERIES	LENGTH	BODY MATERIAL	OPTIONS
Stabilized and AGF close couple connector/futbol			
AGSF Stabilized (150 ft/lbs)	S Short - Overall length (4" (101.6 mm))	C Carbon steel A216-WCB	DI-D Dielectric isolation (Delrin® rating 2500 VDC resistance 5 Megaohms)
AGF Close couple futbol	L Long - Overall length (5.6" (142.4 mm))	S 316 SS A351-CF8M	H GRAFOIL® gaskets (not available with incorporation of dielectric shielding option)
	1L One piece long - Stabilized futbol overall length 5.6" (142.4 mm)		HD Hydrostatic testing (100 percent) MSS SP-61
			OC00 Oxygen cleaning
			OR Viton® O-ring flange seals (PTFE 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

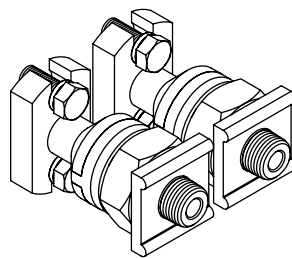
See AGSF Catalog Manifold_AGSF_VCTDS-03173 for AGSFB Model Number Selection Guide

NOTES

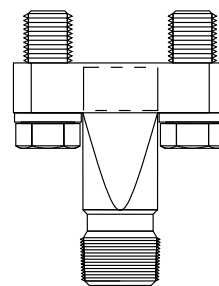
1. 316 SS bolts lower pressure ratings to a maximum of 4500 psi (310 barg)
2. All standard AG stabilized connectors/futbols include PTFE gaskets.
3. All standard AG stabilized connectors/futbols include carbon steel A193 B7 bolts.



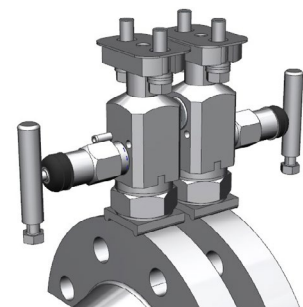
AGSF-L-DI-D



AGSF-S



AGF Close couple futbol



AGSFB-2-S-DI-D-RD

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, PTFE gasket
2 Futbols per kit	AGF-S-S-SSA ½" MNPT	A351-CF8M, 316 bolt (4500 psi Max), PTFE 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, PTFE gasket
1 Futbol per kit	AGF-1L-C ½" MNPT	CS A216-WCB, A193-B7 bolt, PTFE gasket
1 Futbol per kit	AGF-1L-S ½" MNPT	A351-CF8M, A193-B7 bolt, PTFE gasket

ACCU MOUNT SERIES

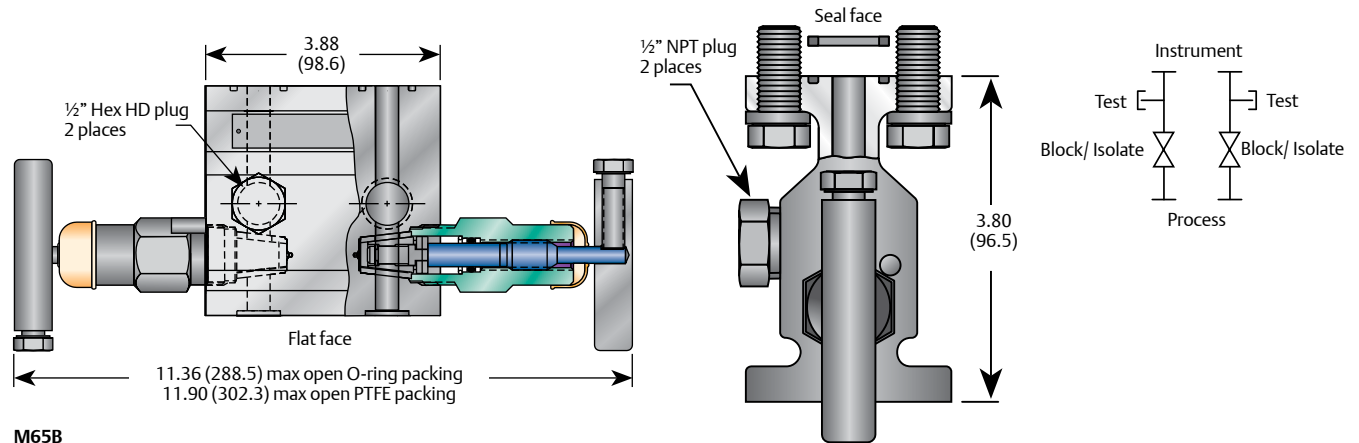
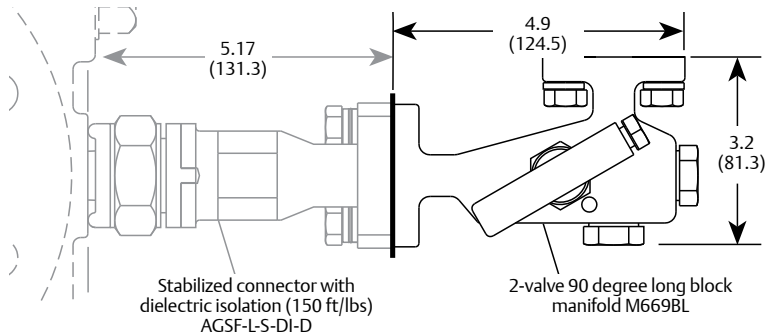
Anderson Greenwood Instrumentation Natural Gas Measurement Systems

Selection considerations for horizontal to vertical ACCU-Mount® systems

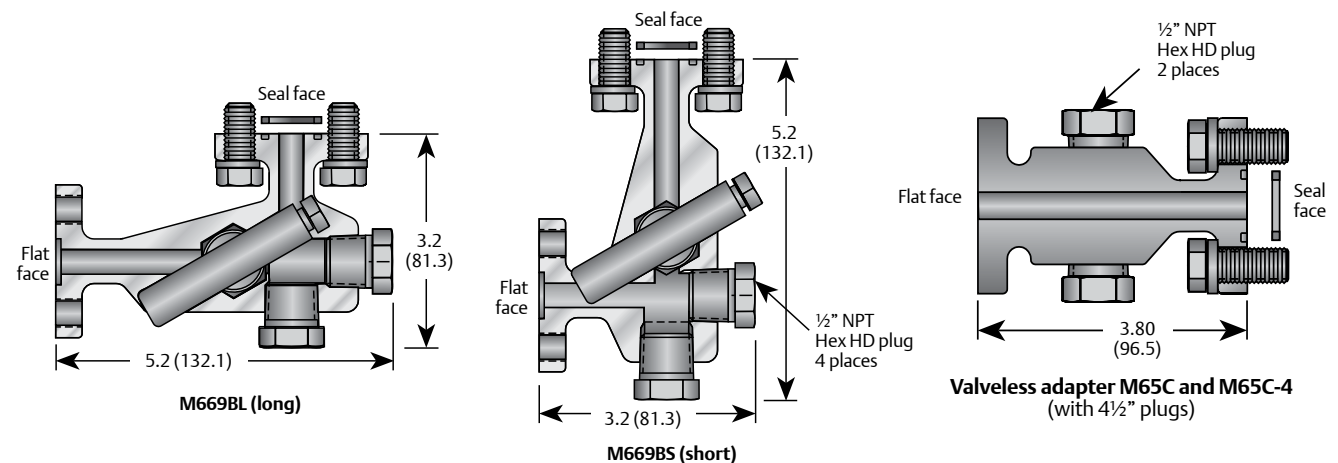
Block valve upstream of the 5-valve manifold (optional - recommended)

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



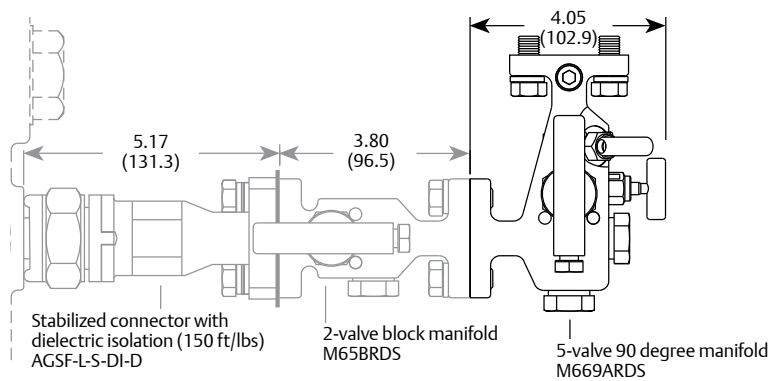
Anderson Greenwood Instrumentation Natural Gas Measurement Systems

Selection considerations for horizontal to vertical ACCU-Mount® systems

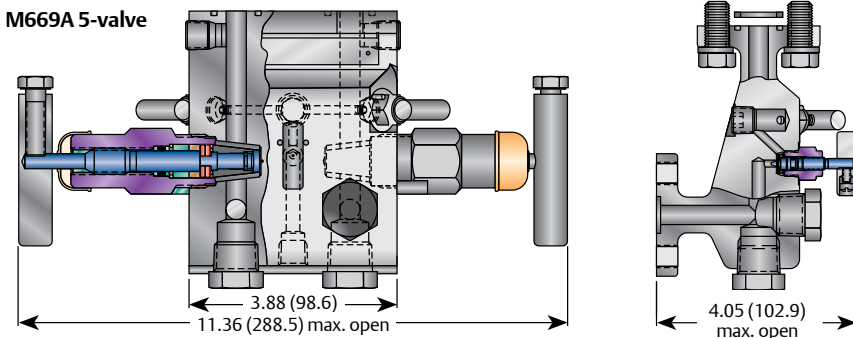
3- or 5-valve manifold considerations - In the 'run' position, the 5-valve natural gas style manifold provides 2 block valves between the high and low side process/communication ports and easily accessible vent/test ports for calibration of the instrument. A 3-valve manifold provides only 1 equalizing 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.

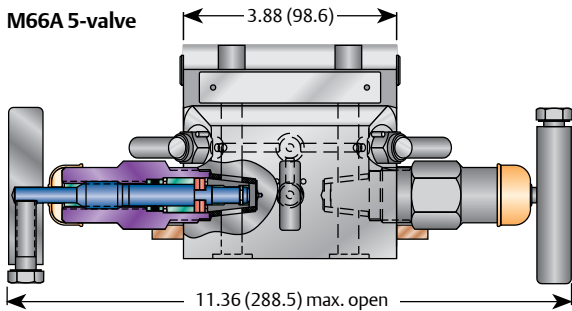
For ordering information for 3- or 5-valve manifold considerations, see page 24.



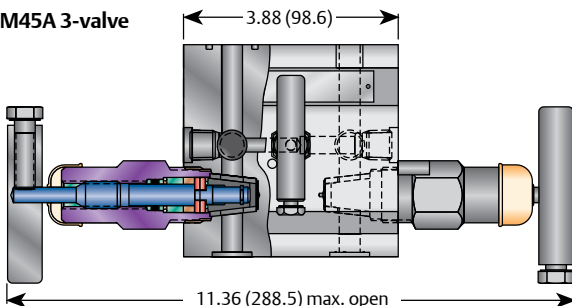
M669A 5-valve



M66A 5-valve



M45A 3-valve



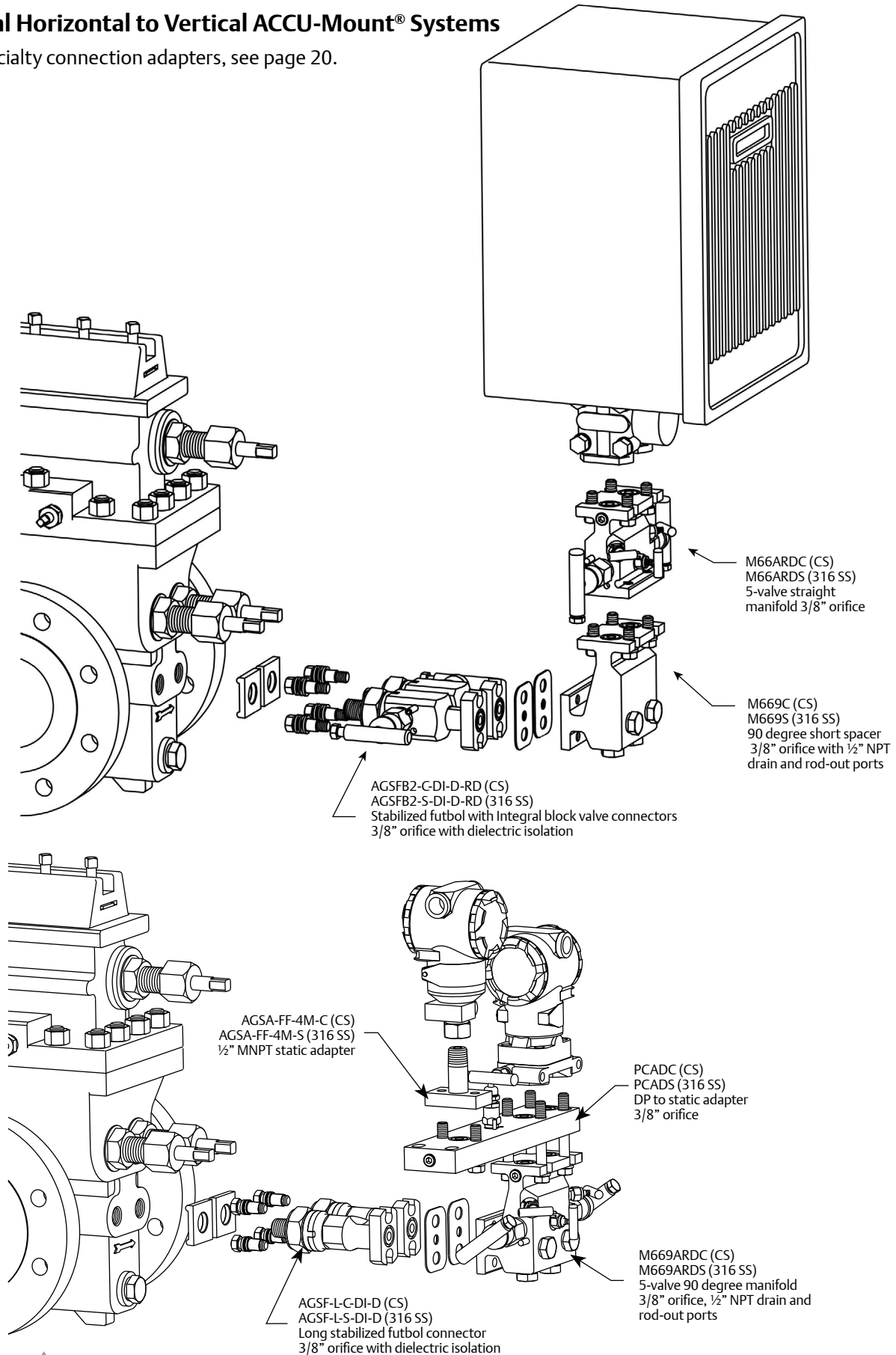
ACCU MOUNT SERIES

Anderson Greenwood Instrumentation Natural Gas Measurement Systems

Typical Horizontal to Vertical ACCU-Mount® Systems

For specialty connection adapters, see page 20.

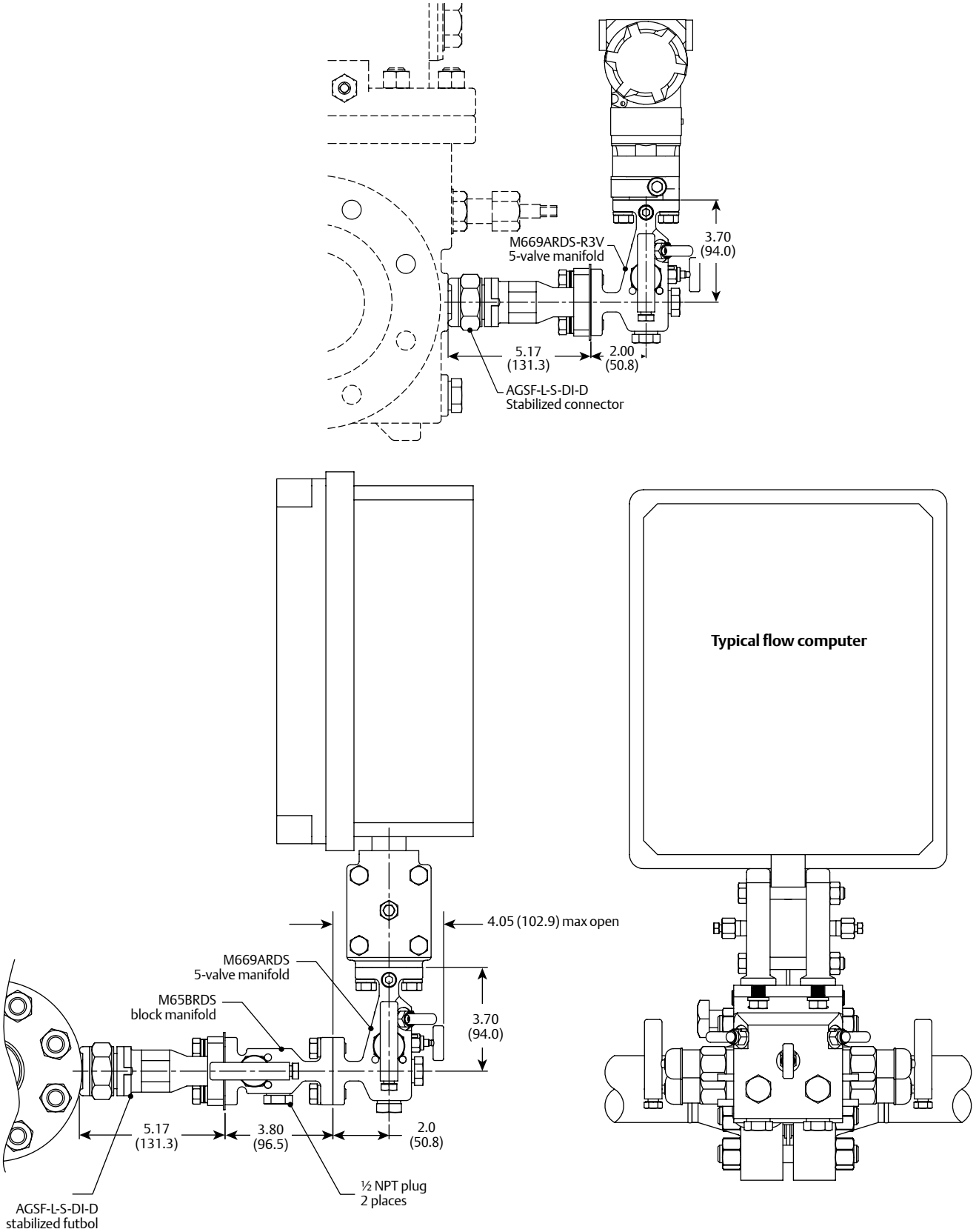
Direct Mount



Anderson Greenwood Instrumentation Natural Gas Measurement Systems

Typical Horizontal to Vertical ACCU-Mount® Systems

For specialty connection adapters, see page 20.



Direct Mount

ACCU MOUNT SERIES

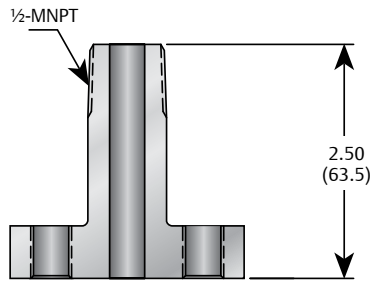
Anderson Greenwood Instrumentation Natural Gas Measurement Systems

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

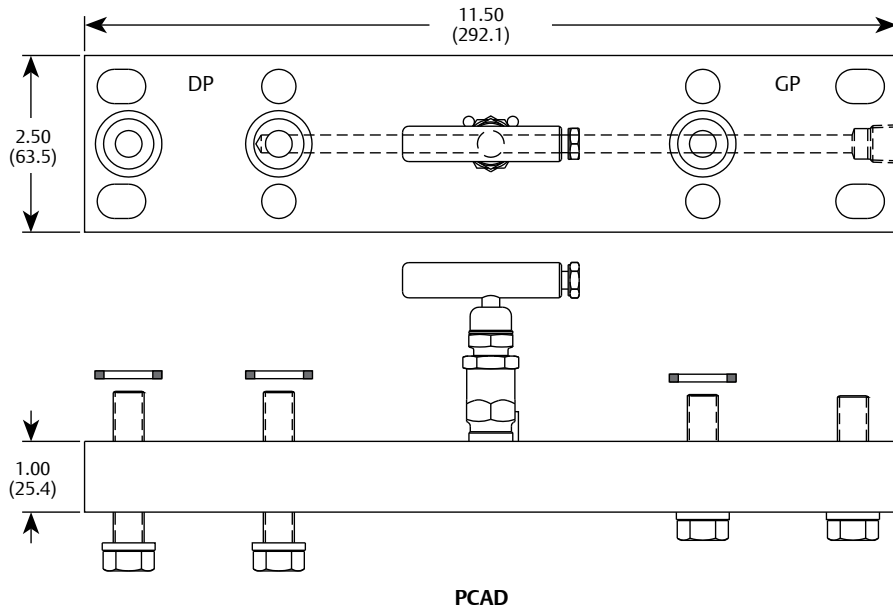
- Measurement device - flow computer or DP and static transmitters.
- Intercompany, custody transfer, bi-directional or redundant measurement required.

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

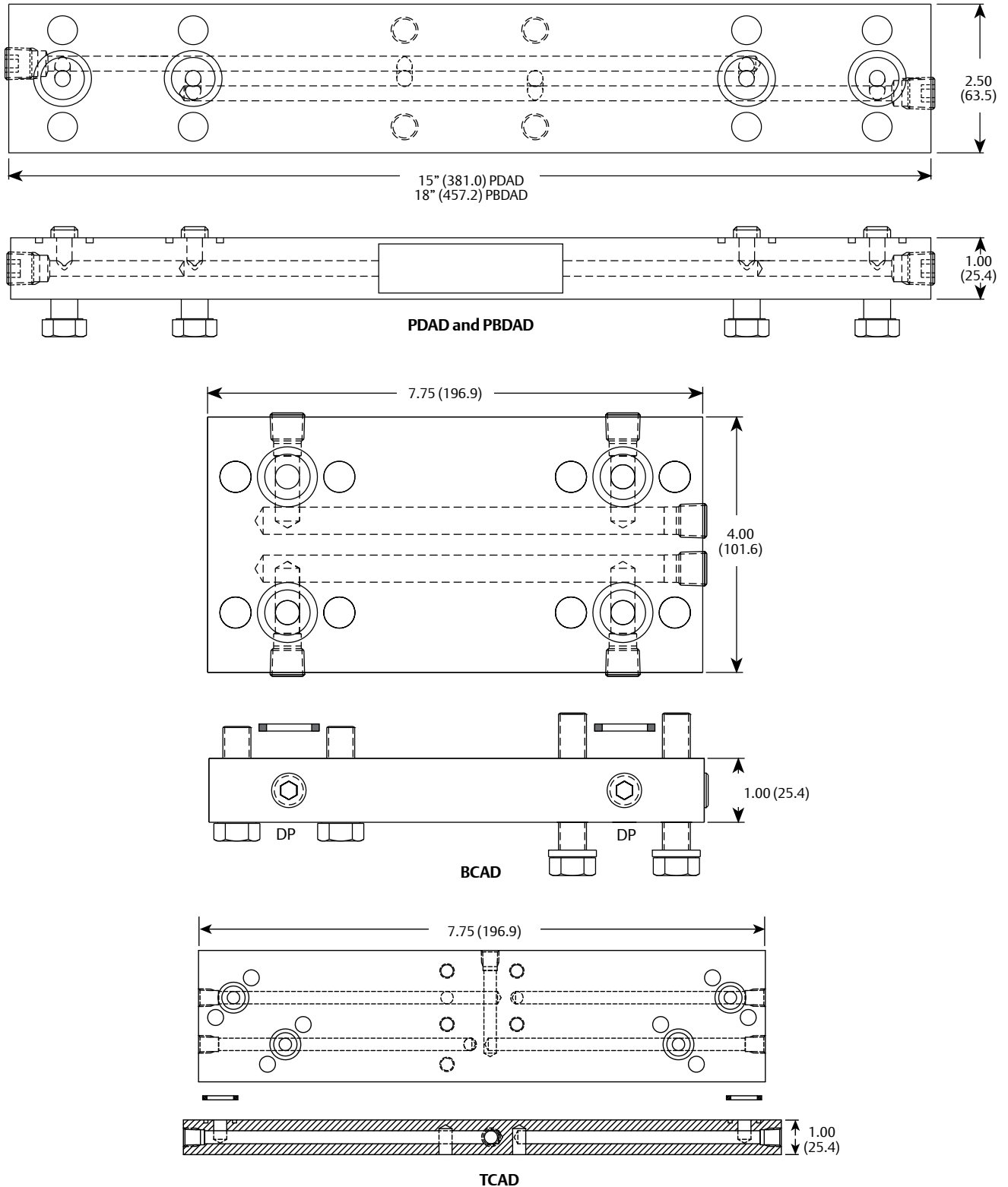
Anderson Greenwood Instrumentation Natural Gas Measurement Systems

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.



Direct Mount

ACCU MOUNT SERIES

Anderson Greenwood Instrumentation Natural Gas Measurement Systems

Spare Parts

Stabilized and non-stabilized connector futbols - dielectric and flange seals

Description	Description
PTFE flange gasket	$\frac{7}{16}$ -20 x 1" B7 bolts (standard)
18-8 Washer 'D' style	$\frac{7}{16}$ -20 x 1" 18-8 bolts (SSA option)
$\frac{7}{16}$ -20 x 2.25" B7 bolts (standard for R3V option)	$\frac{7}{16}$ -20 x 1" B8M bolts (SSC option)
$\frac{7}{16}$ -20 x 2.25" 18-8 bolts (SSA+ R3V option)	$\frac{7}{16}$ -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)
$\frac{7}{16}$ -20 x 1.25" B7 bolts (4 required)	Dielectric flange seal Delrin® (2 required)
$\frac{7}{16}$ -20 x 1.25" 18-8 (SSA option) bolts (4 required)	316 SS Isolator washers (8 required)
$\frac{7}{16}$ -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	$\frac{7}{16}$ -20 x 1.25" B7 bolts (4 required)
SSA bolt kit - flange gasket with 18-8 bolts	$\frac{7}{16}$ -20 x 1.25" 18-8 bolts (4 required)
SSC bolt kit - flange gasket with B8M bolts	$\frac{7}{16}$ -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)
	PTFE 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)
	$\frac{7}{16}$ -20 x 1.5" B7 bolts (2 required)
	$\frac{7}{16}$ -20 x 1.5" 18-8 bolts (2 required)
Large orifice 3/8" (9.5 mm) valve seat	
Delrin® (standard)	PCTFE
PTFE	PEEK
Small orifice 3/16" (4.7 mm) valve seat	
Delrin® (standard)	PCTFE
PTFE	PEEK
Mini orifice 0.136" (3.5 mm) valve seat	
Delrin® (standard)	PEEK
PCTFE	
Miscellaneous - spare parts	
$\frac{1}{4}$ " CS hex head pipe plug	$\frac{7}{16}$ -20 x 2.25" B7 bolts (Std.)
$\frac{1}{4}$ " 316 SS hex head pipe plug	$\frac{7}{16}$ -20 x 2.25" 18-8 bolts (SSA)
$\frac{1}{2}$ " CS hex head pipe plug	$\frac{7}{16}$ -20 x 2.25" B8M bolts (SSC)
$\frac{1}{2}$ " 316 SS hex head pipe plug	$\frac{7}{16}$ -20 x 2.75" B7 bolts (Std.)
	$\frac{7}{16}$ -20 x 2.75" 18-8 bolts (SSA)
$\frac{7}{16}$ -20 x 2" B7 bolts (Std.)	$\frac{7}{16}$ -20 x 2.75" B8M bolts (SSC)
$\frac{7}{16}$ -20 x 2" 18-8 bolts (SSA)	$\frac{7}{16}$ -20 x 3.25" 18-8 bolts (SSA)
$\frac{7}{16}$ -20 x 2" B8M bolts (SSC)	$\frac{7}{16}$ -20 x 3.25" B8M bolts (SSC)

Anderson Greenwood Instrumentation Natural Gas Measurement Systems

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)	2.25" (57.2 mm)
	Connecting to standard D/P transmitter (other side)	1.5" (38.1 mm)
BCAD adapter with R3V option	Connecting to Rosemount® 3051C D/P transmitter (process inlet side)	3.25" (82.6 mm)
	Connecting to Rosemount® 3051C D/P transmitter (other side)	2.75" (69.9 mm)
PCAD adapter	Connecting to standard D/P transmitter (process inlet side)	2.25" (57.2 mm)
	Connecting to standard G/P transmitter (other side)	1.75" (44.5 mm)
PCAD adapter with R3V option	Connecting to Rosemount® 3051C D/P transmitter (process inlet side)	3.25" (82.6 mm)
	Connecting to Rosemount® 3051C D/P transmitter (other Side)	2.75" (69.9 mm)
PDAD and PBDAD adapter	Connecting to process inlet ports through underneath manifold in center	1.25" (31.8 mm)
	Connecting to standard D/P transmitter (both sides)	1.5" (38.1 mm)
PDAD and PBDAD adapter with R3V option	Connecting to process inlet ports through underneath manifold in center	1.25" (31.8 mm)
	Connecting to Rosemount® 3051C D/P Transmitter (Both Sides)	2.75" (69.9 mm)
PBCAD adapter	Connecting to process inlet ports through underneath manifold in center	1.5" (38.1 mm)
	Connecting to standard D/P transmitter (both sides)	1.5" (38.1 mm) x 8
	Connecting subplate to TCAD8 plate	1.5" (38.1 mm) x 1
TCAD8 adapter	Connecting from process inlet ports underneath manifold in center through subplate	2.25" (57.2 mm) x 4
	Connecting to standard D/P transmitter (both sides)	1.5" (38.1 mm) x 8

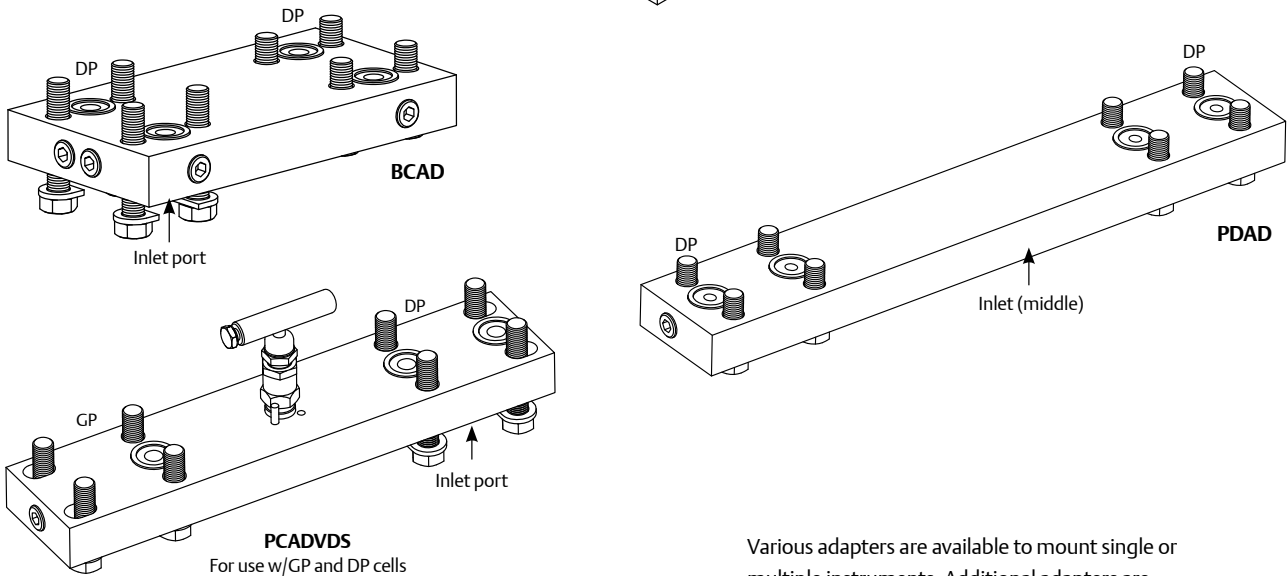
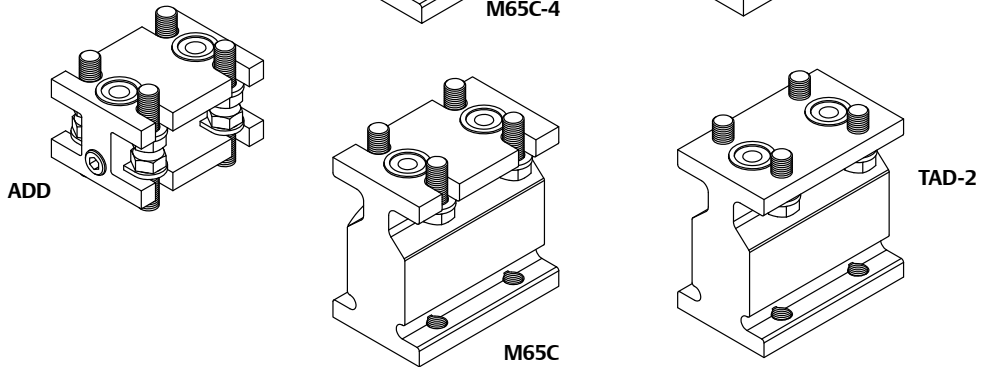
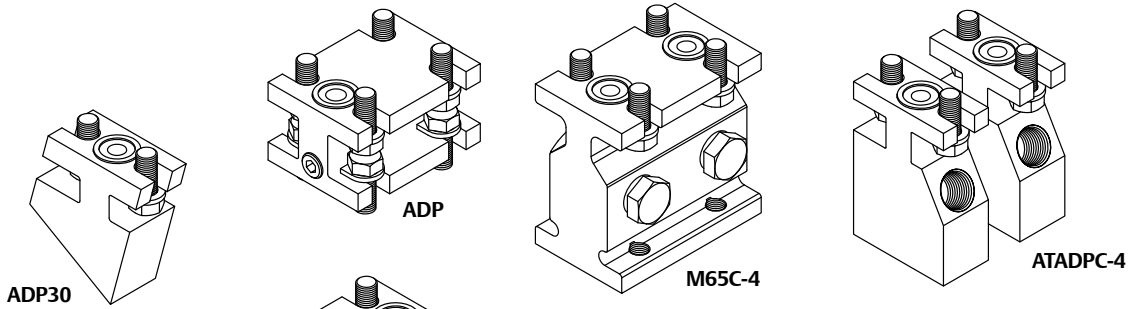
Pressure and Temperature Ratings

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, 316 SS, SG, SG3, Monel®	PTFE 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, 316 SS, SG, SG3, Monel®	PTFE 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 PTFE	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, 316 SS, SG, SG3, Monel®	PTFE	PTFE	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)

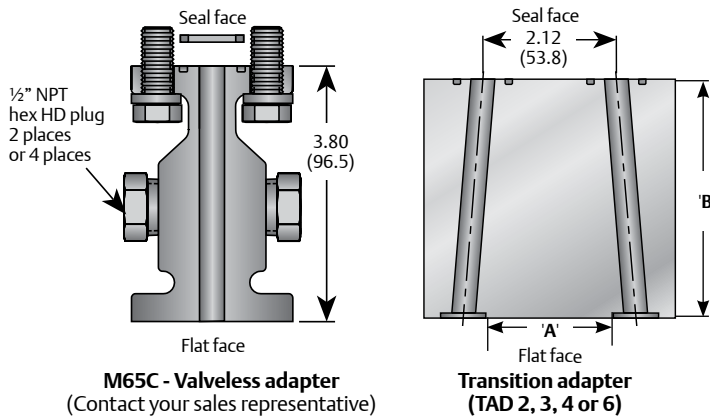
ACCU MOUNT SERIES

Anderson Greenwood Instrumentation Natural Gas Measurement Systems

Specialty Adapters



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



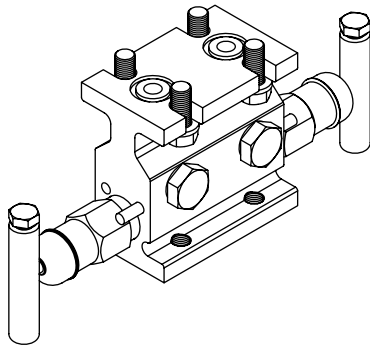
Transition adapter TADC (CS) TADS (316 SS)

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)

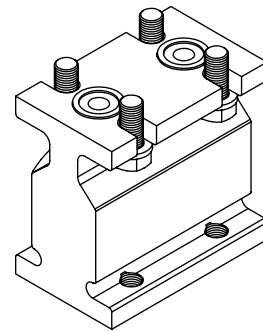
Anderson Greenwood Instrumentation Natural Gas Measurement Systems

Selection Guide- Block Valves

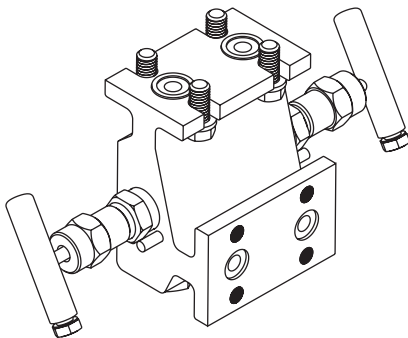
M65B		R		D		C		CL	
BASIC SERIES		STEM SEAL MATERIAL (BLOCK VALVES ONLY)		SEAT MATERIAL (BLOCK VALVES ONLY)		BODY MATERIAL		OPTIONS	
Block valves and spacers									
M65B	Straight block valve	R	Viton® O-ring (standard)	D	Delrin® (standard)	C	Carbon steel	OC00	Oxygen cleaning
M65C	Straight spacer	V	PTFE packed	K	Kel-F®	S	316 SS	HD	Hydrostatic testing (100 percent) MSS SP-61
M65C-4	Straight spacer - with (4) ½" NPT ports			P	PEEK			OR	Viton® O-ring flange seals (PTFE standard)
M669BL	90 degree block valve - long (standard)							SG	Sour Gas Meets the requirements of NACE MRO175/ISO15156 (for chloride conditions < 50 mg/l (ppm)) and NACE MRO103-2005
M669BS	90 degree block valve - short							SSA	18-8/300 series SS bolting material - max pressure rating 4500 psig
M669C	90 degree spacer							SSB	316 SST flange bolt (B8M class 2) will provide full pressure rating
								SSC	B8M/316 SS bolting material - max pressure rating 4500 psig



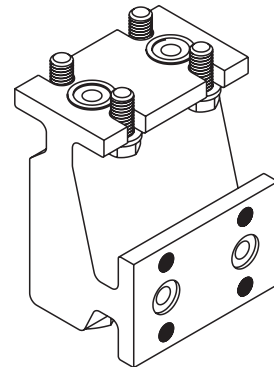
M65BRDS



M65C



M669BS



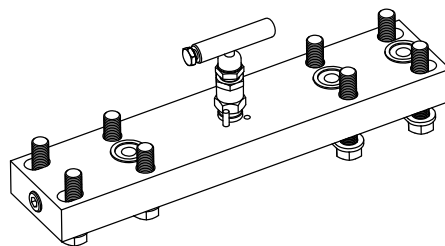
M669C

ACCU MOUNT SERIES

Anderson Greenwood Instrumentation Natural Gas Measurement Systems

Selection Guide- Adapter Plate

PCAD		R	D	S	SG				
BASIC SERIES		STEM SEAL MATERIAL (INTEGRAL VENT/ TEST VALVE)		SEAT MATERIAL (INTEGRAL VENT/ TEST VALVE)		BODY MATERIAL		OPTIONS	
DP to static adapters									
PCAD	DP to static adapter, parallel to pipeline (11.5" [292.2 mm] OAL)	R	Viton® O-ring (standard)	D	Delrin® (standard)	C	Carbon steel	OC00	Oxygen cleaning
		V	PTFE packed	K	Kel-F®	S	316 SS	HD	Hydrostatic testing (100 percent) MSS SP-61
				P	PEEK			OR	Viton® O-ring flange seals (PTFE standard)
								R3V	Rosemount® 3051 DP and static transmitter requires (4) 3 1/4" (DP) and (4) 2 3/4" (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

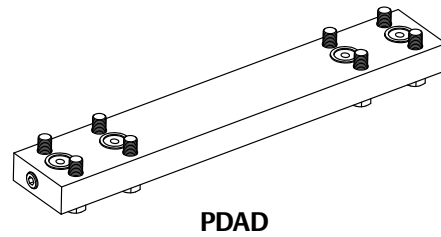
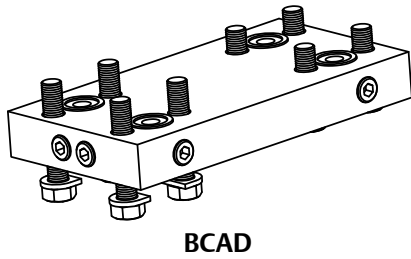


PCADRDS

Anderson Greenwood Instrumentation Natural Gas Measurement Systems

Selection Guide- Adapter Plate

PCAD		C	R3V	
BASIC SERIES		BODY MATERIAL	OPTIONS	
DP to DP dapters				
BCAD	Perpendicular to pipeline, (7.75" [196.85 mm])	C Carbon steel	OC00	Oxygen cleaning
PBCAD	Parallel to pipeline, (18" [457.2 mm] OAL)	S 316 SS	HD	Hydrostatic testing (100 percent) MSS SP-61
PDAD	Parallel to pipeline, (15" [381.0 mm] OAL)		OR	Viton® O-ring flange seals (PTFE standard)
TCAD8	Parallel to pipeline, (14.25" [362.0 mm])		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



ACCU MOUNT SERIES

Anderson Greenwood Instrumentation Natural Gas Measurement Systems

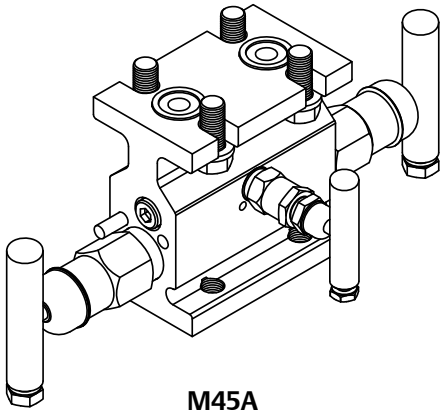
Selection Guide- Manifold

M66A		R		D		S		4		SG	
BASIC SERIES		PACKING		SEAT (CONE)		BODY MATERIAL		PROCESS CONNECTIONS (M66T AND M6TW ONLY)		OPTIONS	
3/8" (9.5mm) orifice											
M45A	Flange x flange (3-valve manifold)	R	Viton® O-ring	D	Delrin®	C	Carbon steel	4	1/2" FNPT	AM	AGCO Mount® Kit for 2" pipestand mounting of manifold (AGIMC-0344, pg 138)
M66A	Flange x flange	V	PTFE (patent protected)	E	PEEK	S	316 SS - A479-316/316L			DI-D	Dielectric isolation
M669A	90 degree flange x flange			K	PCTFE					HD	Hydrostatic testing - includes test report (MSS-SP-61)
3/16" (4.8mm) orifice											
M6TAW	Flange x flange (5-valve manifold)									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) 1/4" -18 NPT, 2 places, M66A, M66T only

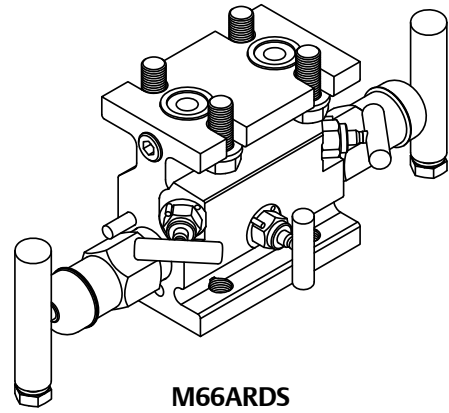
NOTE

1. All CS product is zinc TCP plated to resist corrosion.

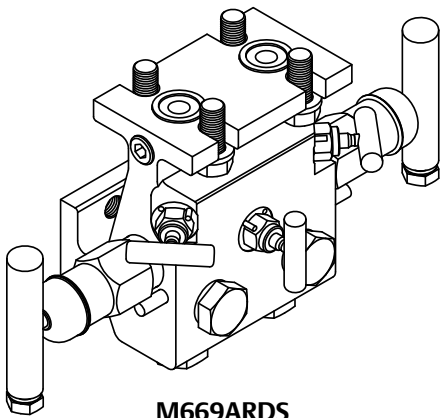
Anderson Greenwood Instrumentation Natural Gas Measurement Systems



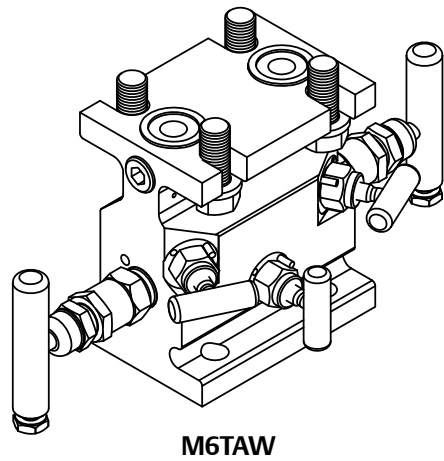
M45A



M66ARDS



M669ARDS



M6TAW

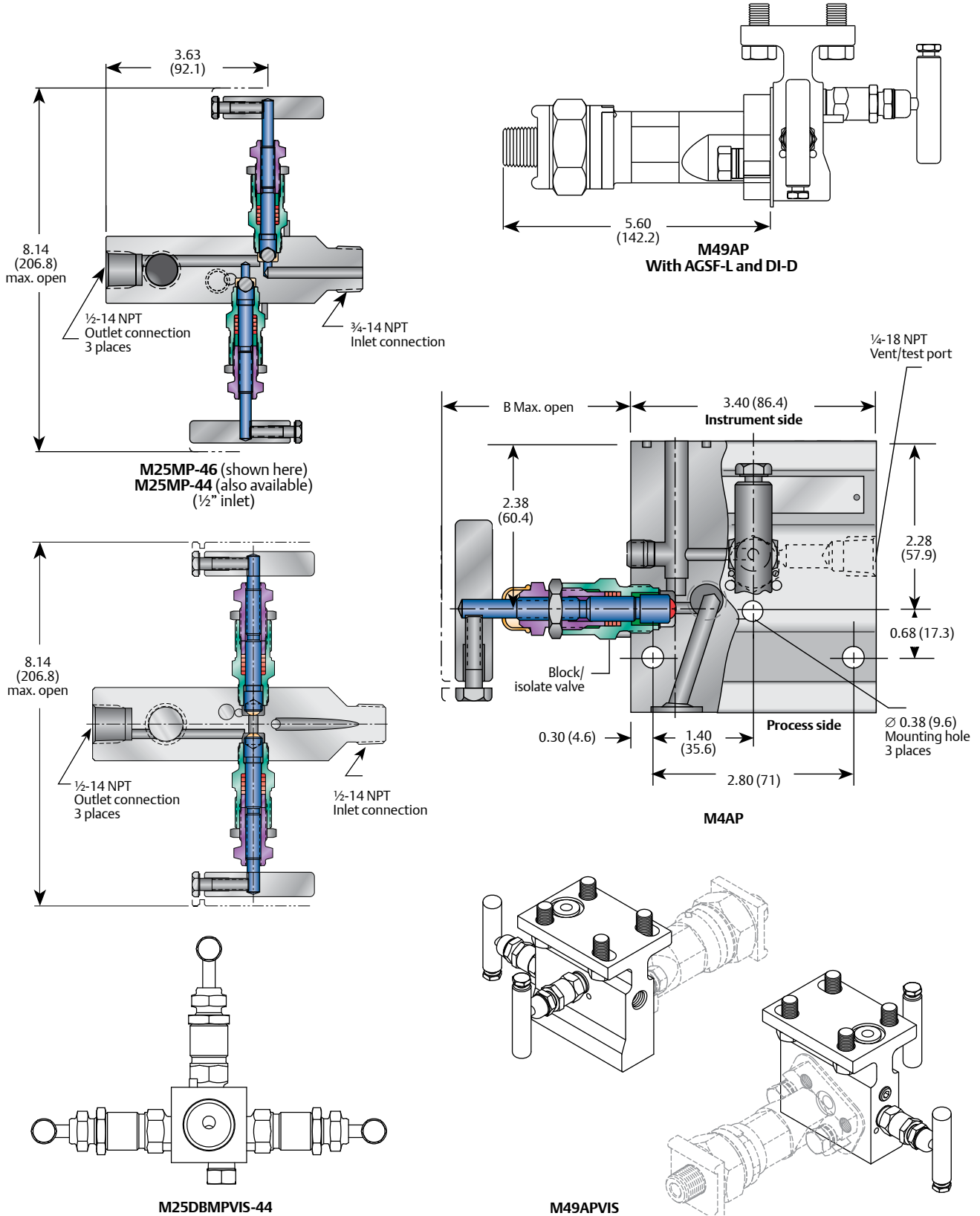
ACCU MOUNT SERIES

Anderson Greenwood Instrumentation Natural Gas Measurement Systems

Close coupled flanged and NPT pressure transmitter installation

For ordering information, see pages 26 and 27.

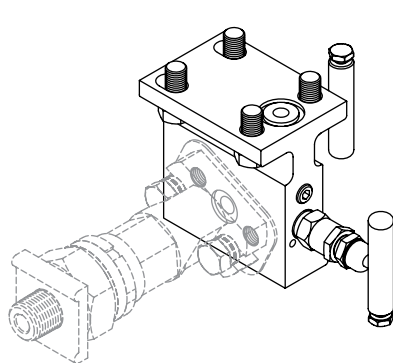
Direct Mount



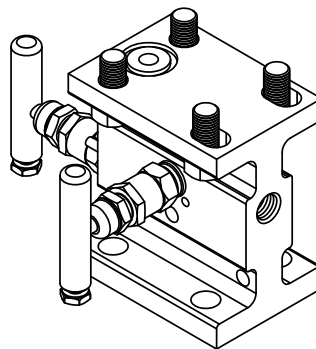
Anderson Greenwood Instrumentation Natural Gas Measurement Systems

Selection Guide- Manifold

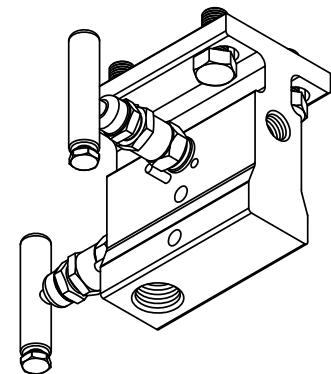
M49AP	R	D	S	4	R
BASIC SERIES	STEM SEAL MATERIAL	SEAT MATERIAL	BODY MATERIAL	PROCESS CONNECTIONS	OPTIONS
Flange mount system - requires connector/futbol					
M4AP- 2-Valve pressure manifold, straight flange x flange	R Viton® O-ring	D Delrin® (standard)	C Carbon steel	4 1/2" FNPT (M4TP only)	DI-D Dielectric isolation
M49AP 2-Valve pressure manifold, 90 degree flange x flange	V PTFE packed	I Integral (standard hard seat)	S 316 SS		OR Viton® O-ring flange seals (PTFE standard)
M4TP Straight 1/2" FNPT x flange		K Kel-F®			R3V Rosemount® 3051 and 3095 Series transmitters require 2 1/4" bolt length
		P PEEK			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, PTFE flange seals - body material carbon steel (long (2) piece stabilized futbols)
AGSF-L-S	Long 5.61" OAL, Carbon steel bolts, PTFE flange seals - body material 316 SS (long (2) piece stabilized futbols)
AGSF-1L-C	Long 5.61" OAL, Carbon steel bolts, PTFE flange seals - body material carbon steel (long one piece stabilized futbol)
AGSF-1L-S	Long 5.61" OAL, Carbon steel bolts, PTFE flange seals - body material 316 SS (long one piece stabilized futbol)
AGSF-S-C	Short 4.00" OAL, Carbon steel bolts, PTFE flange seals - body material carbon steel (short (2) piece stabilized futbols)
AGSF-S-S	Short 4.00" OAL, Carbon steel bolts, PTFE flange seals - body material 316 SS (short (2) piece stabilized futbols)
AGSF-1S-C	Short 4.00" OAL, Carbon steel bolts, PTFE flange seals - body material carbon steel (short one piece stabilized futbol)
AGSF-1S-S	Short 4.00" OAL, Carbon steel bolts, PTFE 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 (PTFE 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

ACCU MOUNT SERIES

Anderson Greenwood Instrumentation Natural Gas Measurement Systems

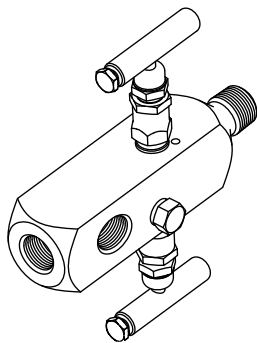
Selection Guide

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

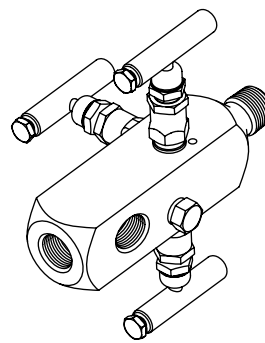
NOTES

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

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M25MP



M25DBMP