

DIRECT-MOUNT[®] SYSTEMS

F O R T H E N A T U R A L G A S I N D U S T R Y

ISO 9001:2008 Certified Quality System

Stabilized Connectors

ΔP to Static Adapters

5 Valve Gas Manifolds

Dielectric Isolators

Pressure-Core[®] Seal



DMS PGI's Direct-Mount® Systems

Why Direct-Mount®?

Pulsation created by compressors, flow control valves, regulators and some piping configurations may create unacceptable levels of Square Root Error (SRE) and/or resulting Gauge Line Error (GLE). Pulsation at the orifice meter is a major source of lost and unaccounted for natural gas, which can create large economic gains or losses for both buyers and sellers along a natural gas pipeline system. Industry studies have proven the existence of flow and/or pulsation-induced GLE in traditional, remotely tubed meter installations. Pulsation and resulting SRE creates a high probability that GLE is present within your measuring systems. These highly accredited studies concluded that transmitters or EFM should be close coupled to the orifice taps with equal length, large bore (0.375 inch I.D. or greater), constant diameter gauge lines to minimize or eliminate GLE. PGI International's patented Direct-Mount® Systems (DMS) were developed in response to requests by leading gas transmission companies for a safe, efficient method of close coupling EFM's and transmitters to orifice fittings and thus eliminating or reducing the effects of Gauge Line Error from accurate measuring systems.

Reduce Installation Costs and Increase Safety

DMS can be easily configured and safely installed for both vertical and horizontal to vertical applications. DMS reduces installation cost because there is never a need to manufacture and install time-consuming tube runs with expensive tube fittings and pipe stands.

Reduce NPT Connections and Leak Points

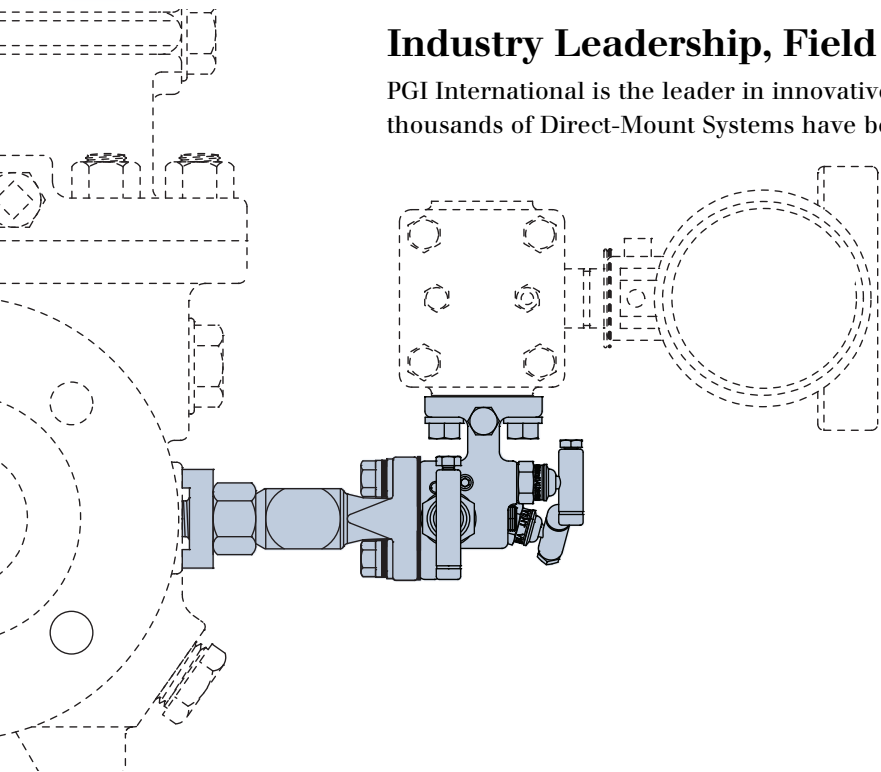
DMS is a flange to flange continuous connection that eliminates NPT connections and potential leak paths.

Industry Leadership, Field Tested Performance

PGI International is the leader in innovative DMS technology. Since its introduction in 1988, thousands of Direct-Mount Systems have been installed worldwide. PGI's DMS provides the

most user-friendly, affordable installation available in the market. For more information on DMS products or to obtain technical literature on pulsation-induced Gauge Line Error, call 1-800-231-0233 (or 713-466-0056).

Direct-Mount® Systems are produced and marketed under the following United States patents issued to PGI International: 4.597.581, 4.974.308, 4.920.626, 4.672.728, 4.582.089, 5.720.317



NACE MR0175/ISO 15156-3

All PGI 316 SS DMS meet
NACE MR0175/ISO 15156-3.

DMS also available in .187" orifice



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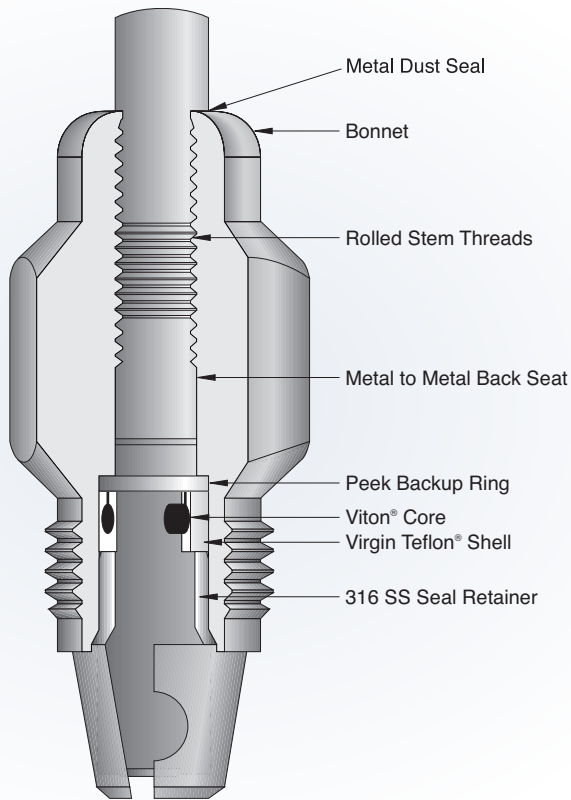
PGI Continues to Lead Industry with Innovative Manifold Design Features



Introducing the Turn-Saver™: Only 3 1/2 Turns!

This new innovative feature minimizes the number of turns to fully open or close the bonnet of the valve or manifold assembly (3-1/2 turns compared to competitor's 11). The Turn-Saver reduces repetitive motion and saves significant time during calibrations or transmitter replacement. This added feature comes without an added price and is standard on all PGI Pressure-Core® large bore soft seat applications.

Teflon® Pressure-Core® Stem Seal Bonnet and Packing Design



Pressure-Core® Stem Seal

Compared to competitive manifold valve designs, PGI's Pressure-Core® Seal offers leak-free performance with no maintenance requirements. To support this claim, the Pressure-Core® Seal was tested against the competitor's design. The tests simulated harsh plant operating environments and were performed by an independent laboratory in accordance with EPA Method 21.

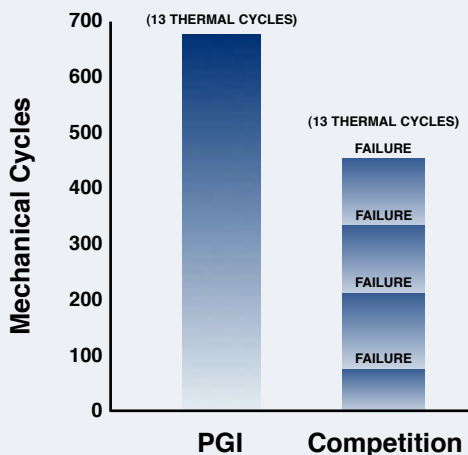
How We Do It!

The Pressure-Core® Seal consists of an outer Teflon® shell with an elliptical shaped Viton® O-Ring core. The encapsulated core is "live-loaded" and provides constant outward pressure against the Teflon® shell, which flexes under pressure like an O-Ring. The Teflon® shell offers the desired chemical resistance without periodic gland tightening as in conventional designs.

The test results indicate that the Pressure-Core® Seal is a reliable, affordable, virtually leak-free valve requiring no costly, time-consuming maintenance. PGI stands behind this claim with a five year warranty, far exceeding the industry standard.

P A T E N T E D
5 YEAR WARRANTY

FUGITIVE EMISSIONS TEST RESULTS



See for yourself how our Pressure-Core® Seal not only out performs the leading manufacturer's design, but sets a new industry standard.

TEST PROCEDURE

Valves mechanically cycled 50 times (full open to full close) at 1,000 PSI methane, then heated to 400° F and air cooled to ambient. Procedure repeated until failure.

FAILURE CRITERIA

100 PPM leak*

*Competitor's Emission Seal Warranty

TEST RESULTS

PGI: The Pressure-Core® Seal successfully completed **694** mechanical cycles and **15** thermal cycles. Maximum leakage throughout testing was **40 PPM**.

Competition: The leading manufacturer's "low emissions" graphite design failed on the **89th** mechanical cycle and on average every **125** cycles throughout the testing. Repeated maintenance was required between each failure to readjust the valve packing.

Materials of Construction and Pressure vs. Temperature Chart

Materials of Construction

MANIFOLDS and SPACERS		
PART DESCRIPTION	CARBON STEEL	316 SS
Body and Bonnet	ASTM A108 CS	ASTM A479-316 SS
Stem	ASTM A479-316 SS	ASTM A479-316 SS
Bonnet Lock Pin	300 Series SS	300 Series SS
Seal and Cone Retainer	ASTM A479-316 SS	ASTM A479-316 SS
Thrust Washer	ASTM A564-630 (17-4PH)	ASTM A564-630 (17-4PH)
Handle Assembly	ASTM A108 CS	ASTM A581-300 SS

AK-700 and AK-701 ADAPTERS		
PART DESCRIPTION	CARBON STEEL	316 SS
Body	AISI 1018 CS	ASTM A479-316 SS
Bonnet	ASTM A108 CS	ASTM A479-316 SS
Stem	ASTM A479-316 SS	ASTM A479-316 SS
Bonnet Lock Pin	300 Series SS	300 Series SS
Seal and Cone Retainer	ASTM A479-316 SS	ASTM A479-316 SS
Handle Assembly	ASTM A108 CS	ASTM A581-300 SS

AK-022-C0 AND AK-024-C0 STABILIZED CONNECTORS	
10,000 PSI @ 200° F 8,000 PSI @ 450° F Max	
AK-022-C0 PART DESCRIPTION	
Stabilizing Foot	ASTM A743-316
1-1/2" Stabilizing Hex Nut	300 Series SS
Stabilizing Connector	ASTM A743-316
7/16-20 x 1" LG Mounting Bolt	ASTM 449-Type 1
Flange Seal	Teflon®
AK-024-C0 PART DESCRIPTION	
Stabilizing Foot	ASTM A743-CF3M
1-1/2" Stabilizing Hex Nut	300 Series SS
Stabilizing Connector	ASTM A743-CF3M
7/16-20 x 1" LG Mounting Bolt	ASTM 449-Type 1
Flange Seal	Teflon®

- PGI Carbon Steel Products are Alkaline Zinc plated for corrosion prevention.
- PGI 316 SS Products meet the requirements of NACE MR0175/ISO 15156-3.

Pressure and Process Temperature Ratings

STANDARD BODY MATERIAL CODES		
CODE	DESCRIPTION	PRESSURE & PROCESS TEMPERATURES
S	ASTM A479-316 Stainless Steel	10,000 PSI Max. @ 200° to -100° F Min. 1,500 PSI Max. @ 1,000° F Max.
		689 bar Max. @ 93° to -73° C Min. 103 bar Max. @ 538° C Max.
C	ASTM A108 Carbon Steel	10,000 PSI Max. @ 200° to -20° F Min. 1,500 PSI Max. @ 500° F Max.
		689 bar Max. @ 93° to -29° C Min. 103 bar Max. @ 260° C Max.
P	ASTM A105 Carbon Steel	10,000 PSI Max. @ 200° to -20° F Min. 1,500 PSI Max. @ 800° F Max.
		689 bar Max. @ 93° to -29° C Min. 103 bar Max. @ 426° C Max.
T	ASTM A395 GR 60-40-18 Ductile Iron	3,000 PSI Max. @ 200° to -20° F Min. 1,500 PSI Max. @ 650° F Max.
		207 bar Max. @ 93° to -29° C Min. 103 bar Max. @ 343° C Max.
W	ASTM A479-304 Stainless Steel	10,000 PSI Max. @ 200° to -100° F Min. 1,500 PSI Max. @ 1,000° F Max.
		689 bar Max. @ 93° to -73° C Min. 103 bar Max. @ 538° C Max.

Pressure and Process Temperature Ratings (cont.)

STANDARD STEM SEAL MATERIAL CODES			
CODE	DESCRIPTION	ORIFICE SIZES	PRESSURE & PROCESS TEMPERATURES
T	Teflon® Pressure-Core®	.187"	10,000 PSI Max. @ 200° to -40° F Min. 8,000 PSI Max. @ 450° F Max.
		.250"	689 bar Max. @ 93° to -40° C Min. 552 bar Max. @ 232° C Max.
		.375"	6,000 PSI Max. @ 200° to -40° F Min. 4,000 PSI Max. @ 450° F Max.
J	Teflon® Pressure-Core® Low Temperature	.187"	10,000 PSI Max. @ 200° to -50° F Min. 1,000 PSI Max. @ 450° F Max.
		.250"	689 bar Max. @ 93° to -46° C Min. 69 bar Max. @ 232° C Max.
		.375"	6,000 PSI Max. @ 200° to -50° F Min. 4,000 PSI Max. @ 450° F Max.
P	Teflon® Packed Style	.187"	10,000 PSI Max. @ 200° to -80° F Min. 4,000 PSI Max. @ 500° F Max.
		.250"	689 bar Max. @ 93° to -62° C Min. 276 bar Max. @ 260° C Max.
		.375"	6,000 PSI Max. @ 200° to -40° F Min. 4,000 PSI Max. @ 500° F Max.
G	Grafoil® Packed Style	.187"	A105 Carbon Steel Bonnet 6,000 PSI Max. @ 200° to -20° F Min. 1,500 PSI Max. @ 800° F Max.
		.375"	414 bar Max. @ 93° to -29° C Min. 103 bar Max. @ 427° C Max.
			A108 Carbon Steel Bonnet 6,000 PSI Max. @ 200° to -20° F Min. 1,500 PSI Max. @ 500° F Max.
V	Viton® O-Ring	.187"	10,000 PSI Max. @ 200° to -15° F Min. 8,000 PSI Max. @ 400° F Max.
		.250"	689 bar Max. @ 93° to -26° C Min. 552 bar Max. @ 204° C Max.
		.375"	6,000 PSI Max. @ 200° to -15° F Min. 4,000 PSI Max. @ 400° F Max.
			414 bar Max. @ 93° to -40° C Min. 276 bar Max. @ 204° C Max.

STANDARD SOFT SEAT MATERIAL CODES			
CODE	DESCRIPTION	ORIFICE SIZES	PRESSURE & PROCESS TEMPERATURES
L	Rylon™ Cone		1,500 PSI Max. @ 200° F Max. to -40° F Min.
			103 bar Max. @ 93° C Max. to -40° C Min.
D & K	Delrin® and Kel-F® Cone		6,000 PSI Max. @ 200° F Max. to -40° F Min.
			414 bar Max. @ 93° C Max. to -40° C Min.
P	PEEK® Cone	.375"	6,000 PSI Max. @ 200° to -40° F Min. 3,000 PSI Max. @ 400° F Max.
			414 bar Max. @ 93° to -40° C Min. 207 bar Max. @ 204° C Max.
T	Teflon® Cone		1,000 PSI Max. @ 200° to -80° F Min. 500 psi Max. @ 450° F Max.
			69 bar Max. @ 93° to -62° C Min. 34 bar Max. @ 232° C Max.

STANDARD HARD SEAT MATERIAL CODES			
CODE	DESCRIPTION	ORIFICE SIZES	PRESSURE & PROCESS TEMPERATURES
C	Carbide Ball	.187"	10,000 PSI Max. @ 1,000° F Max. to -100° F Min.
R	Ceramic Ball		689 bar Max. @ 538° C Max. to -73° C
6	316 SS Ball		

NOTES

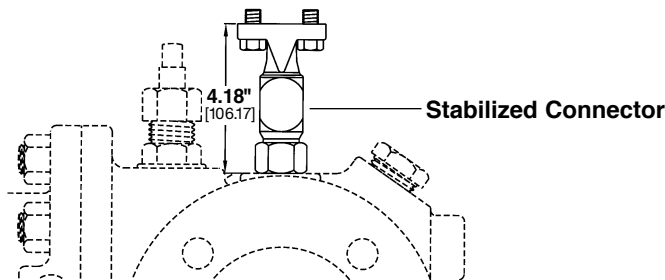
Delrin®, Viton®, Teflon® and Tefzel® are registered trademarks of the E.I. duPont de Nemours and Company.
 Grafoil® is a registered trademark of Union Carbide Corporation.
 PEEK® is a registered trademark of Victrex PLC.
 Kel-F® is a registered trademark of the 3M Company.
 Coplanar™ is a trademark of Rosemount®, Inc.
 Rosemount® is a registered trademark of Rosemount®, Inc.
 Rylon™ is a trademark of PGI International, Ltd.

Step One: Select Stabilized Connector

Starting from your orifice fitting or flange, the first item required for DMS is the Stabilized Connector. The Stabilized Connector provides the foundation for your DMS and you must select the proper model for your installation considering:

- Clearance requirements (crank handles, orifice plate housing and Simplex style clamping bar)
- Dielectric Isolation
- Orifice tap centers (2 1/8" to 2 1/4")

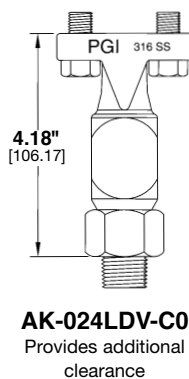
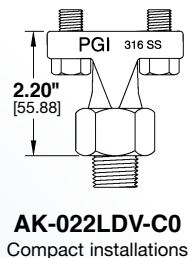
*AK-024LDV-CO is ideal for meeting clearance requirements.



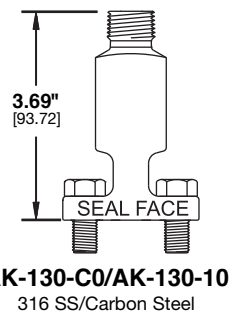
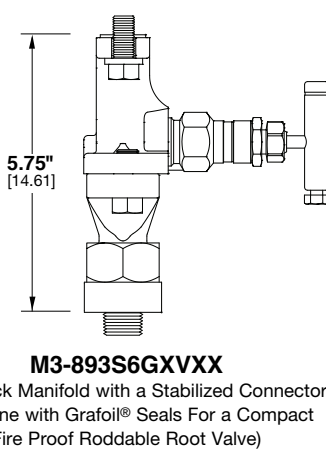
PGI International's patented Stabilized Connector is the heart of Direct-Mount® System technology. In light weight vertical applications, the connector's tensioning nut places the NPT threads in tension and transfers radial forces away from the NPT threads, providing a very safe and efficient connection. Light Duty Vertical (LDV) Stabilized Connectors are ideal for vertical applications of 70 lbs. or less on Senior, Junior or Simplex style fittings and 50 lbs. or less on OFU's. For installations over 70 lbs. see page 12 for additional Stabilized Connector models. Stabilized Connectors are designed to accommodate 2 1/8" to 2 1/4" centers.

VERTICAL

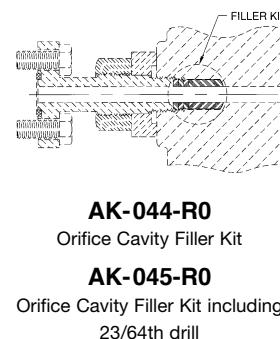
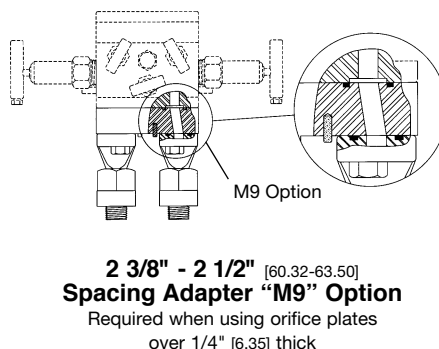
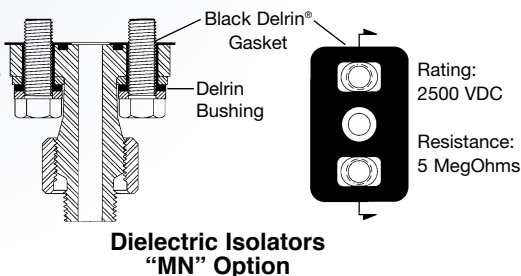
Stabilized Connectors



Non-Stabilized Connectors

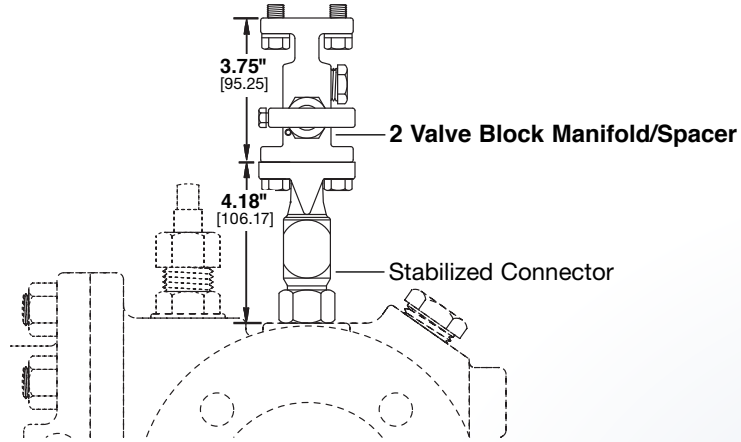


Options



Step Two: Select 2 Valve Block Manifold or Spacer

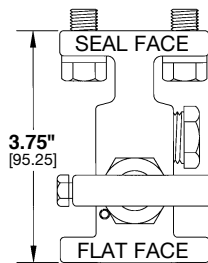
Once you have selected the proper Stabilized Connector, the next piece to consider is an *optional* 2 Valve Block Manifold or Spacer. To select the proper model you must once again consider clearance requirements.



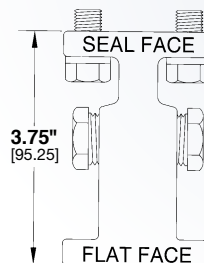
PGI recommends the use of a 2 Valve Block Manifold. The 2 Valve Block Manifold used in conjunction with a 3 or 5 Valve Manifold eliminates the need to blow down the entire meter run to perform maintenance or to close in a well and move metering equipment to another measurement location. Spacers are recommended in those applications where additional clearance is required.

2 Valve Block Manifolds

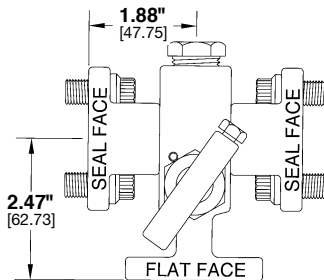
Spacers



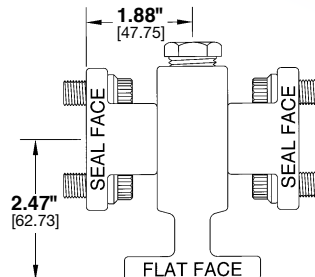
M3-685
Block Manifold providing additional clearance



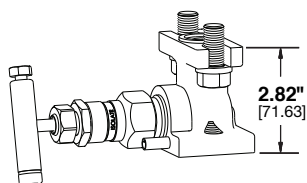
M3-691
Spacer providing additional clearance



M3-683 -BPB
Block Manifold for dual custody or bi-directional applications



M3-690 -BPB
Spacer for dual custody or bi-directional applications



M3-893
Half Block Manifold (Two Required in 2 Valve Block Applications)

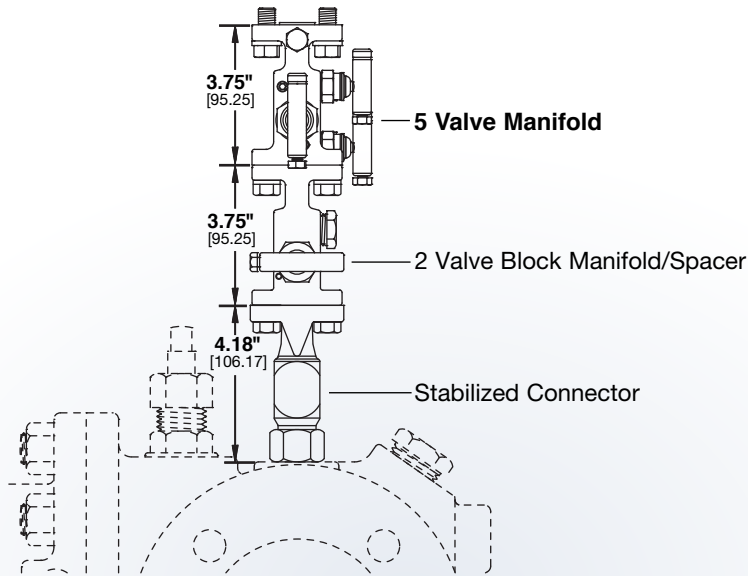
VERTICAL

STEP THREE

Step Three: Select 3 or 5 Valve Manifold

Once you have selected the proper 2 Valve Block Manifold or Spacer, you must next select a 3 or 5 Valve Manifold. If you are mounting the 3 or 5 Valve Manifold directly to a ΔP transmitter, Smart Multivariable or Flow Computer you must consider the mounting bolt lengths. (See Bolt Chart page 24)

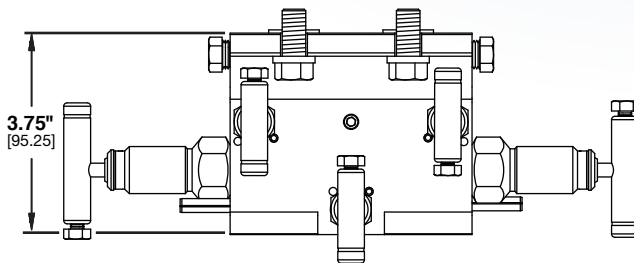
VERTICAL



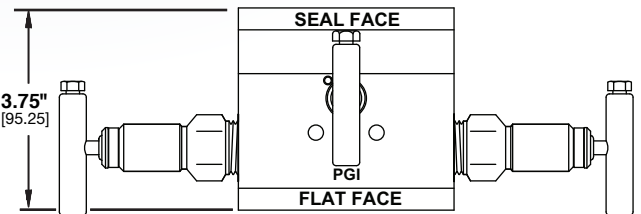
PGI recommends the use of a 5 Valve Manifold in custody transfer applications. A 5 Valve Manifold allows you to ensure a bubble tight shut-off at the equalizer valve position, eliminating any uncertainty in the accuracy of the differential signal.

5 Valve Manifolds

3 Valve Manifold



M3-775
5 Valve Manifold provides double equalization and vent valve for additional security of your ΔP signal

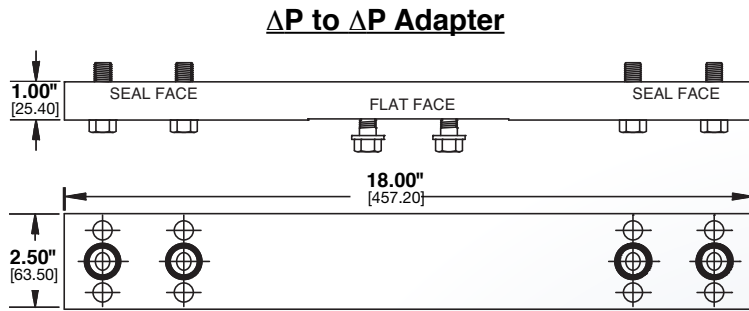
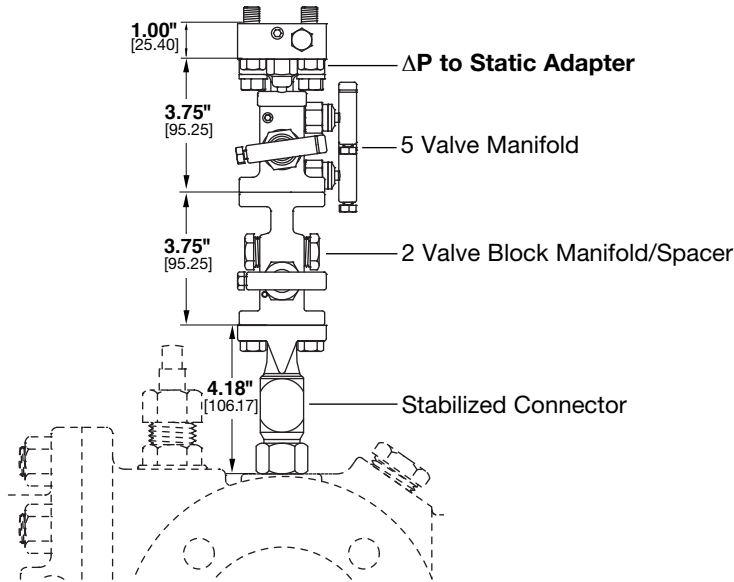


M3-751
Can be used when double equalization and vent valves are not required

Step Four: Select Adapter

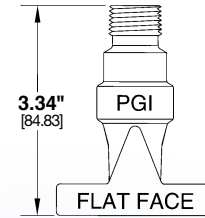
In applications where you are mounting both ΔP and Static Transmitters, it is necessary to select a DMS Adapter. It is important to note that different transmitter and flow computer manufacturers will require different mounting bolt lengths. (See Bolt Chart page 24)

VERTICAL

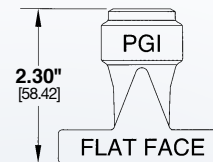


AK-112
 Co-Equal adapter mounts parallel to pipeline
 Dual ΔP , dual custody or bi-directional applications

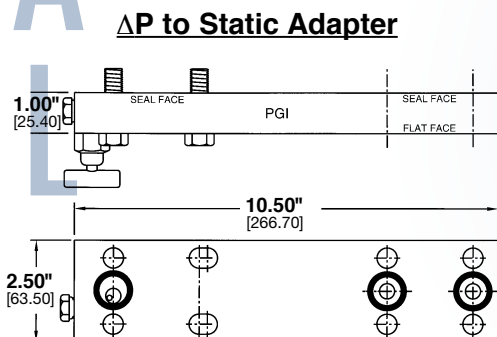
Static Adapters



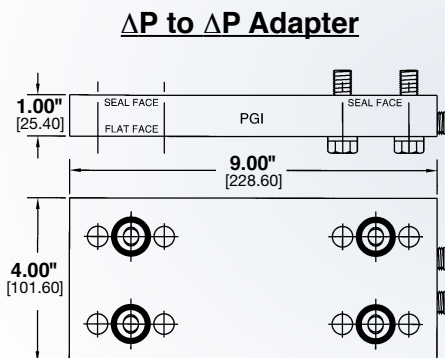
AK-056-C0
 Required for 1/2" MNPT
 Static Transmitters
 (see below)



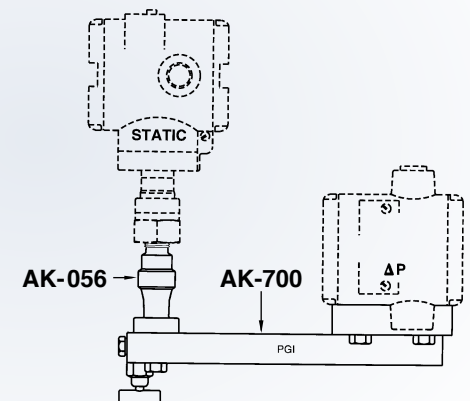
AK-055-C0
 Required for 1/2" FNPT
 Static Transmitters



AK-700
 Mounts both ΔP and Static Transmitters
 (for extended length, use AK-701)

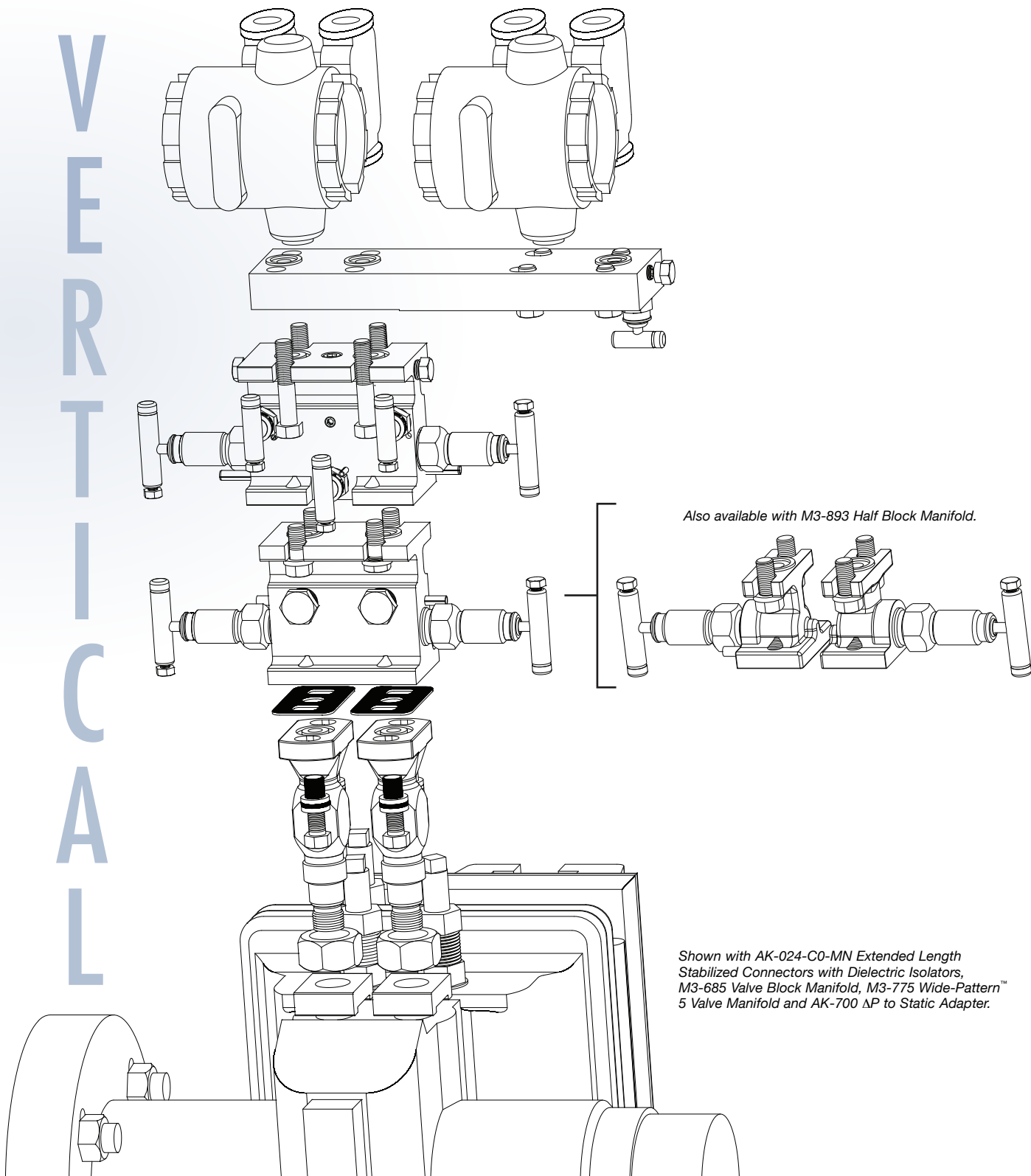


AK-054
 Dual ΔP or bi-directional applications



Exploded View: Final Configuration

V
E
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T
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C
A
L

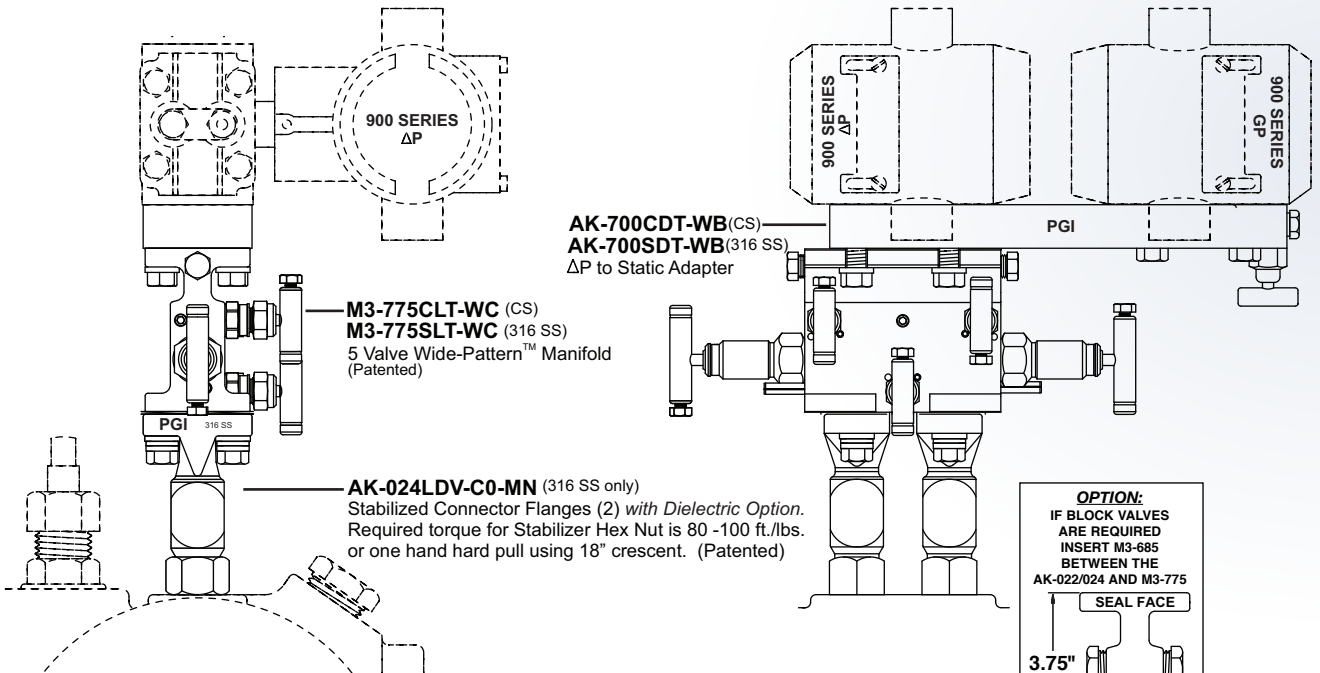
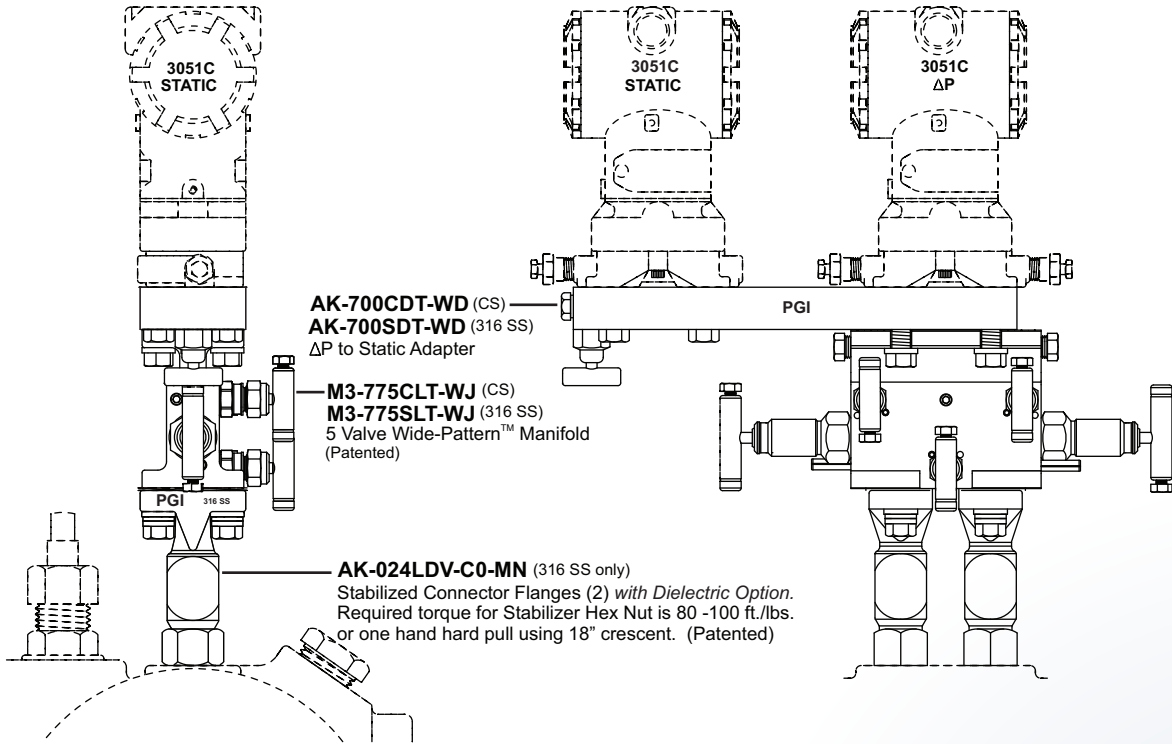


Also available with M3-893 Half Block Manifold.

Shown with AK-024-C0-MN Extended Length Stabilized Connectors with Dielectric Isolators, M3-685 Valve Block Manifold, M3-775 Wide-Pattern™ 5 Valve Manifold and AK-700 ΔP to Static Adapter.

Typical Vertical Installations: Vertical Loads 70 lbs.

V E R T I C A L



OPTION:
IF BLOCK VALVES ARE REQUIRED INSERT M3-685 BETWEEN THE AK-022/024 AND M3-775

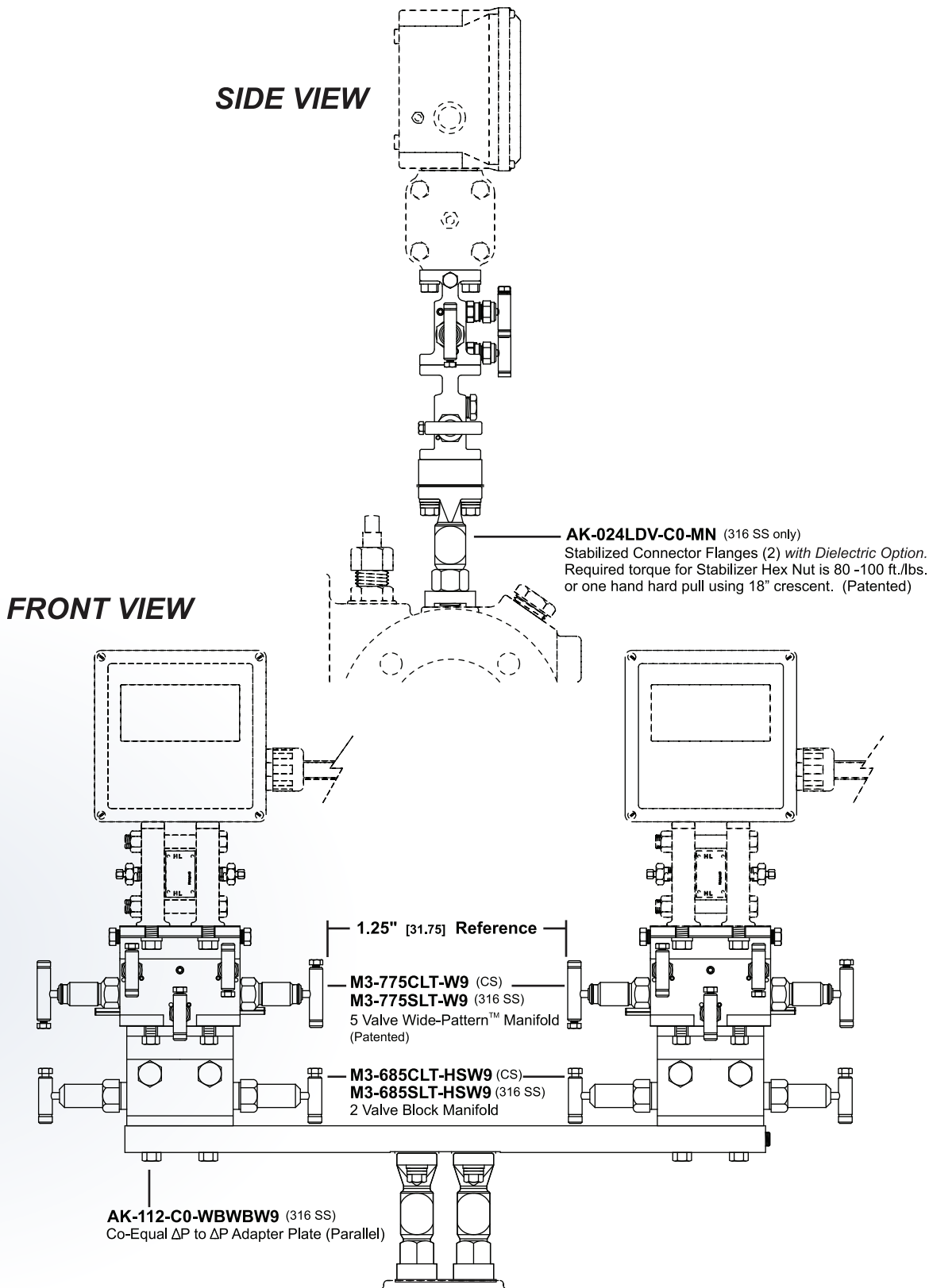
M3-685CLT (C.S.)
M3-685SLT (316 S.S.)
2 VALVE BLOCK MANIFOLD

INSTALLATIONS

Typical Vertical Installations: Vertical Loads 70 lbs.

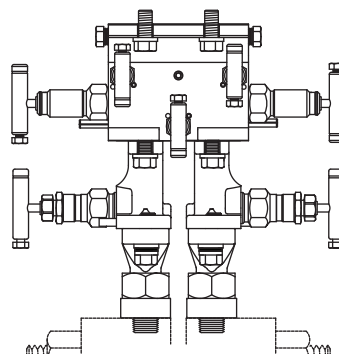
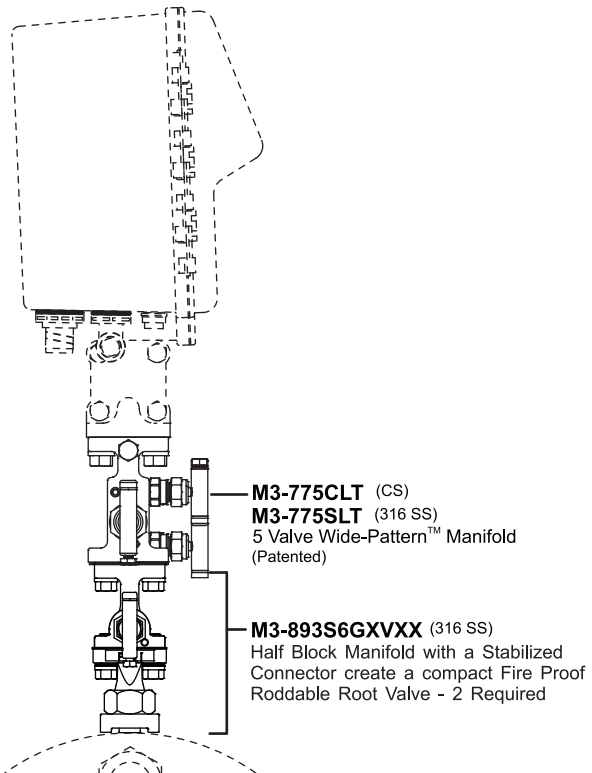
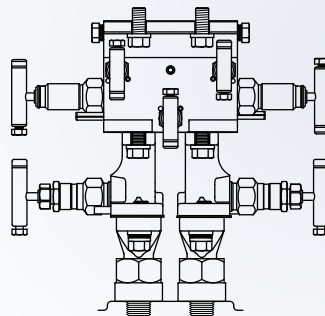
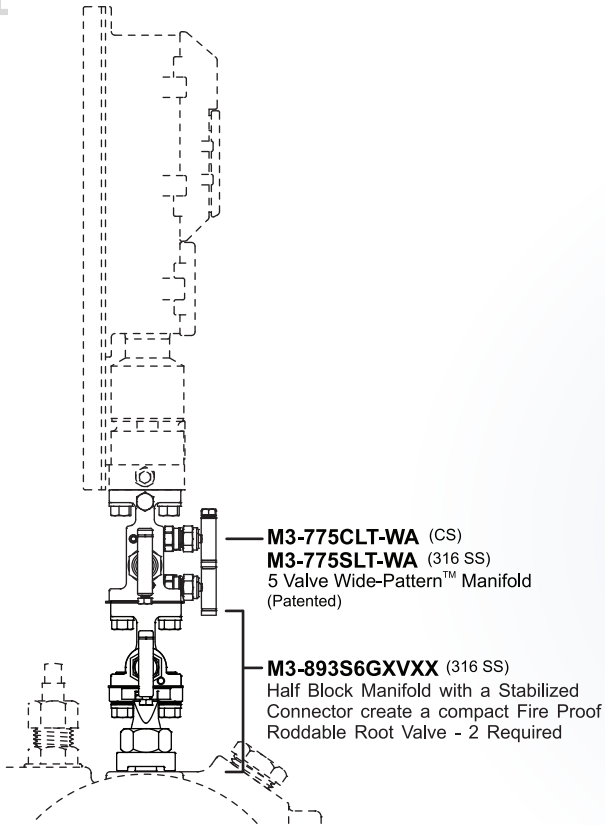
Dual Range/Bi-Directional Application

VERTICAL



Typical Vertical Installations: Vertical Loads 150 lbs.

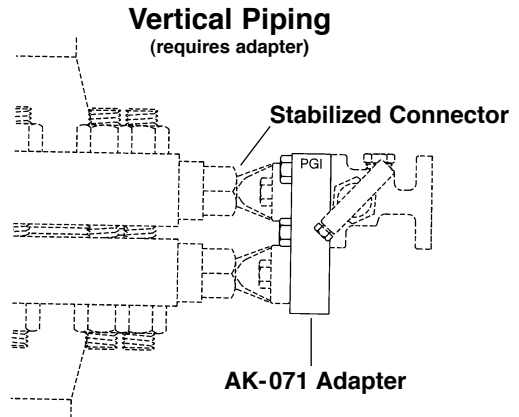
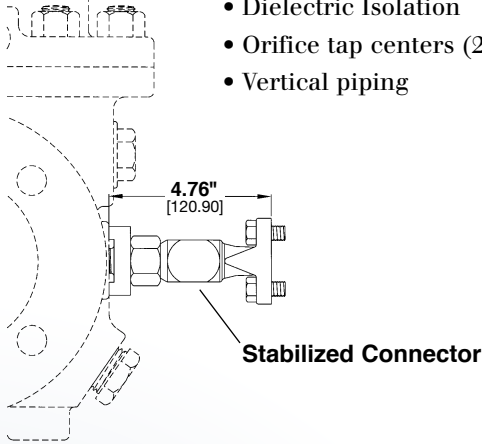
V
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Step One: Select Stabilized Connector

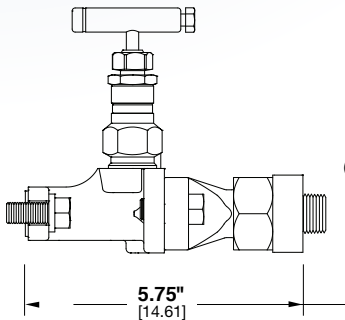
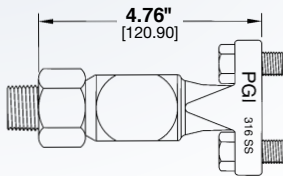
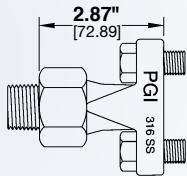
Starting from your orifice fitting or flange, the first item required for DMS is the Stabilized Connector. The Stabilized Connector provides the foundation for your DMS and you must select the proper model for your installation considering:

- Clearance requirements (crank handles, orifice plate housing and Simplex style clamping bar)
- Dielectric Isolation
- Orifice tap centers (2 1/8" to 2 1/4")
- Vertical piping

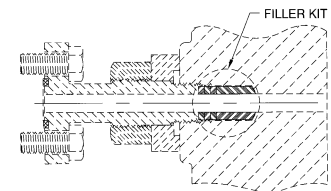
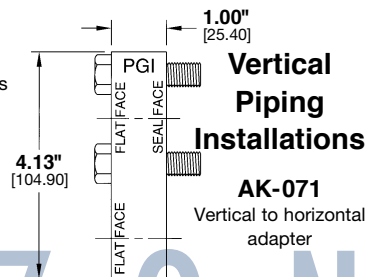
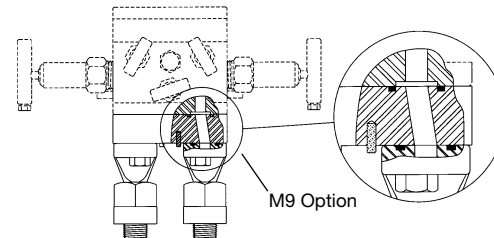
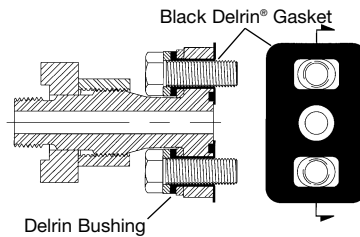


PGI International's patented Stabilized Connector is the heart of Direct-Mount® System Technology. The connector's tensioning nut places the NPT threads in tension and transfers radial forces from the NPT threads to the stabilizer foot. This is particularly important in horizontal to vertical applications, where the Stabilized Connectors support up to 150 foot pounds of torque. Stabilized Connectors are slotted to accommodate 2 1/8" to 2 1/4" centers.

Stabilized Connectors

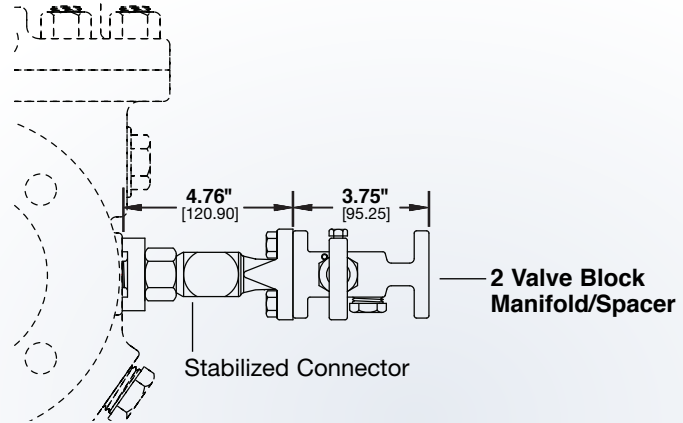


Options



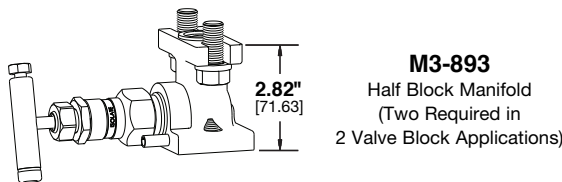
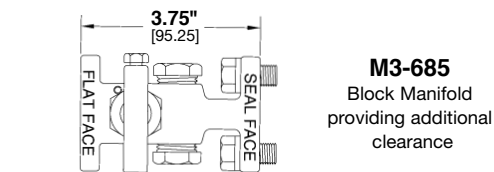
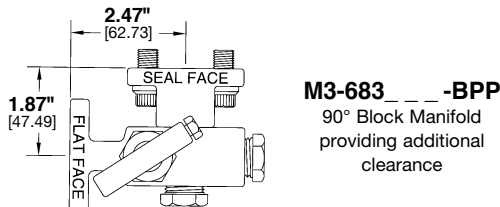
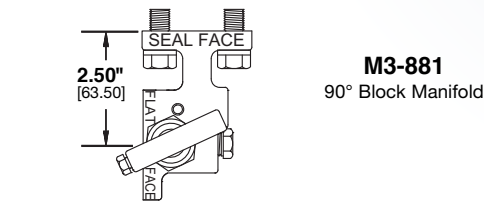
Step Two: Select 2 Valve Block Manifold or Spacer

Once you have selected the proper Stabilized Connector, the next piece to consider is an *optional* 2 Valve Block Manifold or Spacer. To select the proper model you must consider the clearance required for a flow computer housing door and the crank handle on the fitting.

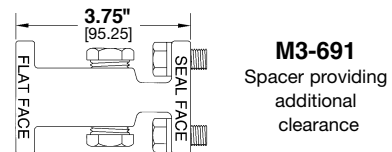
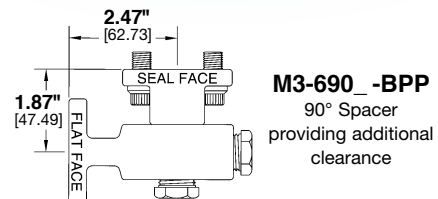
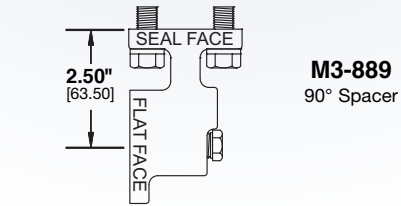


PGI recommends the use of a 2 Valve Block Manifold. The 2 Valve Block Manifold used in conjunction with a 5 or 5 Valve Manifold eliminates the need to blow down the entire meter run to perform maintenance or to close in a well and move metering equipment to another measurement location. Spacers are recommended in those applications where additional clearance is required.

2 Valve Block Manifolds



Spacers

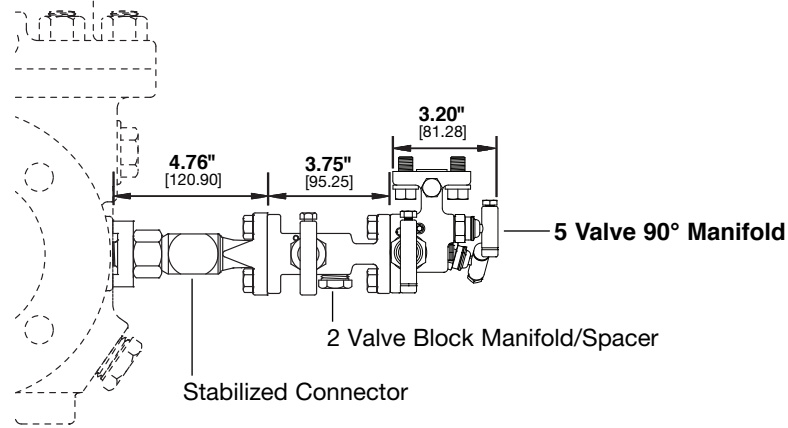


H O R I Z O N T A L

STEP THREE

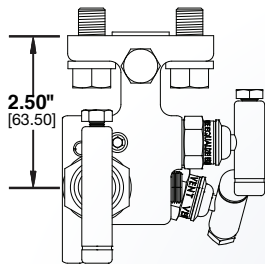
Step Three: Select 3 or 5 Valve Manifold

Once you have selected the proper 2 Valve Block Manifold or Spacer, you must next select a 3 or 5 Valve Manifold. The 90° Manifold brings the mounting of your electronics to the vertical position. If you are mounting the 3 or 5 Valve Manifold directly to a ΔP transmitter, Smart Multivariable or Flow Computer you must consider the mounting bolt lengths. (See Bolt Chart page 24)

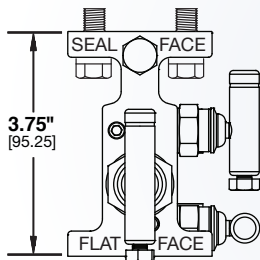


PGI recommends the use of a 5 Valve Manifold in custody transfer applications. A 5 Valve Manifold allows you to ensure a bubble tight shut-off at the equalizer valve position, eliminating any uncertainty in the accuracy of the differential signal.

5 Valve Manifolds

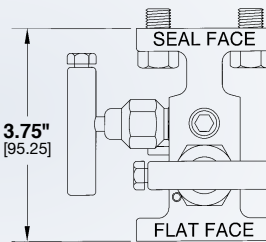


M3-909
Orients electronics in vertical position



M3-775
5 Valve Manifold provides double equalization and vent valve for additional security of your ΔP signal

3 Valve Manifold



M3-751
Can be used when double equalization and vent valves are not required

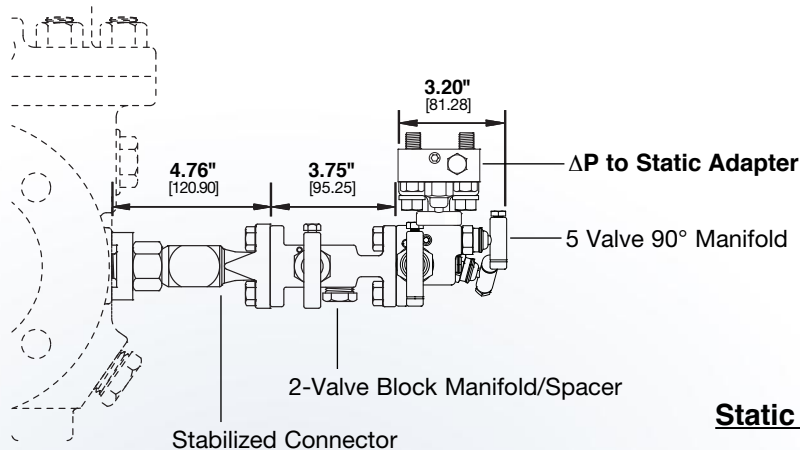
Straight style 3 or 5 Valve Manifolds require a 90° Block Manifold or 90° Spacer to orient electronics to the vertical position.

HORIZONTAL

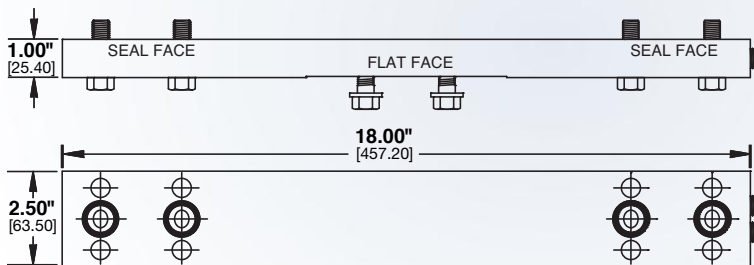
STEP FOUR

Step Four: Select Adapter

In applications where you are mounting both the ΔP and Static Transmitters, it is necessary to select a DMS Adapter. It is important to note that different transmitter and flow computer manufacturers will require different mounting bolt lengths. (See Bolt Chart page 24)



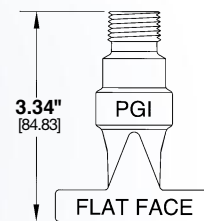
ΔP to ΔP Adapter



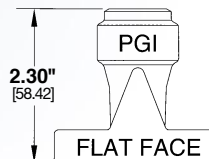
AK-112

Co-Equal adapter mounts parallel to pipeline
Dual ΔP , dual custody or bi-directional applications

Static Adapters

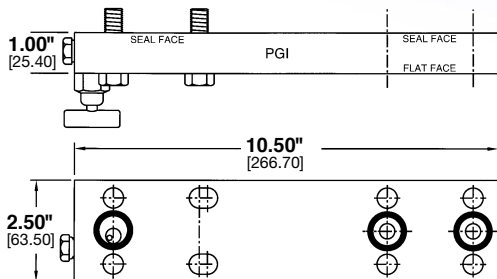


AK-056-C0
Required for 1/2" MNPT
Static Transmitters
(see below)



AK-055-C0
Required for 1/2" FNPT
Static Transmitters

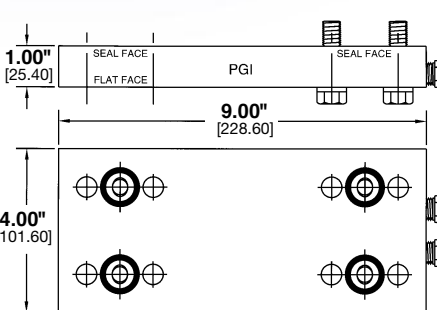
ΔP to Static Adapter



AK-700

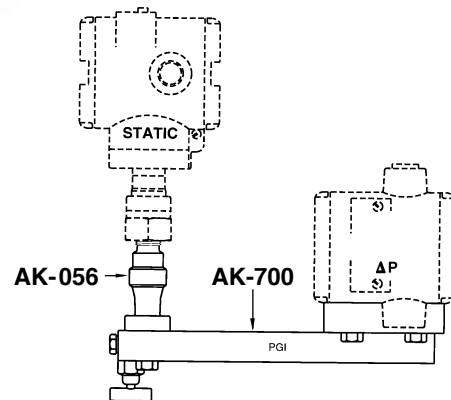
Mounts both ΔP and Static Transmitters
(for extended length, use AK-701)

ΔP to ΔP Adapter



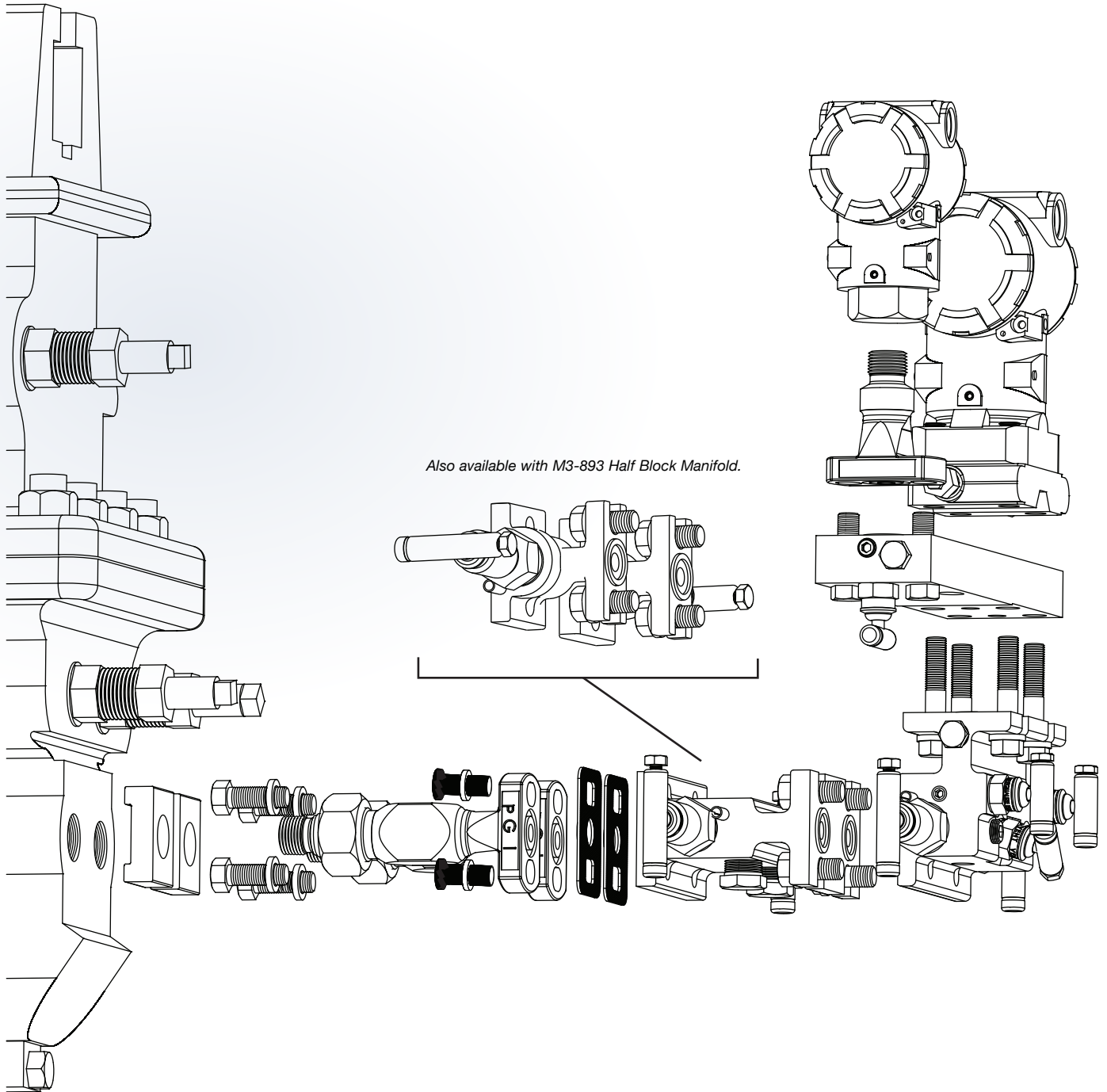
AK-054

Dual ΔP or bi-directional applications



HORIZONTAL

Exploded View: Final Configuration

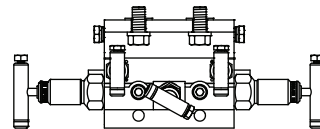
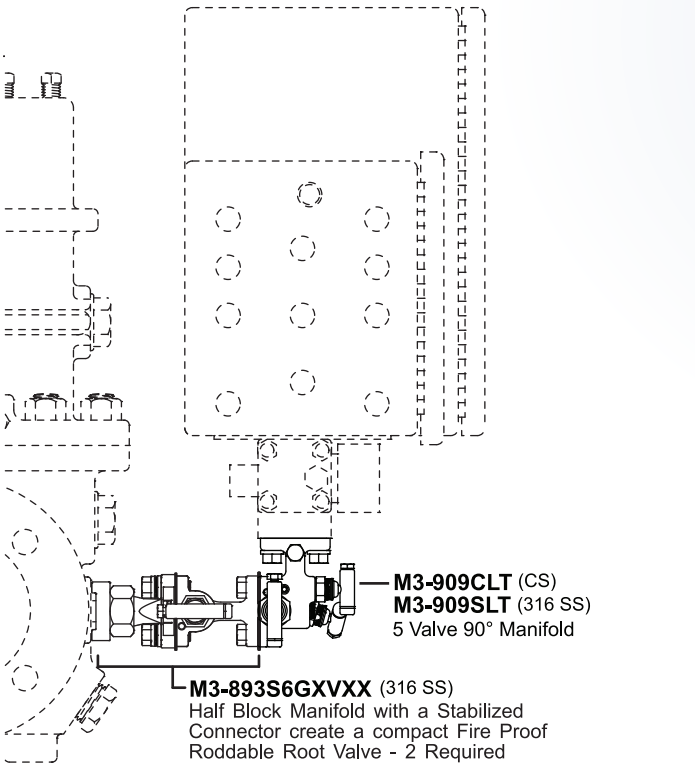
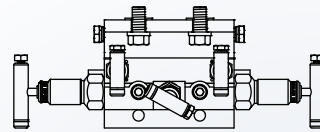
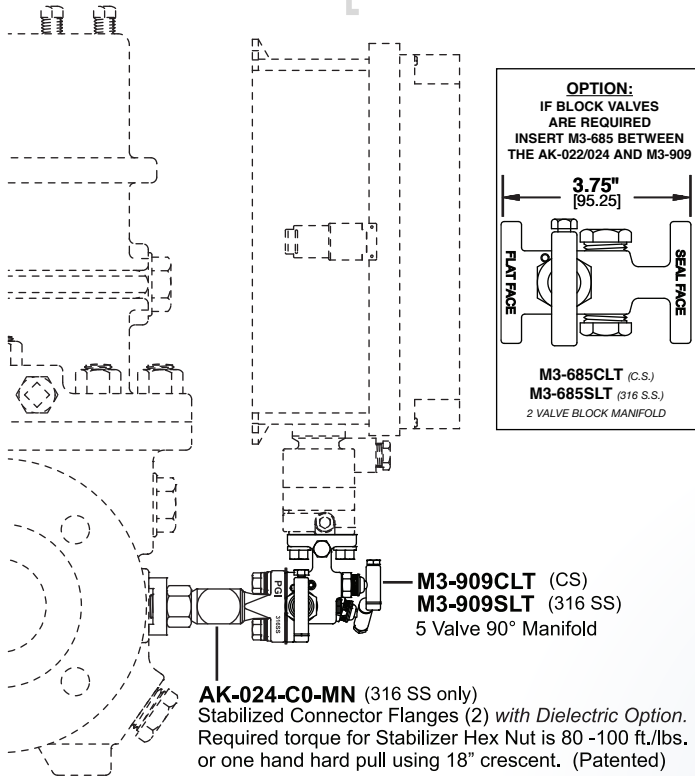


Shown with AK-024-C0-MN Extended Length Stabilized Connectors with Dielectric Isolators, M3-685 2 Valve Block Manifold, M3-909 90° 5 Valve Manifold, AK-700 ΔP to Static Adapter and AK-056 Static Adapter.

H O R I Z O N T A L

INSTALLATIONS

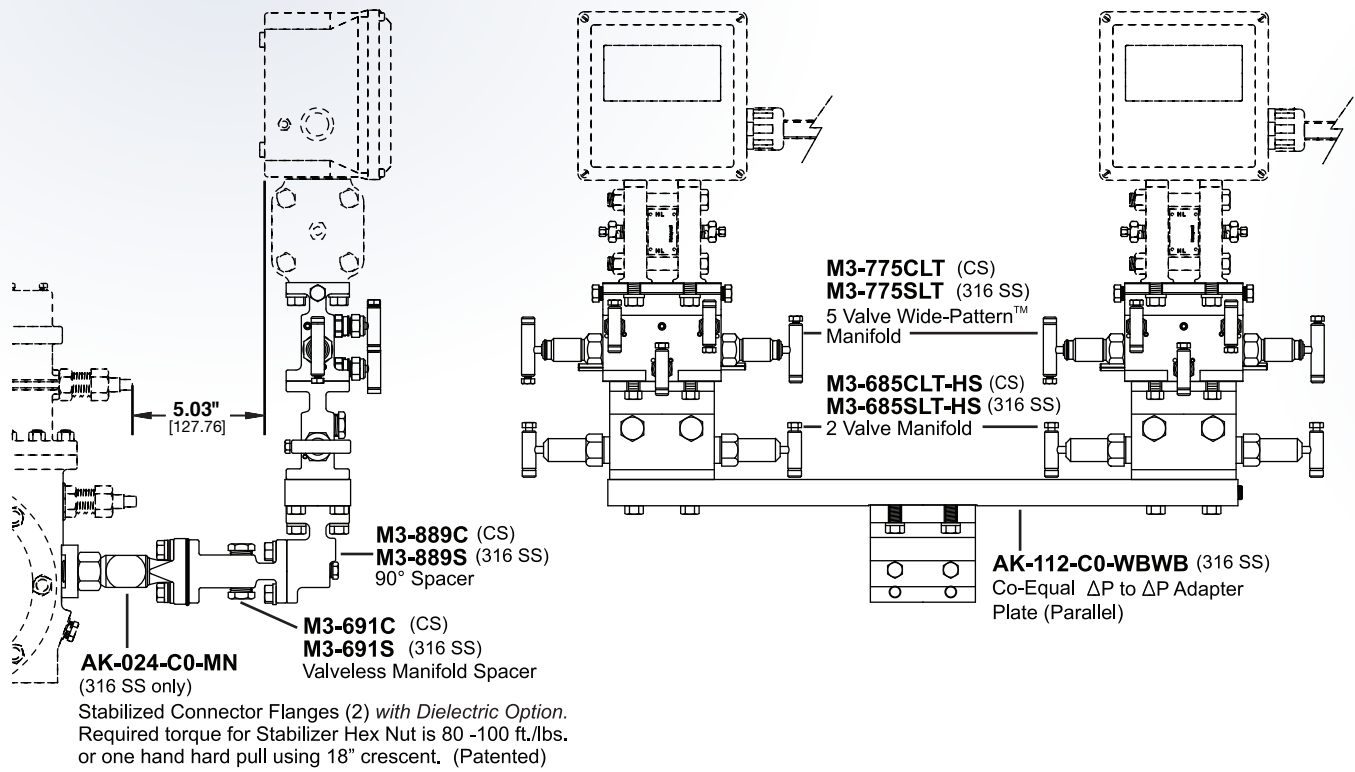
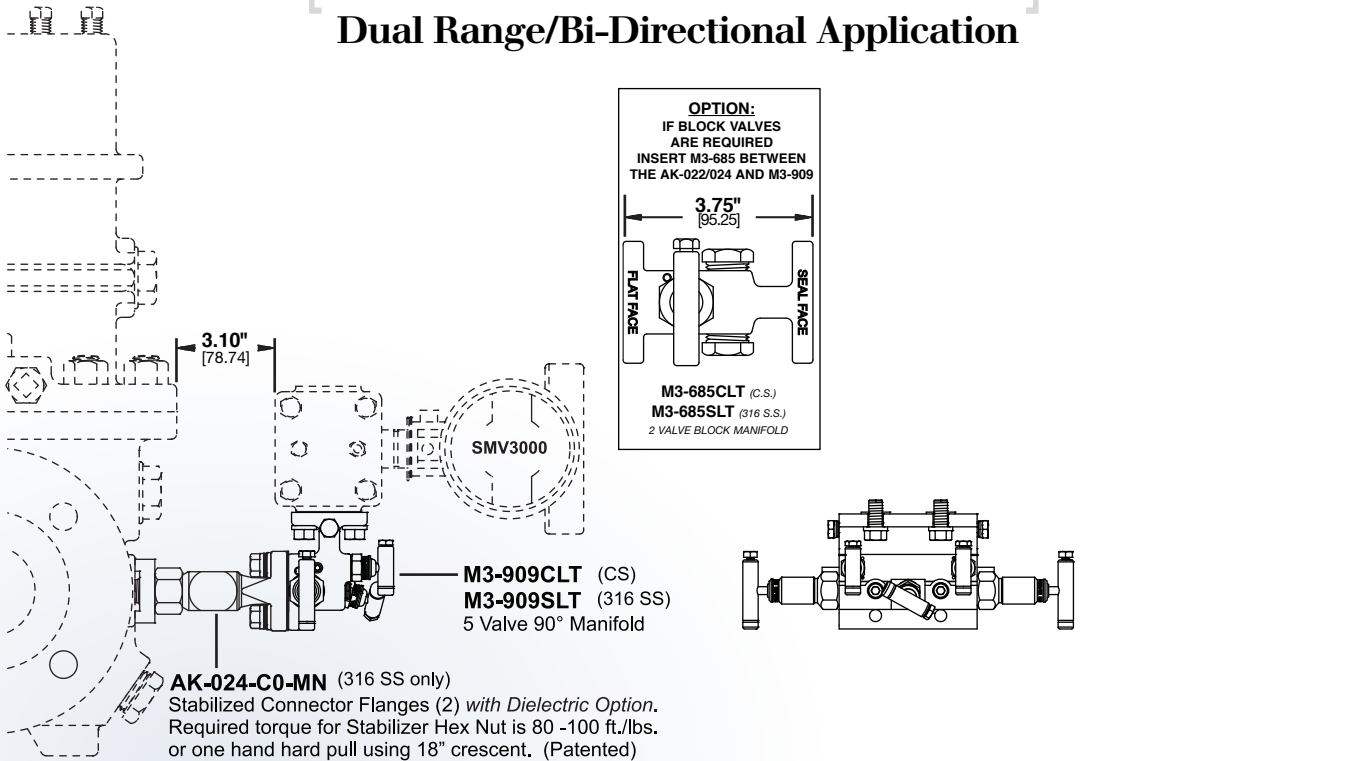
Typical Horizontal Installations: Working Loads 150 ft./lbs.



HORIZONTAL

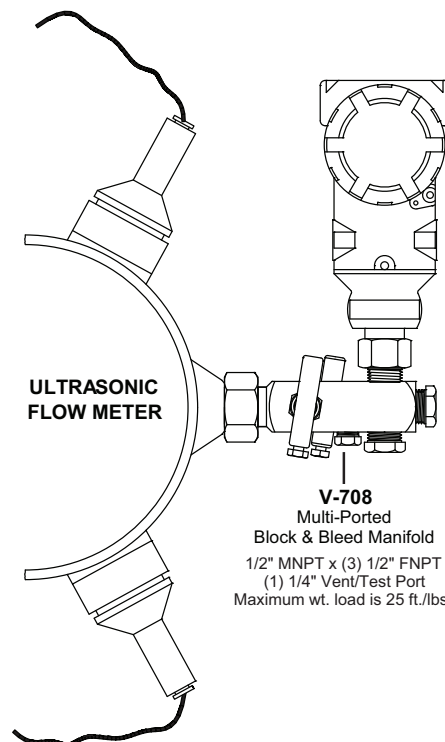
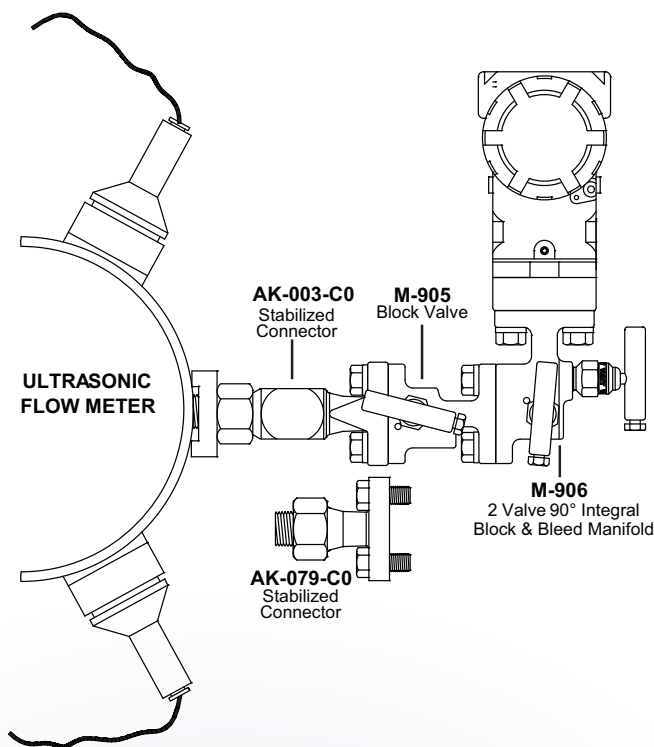
Typical Horizontal Installations: Working Loads 150 ft./lbs.

Dual Range/Bi-Directional Application



HORIZONTAL

Direct Mount® Systems for UltraSonic Flow Meters



M	-	9	0	5	S	C	T	-						
Body Code		Body Mat'l Code	Seat Mat'l Code	Stem Seal Mat'l Code	Misc. Options									

A	K	-	0	0	3	-	C	0	-					
Base Kit Number										Misc. Options				

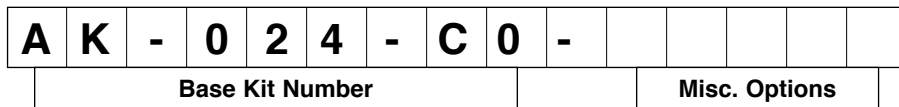
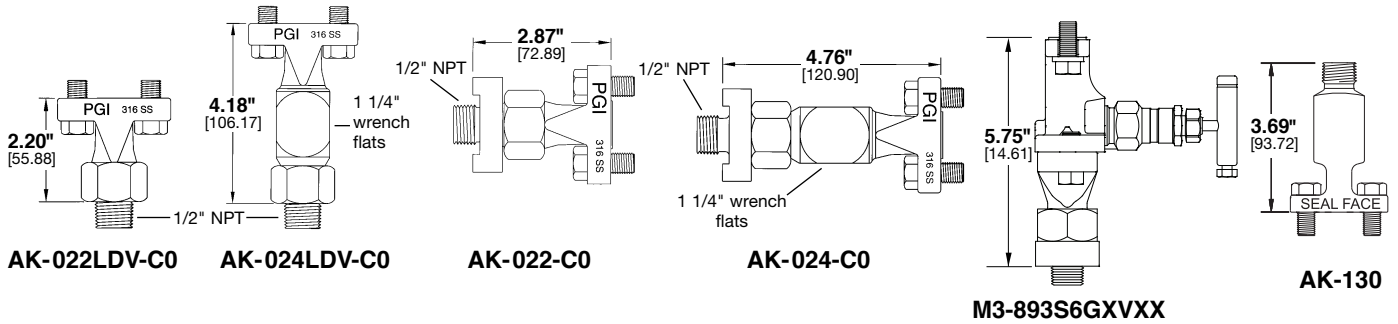
PART NUMBER	
M-905	Block Valve
M-906	2 Valve 90° Integral Block & Bleed Manifold
V-708	Multi-Ported Block & Bleed
OPTION CODE	DESCRIPTION
BODY CODE	
S	316 SS (Standard)
HARD SEAT CODE	
C	Carbide Ball (Standard)
R	Ceramic Ball
6	316 SS Ball
STEM SEAL CODE	
T	Patented Teflon® Pressure-Core® (Standard)
J	Patented Pressure-Core® (Low Temp)
P	Teflon® Packed
V	Viton® O-Ring
MISCELLANEOUS OPTIONS	
GJ	Bonnet Lock-Out (All Positions; Lock Not Provided)
MH	Viton O-Ring Flange Seals (M-905/M-906 Only)
M7	Required Slotting for Rosemount 1151 Transmitters Series 6 and Above (M-906 Only)
WA	CS 2-1/4" Bolts for Rosemount 3051C, 3095
WAW9	316 SS or 2024 with Coplanar (M-906 Only)
W9	316 SS Standard Length Flange Bolts (CS Standard)

PART NUMBER	
AK-003-C0	Used when the pressure port on the UltraSonic Flow Meter is drilled directly into the body of the meter or if a "thread-o-let" connection is used with a flat face diameter of greater than 1.75 inches. Carbon Steel Bolts; Maximum wt. load is 75 ft./lbs.
AK-079-C0	Used when the pressure port on the UltraSonic Flow Meter has a "thread-o-let" connection with a flat face diameter of less than 1.75 inches. Carbon Steel Bolts; Maximum wt. load is 75 ft./lbs.
OPTION CODE	DESCRIPTION
MISCELLANEOUS OPTIONS	
MJ	Viton® O-Ring Flange Seal
MN	Dielectric Isolation

See Pressure and Temperature Charts on Page 3

CONNECTORS

Stabilized and Non-Stabilized Connectors



KIT NUMBER	STABILIZED CONNECTORS (316 SS w/CS Bolts)	
AK-022LDV-C0	Standard Length Pair, Vertical only (70 lb. Max Wt. Load) <i>Patented</i>	4.59 lbs.
AK-024LDV-C0	Extended Length Pair, Vertical only (70 lb. Max Wt. Load) <i>Patented</i>	4.65 lbs.
AK-022-C0	Standard Length Pair (150 ft./lbs.) <i>Patented</i>	4.47 lbs.
AK-024-C0	Extended Length Pair (150 ft./lbs.) <i>Patented</i>	4.86 lbs.
M3-893S6GXVXX	Half Block Manifold with a Stabilized Connector (Combine with Grafoil® Seals For a Compact Fire Proof Roddable Root Valve)	8.00 lbs.
KIT NUMBER	NON-STABILIZED CONNECTORS	
AK-130-10-PAIR	Carbon Steel w/CS Bolts	
AK-130-C0-PAIR	316 SS w/CS Bolts	
KIT NUMBER	INSTALLATION TOOL	
AK-039-TT	Installation Tool for AK-022 Connectors (See Below)	
KIT NUMBER	DESCRIPTION	
MISCELLANEOUS OPTIONS		
MN	Dielectric Isolation (See Below)	
M9	Adapter required when using orifice plates over 1/4" [6.35] thick (See Below)	
W9	316 SS Bolts (CS Standard)	

Dielectric Isolators

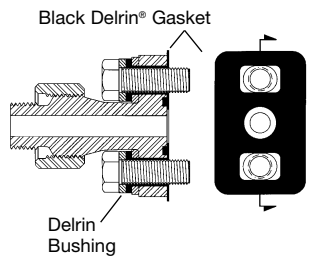
MN Option

2 3/8" to 2 1/2" Spacing Adapters

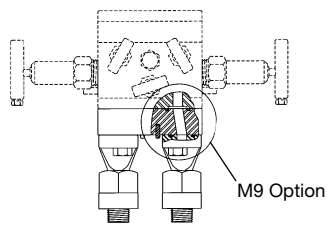
M9 Option

Installation Tool for AK-022 Connectors

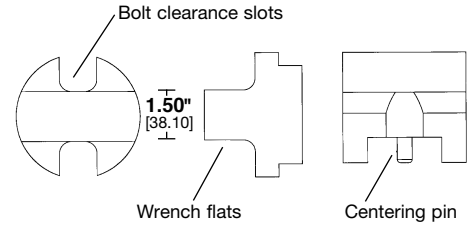
AK-039-TT



Rating: 2500 VDC
Resistance: 5 MegOhms



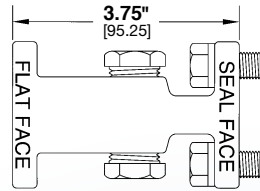
2 3/8" - 2 1/2"
[60.32-63.50]
Spacing Adapter



SPACERS

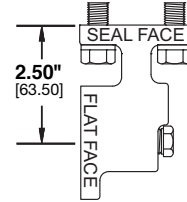
Spacers - 90° Angle and Straight Style

1/2" [12.70] Auxiliary Taps

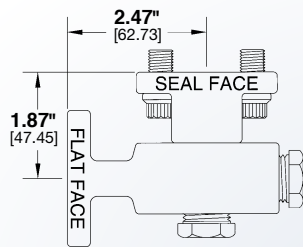


M3-691

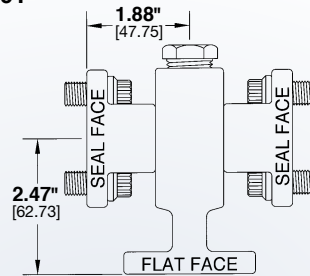
1/4" [6.35] Auxiliary Tap



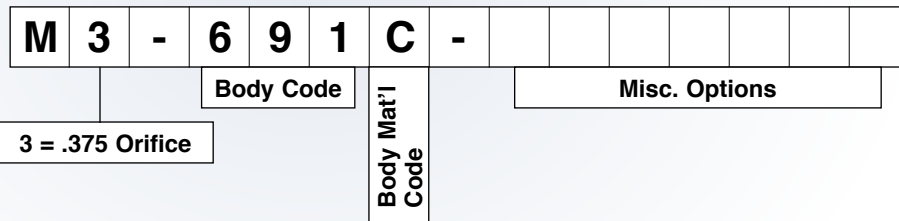
M3-889



M3-690_-BPP



M3-690_-BPB



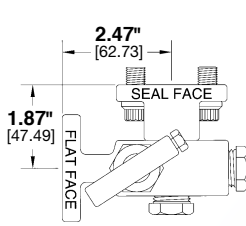
PART NUMBER			
M3-691C	Straight Style	Carbon Steel w/CS Bolts	5.09 lbs.
M3-691S	Straight Style	316 SS w/CS Bolts	5.15 lbs.
M3-690C-BPP	90° Style	Carbon Steel w/CS Bolts	5.92 lbs.
M3-690S-BPP	90° Style	316 SS w/CS Bolts	5.92 lbs.
M3-690C-BPB	Christmas Tree	Carbon Steel w/CS Bolts	5.92 lbs.
M3-690S-BPB	Christmas Tree	316 SS w/CS Bolts	5.92 lbs.
M3-889C	90° Style	Carbon Steel w/CS Bolts	6.00 lbs.
M3-889S	90° Style	316 SS w/CS Bolts	6.00 lbs.
M3-889W	90° Style	304 SS w/CS Bolts	6.00 lbs.

MANIFOLDS

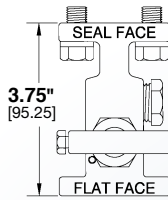
2 Valve Block Manifolds - 90° Angle and Straight Style

1/2" [12.70] Auxiliary Taps

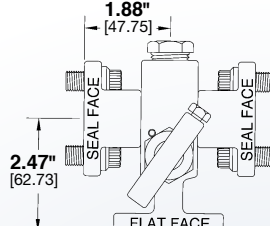
1/4" [6.35] Auxiliary Taps



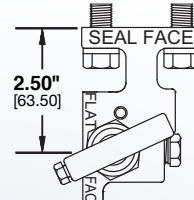
M3-683 -BPP



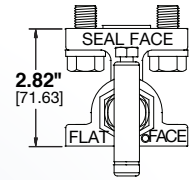
M3-685



M3-683 -BPB



M3-881



M3-893

2 Required - See pages 5 or 13 for details.

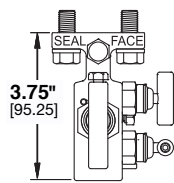


M	3	-	6	8	5	C	L	T	-						
						Body Code			Misc. Options						
						Body Mat'l Code	Seat Mat'l Code	Stem Seal Mat'l Code							
3 = .375 Orifice															

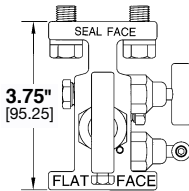
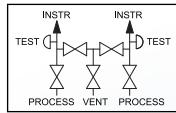
PART NUMBER			
M3-685CLT	Straight Style	Carbon Steel w/CS Bolts	5.50 lbs.
M3-685SLT	Straight Style	316 SS w/CS Bolts	5.50 lbs.
M3-683CLT-BPP	90° Style	Carbon Steel w/CS Bolts	8.90 lbs.
M3-683SLT-BPP	90° Style	316 SS w/CS Bolts	8.90 lbs.
M3-683CLT-BPB	Christmas Tree	Carbon Steel w/CS Bolts	8.90 lbs.
M3-683SLT-BPB	Christmas Tree	316 SS w/CS Bolts	8.90 lbs.
M3-881CLT	90° Style	Carbon Steel w/CS Bolts	6.70 lbs.
M3-881SLT	90° Style	316 SS w/CS Bolts	6.70 lbs.
M3-881WLT	90° Style	304 SS w/CS Bolts	6.70 lbs.
M3-893SLT	Straight Style	316 SS w/CS Bolts	3.50 lbs.
OPTION CODE		DESCRIPTION	
SEAT MATERIAL OPTIONS – See Pressure and Temperature Charts on Page 3			
L	Rylon™ (Standard)		
D	Delrin®		
K	KEL-F®		
P	PEEK®		
T	Teflon®		
STEM SEAL MATERIAL OPTIONS – See Pressure and Temperature Charts on Page 3			
T	Patented Teflon® Pressure-Core® (Standard)		
J	Patented Teflon® Pressure-Core® (Low Temp)		
P	Teflon® Packed Style		
V	Viton® O-Ring		
MISCELLANEOUS OPTIONS			
MH	Viton® O-Ring Flange Seals (Teflon® Standard)		
W9	316 SS Bolts (CS Standard)		
XL	Clean for Critical Service (Oxygen and Chlorine)		

MANIFOLDS

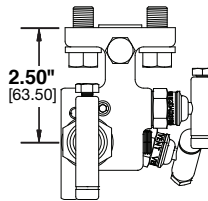
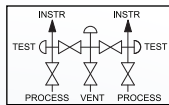
5 Valve Manifolds - 90° Angle and Straight Style



M3-675

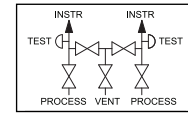


M3-775



M3-909

Orients electronics in vertical position



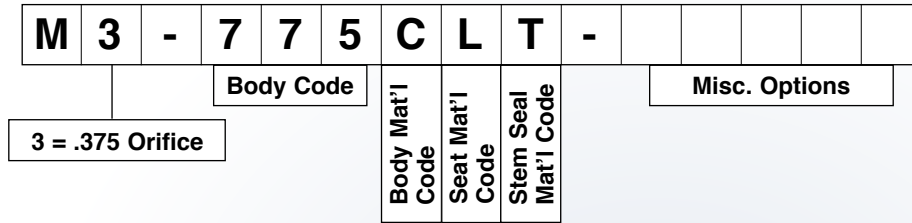
M	3	-	7	7	5	C	L	T	-						
Body Code						Body Mat'l Code	Seat Mat'l Code	Stem Seal Mat'l Code	Misc. Options						
3 = .375 Orifice															

PART NUMBER			
M3-675CLT	Wide-Pattern™ Straight Style	Carbon Steel w/CS Bolts	7.60 lbs.
M3-675SLT	Wide-Pattern™ Straight Style	316 SS w/CS Bolts	7.60 lbs.
M3-775CLT	Wide-Pattern™ Straight Style	Carbon Steel w/CS Bolts	7.60 lbs.
M3-775SLT	Wide-Pattern™ Straight Style	316 SS w/CS Bolts	7.60 lbs.
M3-909CLT	90° Style	Carbon Steel w/CS Bolts	7.26 lbs.
M3-909SLT	90° Style	316 SS w/CS Bolts	7.10 lbs.
M3-909WLT	90° Style	304 SS w/CS Bolts	7.10 lbs.
OPTION CODE		DESCRIPTION	
SEAT MATERIAL OPTIONS – See Pressure and Temperature Charts on Page 3			
L	Rylon™ (Standard)		
D	Delrin®		
K	KEL-F®		
P	PEEK®		
T	Teflon®		
STEM SEAL MATERIAL OPTIONS – See Pressure and Temperature Charts on Page 3			
T	Patented Teflon® Pressure-Core® (Standard)		
J	Patented Teflon® Pressure-Core® (Low Temp)		
P	Teflon® Packed Style		
V	Viton® O-Ring		
MISCELLANEOUS OPTIONS			
MH	Viton® O-Ring Flange Seals (Teflon® Standard)		
MY	Dialectric Isolators for Manifold Flange		
W9	316 SS Bolts (CS Standard)		

MISCELLANEOUS OPTIONS & BOLT SELECTION CONTINUED ON PAGE 24

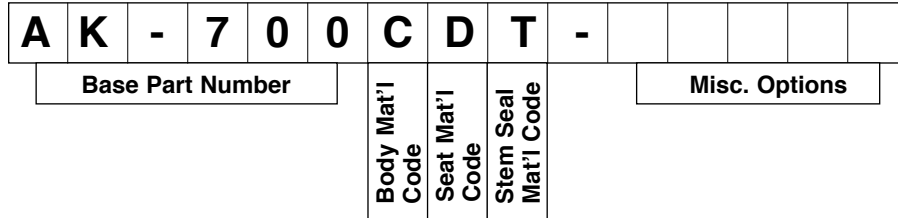
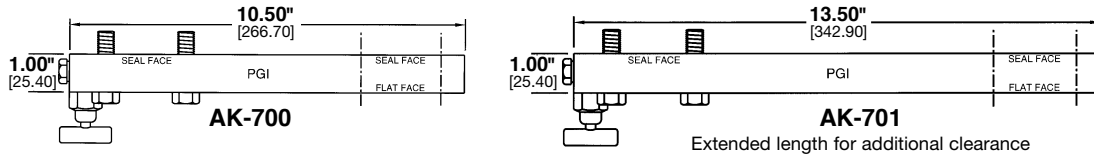


5 Valve Manifolds - 90° Angle and Straight Style (continued)



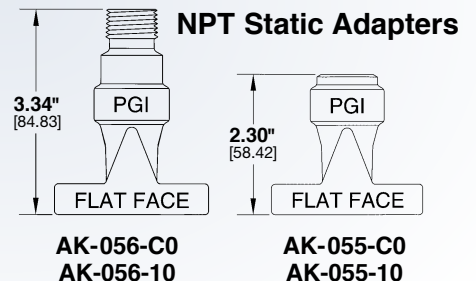
APPLICATION	BOLT LENGTH CODE	SELECTION CRITERIA
ΔP Transmitter Only	Blank 1" <small>[25.40]</small> (Standard)	Rosemount 1151, Honeywell 900, ΔP Only Traditional Style Transmitters (No Adapters)
	WA 2-1/4" <small>[57.15]</small>	Rosemount 3051C, 3051S or 2024 with Coplanar Flange ΔP Transmitters Only (No Adapters)
Flow Computer Only	Blank 1" <small>[25.40]</small> (Standard)	ABB Totalflow: XFC6413, 6713, 6200EX, 6213, MV2010 Bristol Inc: Teleflow Series, MVT Series, 2808 Series Cameron Measurement Systems: Scanner Series 1131 and MVX2-II Kimray: K500 Thermo Scientific: AutoPilot, AutoMate, AutoMitter
	WA 2-1/4" <small>[57.15]</small>	Dynamic Flow Computers: E-Chart, E-Chart Plus, E-Chart Lite, MicroMV Emerson Process Management: FloBoss Series, Rosemount 2024, 3051S, 3095
ΔP and Static Transmitters with ΔP to Static Adapter	WC 2" <small>[50.80]</small>	ΔP Traditional Flange Transmitter used in combination with an AK-700 or AK-701 ΔP to Static Adapter
	WJ 3-1/4" <small>[82.55]</small>	ΔP Rosemount 3051C, 3051S or 2024 Transmitter with Coplanar used in Combination with an AK-700 or AK-701 ΔP to Static Adapter
Dual ΔP and Static Transmitters	WF 3" <small>[76.20]</small>	Rosemount 1151, Honeywell 900, etc. ΔP Traditional Flange Transmitter used in Combination with an AK-700 or AK-701 AND AK-054 or AK-112 (Bi-Directional/Dual Custody/Dual ΔP Installations)
Rosemount Dual ΔP & Static Transmitters	WP 4-1/4" <small>[107.95]</small>	Rosemount 3051C, 3051S or 2024 with Coplanar Flange ΔP Transmitters used in Combination with an AK-700 or AK-701 AND AK-054 or AK-112 (Bi-Directional/Dual Custody/Dual ΔP Installations)
MISCELLANEOUS OPTIONS		
	W9	316 SS Bolt Material (CS Standard)
	XL	Clean for Critical Service (Oxygen and Chlorine)

ΔP to Static and Static Adapters



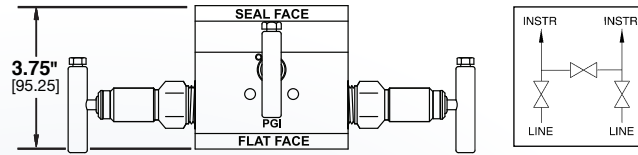
PART NUMBER					TEFZEL® SOFT SEAT & TEFLON® PRESSURE-CORE® STEM SEAL				
AK-700CDT	Standard Length	10-1/2"	[266.70]	Carbon Steel/No Bolts	7.5 lbs.				
AK-700SDT	Standard Length	10-1/2"	[266.70]	316 SS/No Bolts	7.5 lbs.				
AK-701CDT	Extended Length	13-1/2"	[342.90]	Carbon Steel/No Bolts	9.6 lbs.				
AK-701SDT	Extended Length	13-1/2"	[342.90]	316 SS/No Bolts	9.6 lbs.				
OPTION CODE		DESCRIPTION							
SEAT MATERIAL OPTIONS – See Pressure and Temperature Charts on Page 3									
D	Delrin® (Standard)								
K	KEL-F®								
P	PEEK®								
T	Teflon®								
STEM SEAL MATERIAL OPTIONS – See Pressure and Temperature Charts on Page 3									
T	Patented Teflon® Pressure-Core® (Standard)								
J	Patented Teflon® Pressure-Core® (Low Temp)								
MISCELLANEOUS OPTIONS									
MH	Viton® O-Ring Flange Seals (Teflon® Standard)								
BOLT SELECTION									
Static Transmitter Side									
WB 1-1/2"	When using Traditional Flange Transmitters (i.e. Rosemount 1151, Honeywell 900, etc.) When using NPT Static Transmitters AK-055 or AK-056 NPT Adapter (see below)								
WD 2-3/4"	When using Rosemount 3051C or 3051S with Coplanar Flange								
BOLT MATERIAL OPTIONS									
W9	316 Stainless Steel (CS Standard)								

PART NUMBER	MATERIALS OF CONSTRUCTION	DESCRIPTION
AK-056-C0	ASTM A276-316	1/2" MNPT Required for FNPT Static Transmitter
AK-056-10	ASTM A108-1215	
AK-055-C0	ASTM A276-316	1/2" FNPT Required for MNPT Static Transmitter
AK-055-10	ASTM A108-1215	
1.0 lbs. each		6,000 PSI @ 200° F Max



SPECIALTY MANIFOLDS

Specialty 3 Valve Manifold



M3-751



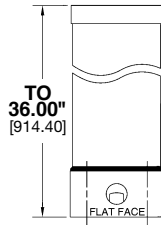
M	3	-	7	5	1	C	L	T	-						
			Body Code			Body Mat'l Code	Seat Mat'l Code	Stem Seal Mat'l Code	Misc. Options						
3 = .375 Orifice															

PART NUMBER RYLON™ SOFT SEAT & TEFLON® PRESSURE-CORE® STEM SEAL			
3 VALVE STRAIGHT STYLE MANIFOLD			
M3-751CLT	Standard Straight Style	Carbon Steel w/CS Bolts	6.68 lbs.
M3-751SLT	Standard Straight Style	316 SS w/CS Bolts	6.83 lbs.
OPTION CODE	DESCRIPTION		
SEAT MATERIAL OPTIONS – See Pressure and Temperature Charts on Page 3			
L	Rylon™ (Standard)		
D	Delrin®		
K	KEL-F®		
P	PEEK®		
T	Teflon®		
STEM SEAL MATERIAL OPTIONS – See Pressure and Temperature Charts on Page 3			
T	Patented Teflon® Pressure-Core® (Standard)		
J	Patented Teflon® Pressure-Core® (Low Temp)		
P	Teflon® Packed Style		
V	Viton® O-Ring		
MISCELLANEOUS OPTIONS			
ME	Slotted bolt holes - required when using bolt lengths over 3"		
MH	Viton® O-Ring Flange Seals (Teflon® Standard)		
MY	Dielectric Isolators for Manifold Flange		
P4	(2) 1/4" Vent/Test Ports (Bottom)		
WA	2-1/4" CS Bolts for Rosemount 3051C, 3051S or 2024 Transmitter w/Coplanar		
WAW9	2-1/4" 316 SS Bolts for Rosemount 3051C, 3051S or 2024 Transmitter w/Coplanar		
W9	316 SS Standard Length Bolts (CS Standard)		
XL	Clean for Critical Service (Oxygen and Chlorine)		
X3	(2) 1/4" Side Test Ports		

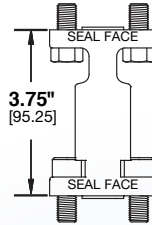
ADAPTERS & KITS

Specialty Adapters and Kits

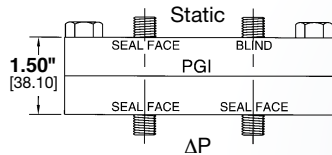
Customizing your installation is achieved by the use of the Specialty Adapters shown below. Contact your PGI Distributor for assistance or call PGI direct at 1-800-231-0233.



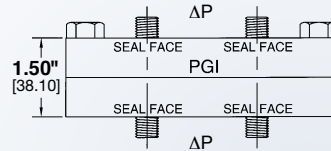
AK-043
Chart Recorder
Mounting Adapter



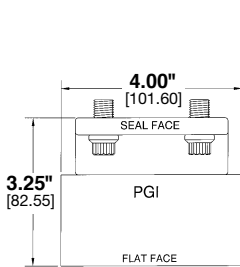
AK-074
ΔP TO ΔP Stack Adapter
provides additional clearance



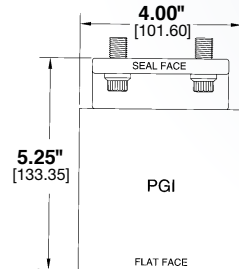
AK-023
ΔP to Static Adapter Stacks
Static Transmitter on top
of ΔP Transmitter



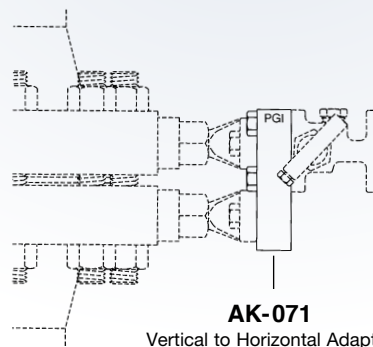
AK-036
ΔP to ΔP Stack Adapter
Stacks Second ΔP Transmitter
on top of Primary ΔP Transmitter



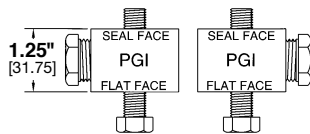
AK-053
90° Twist Adapter
rotates pressure taps 90°



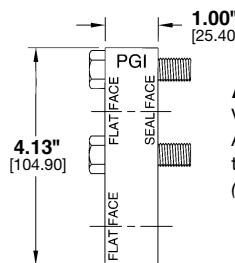
AK-068
180° Twist Adapter
rotates pressure taps 180°



AK-071
Vertical to Horizontal Adapter



AK-038
Spacers with 1/2" [12.70] Taps



AK-071
Vertical to Horizontal
Adapter rotates assembly
to horizontal plane
(see above drawing)

Specialty Adapters

• **Vertical to Horizontal Adapter** 4.7 lbs.

KIT NUMBER	DESCRIPTION
AK-071-10	ASTM A108-1215 CS w/CS Bolts
AK-071-C0	ASTM A479-316 SS w/CS Bolts
AK-071-C0-W9	ASTM A479-316 SS w/316 SS Bolts

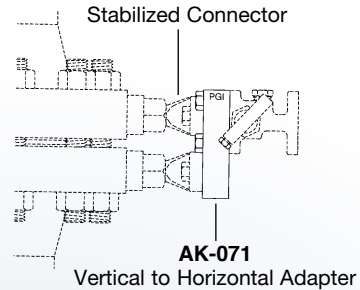
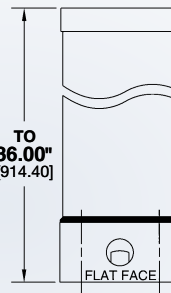


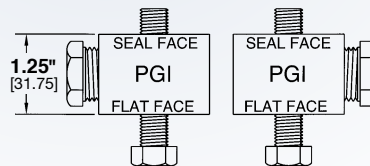
Chart Recorder Adapter with 2" Pipe Stand
(XX=Pipe Stand Length in Inches; 36" Max)

PART NUMBER	MATERIAL
AK-043-10-LXX	AISI 1018 CS
AK-043-C0-LXX	ASTM A479-316 SS



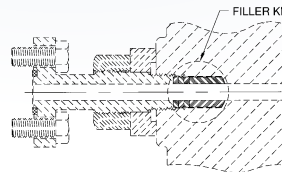
• **Spacer Adapters with 1/2" Auxiliary Taps** 1.01 lbs.

PART NUMBER	MATERIAL
AK-038-10	AISI 1018 CS w/CS Bolts
AK-038-C0	ASTM A479-316 SS w/CS Bolts
AK-038-C0-W9	ASTM A479-316 SS w/316 SS Bolts



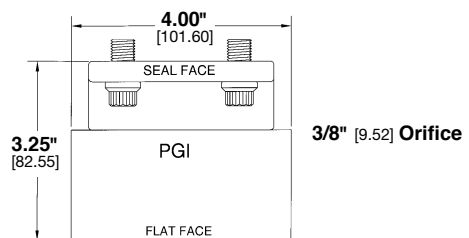
Orifice Filler Kits

PART NUMBER	DESCRIPTION
AK-044-R0	Teflon® Filler Kit
AK-045-R0	Teflon® Filler Kit & 23/64th Drill



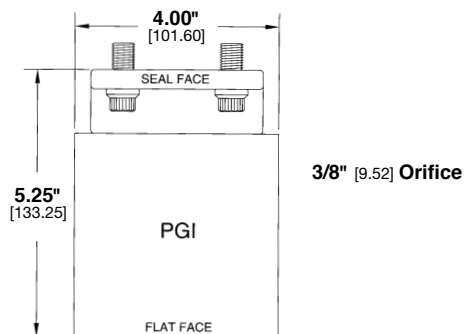
• **90° Twist Adapter** [Rotates System 90°] 10.5 lbs.

PART NUMBER	MATERIAL
AK-053-10	ASTM A108-1215 CS w/CS Bolts
AK-053-C0	ASTM A479-316 SS w/CS Bolts
AK-053-C0-W9	ASTM A479-316 SS w/316 SS Bolts



• **180° Twist Adapter** [Rotates System 180°] 11 lbs.

PART NUMBER	MATERIAL
AK-068-10	ASTM A108-1215 CS w/CS Bolts
AK-068-C0	ASTM A479-316 SS w/CS Bolts
AK-068-C0-W9	ASTM A479-316 SS w/316 SS Bolts



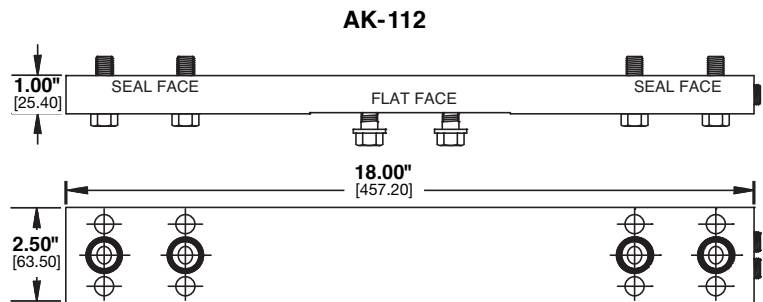
• NOTE: Teflon® Flange Seals Standard.
Add "MH" for Viton® O-Ring Seals.

SPECIALTY ADAPTERS

Specialty Adapters (continued)

• **Co-Equal**
ΔP to ΔP Adapter Plate (Parallel) 10 lbs.

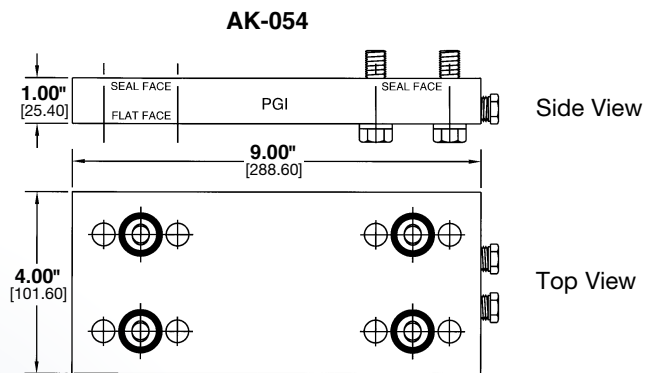
PART NUMBER	MATERIAL (316 SS Only)
AK-112-C0	ASTM A479-316 SS w/No Bolts
2-3/4" Bolts listed below are for Non-Manifold Side with Rosemount 3051 or 2024 w/Coplanar Flange Transmitters	
AK-112-C0-WD	ASTM A479-316 SS w/CS Bolts
AK-112-C0-WD-W9	ASTM A479-316 SS w/316 SS Bolts
1-1/2" Bolts listed below are for Non-Manifold Side with Traditional Flange Transmitters	
AK-112-C0-WB	ASTM A479-316 SS w/CS Bolts
AK-112-C0-WB-W9	ASTM A479-316 SS w/316 SS Bolts



Co-Equal adapter mounts parallel to pipeline
 Dual ΔP, dual custody or bi-directional applications

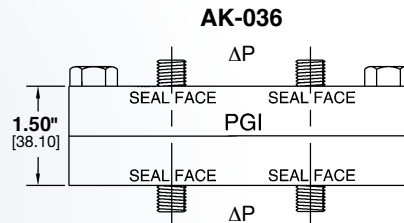
• **ΔP to ΔP Adapter Plate (Standard)** 10 lbs.

PART NUMBER	MATERIAL
AK-054-10	ASTM A108-1215 CS/No Bolts
AK-054-C0	ASTM A479-316 SS/No Bolts
2-3/4" Bolts listed below are for Non-Manifold Side with Rosemount 3051 or 2024 w/Coplanar Flange Transmitters	
AK-054-10-WD	ASTM A108-1215 CS w/CS Bolts
AK-054-C0-WD	ASTM A479-316 SS w/CS Bolts
AK-054-C0-WD-W9	ASTM A479-316 SS w/316 SS Bolts
1-1/2" Bolts listed below are for Non-Manifold Side with Traditional Flange Transmitters	
AK-054-10-WB	ASTM A108-1215 CS w/CS Bolts
AK-054-C0-WB	ASTM A479-316 SS w/CS Bolts
AK-054-C0-WB-W9	ASTM A479-316 SS w/316 SS Bolts



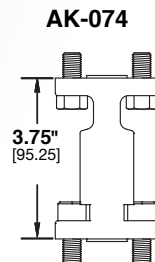
• **ΔP to ΔP Stack Adapter** 5.41 lbs.

PART NUMBER	MATERIAL
AK-036-10	ASTM A108-1215 CS w/CS Bolts
AK-036-C0	ASTM A479-316 SS w/CS Bolts
AK-036-C0-W9	ASTM A479-316 SS w/316 SS Bolts



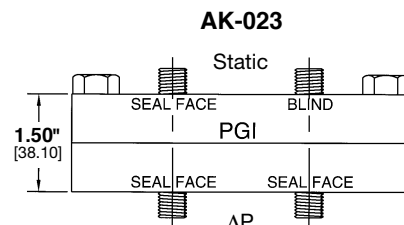
• **ΔP to ΔP Extended Length Adapter** 4 lbs.

PART NUMBER	MATERIAL
AK-074-10	ASTM A108-1215 CS w/CS Bolts
AK-074-C0	ASTM A479-316 SS w/CS Bolts



• **ΔP to Static Stack Adapter** 5.50 lbs.

PART NUMBER	MATERIAL
AK-023-10	ASTM A108-1215 CS w/CS Bolts
AK-023-C0	ASTM A479-316 SS w/CS Bolts
AK-023-C0-W9	ASTM A479-316 SS w/316 SS Bolts



• **NOTE:** Teflon® Flange Seals Standard.
 Add "MH" for Viton® O-Ring Seals.

Spare Parts

PART NUMBER	DESCRIPTION	PART NUMBER	DESCRIPTION
STABILIZED CONNECTOR SPARE PARTS			
P5-081-R0	Dielectric & Flange Seal - 1 Piece Design (2 Required)	AK-031-C0	Dielectric Kit 1 Piece Design w/CS Bolts/316 SS Washers/Bolt Sleeves
P5-038-R0	Teflon® Flange Seals	AK-031-C0-W9	Dielectric Kit 1 Piece Design w/316 SS Bolts/316 SS Washers/Bolt Sleeves
P5-199-R0	Delrin® Manifold Dielectric Flange Seal	P5-044-R0	Dielectric Bolt Sleeve (4 Required)
P5-077-R1	Viton® O-Ring Flange Seals (High Vibration)	P5-045-R0	Dielectric Gasket (2 Required)
P5-076-R0	Viton® O-Ring Flange Seals for 2 Piece Dielectric Option		
2 & 3 VALVE MANIFOLDS (.375 ORIFICE) SPARE PARTS			
BLOCK VALVE SEATS - .375 ORIFICE (2 Required)		3 VALVE MANIFOLD EQUALIZER SEATS (1 Required)	
SP3-007-R8	Rylon™ (Standard)	SP3-003-R4	Delrin® (Standard)
SP3-007-R1	KEL-F®	SP3-003-R1	KEL-F®
SP3-007-R2	PEEK®	SP3-003-R2	PEEK®
SP3-007-R3	Teflon®	SP3-003-R3	Teflon®
SP3-007-R4	Delrin®		
7/16-20" x 3/4" FERRY HEAD BOLTS FOR "BPP & BPB" STYLE SPACERS & BLOCK VALVES (4 Required)			
P6-039-10	Carbon Steel	P6-039-C0-WI	316 SS are 300 SS Impreglon Coated
5 VALVE MANIFOLD SEATS (.375 ORIFICE) SPARE PARTS			
BLOCK VALVE SEATS - .375 ORIFICE (2 Required)		EQUALIZER & VENT VALVE SEATS - .136 ORIFICE (3 Required)	
SP3-007-R8	Rylon™ (Standard)	SP3-010-R3	Delrin® (Standard)
SP3-007-R1	KEL-F®	SP3-010-R1	KEL-F®
SP3-007-R2	PEEK®	SP3-010-R4	PEEK®
SP3-007-R3	Teflon®	SP3-010-R2	Teflon®
SP3-007-R4	Delrin®		
5 VALVE MANIFOLD SEATS (.187 ORIFICE) SPARE PARTS			
BLOCK VALVE SEATS - .187 ORIFICE (2 Required)		EQUALIZER & VENT VALVE SEATS - .136 ORIFICE (3 Required)	
SP3-003-R4	Delrin® (Standard)	SP3-010-R3	Delrin® (Standard)
SP3-003-R1	KEL-F®	SP3-010-R1	KEL-F®
SP3-003-R2	PEEK®	SP3-010-R4	PEEK®
SP3-003-R3	Teflon®	SP3-010-R2	Teflon®
FLANGE SEALS FOR ALL MANIFOLDS		MANIFOLD DIELECTRIC KITS (1 Kit per Manifold)	
P5-018-R0	Teflon®	AK-143-C0	1 Piece Design w/CS Bolts/316 SS Washers/Bolt Sleeves
SP5-018-R1	Grafoil® (High Temperature), Pair	AK-143-C0-W9	1 Piece Design w/316 SS Bolts/316 SS Washers/Bolt Sleeves
P5-199-R0	Delrin® Manifold Dielectric Flange Seal		
P5-075-R0	Viton® O-Ring (High Vibration)		
AK-700 & AK-701 ΔP to STATIC ADAPTER SPARE PARTS			
BLOCK VALVE SEATS - .136 ORIFICE (1 Required)			
SP3-010-R3	Delrin® (Standard)	SP3-010-R2	Teflon®
SP3-010-R1	KEL-F®	SP3-010-R4	PEEK®

BOLT CHART

Individual Hex Head Bolt Part Number Chart

PART NUMBER	BOLT LENGTH	MATERIAL 7/16-20 THREAD	OPTION CODE	PART NUMBER	BOLT LENGTH	MATERIAL 7/16-20 THREAD	OPTION CODE
P6-057-10	3/4"	CS	WV	P6-086-10	3"	CS	WF
P6-057-C0	[19.05]	316 SS		P6-086-C0	[76.20]	316 SS	
P6-067-10	1"	CS	WG	P6-089-10	3 1/4"	CS	WJ
P6-067-C0	[25.40]	316 SS		P6-089-C0	[82.55]	316 SS	
P6-073-10	1 1/4"	CS	W7	P6-107-10	3 1/2"	CS	WQ
P6-073-C0	[31.75]	316 SS		P6-107-C0	[88.90]	316 SS	
P6-058-10	1 1/2"	CS	WB	P6-149-10	3 3/4"	CS	WS
P6-058-C0	[38.10]	316 SS		P6-149-C0	[95.25]	316 SS	
P6-028-10	1 3/4"	CS	WH	P6-108-10	4"	CS	WN
P6-028-C0	[44.45]	316 SS		P6-108-C0	[101.60]	316 SS	
P6-061-10	2"	CS	WC	P6-102-10	4 1/4"	CS	WP
P6-061-C0	[50.80]	316 SS		P6-102-C0	[107.95]	316 SS	
P6-029-10	2 1/4"	CS	WA	P6-109-10	4 1/2"	CS	WR
P6-029-C0	[57.15]	316 SS		P6-109-C0	[114.30]	316 SS	
P6-080-10	2 1/2"	CS	WE	P6-197-10	4 3/4"	CS	WT
P6-080-C0	[63.50]	316 SS		P6-197-C0	[120.65]	316 SS	
P6-038-10	2 3/4"	CS	WD	P6-002-10	5 1/4"	CS	WU
P6-038-C0	[69.85]	316 SS		P6-002-C0	[133.35]	316 SS	

Bolt Washers

PART NUMBER	MATERIAL
P6-090-C0	316 SS Bolt Washer (For Slotted Flange Manifolds)
P6-090-10	CS Bolt Washer (For Slotted Flange Manifolds)



Warranty, Sales Policy & Special Orders



Product Warranty

PGI International warrants its products to be free from defects in material and/or workmanship for a period of one (1) year from date of shipment. This guarantee is valid only if such products have been used in normal applications consistent with our recommendations. Our liability is limited to repair or replacement and no responsibility is assumed for consequential damage or expense. Any controversy arising out of the sale of PGI International products shall be determined in accordance with the laws of the State of Texas.

PGI International reserves the right to change materials, specifications or designs without notice. PGI International will not be obligated to install or furnish such changes on products previously sold.

Teflon® Pressure-Core® Stem Seal Warranty

After years of field experience and thousands of valves in service, PGI International takes great pride in extending a five year limited warranty on our patented Teflon Pressure-Core Stem Seal System. The warranty period starts from the date of purchase. If within this period the Pressure-Core Stem Seal develops a leak, PGI will provide a new bonnet and stem assembly at no cost.

PGI will assume no consequential damages for liabilities connected with this warranty. The warranty is void if the valves have not been used in accordance with the stamped pressure/temperature ratings or if the bonnet assembly has been disassembled. The Teflon Pressure-Core Seal is factory assembled and cannot be disassembled or inspected without damaging the seal.

Sales Policy

Our products are sold through authorized manufacturer representatives or direct from our factory sales office. All orders are subject to acceptance by PGI International, headquarters located in Houston, Texas (USA). Prices are subject to change without notice and any errors in published prices are subject to correction. No materials may be returned for credit without written authorization from our Houston office. In issuing credit for returned material, we reserve the right to deduct a reconditioning and handling charge. Special items, not conforming to our standard line, will not be accepted for credit.

Special Orders

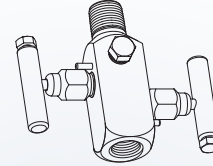
PGI International has been a custom manufacturer of valve components since 1941. PGI invites inquiries for special variations on our line of valves and will work with you to solve your specific application problems.



Additional PGI Product Offerings

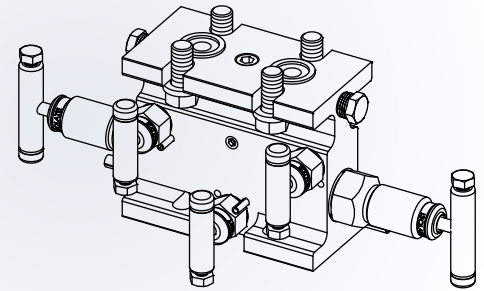
Instrument Valves

Hand, Gauge, Bleed, Root and Multi-port designs. Carbon Steel, 316 SS to NACE MR0175 and exotic materials available. Offered with our patented Teflon® Pressure-Core® Stem Seal with an unmatched 5 year warranty.



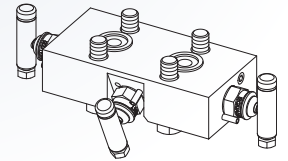
Fugitive Emission Valves & Manifolds

PGI International's patented Teflon® Pressure-Core® Stem Seal allows us to offer a line of fugitive emission products. Controlled venting and no bonnet maintenance help create a virtually leak free line of products. Offered with our patented Teflon® Pressure-Core® Stem Seal with an unmatched 5 year warranty.



Instrument Manifolds

A complete line of Block & Bleed, Meter, Two, Three and Five Valve styles available in Carbon Steel and 316 SS to NACE MR-01-75. Specialty alloys available. Offered with the patented Teflon® Pressure-Core® Stem Seal with an unmatched 5 year warranty.

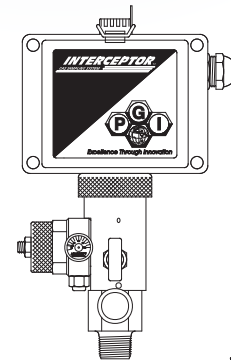


Pulsation Testing

In conjunction with the Gas Machinery Research Council (GMRC), PGI International developed its patented Square Root Error (SRE) and Gauge Line Error (GLE) Testers. These products quantify the effect of pulsation on natural gas orifice measurement. In addition, PGI offers on-site testing using the latest equipment to provide a full technical report.

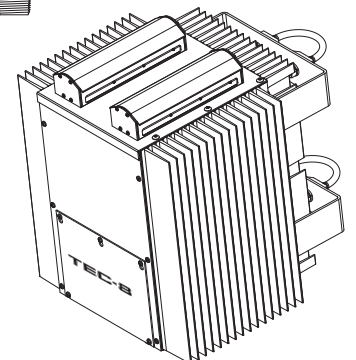
Engineered Products

PGI International offers a complete line of Gas and Liquid Composite Samplers. The Interceptor and Nova samplers are FM and CSA Approved, Intrinsically safe for Class I, Division 1, Group C and D hazardous locations, when used with an approved PGI furnished power supply. Our NOVA system samples refined liquids, dense phase CO2 and wet, dry or dirty gas. Engineered Products division also offers sample cylinders, sample probes and cylinder valves. Our Hot-Shot™ Heated Enclosure System is designed to be used with natural gas samplers and will heat the sampling system to temperatures above the hydrocarbon dew point of the gas, assisting in the compliance of the new API Standard 14.1.



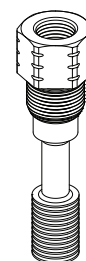
ZEUS® Power Systems

We offer efficient and reliable alternatives to solar panel systems used to power electronic instruments on gas pipelines. PGI's ThermoElectric Chargers (TEC) and Differential Pressure Chargers (DB1) both produce 12- or 24- volts of power to keep batteries fully charged. TEC is fueled by natural gas or propane, while the DB1 is powered using the differential pressure developed across a pressure regulator. Both TEC and DB1 continually monitor the battery's temperature and charge level, and charge the battery accordingly. TEC and DB1 can be used on transmitters, flow computers, AFR (Air Fuel Ratio) and communication systems on gas pipelines. The compact units excel in cold, snowy or rainy conditions, and are low-emission environmentally friendly.



ThermoSync® Temperature Measurement System

PGI International's ThermoSync thermowell and optional RTD probe provide the most accurate pipeline gas temperature measurement system available. The unique patented design optimizes thermo-coupling at the RTD tip while minimizing pipe wall induced errors. Reducing pipe temperature effects on flow calculations provides greater accuracy and minimizes unaccountable errors. The ThermoSync Temperature system measures the true flowing gas temperature by including a finned thermowell with a RTD that has PVC insulation, thus reducing the transfer of outside temperature effects to the RTD.



INSTRUMENTATION PRODUCTS

Instrument Valves & Manifolds
Power and Steam Plant Valves & Manifolds
Purge Adapters for the Process Industry

SPECIALIZED SYSTEMS

Gas & Liquid Sampling Systems
Natural Gas Sampling System Heated Enclosures
Sample Cylinders and Accessories

MEASUREMENT ACCURACY PRODUCTS

ThermoSync® Thermowells & Temperature Probes
Direct-Mount® Systems
Square Root Error (SRE) & Gauge Line Error (GLE) Indicators

ZEUS® POWER SYSTEMS

TEC™ ThermoElectric Battery Chargers
DB1™ Differential Pressure Battery Chargers

ADDITIONAL PGI DIVISION PRODUCTS & SERVICES

Valve Fittings & Wellhead Components
Propane and Anhydrous Ammonia Valves
Contract Machining



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