

# **Instrumentation Products**

Schneider DirectMount Systems



### Introduction

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### **Natural Gas Measurement - Best Practices**

Field research and testing conducted by Southwest Research in San Antonio, Texas and the Pipeline Gas Compressor Research Council (PCRC) confirmed that pulsation created by compressors, flow control valves, regulators and some piping configurations may create undesirable 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. These errors create large economic gains or losses for the buyer and seller along a natural gas pipeline system.

Conclusions determined that Transmitters or Electronic Flow Measurement (EFM) devices should be:

- Close coupled to the orifice taps (within 18 inches [460 mm] "Rule of Thumb")
- Use equal length, large orifice (0.375 inch [9.5 mm] I.D. or greater), constant diameter gauge lines
- Use Multi-Turn Valves to protect electronics from pressure spikes

Minimize or eliminate Gauge Line Error (GLE): Schneider DirectMount Systems (SDMS) are designed for a safe, efficient method of close coupling EFM's and transmitters to the orifice fitting, eliminating or reducing the effects of Gauge Line Error.

SDMS are easy to install and available in both Vertical and Horizontal to Vertical Installations.

- SDMS reduces installation cost No need to manufacture and install tube runs, fittings, and expensive pipe stands
- Reduces potential leak points associated with NPT connections
- Provides a safe compact leak free measurement installation
- Internal porting promotes self draining of condensates and liquids to reduce freezing issues

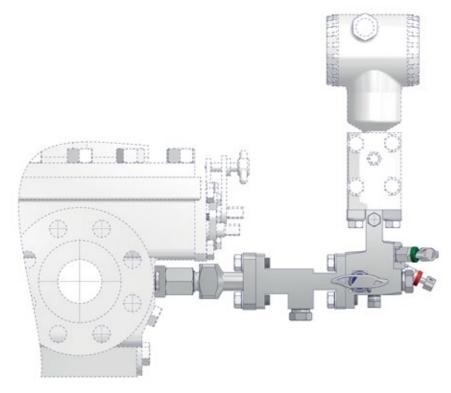
### Design Standards meet the Recommendations of:

• American Petroleum Institute (API) • Gas Processors Association (GPA) • American Gas Association (AGA)

Long-term Confidence and Commitment: You can rest assured in your decision to purchase AS-Schneider – we are a modern, international family-owned company since 1875. You can rely on our 140 years of manufacturing experience. The AS-Schneider Group with its headquarters in Germany is one of the world's leading manufacturers of Instrumentation Valves and Manifolds. Our USA office and warehouse located in Houston Texas is committed to providing excellent service to our customers in the Americas.

Continuous product development may from time to time necessitate changes in the details contained in this catalogue. AS-Schneider reserves the right to make such changes at their discretion and without prior notice.

All dimensions shown in this catalogue are approximate and subject to change.



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# **C**ontents

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### **Body Material Options**

Material Group	AS Material Designation	Material Grade acc. to ASTM	Equivalent UNS-No.	Material No.	Short Name	Stabilized Connectors	Spacers	Manifolds	Adapters
Carbon Steel	Carbon Steel	A105				Standard	Standard	Standard	Standard
•	316 quadruple	316	S31600	1.4401	X5CrNiMo17-12-2	Standard	Standard	Standard	Standard
	certified*	316L	S31603	1.4404	X2CrNiMo17-12-2	Standard	Standard	Standard	Standard
Nickel Based	Alloy 400		N04400	2.4360	NiCu30Fe	Optional	Optional	Optional	Optional
Alloys	Alloy C-276		N10276	2.4819	NiMo 16 Cr 15 W	Optional	Optional	Optional	Optional

<sup>\*</sup> Quadruple certified means 316 / 316L / 1.4401 / 1.4404.

### **Standard Features**

• Bore Size

- Isolate Valves: 3/8" (9.5 mm)

- Equalize and Vent Valves: 0.138" (3.5 mm)

Soft Seat

Isolate Valves: Cone Design (roddable)Equalize and Vent Valves: Cup Design

- Soft Seats are field replaceable

• Double O-Ring Design as standard

• PTFE Packing is also available for all valve types

 5 Valve Manifolds are supplied with a bug plug in the 1/4 NPT female vent port (fitted)

### Sour Gas Service:

Wetted Parts according to a. m. material list are supplied as standard according to NACE MR0175/MR0103 and ISO 15156 (latest issue).

### Pressure Test:

A shell test at 1.5 times the max. allowable (working) pressure and a seat leakage test are performed acc. to EN 12266-1 – P10, P11 and P12 respectively MSS-SP61 (and complies also with ASME B31.1 and B31.3) at every standard AS-Schneider Needle Valve / Manifold. 100% Pressure Tested!

### Certification:

Certified Mill Test Report (CMTR) as Inspection certificate 3.1 acc. to EN 10 204 for valve body material and pressure test available on request.



Packing adjustment may be required during the service life of the valve.



Valves that have not been cycled for a period of time may have a higher initial actuation torque.

### **Optional Features**

### Fugitive Emission Application:

For Fugitive Emission Applications please contact the factory.

### Oxygen Service:

AS-Schneider offers an option with Reinforced PTFE Packing cleaned and lubricated for Oxygen Service:

Pressure-Temperature Rating:

Max. 6,092 psi (420 bar) @ 140°F (60°C) Max. 392°F (200°C) @ 1,305 psi (90 bar)

Not every Valve Type is available for Oxygen Service!

If you don't find your options in this catalogue, please contact the factory.

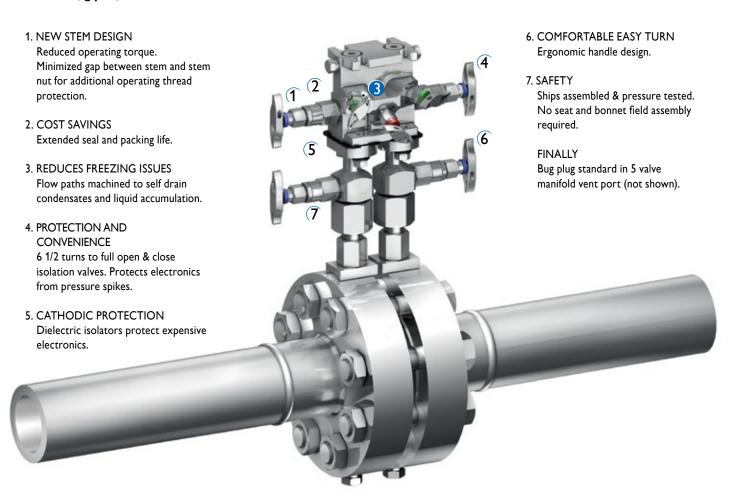
# SDMS are manufacturered to the following Codes and Specifications:

• ASME B31.1	Power Piping
• ASME B31.3	Process Piping
• ASME B16.34	Valves – Flanged, Threaded and Welding End
• API 598	Valve Inspection and Testing
• MSS SP-25	Standard Marking Systems for Valves, Fittings and Flange Unions
• MSS SP-61	Pressure Testing of Valves
• MSS SP-99	Instrument Valves
• MSS SP-105	Instrument Valves for Code Applications
• NACE MR0175 / ISO 15156	Petroleum and Natural Gas Industries – Materials for use in $\rm H_2S$ - Containing environments in oil and gas production

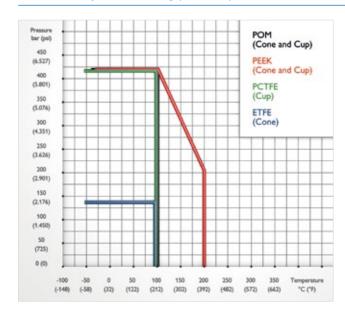
General Features AS-Schneider

### **Features and Benefits**

Meets the challenge – Soft goods available to meet the toughest dirty gas applications. H<sub>2</sub>S, CO<sub>2</sub>, amines, corrosion inhibitors, methanol, glycol, etc.!



### Pressure-Temperature Rating (Soft Seat)



### Stem Seal Material

Material	Temperature		
	Min.	Max.	
FKM	-13°F (-25°C)	392°F (200°C)	
FKM (RGD resistant)	-40°F (-40°C)	450°F (232°C)	
FEPM	-4°F (-20°C)	392°F (200°C)	
PTFE	-67°F (-55°C)	450°F (232°C)	

Low Temperature Service down to  $-55^{\circ}$ C (-67°F) – As standard for Valves with PTFE Packing and Soft Seats in ETFE resp. PCTFE only.

Temperature Limit for Body Material:

- Carbon Steel A105: -20°F (-29°C)

All other materials are limited by soft goods.

### **Isolate Valves - Head Units**

### Isolate Valves (Block Valves)

Bore Size 3/8" (9.5 mm) - Stem Seal: O-Ring - Soft Seat: Cone Design

### **Features**

- Rising Plug Valve Design
- Replaceable Valve Seat ETFE, optional POM or PEEK
- Stem Seal O-Ring in FKM (optional RGD resistant) or FEPM
- Non-rotating Needle
- External Stem Thread Packing below stem threads. Stem threads are protected from process media (non-wetted).
- 6.5 turns to fully open or close the valve
- Heavy Duty Stem Threads
- Blow-out Proof Stem
- Back Seat Metal to metal secondary stem seal
- Lock Pin Eliminates unauthorized removal of the bonnet
- Color Coded Dust Cap for operating thread protection.
   Minimized gap between stem and stem nut for additional operating thread protection.
- Valve Seat in ETFE 2.000 psi (138 bar) rated POM/PEEK 6,092 psi (420 bar) rated
- All non-wetted parts are 316 Stainless Steel

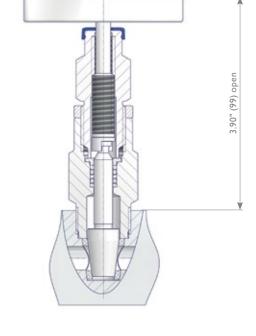
### Isolate Valves (Block Valves)

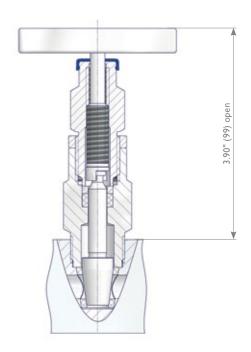
Bore Size 3/8" (9.5 mm) – Stem Seal: PTFE Packing – Soft Seat: Cone Design

### **Features**

- Rising Plug Valve Design
- Replaceable Valve Seat ETFE, optional POM or PEEK
- Stem Seal PTFE Packing
- All other features as above

Components	Carbon Steel	Stainless Steel	Exoti	c Alloys
Components		Materia	ıl	
Body	A105	316 / 316L	Alloy 400	Alloy C-276
Bonnet	316 /	316L	Alloy 400	Alloy C-276
Seat		ETFE, POM o	or PEEK	
Needle	316 /	316L	Alloy 400	Alloy C-276
O-Ring		FKM or FEPM		
Packing	PTFE			
Valve Stem	316 / 316L			
Gland	316			
Stem Nut	316			
Lock Nut	316			
Set Screw	316			
T Handle	316			
Lock Pin	A4 (316)			





Wetted components listed in **bold**.

Isolate Valves – Head Units AS-Schneider

# **Equalize and Vent Valves – Head Units**

### **Equalize and Vent Valves**

Bore Size 0.138" (3.5 mm) - Stem Seal: O-Ring - Soft Seat: Cup Design

### **Features**

- Replaceable Valve Seat POM, optional PCTFE or PEEK
- Stem Seal O-Rings in FKM (optional RGD resistant) or FEPM
- External Stem Thread Packing below stem threads. Stem threads are protected from process media (non-wetted).
- 2.5 turns to fully open or close the valve
- Stem with Cold Rolled Threads
- Blow-out Proof Stem

- Back Seat Metal to metal secondary stem seal
- Lock Pin Eliminates unauthorized removal of the bonnet
- Color Coded Dust Cap for operating thread protection. Minimized gap between stem and stem nut for additional operating thread protection
- Max. allowable (Working) Pressure (PS): 6,092 psi (420 bar)



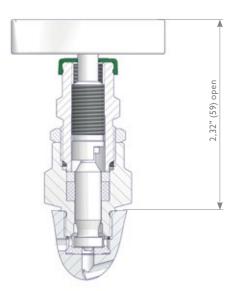
### **Equalize and Vent Valves**

Bore Size 0.138" (3.5 mm) – Stem Seal: Packing – Soft Seat: Cup Design

### **Features**

- Replaceable Valve Seat POM, optional PCTFE or PEEK
- Stem Seal PTFE Packing
- Non-rotating Needle
- External Stem Thread Packing below stem threads. Stem threads are protected from process media (non-wetted).
- 4 turns to fully open or close the valve
- Stem with Cold Rolled Threads
- Blow-out Proof Stem

- Back Seat Metal to metal secondary stem
  seal
- Lock Pin Eliminates unauthorized removal of the bonnet
- Color Coded Dust Cap for operating thread protection
- Max. allowable (Working) Pressure (PS):
   6,092 psi (420 bar)
- All non-wetted parts are 316 Stainless Steel



### **Equalize and Vent Valves - O-Ring Head Unit**

Components	Carbon Steel	Stainless Steel	Exoti	c Alloys
Components	Material			
Body	A105	316 / 316L	Alloy 400	Alloy C-276
Bonnet	316 / 316L		Alloy 400	Alloy C-276
Seat		POM, PCT	FE or PEEK	
Valve Stem	316 / 316L		Alloy 400	Alloy C-276
O-Ring	FKM or FEPM			
Set Screw	316			
T Handle	316			
Lock Pin	A4			

Wetted components listed in **bold**.

### **Equalize and Vent Valves - Packing Head Unit**

Components	Carbon Steel	Stainless Steel	Exoti	ic Alloys
·		Ma	iterial	
Body	A105	316 / 316L	Alloy 400	Alloy C-276
Bonnet	316 /	316L	Alloy 400	Alloy C-276
Seat		POM, PC	TFE or PEEK	(
Needle	316 /	316L	Alloy 400	Alloy C-276
Packing	PTFE			
Valve Stem	316 / 316L			
Gland	316			
Stem Nut	316			
Lock Nut	316			
Set Screw	316			
T Handle	316			
Lock Pin	A4			

### **Stabilized Connectors**

### **Designing your Schneider DirectMount System**

The first item required for SDMS is the Stabilized Connector. The Stabilized Connector provides the foundation for your SDMS.

### Select the proper model for your installation considering:

- Clearance requirements
- · Dielectric isolation
- Orifice tap centers 2 1/8" (54 mm) to 2 1/4" (57 mm)
- Size and weight of the electronic measurement device
- Environmental site location

The connector's tensioning nut places the NPT threads in tension and transfers radial forces away from the NPT threads. The Short Type is designed to be installed without shoe, the Long Type and the Integral Valve Type are designed to be installed with shoe, providing a very solid and efficient connection.

The Integral Valve Type is provided with a **patented** swivel nut connection, enabling the easy positioning of the flange in any position through 360°. Therefore the Integral Valve Type does not require field assembly providing a simple pretested safe assembly to the orifice fitting.

The elongated bolt holes accommodate 2 1/8" (54 mm) to 2 1/4" (57 mm) centers.

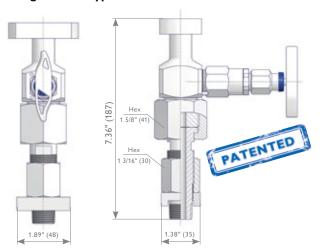
Dielectric Isolation Kits are available (see page 19).

# STABILIZED CONNECTOR

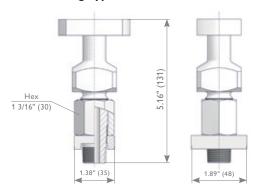
### **Short Type Stabilized Connector**



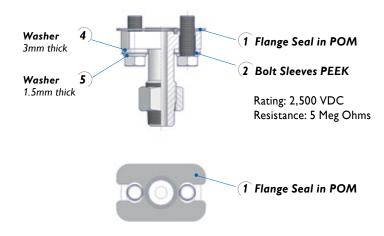
### **Integral Valve Type Stabilized Connector**



### Long Type Stabilized Connector



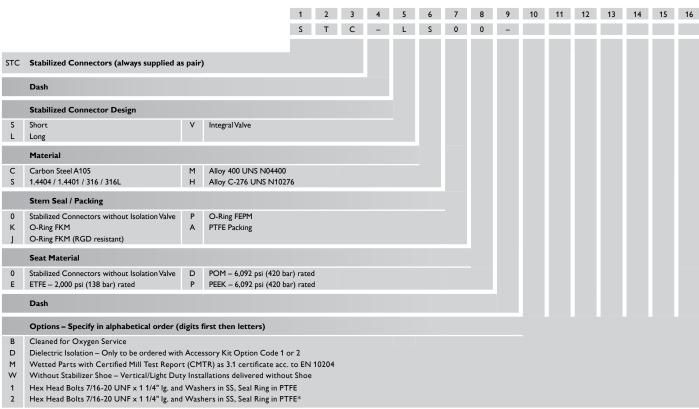
### **Dielectric Isolation Kit**



Stabilized Connectors AS-Schneider

## **Stabilized Connectors and Spacers**

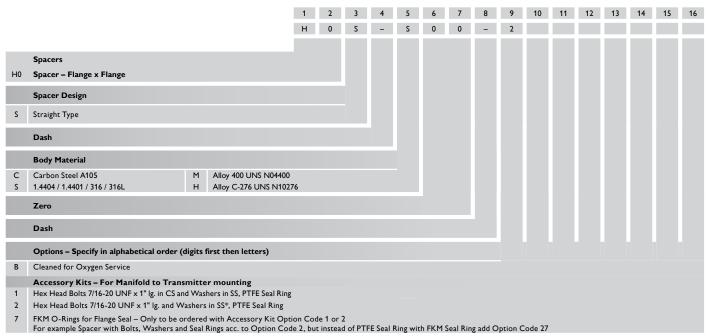
### **Ordering Information - Stabilized Connectors**



<sup>\*</sup>Bolt Material S.S. = 316 Stainless Steel I ASTM F593 GP2 CW

Wetted Parts according to above mentioned material list are supplied according to NACE MR0175/MR0103 and ISO 15156 (latest issue).

### **Ordering Information - Spacers**



<sup>\*</sup> Bolt Material SS = 316 Stainless Steel I ASTM F593 GP2 CW

Wetted Parts according to above mentioned material list are supplied according to NACE MR0175/MR0103 and ISO 15156 (latest issue).

# **Spacers and 2 Valve Manifolds**

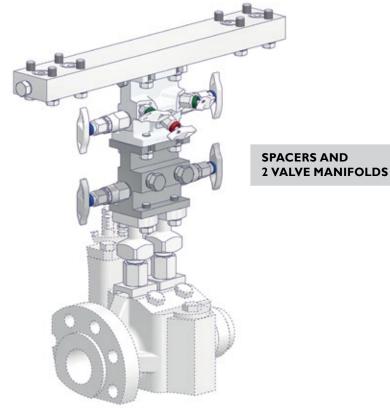
### **Designing your Schneider DirectMount System**

After selecting your stabilized connector consider if an optional Spacer or 2 Valve Manifold is required:

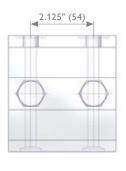
- Consider any clearance requirements, provide additional clearance between the orifice meter and your measurement device.
- 2 Valve Manifolds are recommended to eliminate the need to blow down your meter tube when periodic maintenance is required.

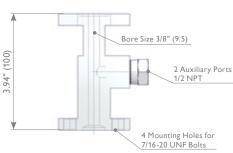
Ordering Information Spacer (Straight Adapter) see page 9.

Ordering Information 2 Valve Manifold see page 13.

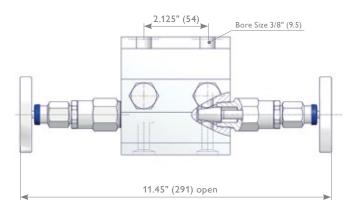


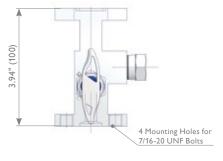
# Spacer (Straight Adapter)

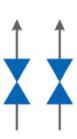




### 2 Valve Manifold







### **5 Valve Manifolds**

The next step after selecting the stabilized connector and the optional Spacer / 2 Valve Manifold is to select the proper 5 Valve Manifold.

**Vertical Installations** – Select the Straight Type 5 Valve Manifold.

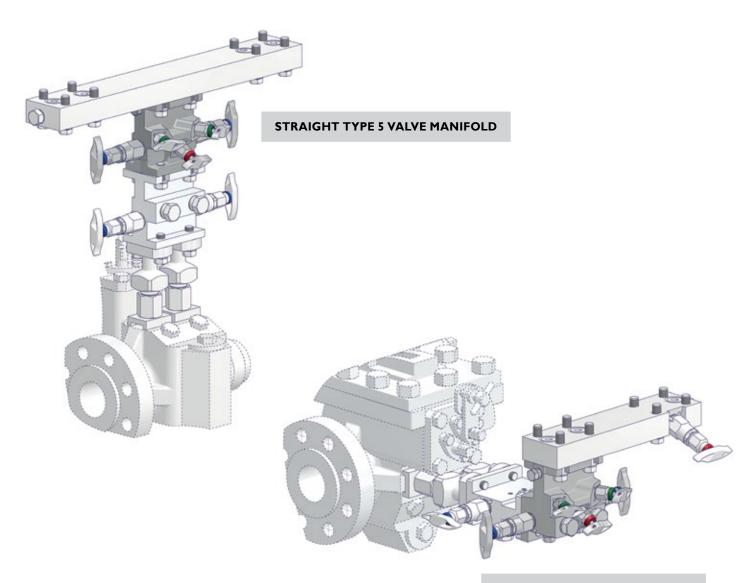
Horizontal Installations – Select the Angle Type 5 Valve Manifold (orients electronics of the transmitter in vertical position) or the Straight Type 5 Valve Manifold.

The 5 Valve Manifold is used in most custody transfer applications. However if you don't require a 5 Valve Manifold AS-Schneider is also supplying a 3 Valve Manifold. For more details please contact the factory.

When mounting the 5 Valve Manifold to  $\Delta P$  Transmitter, Smart Multivariable or Flow Computer you must consider the mounting bolt lengths.

5 Valve Manifold Vent Port - The 1/4 NPT female Vent Port is supplied with a fitted Bug Plug as standard.

Roddable - Both Straight and Angle Type 5 Valve Manifolds.

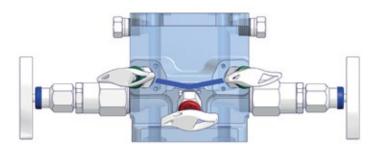


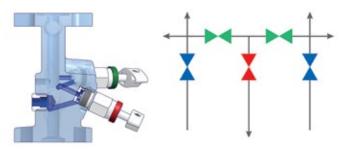
**ANGLE TYPE 5 VALVE MANIFOLD** 

www.as-schneider.com 5 Valve Manifolds 11

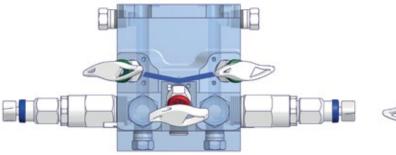
# **5 Valve Manifolds**

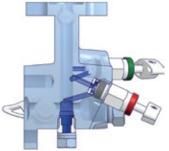
### Flow Pattern of Straight Type 5 Valve Manifold





### Flow Pattern of Angle Type 5 Valve Manifold

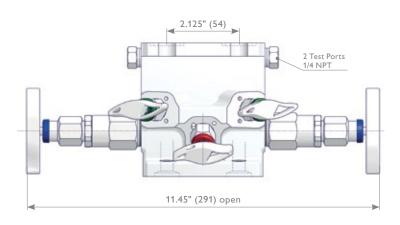


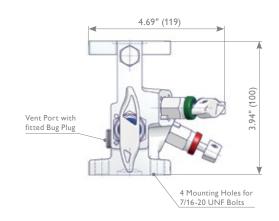


### **REDUCES FREEZING ISSUES:**

Flow paths machined to self drain condensates and liquid accumulation.

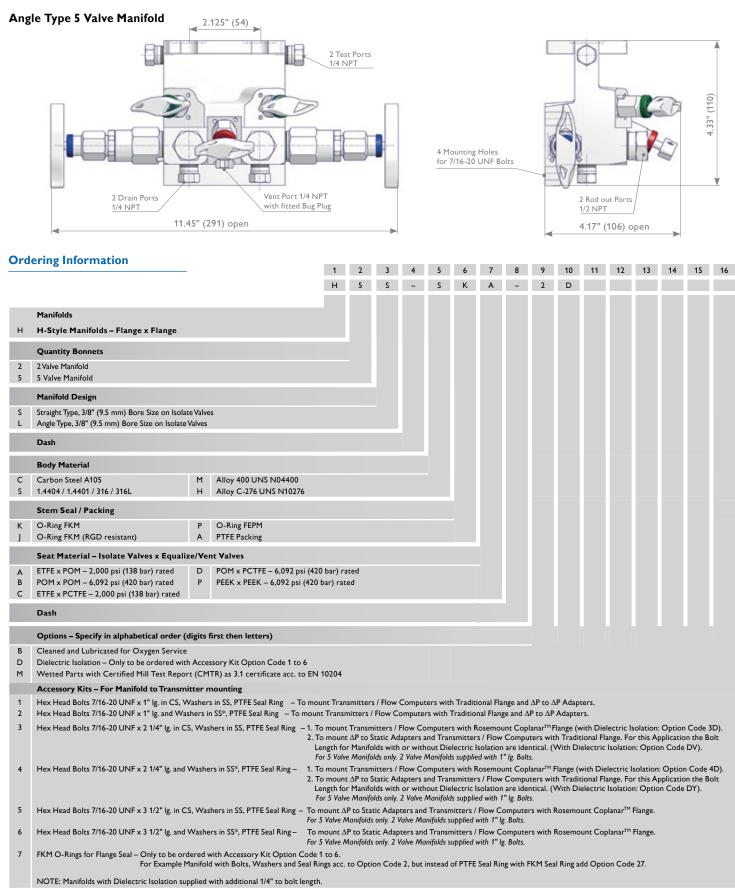
### Straight Type 5 Valve Manifold





12 5 Valve Manifolds AS-Schneider

### 2 and 5 Valve Manifolds



<sup>\*</sup>Bolt Material SS = 316 Stainless Steel I ASTM F593 GP2 CW

www.as-schneider.com 2 and 5 Valve Manifolds 13

Wetted Parts according to above mentioned material list are supplied according to NACE MR0175/MR0103 and ISO 15156 (latest issue).

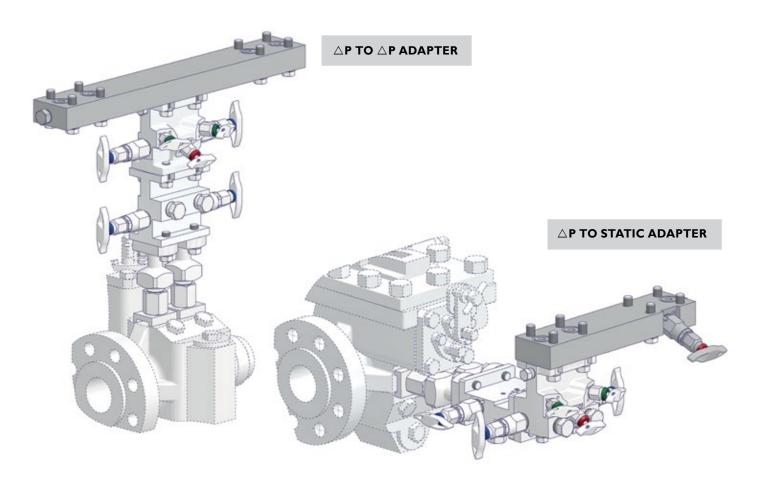
# **Adapters**

### **Adapters**

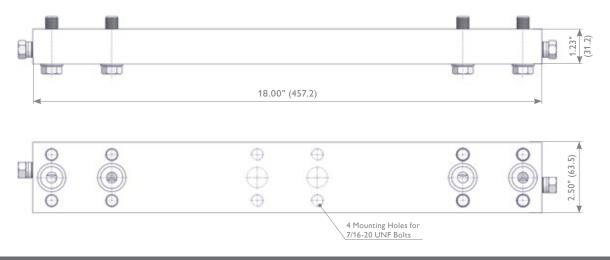
When mounting both  $\Delta P$  and Static Transmitter a SDMS Adapter is required.  $\Delta P$  to  $\Delta P$  Adapter is also available for Dual Custody and Bi-Directional Installations.

Bolt Selection for these Adapters is located on page 15.

 $\Delta P$  to Static Adapters are full 3/8" Orifice ( $\Delta P$  and Static Side) to reduce or eliminate freezing issues.

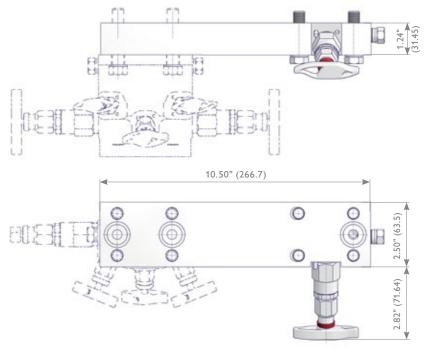


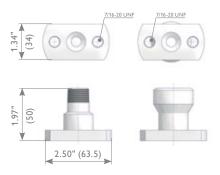
### $\triangle$ P to $\triangle$ P Adapter – Bore Size 3/8" (9.5 mm)



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### △P to Static Adapter - Bore Size 3/8" (9.5 mm)



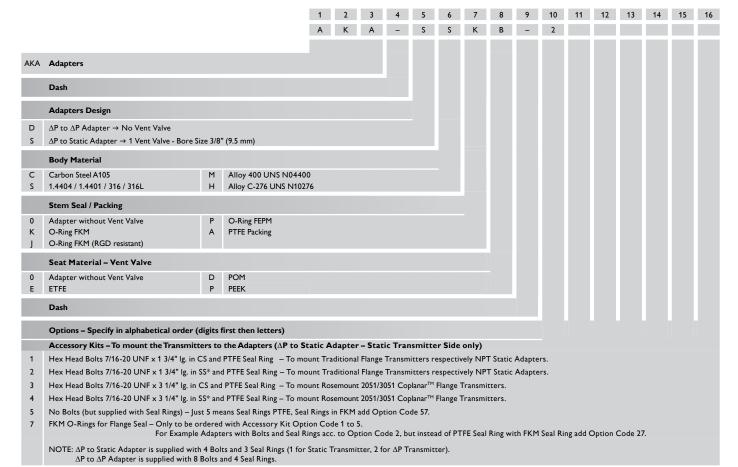


### **NPT Static Adapters**

NPT Static Adapter	Part Number  Carbon Steel   Stainless St	
1/2 NPT Female	AKA-FC	AKA-FS
1/2 NPT Male	AKA-MC	AKA-MS

To be ordered separately.

### **Ordering Information**



\*Bolt Material SS = 316 Stainless Steel I ASTM F593 GP2 CW

Wetted Parts according to above mentioned material list are supplied according to NACE MR0175/MR0103 and ISO 15156 (latest issue).

www.as-schneider.com Adapters 15

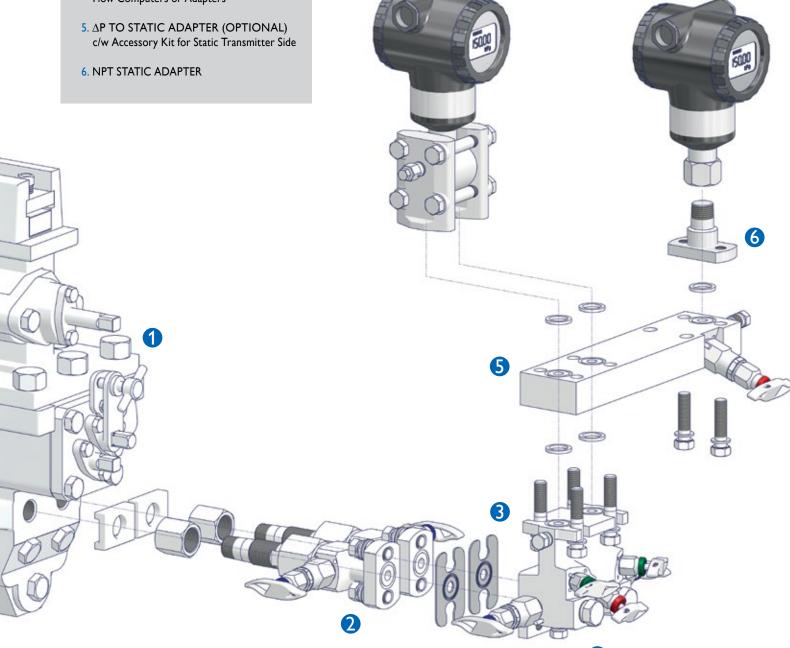
# **Horizontal Installation**

### **Horizontal Installation - Exploded View**



- 3. DIELECTRIC ISOLATION

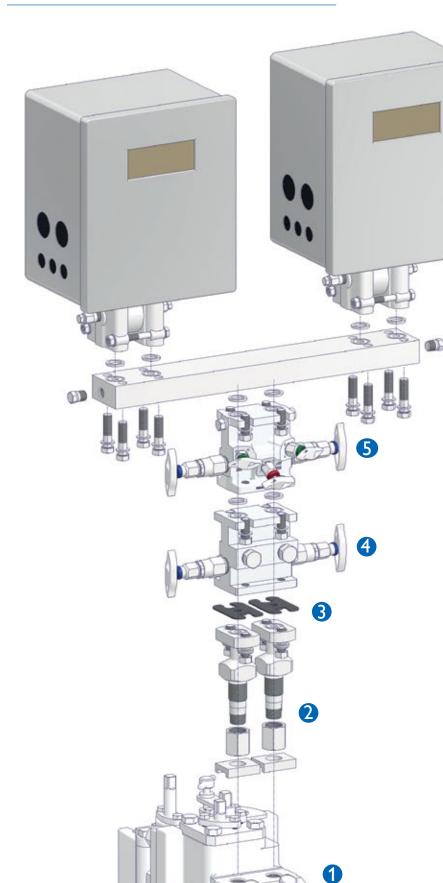
  To be ordered with Stabilized Connector
- 4. ANGLE TYPE 5 VALVE MANIFOLD c/w Accessory Kits to mount the Transmitters, Flow Computers or Adapters



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# **Vertical Installation**

### **Vertical Installation – Exploded View**



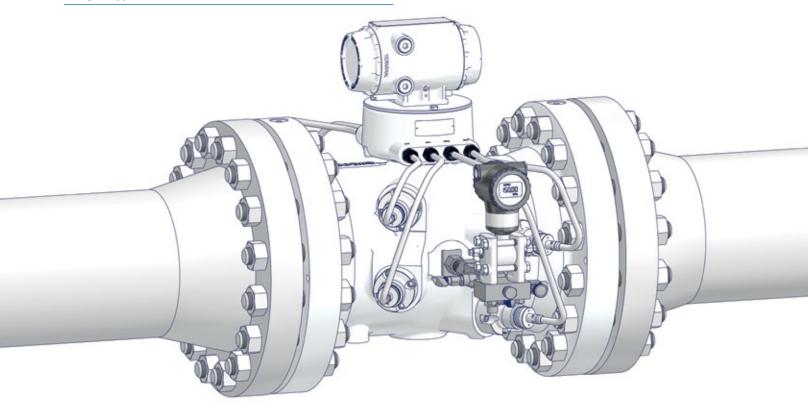
- 1. ORIFICE FITTING
- 2. STABILIZED CONNECTORS
- 3. DIELECTRIC ISOLATION

  To be ordered with stabilized connector
- 4. SPACER OR 2 VALVE MANIFOLD (OPTIONAL) c/w Accessory Kit
- 5. STRAIGHT TYPE 5 VALVE MANIFOLD c/w Accessory Kits to mount the transmitters, flow computers or adapters
- 6. ΔP TO ΔP ADAPTER (OPTIONAL) c/w Accessory Kits to mount the transmitters/flow computers

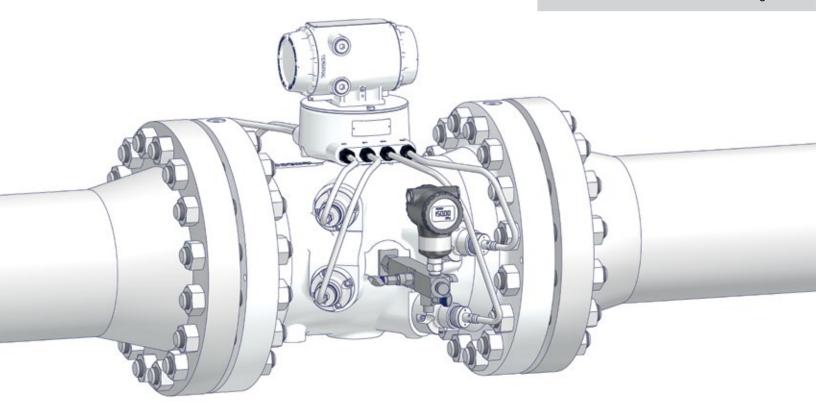
www.as-schneider.com 17

# **Manifolds for Ultrasonic Flow Meter Applications**

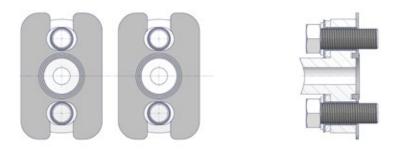
Horizontal Installation of Flanged Type Block & Bleed Manifolds



**Horizontal Installation of** Threaded Type Block & Bleed Manifolds For detailed information see Catalogue 'AS-4302 I Soft Seated Needle Valves and Manifolds – Page 24-26.



### **Dielectric Isolation Kits**



AS-Schneider is providing the following Dielectric Isolation Kits (always supplied as pair: 2 Dielectric Flange Seals, 4 Bolts, 4 Washers 1.5mm thick, 4 Washers 3mm thick and 4 Bolt Sleeves):

4 Washers 3mm thick and 4 Bolt Sleeves):	
To mount a Stabilized Connector to a Spacer/Manifold:	Part Number
Dielectric Kit w/CS Bolts (1 1/2" lg.) and 316 SS Washers	DEK-01C
Dielectric Kit w/316 SS Bolts (1 1/2" lg.) and 316 SS Washers	DEK-01F
To mount a 5 Valve Manifold to a:	Part Number
Transmitter/Flow Computer with Traditional Flange	
Dielectric Kit w/CS Bolts (1 1/4" lg.) and 316 SS Washers	DEK-02C
Dielectric Kit w/316 SS Bolts (1 1/4" lg.) and 316 SS Washers	DEK-02F
Transmitter/Flow Computer with Rosemount Coplanar™ Flange	
Dielectric Kit w/CS Bolts (2 1/2" lg.) and 316 SS Washers	DEK-03C
Dielectric Kit w/316 SS Bolts (2 1/2" lg.) and 316 SS Washers	DEK-03F
To mount a 5 Valve Manifold with a $\Delta P$ to Static Adapter ( $\Delta P$ to Transmitter Side) to a:	Part Number
Transmitter/Flow Computer with Traditional Flange	
Dielectric Kit w/CS Bolts (2 1/4" lg.) and 316 SS Washers	DEK-12C
Dielectric Kit w/316 SS Bolts (2 1/4" lg.) and 316 SS Washers	DEK-12F
Transmitter/Flow Computer with Rosemount Coplanar™ Flange	
Dielectric Kit w/CS Bolts (3 3/4" lg.) and 316 SS Washers	DEK-13C
Dielectric Kit w/316 SS Bolts (3 3/4" lg.) and 316 SS Washers	DEK-13F

### Flange Seal Rings and Valve Seats

Components	Material	Part Number
Flange Seal Ring for Stabilized	PTFE	S006.23.351.08
Connectors and Manifolds	FKM	531044
Valve Seats – Isolate Valves (Block Valves) – 3/8" (9.5 mm) Bore Size	ETFE	S007.01.350.1105
	POM	S007.01.350.1101
	PEEK	S007.01.350.1104

Components	Material	Part Number
Valve Seats – Equalize and Vent Valves – 0.138" (3.5 mm) Bore Size	POM	S007.01.350.0801
	PCTFE	S007.01.350.0803
	PEEK	S007.01.350.0804

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AS-4301-EN I May 2021