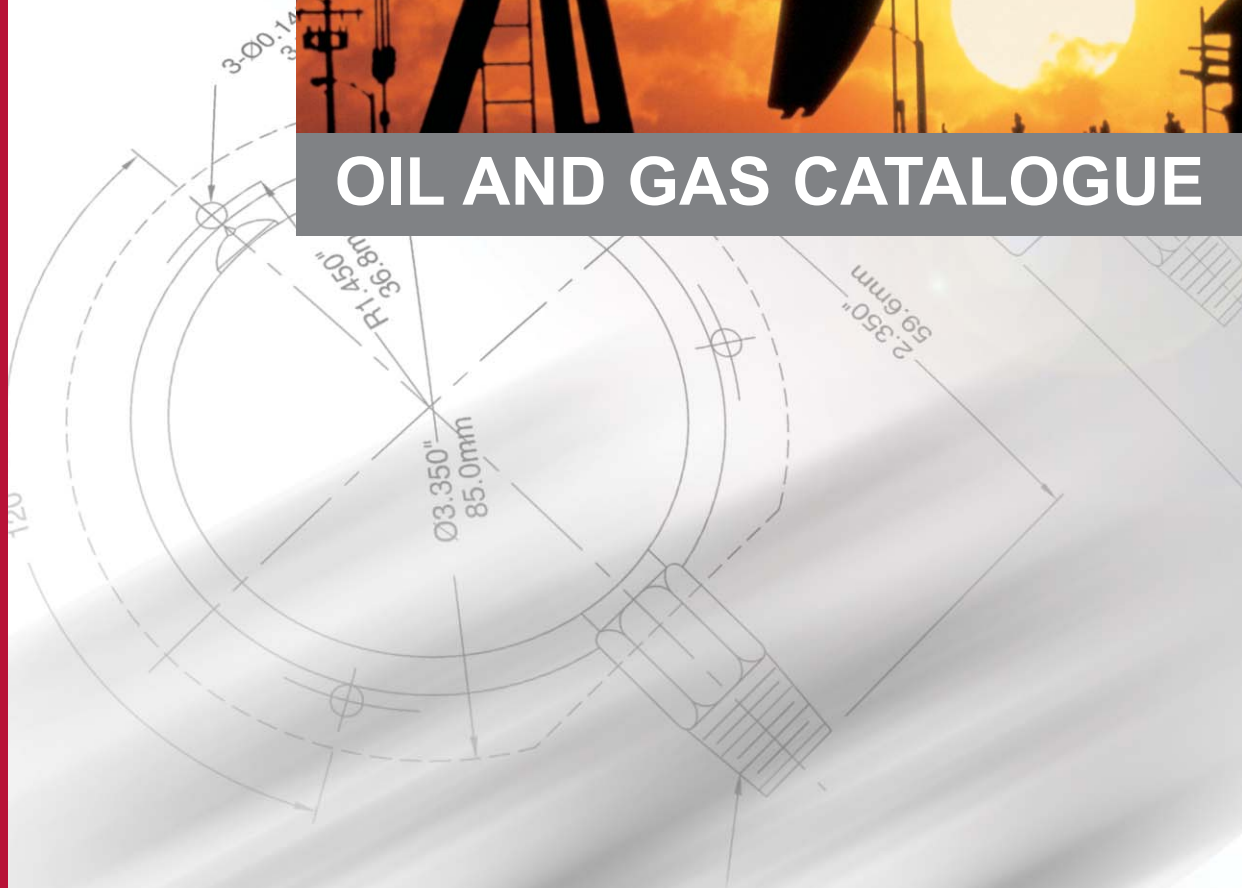




We're There.



OIL AND GAS CATALOGUE





Thank You for Choosing Winters

We're There in...

CUSTOMER SERVICE

Winters Instruments leads the industry in providing fast and efficient customer service. Full stocking warehouses enable same day shipping of all inventoried items.



QUALITY

An ISO 9001 corporation, Winters adheres to many approvals and standards, such as CE, CSA, UL, CRN, NACE, 3A, and more. We stand by the quality of our product: Winters offers *The Best Warranty In The Industry, Period.*



COMMITMENT

Competitive prices, quality products and the utmost in service - your satisfaction is guaranteed!



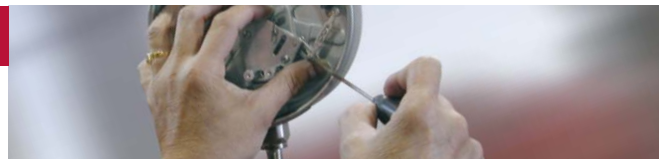
CUSTOM PRODUCTS

Quick turnaround for all special and custom requests is a distinct Winters advantage. Whether it is a custom dial, unique connection or special range, Winters will fulfill your requirements.



EXPERIENCE

Winters has been manufacturing pressure and temperature instrumentation for diverse markets since 1953 and serves all markets globally.



DISTRIBUTION

Our international network of distributors in over 80 countries means you receive Winters' instrumentation solutions for every application quickly and easily.



Continuous product improvements may result in specifications being changed without notice. For updated information please call Winters.





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PRESSURE

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Specified, Installed and Trusted - We're There

Oil & Gas

Chevron	USA
Devon Energy	Canada
Irving Oil Refinery	Canada
PARCO Oil Refinery	Pakistan
PDVSA	Venezuela
Saudi Aramco	Saudi Arabia
Shell Oil	USA
Suncor Energy	Canada
Qatar Petroleum	Qatar
Texaco	USA

Petro-Chemical

Coastal Chem	USA
Fushun Petrochemical Company	China
Gwill Chemical Plant	Canada
Mobil	USA
Nanjing DSM Petrochemical	China
National Refinery Limited	Pakistan
Sinopec	China

Automotive

BF Goodrich	USA
Chevrolet	USA
Ford Motor Company	Canada
General Motors	Canada

Power Generation

Al Aweer Power Station H, Phase II	UAE
Dayawan Nuclear Power Plant	China
Fujairah Power & Desalination Plant	UAE
General Electric	USA
Georgia Power	USA
Korean Electric Company	South Korea
New Zealand Thermal Power Plant	New Zealand
Ontario Hydro	Canada
Sembcorp Utilities	China

Food & Beverage

Anheuser-Busch	USA
Coca-Cola	Puerto Rico
Heinz	Canada
Hue Brewery	Vietnam
Kraft Foods	USA
Nestle	Thailand

Government

Department of Defence	Canada
US Coast Guard	USA
US Defense Department	USA
US Navy	USA

HVAC

American University of Beirut	Lebanon
Barwa Commercial Avenue	Qatar
Barwa Village	UAE
BCE Place	Canada
Bow Valley Square	Canada
Burj Khalifa	UAE
Kansas City Airport	USA
Palm Jumairah	UAE
Pearl Qatar	Qatar
Pearson International Airport	Canada
Prince of Wales Hospital	Hong Kong
Princess Noura University	Saudi Arabia

Aerospace & Transport

Air Canada	Canada
Air New Zealand	New Zealand
Borg Elarab Airport, Alexandria	Egypt
Cairo Underground Metro	Egypt
Canadian National Railway	Canada
Singapore Mass Rapid Transit	Singapore
US Air Force	USA

Industrial

3M	USA
Celulosa Arauco	Chile
Colgate-Palmolive	Vietnam
Dupont	USA
Procter & Gamble	Canada
Sherritt International	Cuba

Pharmaceutical

Bristol-Myers Squibb	Puerto Rico
Connaught Laboratories	Canada
GlaxoSmithKline	Canada
Merck Sharp & Dohme	USA
Pfizer	Puerto Rico

Water/Waste Water Treatment

Anchorage Water & Wastewater	USA
Bertam Water Treatment Plant	Malaysia
Chesapeake Utilities	USA
Petronas Dugun Water Supply	Malaysia
Siu Ho Wan Water Treatment	China

5-Year Warranty

A 5-year warranty applies to all pressure gauges, thermometers and tridicators.

1-Year Warranty

A 1-year warranty applies to all diaphragm seals, pressure switches, pressure transmitters, and instrumentation accessories.

Winters Instruments' products are warranted for a stated period of time (see above) after date of purchase against manufacturing and materials defects. Any product which is found by Winters to be defective will be replaced at Winters' discretion. Winters' product warranty does not cover product defects resulting from improper product selection, misuse or misapplication EXCEPT AS SPECIFICALLY SET FORTH IN THIS WARRANTY. WINTERS INSTRUMENTS MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, WHETHER EXPRESSED OR IMPLIED, TO PURCHASER OR ANY OTHER PERSON WITH RESPECT TO ANY OF THE PRODUCTS. WITHOUT LIMITING THE GENERALITY OF THE PRECEDING SENTENCE, WINTERS INSTRUMENTS DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Any liability from Winters to Purchaser or any other person or entity pursuant to this Warranty, whether for a claim in tort, for breach of contract or otherwise, shall not exceed the purchase price of the Product giving rise to such liability. Winters shall in no event have any liability to Purchaser or any other person or entity for any consequential, indirect, punitive or special damages (including, without limitation, lost profits) pursuant to this Warranty or pursuant to its sale of the Products, even if the possibility of such damages could have been foreseen by Winters Instruments.



Winters Platinum Service

Winters Platinum Service

An expedited service that moves orders to the front of the line.

Both manufacturing and service orders will be expedited through our system. Orders manufactured in North America will be completed within **48 hours** and non-North American manufactured orders will be completed within **two weeks**.

Platinum Service applies to most products. Contact Winters or a Winters distributor for more details.

Winters Platinum Service is available for new and existing orders. All Platinum Service orders must be approved by a Winters representative prior to a purchase order being issued (as order size and parts availability may preclude an order from Platinum Service). Purchase orders issued more than 3 weeks after original quote may no longer qualify for Platinum Service. Changes made to Platinum Service orders already placed may void the service. If a Platinum Service order is not shipped in the time quoted the premium fee may be waived by Winters. Freight is not included.





Repairs

Features:

- Full repair service for pressure & temperature instruments and diaphragm seals
- Non-Winters products can also be repaired

Applications:

- Where cost savings justify repairing rather than replacing

How to order:

Please contact our customer service department for your repair order code. Send in your product (freight prepaid) to your nearest Winters location. A written estimate will be faxed or emailed to you before any work is done.

Test Certificates

Features:

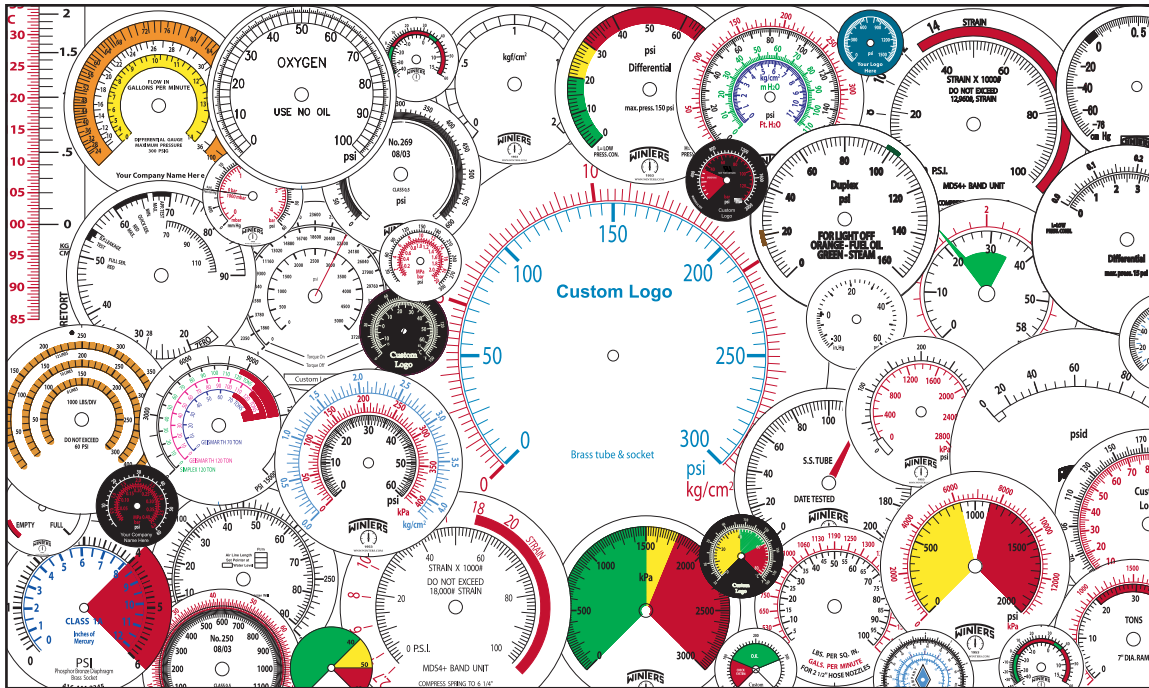
- Winters will certify the accuracy of a pressure gauge, thermometer or pressure switch with a National Standards Council test certificate
- Certificates are traceable to the National Institute of Standards and Technology (NIST)
- Certificates may be registered online for renewal reminders

Applications:

- Where a formal test certificate is required
- For certification with the ISO 9000 process

How to order:

Please contact our customer service department for your order code.



Customize Your Instrumentation

- Available for all makes and models of pressure and temperature instrumentation
- All colours are available
- All dials are custom manufactured to meet your specifications
- Available on new or repaired instruments
- Available for dry or liquid-filled instruments
- Emergency same-day custom dial manufacturing is available

Applicable To OEM Requirements

- Where easy-to-read, highly visible warning zones are required
- Non-standard custom measurement scales
- Replacement of damaged or outdated dials
- For time-sensitive dial requirements

Available Options:

- Colour safety zones
- Warning identification
- Tons on Ram scales
- Feet of Water scales
- Bar scales
- Kg/cm² scales
- Receiver gauge scales
- MM of H₂O scales
- Custom logos

More available. Please call us with your requirements.

Custom dials are available in any range and design. *We can accommodate rush orders.* Call **1-800-WINTERS** to speak to one of our representatives for solutions to your instrumentation challenges.

Quick Tips:

- Review our pressure gauge, thermometer and diaphragm seal selection guides
- Take a moment to review and learn how to read our order code matrix
- If options are available and required, attach the option suffix code to the end of the product order code
- If a scale change is required (i.e. change from standard offering to bar scale), attach the scale code to the end of the product order code

Order Code Matrix (for standard, in stock products):

Each product series has an order code matrix listed after the product specifications. Locate the column of order codes that lists your desired dial size, connection size, connection location and wetted material. Then follow that column downward until it intersects with the row of your choice.

Example:

Order Codes

Dial Size	2.5" (63mm)		4" (100mm)				4" (100mm)			
	1/4" Bottom	1/4" Back (CB)	1/4" Bottom	1/2" Bottom	1/4" Back (LB)	1/2" Back	1/4" Bottom	1/2" Bottom	1/4" Back (LB)	1/2" Back (LB)
Movement	SS	SS	Brass	Brass	Brass	Brass	SS	SS	SS	SS
Socket, Tube	SS	SS	Brass	Brass	Brass	Brass	SS	SS	SS	SS
30" Hg Vacuum/kPa	PFP820	PFP840	PFP1000	PFP2284	PFP1000	-	PFP640	PFP655	PFP1090	PFP2308
30"-0-15 psi/kPa	PFP860	PFP870	PFP1020	PFP2285	PFP1028	-	PFP1036	PFP1044	PFP1244	PFP2309
30"-0-30 psi/kPa	PFP864	PFP871	PFP1021	PFP2286	PFP1029	-	PFP1037	PFP1045	PFP1245	PFP2310
30"-0-60 psi/kPa	PFP862	PFP872	PFP1022	PFP2287	PFP1030	-	PFP1038	PFP1046	PFP1246	PFP2311
30"-0-100 psi/kPa	PFP863	PFP873	PFP1023	PFP2288	PFP1031	-	PFP1039	PFP1047	PFP1247	PFP2312
30"-0-150 psi/kPa	PFP864	PFP874	PFP1024	PFP2289	PFP1032	-	PFP1040	PFP1048	PFP1248	PFP2313

Scale Codes

R1 = psi
R2 = kPa
R3 = kg/cm ²
R4 = cm of H ₂ O
R5 = ft of H ₂ O
R6 = in of Hg
R7 = mm of Hg
R8 = in of H ₂ O
R9 = oz/in ²
R10 = atmosphere
R11 = bar
R12 = mbar
R13 = MPa
R14 = H ₂ O

If a scale change is required (i.e. change from standard offering to bar scale), attach the scale code to the end of the product order code



1. Optional Hinged Case
2. Optional Flush Mounting Ring



Note: RoHS applies only to SS and Monel® internals versions

Description & Features:

- Field liquid-fillable, phenolic solid front blowout back safety case
- ±0.5% accuracy
- Stainless steel full rotary movement for longer life
- Micrometer pointer for ease in calibration
- Under and overload stops
- 316L stainless steel, brass, Monel® wetted parts
- Restrictor screws standard on dual scale (optional on single scale gauges)
- CRN registered
- 5 year warranty

Applications:

- Used where operator safety is a must
- Ideally suited for process, chemical and petroleum industries
- Highly corrosive media

Specifications	Stainless Steel Internals	Brass Internals
Dial	4.5" (115mm) white aluminum with black and red markings	4.5" (115mm) white aluminum with black and red markings
Case	Black phenolic with safety blowout back, solid front, integral back flange	Black phenolic with safety blowout back, solid front, integral back flange
Solid Wall	Phenolic	Phenolic
Lens	Polycarbonate	Polycarbonate
Ring	Phenolic	Phenolic
Pointer	Aluminum, anodized black, micrometer adjustable	Aluminum, anodized black, micrometer adjustable
Socket	316L SS	OT 58 brass
Connection	1/4" NPT or 1/2" NPT standard, bottom or back	1/4" NPT or 1/2" NPT standard, bottom or back
Bourdon Tube	316L SS, drawn seamless	Phosphor bronze
Movement	304 SS with over/under stops	304 SS with over/under stops
Gasket Materials	Buna N (Silicone rubber option)	Buna N (Silicone rubber option)
Welding	TIG	Silver alloy
Over-pressure Limit	25% for pressures up to 1500 psi/kPa, 15% for pressures 1501 to 8700 psi/kPa, 10% for pressures above 8701 psi/kPa	25% for pressures up to 1500 psi/kPa, 15% for pressures 1501 to 8700 psi/kPa, 10% for pressures above 8701 psi/kPa
Working Pressure	Maximum 75% of full scale value	Maximum 75% of full scale value
Ambient/Process Temperature	-40°F to 200°F (-40°C to 93°C) dry / -4°F to 150°F (-20°C to 65°C) glycerin-filled	-40°F to 200°F (-40°C to 93°C) dry / -4°F to 150°F (-20°C to 65°C) glycerin-filled
Accuracy	±0.5% ANSI/ASME Grade 2A	±0.5% ANSI/ASME Grade 2A
Enclosure Rating	IP65	IP65

Monel® is a registered trademark of Inco Alloys International

Single Scale Order Codes (products in bold are normally in stock)

Connection	1/4" Bottom	1/4" Back (LB)	1/2" Bottom	1/2" Back (LB)
Socket, Tube	SS	SS	SS	SS
30" Hg Vac	PPC5040R1	PPC5340R1	PPC5060R1	PPC5460R1
30"/0/15 psi	PPC5130R1	PPC5330R1	PPC5140R1	PPC5440R1
30"/0/30 psi	PPC5131R1	PPC5331R1	PPC5141R1	PPC5441R1
30"/0/60 psi	PPC5132R1	PPC5332R1	PPC5142R1	PPC5442R1
30"/0/100 psi	PPC5133R1	PPC5333R1	PPC5143R1	PPC5443R1
30"/0/160 psi	PPC5134R1	PPC5334R1	PPC5144R1	PPC5444R1
30"/0/200 psi	PPC5135R1	PPC5335R1	PPC5145R1	PPC5445R1
30"/0/300 psi	PPC5136R1	PPC5336R1	PPC5146R1	PPC5446R1
0/15 psi	PPC5041R1	PPC5341R1	PPC5061R1	PPC5461R1
0/30 psi	PPC5042R1	PPC5342R1	PPC5062R1	PPC5462R1
0/60 psi	PPC5043R1	PPC5343R1	PPC5063R1	PPC5463R1
0/100 psi	PPC5044R1	PPC5344R1	PPC5064R1	PPC5464R1
0/160 psi	PPC5045R1	PPC5345R1	PPC5065R1	PPC5465R1
0/200 psi	PPC5046R1	PPC5346R1	PPC5066R1	PPC5466R1
0/300 psi	PPC5047R1	PPC5347R1	PPC5067R1	PPC5467R1
0/400 psi	PPC5048R1	PPC5348R1	PPC5068R1	PPC5468R1
0/600 psi	PPC5049R1	PPC5349R1	PPC5069R1	PPC5469R1
0/800 psi	PPC5058R1	PPC5358R1	PPC5078R1	PPC5478R1
0/1,000 psi	PPC5050R1	PPC5350R1	PPC5070R1	PPC5470R1
0/1,500 psi	PPC5051R1	PPC5351R1	PPC5071R1	PPC5471R1
0/2,000 psi	PPC5052R1	PPC5352R1	PPC5072R1	PPC5472R1
0/3,000 psi	PPC5053R1	PPC5353R1	PPC5073R1	PPC5473R1
0/5,000 psi	PPC5054R1	PPC5354R1	PPC5074R1	PPC5474R1
0/10,000 psi	PPC5055R1	PPC5355R1	PPC5075R1	PPC5475R1
0/15,000 psi	PPC5056R1	PPC5356R1	PPC5076R1	PPC5476R1
0/20,000 psi	PPC5057R1	PPC5357R1	PPC5077R1	PPC5477R1

Note: Restrictor screws are not standard on single scale gauges

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes.

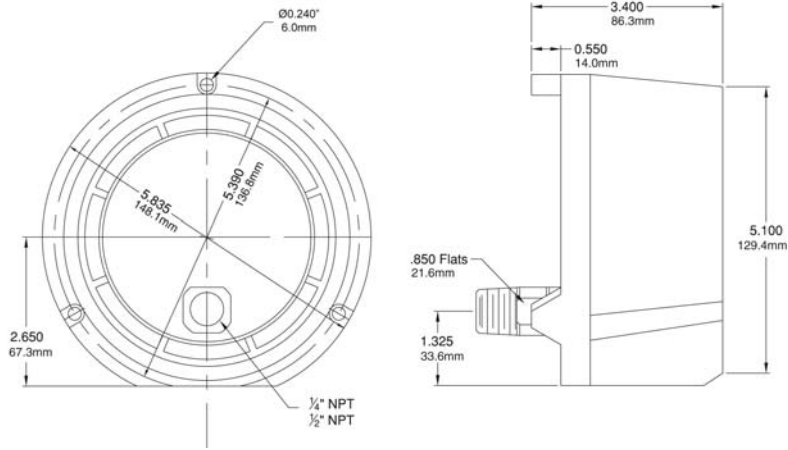
Option suffix:

- 6HCS = 6" Solid front hinged case (back connection only)
- FMR = Flush mounting ring
- G = Glycerin (bottom connection only)
- HCSF = Solid front hinged case (back connection only)
- MS = Monel® tube and socket
- SG-45 = Safety glass
- SF45 = Silicone fill (bottom connection only)
- REST = Restrictor Screw

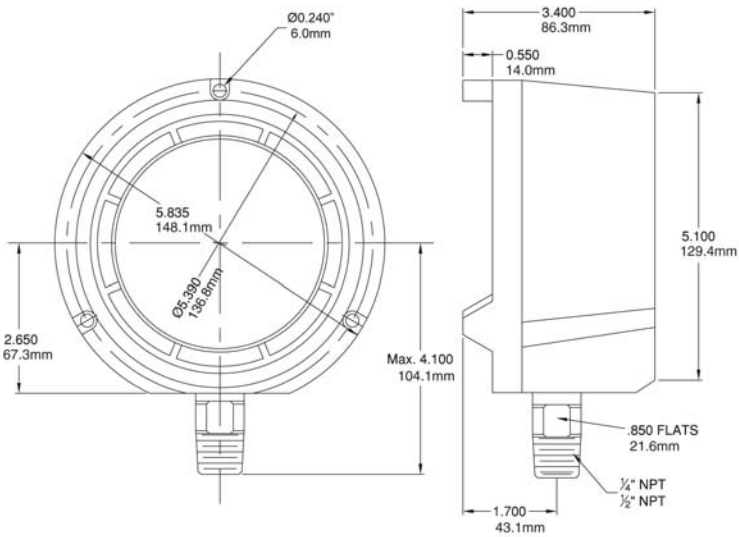
Dual Scale Order Codes (products in bold are normally in stock)

Connection	1/4" Bottom	1/4" Back (LB)	1/2" Bottom	1/2" Back (LB)	1/4" Bottom	1/4" Back (LB)	1/2" Bottom	1/2" Back (LB)
Socket, Tube	SS	SS	SS	SS	Brass	Brass	Brass	Brass
30" Hg Vac/kPa	PPC5040	PPC5340	PPC5060	PPC5460	PPC5080	PPC5280	-	-
30"/0/15 psi/kPa	PPC5130	PPC5330	PPC5140	PPC5440	PPC5120	PPC5220	-	-
30"/0/30 psi/kPa	PPC5131	PPC5331	PPC5141	PPC5441	PPC5121	PPC5221	-	-
30"/0/60 psi/kPa	PPC5132	PPC5332	PPC5142	PPC5442	PPC5122	PPC5222	-	-
30"/0/100 psi/kPa	PPC5133	PPC5333	PPC5143	PPC5443	PPC5123	PPC5223	-	-
30"/0/160 psi/kPa	PPC5134	PPC5334	PPC5144	PPC5444	PPC5124	PPC5224	-	-
30"/0/200 psi/kPa	PPC5135	PPC5335	PPC5145	PPC5445	PPC5125	PPC5225	-	-
30"/0/300 psi/kPa	PPC5136	PPC5336	PPC5146	PPC5446	PPC5126	PPC5226	-	-
0/15 psi/kPa	PPC5041	PPC5341	PPC5061	PPC5461	PPC5081	PPC5281	-	-
0/30 psi/kPa	PPC5042	PPC5342	PPC5062	PPC5462	PPC5082	PPC5282	-	-
0/60 psi/kPa	PPC5043	PPC5343	PPC5063	PPC5463	PPC5083	PPC5283	-	-
0/100 psi/kPa	PPC5044	PPC5344	PPC5064	PPC5464	PPC5084	PPC5284	-	-
0/160 psi/kPa	PPC5045	PPC5345	PPC5065	PPC5465	PPC5085	PPC5285	-	-
0/200 psi/kPa	PPC5046	PPC5346	PPC5066	PPC5466	PPC5086	PPC5286	-	-
0/300 psi/kPa	PPC5047	PPC5347	PPC5067	PPC5467	PPC5087	PPC5287	-	-
0/400 psi/kPa	PPC5048	PPC5348	PPC5068	PPC5468	PPC5088	PPC5288	-	-
0/600 psi/kPa	PPC5049	PPC5349	PPC5069	PPC5469	PPC5089	PPC5289	-	-
0/800 psi/kPa	PPC5058	PPC5358	PPC5078	PPC5478	PPC5099	PPC5299	PPC5188	PPC5198
0/1,000 psi/kPa	PPC5050	PPC5350	PPC5070	PPC5470	PPC5098	PPC5298	PPC5090	PPC5290
0/1,500 psi/kPa	PPC5051	PPC5351	PPC5071	PPC5471	-	-	PPC5091	PPC5291
0/2,000 psi/kPa	PPC5052	PPC5352	PPC5072	PPC5472	-	-	PPC5092	PPC5292
0/3,000 psi/kPa	PPC5053	PPC5353	PPC5073	PPC5473	-	-	PPC5093	PPC5293
0/5,000 psi/kPa	PPC5054	PPC5354	PPC5074	PPC5474	-	-	PPC5094	PPC5294
0/10,000 psi/kPa	PPC5055	PPC5355	PPC5075	PPC5475	-	-	PPC5095	PPC5295
0/15,000 psi/kPa	PPC5056	PPC5356	PPC5076	PPC5476	-	-	PPC5096	PPC5296
0/20,000 psi/kPa	PPC5057	PPC5357	PPC5077	PPC5477	-	-	PPC5097	PPC5297

4.5" Back Connection



4.5" Bottom Connection



**Description & Features:**

- Solid front, blowout back, welded to a 316L stainless steel one-piece diaphragm seal body
- 316L stainless steel diaphragm for use on most corrosive media
- Permanently enclosed silicone filled system
- Field-fillable gauge
- Orifice restrictor available for severe pulsation
- Pin stop at 6 o'clock available
- 5 year warranty

Applications:

- Process industry where tamper-resistant gauge/seal is required to protect against maintenance errors in the field

15 to 5,000 psi (103 to 34,474 kPa)

Specifications - Gauge

Dial	4.5" (115mm) white aluminum with black and red markings
Case	Black phenolic
Solid Wall	Phenolic
Lens	Polycarbonate
Ring	Phenolic
Pointer	Aluminum, anodized black, micrometer adjustable
Socket	316L SS
Bourdon Tube	316L SS, drawn seamless
Movement	304 SS with protective over/under stops
Gasket Materials	Buna N (Silicone rubber option)
Welding	TIG
Over-Pressure Limit	25%
Working Pressure	Maximum 75% of full scale value
Ambient Temperature	-40°F to 200°F (-40°C to 93°C) dry
Process Temperature	-49°F to 302°F (-45°C to 150°C) silicone-filled
Accuracy	±1% ANSI/ASME Grade A
Enclosure Rating	IP65

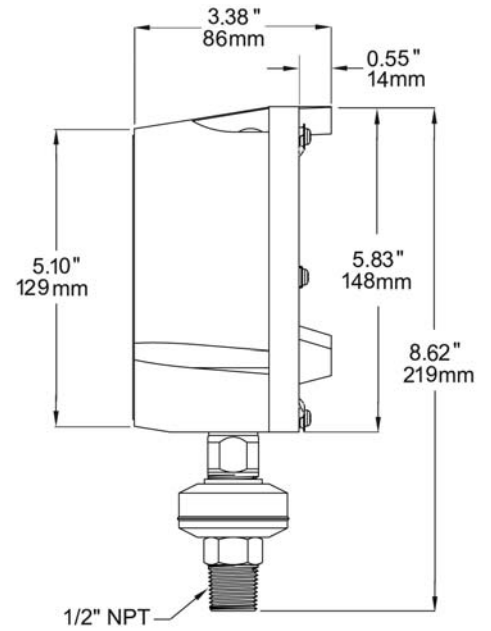
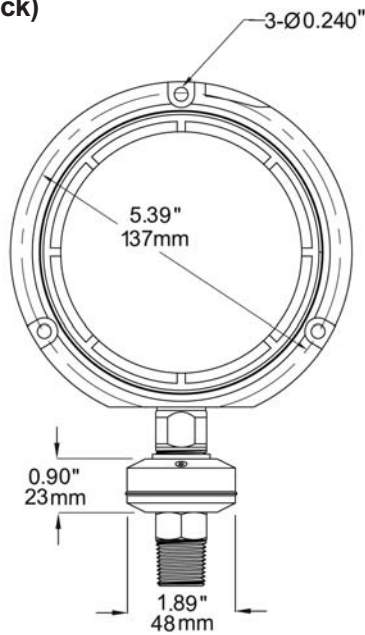
Specifications - Seal

Housing	AISI 316 SS
Diaphragm	AISI 316L SS, welded
Minimum Operating Pressure	15 psi
Maximum Operating Pressure	2,500 (17,237 kPa) to 5,000 psi (34,474 kPa)
Process Connection	1/2" NPT male
System Fill	Silicone Oil KF96 50CS

Order Codes

(products in bold are normally in stock)

Connection	1/2" NPT bottom
Movement, Socket, Tube	SS
0/15 psi	PTR5061R1
0/30 psi	PTR5062R1
0/60 psi	PTR5063R1
0/100 psi	PTR5064R1
0/160 psi	PTR5065R1
0/200 psi	PTR5066R1
0/300 psi	PTR5067R1
0/400 psi	PTR5068R1
0/600 psi	PTR5069R1
0/1,000 psi	PTR5070R1
0/1,500 psi	PTR5071R1
0/2,000 psi	PTR5072R1
0/3,000 psi	PTR5073R1
0/5,000 psi	PTR5074R1



Other ranges, units and connection sizes (3/8" MNPT, 1" MNPT, 1/2" FNPT) available upon request. Other fills available. Pin stop at 6 o'clock position available. **For options, attach suffix to end of order code: i.e. PTR5070R1-SF45 FOR SILICONE FILL OF GAUGE CASE**

Option suffix:

45G = Glycerin-filled gauge case
 SF45 = Silicone-filled gauge case
 SG-45 = Safety glass
 TAG = Stainless steel tagging

TC = NIST test certificate of calibration
 RS = Orifice restrictor for severe pulsation
 Z = StabilizRTM movement



Description & Features:

- StabilizR™ dampened movement minimizes effects of pulsation and vibration without liquid filling
- Restricted orifice standard on dual scale (optional on single scale)
- Stainless steel case
- Back, bottom, or panel mounted
- 316 SS wetted parts
- CRN registered
- 5 year warranty

Applications:

- Ideally suited for process, chemical and petroleum industry
- Where chemical compatibility and contamination is a concern

Specifications	
Dial	2.5" (63mm), 4" (100mm) white aluminum with black and red markings
Case	AISI 304 SS (dry)
Lens	Polycarbonate
Ring	AISI 304 SS bayonet
Socket	316 SS
Connection	2.5" dial: 1/4" NPT 4" dial: 1/4", 1/2" NPT
Bourdon Tube	316 SS
Movement	304 SS, dampened
Pointer	Aluminum, anodized black, micrometer adjustable
Over-Pressure Limit	30% for pressures up to 600 psi (4,147 kPa), 20% for pressures over 600 psi (4,147 kPa)
Socket Gasket	2.5" (63mm): Buna N for two-piece internal socket seal
Fill Plug	Buna N
Lens Ring Gasket	Silicone rubber
Ambient/Process Temperature	-40°F to 200°F (-40°C to 93°C)
Working Pressure	Maximum 75% of full scale value
Accuracy	2.5" (63mm): ±1.5% of full scale value 4" (100mm): ±1% ANSI/ASME Grade 1A

Single Scale Order Codes (products in italics are normally available in 3 - 5 days)

Dial Size	2.5" (63mm)		4" (100mm)			
	1/4" Bottom	1/4" Back (CB)	1/4" Bottom	1/4" Back (LB)	1/2" Bottom	1/2" Back (LB)
30" Hg Vac	PFP820ZRR1	PFP840ZRR1	PFP640ZRR1	PFP1090ZRR1	PFP655ZRR1	-
30"/0/15 psi	PFP860ZRR1	PFP870ZRR1	PFP1036ZRR1	PFP1244ZRR1	PFP1044ZRR1	-
30"/0/30 psi	PFP861ZRR1	PFP871ZRR1	PFP1037ZRR1	PFP1245ZRR1	PFP1045ZRR1	-
30"/0/60 psi	PFP862ZRR1	PFP872ZRR1	PFP1038ZRR1	PFP1246ZRR1	PFP1046ZRR1	-
30"/0/100 psi	PFP863ZRR1	PFP873ZRR1	PFP1039ZRR1	PFP1247ZRR1	PFP1047ZRR1	-
30"/0/150 psi	PFP864ZRR1	PFP874ZRR1	PFP1040ZRR1	PFP1248ZRR1	PFP1048ZRR1	-
30"/0/200 psi	PFP866ZRR1	PFP876ZRR1	PFP1042ZRR1	PFP1249ZRR1	PFP1050ZRR1	-
30"/0/300 psi	PFP867ZRR1	PFP877ZRR1	PFP1043ZRR1	PFP1250ZRR1	PFP1051ZRR1	-
0/15 psi	PFP821ZRR1	PFP921ZRR1	PFP641ZRR1	PFP1091ZRR1	PFP656ZRR1	-
0/30 psi	PFP822ZRR1	PFP922ZRR1	PFP642ZRR1	PFP1092ZRR1	PFP657ZRR1	-
0/60 psi	PFP823ZRR1	PFP923ZRR1	PFP643ZRR1	PFP1093ZRR1	PFP658ZRR1	-
0/100 psi	PFP824ZRR1	PFP924ZRR1	<i>PFP644ZRR1</i>	PFP1094ZRR1	<i>PFP659ZRR1</i>	-
0/160 psi	PFP825ZRR1	PFP925ZRR1	<i>PFP645ZRR1</i>	PFP1095ZRR1	<i>PFP660ZRR1</i>	-
0/200 psi	PFP826ZRR1	PFP926ZRR1	<i>PFP646ZRR1</i>	PFP1096ZRR1	<i>PFP661ZRR1</i>	-
0/300 psi	PFP827ZRR1	PFP927ZRR1	<i>PFP647ZRR1</i>	PFP1097ZRR1	<i>PFP662ZRR1</i>	-
0/400 psi	PFP880ZRR1	PFP881ZRR1	<i>PFP650ZRR1</i>	PFP1251ZRR1	<i>PFP666ZRR1</i>	-
0/600 psi	PFP828ZRR1	PFP928ZRR1	<i>PFP648ZRR1</i>	PFP1098ZRR1	<i>PFP663ZRR1</i>	-
0/1,000 psi	PFP829ZRR1	PFP929ZRR1	<i>PFP649ZRR1</i>	PFP1099ZRR1	<i>PFP664ZRR1</i>	-
0/1,500 psi	PFP834ZRR1	PFP934ZRR1	-	PFP1252ZRR1	<i>PFP665ZRR1</i>	PFP1190ZRR1
0/2,000 psi	PFP830ZRR1	PFP930ZRR1	-	PFP1253ZRR1	<i>PFP667ZRR1</i>	PFP1191ZRR1
0/3,000 psi	PFP831ZRR1	PFP931ZRR1	-	PFP1254ZRR1	<i>PFP668ZRR1</i>	PFP1192ZRR1
0/5,000 psi	PFP832ZRR1	PFP852ZRR1	-	PFP1255ZRR1	<i>PFP669ZRR1</i>	PFP1193ZRR1
0/6,000 psi	PFP836ZRR1	PFP851ZRR1	-	PFP1259ZRR1	PFP675ZRR1	PFP1197ZRR1
0/10,000 psi	PFP833ZRR1	PFP853ZRR1	-	PFP1256ZRR1	<i>PFP670ZRR1</i>	PFP1194ZRR1
0/15,000 psi	PFP835ZRR1	PFP855ZRR1	-	PFP1257ZRR1	<i>PFP671ZRR1</i>	PFP1195ZRR1
0/20,000 psi	PFP837ZRR1	-	-	PFP1258ZRR1	PFP672ZRR1	PFP1196ZRR1

Note: Restrictor screws are not standard on single scale gauges

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes.

For options, attach suffix to end of order code: i.e. PFP660ZRR1-4FF for FRONT FLANGE.

Option suffix:

25BOOT = 2.5" (63mm) black rubber boot

25BF = 2.5" (63mm) back flange

25FF = 2.5" (63mm) front flange

25UC = 2.5" (63mm) U-Clamp

4BF = 4" (100mm) back flange

REST = Restrictor screw

4FF = 4" (100mm) front flange

4UC-P = 4" U-Clamp premium

SG25 = 2.5" (63mm) safety glass lens

SG-4 = Safety glass lens 4"

MAXI25 = 2.5" (63mm) maximum adjustable pointer

**Dual Scale Order Codes (products in bold are normally stock)
(products in italics are normally available in 3 - 5 days)**

Dial Size Connection	2.5" (63mm)		4" (100mm)			
	1/4" Bottom	1/4" Back (CB)	1/4" Bottom	1/4" Back (LB)	1/2" Bottom	1/2" Back (LB)
30" Hg Vac/kPa	PFP820ZR	PFP840ZR	<i>PFP640ZR</i>	PFP1090ZR	PFP655ZR	PFP2308ZR
30"/0/15 psi/kPa	PFP860ZR	PFP870ZR	PFP1036ZR	PFP1244ZR	PFP1044ZR	PFP2309ZR
30"/0/30 psi/kPa	PFP861ZR	PFP871ZR	<i>PFP1037ZR</i>	PFP1245ZR	<i>PFP1045ZR</i>	PFP2310ZR
30"/0/60 psi/kPa	PFP862ZR	PFP872ZR	<i>PFP1038ZR</i>	PFP1246ZR	PFP1046ZR	PFP2311ZR
30"/0/100 psi/kPa	PFP863ZR	PFP873ZR	PFP1039ZR	PFP1247ZR	PFP1047ZR	PFP2312ZR
30"/0/150 psi/kPa	PFP864ZR	PFP874ZR	PFP1040ZR	PFP1248ZR	PFP1048ZR	PFP2313ZR
30"/0/200 psi/kPa	PFP866ZR	PFP876ZR	PFP1042ZR	PFP1249ZR	PFP1050ZR	PFP2314ZR
30"/0/300 psi/kPa	PFP867ZR	PFP877ZR	<i>PFP1043ZR</i>	PFP1250ZR	PFP1051ZR	PFP2315ZR
0/15 psi/kPa	PFP821ZR	PFP921ZR	<i>PFP641ZR</i>	PFP1091ZR	<i>PFP656ZR</i>	PFP2316ZR
0/30 psi/kPa	PFP822ZR	PFP922ZR	<i>PFP642ZR</i>	PFP1092ZR	<i>PFP657ZR</i>	PFP2317ZR
0/60 psi/kPa	PFP823ZR	PFP923ZR	<i>PFP643ZR</i>	PFP1093ZR	<i>PFP658ZR</i>	PFP2318ZR
0/100 psi/kPa	PFP824ZR	PFP924ZR	<i>PFP644ZR</i>	PFP1094ZR	<i>PFP659ZR</i>	PFP2319ZR
0/160 psi/kPa	PFP825ZR	PFP925ZR	<i>PFP645ZR</i>	PFP1095ZR	<i>PFP660ZR</i>	PFP2320ZR
0/200 psi/kPa	PFP826ZR	PFP926ZR	<i>PFP646ZR</i>	PFP1096ZR	<i>PFP661ZR</i>	PFP2321ZR
0/300 psi/kPa	PFP827ZR	PFP927ZR	<i>PFP647ZR</i>	PFP1097ZR	<i>PFP662ZR</i>	PFP2322ZR
0/400 psi/kPa	PFP880ZR	PFP881ZR	<i>PFP650ZR</i>	PFP1251ZR	<i>PFP666ZR</i>	PFP2323ZR
0/600 psi/kPa	PFP828ZR	PFP928ZR	<i>PFP648ZR</i>	PFP1098ZR	<i>PFP663ZR</i>	PFP2324ZR
0/1,000 psi/kPa	PFP829ZR	PFP929ZR	<i>PFP649ZR</i>	PFP1099ZR	<i>PFP664ZR</i>	PFP2325ZR
0/1,500 psi/kPa	PFP834ZR	PFP934ZR	<i>PFP2301ZR</i>	PFP1252ZR	<i>PFP665ZR</i>	PFP1190ZR
0/2,000 psi/kPa	PFP830ZR	PFP930ZR	<i>PFP2302ZR</i>	PFP1253ZR	<i>PFP667ZR</i>	PFP1191ZR
0/3,000 psi/kPa	PFP831ZR	PFP931ZR	<i>PFP2303ZR</i>	PFP1254ZR	<i>PFP668ZR</i>	PFP1192ZR
0/5,000 psi/kPa	PFP832ZR	PFP852ZR	<i>PFP2304ZR</i>	PFP1255ZR	<i>PFP669ZR</i>	PFP1193ZR
0/6,000 psi/kPa	PFP836ZR	PFP851ZR	PFP2305ZR	PFP1259ZR	PFP675ZR	PFP1197ZR
0/10,000 psi/kPa	PFP833ZR	PFP853ZR	PFP2306ZR	PFP1256ZR	PFP670ZR	PFP1194ZR
0/15,000 psi/kPa	PFP835ZR	PFP855ZR	PFP2307ZR	PFP1257ZR	PFP671ZR	PFP1195ZR
0/20,000 psi/kPa	PFP837ZR	-	-	PFP1258ZR	<i>PFP672ZR</i>	PFP1196ZR

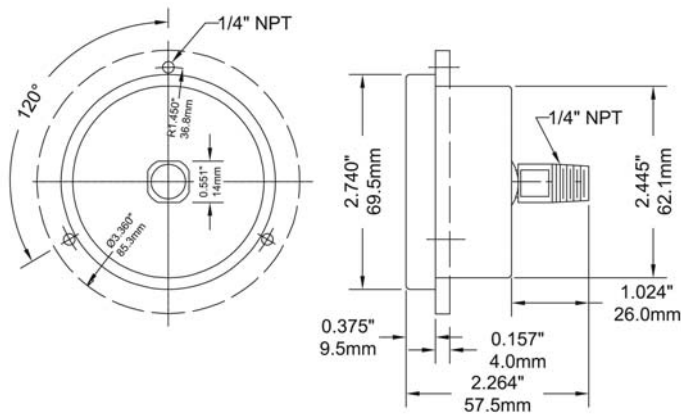
Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. **For options, attach suffix to end of order code: i.e. PFP660ZR-4FF for FRONT FLANGE.**

Option suffix:

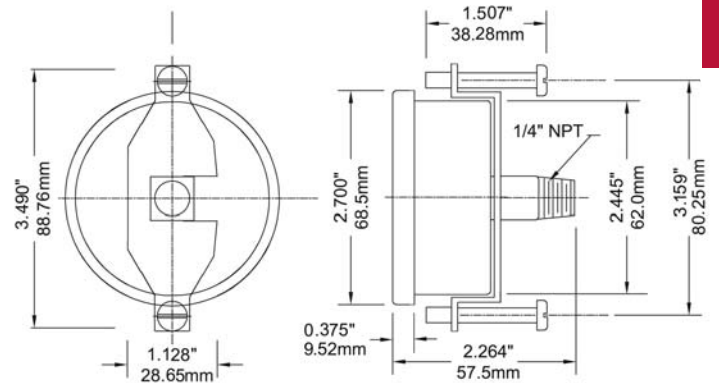
25BOOT = 2.5" (63mm) black rubber boot
 25BF = 2.5" (63mm) back flange
 25FF = 2.5" (63mm) front flange
 25UC = 2.5" (63mm) U-Clamp
 4BF = 4" (100mm) back flange

4FF = 4" (100mm) front flange
 4UC-P = 4" U-Clamp premium
 SG25 = 2.5" (63mm) safety glass lens
 SG-4 = Safety glass lens 4"
 MAXI25 = 2.5" (63mm) maximum adjustable pointer

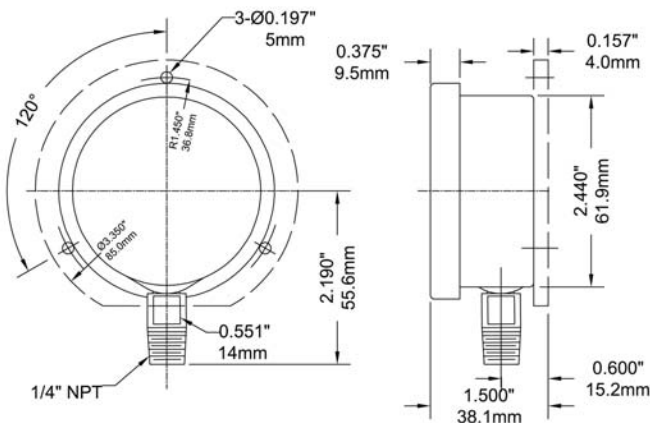
2.5" Back Connection with Front Flange



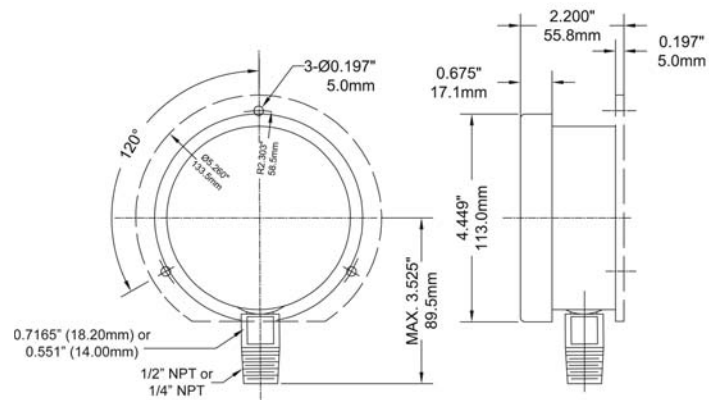
2.5" Back Connection with U-Clamp



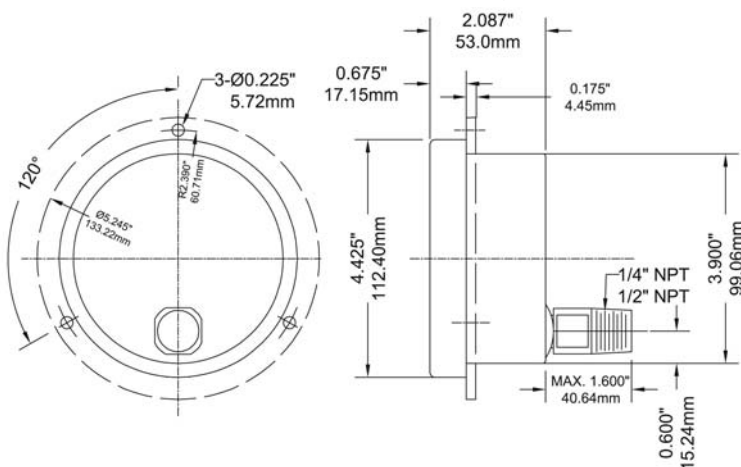
2.5" Bottom Connection with Back Flange



4" Bottom Connection with Back Flange



4" Lower Back Connection with Front Flange





Note: RoHS applies only to SS and Monel® internals versions

Description & Features:

- StabilizR™ dampened movement minimizes effects of pulsation and vibration without liquid filling
- Full safety pattern solid front, blowout back
- ±0.5% accuracy
- Stainless steel full rotary movement
- Micrometer pointer for ease in calibration
- Under and overload stops
- 316L stainless steel or brass wetted parts standard
- Restrictor screws standard on dual scale (optional on single scale gauges)
- CRN registered
- 5 year warranty

Applications:

- Used where operator safety is a must
- Ideally suited for process, chemical and petroleum industry applications where chemical compatibility and contamination is a concern
- Process where pulsation or vibration exist

Specifications

Dial	4.5" (115mm) aluminum with black and red markings
Case	Black phenolic with safety blowout back, solid front, integral back flange (dry)
Solid Wall	Phenolic
Lens	Polycarbonate
Ring	Phenolic
Pointer	Aluminum, anodized black, micrometer adjustable
Socket	316L SS or OT 58 brass
Connection	1/4" or 1/2" NPT
Bourdon Tube	316L SS, drawn seamless or phosphor bronze
Movement	304 SS protected with over/under stops (stabilized)
Gasket Materials	Silicone
Welding	TIG
Over-pressure Limit	25% for pressures up to 1500 psi/kPa 15% for pressures 1501 to 8700 psi/kPa 10% for pressures above 8701 psi/kPa
Working Pressure	Maximum 75% of full scale value
Ambient/Process Temperature	-40°F to 200°F (-40°C to 93°C)
Accuracy	±0.5% ANSI/ASME Grade 2A
Enclosure Rating	IP65

Single Scale Order Codes (products in italics are normally available in 3 - 5 days)

Connection	Bottom 1/4"	Back (LB) 1/4"	Bottom 1/4"	Back (LB) 1/4"	Bottom 1/2"	Back (LB) 1/2"
Socket, Tube	Brass	Brass	SS	SS	SS	SS
30" Hg Vac	PPC5080ZRR1	PPC5280ZRR1	PPC5040ZRR1	PPC5340ZRR1	PPC5060ZRR1	PPC5460ZRR1
30"/0/15 psi	PPC5120ZRR1	PPC5220ZRR1	PPC5130ZRR1	PPC5330ZRR1	PPC5140ZRR1	PPC5440ZRR1
30"/0/30 psi	PPC5121ZRR1	PPC5221ZRR1	PPC5131ZRR1	PPC5331ZRR1	PPC5141ZRR1	PPC5441ZRR1
30"/0/60 psi	PPC5122ZRR1	PPC5222ZRR1	PPC5132ZRR1	PPC5332ZRR1	PPC5142ZRR1	PPC5442ZRR1
30"/0/100 psi	PPC5123ZRR1	PPC5223ZRR1	PPC5133ZRR1	PPC5333ZRR1	PPC5143ZRR1	PPC5443ZRR1
30"/0/160 psi	PPC5124ZRR1	PPC5224ZRR1	PPC5134ZRR1	PPC5334ZRR1	PPC5144ZRR1	PPC5444ZRR1
30"/0/200 psi	PPC5125ZRR1	PPC5225ZRR1	PPC5135ZRR1	PPC5335ZRR1	PPC5145ZRR1	PPC5445ZRR1
30"/0/300 psi	PPC5126ZRR1	PPC5226ZRR1	PPC5136ZRR1	PPC5336ZRR1	PPC5146ZRR1	PPC5446ZRR1
0/15 psi	PPC5081ZRR1	PPC5281ZRR1	<i>PPC5041ZRR1</i>	PPC5341ZRR1	PPC5061ZRR1	PPC5461ZRR1
0/30 psi	PPC5082ZRR1	PPC5282ZRR1	<i>PPC5042ZRR1</i>	PPC5342ZRR1	<i>PPC5062ZRR1</i>	PPC5462ZRR1
0/60 psi	PPC5083ZRR1	PPC5283ZRR1	<i>PPC5043ZRR1</i>	PPC5343ZRR1	<i>PPC5063ZRR1</i>	PPC5463ZRR1
0/100 psi	PPC5084ZRR1	PPC5284ZRR1	<i>PPC5044ZRR1</i>	PPC5344ZRR1	<i>PPC5064ZRR1</i>	PPC5464ZRR1
0/160 psi	PPC5085ZRR1	PPC5285ZRR1	<i>PPC5045ZRR1</i>	PPC5345ZRR1	<i>PPC5065ZRR1</i>	PPC5465ZRR1
0/200 psi	PPC5086ZRR1	PPC5286ZRR1	<i>PPC5046ZRR1</i>	PPC5346ZRR1	<i>PPC5066ZRR1</i>	PPC5466ZRR1
0/300 psi	PPC5087ZRR1	PPC5287ZRR1	<i>PPC5047ZRR1</i>	PPC5347ZRR1	<i>PPC5067ZRR1</i>	PPC5467ZRR1
0/400 psi	PPC5088ZRR1	PPC5288ZRR1	<i>PPC5048ZRR1</i>	PPC5348ZRR1	<i>PPC5068ZRR1</i>	PPC5468ZRR1
0/600 psi	PPC5089ZRR1	PPC5289ZRR1	<i>PPC5049ZRR1</i>	PPC5349ZRR1	<i>PPC5069ZRR1</i>	PPC5469ZRR1
0/800 psi	-	-	<i>PPC5058ZRR1</i>	PPC5358ZRR1	<i>PPC5078ZRR1</i>	PPC5478ZRR1
0/1,000 psi	PPC5098ZRR1	PPC5298ZRR1	<i>PPC5050ZRR1</i>	PPC5350ZRR1	<i>PPC5070ZRR1</i>	PPC5470ZRR1
Connection Size	1/2"	1/2"	1/4"	1/4"	1/2"	1/2"
0/1,000 psi	PPC5090ZRR1	PPC5290ZRR1	<i>PPC5050ZRR1</i>	PPC5350ZRR1	<i>PPC5070ZRR1</i>	PPC5470ZRR1
0/1,500 psi	PPC5091ZRR1	PPC5291ZRR1	<i>PPC5051ZRR1</i>	PPC5351ZRR1	<i>PPC5071ZRR1</i>	PPC5471ZRR1
0/2,000 psi	PPC5092ZRR1	PPC5292ZRR1	<i>PPC5052ZRR1</i>	PPC5352ZRR1	<i>PPC5072ZRR1</i>	PPC5472ZRR1
0/3,000 psi	PPC5093ZRR1	PPC5293ZRR1	<i>PPC5053ZRR1</i>	PPC5353ZRR1	<i>PPC5073ZRR1</i>	PPC5473ZRR1
0/5,000 psi	PPC5094ZRR1	PPC5294ZRR1	<i>PPC5054ZRR1</i>	PPC5354ZRR1	<i>PPC5074ZRR1</i>	PPC5474ZRR1
0/10,000 psi	PPC5095ZRR1	PPC5295ZRR1	PPC5055ZRR1	PPC5355ZRR1	PPC5075ZRR1	PPC5475ZRR1
0/15,000 psi	PPC5096ZRR1	PPC5296ZRR1	PPC5056ZRR1	PPC5356ZRR1	PPC5076ZRR1	PPC5476ZRR1
0/20,000 psi	PPC5097ZRR1	PPC5297ZRR1	PPC5057ZRR1	PPC5357ZRR1	PPC5077ZRR1	PPC5477ZRR1

Note: Restrictor screws are not standard on single scale gauges

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. 1/2" NPT brass available on ranges below 1,000 psi/kPa. **For options, attach suffix to end of order code: i.e.**

PPC5284ZRR1-FMR for FLUSH MOUNTED RING.

Option suffix:

CS = Carbon steel socket/stainless steel tube

HCSF = 4.5" (115mm) solid front hinged case (back connection only)

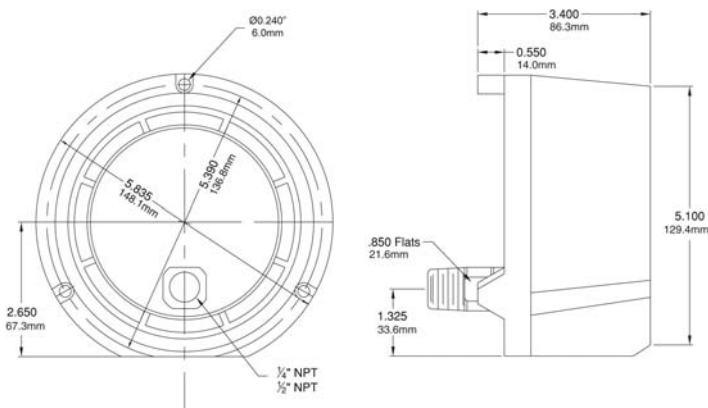
FMR = Flush mounted ring

MS = Monel® tube and socket

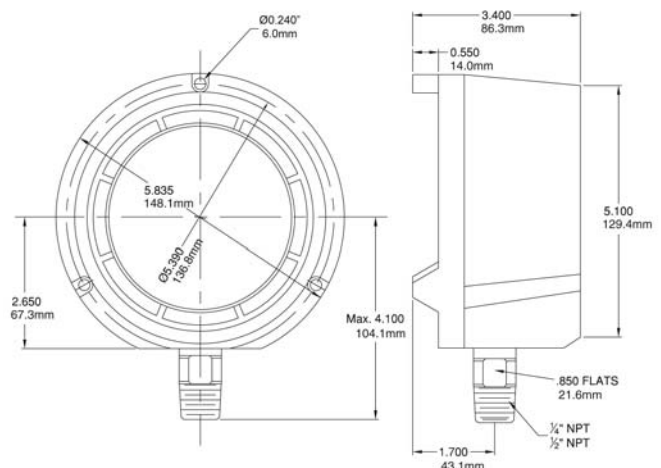
SG-45 = 4.5" (115mm) safety glass

REST = Restrictor screw

4.5" Back Connection



4.5" Bottom Connection



Dual Scale Order Codes (products in italics are normally available in 3 - 5 days)

Connection	Bottom <i>1/4"</i>	Back (LB) <i>1/4"</i>	Bottom <i>1/4"</i>	Back (LB) <i>1/4"</i>	Bottom <i>1/2"</i>	Back (LB) <i>1/2"</i>
Socket, Tube	Brass	Brass	SS	SS	SS	SS
30" Hg Vac/kPa	PPC5080ZR	PPC5280ZR	<i>PPC5040ZR</i>	PPC5340ZR	<i>PPC5060ZR</i>	PPC5460ZR
30"/0/15 psi/kPa	PPC5120ZR	PPC5220ZR	<i>PPC5130ZR</i>	PPC5330ZR	<i>PPC5140ZR</i>	PPC5440ZR
30"/0/30 psi/kPa	PPC5121ZR	PPC5221ZR	PPC5131ZR	PPC5331ZR	PPC5141ZR	PPC5441ZR
30"/0/60 psi/kPa	PPC5122ZR	PPC5222ZR	PPC5132ZR	PPC5332ZR	PPC5142ZR	PPC5442ZR
30"/0/100 psi/kPa	PPC5123ZR	PPC5223ZR	PPC5133ZR	PPC5333ZR	PPC5143ZR	PPC5443ZR
30"/0/160 psi/kPa	PPC5124ZR	PPC5224ZR	PPC5134ZR	PPC5334ZR	PPC5144ZR	PPC5444ZR
30"/0/200 psi/kPa	PPC5125ZR	PPC5225ZR	PPC5135ZR	PPC5335ZR	PPC5145ZR	PPC5445ZR
30"/0/300 psi/kPa	PPC5126ZR	PPC5226ZR	<i>PPC5136ZR</i>	PPC5336ZR	<i>PPC5146ZR</i>	PPC5446ZR
0/15 psi/kPa	<i>PPC5081ZR</i>	PPC5281ZR	<i>PPC5041ZR</i>	PPC5341ZR	<i>PPC5061ZR</i>	PPC5461ZR
0/30 psi/kPa	<i>PPC5082ZR</i>	PPC5282ZR	<i>PPC5042ZR</i>	PPC5342ZR	<i>PPC5062ZR</i>	PPC5462ZR
0/60 psi/kPa	<i>PPC5083ZR</i>	PPC5283ZR	<i>PPC5043ZR</i>	PPC5343ZR	<i>PPC5063ZR</i>	PPC5463ZR
0/100 psi/kPa	<i>PPC5084ZR</i>	PPC5284ZR	<i>PPC5044ZR</i>	PPC5344ZR	<i>PPC5064ZR</i>	PPC5464ZR
0/160 psi/kPa	<i>PPC5085ZR</i>	PPC5285ZR	<i>PPC5045ZR</i>	PPC5345ZR	<i>PPC5065ZR</i>	PPC5465ZR
0/200 psi/kPa	<i>PPC5086ZR</i>	PPC5286ZR	<i>PPC5046ZR</i>	PPC5346ZR	<i>PPC5066ZR</i>	PPC5466ZR
0/300 psi/kPa	<i>PPC5087ZR</i>	PPC5287ZR	<i>PPC5047ZR</i>	PPC5347ZR	<i>PPC5067ZR</i>	PPC5467ZR
0/400 psi/kPa	<i>PPC5088ZR</i>	PPC5288ZR	<i>PPC5048ZR</i>	PPC5348ZR	<i>PPC5068ZR</i>	PPC5468ZR
0/600 psi/kPa	<i>PPC5089ZR</i>	<i>PPC5289ZR</i>	<i>PPC5049ZR</i>	PPC5349ZR	<i>PPC5069ZR</i>	PPC5469ZR
0/800 psi/kPa	PPC5099ZR	PPC5299ZR	PPC5058ZR	PPC5358ZR	PPC5078ZR	PPC5478ZR
0/1,000 psi/kPa	PPC5098ZR	PPC5298ZR	<i>PPC5050ZR</i>	PPC5350ZR	<i>PPC5070ZR</i>	PPC5470ZR
Connection Size	<i>1/2"</i>	<i>1/2"</i>	<i>1/4"</i>	<i>1/4"</i>	<i>1/2"</i>	<i>1/2"</i>
0/800 psi/kPa	PPC5188ZR	PPC5198ZR	<i>PPC5058ZR</i>	PPC5358ZR	<i>PPC5078ZR</i>	PPC5478ZR
0/1,000 psi/kPa	PPC5090ZR	PPC5290ZR	<i>PPC5050ZR</i>	PPC5350ZR	<i>PPC5070ZR</i>	PPC5470ZR
0/1,500 psi/kPa	PPC5091ZR	PPC5291ZR	<i>PPC5051ZR</i>	PPC5351ZR	<i>PPC5071ZR</i>	PPC5471ZR
0/2,000 psi/kPa	PPC5092ZR	PPC5292ZR	<i>PPC5052ZR</i>	PPC5352ZR	<i>PPC5072ZR</i>	PPC5472ZR
0/3,000 psi/kPa	PPC5093ZR	PPC5293ZR	<i>PPC5053ZR</i>	PPC5353ZR	<i>PPC5073ZR</i>	PPC5473ZR
0/5,000 psi/kPa	PPC5094ZR	PPC5294ZR	<i>PPC5054ZR</i>	PPC5354ZR	<i>PPC5074ZR</i>	PPC5474ZR
0/10,000 psi/kPa	PPC5095ZR	PPC5295ZR	PPC5055ZR	PPC5355ZR	PPC5075ZR	PPC5475ZR
0/15,000 psi/kPa	PPC5096ZR	PPC5296ZR	PPC5056ZR	PPC5356ZR	PPC5076ZR	PPC5476ZR
0/20,000 psi/kPa	PPC5097ZR	PPC5297ZR	PPC5057ZR	PPC5357ZR	PPC5077ZR	PPC5477ZR

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. *1/2"* NPT brass available on ranges below 1,000 psi/kPa. **For options, attach suffix to end of order code: i.e.**

PPC5284ZR-FMR for FLUSH MOUNTED RING.

Option suffix:

CS = Carbon steel socket/stainless steel tube
 HCSF = 4.5" (115mm) solid front hinged case (back connection only)
 FMR = Flush mounted ring

MS = Monel® tube and socket
 SG-45 = 4.5" (115mm) safety glass

Monel® is a registered trademark of Inco Alloys International



Description & Features:

- One piece forged brass case designed for severe service conditions
- Easy-to-read single and dual scale psi dial
- CRN registered
- 5 year warranty

Applications:

- Industrial and hydraulic systems

Specifications	
Dial	2.5" (63mm), 4" (100mm)
Case	Forged brass, rugged 2.5": Liquid filled case standard, 4": dry case standard
Lens	Polycarbonate
Ring	2.5" (63mm): Gold-coloured ABS; 4" (100mm): Polished Brass
Socket	Brass
Pointer	Aluminum, anodized black
Connection	2.5"(63mm): 1/4" NPT bottom or back; 4" (100mm): 1/4" or 1/2" NPT bottom
Wetted Parts	Brass
Ambient/Process Temperature	-40°F to 150°F (-40°C to 65°C)
Accuracy	2.5" (63mm): ±1.5% of full scale 4"(100mm): ±1% ANSI/ASME Grade 1A
Enclosure Rating	IP65

Single Scale Order Codes (products in bold are normally in stock)

Dial Size	2.5" (63mm)		4" (100mm)	
	1/4" NPT Bottom	1/4" NPT Back (CB)	1/4" NPT Bottom	1/2" NPT Bottom
30" Hg Vac	PBC801R1	PBC900R1	PBC700R1	PBC1234R1
30"/0/15 psi	PBC790R1	PBC890R1	PBC701R1	PBC1235R1
30"/0/30 psi	PBC798R1	PBC898R1	PBC702R1	PBC1236R1
30"/0/60 psi	PBC799R1	PBC899R1	PBC703R1	PBC1237R1
30"/0/100 psi	PBC791R1	PBC891R1	PBC704R1	PBC1238R1
30"/0/160 psi	PBC792R1	PBC892R1	PBC705R1	PBC1239R1
30"/0/200 psi	PBC794R1	PBC894R1	PBC706R1	PBC1240R1
30"/0/300 psi	PBC795R1	PBC895R1	PBC707R1	PBC1241R1
0/15 psi	PBC800R1	PBC901R1	PBC708R1	PBC1242R1
0/30 psi	PBC802R1	PBC902R1	PBC709R1	PBC1243R1
0/60 psi	PBC803R1	PBC903R1	PBC710R1	PBC1244R1
0/100 psi	PBC804R1	PBC904R1	PBC711R1	PBC1245R1
0/160 psi	PBC805R1	PBC905R1	PBC712R1	PBC1246R1
0/200 psi	PBC806R1	PBC906R1	PBC713R1	PBC1247R1
0/300 psi	PBC807R1	PBC907R1	PBC714R1	PBC1248R1
0/400 psi	PBC817R1	PBC917R1	PBC715R1	PBC1249R1
0/600 psi	PBC808R1	PBC908R1	PBC716R1	PBC1250R1
0/1,000 psi	PBC809R1	PBC909R1	PBC724R1	PBC717R1
0/1,500 psi	PBC816R1	PBC914R1	PBC725R1	PBC718R1
0/2,000 psi	PBC810R1	PBC910R1	PBC726R1	PBC719R1
0/3,000 psi	PBC811R1	PBC911R1	PBC727R1	PBC720R1
0/5,000 psi	PBC812R1	PBC912R1	PBC728R1	PBC721R1
0/6,000 psi	PBC814R1	PBC915R1	PBC024R1	PBC784R1
0/10,000 psi	PBC813R1	PBC913R1	PBC729R1	PBC722R1

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes.

For options, attach suffix to end of order code: i.e. PBC805R1-REST for RESTRICTOR SCREW.

Option suffix:

25DRY = Supply gauge dry
G = Glycerin filled case
REST = Restrictor screw

PBC Forged Brass Case Gauge

Industrial

Dual Scale Order Codes (products in bold are normally in stock)

Dial Size	2.5" (63mm)		4" (100mm)	
	1/4" NPT Bottom	1/4" NPT Back (CB)	1/4" NPT Bottom	1/2" NPT Bottom
30" Hg Vac/kPa	PBC801	PBC900	PBC700	PBC1234
30"/0/15 psi/kPa	PBC790	PBC890	PBC701	PBC1235
30"/0/30 psi/kPa	PBC798	PBC898	PBC702	PBC1236
30"/0/60 psi/kPa	PBC799	PBC899	PBC703	PBC1237
30"/0/100 psi/kPa	PBC791	PBC891	PBC704	PBC1238
30"/0/160 psi/kPa	PBC792	PBC892	PBC705	PBC1239
30"/0/200 psi/kPa	PBC794	PBC894	PBC706	PBC1240
30"/0/300 psi/kPa	PBC795	PBC895	PBC707	PBC1241
0/15 psi/kPa	PBC800	PBC901	PBC708	PBC1242
0/30 psi/kPa	PBC802	PBC902	PBC709	PBC1243
0/60 psi/kPa	PBC803	PBC903	PBC710	PBC1244
0/100 psi/kPa	PBC804	PBC904	PBC711	PBC1245
0/160 psi/kPa	PBC805	PBC905	PBC712	PBC1246
0/200 psi/kPa	PBC806	PBC906	PBC713	PBC1247
0/300 psi/kPa	PBC807	PBC907	PBC714	PBC1248
0/400 psi/kPa	PBC817	PBC917	PBC715	PBC1249
0/600 psi/kPa	PBC808	PBC908	PBC716	PBC1250
0/1,000 psi/kPa	PBC809	PBC909	PBC724	PBC717
0/1,500 psi/kPa	PBC816	PBC914	PBC725	PBC718
0/2,000 psi/kPa	PBC810	PBC910	PBC726	PBC719
0/3,000 psi/kPa	PBC811	PBC911	PBC727	PBC720
0/5,000 psi/kPa	PBC812	PBC912	PBC728	PBC721
0/6,000 psi/kPa	PBC814	PBC915	PBC024	PBC784
0/10,000 psi/kPa	PBC813	PBC913	PBC729	PBC722

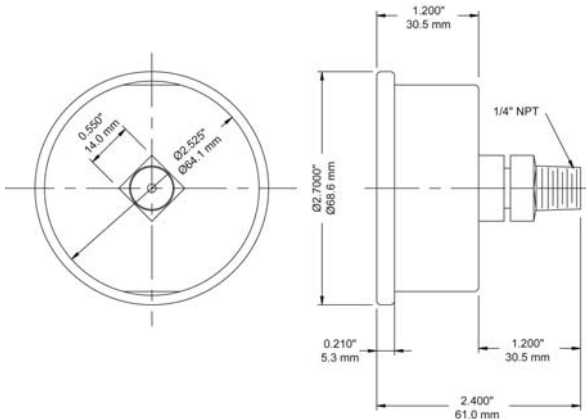
Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes.

For options, attach suffix to end of order code: i.e. PBC805R1-REST for RESTRICTOR SCREW.

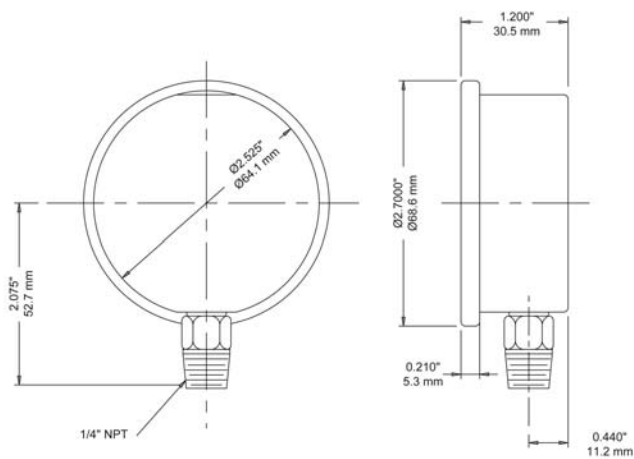
Option suffix:

25DRY = Supply gauge dry
G = Glycerin filled
REST = Restrictor screw

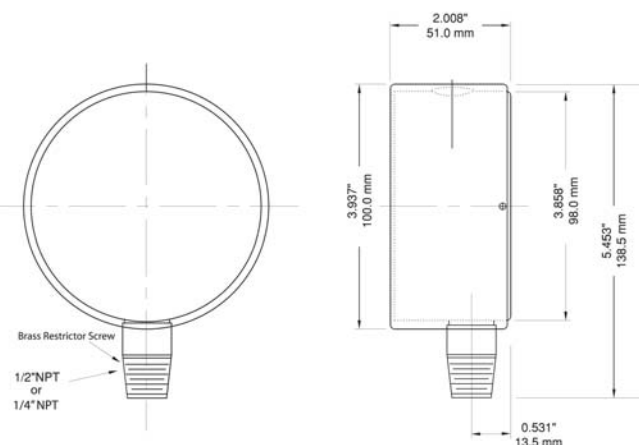
2.5" Back Connection



2.5" Bottom Connection



4" Bottom Connection





Optional U-Clamp



Note: RoHS applies only to SS internals

Description & Features:

- Liquid filled stainless steel case protects against vibration and pulsation
- Bayonet ring
- Highly accurate
- Back, bottom, or panel mounted
- Stainless steel or brass wetted parts
- Dry case available
- CRN registered
- 5 year warranty

Applications:

- Outdoor and severe ambient and process conditions
- Use where harmful vibration and pulsation are present
- Hydraulic equipment, pressure washers, oil field equipment, pumps, compressors and process systems

Specifications	Stainless Steel Internals	Brass Internals
Dial	2.5" (63mm), 4" (100mm), 6" (150mm) white aluminum with black and red markings	4" (100mm) white aluminum with black and red markings
Case	AISI 304 SS	AISI 304 SS
Lens	Polycarbonate	Polycarbonate
Ring	AISI 304 SS	AISI 304 SS
Socket	316 SS 2.5", 4": Welded one-piece socket	OT 58 brass
Connection	1/4" NPT or 1/2" NPT standard 2.5" (63mm): 1/4" NPT only	1/4" NPT or 1/2" NPT standard
Bourdon Tube	316 SS, drawn seamless	Phosphor bronze
Movement	304 SS 4" (100mm): Over/under stops (optional)	OT 59 brass
Pointer	2.5" (63mm): Aluminum, anodized black 4" (100mm), 6" (150mm): Aluminum, anodized black, micrometer adjustable	4" (100mm) aluminum, anodized black, micrometer adjustable
Welding	TIG	Silver alloy
Fill Liquid	Glycerin	Glycerin
Over-Pressure Limit	30% for pressures up to 600 psi (4,147 kPa), 15% for pressures over 600 psi (4,147 kPa)	25% for pressures up to 1,400 psi (9,653 kPa), 15% for pressures over 1,400 psi (9,653 kPa)
Socket Gasket	2.5" (63mm): Buna N for two-piece internal socket seal 6" (150mm): Buna N for one-piece external socket seal, Silicone rubber option	6" (150mm): Buna N for one-piece external socket seal, Silicone rubber option
Fill Plug	Buna N (Silicone rubber option)	Buna N (Silicone rubber option)
Lens Ring Gasket	Buna N (Silicone rubber option)	Buna N (Silicone rubber option)
Working Pressure	Maximum 75% of full scale value	Maximum 75% of full scale value
Ambient/Process Temperature	Dry: -40°F to 200°F (-40°C to 93°C) Glycerin Filled: -4°F to 150°F (-20°C to 65°C)	Dry: -40°F to 200°F (-40°C to 93°C) Glycerin Filled: -4°F to 150°F (-20°C to 65°C)
Accuracy	2.5" (63mm): ±1.5% of full scale value 4" (100mm), 6" (150mm): ±1% ANSI/ASME Grade 1A	4" (100mm): ±1% ANSI/ASME Grade 1A
Enclosure Rating	IP66, EN60529-1 (IEC529-1)	IP66, EN60529-1 (IEC529-1)

Single Scale Order Codes (products in bold are normally in stock)

Dial Size	2.5" (63mm)		4" (100mm)			
Connection	1/4" Bottom	1/4" Back (CB)	1/4" Bottom	1/4" Back (LB)	1/2" Bottom	1/2" Back (LB)
Movement, Socket, Tube	SS	SS	SS	SS	SS	SS
30" Hg Vac	PFP820R1	PFP840R1	PFP640R1	PFP1090R1	PFP655R1	-
30"/0/15 psi	PFP860R1	PFP870R1	PFP1036R1	PFP1244R1	PFP1044R1	-
30"/0/30 psi	PFP861R1	PFP871R1	PFP1037R1	PFP1245R1	PFP1045R1	-
30"/0/60 psi	PFP862R1	PFP872R1	PFP1038R1	PFP1246R1	PFP1046R1	-
30"/0/100 psi	PFP863R1	PFP873R1	PFP1039R1	PFP1247R1	PFP1047R1	-
30"/0/150 psi	PFP864R1	PFP874R1	PFP1040R1	PFP1248R1	PFP1048R1	-
30"/0/200 psi	PFP866R1	PFP876R1	PFP1042R1	PFP1249R1	PFP1050R1	-
30"/0/300 psi	PFP867R1	PFP877R1	PFP1043R1	PFP1250R1	PFP1051R1	-
0/15 psi	PFP821R1	PFP921R1	PFP641R1	PFP1091R1	PFP656R1	-
0/30 psi	PFP822R1	PFP922R1	PFP642R1	PFP1092R1	PFP657R1	-
0/60 psi	PFP823R1	PFP923R1	PFP643R1	PFP1093R1	PFP658R1	-
0/100 psi	PFP824R1	PFP924R1	PFP644R1	PFP1094R1	PFP659R1	-
0/160 psi	PFP825R1	PFP925R1	PFP645R1	PFP1095R1	PFP660R1	-
0/200 psi	PFP826R1	PFP926R1	PFP646R1	PFP1096R1	PFP661R1	-
0/300 psi	PFP827R1	PFP927R1	PFP647R1	PFP1097R1	PFP662R1	-
0/400 psi	PFP880R1	PFP881R1	PFP650R1	PFP1251R1	PFP666R1	-
0/600 psi	PFP828R1	PFP928R1	PFP648R1	PFP1098R1	PFP663R1	-
0/1,000 psi	PFP829R1	PFP929R1	PFP649R1	PFP1099R1	PFP664R1	-
0/1,500 psi	PFP834R1	PFP934R1	-	PFP1252R1	PFP665R1	PFP1190R1
0/2,000 psi	PFP830R1	PFP930R1	-	PFP1253R1	PFP667R1	PFP1191R1
0/3,000 psi	PFP831R1	PFP931R1	-	PFP1254R1	PFP668R1	PFP1192R1
0/5,000 psi	PFP832R1	PFP852R1	-	PFP1255R1	PFP669R1	PFP1193R1
0/6,000 psi	PFP836R1	PFP851R1	-	PFP1259R1	PFP675R1	PFP1197R1
0/10,000 psi	PFP833R1	PFP853R1	-	PFP1256R1	PFP670R1	PFP1194R1
0/15,000 psi	PFP835R1	PFP855R1	-	PFP1257R1	PFP671R1	PFP1195R1
0/20,000 psi	PFP837R1	-	-	PFP1258R1	PFP672R1	PFP1196R1

Other ranges and connection sizes available upon request. 316 SS case and mountable bezel available upon request. For scale change, refer to How to Order Guide for scale codes. **For options, attach suffix to end of order code: i.e. PFP929-25UC for U-CLAMP.**

Option suffix:

25BF = 2.5" (63mm) Back Flange

25FF = 2.5" (63mm) Front Flange

25UC = 2.5" (63mm) U-Clamp

25DRY = Supply 2.5" gauge less liquid fill

2.5 BOOT = 2.5" (63mm) black rubber boot

4BF = 4" (100mm) Back Flange

4FF = 4" (100mm) Front Flange

4UC-P = 4" (100mm) Premium U-Clamp

DRY = Supply 4" gauge less liquid fill

SF25 = Silicone Filled for 2.5"

SF4 = Silicone Filled for 4"

SG-25 = Safety Glass 2.5"

SG-4 = Safety Glass Lens 4"

REST = Restrictor Screw

Dual Scale Order Codes (products in bold are normally in stock)

Dial Size	2.5" (63mm)		4" (100mm)				4" (100mm)			
Connection	1/4" Bottom	1/4" Back (CB)	1/4" Bottom	1/2" Bottom	1/4" Back (LB)	1/2" Back	1/4" Bottom	1/4" Back (LB)	1/2" Bottom	1/2" Back (LB)
Movement, Socket, Tube	SS	SS	Brass	Brass	Brass	Brass	SS	SS	SS	SS
30" Hg Vac/kPa	PFP820	PFP840	PFP600	PFP2284	PFP1000	-	PFP640	PFP1090	PFP655	PFP2308
30"0/15 psi/kPa	PFP860	PFP870	PFP1020	PFP2285	PFP1028	-	PFP1036	PFP1244	PFP1044	PFP2309
30"0/30 psi/kPa	PFP861	PFP871	PFP1021	PFP2286	PFP1029	-	PFP1037	PFP1245	PFP1045	PFP2310
30"0/60 psi/kPa	PFP862	PFP872	PFP1022	PFP2287	PFP1030	-	PFP1038	PFP1246	PFP1046	PFP2311
30"0/100 psi/kPa	PFP863	PFP873	PFP1023	PFP2288	PFP1031	-	PFP1039	PFP1247	PFP1047	PFP2312
30"0/150 psi/kPa	PFP864	PFP874	PFP1024	PFP2289	PFP1032	-	PFP1040	PFP1248	PFP1048	PFP2313
30"0/200 psi/kPa	PFP866	PFP876	PFP1026	PFP2290	PFP1034	-	PFP1042	PFP1249	PFP1050	PFP2314
30"0/300 psi/kPa	PFP867	PFP877	PFP1027	PFP2291	PFP1035	-	PFP1043	PFP1250	PFP1051	PFP2315
0/15 psi/kPa	PFP821	PFP921	PFP601	PFP2292	PFP1001	-	PFP641	PFP1091	PFP656	PFP2316
0/30 psi/kPa	PFP822	PFP922	PFP602	PFP2293	PFP1002	-	PFP642	PFP1092	PFP657	PFP2317
0/60 psi/kPa	PFP823	PFP923	PFP603	PFP2294	PFP1003	-	PFP643	PFP1093	PFP658	PFP2318
0/100 psi/kPa	PFP824	PFP924	PFP604	PFP2295	PFP1004	-	PFP644	PFP1094	PFP659	PFP2319
0/160 psi/kPa	PFP825	PFP925	PFP605	PFP2296	PFP1005	-	PFP645	PFP1095	PFP660	PFP2320
0/200 psi/kPa	PFP826	PFP926	PFP606	PFP2297	PFP1006	-	PFP646	PFP1096	PFP661	PFP2321
0/300 psi/kPa	PFP827	PFP927	PFP607	PFP2298	PFP1007	-	PFP647	PFP1097	PFP662	PFP2322
0/400 psi/kPa	PFP880	PFP881	PFP610	PFP2299	PFP1016	-	PFP650	PFP1251	PFP666	PFP2323
0/600 psi/kPa	PFP828	PFP928	PFP608	PFP2300	PFP1008	-	PFP648	PFP1098	PFP663	PFP2324
0/1,000 psi/kPa	PFP829	PFP929	PFP609	PFP624	-	PFP1009	PFP649	PFP1099	PFP664	PFP2325
0/1,500 psi/kPa	PFP834	PFP934	-	PFP625	-	PFP1010	PFP2301	PFP1252	PFP665	PFP1190
0/2,000 psi/kPa	PFP830	PFP930	-	PFP626	-	PFP1011	PFP2302	PFP1253	PFP667	PFP1191
0/3,000 psi/kPa	PFP831	PFP931	-	PFP627	-	PFP1012	PFP2303	PFP1254	PFP668	PFP1192
0/5,000 psi/kPa	PFP832	PFP852	-	PFP628	-	PFP1013	PFP2304	PFP1255	PFP669	PFP1193
0/6,000 psi/kPa	PFP836	PFP851	-	PFP631	-	PFP1015	PFP2305	PFP1259	PFP675	PFP1197
0/10,000 psi/kPa	PFP833	PFP853	-	PFP629	-	PFP1014	PFP2306	PFP1256	PFP670	PFP1194
0/15,000 psi/kPa	PFP835	PFP855	-	PFP630	-	PFP1018	PFP2307	PFP1257	PFP671	PFP1195
0/20,000 psi/kPa	PFP837	-	-	PFP639	-	PFP1019	-	PFP1258	PFP672	PFP1196

Other ranges and connection sizes available upon request. 316 SS case and mountable bezel available upon request. For scale change, refer to How to Order Guide for scale codes. **For options, attach suffix to end of order code: i.e. PFP929-25UC for U-CLAMP.**

Option suffix:

25BF = 2.5" (63mm) Back Flange

25FF = 2.5" (63mm) Front Flange

25UC = 2.5" (63mm) U-Clamp

25DRY = Supply 2.5" gauge less liquid fill

2.5 BOOT = 2.5" (63mm) black rubber boot

4BF = 4" (100mm) Back Flange

4FF = 4" (100mm) Front Flange

4UC-P = 4" (100mm) Premium U-Clamp

DRY = Supply 4" gauge less liquid fill

SF25 = Silicone Filled for 2.5"

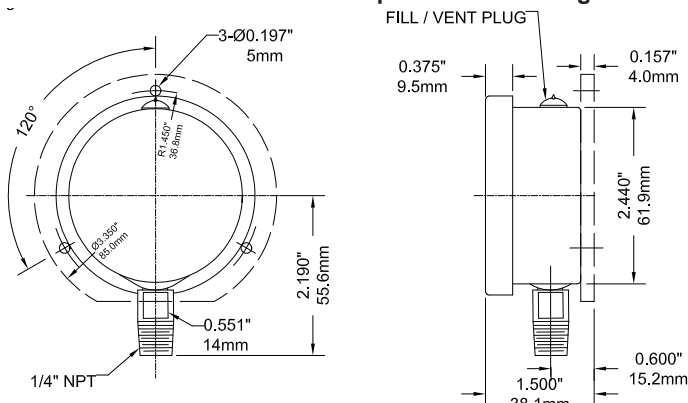
SF4 = Silicone Filled for 4"

SG-25 = Safety Glass 2.5"

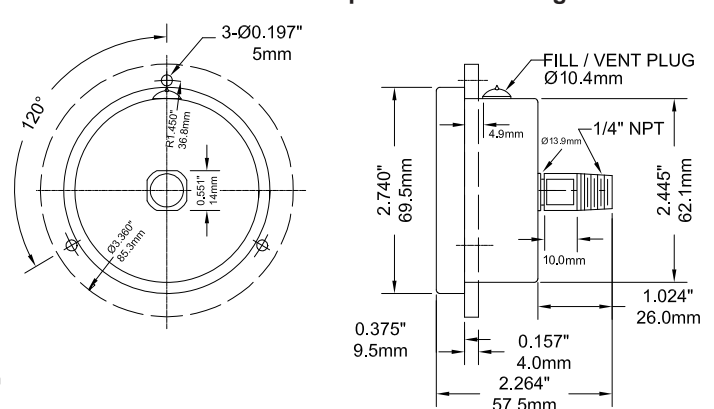
SG-4 = Safety Glass Lens 4"

REST = Restrictor Screw

2.5" Bottom Connection with optional Back Flange



2.5" Back Connection with optional Front Flange



Dual Scale Order Codes (products in bold are normally in stock)

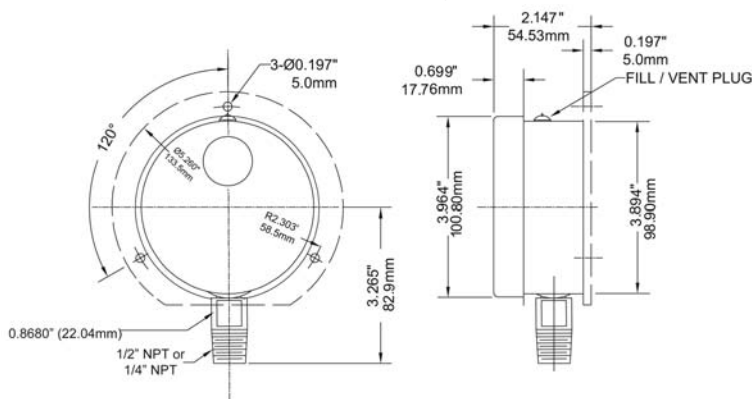
Dial Size	6" (150mm)			
Connection	1/4" Bottom	1/4" Back (LB)	1/2" Bottom	1/2" Back (LB)
Movement, Socket, Tube	SS	SS	SS	SS
30" Hg Vac/kPa	PFP1078	PFP1168	PFP2326	-
30"/0/15 psi/kPa	PFP1079	-	PFP2327	-
30"/0/30 psi/kPa	PFP1052	-	PFP2328	-
30"/0/60 psi/kPa	PFP1053	-	PFP2329	-
30"/0/100 psi/kPa	PFP1054	-	PFP2330	-
30"/0/150 psi/kPa	PFP1055	-	PFP2331	-
30"/0/200 psi/kPa	PFP1057	-	PFP2332	-
30"/0/300 psi/kPa	PFP1058	-	PFP2333	-
0/15 psi/kPa	PFP1059	PFP1159	PFP2334	-
0/30 psi/kPa	PFP1060	PFP1160	PFP2335	-
0/60 psi/kPa	PFP1061	PFP1161	PFP2336	-
0/100 psi/kPa	PFP1062	PFP1162	PFP2337	-
0/160 psi/kPa	PFP1063	PFP1163	PFP2338	-
0/200 psi/kPa	PFP1064	PFP1164	PFP2339	-
0/300 psi/kPa	PFP1065	PFP1165	PFP2340	-
0/400 psi/kPa	PFP1077	-	PFP2341	-
0/600 psi/kPa	PFP1066	PFP1166	PFP2342	-
0/1,000 psi/kPa	PFP1067	PFP1167	PFP1080	-
0/1,500 psi/kPa	PFP1068	-	PFP1081	PFP1169
0/2,000 psi/kPa	PFP1069	-	PFP1082	PFP1170
0/3,000 psi/kPa	PFP1070	-	PFP1083	PFP1171
0/5,000 psi/kPa	PFP1072	-	PFP1085	PFP1172
0/6,000 psi/kPa	-	-	PFP1089	PFP1176
0/10,000 psi/kPa	PFP1073	-	PFP1086	PFP1173
0/15,000 psi/kPa	PFP1074	-	PFP1087	PFP1174
0/20,000 psi/kPa	PFP1075	-	PFP1088	PFP1175

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. **For options, attach suffix to end of order code: i.e. PFP1064-SC for SAFETY CASE.**

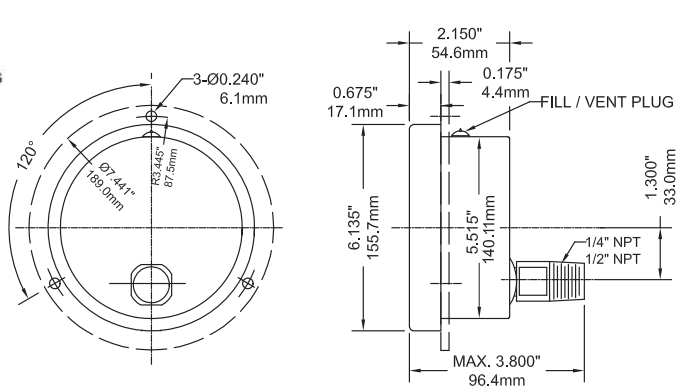
Option suffix:

- | | |
|---|---|
| 6BF = 6" (150mm) Back Flange | REST = Restrictor Screw |
| 6FF = 6" (150mm) Front Flange | SC = Safety Case (6" bottom connection) |
| 6UC = 6" (150mm) U-Clamp | SG-6 = Safety Glass Lens 6" |
| Dry = supply above gauge less liquid fill | SF6 = Silicone Filled for 6" |

4" Bottom Connection, Back Flange Option



6" Back Connection with Front Flange





Description & Features:

- Liquid filled stainless steel case protects against extreme vibration and pulsation
- Lower back mount with front flange for panel mounting
- Bayonet ring and restrictor screw
- Dual and single scale available (psi/kPa & psi only)
- Stainless steel wetted parts
- Safety glass
- CRN registered
- 5 year warranty

Applications:

- Outdoor and severe ambient and process conditions
- Use where harmful vibration and pulsation are present
- Hydraulic equipment, oil field equipment, pumps, compressors and process systems

Specifications	Stainless Steel Internals
Dial	2.5" (63mm) white aluminum with black and red markings
Case	AISI 304 SS
Lens	Safety glass
Ring	AISI 304 SS
Socket	316 SS Welded one-piece socket
Connection	1/4" NPT
Bourdon Tube	316 SS, drawn seamless
Movement	304 SS
Pointer	2.5" (63mm): Aluminum, anodized black
Welding	TIG
Fill Liquid	Glycerin
Over-Pressure Limit	30% for pressures up to 600 psi (4,147 kPa), 15% for pressures over 600 psi (4,147 kPa)
Fill Plug	Buna N (Silicone rubber option)
Lens Ring Gasket	Buna N (Silicone rubber option)
Working Pressure	Maximum 75% of full scale value
Ambient/Process Temperature	Dry: -40°F to 200°F (-40°C to 93°C) Glycerin Filled: -4°F to 150°F (-20°C to 65°C)
Accuracy	±1.5% of full scale value
Enclosure Rating	NEMA 4X/IP66, EN60529-1 (IEC529-1)

Single Scale Order Codes (products in bold are normally in stock)

Dial Size	2.5" (63mm)
Connection	1/4" Back (LBM)
Movement, Socket, Tube	SS
30" Hg Vac	PFP3772R1
30"/0/15 psi	PFP3773R1
30"/0/30 psi	PFP3774R1
30"/0/60 psi	PFP3775R1
30"/0/100 psi	PFP3776R1
30"/0/150 psi	PFP3777R1
30"/0/200 psi	PFP3778R1
30"/0/300 psi	PFP3779R1
0/15 psi	PFP3780R1
0/30 psi	PFP3781R1
0/60 psi	PFP3782R1
0/100 psi	PFP3783R1
0/160 psi	PFP3784R1
0/200 psi	PFP3785R1
0/300 psi	PFP3786R1
0/400 psi	PFP3787R1
0/600 psi	PFP3788R1
0/1,000 psi	PFP3789R1
0/1,500 psi	PFP3790R1
0/2,000 psi	PFP3791R1
0/3,000 psi	PFP3792R1
0/5,000 psi	PFP3793R1
0/6,000 psi	PFP3794R1
0/7,500 psi	PFP3795R1
0/10,000 psi	PFP3796R1
0/15,000 psi	PFP3797R1
0/20,000 psi	PFP3798R1

Dual Scale Order Codes (products in bold are normally in stock)

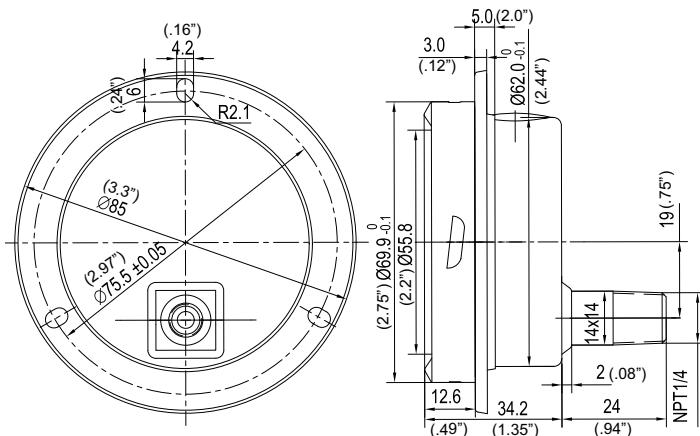
Dial Size	2.5" (63mm)
Connection	1/4" Back (LBM)
Movement, Socket, Tube	SS
30" Hg Vac/kPa	PFP3772
30"/0/15 psi/kPa	PFP3773
30"/0/30 psi/kPa	PFP3774
30"/0/60 psi/kPa	PFP3775
30"/0/100 psi/kPa	PFP3776
30"/0/150 psi/kPa	PFP3777
30"/0/200 psi/kPa	PFP3778
30"/0/300 psi/kPa	PFP3779
0/15 psi/kPa	PFP3780
0/30 psi/kPa	PFP3781
0/60 psi/kPa	PFP3782
0/100 psi/kPa	PFP3783
0/160 psi/kPa	PFP3784
0/200 psi/kPa	PFP3785
0/300 psi/kPa	PFP3786
0/400 psi/kPa	PFP3787
0/600 psi/kPa	PFP3788
0/1,000 psi/kPa	PFP3789
0/1,500 psi/kPa	PFP3790
0/2,000 psi/kPa	PFP3791
0/3,000 psi/kPa	PFP3792
0/5,000 psi/kPa	PFP3793
0/6,000 psi/kPa	PFP3794
0/7,500 psi/kPa	PFP3795
0/10,000 psi/kPa	PFP3796
0/15,000 psi/kPa	PFP3797
0/20,000 psi/kPa	PFP3798

Other ranges available upon request. For scale change, refer to How to Order Guide for scale codes.

Option suffix:

25Dry = Supply 2.5" gauge without liquid fill
 SF25 = Silicone Fill

2.5" Lower Back Connection with Front Flange



*dimensions in mm (inches)

*dimension in mm (inches)



1. Optional U-Clamp
2. Optional Front Flange



Note: RoHS applies only to SS internals

Description & Features:

- Pulsation resistant, liquid filled stainless steel case
- Glycerin filled standard
- Brass and stainless steel internals
- Restricted orifice
- Crimp-On bezel
- Single (psi) or dual scale (psi/kPa)/(psi/bar) available
- Optional U-Clamps and front flanges
- Dry case available
- CRN registered
- 5 year warranty

Applications:

- Ideal for pumps, compressors, hydraulic presses, machinery, pneumatic equipment and motors in harsh environments

Specifications

Dial	1.5" (40mm), 2" (50mm), 2.5" (63mm), 4" (100mm), white aluminum with black and red markings
Case	AISI 304 SS
Lens	Polycarbonate
Ring	AISI 304 SS, Crimp-On
Socket	OT 58 brass or AISI 316 SS
Connection	1/8", 1/4" NPT or 1/2" NPT standard with restricted orifice
Fill Liquid	Glycerin
Bourdon Tube	1.5" (40mm), 2" (50mm): Phosphor bronze C or coil shaped for brass socket SS C or coil shaped for 316 SS socket 2.5" (63mm), 4" (100mm): Phosphor bronze C or coil shaped for brass socket AISI 316 SS C or coil shaped for 316 SS socket
Movement	OT 59 brass or SS
Pointer	Aluminum, anodized black
Welding	Brass: Silver Alloy, 316SS: TIG
Over-Pressure Limit	25% for pressures up to 1,400 psi (9,653 kPa), 15% for pressures over 1,400 psi (9,653 kPa)
Socket Gasket	Buna N for two-piece internal socket seal
Fill Plug	Buna N
Lens Ring Gasket	Silicone rubber
Working Pressure	Maximum 75% of full scale value
Ambient/Process Temperature	Dry: -40°F to 200°F (-40°C to 93°C) Glycerin Filled: -4°F to 150°F (-20°C to 65°C)
Accuracy	1.5" (40mm), 2" (50mm): ±2.5% of full scale value 2.5" (63mm), 4" (100mm): ±1.5% of full scale value
Enclosure Rating	IP65

Dual Scale Order Codes (products in bold are normally in stock)

Dial Size	1.5" (40mm)			
Connection	1/8" Bottom	1/8" Back (CB)	1/8" Bottom	1/8" Back (CB)
Movement, Socket, Tube	Brass	Brass	SS	SS
30" Hg Vac/kPa	-	-	PFQ1200	PFQ1220
30"/0/15 psi/kPa	-	-	-	-
30"/0/30 psi/kPa	-	-	-	-
30"/0/60 psi/kPa	-	-	-	-
30"/0/100 psi/kPa	-	-	-	-
30"/0/150 psi/kPa	-	-	-	-
30"/0/200 psi/kPa	-	-	-	-
30"/0/300 psi/kPa	-	-	-	-
0/15 psi/kPa	-	-	PFQ1201	PFQ1221
0/30 psi/kPa	PFQ1102	PFQ1122	PFQ1202	PFQ1222
0/60 psi/kPa	PFQ1103	PFQ1123	PFQ1203	PFQ1223
0/100 psi/kPa	PFQ1104	PFQ1124	PFQ1204	PFQ1224
0/160 psi/kPa	PFQ1105	PFQ1125	PFQ1205	PFQ1225
0/200 psi/kPa	PFQ1106	PFQ1126	PFQ1206	PFQ1226
0/300 psi/kPa	PFQ1107	PFQ1127	PFQ1207	PFQ1227
0/400 psi/kPa	-	-	-	-
0/600 psi/kPa	PFQ1108	PFQ1128	PFQ1208	PFQ1228
0/1,000 psi/kPa	PFQ1109	PFQ1129	PFQ1209	PFQ1229
0/1,500 psi/kPa	PFQ1110	PFQ1130	PFQ1210	PFQ1230
0/2,000 psi/kPa	PFQ1111	PFQ1131	PFQ1211	PFQ1231
0/3,000 psi/kPa	PFQ1112	PFQ1132	PFQ1212	PFQ1232
0/5,000 psi/kPa	PFQ1113	PFQ1133	PFQ1213	PFQ1233
0/6,000 psi/kPa	-	-	-	-
0/7,500 psi/kPa	-	-	-	-
0/10,000 psi/kPa	-	-	-	-
0/15,000 psi/kPa	-	-	-	-

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. 1.5" (40mm) gauges are available dry (non-liquid filled) only on a special order basis. **For options, attach suffix to end of order code: i.e. PFQ1102-DRY for DRY CASE.**

Option suffix:

15UC = 1.5" U-Clamp

Dry = supply above gauge less liquid fill

Single Scale Order Codes (products in bold are normally in stock)

Dial Size	2" (50mm)							
Connection	1/8" Bottom	1/8" Back (CB)	1/8" Bottom	1/8" Back (CB)	1/4" Bottom	1/4" Back (CB)	1/4" Bottom	1/4" Back (CB)
Movement, Socket, Tube	Brass	Brass	SS	SS	Brass	Brass	SS	SS
30" Hg Vac	PFQ2400R1	PFQ2426R1	PFQ2248R1	PFQ2309R1	PFQ2452R1	PFQ2478R1	PFQ2247R1	PFQ2246R1
30"/0/15 psi	PFQ2401R1	PFQ2427R1	PFQ2295R1	PFQ2310R1	PFQ2453R1	PFQ2479R1	PFQ2271R1	PFQ2282R1
30"/0/30 psi	PFQ2402R1	PFQ2428R1	PFQ2241R1	PFQ2311R1	PFQ2454R1	PFQ2480R1	PFQ2272R1	PFQ2283R1
30"/0/60 psi	PFQ2403R1	PFQ2429R1	PFQ2296R1	PFQ2312R1	PFQ2455R1	PFQ2481R1	PFQ2273R1	PFQ2242R1
30"/0/100 psi	PFQ2404R1	PFQ2430R1	PFQ2297R1	PFQ2313R1	PFQ2456R1	PFQ2482R1	PFQ2274R1	PFQ2284R1
30"/0/160 psi	PFQ2405R1	PFQ2431R1	PFQ2298R1	PFQ2314R1	PFQ2457R1	PFQ2483R1	PFQ2275R1	PFQ2285R1
30"/0/200 psi	PFQ2406R1	PFQ2432R1	PFQ2299R1	PFQ2315R1	PFQ2458R1	PFQ2484R1	PFQ2276R1	PFQ2286R1
30"/0/300 psi	PFQ2407R1	PFQ2433R1	PFQ2300R1	PFQ2316R1	PFQ2459R1	PFQ2485R1	PFQ2277R1	PFQ2287R1
0/15 psi	PFQ2408R1	PFQ2434R1	PFQ2218R1	PFQ2217R1	PFQ2460R1	PFQ2486R1	PFQ2215R1	PFQ2214R1
0/30 psi	PFQ2409R1	PFQ2435R1	PFQ2253R1	PFQ2252R1	PFQ2461R1	PFQ2487R1	PFQ2250R1	PFQ2249R1
0/60 psi	PFQ2410R1	PFQ2436R1	PFQ2270R1	PFQ2269R1	PFQ2462R1	PFQ2488R1	PFQ2266R1	PFQ2265R1
0/100 psi	PFQ2411R1	PFQ2437R1	PFQ2209R1	PFQ2208R1	PFQ2463R1	PFQ2489R1	PFQ2205R1	PFQ2204R1
0/160 psi	PFQ2412R1	PFQ2438R1	PFQ2206R1	PFQ2207R1	PFQ2464R1	PFQ2490R1	PFQ2220R1	PFQ2219R1
0/200 psi	PFQ2413R1	PFQ2439R1	PFQ2301R1	PFQ2951R1	PFQ2465R1	PFQ2491R1	PFQ2267R1	PFQ2268R1
0/300 psi	PFQ2414R1	PFQ2440R1	PFQ2245R1	PFQ2318R1	PFQ2466R1	PFQ2492R1	PFQ2244R1	PFQ2243R1
0/400 psi	PFQ2415R1	PFQ2441R1	PFQ2302R1	PFQ2319R1	PFQ2467R1	PFQ2493R1	PFQ2254R1	PFQ2288R1
0/600 psi	PFQ2416R1	PFQ2442R1	PFQ2264R1	PFQ2320R1	PFQ2468R1	PFQ2494R1	PFQ2278R1	PFQ2289R1
0/1,000 psi	PFQ2417R1	PFQ2443R1	PFQ2203R1	PFQ2321R1	PFQ2469R1	PFQ2495R1	PFQ2202R1	PFQ2201R1
0/1,500 psi	PFQ2418R1	PFQ2444R1	PFQ2213R1	PFQ2322R1	PFQ2470R1	PFQ2496R1	PFQ2212R1	PFQ2211R1
0/2,000 psi	PFQ2419R1	PFQ2445R1	PFQ2304R1	PFQ2323R1	PFQ2471R1	PFQ2497R1	PFQ2279R1	PFQ2290R1
0/3,000 psi	PFQ2420R1	PFQ2446R1	PFQ2305R1	PFQ2324R1	PFQ2472R1	PFQ2498R1	PFQ2280R1	PFQ2291R1
0/5,000 psi	PFQ2421R1	PFQ2447R1	PFQ2258R1	PFQ2257R1	PFQ2473R1	PFQ2499R1	PFQ2256R1	PFQ2255R1
0/6,000 psi	PFQ2422R1	PFQ2448R1	PFQ2262R1	PFQ2261R1	PFQ2474R1	PFQ2500R1	PFQ2260R1	PFQ2259R1
0/7,500 psi	PFQ2423R1	PFQ2449R1	PFQ2306R1	PFQ2325R1	PFQ2475R1	PFQ2501R1	PFQ2281R1	PFQ2292R1
0/10,000 psi	PFQ2424R1	PFQ2450R1	PFQ2307R1	PFQ2326R1	PFQ2476R1	PFQ2502R1	PFQ2200R1	PFQ2293R1
0/15,000 psi	PFQ2425R1	PFQ2451R1	PFQ2308R1	PFQ2327R1	PFQ2477R1	PFQ2503R1	PFQ2210R1	PFQ2294R1

Dial Size	2.5" (63mm)			
Connection	1/4" Bottom	1/4" Back (CB)	1/4" Bottom	1/4" Back (CB)
Movement, Socket, Tube	Brass	Brass	SS	SS
30" Hg Vac	PFQ801R1	PFQ900R1	PFQ106R1	PFQ147R1
30"/0/15 psi	PFQ790R1	PFQ890R1	PFQ107R1	PFQ148R1
30"/0/30 psi	PFQ798R1	PFQ898R1	PFQ108R1	PFQ149R1
30"/0/60 psi	PFQ799R1	PFQ899R1	PFQ109R1	PFQ151R1
30"/0/100 psi	PFQ791R1	PFQ891R1	PFQ110R1	PFQ156R1
30"/0/160 psi	PFQ792R1	PFQ892R1	PFQ111R1	PFQ157R1
30"/0/200 psi	PFQ794R1	PFQ894R1	PFQ112R1	PFQ158R1
30"/0/300 psi	PFQ795R1	PFQ895R1	PFQ113R1	PFQ159R1
0/15 psi	PFQ800R1	PFQ901R1	PFQ118R1	PFQ162R1
0/30 psi	PFQ802R1	PFQ902R1	PFQ119R1	PFQ163R1
0/60 psi	PFQ803R1	PFQ903R1	PFQ120R1	PFQ164R1
0/100 psi	PFQ804R1	PFQ904R1	PFQ121R1	PFQ169R1
0/160 psi	PFQ805R1	PFQ905R1	PFQ122R1	PFQ170R1
0/200 psi	PFQ806R1	PFQ906R1	PFQ123R1	PFQ171R1
0/300 psi	PFQ807R1	PFQ907R1	PFQ124R1	PFQ175R1
0/400 psi	PFQ817R1	PFQ917R1	PFQ125R1	PFQ177R1
0/600 psi	PFQ808R1	PFQ908R1	PFQ126R1	PFQ178R1
0/1,000 psi	PFQ809R1	PFQ909R1	PFQ127R1	PFQ179R1
0/1,500 psi	PFQ816R1	PFQ914R1	PFQ128R1	PFQ180R1
0/2,000 psi	PFQ810R1	PFQ910R1	PFQ129R1	PFQ181R1
0/3,000 psi	PFQ811R1	PFQ911R1	PFQ137R1	PFQ182R1
0/5,000 psi	PFQ812R1	PFQ912R1	PFQ138R1	PFQ183R1
0/6,000 psi	PFQ814R1	PFQ915R1	PFQ139R1	PFQ184R1
0/7,500 psi	PFQ818R1	PFQ918R1	PFQ144R1	PFQ186R1
0/10,000 psi	PFQ813R1	PFQ913R1	PFQ145R1	PFQ190R1
0/15,000 psi	-	-	PFQ146R1	PFQ191R1

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. Front flange for 2" gauge is available. **For options, attach suffix to end of order code: i.e. PFQ806R1-DRY for DRY CASE.**

Option suffix:

Option suffix:

- 20UC = 2" (50mm) U-Clamp
- 2FF = 2" (50mm) Front Flange
- 25BF = 2.5" (63mm) Back Flange
- 25FF = 2.5" (63mm) Front Flange
- 25UC = 2.5" (63mm) U-Clamp
- 25DRY = Supply 2.5" gauge less liquid fill
- DRY = Supply 2" gauge less liquid fill
- SF25 = Silicone fill

Dual Scale Order Codes (products in bold are normally in stock)

Dial Size	2" (50mm)							
Connection	1/8" Bottom	1/8" Back (CB)	1/8" Bottom	1/8" Back (CB)	1/4" Bottom	1/4" Back (CB)	1/4" Bottom	1/4" Back (CB)
Movement, Socket, Tube	Brass	Brass	SS	SS	Brass	Brass	SS	SS
30" Hg Vac/kPa	PFQ2400	PFQ2426	PFQ2248	PFQ2309	PFQ2452	PFQ2478	PFQ2247	PFQ2246
30"/0/15 psi/kPa	PFQ2401	PFQ2427	PFQ2295	PFQ2310	PFQ2453	PFQ2479	PFQ2271	PFQ2282
30"/0/30 psi/kPa	PFQ2402	PFQ2428	PFQ2241	PFQ2311	PFQ2454	PFQ2480	PFQ2272	PFQ2283
30"/0/60 psi/kPa	PFQ2403	PFQ2429	PFQ2296	PFQ2312	PFQ2455	PFQ2481	PFQ2273	PFQ2242
30"/0/100 psi/kPa	PFQ2404	PFQ2430	PFQ2297	PFQ2313	PFQ2456	PFQ2482	PFQ2274	PFQ2284
30"/0/150 psi/kPa	PFQ2405	PFQ2431	PFQ2298	PFQ2314	PFQ2457	PFQ2483	PFQ2275	PFQ2285
30"/0/200 psi/kPa	PFQ2406	PFQ2432	PFQ2299	PFQ2315	PFQ2458	PFQ2484	PFQ2276	PFQ2286
30"/0/300 psi/kPa	PFQ2407	PFQ2433	PFQ2300	PFQ2316	PFQ2459	PFQ2485	PFQ2277	PFQ2287
0/15 psi/kPa	PFQ2408	PFQ2434	PFQ2218	PFQ2217	PFQ2460	PFQ2486	PFQ2215	PFQ2214
0/30 psi/kPa	PFQ2409	PFQ2435	PFQ2253	PFQ2252	PFQ2461	PFQ2487	PFQ2250	PFQ2249
0/60 psi/kPa	PFQ2410	PFQ2436	PFQ2270	PFQ2269	PFQ2462	PFQ2488	PFQ2266	PFQ2265
0/100 psi/kPa	PFQ2411	PFQ2437	PFQ2209	PFQ2208	PFQ2463	PFQ2489	PFQ2205	PFQ2204
0/160 psi/kPa	PFQ2412	PFQ2438	PFQ2206	PFQ2207	PFQ2464	PFQ2490	PFQ2220	PFQ2219
0/200 psi/kPa	PFQ2413	PFQ2439	PFQ2301	PFQ2951	PFQ2465	PFQ2491	PFQ2267	PFQ2268
0/300 psi/kPa	PFQ2414	PFQ2440	PFQ2245	PFQ2318	PFQ2466	PFQ2492	PFQ2244	PFQ2243
0/400 psi/kPa	PFQ2415	PFQ2441	PFQ2302	PFQ2319	PFQ2467	PFQ2493	PFQ2254	PFQ2288
0/600 psi/kPa	PFQ2416	PFQ2442	PFQ2264	PFQ2320	PFQ2468	PFQ2494	PFQ2278	PFQ2289
0/1,000 psi/kPa	PFQ2417	PFQ2443	PFQ2203	PFQ2321	PFQ2469	PFQ2495	PFQ2202	PFQ2201
0/1,500 psi/kPa	PFQ2418	PFQ2444	PFQ2213	PFQ2322	PFQ2470	PFQ2496	PFQ2212	PFQ2211
0/2,000 psi/kPa	PFQ2419	PFQ2445	PFQ2304	PFQ2323	PFQ2471	PFQ2497	PFQ2279	PFQ2290
0/3,000 psi/kPa	PFQ2420	PFQ2446	PFQ2305	PFQ2324	PFQ2472	PFQ2498	PFQ2280	PFQ2291
0/5,000 psi/kPa	PFQ2421	PFQ2447	PFQ2258	PFQ2257	PFQ2473	PFQ2499	PFQ2256	PFQ2255
0/6,000 psi/kPa	PFQ2422	PFQ2448	PFQ2262	PFQ2261	PFQ2474	PFQ2500	PFQ2260	PFQ2259
0/7,500 psi/kPa	PFQ2423	PFQ2449	PFQ2306	PFQ2325	PFQ2475	PFQ2501	PFQ2281	PFQ2292
0/10,000 psi/kPa	PFQ2424	PFQ2450	PFQ2307	PFQ2326	PFQ2476	PFQ2502	PFQ2200	PFQ2293
0/15,000 psi/kPa	PFQ2425	PFQ2451	PFQ2308	PFQ2327	PFQ2477	PFQ2503	PFQ2210	PFQ2294

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. Front flange for 2" gauge is available. **For options, attach suffix to end of order code: i.e. PFQ2218-DRY for DRY CASE.**

Option suffix:

- 20UC = 2" (50mm) U-Clamp
- 2FF = 2" (50mm) Front Flange
- DRY = Supply 2" gauge less liquid fill

Dual Scale Order Codes (products in bold are normally in stock)

Dial Size	2.5" (63mm)			
	1/4" Bottom	1/4" Back (CB)	1/4" Bottom	1/4" Back (CB)
Movement, Socket, Tube	Brass	Brass	SS	SS
30" Hg Vac/kPa	PFQ801	PFQ900	PFQ106	PFQ147
30"/0/15 psi/kPa	PFQ790	PFQ890	PFQ107	PFQ148
30"/0/30 psi/kPa	PFQ798	PFQ898	PFQ108	PFQ149
30"/0/60 psi/kPa	PFQ799	PFQ899	PFQ109	PFQ151
30"/0/100 psi/kPa	PFQ791	PFQ891	PFQ110	PFQ156
30"/0/150 psi/kPa	PFQ792	PFQ892	PFQ111	PFQ157
30"/0/200 psi/kPa	PFQ794	PFQ894	PFQ112	PFQ158
30"/0/300 psi/kPa	PFQ795	PFQ895	PFQ113	PFQ159
0/15 psi/kPa	PFQ800	PFQ901	PFQ118	PFQ162
0/30 psi/kPa	PFQ802	PFQ902	PFQ119	PFQ163
0/60 psi/kPa	PFQ803	PFQ903	PFQ120	PFQ164
0/100 psi/kPa	PFQ804	PFQ904	PFQ121	PFQ169
0/160 psi/kPa	PFQ805	PFQ905	PFQ122	PFQ170
0/200 psi/kPa	PFQ806	PFQ906	PFQ123	PFQ171
0/300 psi/kPa	PFQ807	PFQ907	PFQ124	PFQ175
0/400 psi/kPa	PFQ817	PFQ917	PFQ125	PFQ177
0/600 psi/kPa	PFQ808	PFQ908	PFQ126	PFQ178
0/1,000 psi/kPa	PFQ809	PFQ909	PFQ127	PFQ179
0/1,500 psi/kPa	PFQ816	PFQ914	PFQ128	PFQ180
0/2,000 psi/kPa	PFQ810	PFQ910	PFQ129	PFQ181
0/3,000 psi/kPa	PFQ811	PFQ911	PFQ137	PFQ182
0/5,000 psi/kPa	PFQ812	PFQ912	PFQ138	PFQ183
0/6,000 psi/kPa	PFQ814	PFQ915	PFQ139	PFQ184
0/7,500 psi/kPa	PFQ818	PFQ918	PFQ144	PFQ186
0/10,000 psi/kPa	PFQ813	PFQ913	PFQ145	PFQ190
0/15,000 psi/kPa	-	-	PFQ146	PFQ191

Single Scale Order Codes (products in bold are normally in stock)

Dial Size	2.5" (63mm)	
	1/4" Bottom	1/4" Back (CB)
Movement, Socket, Tube	Brass	Brass
30" Hg Vac/bar	PFQ801R1R11	PFQ900R1R11
30"/0/15 psi/bar	PFQ790R1R11	PFQ890R1R11
30"/0/30 psi/bar	PFQ798R1R11	PFQ898R1R11
30"/0/60 psi/bar	PFQ799R1R11	PFQ899R1R11
30"/0/100 psi/bar	PFQ791R1R11	PFQ891R1R11
30"/0/160 psi/bar	PFQ792R1R11	PFQ892R1R11
30"/0/200 psi/bar	PFQ794R1R11	PFQ894R1R11
30"/0/300 psi/bar	PFQ795R1R11	PFQ895R1R11
0/15 psi/bar	PFQ800R1R11	PFQ901R1R11
0/30 psi/bar	PFQ802R1R11	PFQ902R1R11
0/60 psi/bar	PFQ803R1R11	PFQ903R1R11
0/100 psi/bar	PFQ804R1R11	PFQ904R1R11
0/160 psi/bar	PFQ805R1R11	PFQ905R1R11
0/200 psi/bar	PFQ806R1R11	PFQ906R1R11
0/300 psi/bar	PFQ807R1R11	PFQ907R1R11
0/400 psi/bar	PFQ817R1R11	PFQ917R1R11
0/600 psi/bar	PFQ808R1R11	PFQ908R1R11
0/1,000 psi/bar	PFQ809R1R11	PFQ909R1R11
0/1,500 psi/bar	PFQ816R1R11	PFQ914R1R11
0/2,000 psi/bar	PFQ810R1R11	PFQ910R1R11
0/3,000 psi/bar	PFQ811R1R11	PFQ911R1R11
0/5,000 psi/bar	PFQ812R1R11	PFQ912R1R11
0/6,000 psi/bar	PFQ814R1R11	PFQ915R1R11
0/7,500 psi/bar	PFQ818R1R11	PFQ918R1R11
0/10,000 psi/bar	PFQ813R1R11	PFQ913R1R11

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. **For options, attach suffix to end of order code: i.e. PFQ801R1R11-DRY for DRY CASE.**

Option suffix:

- 25BF = 2.5" (63mm) Back Flange
- 25FF = 2.5" (63mm) Front Flange
- 25UC = 2.5" (63mm) U-Clamp
- 25DRY = Supply 2.5" gauge less liquid fill
- SF25 = Silicone fill

Single Scale Order Codes (products in bold are normally in stock)

Dial Size	4" (100mm)							
	1/4" Bottom	1/4" Back (CB)	1/4" Bottom	1/4" Back (CB)	1/2" Bottom	1/2" Back (CB)	1/2" Bottom	1/2" Back (CB)
Movement, Socket, Tube	Brass	Brass	SS	SS	Brass	Brass	SS	SS
30" Hg Vac	PFQ700R1	PFQ730R1	PFQ760R1	PFQ1260R1	PFQ1234R1	PFQ1285R1	PFQ1535R1	PFQ1559R1
30"/0/15 psi	PFQ701R1	PFQ731R1	PFQ761R1	PFQ1261R1	PFQ1235R1	PFQ1286R1	PFQ1536R1	PFQ1560R1
30"/0/30 psi	PFQ702R1	PFQ732R1	PFQ762R1	PFQ1262R1	PFQ1236R1	PFQ1287R1	PFQ1537R1	PFQ1561R1
30"/0/60 psi	PFQ703R1	PFQ733R1	PFQ763R1	PFQ1263R1	PFQ1237R1	PFQ1288R1	PFQ1538R1	PFQ1562R1
30"/0/100 psi	PFQ704R1	PFQ734R1	PFQ764R1	PFQ1264R1	PFQ1238R1	PFQ1289R1	PFQ1539R1	PFQ1563R1
30"/0/160 psi	PFQ705R1	PFQ735R1	PFQ765R1	PFQ1265R1	PFQ1239R1	PFQ1290R1	PFQ1540R1	PFQ1564R1
30"/0/200 psi	PFQ706R1	PFQ736R1	PFQ766R1	PFQ1266R1	PFQ1240R1	PFQ1291R1	PFQ1541R1	PFQ1565R1
30"/0/300 psi	PFQ707R1	PFQ737R1	PFQ767R1	PFQ1267R1	PFQ1241R1	PFQ1292R1	PFQ1542R1	PFQ1566R1
0/15 psi	PFQ708R1	PFQ738R1	PFQ768R1	PFQ1268R1	PFQ1242R1	PFQ1293R1	PFQ1543R1	PFQ1567R1
0/30 psi	PFQ709R1	PFQ739R1	PFQ769R1	PFQ1269R1	PFQ1243R1	PFQ1294R1	PFQ1544R1	PFQ1568R1
0/60 psi	PFQ710R1	PFQ740R1	PFQ770R1	PFQ1270R1	PFQ1244R1	PFQ1295R1	PFQ1545R1	PFQ1569R1
0/100 psi	PFQ711R1	PFQ741R1	PFQ771R1	PFQ1271R1	PFQ1245R1	PFQ1296R1	PFQ1546R1	PFQ1570R1
0/160 psi	PFQ712R1	PFQ742R1	PFQ772R1	PFQ1272R1	PFQ1246R1	PFQ1298R1	PFQ1547R1	PFQ1571R1
0/200 psi	PFQ713R1	PFQ743R1	PFQ773R1	PFQ1273R1	PFQ1247R1	PFQ1299R1	PFQ1548R1	PFQ1572R1
0/300 psi	PFQ714R1	PFQ744R1	PFQ774R1	PFQ1274R1	PFQ1248R1	PFQ1525R1	PFQ1549R1	PFQ1573R1
0/400 psi	PFQ715R1	PFQ745R1	PFQ775R1	PFQ1275R1	PFQ1249R1	PFQ1526R1	PFQ1550R1	PFQ1574R1
0/600 psi	PFQ716R1	PFQ746R1	PFQ776R1	PFQ1276R1	PFQ1250R1	PFQ1527R1	PFQ1551R1	PFQ1575R1
0/1,000 psi	PFQ724R1	PFQ192R1	PFQ1528R1	PFQ1552R1	PFQ717R1	PFQ747R1	PFQ777R1	PFQ1277R1
0/1,500 psi	PFQ725R1	PFQ241R1	PFQ1529R1	PFQ1553R1	PFQ718R1	PFQ748R1	PFQ778R1	PFQ1278R1
0/2,000 psi	PFQ726R1	PFQ242R1	PFQ1530R1	PFQ1554R1	PFQ719R1	PFQ749R1	PFQ779R1	PFQ1279R1
0/3,000 psi	PFQ727R1	PFQ243R1	PFQ1531R1	PFQ1555R1	PFQ720R1	PFQ750R1	PFQ780R1	PFQ1280R1
0/5,000 psi	PFQ728R1	PFQ244R1	PFQ1532R1	PFQ1556R1	PFQ721R1	PFQ751R1	PFQ781R1	PFQ1281R1
0/6,000 psi	-	PFQ246R1	-	-	PFQ784R1	PFQ785R1	PFQ789R1	PFQ1284R1
0/7,500 psi	-	PFQ247R1	-	-	-	-	-	-
0/10,000 psi	PFQ729R1	PFQ360R1	PFQ1533R1	PFQ1557R1	PFQ722R1	PFQ752R1	PFQ782R1	PFQ1282R1
0/15,000 psi	-	PFQ361R1	PFQ1534R1	PFQ1558R1	PFQ723R1	PFQ753R1	PFQ783R1	PFQ1283R1

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. For options, attach suffix to end of order code: i.e. **PFQ728-R1** for **SINGLE SCALE PSI**.

Option suffix:

4BF = 4" (100mm) Back Flange
4FF = 4" (100mm) Front Flange

4UC-P = 4" (100mm) U-Clamp
4UC-Q = 4" (100mm) U-Clamp

DRY = Supply 4" gauge less liquid fill
SF4 = Silicone fill

Dual Scale Order Codes (products in bold are normally in stock)

Dial Size	4" (100mm)							
	1/4" Bottom	1/4" Back (CB)	1/4" Bottom	1/4" Back (CB)	1/2" Bottom	1/2" Back (CB)	1/2" Bottom	1/2" Back (CB)
Movement, Socket, Tube	Brass	Brass	SS	SS	Brass	Brass	SS	SS
30" Hg Vac/kPa	PFQ700	PFQ730	PFQ760	PFQ1260	PFQ1234	PFQ1285	PFQ1535	PFQ1559
30"/0/15 psi/kPa	PFQ701	PFQ731	PFQ761	PFQ1261	PFQ1235	PFQ1286	PFQ1536	PFQ1560
30"/0/30 psi/kPa	PFQ702	PFQ732	PFQ762	PFQ1262	PFQ1236	PFQ1287	PFQ1537	PFQ1561
30"/0/60 psi/kPa	PFQ703	PFQ733	PFQ763	PFQ1263	PFQ1237	PFQ1288	PFQ1538	PFQ1562
30"/0/100 psi/kPa	PFQ704	PFQ734	PFQ764	PFQ1264	PFQ1238	PFQ1289	PFQ1539	PFQ1563
30"/0/150 psi/kPa	PFQ705	PFQ735	PFQ765	PFQ1265	PFQ1239	PFQ1290	PFQ1540	PFQ1564
30"/0/200 psi/kPa	PFQ706	PFQ736	PFQ766	PFQ1266	PFQ1240	PFQ1291	PFQ1541	PFQ1565
30"/0/300 psi/kPa	PFQ707	PFQ737	PFQ767	PFQ1267	PFQ1241	PFQ1292	PFQ1542	PFQ1566
0/15 psi/kPa	PFQ708	PFQ738	PFQ768	PFQ1268	PFQ1242	PFQ1293	PFQ1543	PFQ1567
0/30 psi/kPa	PFQ709	PFQ739	PFQ769	PFQ1269	PFQ1243	PFQ1294	PFQ1544	PFQ1568
0/60 psi/kPa	PFQ710	PFQ740	PFQ770	PFQ1270	PFQ1244	PFQ1295	PFQ1545	PFQ1569
0/100 psi/kPa	PFQ711	PFQ741	PFQ771	PFQ1271	PFQ1245	PFQ1296	PFQ1546	PFQ1570
0/160 psi/kPa	PFQ712	PFQ742	PFQ772	PFQ1272	PFQ1246	PFQ1298	PFQ1547	PFQ1571
0/200 psi/kPa	PFQ713	PFQ743	PFQ773	PFQ1273	PFQ1247	PFQ1524	PFQ1548	PFQ1572
0/300 psi/kPa	PFQ714	PFQ744	PFQ774	PFQ1274	PFQ1248	PFQ1525	PFQ1549	PFQ1573
0/400 psi/kPa	PFQ715	PFQ745	PFQ775	PFQ1275	PFQ1249	PFQ1526	PFQ1550	PFQ1574
0/600 psi/kPa	PFQ716	PFQ746	PFQ776	PFQ1276	PFQ1250	PFQ1527	PFQ1551	PFQ1575
0/1,000 psi/kPa	PFQ724	PFQ192	PFQ1528	PFQ1552	PFQ717	PFQ747	PFQ777	PFQ1277
0/1,500 psi/kPa	PFQ725	PFQ241	PFQ1529	PFQ1553	PFQ718	PFQ748	PFQ778	PFQ1278
0/2,000 psi/kPa	PFQ726	PFQ242	PFQ1530	PFQ1554	PFQ719	PFQ749	PFQ779	PFQ1279
0/3,000 psi/kPa	PFQ727	PFQ243	PFQ1531	PFQ1555	PFQ720	PFQ750	PFQ780	PFQ1280
0/5,000 psi/kPa	PFQ728	PFQ244	PFQ1532	PFQ1556	PFQ721	PFQ751	PFQ781	PFQ1281
0/6,000 psi/kPa	-	PFQ246	-	-	PFQ784	PFQ785	PFQ789	PFQ1284
0/7,500 psi/kPa	-	PFQ247	-	-	-	-	-	-
0/10,000 psi/kPa	PFQ729	PFQ360	PFQ1533	PFQ1557	PFQ722	PFQ752	PFQ782	PFQ1282
0/15,000 psi/kPa	-	PFQ361	PFQ1534	PFQ1558	PFQ723	PFQ753	PFQ783	PFQ1283

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. **For options, attach suffix to end of order code: i.e. PFQ728-R1 for SINGLE SCALE PSI.**

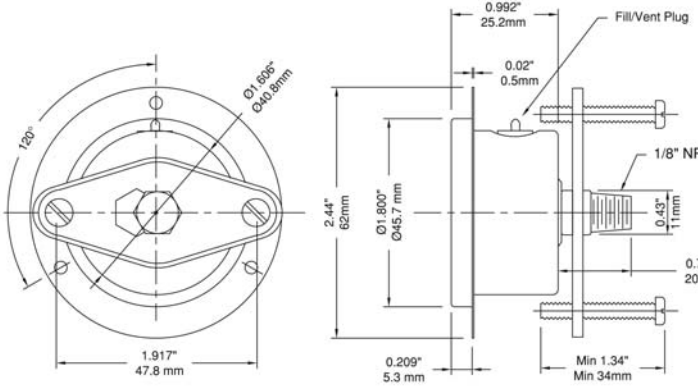
Option suffix:

4BF = 4" (100mm) Back Flange
4FF = 4" (100mm) Front Flange

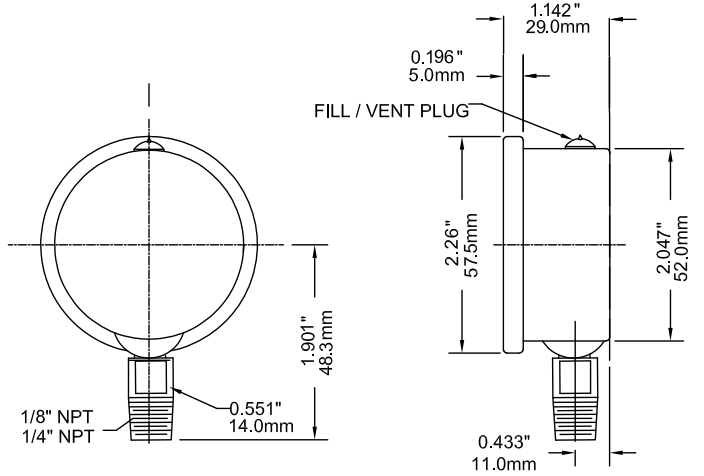
4UC-P = 4" (100mm) U-Clamp
4UC-Q = 4" (100mm) U-Clamp

DRY = Supply 4" gauge less liquid fill
SF4 = Silicone fill

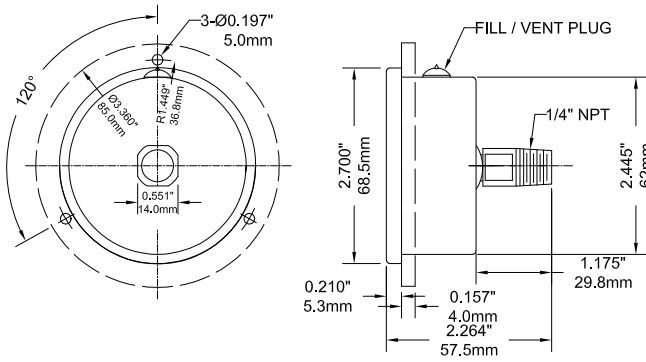
1.5" Back Connection with Front Flange and U-Clamp



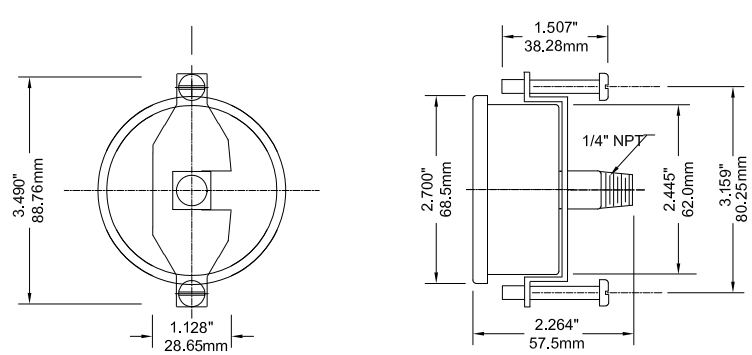
2" Bottom Connection



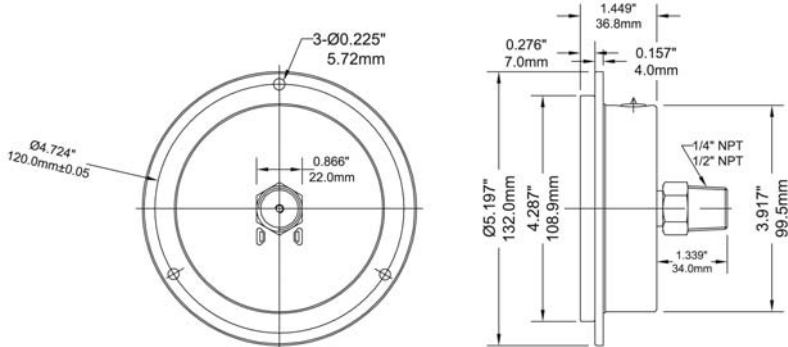
2.5" Back Connection with Front Flange



2.5" Back Connection with U-Clamp



4" Back Connection with Front Flange





Description & Features:

- Designed for sour gas applications requiring NACE Standards MR0175-2002 (NACE Standards MR0103-2003 available)
- Liquid filled case
- Pressure release disk standard
- Wetted parts meet all hardness requirements
- CRN registered
- 5 year warranty

Applications:

- Sour gas applications requiring gauges that meet NACE International Standards

Specifications	
Dial	4" (100mm) and 6" (150mm) aluminum with black and red markings
Case	304 SS
Lens	Laminated safety glass
Ring	304 SS, bayonet
Socket	AISI 316 SS
Connection	1/4" or 1/2" NPT, bottom or back
Bourdon Tube	AISI 316 SS
Movement	304 SS
Pointer	Aluminum, anodized black, micrometer adjustable
Fill Liquid	Glycerin/H ₂ O
Over-Pressure Limit	30% for pressure up to 600 psi (4,147 kPa), 15% for pressure over 600 psi (4,147 kPa)
Ambient/Process Temperature	Dry: -40°F to 200°F (-40°C to 93°C) Glycerin Filled: -4°F to 150°F (-20°C to 65°C)
Accuracy	±1% ANSI/ASME Grade 1A
Enclosure Rating	IP66

Order Codes (products in bold are normally in stock)

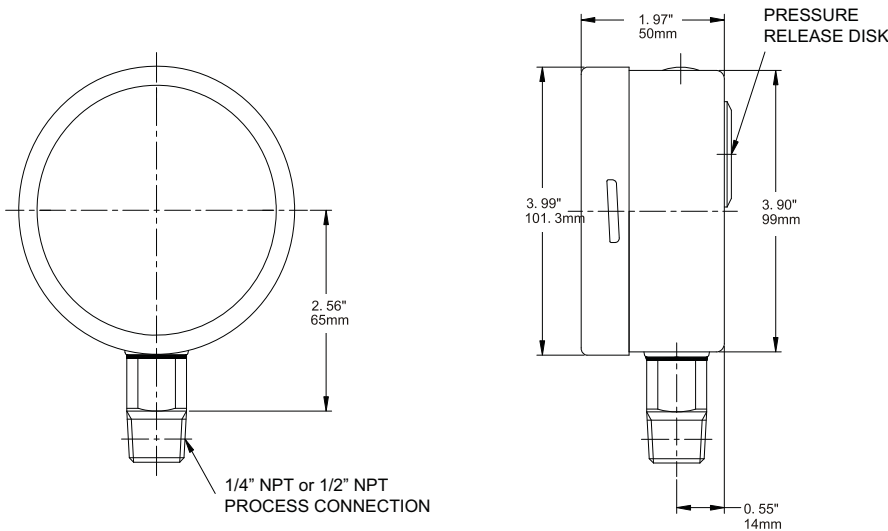
Dial Size	4" (100mm)				6" (150mm)	
Connection	1/4" Bottom	1/4" Back	1/2" Bottom	1/2" Back	1/2" Bottom	1/2" Back
30" Hg Vac/kPa	PN2640N	PN21090N	PN2655N	-	PN21100N	-
30"/0/15 psi/kPa	PN21036N	-	PN21044N	-	PN21101N	-
30"/0/30 psi/kPa	PN21037N	-	PN21045N	-	PN21102N	-
30"/0/60 psi/kPa	PN21038N	-	PN21046N	-	PN21103N	-
30"/0/100 psi/kPa	PN21039N	-	PN21047N	-	PN21104N	-
30"/0/160 psi/kPa	PN21040N	-	PN21048N	-	PN21105N	-
30"/0/200 psi/kPa	PN21042N	-	PN21050N	-	PN21106N	-
30"/0/300 psi/kPa	PN21043N	-	PN21051N	-	PN21107N	-
0/15 psi/kPa	PN2641N	PN21091N	PN2656N	-	PN21108N	-
0/30 psi/kPa	PN2642N	PN21092N	PN2657N	-	PN21109N	-
0/60 psi/kPa	PN2643N	PN21093N	PN2658N	-	PN21110N	-
0/100 psi/kPa	PN2644N	PN21094N	PN2659N	-	PN21111N	-
0/160 psi/kPa	PN2645N	PN21095N	PN2660N	-	PN21112N	-
0/200 psi/kPa	PN2646N	PN21096N	PN2661N	-	PN21113N	-
0/300 psi/kPa	PN2647N	PN21097N	PN2662N	-	PN21114N	-
0/400 psi/kPa	PN2650N	-	PN2666N	-	PN21115N	-
0/600 psi/kPa	PN2648N	PN21098N	PN2663N	-	PN21116N	-
0/1,000 psi/kPa	PN2649N	PN21099N	PN2664N	-	PN21117N	PN21217N
0/1,500 psi/kPa	-	-	PN2665N	PN21190N	PN21118N	PN21218N
0/2,000 psi/kPa	-	-	PN2667N	PN21191N	PN21119N	PN21219N
0/3,000 psi/kPa	-	-	PN2668N	PN21192N	PN21120N	PN21220N
0/4,000 psi/kPa	-	-	-	-	PN21121N	PN21221N
0/5,000 psi/kPa	-	-	PN2669N	PN21193N	PN21122N	PN21222N
0/6,000 psi/kPa	-	-	PN2675N	-	PN21123N	PN21223N
0/10,000 psi/kPa	-	-	PN2670N	PN21194N	PN21124N	PN21224N
0/15,000 psi/kPa	-	-	PN2671N	PN21195N	PN21125N	PN21225N
0/20,000 psi/kPa	-	-	PN2672N	PN21196N	PN21126N	PN21226N

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. **For options, attach suffix to end of order code: i.e. PN22657N-4DRY for DRY CASE.**

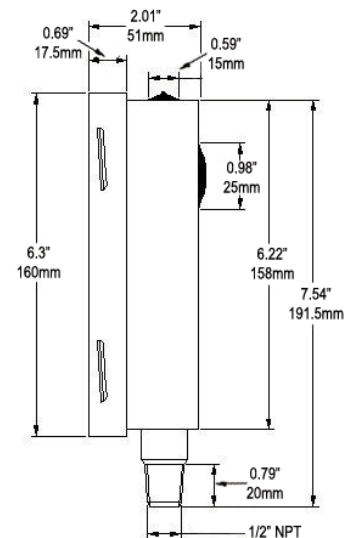
Option suffix:

- 4BF = 4" (100mm) Back Flange
- 4DRY = Supply above gauge less liquid fill
- 4FF = 4" (100mm) Front Flange
- 4UC-P = 4" (100mm) U-Clamp
- REST = Restrictor Screw
- 6BF = 6" (150mm) Back Flange
- 6DRY = Supply above gauge less liquid fill
- 6FF = 6" (150mm) Front Flange
- 6UC-P = 6" (150mm) U-Clamp

4" (100mm) Bottom Connection



6" (150mm) Bottom Connection





Description & Features:

- Solid front blowout back for the ultimate in gauge safety
- Full rotary movement and micrometer pointer for ease in calibration
- Stainless steel case, socket and internals
- Safety glass lens
- CRN registered
- 5 year warranty

Applications:

- Used where operator safety is a must

Specifications

Specifications	
Dial	4" (100mm), 4.5" (115mm), 6" (150mm), white aluminum dial with black and red markings
Case	304 SS case with blowout back
Lens	4" (100mm), 6" (150mm): Laminated safety glass 4.5" (115mm): Tempered safety glass
Ring	SS bayonet
Socket	316L SS
Connection	1/4" or 1/2" NPT bottom
Bourdon Tube	316L SS
Movement	304 SS
Pointer	Aluminum, anodized black, micrometer adjustable
Over-Pressure Limit	30% for pressure up to 600 psi (4,147 kPa) 15% for pressure over 600 psi (4,147 kPa)
Working Pressure	Maximum 75% of full scale value
Ambient/Process Temperature	-40°F to 150°F (-40°C to 65°C)
Accuracy	4" (100mm), 6" (150mm): ±1% ANSI/ASME Grade 1A 4.5" (115mm): ±0.5% ANSI/ASME Grade 2A
Enclosure Rating	IP65 per UEC 529, UNI 8896

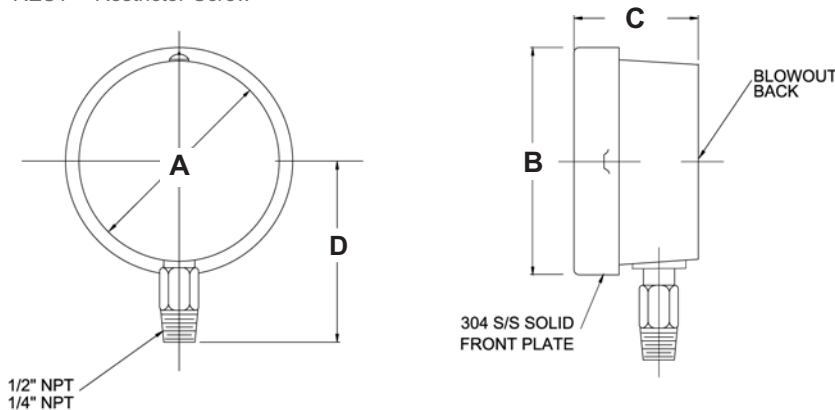
Order Codes (products in bold are normally in stock)

Dial Size	4" (100mm)		4.5" (115mm)		6" (150mm)	
Connection	1/4" Bottom	1/2" Bottom	1/4" Bottom	1/2" Bottom	1/4" Bottom	1/2" Bottom
30" Hg Vac/kPa	PSC248	-	PSC281	-	PSC283	-
30"/0/15 psi/kPa	PSC249	-	PSC282	-	PSC284	-
30"/0/30 psi/kPa	PSC257	-	PSC358	-	PSC285	-
30"/0/60 psi/kPa	PSC258	-	PSC359	-	PSC286	-
30"/0/100 psi/kPa	PSC259	-	PSC362	-	PSC287	-
30"/0/150 psi/kPa	PSC260	-	PSC363	-	PSC289	-
30"/0/200 psi/kPa	PSC261	-	PSC364	-	PSC296	-
30"/0/300 psi/kPa	PSC262	-	PSC365	-	PSC297	-
0/15 psi/kPa	PSC263	-	PSC366	-	PSC298	-
0/30 psi/kPa	PSC264	-	PSC367	-	PSC299	-
0/60 psi/kPa	PSC265	-	PSC368	-	PSC307	-
0/100 psi/kPa	PSC266	-	PSC369	-	PSC308	-
0/160 psi/kPa	PSC267	-	PSC370	-	PSC309	-
0/200 psi/kPa	PSC268	-	PSC371	-	PSC317	-
0/300 psi/kPa	PSC269	-	PSC372	-	PSC318	-
0/400 psi/kPa	PSC272	-	PSC373	-	PSC335	-
0/600 psi/kPa	PSC273	-	PSC374	-	PSC336	-
0/1,000 psi/kPa	-	PSC274	-	PSC375	-	PSC337
0/1,500 psi/kPa	-	PSC275	-	PSC376	-	PSC338
0/2,000 psi/kPa	-	PSC276	-	PSC377	-	PSC339
0/3,000 psi/kPa	-	PSC277	-	PSC378	-	PSC347
0/5,000 psi/kPa	-	PSC278	-	PSC379	-	PSC348
0/10,000 psi/kPa	-	PSC498	-	PSC380	-	PSC502
0/15,000 psi/kPa	-	PSC499	-	PSC381	-	PSC504
0/20,000 psi/kPa	-	-	-	-	-	-

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. **For options, attach suffix to end of order code: i.e. PSC374-R1 for SINGLE SCALE PSI.**

Option suffix:

- G = Glycerin Filled
- R1 = Single Scale Psi
- REST = Restrictor Screw



Dimensions

Dial	A	B	C	D
4"	4.1" (105mm)	4.67" (119mm)	2.244" (57mm)	3.80" (96.5mm)
4.5"	4.764" (121mm)	5.394" (137mm)	2.244" (57mm)	4.213" (107mm)
6"	5.67" (144mm)	6.32" (160mm)	2.244" (57mm)	4.63" (117.5mm)

Monel® is a registered trademark of Inco Alloys International



Description & Features:

- High quality, heavy duty gauge ideal for corrosive environments
- Stainless steel liquid filled gauge (dry optional)
- 1/2" NPT bottom
- Stainless steel wetted parts
- Heavy duty movement and Bourdon Tube
- Restrictor screw standard
- 5 year warranty

Applications:

- Outdoor and severe ambient and process conditions
- Where harmful vibration and pulsation are present
- Designed to the specific needs of oil field equipment

Specifications	
Dial	4" (100mm) white aluminum with black markings
Case	AISI 304 SS
Lens	Safety glass standard; acrylic optional
Ring	AISI 304 SS
Socket	Welded, 316L SS
Connection	1/2" NPT standard, 1/4" NPT available
Bourdon Tube	316L SS, seamless drawn
Movement	304 SS with over and under stops
Pointer	Aluminum, anodized black, micrometer adjustable
Welding	TIG
Over-pressure Limit	30% for pressures up to 600 psi (4,147 kPa), 15% for pressures over 600 psi (4,147 kPa)
Gasket Materials	EPDM
Working Pressure	Maximum 75% of full scale value
Ambient/Process Temperature	Dry: -40°F to 200°F (-40°C to 93°C) Glycerin Filled: -4°F to 150°F (-20°C to 65°C)
Accuracy	±1% ANSI/ASME Grade 1A
Enclosure Rating	IP66 per UEC 529, UNI 8896

Order Codes

Range	Code
0/1,000 psi	PXT1134
0/1,500 psi	PXT1135
0/2,000 psi	PXT1136
0/3,000 psi	PXT1137
0/5,000 psi	PXT1138
0/10,000 psi	PXT1139
0/15,000 psi	PXT1140
0/20,000 psi	PXT1141

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. 1/4" NPT connection available upon request. **For options, attach suffix to end of order code: i.e. PXT1137-G for GLYCERIN FILL.**

Option suffix:

G = Glycerin Filled
SG-4 = Safety Glass Lens
SF4 = Silicone Filled
Z = StabilizR™ Movement

PDT Differential Gauge



Description & Features:

- Brass or stainless steel wetted parts
- Both conventional and balanced scale available
- CRN registered
- 5 year warranty

Applications:

- Single pointer to show difference from two pressure sources
- Typically used to measure pressure drops across a filter, pump or other equipment

Specifications

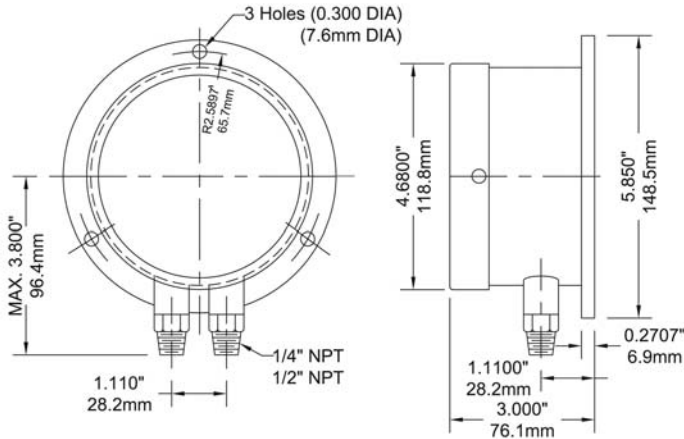
Dial	4.5" (115mm), 6" (150mm) white aluminum with black markings
Case	Aluminum, painted black
Front Flange	4.5" (115mm): SS 6" (150mm): Aluminum
Back Flange	4.5" (115mm): Black steel 6" (150mm): Aluminum
Lens	Glass
Ring	4.5" (115mm): SS 6" (150mm): Aluminum
Socket	Brass or 316 SS as specified
Connection	1/4" NPT standard
Scale	PSID only
Bourdon Tube	Phosphor bronze or AISI 316 SS, independent, matched
Movement	Brass
Pointer	Aluminum (micrometer)
Welding	Tin/copper alloy for brass internals, TIG Argonarc for SS internals
Over-Pressure Limit	30% of full scale value
Working Pressure	Maximum 75% of full scale value
Ambient/Process Temperature	-40°F to 150°F (-40°C to 65°C)
Accuracy	±1% ANSI/ASME Grade 1A

Order Codes (products in italics are normally available in 3 - 5 days)

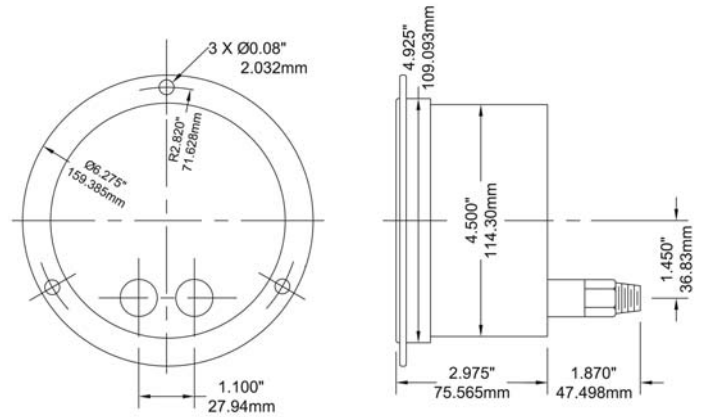
Max. Static Pressure	Dial Size	4.5" (115mm)				6" (150mm)			
	Tube, Socket	Brass	Brass	SS	SS	Brass	Brass	SS	SS
	Connection	1/4" NPT Bottom	1/4" NPT Back (LB)	1/4" NPT Bottom	1/4" NPT Back (LB)	1/4" NPT Bottom	1/4" NPT Back (LB)	1/4" NPT Bottom	1/4" NPT Back (LB)
22 psi	0/15 psi	<i>PDT8051</i>	<i>PDT8051B</i>	<i>PDT8061</i>	<i>PDT8061B</i>	<i>PDT8071</i>	<i>PDT8071B</i>	<i>PDT8081</i>	<i>PDT8081B</i>
45 psi	0/30 psi	<i>PDT8052</i>	<i>PDT8052B</i>	<i>PDT8062</i>	<i>PDT8062B</i>	<i>PDT8072</i>	<i>PDT8072B</i>	<i>PDT8082</i>	<i>PDT8082B</i>
90 psi	0/60 psi	<i>PDT8053</i>	<i>PDT8053B</i>	<i>PDT8063</i>	<i>PDT8063B</i>	<i>PDT8073</i>	<i>PDT8073B</i>	<i>PDT8083</i>	<i>PDT8083B</i>
150 psi	0/100 psi	<i>PDT8054</i>	<i>PDT8054B</i>	<i>PDT8064</i>	<i>PDT8064B</i>	<i>PDT8074</i>	<i>PDT8074B</i>	<i>PDT8084</i>	<i>PDT8084B</i>
240 psi	0/160 psi	<i>PDT8055</i>	<i>PDT8055B</i>	<i>PDT8065</i>	<i>PDT8065B</i>	<i>PDT8075</i>	<i>PDT8075B</i>	<i>PDT8085</i>	<i>PDT8085B</i>
300 psi	0/200 psi	<i>PDT8056</i>	<i>PDT8056B</i>	<i>PDT8066</i>	<i>PDT8066B</i>	<i>PDT8076</i>	<i>PDT8076B</i>	<i>PDT8086</i>	<i>PDT8086B</i>
450 psi	0/300 psi	<i>PDT8057</i>	<i>PDT8057B</i>	<i>PDT8067</i>	<i>PDT8067B</i>	<i>PDT8077</i>	<i>PDT8077B</i>	<i>PDT8087</i>	<i>PDT8087B</i>
900 psi	0/600 psi	<i>PDT8058</i>	<i>PDT8058B</i>	<i>PDT8068</i>	<i>PDT8068B</i>	<i>PDT8078</i>	<i>PDT8078B</i>	<i>PDT8088</i>	<i>PDT8088B</i>

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. Bi-directional or zero positioned at 12 o'clock on dial is available. Low Differential Pressure/High Static Pressure configurations are also available.

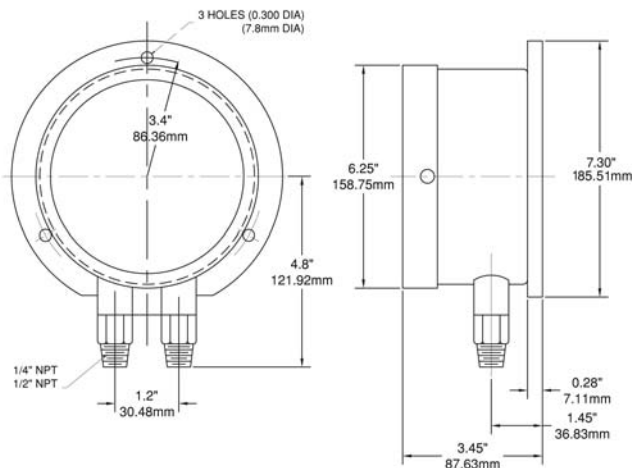
4.5" Bottom Connection



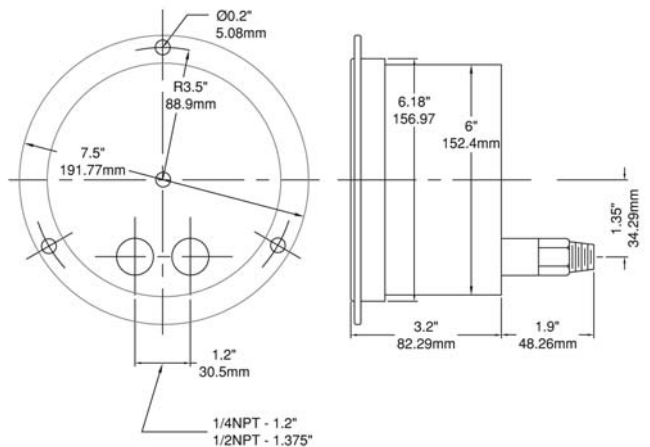
4.5" Back Connection



6" Bottom Connection



6" Back Connection





Description & Features:

- Heavy duty, highly accurate, aluminum case
- Brass and stainless steel wetted parts available
- Two separate bourdon tubes and pointers
- One red and one black pointer
- CRN registered
- 5 year warranty

Applications:

- Comparing two separate process pressures on the same gauge
- Utilized on pump and filter applications

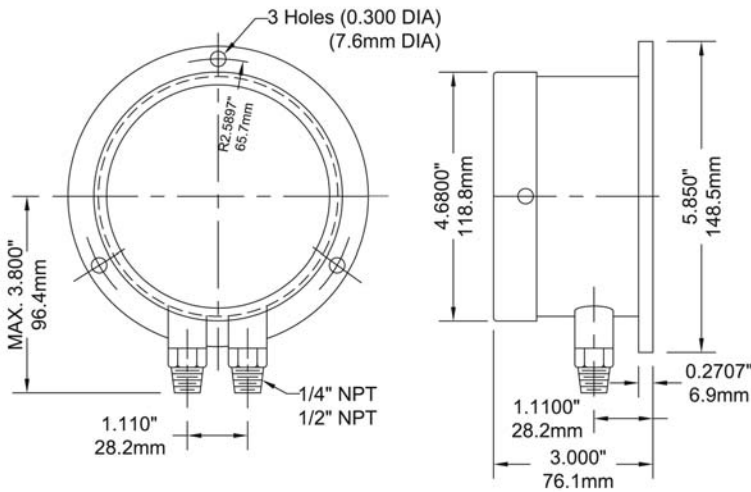
Specifications	
Dial	4.5" (115mm), 6" (150mm) white aluminum with black markings
Case	Aluminum, painted black
Front Flange	4.5" (115mm): SS 6" (150mm): Aluminum
Back Flange	4.5" (115mm): Black steel 6" (150mm): Aluminum
Lens	Glass
Ring	4.5" (115mm): SS 6" (150mm): Aluminum
Socket	Brass or 316 SS as specified
Connection	1/4" NPT standard
Scale	PSI only
Bourdon Tube	Phosphor bronze or AISI 316 SS, independent, matched
Movement	Brass
Pointer	Aluminum, micrometer
Welding	Tin/copper alloy for brass internals, TIG Argonarc for SS internals
Over-Pressure Limit	30% of full scale value
Working Pressure	Maximum 75% of full scale value
Ambient/Process Temperature	-40°F to 150°F (-40°C to 65°C)
Accuracy	±1% ANSI/ASME Grade 1A

Order Codes (products in italics are normally available in 3 - 5 days)

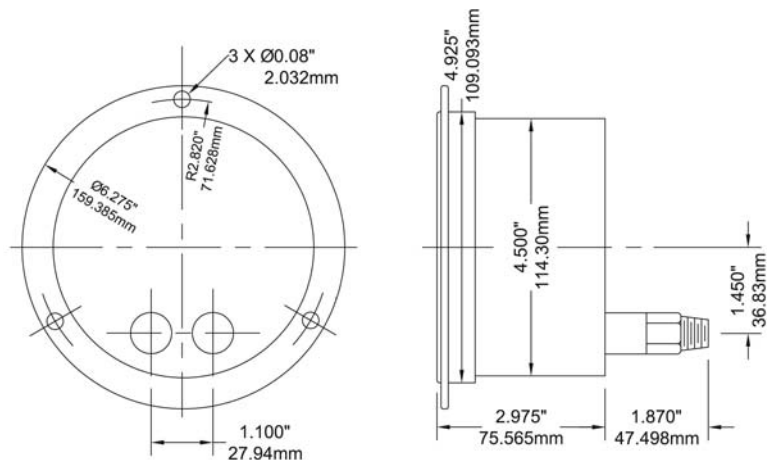
Dial Size	4.5" (110mm)				6" (150mm)			
Connection	1/4" NPT Bottom	1/4" NPT Back (LB)	1/4" NPT Bottom	1/4" NPT Back (LB)	1/4" NPT Bottom	1/4" NPT Back (LB)	1/4" NPT Bottom	1/4" NPT Back (LB)
Tube, Socket	Brass	Brass	SS	SS	Brass	Brass	SS	SS
0/15 psi	<i>PDX8011</i>	<i>PDX8011B</i>	<i>PDX8021</i>	<i>PDX8021B</i>	<i>PDX8091</i>	<i>PDX8091B</i>	<i>PDX8101</i>	<i>PDX8101B</i>
0/30 psi	<i>PDX8012</i>	<i>PDX8012B</i>	<i>PDX8022</i>	<i>PDX8022B</i>	<i>PDX8092</i>	<i>PDX8092B</i>	<i>PDX8102</i>	<i>PDX8102B</i>
0/60 psi	<i>PDX8013</i>	<i>PDX8013B</i>	<i>PDX8023</i>	<i>PDX8023B</i>	<i>PDX8093</i>	<i>PDX8093B</i>	<i>PDX8103</i>	<i>PDX8103B</i>
0/100 psi	<i>PDX8014</i>	<i>PDX8014B</i>	<i>PDX8024</i>	<i>PDX8024B</i>	<i>PDX8094</i>	<i>PDX8094B</i>	<i>PDX8104</i>	<i>PDX8104B</i>
0/160 psi	<i>PDX8015</i>	<i>PDX8015B</i>	<i>PDX8025</i>	<i>PDX8025B</i>	<i>PDX8095</i>	<i>PDX8095B</i>	<i>PDX8105</i>	<i>PDX8105B</i>
0/200 psi	<i>PDX8016</i>	<i>PDX8016B</i>	<i>PDX8026</i>	<i>PDX8026B</i>	<i>PDX8096</i>	<i>PDX8096B</i>	<i>PDX8106</i>	<i>PDX8106B</i>
0/300 psi	<i>PDX8017</i>	<i>PDX8017B</i>	<i>PDX8027</i>	<i>PDX8027B</i>	<i>PDX8097</i>	<i>PDX8097B</i>	<i>PDX8107</i>	<i>PDX8107B</i>
0/600 psi	<i>PDX8018</i>	<i>PDX8018B</i>	<i>PDX8028</i>	<i>PDX8028B</i>	<i>PDX8098</i>	<i>PDX8098B</i>	<i>PDX8109</i>	<i>PDX8109B</i>

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes.

4.5" Bottom Connection



4.5" Back Connection





Description & Features:

- Versatile high static low differential pressure gauges
- Four types of sensing elements for a large variety of ranges
- Switches available for actuation
- 5 year warranty

Applications:

- Filtration systems
- Low pressure gas systems
- Leak detection

Specifications				
	Piston Gauge (PPD)	Rolling Diaphragm Gauge (PRD)	Small Convoluted Diaphragm Gauge (PSD)	Convoluted Diaphragm Gauge (PVD)
Dial	2.5" (63mm), 3.5" (90mm), 4.5" (115mm)	2.5" (63mm)	2.5" (63mm), 3.5" (90mm), 4.5" (115mm)	3.5" (90mm), 4.5" (115mm)
Case	Aluminum or engineered plastic	Engineered plastic	Aluminum or engineered plastic	Aluminum or engineered plastic
Lens	Shatter resistant acrylic (standard), safety glass (optional)	Shatter resistant acrylic (standard), safety glass (optional)	Shatter resistant acrylic (standard), safety glass (optional)	Shatter resistant acrylic (standard), safety glass (optional)
Line Connection Locations	In-line, back or bottom	In-line (only)	In-line, back, dual top & bottom or bottom	Dual top & bottom
Connection	1/4" NPTF (standard), 1/2" NPTF, 7/16"-20 SAE	1/4" NPTF (only)	1/4" NPTF (standard), 1/2" NPTF, 7/16"-20 SAE	Dual 1/4" NPTF
Wetted Parts Materials	SS piston with ceramic magnet (standard), Aluminum, Bronze or Monel® piston (optional)	SS parts with Buna-N seals	SS parts with Buna-N seals	SS parts with Buna-N seals (standard), Hastelloy® C parts with Buna-N seals (optional)
Body Material	SS, Aluminum, Bronze or Monel®	SS, Aluminum or Acetal	SS, Aluminum or Brass	SS, Aluminum, Brass, Engineered plastic or Hastelloy® C
Internals/Movement	Magnetic coupling using piston & spring	Magnetic coupling with rolling diaphragm sensor	Magnetic coupling with convoluted diaphragm sensor	Magnetic coupling with convoluted diaphragm sensor
Migration of Media	Marginal	Zero	Zero	Zero
Seal	Buna-N (standard), Teflon®, Viton®, Neoprene	Buna-N (standard), Viton®	Buna-N (standard), Viton®, Silicone, Neoprene	Buna-N (standard), Viton®, Silicone, Neoprene
Standard Differential Ranges	0-5 thru 110 psid (0.25-8 bar)	0-5 thru 50 psid (0.25-3 bar)	0-25 thru 100 psid (1.5-7 bar)	0-5 thru 400" H2O (12.4 mbar-1 bar)
Maximum System Pressure	Aluminum: 3,000 psi (200 bar) Bronze, Monel®: 5,000 psi (350 bar) SS: 6,000 psi (400 bar)	Aluminum, SS: 1,000 psi (70 bar) Acetal: 500 psi (35 bar)	Aluminum, SS: 3,000 psi (200 bar) Brass: 1,500 psi (100 bar)	Aluminum, Brass, SS: 500 psi (35 bar) Engineered plastic: 300 psi (20 bar) Hastelloy® C: 500 psi (35 bar)
Maximum Temperature	200°F (93°C)	200°F (93°C)	200°F (93°C)	200°F (93°C)
Accuracy	±2% of full scale value	±5% of full scale value	±2% of full scale value	0-5 thru 9.9" H2O: +/- 5% of full scale 0-10 thru 400" H2O: +/- 2% of full scale

Hastelloy® is a registered trademark of Haynes International, Inc.
Teflon® is a registered trademark of Dupont Corporation

Monel® is a registered trademark of Inco Alloys International
Viton® is a registered trademark of DuPont Performance Elastomers

Piston Type (PPD)

- Most suitable for general purpose applications including filters, pumps and chillers. Uses a piston as a sensor to separate high & low pressure in response to pressure differentiation.
- Standard Differential Range: 0-5 thru 110 psid (0.25-8 bar)
- Maximum System Pressure Aluminum: 3,000 psi (200 bar)
- Maximum System Pressure Bronze, Monel®: 3,000 psi (200 bar)
- Maximum System Pressure SS: 6,000 psi (400 bar)
- Accuracy $\pm 2\%$ full scale ascending

Rolling Diaphragm Gauge (PRD)

- Operates on rolling diaphragm as a sensor, which assures complete separation of the high and low pressure ports. Suitable for use on dissimilar fluids, wet gas and process fluids with particulates present. Used in high line pressure and differential pressure ranges up to 50 psid.
- Standard Differential Range: 0-5 thru 50 psid (0.25-3 bar)
- Maximum System Pressure Aluminum, SS: 1,000 psi (70 bar)
- Maximum System Pressure Acetal: 500 psi (35 bar)
- Accuracy $\pm 5\%$ full scale ascending

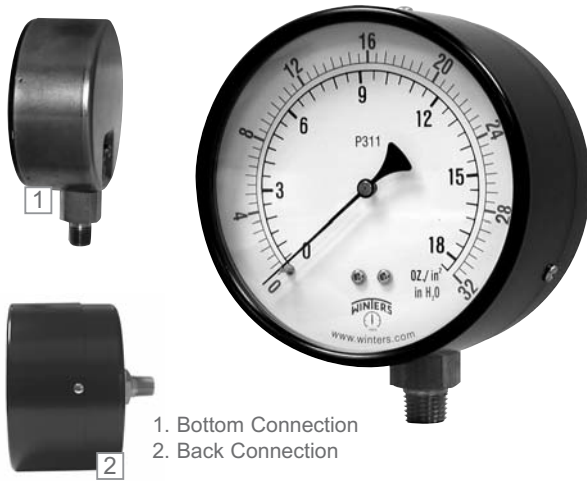
Small Convoluted Diaphragm Gauge (PSD)

- Operates on a convoluted diaphragm as a sensor which separates high and low pressure ports. Ideally suited for use on dissimilar fluids and wet gas or fluids with high concentration of particles. Suitable for use with a diaphragm/chemical seal.
- Standard Differential Range: 0-25 thru 100 psid (1.5-7 bar)
- Maximum System Pressure Aluminum, SS: 3,000 psi (200 bar)
- Maximum System Pressure Brass: 1,500 psi (100 bar)
- Accuracy $\pm 2\%$ full scale ascending

Convoluted Diaphragm Gauge (PVD)

- Operates on a convoluted diaphragm sensor for low range flow, liquid and vacuum applications. Used in tank level, horizontal or vertical flow applications, filtering of very low pressure gases.
- Standard Differential Range: 0-5 thru 400" H₂O (12.4 mbar-1 bar)
- Maximum System Pressure Aluminum, brass, SS: 500 psi (35 bar)
- Maximum System Pressure Engineered plastic: 300 psi (20 bar)
- Maximum System Pressure Hastelloy® C: 500 psi (35 bar)
- Accuracy 0-5 thru 9.9" H₂O $\pm 5\%$, 0-10 thru 400" H₂O $\pm 2\%$

Note: Technical drawings are available upon request



1. Bottom Connection
2. Back Connection

Description & Features:

- Highly accurate reading of low pressures
- Brass or stainless steel wetted parts
- Ranges from 15" H₂O/oz to +10 psi
- CRN registered
- 5 year warranty

Applications:

- Suitable for measuring gaseous media both corrosive and non-corrosive
- Used to measure natural gas pressure as well as air flow indications and leak detection
- Vacuum pumps, air compressors, air filters, gas burners, vacuum ovens, suction regulators and respirators

Specifications	Stainless Steel Internals	Brass Internals
Dial	2.5" (63mm), 4" (100mm), 4.5" (115mm) and 6" (150mm), white aluminum dial with black and red markings	2.5" (63mm), 4" (100mm), 4.5" (115mm) and 6" (150mm), white aluminum dial with black and red markings
Case	2.5" (63mm), 4" (100mm): AISI 304 SS 4.5" (115mm), 6" (150mm): Aluminum, painted black	2.5" (63mm), 4" (100mm): Steel, painted black 4.5" (115mm), 6" (150mm): Cast aluminum, painted black
Lens	2.5" (63mm), 4" (100mm): Polycarbonate 4.5" (115mm), 6" (150mm): Glass	2.5" (63mm), 4" (100mm): Polycarbonate 4.5" (115mm), 6" (150mm): Glass
Ring	2.5" (63mm), 4" (100mm): Steel 4.5" (115mm), 6" (150mm): Aluminum	2.5" (63mm), 4" (100mm): Steel 4.5" (115mm), 6" (150mm): Aluminum
Socket	AISI 316 SS	Brass
Connection	1/4" NPT standard	1/4" NPT standard
Diaphragm Element	AISI 316 SS	Phosphor bronze
Movement	AISI 316 SS	2.5" (63mm): Engineering plastic upper and lower plate with brass pinion and sector; 4" (100mm), 4.5" (115mm), 6" (150mm): Brass
Pointer	Aluminum, anodized black	Aluminum, anodized black
Welding	TIG	Solder/brazed
Working Pressure	75% of full scale value	60% of full scale value (fluctuating) 75% of full scale value (static)
Over-Pressure Limit	30% of full scale value	30% of full scale value
Ambient/Process Temperature	-40°F to 150°F (-40°C to 65°C)	-40°F to 150°F (-40°C to 65°C)
Accuracy	±1.6% FS	2.5", 4" (100mm), 4.5" (115mm), 6" (150mm): ±3-2-3% ANSI/ASME Grade B
Enclosure Rating	IP52	IP52

Order Codes (products in bold are normally in stock)

Dial Size	2.5" (63mm)			4" (100mm)				4.5" (115mm)			
Case Material	Steel		SS	Steel	SS	Steel		Aluminum		Aluminum	
Connection	1/4" Bottom	1/4" Centre Back	1/4" Bottom	1/4" Bottom		1/4" Centre Back		1/4" Bottom		1/4" Centre Back	
Movement, Socket, Capsule	Brass	Brass	SS	Brass	SS	Brass	SS	Brass	SS	Brass	SS
0/15" water/vac	PLP300V	PLP340V	PLP350V	PLP310V	PLP4200V	PLP4230V	PLP4240V	PLP4250V	PLP4260V	PLP4290V	PLP4300V
0/32" water/vac	PLP301V	PLP341V	PLP351V	PLP311V	PLP4201V	PLP4231V	PLP4241V	PLP4251V	PLP4261V	PLP4291V	PLP4301V
0/55" water/vac	PLP302V	PLP342V	PLP352V	PLP312V	PLP4202V	PLP4232V	PLP4242V	PLP4252V	PLP4262V	PLP4292V	PLP4302V
0/100" water/vac	PLP304V	PLP343V	PLP353V	PLP313V	PLP4203V	PLP4233V	PLP4243V	PLP4253V	PLP4263V	PLP4293V	PLP4303V
0/200" water/vac	PLP303V	-	PLP356V	-	-	-	-	-	-	-	-
0/15" water/oz	PLP300	PLP340	PLP350	PLP310	PLP4200	PLP4230	PLP4240	PLP4250	PLP4260	PLP4290	PLP4300
0/32" water/oz	PLP301	PLP341	PLP351	PLP311	PLP4201	PLP4231	PLP4241	PLP4251	PLP4261	PLP4291	PLP4301
0/55" water/oz	PLP302	PLP342	PLP352	PLP312	PLP4202	PLP4232	PLP4242	PLP4252	PLP4262	PLP4292	PLP4302
0/100" water/oz	PLP304	PLP343	PLP353	PLP313	PLP4203	PLP4233	PLP4243	PLP4253	PLP4263	PLP4293	PLP4303
0/200" water/oz	PLP303	PLP346	PLP356	PLP316	PLP4206	PLP4236	PLP4246	PLP4256	PLP4266	PLP4296	PLP4306
0/5 psi/kPa	PLP305	PLP344	PLP354	PLP314	PLP4204	PLP4234	PLP4244	PLP4254	PLP4264	PLP4294	PLP4304
0/10 psi/kPa	PLP306	PLP345	PLP355	PLP315	PLP4205	PLP4235	PLP4245	PLP4255	PLP4265	PLP4295	PLP4305

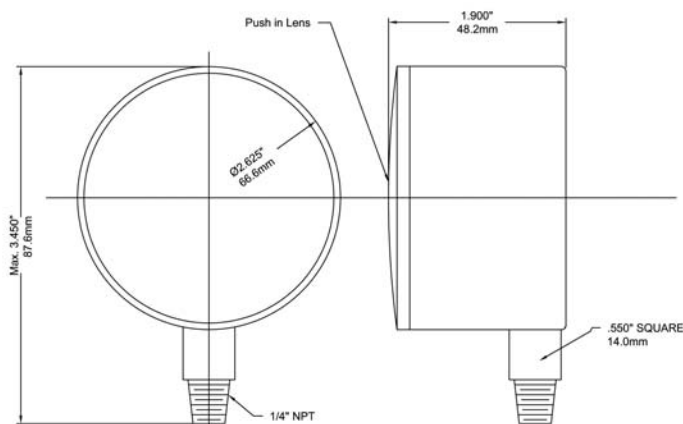
Dial Size	6" (150mm)			
Case Material	Aluminum		Aluminum	
Connection	Bottom 1/4"		Centre Back 1/4"	
Movement, Socket, Capsule	Brass	SS	Brass	SS
0/15" water/vac	PLP4310V	PLP4320V	-	-
0/32" water/vac	PLP4311V	PLP4321V	-	-
0/55" water/vac	PLP4312V	PLP4322V	-	-
0/100" water/vac	PLP4313V	PLP4323V	-	-
0/200" water/vac	-	-	-	-
0/15" water/oz	PLP4310	PLP4320	-	PLP4360
0/32" water/oz	PLP4311	PLP4321	PLP4351	PLP4361
0/55" water/oz	PLP4312	PLP4322	-	-
0/100" water/oz	PLP4313	PLP4323	PLP4353	PLP4363
0/200" water/oz	PLP4316	PLP4326	-	-
0/5 psi/kPa	PLP4314	PLP4324	PLP4354	PLP4364
0/10 psi/kPa	PLP4315	PLP4325	PLP4355	PLP4365

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. **For options, attach suffix to end of order code: i.e. PLP340-UC for U-CLAMP.**

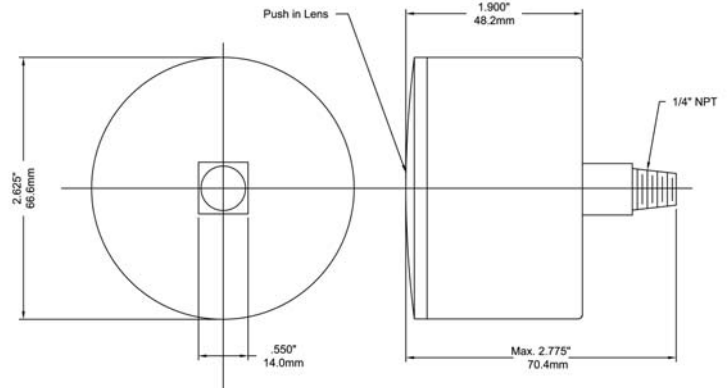
Option suffix:

- 45Phenolic = Phenolic case on 4.5" SS
- LPBF = Back flange (all sizes except 2.5")
- LPFF = 4.5"(115mm) Front flange
- LPFF6 = 6" (150mm) Front flange
- UC = 2.5"(63mm) U-Clamp

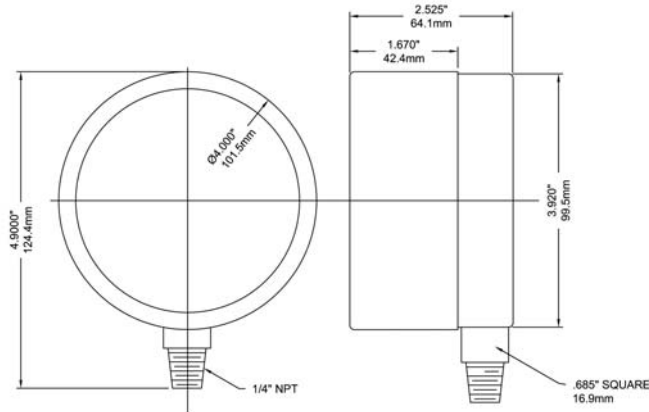
2.5" Bottom Connection Brass



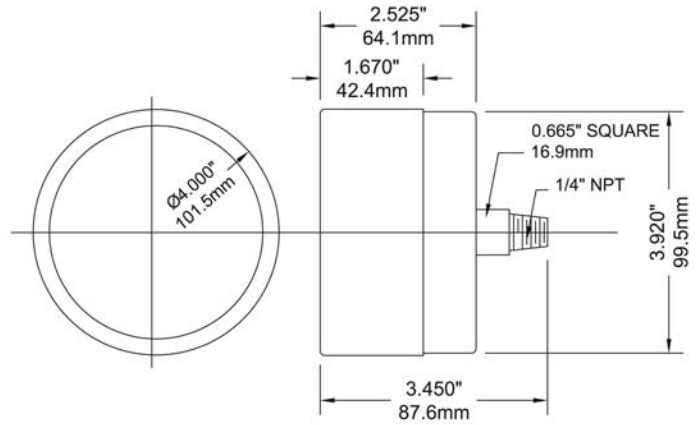
2.5" Back Connection Brass



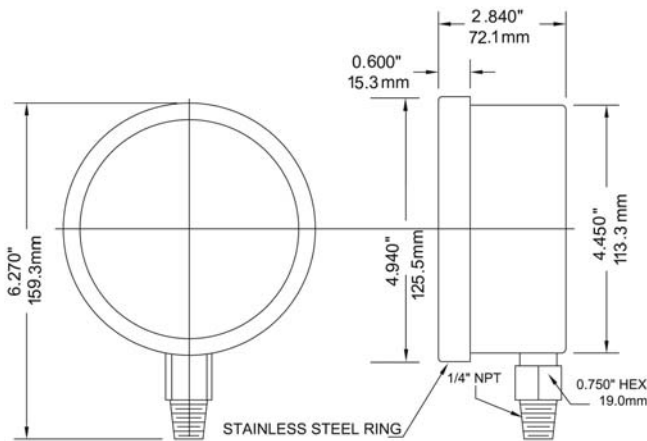
4" Bottom Connection Brass



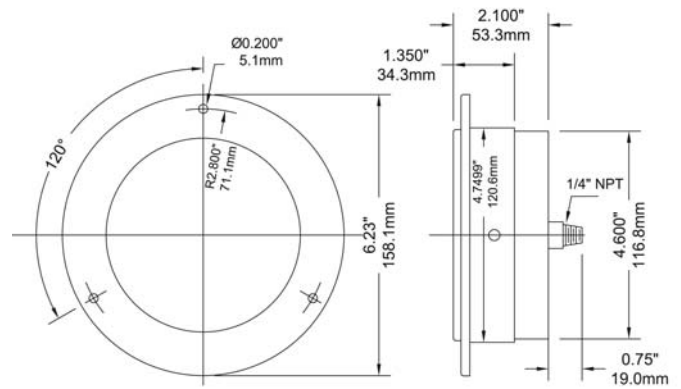
4" Back Connection Brass



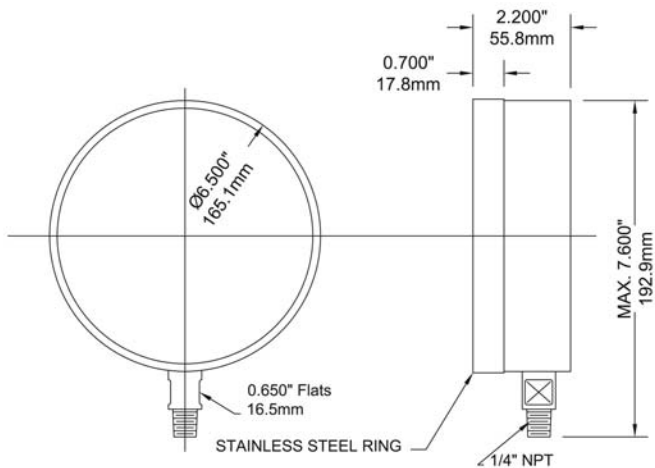
4.5" Bottom Connection Stainless Steel



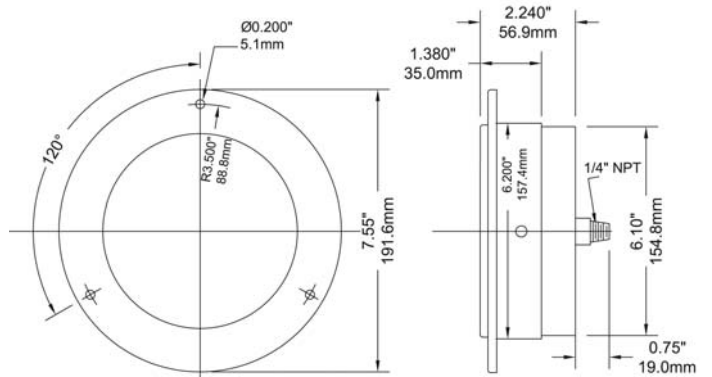
4.5" Back Connection Stainless Steel with Front Flange



6" Bottom Connection Stainless Steel



6" Back Connection Stainless Steel





Description & Features:

- Developed for use in general industry and OEM applications, where versatility and economy are requirements
- Compact stainless steel construction with ceramic sensor
- Available ranges include in/Hg up to 5,000 psi
- Wide range of mechanical and electrical connections
- $\pm 0.5\%$ accuracy
- NEMA 4X / IP65 and IP67
- CE, CSA and RoHS compliant
- Approved for outdoor use
- Customizable
- 1 year warranty

Applications:

- Suitable for all process and automation control, hydraulics and pneumatic sensing, pump and compressor monitoring, refrigeration and HVAC

Specifications	
Output Signal	Standard 2-wire: 4-20 mA / $V_s = 8-32$ Vdc Optional 3-wire: 0-10 V / $V_s = 14-30$ Vdc Optional 3-wire ratiometric: $V_{sig} = 0.5-4.5 V_s / V_s = 5 \pm 0.5$ Vdc
Accuracy	$\pm 0.5\%$ FSO
Permissible Load	2-wire: $R_{max} = [(V_s - V_{s\ min}) / 0.02]$ Ohm 3-wire: $R_{min} = 10$ kOhm
Influence Effects	Supply: 0.05% FSO / 10 V Load: 0.05% FSO / kOhm
Response Time	2-wire: <10 msec 3-wire: <3 msec
Measuring Rate	1 kHz
Thermal Error	$< \pm 0.5\%$ FSO / 10K
Permissible Temperatures	Medium: -13°F to 257°F (-25°C to 125°C) Electronics environment: -13°F to 185°F (-25°C to 85°C) Storage: -40°F to 185°F (-40°C to 85°C)
Short-circuit Protection	Permanent 3-wire ratiometric: None
Reverse Polarity Protection	No damage. No function.
Electromagnetic Protection	Emission and immunity according to EN 61326
Stability	Vibration: 10 g, 25 Hz to 2 kHz according to DIN EN 60068-2-6 Shock: 500 g / 1 msec according to DIN EN 60068-2-27
Pollution Degree	4, electrical equipment for outdoor use
Pressure Port / Housing	304 SS
Wetted Parts	Seals: FKM (Viton [®] standard). Others available upon request. Diaphragm: Ceramic Al_2O_3 96%
Weight	120 g
Current Consumption	2-wire: 25 mA max 3-wire voltage: 5 mA (short-circuit current 20 mA) 3-wire ratiometric: 1.5 mA
Long-term Stability	$< \pm 0.3\%$ FSO/yr at reference conditions
Operation Life	$> 100 \times 10^6$ cycles
CE Conformity	EMC directive: 2004/108/EC Pressure equipment directive: 97/23/EC (module A). Valid for devices with max permissible overpressure $> 3,000$ psi

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LE3 General Purpose Transmitter

Order Codes (products in bold are normally in stock)

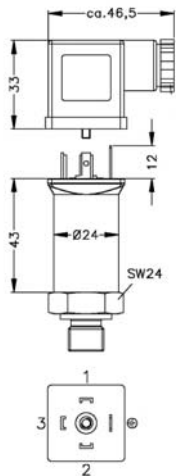
Range	Overpressure	Burst Pressure	Code
30" Hg Vac	15 psi	44 psi	LE330VC
0/15 psi	15 psi	44 psi	LE315
0/25 psi	58 psi	102 psi	LE325
0/50 psi	58 psi	102 psi	LE350
0/60 psi	145 psi	218 psi	LE360
0/100 psi	145 psi	218 psi	LE3100
0/150 psi	290 psi	508 psi	LE3150
0/200 psi	580 psi	1,015 psi	LE3200
0/300 psi	580 psi	1,015 psi	LE3300
0/500 psi	1,450 psi	2,176 psi	LE3500
0/1,000 psi	1,450 psi	2,176 psi	LE31000
0/2,000 psi	2,901 psi	3,626 psi	LE32000
0/3,000 psi	5,802 psi	6,527 psi	LE33000
0/5,000 psi	5,802 psi	6,527 psi	LE35000

Note: Other connections available upon request

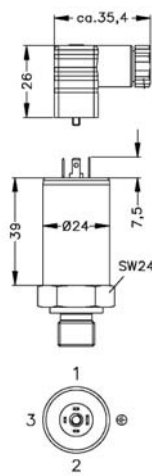
Electrical Connection

Standard

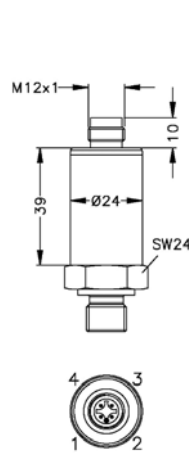
Optional



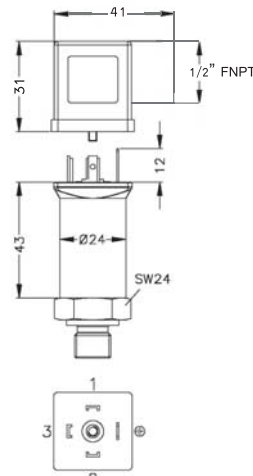
ISO 4400
(IP 65)



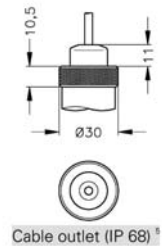
Micro, contact
distance 9.4 mm (IP 65)



M12x1, 4-pin
(IP 67)



DIN 43650 A
1/2" NPTF conduit fitting



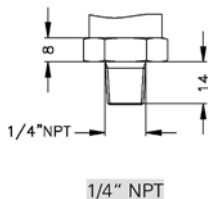
Cable outlet (IP 68)⁵

⁵ Different cable
types/lengths available

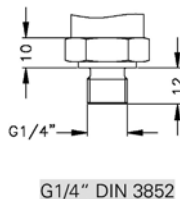
Mechanical Connection

Standard

Optional



1/4" NPT



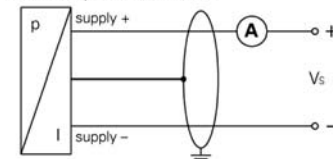
G1/4" DIN 3852

Wiring Diagram

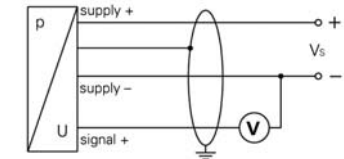
Standard

Optional

2-wire-system (current)



3-wire-system (voltage)



Note: Measurements are in mm

Pin Configuration

Electrical Connection	ISO 4400	Micro (contact distance 9.4mm)	M12x1 (4 pin), plastic	Cable Colours (DIN 47100)
Supply+	1	1	1	White
Supply-	2	2	2	Brown
Signal+ (for 3-wire)	3	3	3	Green
Shield	Ground pin	Ground pin	4	Green/yellow



Description & Features:

- Universal transmitter with a high level of accuracy and stability
- Designed especially for aggressive media
- Rugged stainless steel construction with ceramic sensor
- Available ranges include in/Hg up to 8,700 psi
- Wide range of mechanical and electrical connections
- ±0.25% accuracy
- NEMA 4X and 6P / IP65, IP67 and IP68
- CE, CSA and RoHS compliant
- Approved for outdoor use
- Customizable
- 1 year warranty

Applications:

- Appropriate for environmental monitoring, machine tool and presses, test equipment and many other applications

Specifications	
Output Signal	Standard 2-wire: 4-20 mA / Vs = 12-36 Vdc Optional 3-wire: 0-20 mA / Vs = 14-36 Vdc 0-10 V / Vs = 14-36 Vdc
Accuracy	±0.25% FSO
Permissible Load	Current 2-wire: Rmax = [(Vs - Vs min) / 0.02] Ohm Current 3-wire: Rmax = 500 Ohm Voltage 3-wire: Rmin = 10 kOhm
Influence Effects	Supply: 0.05% FSO / 10 V Load: 0.05% FSO / kOhm
Response Time	<10 msec
Thermal Error	<±0.2% FSO / 10K In compensated range: -13°F to 185°F (-25°C to 85°C)
Permissible Temperatures	Medium: -40°F to 275°F (-40°C to 135°C) Electronics environment: -40°F to 185°F (-40°C to 85°C) Storage: -40°F to 212°F (-40°C to 100°C)
Short-circuit Protection	Permanent
Reverse Polarity Protection	No damage. No function.
Electromagnetic Protection	Emission and immunity according to EN 61326
Stability	Vibration: 10 g RMS (20 to 2,000 Hz) Shock: 100 g / 11 msec
Pollution Degree	4, electrical equipment for outdoor use
Housing	304 SS
Pressure Port	316 Ti SS
Wetted Parts	Seals: P _N < 1450 psi: FKM (Viton® standard, Kalrez® optional). P _N > 1450 psi: NBR (Buna N). Others available. Diaphragm: Ceramic Al ₂ O ₃ 96%
Weight	140 g
Current Consumption	Current: 25 mA max Voltage: 7 mA max
Operation Life	>100 x 10 ⁶ cycles
Connecting Cables	Cable capacitance: Signal line/shield and signal line/signal line: 160 pF/m Cable inductance: Signal line/shield and signal line/signal line: 1 µH/m

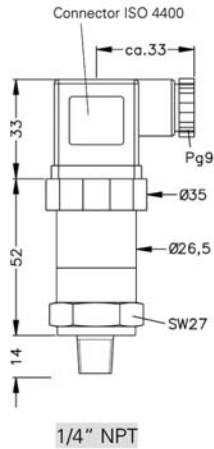
Order Codes

Range	Over-pressure	Burst Pressure	Code
30" Hg Vac	58 psi	102 psi	LIM428
0/15 psi	29 psi	58 psi	LIM429
0/20 psi	58 psi	73 psi	LIM435
0/35 psi	58 psi	73 psi	LIM445
0/60 psi	145 psi	174 psi	LIM447
0/85 psi	145 psi	174 psi	LIM448
0/145 psi	290 psi	363 psi	LIM449
0/230 psi	580 psi	725 psi	LIM450
0/360 psi	580 psi	725 psi	LIM451
0/580 psi	1,450 psi	1,740 psi	LIM452
0/870 psi	1,450 psi	1,740 psi	LIM453
0/1,500 psi	2,901 psi	3,626 psi	LIM454
0/2,300 psi	5,802 psi	7,252 psi	LIM455
0/3,600 psi	5,802 psi	7,252 psi	LIM456
0/5,800 psi	8,702 psi	9,427 psi	LIM457
0/8,700 psi	11,603 psi	12,763 psi	LIM458

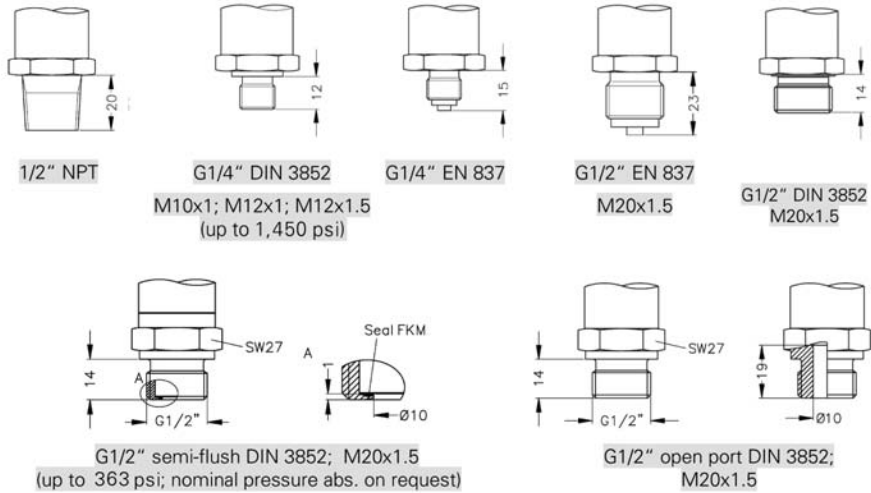
Kalrez® is a registered trademark of DuPont Performance Elastomers
Viton® is a registered trademark of DuPont Performance Elastomers

Mechanical Connection

Standard

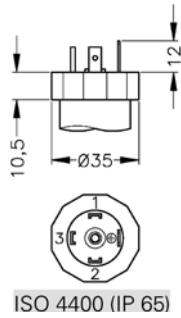


Optional



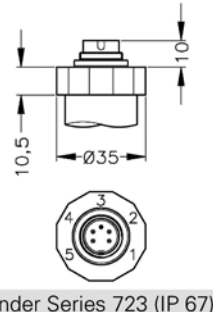
Electrical Connection

Standard

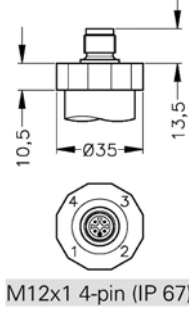


ISO 4400 (IP 65)

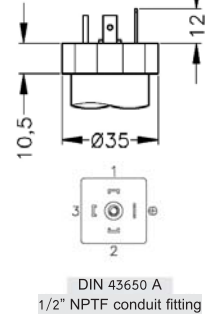
Optional



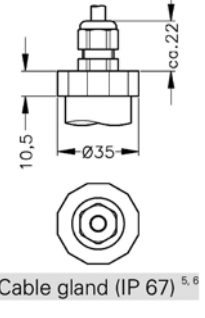
Binder Series 723 (IP 67)



M12x1 4-pin (IP 67)



DIN 43650 A
1/2" NPTF conduit fitting



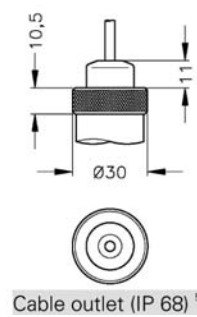
Cable gland (IP 67)^{5,6}

Note: Measurements are in mm

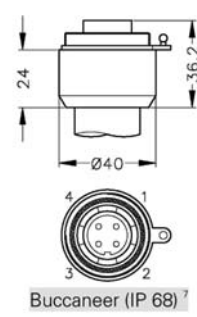
⁵ Different cable types/lengths available

⁶ Standard: 2m PVC cable without ventilation tube. Optional: Cable with ventilation tube

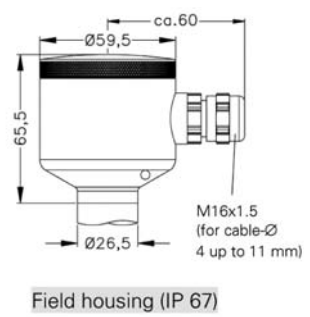
⁷ For gauge pressures up to 580 psi, cable with ventilation tube required



Cable outlet (IP 68)⁵



Buccaneer (IP 68)⁷

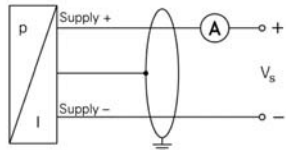


Field housing (IP 67)

Wiring Diagram

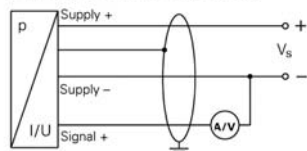
Standard

2-wire-system (current)



Optional

3-wire-system (current / voltage)



Pin Configuration

Electrical Connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	Buccaneer (4-pin)	Field Housing	Cable Colours (DIN 47100)
2-wire system	Supply+	1	3	1	IN+	White
	Supply-	2	4	2	IN-	Brown
	Ground	Ground pin	5	4	≡	Yellow/green (shield)
3-wire system	Supply+	1	3	1	IN+	White
	Supply-	2	4	2	IN-	Brown
	Signal+	3	1	3	OUT+	Green
	Ground	Ground pin	5	4	≡	Yellow/green (shield)



Description & Features:

- Approved for intrinsically-safe applications in Class 1/Div. 1 hazardous areas
- Rugged stainless steel construction with ceramic sensor
- Available ranges include in/Hg up to 8,700 psi
- Wide range of mechanical and electrical connections
- ±0.25% accuracy
- NEMA 4X and 6P / IP65, IP67 and IP68
- Approved for outdoor use
- Customizable
- 1 year warranty

Applications:

- Appropriate for all hazardous areas where an intrinsically safe rating is required, including oil & gas and chemical installations

Specifications	
Output Signal	Standard 2-wire: 4-20 mA / Vs = 12-36 Vdc Ex-protection: Vs = 14-28 Vdc Optional 3-wire: 0-20 mA / Vs = 14-36 Vdc 0-10 V / Vs = 14-36 Vdc
Accuracy	±0.25% FSO
Permissible Load	Current 2-wire: Rmax = [(Vs - Vs min) / 0.02] Ohm Current 3-wire: Rmax = 500 Ohm Voltage 3-wire: Rmin = 10 kOhm
Influence Effects	Supply: 0.05% FSO / 10 V Load: 0.05% FSO / kOhm
Response Time	<10 msec
Thermal Error	<±0.2% FSO / 10K In compensated range: -13°F to 185°F (-25°C to 85°C)
Permissible Temperatures	Medium: -13°F to 275°F (-25°C to 135°C) Electronics environment: -13°F to 185°F (-25°C to 85°C) Ex-protection Zone 0: -4°F to 140°F (-20°C to 60°C) Ex-protection Zone 1/higher: -13°F to 158°F (-25°C to 70°C) Storage: -40°F to 212°F (-40°C to 100°C)
Short-circuit Protection	Permanent
Reverse Polarity Protection	No damage. No function.
Electromagnetic Protection	Emission and immunity according to EN 61326
Ex-protection	SS pressure port: Zone 0 ¹ : II 1 G Ex ia IIC T4 Zone 20: II 1 D Ex tD A20 IP65 T 85°C Safety technical max values: Vi = 28 V, I = 93 mA, Pi = 660 mW, Ci < 1nF, L < 10 µH
Stability	Vibration: 10 g RMS (20 to 2,000 Hz) Shock: 100 g / 11 msec
Pollution Degree	4, electrical equipment for outdoor use
Housing	304 SS
Pressure Port	316 Ti SS
Wetted Parts	Seals: P _N < 1450 psi: FKM (Viton [®] standard, Kalrez [®] optional). P _N > 1450 psi: NBR (Buna N). Others available. Diaphragm: Ceramic Al ₂ O ₃ 96%

Weight	140 g
Current Consumption	Current: 25 mA max Voltage: 7 mA max
SIL 2	IEC 61508 / IEC 61511
Operation Life	>100 x 10 ⁶ cycles
Connecting Cables	Cable capacitance: Signal line/shield and signal line/signal line: 160 pF/m Cable inductance: Signal line/shield and signal line/signal line: 1 µH/m

Order Codes

Range	Over-pressure	Burst Pressure	Code
30" Hg Vac	58 psi	102 psi	LIS382
0/15 psi	29 psi	58 psi	LIS383
0/20 psi	58 psi	73 psi	LIS384
0/35 psi	58 psi	73 psi	LIS385
0/60 psi	145 psi	174 psi	LIS386
0/85 psi	145 psi	174 psi	LIS387
0/145 psi	290 psi	363 psi	LIS388
0/230 psi	580 psi	725 psi	LIS389
0/360 psi	580 psi	725 psi	LIS390
0/580 psi	1,450 psi	1,740 psi	LIS391
0/870 psi	1,450 psi	1,740 psi	LIS392
0/1,500 psi	2,901 psi	3,626 psi	LIS393
0/2,300 psi	5,802 psi	7,252 psi	LIS394
0/3,600 psi	5,802 psi	7,252 psi	LIS395
0/5,800 psi	8,702 psi	9,427 psi	LIS396
0/8,700 psi	11,603 psi	12,763 psi	LIS397

Note: Intrinsically safe approval only applies to 4-20 mA output signal

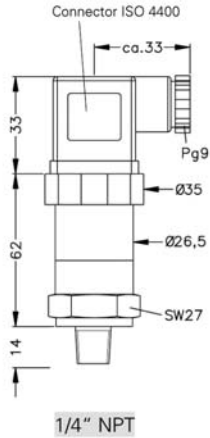
Kalrez[®] is a registered trademark of DuPont Performance Elastomers
Viton[®] is a registered trademark of DuPont Performance Elastomers

¹ Approved for atmospheric pressure from 12 up to 16 psi

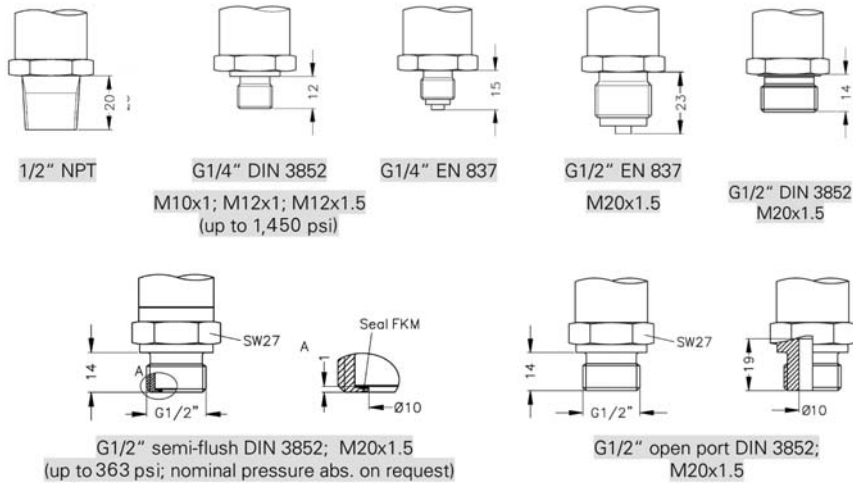
LIS Intrinsically Safe Transmitter

Mechanical Connection

Standard

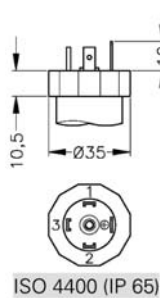


Optional

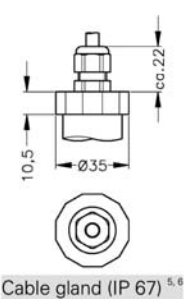
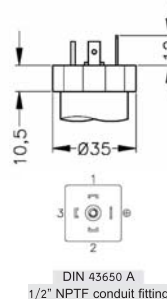
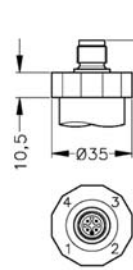
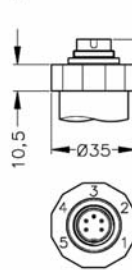


Electrical Connection

Standard



Optional

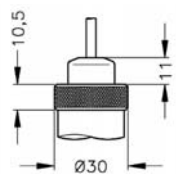


Note: Measurements are in mm

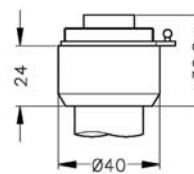
⁵ Different cable types/lengths available

⁶ Standard: 2m PVC cable without ventilation tube. Optional: Cable with ventilation tube

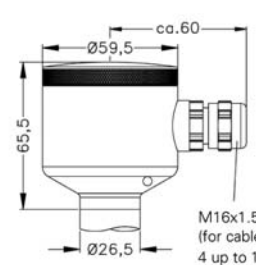
⁷ For gauge pressures up to 580 psi, cable with ventilation tube required



Cable outlet (IP 68) ⁵



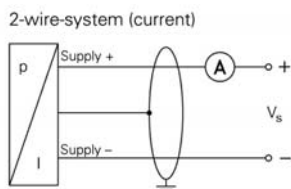
Buccaneer (IP 68) ⁷



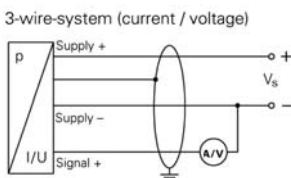
Field housing (IP 67)

Wiring Diagram

Standard



Optional



Pin Configuration

Electrical Connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	Buccaneer (4-pin)	Field Housing	Cable Colours (DIN 47100)
2-wire system	Supply+	1	3	1	IN+	White
	Supply-	2	4	2	IN-	Brown
	Ground	Ground pin	5	4	≐	Yellow/green (shield)
3-wire system	Supply+	1	3	1	IN+	White
	Supply-Signal+	2	4	2	IN-	Brown
	Ground	Ground pin	5	4	≐	Yellow/green (shield)



Description & Features:

- Developed for use in heavy duty industrial applications
- Compact stainless steel construction with welded stainless steel sensor
- Available ranges up to 8,700 psi
- Wide range of mechanical and electrical connections
- ±0.5% accuracy
- NEMA 4X / IP65 and IP67
- CE and RoHS compliant
- Customizable
- 1 year warranty

Applications:

- Suitable for heavy duty process and automation control including mobile hydraulics and presses

Specifications

Output Signal	Standard 2-wire: 4-20 mA / $V_s = 8-32$ Vdc Optional 3-wire: 0-10 V / $V_s = 14-30$ Vdc Optional 3-wire ratiometric: $V_{sig} = 0.5-4.5 V_s / V_s = 5 \pm 0.5$ Vdc
Accuracy	±0.5% FSO
Permissible Load	2-wire: $R_{max} = [(V_s - V_s \text{ min}) / 0.02]$ Ohm 3-wire: $R_{min} = 10$ kOhm
Influence Effects	Supply: 0.05% FSO / 10 V Load: 0.05% FSO / kOhm
Response Time	2-wire: ≤10 msec 3-wire: ≤3 msec
Measuring Rate	1 kHz
Thermal Error	<±0.3% FSO / 10K, Compensated range 0..70°C
Permissible Temperatures	Medium: -40°F to 257°F (-40°C to 125°C) Electronics environment: -40°F to 185°F (-40°C to 85°C) Storage: -40°F to 185°F (-40°C to 85°C)
Short-circuit Protection	Permanent 3-wire ratiometric: None
Reverse Polarity Protection	No damage. No function.
Electromagnetic Protection	Emission and immunity according to EN 61326
Stability	Vibration: 20 g, 25 Hz to 2 kHz according to DIN EN 60068-2-6 Shock: 500 g / 1 msec according to DIN EN 60068-2-27
Pressure Port	316Ti Stainless steel
Pressure Port Connection	1/4" NPT (others available upon request)
Housing	304 Stainless steel
Diaphragm	17-4PH Stainless steel, welded
Weight	120 g
Current Consumption	2-wire: 25 mA max 3-wire voltage: 5 mA (short-circuit current 20 mA) 3-wire ratiometric: 3 mA
Long-term Stability	<±0.3% FSO/yr at reference conditions
Operation Life	>100 x 10 ⁶ cycles
CE Conformity	EMC directive: 2004/108/EC Pressure equipment directive: 97/23/EC (module A). Valid for devices with max permissible overpressure > 3,000 psi

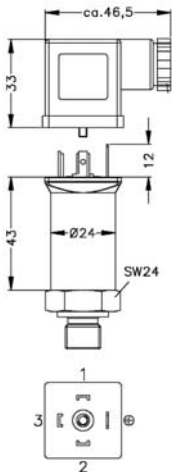
Order Codes

Range	Overpressure	Burst Pressure	Code
0/100 psi	203 psi	406 psi	LMH0100
0/145 psi	508 psi	1015 psi	LMH0145
0/230 psi	508 psi	1015 psi	LMH0230
0/360 psi	1015 psi	2030 psi	LMH0360
0/580 psi	2030 psi	4060 psi	LMH0580
0/870 psi	2030 psi	4060 psi	LMH0870
0/1,500 psi	5075 psi	10150 psi	LMH1500
0/2,300 psi	5075 psi	10150 psi	LMH2300
0/3,600 psi	10150 psi	20305 psi	LMH3600
0/5,800 psi	17405 psi	21755 psi	LMH5800
0/8,700 psi	17405 psi	21755 psi	LMH8700

Note: Other connections available upon request

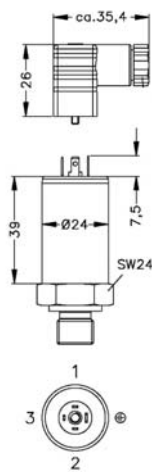
Electrical Connection

Standard

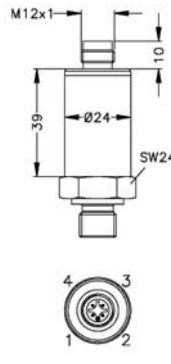


ISO 4400
(IP 65)

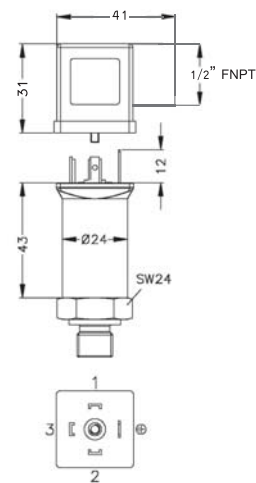
Optional



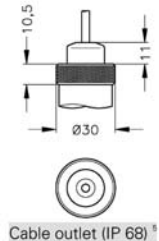
Micro, contact
distance 9.4 mm (IP 65)



M12x1, 4-pin
(IP 67)



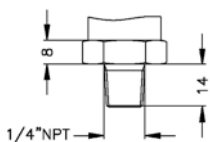
DIN 43650 A
1/2" NPTF conduit fitting



Cable outlet (IP 68)⁵
⁵ Different cable types/lengths available

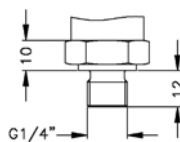
Mechanical Connection

Standard



1/4" NPT

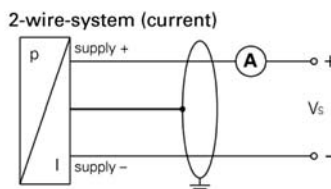
Optional



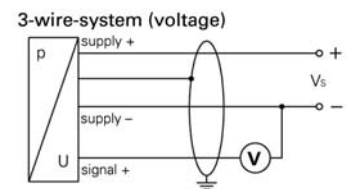
G1/4" DIN 3852

Wiring Diagram

Standard



Optional



Note: Measurements are in mm

Pin Configuration

Electrical Connection	ISO 4400	Micro (contact distance 9.4mm)	M12x1 (4 pin), plastic	Cable Colours (DIN 47100)
Supply+	1	1	1	White
Supply-	2	2	2	Brown
Signal+ (for 3-wire)	3	3	3	Green
Shield	Ground pin	Ground pin	4	Green/yellow



Description & Features:

- Extremely robust and stable long-term
- Shock and vibration resistant
- $\pm 0.25\%$ FSO BFSL accuracy
- 15,000 psi nominal pressure range
- Permissible overpressure up to 22,500 psi
- Standard 80% shunt calibration
- Eight gauge sensor design
- 1 year warranty

Applications:

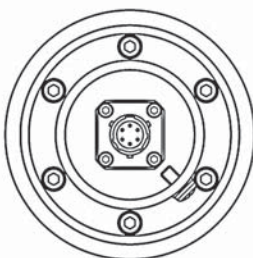
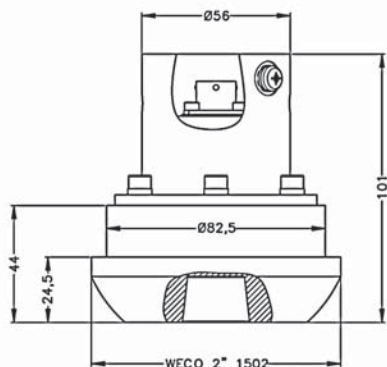
- Designed to be used with WECO® 1502 style union fittings for high pressure/harsh oil well environments like fracturing, cementing, acidizing and mud pressure management

Specifications

Electrical Output Signal	2-wire: 4-20 mA
Electrical Connection	MIL-/ Bendix 6-pin
Excitation Voltage	VS = 10-30 VDC
Housing	316L SS
Pressure port/diaphragm	SS 1.4548 (17-4PH)
Normal Operating Temperature Range	-40°F to 257°F (-40°C to 125°C)
Compensated Temp. Range	23°F to 140°F (-5°C to 60°C)
Temp. Effect on Zero/Span	Less than $\pm 2\%$ FSO per 212°F (100°C)
Accuracy	$\pm 0.25\%$ FSO BFSL
Stability	Shock: 100g/11ms $\pm 0.5\%$ FSO per 6 months
Enclosure Rating	IP67

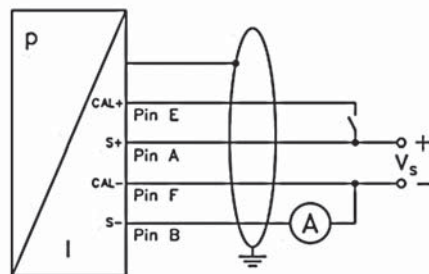
Order Codes

Range	Permissible Overpressure	Code
15,000 psi	22,500 psi	LOH425



Note: Measurements are in mm

Wiring Diagram



WECO® is a registered trademark of FMC Technologies

LTD Differential Transmitter



1. Low Range
2. High Range



Description & Features:

- Designed to measure the wet to wet differential pressures of liquids and gases
- Compact, efficient design available in Low or High psi ranges that facilitates installation in tight spaces
- Low Range housing is constructed of stainless steel and aluminum
- High Range housing is made from a 316-grade stainless steel ideally suited for an industrial environment
- Fast response sensor and signal conditioned electronic circuitry provide quick and accurate readings
- Unique isolation system responds to pressure changes approximately 20 times faster than conventional transmitters with ranges below 100 psi (Low Range Model)
- CE approval is standard on all models
- NEMA 4 approval is standard on the Low Range model
- 1 year warranty

Applications:

- To measure drops across filters
- Pumps and compressors, flow measurements of gases and liquids, liquid level measurement of pressurized vessels

Specifications	Low Range	High Range
Electrical Output	4-20mA, 2 wire 0-5 VDC or 0-10 VDC	4-20mA, 2 wire (Other options available)
Electrical Connection	Barrier trip terminal block with conduit enclosure and 0.875 DIA conduit opening	DIN 43650 with mate
Excitation Voltage	9-30 VDC	8-38 VDC
Wetted Parts/ Connection	17-4PH stainless steel with Viton® O-ring, 1/4" - 18 NPT female	316L SS, 1/4" NPT female 300 series SS, 17-4PH SS with Viton® O-ring
Housing	304 SS, cast aluminum	316L SS
Proof Pressure	Refer to pressure range chart on next page	3X full scale (max. 10,000 psi) (20X full scale optional)
Burst Pressure	Refer to pressure range chart on next page	5X full scale (max. 10,000 psi)
Normal Operating Temperature Range	0°F to 175°F (-17°C to 82°C)	-40°F to 170°F (-40°C-76°C)
Compensated Temperature Range	30°F to 150°F (0°C to 65°C)	-40°F to 170°F (-40°C-76°C)
Ambient Temperature Effect on Zero/Span	±2% of full scale/100°F (37.7°C)	Less than ±1.5% FSO per 100°F (37.7°C)
Response Time	30-50 ms	50 ms
Long Term Stability	±0.5% full scale per annum	±0.25% FSO per annum
Weight	14.4 oz. (408 g)	13 oz. (368 g)
Accuracy	±0.25% FSO	±0.25% FSO
Enclosure Rating	IP65	IP65

Viton® is a registered trademark of DuPont Performance Elastomers

LTD Low Range					
Uni-directional			Bi-directional		
Gauge psid	Proof Pressure psi	Burst Pressure psi	Gauge psid	Proof Pressure psi	Burst Pressure psi
0-1	2.5	20	0 to ± 0.5	1.25	20
0-2	5	40	0 to ± 1	2.5	40
0-5	12.5	100	0 to ± 2.5	6.25	100
0-10	25	100	0 to ± 5	12.5	100
0-25	62.5	250	0 to ± 10	25	200
0-50	125	250	0 to ± 25	62.5	250
0-100	250	250	0 to ± 50	12.5	250

LTD High Range		
Gauge psid	Proof Pressure psi	Burst Pressure psi
0-50	100	750
0-100	200	1,000
0-200	500	2,000
0-500	1,000	3,000
0-1,000	2,000	5,000
0-3,000	4,500	7,500
0-5,000	7,500	10,000

Order Codes

Low Range Wet/Wet Unidirectional	
Range	Code
0-1 (27.7in/H ₂ O)	LTDU1
0-2 (55.4in/H ₂ O)	LTDU2
0-5 (138.4in/H ₂ O)	LTDU5
0-10 (276.8in/H ₂ O)	LTDU10
0-25 psi	LTDU25
0-50 psi	LTDU50
0-100 psi	LTDU100

Low Range Wet/Wet Bidirectional	
Range	Code
$\pm 0-0.5$ (13in/H ₂ O)	LTDB0.5
$\pm 0-1$ (27.7in/H ₂ O)	LTDB1
$\pm 0-2.5$ (69in/H ₂ O)	LTDB2.5
$\pm 0-5$ (138.4in/H ₂ O)	LTDB5
$\pm 0-10$ (276.8in/H ₂ O)	LTDB10
$\pm 0-25$ psi	LTDB25
$\pm 0-50$ psi	LTDB50

High Range Wet/Wet	
Range	Code
0-150 psid	LTD150
0-200 psid	LTD2000
0-300 psid	LTD300
0-500 psid	LTD500
0-1,000 psid	LTD1000
0-3,000 psid	LTD3000
0-5,000 psid	LTD5000

Option suffix for above order codes only:

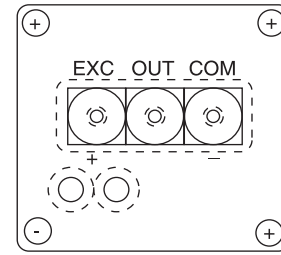
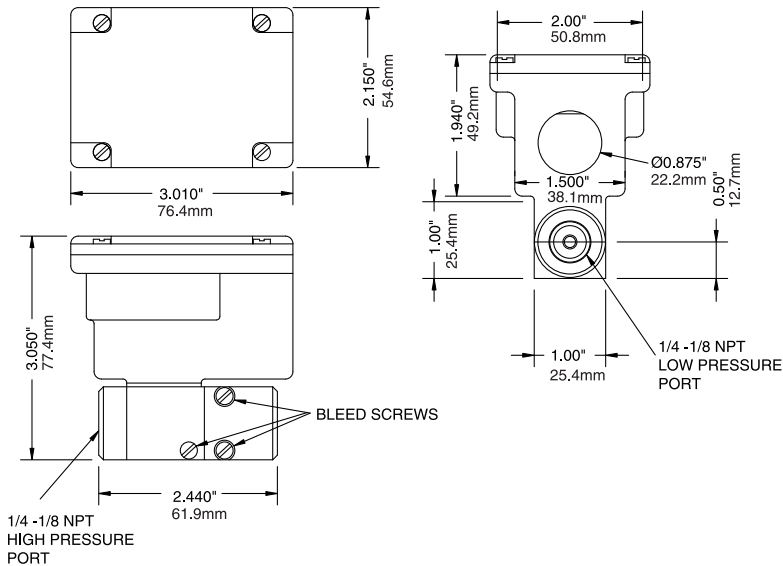
4WCABLE = 4 wire shielded data cable (per ft.)
 Other ranges (e.g. bar, etc.) available upon request
 Other outputs and options available

Definitions:

- Wet/Wet = Can be used on any liquid or gas that is compatible with 316 SS
- Uni-directional = The instrument is calibrated with a 4 mA output at 0 psid and 20 mA output at full scale (i.e. For 0-10 psid range: 4 mA = 0 psid and 20 mA = 10 psid)
- Bi-directional = The instrument is calibrated with a 12 mA output at 0 psid/zero centre (i.e. For 0-10 psid range: 4 mA = -5 psid, 12 mA = 0 psid and 20 mA = +5 psid)

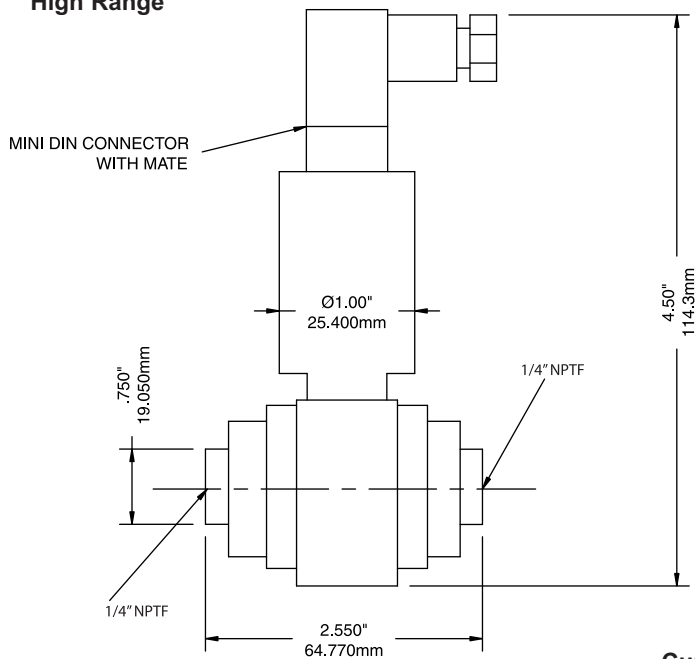
LTD Differential Transmitter

Low Range

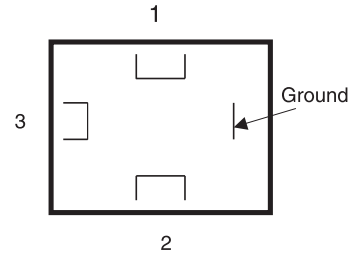


- For voltage output, use COM, OUT and EXC terminals
- For current (4-20 mA) output, use + and - terminals

High Range

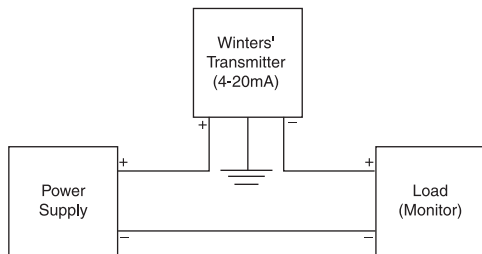


Hirschmann® Mini-Din Pin Out:



4-20mA output Supply Power: 8-38 Vdc

Mini-Din Connection			
Pin	Colour Code	V	mA
1	N/A	+Excitation	+Excitation/Signal
2	N/A	-Excitation/Signal	-Excitation/Signal
3	N/A	+ Signal	NC
Grnd	N/A	Gnd	Gnd
Wire Lead Connection			
Wiring	Colour Code	V	mA
1	Red	+Excitation	+Excitation/Signal
1	Black	-Excitation/Signal	-Excitation/Signal
1	Green	+ Signal	NC
Grnd	Shield/White	Gnd	Gnd



Hirschmann® is a registered trademark of Hirschmann Laborgeräte GmbH & Co.

Current Output Units

- Low Range (current output) transducers are true 2-wire, 4-20 mA current output devices
- Deliver rated current into any external load of 0-1000 ohms
- 4-20 mA current output units are designed to have current flow in one direction only. Please observe polarity
- An electrical cable shield should be connected to the system's loop circuit ground to improve electrical noise rejection

MIN Supply Voltage: $9 + 0.02 \times (\text{Resistance of receiver plus line})$

MAX Supply Voltage: $30 + 0.004 \times (\text{Resistance of receiver plus line})$



Description & Features:

- Unique flush stainless steel diaphragm eliminates any cavity that could form a build-up
- 316-grade thick diaphragm provides higher overpressure and spike protection
- Available ranges include vacuum up to 5,800 psi
- Wide range of mechanical and electrical connections
- Cooling tower option for increased temperature tolerance
- Optional FDA-approved food-compatible oil
- ±0.50% accuracy
- NEMA 4X and NEMA 6P / IP65, IP67 and IP68
- Customizable
- 1 year warranty

Applications:

- Best utilized in conjunction with viscous fluids or media which may clog a standard process connection, e.g. chemical & process engineering, food industry and pulp & paper

Specifications	
Output Signal	Standard 2-wire: 4-20 mA / Vs = 8-32 Vdc Optional 3-wire: 0-20 mA / Vs = 14-30 Vdc 0-10 V / Vs = 14-30 Vdc
Accuracy	±0.50% FSO
Permissible Load	Current 2-wire: Rmax = [(Vs - Vs min) / 0.02] Ohm Current 3-wire: Rmax = 500 Ohm Voltage 3-wire: Rmin = 10 kOhm
Influence Effects	Supply: 0.05% FSO / 10 V Load: 0.05% FSO / kOhm
Long-term Stability	<±0.1% FSO/yr at reference conditions
Response Time	2-wire: <10 msec 3-wire: <3 msec
Thermal Error ¹	<±0.2% FSO / 10K In compensated range: -4°F to 185°F (-20°C to 85°C)
Permissible Temperatures ²	Medium: -40°F to 257°F (-40°C to 125°C) silicon oil 14°F to 257°F (-10°C to 125°C) food grade oil Electronics environment: -40°F to 185°F (-40°C to 85°C) Storage: -40°F to 212°F (-40°C to 100°C)
Permissible Temperature Medium for Cooling Element 572°F (300°C)	Silicon oil overpressure: -40°F to 572°F (-40°C to 300°C) Silicon oil vacuum: -40°F to 302°F (-40°C to 150°C) Food grade oil overpressure: 14°F to 482°F (-10°C to 250°C) Food grade oil vacuum: 14°F to 302°F (-10°C to 150°C)
Short-circuit Protection	Permanent
Reverse Polarity Protection	No damage. No function.
Electromagnetic Compatibility	Emission and immunity according to EN 61326
Stability	Vibration: 20 g RMS (25 to 2,000 Hz) Shock: 500 g / 1 msec
Filling Fluids	Standard: Silicon oil Optional FDA approved: Mobil DTE FM 32, Category Code: H1; NSF reg no. 130662, others available
Housing	316L SS
Pressure Port	316L SS
Wetted Parts	Seals: FKM, others available
Weight	200 g min
Current Consumption	Current: 25 mA max Voltage: 5 mA max

Operation Life	>100 x 10 ⁶ cycles
Connecting Cables	Cable capacitance: Signal line/shield and signal line/signal line: 160 pF/m Cable inductance: Signal line/shield and signal line/signal line: 1 µH/m
Enclosure Rating	NEMA 4X and NEMA 6P / IP65, IP67 and IP68
CE Conformity	EMC directive: 2004/108/EC

Order Codes

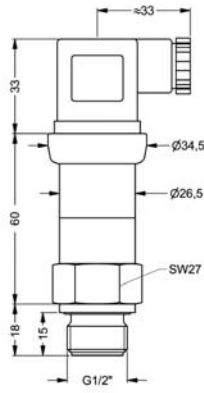
Range	Over-pressure	Burst Pressure	Code
30" Hg Vac	73 psi	109 psi	LTF30VC
0/15 psi	73 psi	109 psi	LTF0015
0/20 psi	145 psi	218 psi	LTF0020
0/35 psi	145 psi	218 psi	LTF0035
0/60 psi	254 psi	363 psi	LTF0060
0/85 psi	508 psi	725 psi	LTF0085
0/145 psi	508 psi	725 psi	LTF0145
0/230 psi	1,160 psi	1,740 psi	LTF0230
0/360 psi	1,160 psi	1,740 psi	LTF0360
0/580 psi	1,523 psi	3,046 psi	LTF0580
0/870 psi	1,450 psi	1,740 psi	LTF0870
0/1,500 psi	2,901 psi	3,626 psi	LTF1500
0/2,300 psi	5,802 psi	7,252 psi	LTF2300
0/3,600 psi	5,802 psi	7,252 psi	LTF3600
0/5,800 psi	8,702 psi	9,427 psi	LTF5800

¹ An optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions
² Max temperature of the medium for over-pressure >0 psi: 302°F (150°C) for 60mins with max environmental temp of 122°F (50°C)

LTF Flush Mount Transmitter

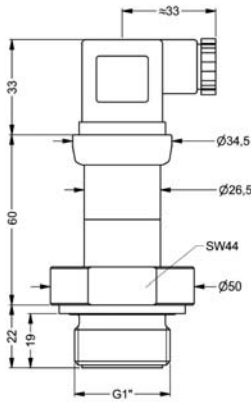
Mechanical Connection

Standard

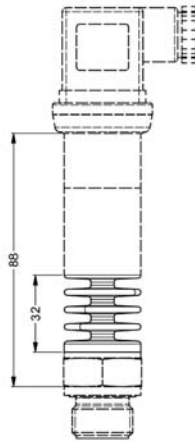


G1/2" DIN 3852
with ISO 4400

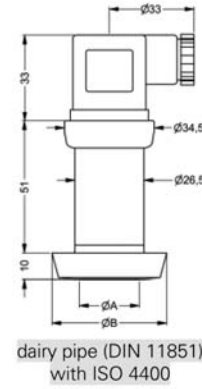
Optional



G1" DIN 3852



cooling element
300 °C⁷

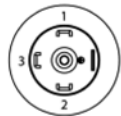
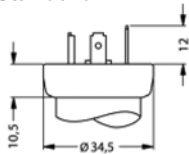


dairy pipe (DIN 11851)
with ISO 4400

dimensions in mm			
size	DN 25	DN 40	DN 50
A	23	32	45
B	44	56	68.5

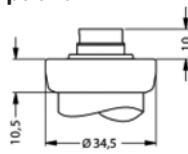
Note: Available up to 580 psi

Standard

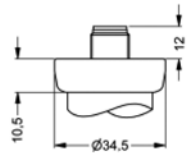


ISO 4400
(IP 65)

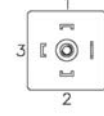
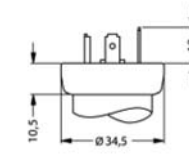
Optional



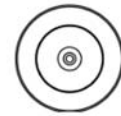
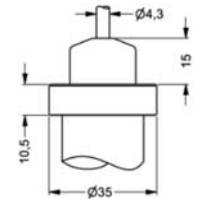
Binder Series 723 5-pin
(IP 67)



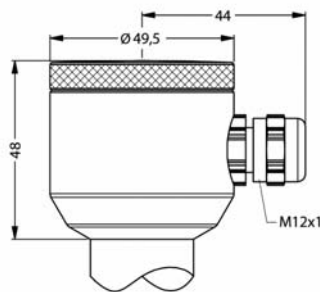
M12x1 4-pin
(IP 67)



DIN 43650 A
1/2" NPTF conduit fitting



cable outlet with PVC cable
(IP 67)⁶



compact field housing
(IP 67)

Note: Measurements are in mm

⁶ Standard: 2m PVC cable without ventilation tube

⁷ Possible for nominal pressure ranges $P_N < 2320$ psi

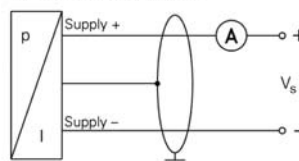
Pin Configuration

Electrical Connection	ISO 4400	Binder 723 (5-pin)	M12x1/metal (4-pin)	Field Housing	Cable Colours (DIN 47100)
Supply+	1	3	1	IN+	White
Supply-	2	4	2	IN-	Brown
Signal+ (for 3-wire)	3	1	3	OUT+	Green
Shield	Ground pin	5	4	⊥	Yellow/green

Wiring Diagram

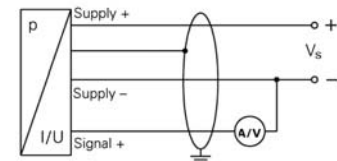
Standard

2-wire-system (current)



Optional

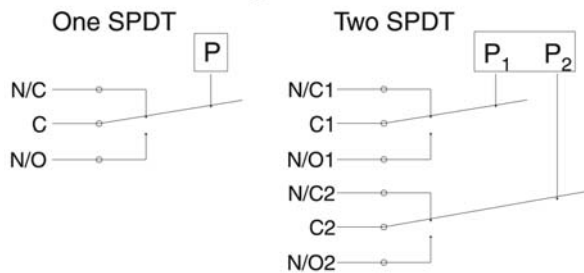
3-wire-system (current / voltage)





Diaphragm Actuated: 2 to 300 PSI
Bellows Actuated: 10 to 3000 PSI

Wiring Schematic



Installation Notes

Orientation - The 2WPS Diaphragm Actuated will operate satisfactorily in any position. However, mounting the device vertically will allow the easiest adjustability and reduce sediment in the pressure chamber.

Wiring - Switches may be wired to 'normally open' or 'normally closed' terminals on electric switch(es). Single switch units have screw terminals while dual switch versions use a terminal block.

Pressure Connection - 1/4" NPT female is standard. 1/2" NPT male is available.

Adjustment - Turn pressure adjustment nut(s) clockwise to increase setpoint. Detailed installation and calibration instructions are provided for every shipment. Settings adjustment is available at no charge.

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 Viton® is a registered trademark of DuPont Performance Elastomers

Description & Features:

- Can be supplied with 1 SPDT electric switch or 2 SPDT electric switches that are independently adjusted
- Can be supplied with no housing or enclosed in a rugged die cast NEMA 4X, 12 and 13 housing. With the cover of the enclosure removed, the terminals of the electric switch(es) and pressure adjustment(s) are exposed for easy wiring and adjustment of the pressure setting
- Field adjustable set points
- Diecast cover is equipped with captive stainless steel screws that retain the cover gasket when the cover is removed. A useful feature of the single switch enclosed model is a calibrated pressure adjustment that aligns with a numerical pressure indicating scale showing the set point range
- 1 year warranty

Applications:

- Common applications include: tank and compressor level and precision control, hydraulic systems, pumping controls and hazardous area lift station controls

Specifications	
Housing	Diecast aluminum
Pressure Connection	1/4" NPT female standard 1/2" NPT male available
Electrical Connection	1/2" NPT male
Port Material	Diaphragm Actuated: Brass Bellow Actuated: SS with silver braze
Diaphragm Material	Buna N, Teflon® protected, Viton®
Deadband	Fixed
Sensitivity	0.5% of range (for SPDT)
Drift	<1% of range (100,000 operations)
Contact Ratings	15A - 125, 250, 480 VAC
Set Point Adjustment	Screw type, field adjustable
No. of Contacts	One or Two SPDT
Contact Listings	UL Recognized, CSA Certified
Maximum Ambient Temperature	Diaphragm Actuated: 180°F (82°C) Bellows Actuated: 180°F (82°C)
Minimum Ambient Temperature	Diaphragm Actuated: -20°F (-29°C) Bellows Actuated: -40°F (-40°C)
Weight	1.5 to 1.8 lbs

Diaphragm Actuated

Adjustable Pressure Range		Maximum Deadband				Maximum Working Pressure	
		Type 2		Type 5			
psi	MPa	psi	kPa	psi	kPa	psi	MPa
0-2	0-0.01	0.25	1.72	0.23	1.59	20	0.14
0-5	0-0.05	0.27	1.86	0.50	3.45	20	0.14
0-10	0-0.07	0.34	2.34	0.90	6.21	50	0.35
0-20	0-0.14	0.50	3.45	1.9	13.1	50	0.35
0-50	0-0.35	1.6	11.03	6.0	41.35	250	1.72
0-100	0-7.0	1.9	13.1	8.3	57.23	250	1.72
0-200	0-1.38	4.4	30.34	16.0	110.3	500	3.45
0-300	0-2.07	5.3	36.54	22.0	151.7	500	3.45

Deadband Notes

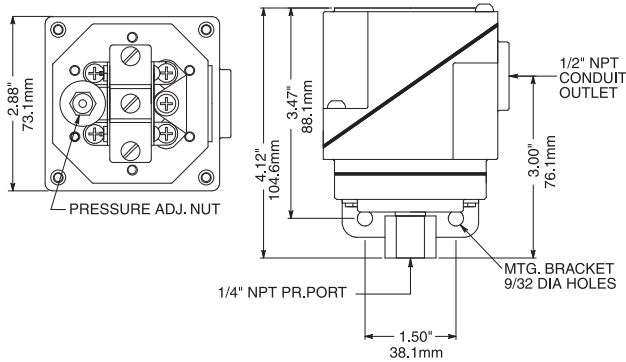
The deadbands listed in the tables are the maximum switch differentials when the standard electric switch is used. Deadband is affected by the type of switch used. Each type of switch's effect on deadband is as follows:

- Type 1** Low Deadband - Use 1/2 Type 2 table values
- Type 2** Std. Deadband - Use table values
- Type 3** High DC Rated - Multiply Type 2 table values by two
- Type 5** Sub Miniature - 2 SPDT - Use Type 5 table values
- Type 6** Gold Contact - Use Type 2 table values

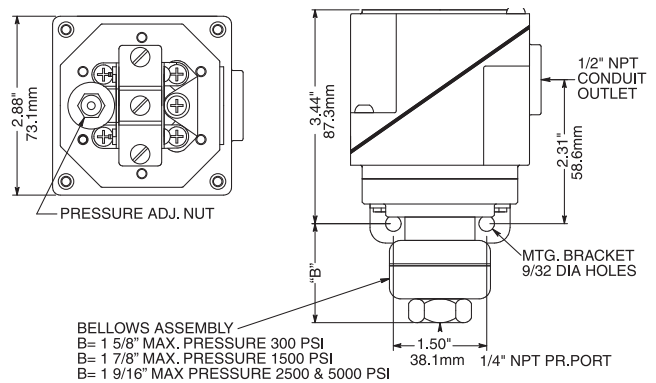
Bellows Actuated

Adjustable Pressure Range		Maximum Deadband				Maximum Working Pressure			
		Type 2		Type 5		Type 2		Type 5	
psi	MPa	psi	kPa	psi	kPa	psi	MPa	psi	MPa
0-10	0-0.69	0.80	5.52	1.5	10.34	300	2.069	300	2.069
0-20	0-0.138	0.90	6.21	2.3	15.86	300	2.069	300	2.069
0-50	0-0.345	1.0	7.00	5.2	35.85	300	2.069	300	2.069
0-100	0-0.69	1.5	10.34	13	89.63	300	2.069	1500	10.35
0-250	0-1.724	6	41.37	27	186.2	1500	10.35	1500	10.35
0-500	0-3.448	8	55.16	58	400.0	1500	10.35	2500	17.24
0-750	0-5.172	16	110.3	77	530.9	2500	17.24	2500	17.24
0-1,000	0-6.897	19	131.0	183	1261.7	2500	17.24	5000	34.48
0-1,500	0-10.345	58	400.0	232	1599.6	5000	34.48	5000	34.48
0-2,000	0-13.793	60	414	240	1654.7	5000	34.48	5000	34.48
0-3,000	0-20.69	66	455.1	-	-	5000	34.48	-	-

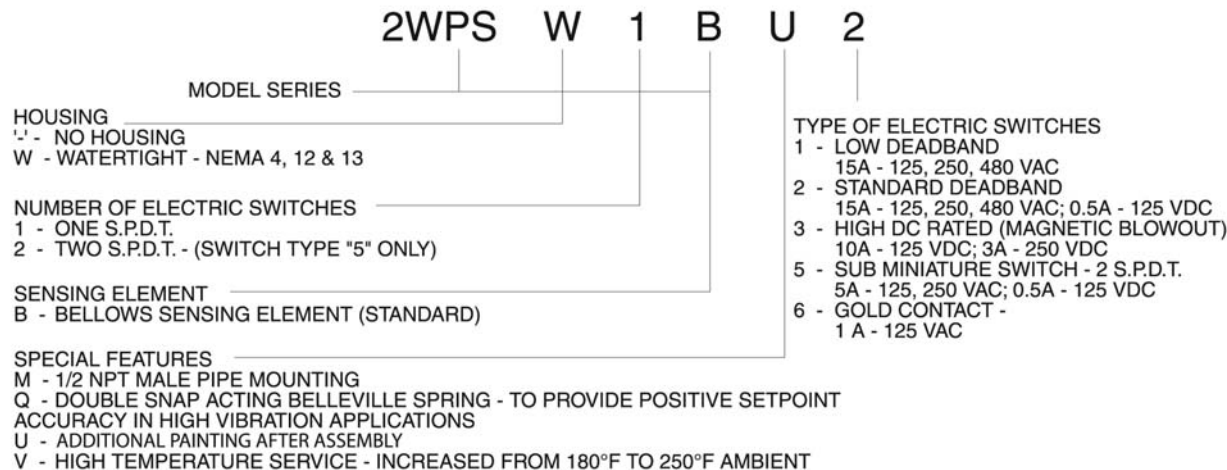
Diaphragm Actuated



Bellows Actuated



Series Number (how to order)





Diaphragm Actuated: 15 to 300 PSI
(Differential) Bellows Actuated: 15 to 5000 PSI

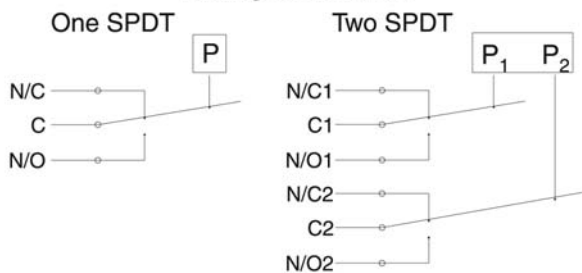
Description & Features:

- Features a rugged cast aluminum housing (NEMA 4X, 12 and 13 standard) and cover incorporating Winters' accurate switching mechanism actuated by a diaphragm
- Either 1 or 2 SPDT electric switches are available in a variety of configurations: tandem settings for DPDT operation, independent adjustment for High-Low operation, adjustable switch differential (deadband), manual reset on either increasing or decreasing pressure
- Many switching configurations can be supplied with electric switches that have: low switch differentials (deadband), high direct current ratings, gold contacts, hermetically sealed contacts
- 1 year warranty

Applications:

- Common applications include: pumping stations, remote locations, ideal for High-Low level control (requiring dual elements)

Wiring Schematic



Installation Notes

Orientation - The 5WPS Diaphragm Actuated will operate satisfactorily in any position. However, mounting the device vertically will allow the easiest adjustability and reduce sediment in the pressure chamber.

Wiring - Switches may be wired to 'normally open' or 'normally closed' terminals on electric switch(es).

Pressure Connection - 1/4" NPT female is standard. 1/2" NPT male is available.

Adjustment - Turn pressure adjustment nut(s) clockwise to increase setpoint. Detailed installation and calibration instructions are provided for every shipment. Settings adjustment is available at no charge.

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Specifications

Specifications	
Housing	Cast aluminum
Pressure Connection	1/4" NPT female standard 1/2" NPT male available
Electrical Connection	1/2" NPT
Port Material	Diaphragm Actuated: Aluminum Bellows Actuated: SS with silver braze
Diaphragm Material	Buna N, Teflon® protected
Deadband	Fixed
Sensitivity	0.5% of range (for SPDT)
Drift	<1% of range (100,000 operations)
Contact Ratings	15A - 125, 250, 480 VAC
Set Point Adjustment	Screw type, field adjustable
No. of Contacts	One or Two SPDT, One DPDT
Contact Listings	UL Recognized
Maximum Ambient Temperature	180°F (82°C)
Minimum Ambient Temperature	Diaphragm Actuated: -20°F (-29°C) Bellows Actuated: -40°F (-40°C)
Weight	Approx. 3 lbs

Diaphragm Actuated

Adjustable Pressure Range		Maximum Deadband				Maximum Working Pressure	
		Type 1		Type 2			
psi	MPa	psi	kPa	psi	kPa	psi	MPa
0-15	0-0.104	0.3	2.07	0.6	4.14	50	0.35
0-30	0-0.207	0.4	2.76	0.8	5.52	100	0.69
0-60	0-0.414	0.5	3.45	1.0	6.90	200	1.38
0-100	0-0.69	1.0	6.90	2.0	13.8	300	2.07
0-150	0-1.035	1.0	6.90	2.5	17.2	300	2.07
0-200	0-1.38	2.0	13.8	3.5	24.1	500	3.45
0-300	0-2.07	3.0	20.7	5.0	34.5	500	3.45

Deadband Notes

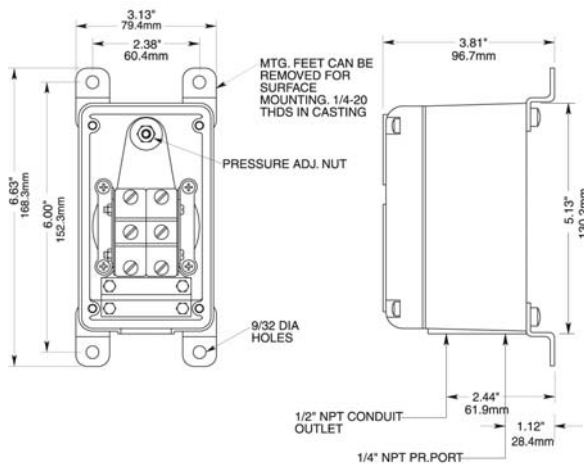
The deadbands listed in the tables are the maximum switch differentials when the Type 1 or Type 2 electric switch is used. Deadband is affected by the type of switch used. Each type of switch's effect on deadband is as follows:

- Type 1** Low Deadband - Use table values
- Type 2** Std. Deadband - Use table values
- Type 3** High DC Rated - Multiply Type 2 table values by two
- Type 4** Hermetically Sealed Switch - Multiply Type 2 table values by 6
- Type 6** Gold Contact - Use Type 2 table values

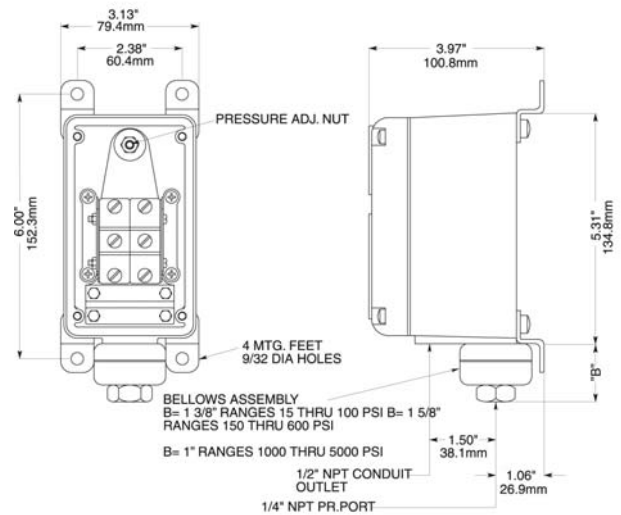
Bellows Actuated

Adjustable Pressure Range		Maximum Deadband				Maximum Working Pressure	
		Type 1		Type 2			
psi	MPa	psi	kPa	psi	kPa	psi	MPa
0-15	0-0.104	0.7	4.83	1.5	10.34	300	2.07
0-30	0-0.207	0.8	5.52	1.7	11.72	300	2.07
0-60	0-0.414	0.9	6.21	1.9	13.10	300	2.07
0-100	0-0.69	1.1	7.58	2.2	15.17	300	2.07
0-150	0-1.035	4.0	27.58	8.5	58.61	1500	10.35
0-200	0-1.38	4.0	27.58	8.8	60.67	1500	10.35
0-300	0-2.07	5.0	34.47	9.5	65.5	1500	10.35
0-600	0-4.14	6.0	41.37	12.0	82.74	1500	10.35
0-1,000	0-6.90	15.0	103.4	30.0	206.8	3000	20.69
0-2,000	0-13.8	17.0	117.2	35.0	241.3	3000	20.69
0-3,000	0-20.7	40.0	275.8	82.0	565.4	7000	48.28
0-5,000	0-34.5	48.0	331.0	96.0	661.9	7000	48.28

Diaphragm Actuated



Bellows Actuated



Differential Bellows Actuated

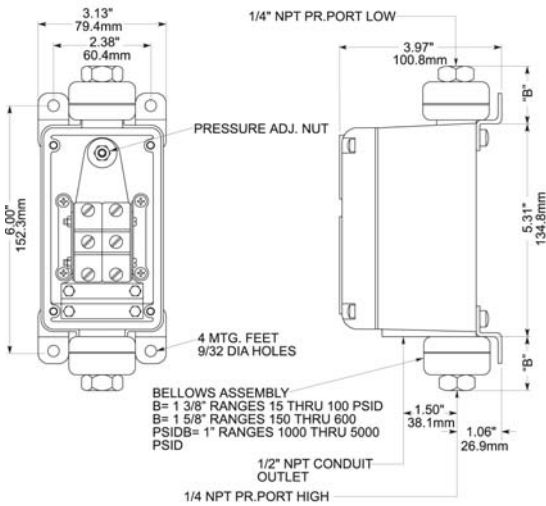
Adjustable Pressure Range		Maximum Deadband				Maximum Working Pressure	
		Type 1		Type 2			
psi	MPa	psi	kPa	psi	kPa	psi	MPa
0-15	0-0.104	0.7	4.83	1.3	8.96	300	2.07
0-30	0-0.207	0.7	4.83	1.4	9.65	300	2.07
0-60	0-0.414	0.8	5.52	1.6	11.03	300	2.07
0-100	0-0.69	1.0	6.90	1.9	13.10	300	2.07
0-150	0-1.035	4.0	27.58	7.3	50.33	1500	10.35
0-200	0-1.38	4.0	27.58	7.6	52.40	1500	10.35
0-300	0-2.07	4.0	27.58	8.2	56.54	1500	10.35
0-600	0-4.14	5.0	34.47	10.0	68.95	1500	10.35
0-1,000	0-6.90	12.0	82.74	25.0	172.4	3000	20.69
0-2,000	0-13.8	15.0	103.4	30.0	206.8	3000	20.69
0-3,000	0-20.7	37.0	255.1	75.0	517.1	7000	48.28
0-5,000	0-34.5	45.0	310.3	90.0	620.5	7000	48.28

Deadband Notes

The deadbands listed in the tables are the maximum switch differentials when the standard electric switch is used. Deadband is affected by the type of switch used. Each type of switch's effect on deadband is as follows:

- Type 1** Low Deadband - Use table values
- Type 2** Std. Deadband - Use table values
- Type 3** High DC Rated - Multiply Type 2 table values by two
- Type 4** Hermetically Sealed Switch - Multiply Type 2 table values by six
- Type 6** Gold Contact - Use Type 2 table value

Differential Bellows Actuated



Series Number (how to order)

5WPS W 1 BD V 2

SERIES ————

HOUSING'
W - WATERTIGHT - NEMA 4X, 12 & 13

NUMBER OF ELECTRIC SWITCHES
1 - ONE S.P.D.T.
11 - TWO TANDEM ELECTRIC SWITCHES OPERATE IN PARALLEL D.P.D.T.
2 - TWO S.P.D.T. INDEPENDENT ADJUSTMENT

SENSING ELEMENT
BD - BELLOWS ACTUATED DIFFERENTIAL PRESSURE
B - BELLOWS ACTUATED
 LEAVE BLANK FOR DIAPHRAGM

SPECIAL FEATURES
 -- NO SPECIAL FEATURES
A - ADJUSTABLE DEADBAND
E - EXTERNAL PRESSURE ADJUSTMENT
EE - TWO EXTERNAL PRESSURE ADJUSTMENTS
L - ONE INDICATOR LIGHT
LL - TWO INDICATOR LIGHTS
M - MALE PIPE MOUNTING 1/2 NPT
Q - DOUBLE SNAP ACTION (BELLEVILLE SPRING)
R> - MANUAL RESET, SWITCH ON INCR. PR.
R< - MANUAL RESET, SWITCH ON DECR. PR.
V - HIGH TEMPERATURE SERVICE

TYPE OF ELECTRIC SWITCHES
1 - LOW DEADBAND
 15A - 125, 250, 480 VAC
2 - STANDARD DEADBAND
 15A - 125, 250, 480 VAC; 0.5A - 125 VDC
3 - HIGH DC RATED (MAGNETIC BLOWOUT)
 10A - 125 VDC; 3A - 250 VDC
4 - HERMETICALLY SEALED SWITCH
 1A-125VAC; 25A.RES, 10A.IND, 5A.MOTOR
 3A.LAMP-28VDC
6 - GOLD CONTACT -
 1 A - 125 VAC

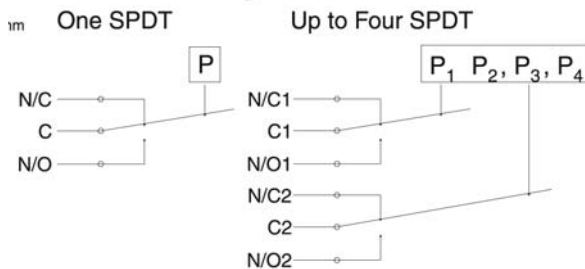
* SPECIAL FEATURES SUCH AS STAINLESS TAGGING, APPLICATION OF DIAPHRAGM SEALS, ETC. ARE AVAILABLE ON REQUEST. CONSULT WINTERS FOR CAPABILITIES AND PRICING FOR ANY FEATURES NOT SHOWN.



Ranges from 0-15 psi to 0-300 psi

Class I, Div. I, Gr. C and D available

Wiring Schematic



Description & Features:

- Constructed using a rugged cast aluminum housing (NEMA 4X and 12) that incorporates Winters' standard accurate switching mechanism actuated by a diaphragm
- Housing can be specified watertight or explosion proof and large enough to accommodate up to 4 full size SPDT electric switches
- Electric switches are available in a variety of configurations including adjustable switch differential (dead band), DPDT, high-low operation, manual reset
- Many switching configurations can be supplied with electric switches that have low switch differentials (dead band), high direct current ratings, gold contacts, hermetically sealed contacts
- Standard pressure-sensing element uses a strong Buna N elastomer diaphragm. Other diaphragm materials are available
- 1 year warranty

Applications:

- Multiple tank or pump controls and those requiring alarm systems

Installation Notes

Orientation - The 6WPS Diaphragm Actuated will operate satisfactorily in any position. However, mounting the device vertically will allow the easiest adjustability and reduce sediment in the pressure chamber.

Wiring - Switches may be wired to 'normally open' or 'normally closed' terminals on electric switch(es).

Pressure Connection - 1/4" NPT female is standard. 1/2" NPT male is available (M option).

Adjustment - Turn pressure adjustment nut(s) clockwise to increase setpoint. Detailed installation and calibration instructions are provided for every shipment. Setting adjustment is available at no charge.

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 Viton® is a registered trademark of DuPont Performance Elastomers

Specifications

Specifications	
Housing	Cast aluminum
Pressure Connection	1/4" NPT
Electrical Connection	3/4" NPT
Port Material	Aluminum
Diaphragm Material	Buna N, Teflon® protected, Viton®
Deadband	Fixed
Sensitivity	0.5% of range (for SPDT)
Drift	<1% of range (100,000 operations)
Contact Ratings	15A - 125, 250, 480 VAC
Set Point Adjustment	Screw type, field adjustable
No. of Contacts	1, 2, 3 or 4 SPDT or 1 DPDT
Contact Listings	UL Recognized
Maximum Ambient Temperature	180°F (82°C)
Minimum Ambient Temperature	-20°F (-29°C)
Weight	Approx. 5 lbs.

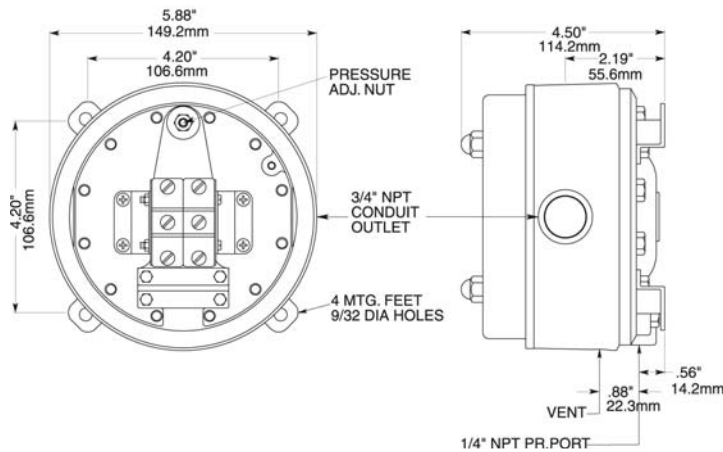
Adjustable Pressure Range	Maximum Deadband		Maximum Working Pressure
	Type 1	Type 2	
Pressure (psi)			
0-15 psi	0.2	0.3	50
0-30 psi	0.2	0.5	100
0-60 psi	0.5	1.0	200
0-100 psi	1.0	2.0	300
0-150 psi	1.0	2.5	300
0-200 psi	2.0	3.5	500
0-300 psi	3.0	5.0	500
Vacuum			
30"HG /VAC	3"	0.6"	50
30PR-30 VAC	5"	1.0	50
High Over-Pressure			
0-15 psi	0.3	0.6	1,000
0-30 psi	0.4	0.8	1,000
0-60 psi	0.5	1.0	1,000
0-100 psi	0.8	1.5	1,000

Deadband Notes

The deadbands listed in the tables are the maximum switch differentials when the standard electric switch is used.

Deadband is affected by the type of switch used. Each type of switch's effect on deadband is as follows:

- Type 1** Low Deadband - Use 1/2 Type 2 table values
- Type 2** Std. Deadband - Use table values
- Type 3** High DC Rated - Multiply Type 2 table values by two
- Type 4** Hermetically Sealed Switch - Multiply Type 2 table values by six
- Type 6** Gold Contact - Use Type 2 table values



Series Number (how to order)

6WPS W 1 SST 2

MODEL SERIES

HOUSING:
 W - WATERTIGHT - NEMA 4X & 12
 X - EXPLOSION PROOF - NEMA 7 & 9

NUMBER OF ELECTRIC SWITCHES
 1 - ONE S.P.D.T.
 11 - TWO TANDEM ELECTRIC SWITCHES OPERATE IN PARALLEL D.P.D.T.
 2 - TWO S.P.D.T. INDEPENDENT ADJUSTMENT
 3 - THREE S.P.D.T. INDEPENDENT ADJUSTMENT
 4 - FOUR S.P.D.T. INDEPENDENT ADJUSTMENT

SPECIAL FEATURES
 -- NO SPECIAL FEATURES
 A - ADJUSTABLE DEADBAND
 E - EXTERNAL PRESSURE ADJUSTMENT
 EE - TWO EXTERNAL PRESSURE ADJUSTMENTS
 F - FLANGE BASE MOUNTING
 J - SAFETY SEAL
 L - ONE INDICATOR LIGHT (NOT ON X HOUSING)
 LL - TWO INDICATOR LIGHTS (NOT ON X HOUSING)
 M - MALE PIPE MOUNTING 1/2 NPT
 P - PANEL MOUNTING
 R> - MANUAL RESET, SWITCH ON INCR. PR.
 R< - MANUAL RESET, SWITCH ON DECR. PR.
 SS - SPECIAL TRIM BASE 316 STAINLESS STEEL
 SI - SPECIAL TRIM BASE TEFLON (NOT ON X SWITCHES)
 SY - SPECIAL TRIM BASE PVC (NOT ON X SWITCHES)
 T - TEFLON PROTECTED DIAPHRAGM
 U - ADDITIONAL PAINTING AFTER ASSEMBLY
 V - HIGH TEMPERATURE SERVICE
 Z - VITON DIAPHRAGM

TYPE OF ELECTRIC SWITCHES
 1 - LOW DEADBAND
 15A - 125, 250, 480 VAC
 2 - STANDARD DEADBAND
 15A - 125, 250, 480 VAC; 0.5A - 125 VDC
 10A - 125 VDC; 3A - 250 VDC
 3 - HIGH DC RATED (MAGNETIC BLOWOUT)
 10A - 125 VDC; 3A - 250 VDC
 4 - HERMETICALLY SEALED SWITCH
 1.A-125VAC; 25A.RES, 10A.IND, 5A.MOTOR
 3A.LAMP-28VDC
 6 - GOLD CONTACT -
 1 A - 125 VAC

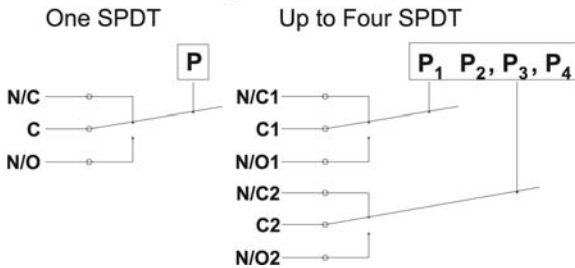
* SPECIAL FEATURES SUCH AS STAINLESS TAGGING, OR SPECIAL WETTED PARTS; KYNAR, KALREZ, HASTELLOY, ETC. ARE AVAILABLE ON REQUEST. CONSULT WINTERS FOR CAPABILITIES AND PRICING FOR ANY FEATURES NOT SHOWN.



Ranges from 0-1.5" WC to 0-150" WC

Class I, Div. I, Gr. C and D available

Wiring Schematic



Description & Features:

- Rugged cast aluminum NEMA 4X and 12 housing incorporates standard accurate switching mechanism actuated by a large area diaphragm
- Housing can be specified watertight or explosion proof and is large enough to accommodate up to 4 full size SPDT electric switches
- Electric switches are available in a variety of configurations including adjustable switch differential (dead band), DPDT, high-low operation, manual reset
- In addition many switching configurations can be supplied with electric switches that have low switch differentials (dead band), high direct current ratings, gold contacts, hermetically sealed contacts
- Standard pressure-sensing element uses a strong Buna N elastomer diaphragm. Other diaphragm and wetted area materials are available
- 1 year warranty

Applications:

- Designed for low pressure applications

Installation Notes

Orientation - The 7WPS Diaphragm Actuated will operate satisfactorily in any position. However, mounting the device vertically will allow the easiest adjustability and reduce sediment in the pressure chamber.

Wiring - Switches may be wired to 'normally open' or 'normally closed' terminals on electric switch(es).

Pressure Connection - 1/4" NPT female is standard. 1/2" NPT male is available (M option).

Adjustment - Turn pressure adjustment nut(s) clockwise to increase setpoint. Detailed installation and calibration instructions are provided for every shipment. Setting adjustment is available at no charge.

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Viton® is a registered trademark of DuPont Performance Elastomers

Specifications

Specifications	
Housing	Cast aluminum
Pressure Connection	1/4" NPT
Electrical Connection	3/4" NPT
Port Material	Aluminum
Diaphragm Material	Buna N, Teflon® protected Viton®
Deadband	Fixed
Sensitivity	1/2% of range (for SPDT)
Drift	<1% of range (100,000 operations)
Contact Ratings	15A - 125, 250, 480 VAC
Set Point Adjustment	Screw type, field adjustable
No. of Contacts	1, 2, 3 or 4 SPDT or 1 DPDT
Contact Listings	UL Recognized
Maximum Ambient Temperature	180°F (82°C)
Minimum Ambient Temperature	-20°F (-29°C)
Weight	Approx. 6 lbs.

Series Number (how to order)

7WPS W 1 SST 2

MODEL SERIES

HOUSING*

W - WATERTIGHT - NEMA 4X & 12
X - EXPLOSION PROOF - NEMA 7 & 9

NUMBER OF ELECTRIC SWITCHES

1 - ONE S.P.D.T.
11 - TWO TANDEM ELECTRIC SWITCHES OPERATE IN PARALLEL D.P.D.T.
2 - TWO S.P.D.T. INDEPENDENT ADJUSTMENT
3 - THREE S.P.D.T. INDEPENDENT ADJUSTMENT
4 - FOUR S.P.D.T. INDEPENDENT ADJUSTMENT

SPECIAL FEATURES

-- NO SPECIAL FEATURES
A - ADJUSTABLE DEADBAND
E - EXTERNAL PRESSURE ADJUSTMENT
EE - TWO EXTERNAL PRESSURE ADJUSTMENTS
F - FLANGE BASE MOUNTING
G - DOUBLE DIAPHRAGM EXTRA SENSITIVE LOW PR
J - SAFETY SEAL
L - ONE INDICATOR LIGHT (NOT ON X HOUSING)
LL - TWO INDICATOR LIGHTS (NOT ON X HOUSING)
M - MALE PIPE MOUNTING 1/2 NPT
P - PANEL MOUNTING
R> - MANUAL RESET, SWITCH ON INCR. PR.
R< - MANUAL RESET, SWITCH ON DECR. PR.
SS - SPECIAL TRIM BASE 316 STAINLESS STEEL
SI - SPECIAL TRIM BASE TEFLON (NOT ON X SWITCHES)
SY - SPECIAL TRIM BASE PVC (NOT ON X SWITCHES)
T - TEFLON PROTECTED DIAPHRAGM
U - ADDITIONAL PAINTING AFTER ASSEMBLY
V - HIGH TEMPERATURE SERVICE
Z - VITON DIAPHRAGM

TYPE OF ELECTRIC SWITCHES

1 - LOW DEADBAND
15A - 125, 250, 480 VAC
2 - STANDARD DEADBAND
15A - 125, 250, 480 VAC; 0.5A - 125 VDC
3 - HIGH DC RATED (MAGNETIC BLOWOUT)
10A - 125 VDC; 3A - 250 VDC
4 - HERMETICALLY SEALED SWITCH
1A-125VAC; 25A.RES, 10A.IND, 5A.MOTOR
3A.LAMP-28VDC
6 - GOLD CONTACT -
1 A - 125 VAC

* SPECIAL FEATURES SUCH AS STAINLESS TAGGING, OR SPECIAL WETTED PARTS; KYNAR, KALREZ, HASTELLOY, ETC. ARE AVAILABLE ON REQUEST. CONSULT WINTERS FOR CAPABILITES AND PRICING FOR ANY FEATURES NOT SHOWN.

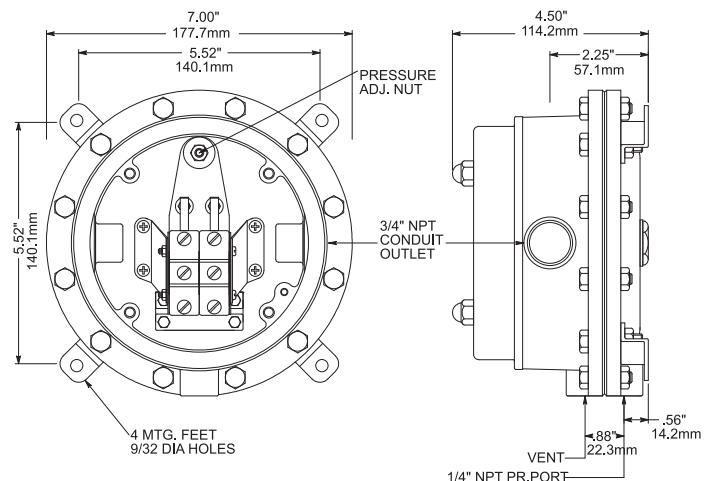
Ranges			
Diaphragm Actuated			
Adjustable Pressure Range	Maximum Deadband		Maximum Working Pressure
	Type 1	Type 2	
Pressure (wc)			
0-1.5" WC	0.15	-	25 psi
0-3" WC	0.16	-	25 psi
0-6" WC	0.2	0.4	25 psi
0-15" WC	0.3	0.6	25 psi
0-30" WC	0.6	1.1	25 psi
0-60" WC	0.7	1.4	25 psi
0-100" WC	0.8	1.6	25 psi
0-150" WC	1.2	2.4	25 psi
Vacuum (wc)			
0-1.5" WC	0.17	-	50 psi
0-3" WC	0.18	-	50 psi
0-6" WC	0.23	0.45	50 psi
0-15" WC	0.33	0.65	50 psi
0-30" WC	0.6	1.2	50 psi
0-60" WC	0.7	1.4	50 psi
0-100" WC	0.8	1.6	50 psi
0-150" WC	1.2	2.5	50 psi
Vacuum-Pressure (wc)			
0-3" WC	0.45	0.87	25 psi
0-6" WC	0.8	1.6	25 psi
0-15" WC	1.7	3.4	25 psi
0-30" WC	2.5	5.0	25 psi
0-60" WC	4.8	9.6	25 psi
0-100" WC	8.0	16.0	25 psi

Deadband Notes

The deadbands listed in the tables are the maximum switch differentials when the Type 1 or Type 2 electric switch is used.

Deadband is affected by the type of electric switch used. Each type of electric switch's effect on deadband is as follows:

- Type 1** Low Deadband - Use table values
- Type 2** Std. Deadband - Use table values
- Type 3** High DC Rated - Multiply Type 2 table values by two
- Type 4** Hermetically Sealed Switch - Multiply Type 2 table values by six
- Type 6** Gold Contact - Use Type 2 table values



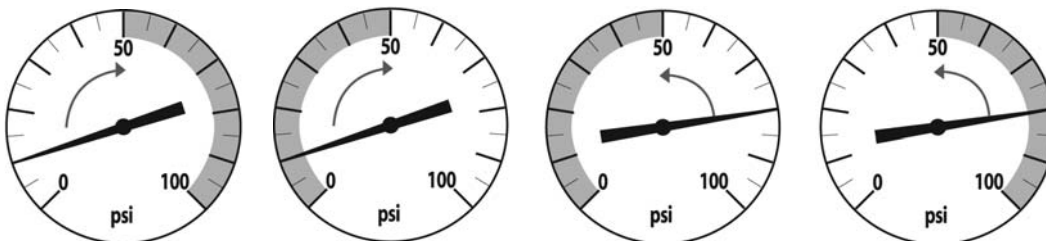
Code	Descriptions of Most Common Options	Availability			
		2WPS Series	5WPS Series	6WPS Series	7WPS Series
-	No Special Features	x	x		
A	Adjustable Dead Band		x		
B	Bellows Actuated	x	x		
BD	Bellows Actuated Differential Pressure		x		
D	Diaphragm Actuated Differential Pressure (DP)	x			
E	External Pressure Adjustments		x		
EE	Two External Pressure Adjustments		x		
F	Flange Base Mounting			x	x
G	Double Diaphragm Extra Sensitive Low Pressure				x
I	One Indicator Light (Not on X Housing)		x		
II	Two Indicator Lights (Not on X Housing)		x		
M	Male Pipe Mounting 1/2" NPT	x	x		
O	High Overpressure Diaphragm	x	x		
P	Panel Mounting				
Q	Double Snap Action (Belleville Spring)	x	x		
R>	Manual Reset Switch on Increase Pressure (2 max.)		x		
R<	Manual Reset Switch on Decrease Pressure (2 max.)		x		
SS	Special Trim Base 316 Stainless Steel	x			
SI	Special Trim Base Teflon® (Not on X Switches)	x			
SY	Special Trim Base PVC (Not on X Switches)	x			
T	Teflon® Protected Diaphragm	x	x		
V	High Temperature Service	x	x		
Z	Viton® Diaphragm	x	x		

Note: Options may vary from none (-) to whatever may be required for a particular application
Options can be combined with the exception of similar types, i.e. SS and SI may not be combined

x Standard options

Note: Adjustment setting available at no extra charge

Below are some illustrations to assist you in the definition and selection of the single pole switch.



To “make” or “break” at 50 psi on rising or decreasing pressures: **Switch is closed in shaded zone on dial**

Process Media and Material Compatibility: Since the wetted parts of the diaphragm seal assembly, which consist of the lower housing and diaphragm element itself, as well as any gaskets, will come in contact with the process, it is imperative to ensure the proper material is selected. The material selected must be compatible with all the various chemicals the seal may come in contact with while in service.

Temperature (Process & Ambient): Each diaphragm seal assembly is filled with an amount of fill fluid at ambient temperature. The increase of process or media temperature can cause the fill fluid to expand, creating a larger volume and pressure build up in the assembly.

Pressure Instrument: The diaphragm seal chosen must have the ability to provide enough volumetric displacement to drive the instrument through its full range. A rule of thumb is as follows: The lower the pressure, the more displacement is needed. The larger the gauge, the more displacement is needed. The smaller the diaphragm, the less displacement it can provide.

Process Connection and Orientation: The most common connections for diaphragm seals are threaded from 1/4" to 1" NPT and flanged. Be sure to specify both the flange size and rating when selecting a flanged seal.

Pressure Range: As stated above the diaphragm selected must be able to handle the pressure range to be sensed. The lower the pressure, the larger the diaphragm element must be to ensure sensitivity and proper displacement.

Response Time: Response time to sudden changes in process pressure can be effected by many things, such as size of the diaphragm, viscosity of the fill fluid, ambient and process temperatures and the use of capillary for remote mounted gauges.

Fill Fluid: Fill fluid selection is critical to the performance of the diaphragm seal assembly. Process and ambient temperatures, pressure and compatibility with the process media must be considered. Inert fills such as Halocarbon®, Fluorolube® and Krytox® must be specified when oxidizers are present.

Diaphragm Seal Selector

Catalogue Page	Series	Instrument Connection		Process Connection						Wetted Parts Material							Pressure Range					RoHS compliant									
		1/4" NPT	1/2" NPT	1/2" NPT Male	1/4" NPT	1/2" NPT	3/4" NPT	≥1" NPT	Tri-Clamp®	RF Flange	Wafer Flange	Buna	Hastelloy® C	Monel®	PVC	Stainless Steel	Tantalum	Teflon®	Viton®	Other	Vac - 200 psi		30-600 psi	30-1,300 psi	0-1,000 psi	100-1,000 psi	50-2,000 psi	Vac-2,500 psi	600-5,800 psi	1,000-6,000 psi	
78	D15 #15 Diaphragm Seal	X					X								X															X	X
79	D30 #30 Diaphragm Seal	X			X										X														X	X	
80	D40 #40 Diaphragm Seal	X	X		X	X									X									X						X	
81	D44 #80 Flanged Diaphragm Seals (Teflon®)	X	X						X								X							X							
83	D44 #80 Flanged Diaphragm Seals (Welded)	X	X						X			X	X	X	X	X	X	X	X							X					
85	D46 Flanged Flush Mount Seal	X	X						X						X								X								
87	D50 #50 Diaphragm Seals	X			X	X									X									X						X	
88	D70 #70 Diaphragm Seals	X	X		X	X	X	X			X	X	X	X	X		X	X								X				X	
90	D71 #70 NACE Diaphragm Seals	X	X		X	X	X				X	X					X	X					X		X						

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 Hastelloy® is a registered trademark of Haynes International, Inc.
 Halocarbon® is a registered trademark of the Halocarbon Products Corporation
 Krytox® are registered trademarks or trademarks of E. I. du Pont de Nemours

Fluorolube® is a registered trademark of the Hooker Chemical Co.
 Monel® is a registered trademark of Inco Alloys International
 Tri-Clamp® is a registered trademark of Tri-Clover, Inc
 Teflon® is a registered trademark of Dupont Corporation

D15 #15 Diaphragm Seal

50 to 5,800 psi (345 to 40,000 kPa)



Description & Features:

- Constructed with a welded diaphragm placed at the end of the male NPT connection, eliminating the normal diaphragm chamber where solidification of the process media may render the seal inoperable
- Rugged and suitable for the most severe process applications
- CRN registered
- 1 year warranty

Applications:

- Suitable for any process where freezing or solidification of the pressure media is a concern

Specifications

Specifications	
Housing	AISI 316 SS
Diaphragm	AISI 316L SS, welded
Minimum Operating Pressure	50 psi (345 kPa)
Maximum Operating Pressure	5,800 psi (40,000 kPa)
Gauge Connection	1/4" NPT female
Process Connection	3/4" NPT male
Process Temperature	-20°F to 360°F (-31°C to 185°C)

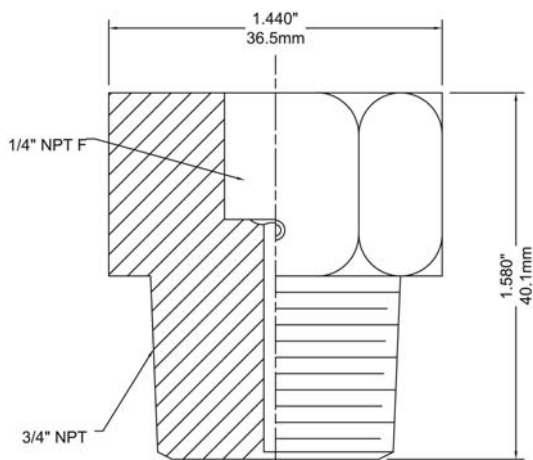
Order Codes (products in bold are normally in stock)

1/4" NPTF x 3/4" NPTM

D15992

Option suffix for above order code only:

SF-D = Silicone fill (seal only)



1,000 to 6,000 psi (6,900 to 41,300 kPa)



Description & Features:

- Compact, lightweight and economical
- Constructed of AISI 316 stainless steel and is welded together into a one piece unit
- CRN registered
- 1 year warranty

Applications:

- Offers protection for pressure instruments (gauges and transmitters) from corrosive, contaminated or viscous media
- Ideally suited for applications where space limitations exist

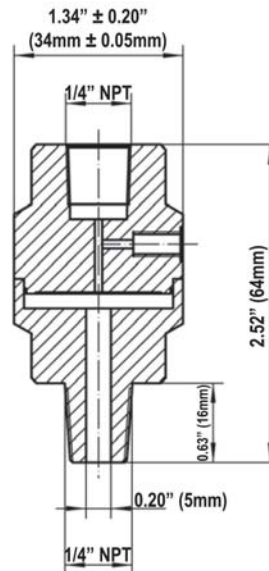
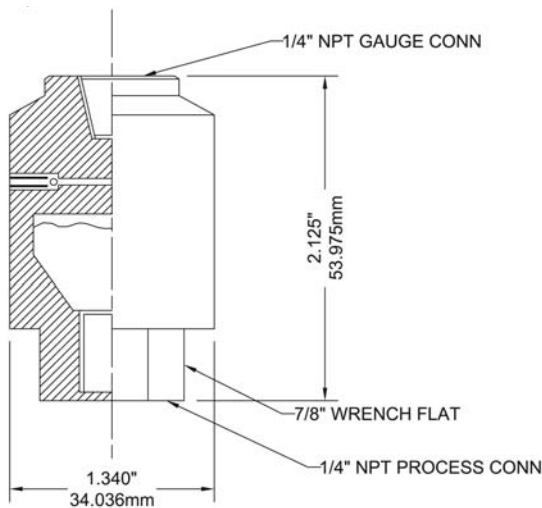
Specifications	
Housing	AISI 316 SS
Diaphragm	AISI 316L SS, welded
Minimum Operating Pressure	1,000 psi (6,900 kPa)
Maximum Operating Pressure	6,000 psi (41,300 kPa)
Gauge Connection	1/4" NPT female
Process Connection	1/4" NPT female or male
Process Temperature	-49°F to 302°F (-45°C to 150°C)

Order Codes

1/4" NPT x 1/4" NPT (F x F)	1/4" NPT x 1/4" NPT (F x M)
D30975	D30976

Option suffix for above order code only:

SF-D = Silicone fill (seal only)



D40 #40 Diaphragm Seal

15 to 1,000 psi (105 to 6,900 kPa)



Description & Features:

- Compact (one piece), lightweight and economical
- CRN registered
- 1 year warranty

Applications:

- Ideally suited for applications where space limitations exist
- Primarily utilized to protect gauges and transmitters from corrosive media
- Utilized in many OEM applications

Specifications

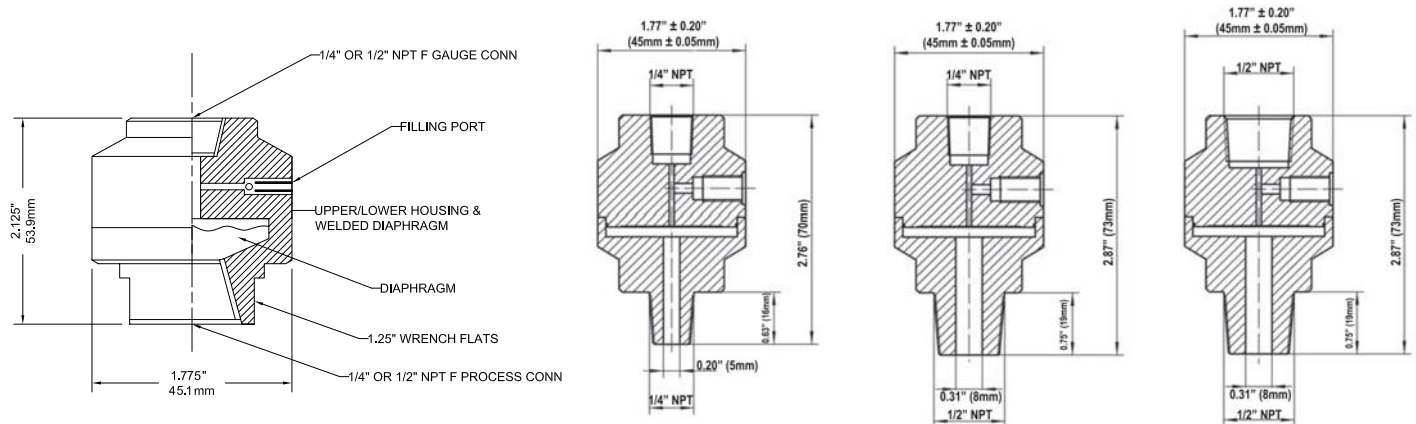
Housing	AISI 316 SS
Diaphragm	AISI 316L SS, welded
Minimum Operating Pressure	15 psi
Maximum Operating Pressure	1,000 psi (6,900 kPa)
Gauge Connection	1/4", 1/2" NPT female
Process Connection	1/4", 1/2" NPT female or male
Process Temperature	-49°F to 302°F (-45°C to 150°C)

Order Codes (products in bold are normally in stock)

Connection	1/4" NPT x 1/2" NPT	1/2" NPT x 1/2" NPT	1/2" NPT x 1/2" NPT
F x F	D40973	D40972	D40974
F x M	D40975	D40976	D40977

Option suffix for above order codes only:

SF-D = Silicone fill (seal only)



0 to 1,000 psi (0 to 6,900 kPa)



Description & Features:

- “Continuous use” seals - backing plate will prevent diaphragm from rupturing if pressure sensing instrument fails. Pressure will be held until instrument is replaced
- Various sizes and housing materials available
- 1 year warranty

Applications:

- Used in industrial applications such as oil refineries, pulp and paper mills and chemical plants

Specifications	
Housing	316 SS, Monel®, Hastelloy® B & C, Titanium, Tantalum, PVC, Carbon steel, Teflon®, Alloy 20, other (nickel plated carbon steel or SS upper housing standard)
Diaphragm	Teflon® for increased compatibility, sensitivity and versatility
Construction	Two piece construction
Connection	1/4", 1/2" NPT female gauge connections standard (Other NPTF gauges connections available) 1" (25mm), 1.5" (40mm) and 2" (50mm) pipe size and #150 and #300 pressure rating standard (Other configurations available)
Maximum Temperature Limit	400°F (204°C)

Order Codes

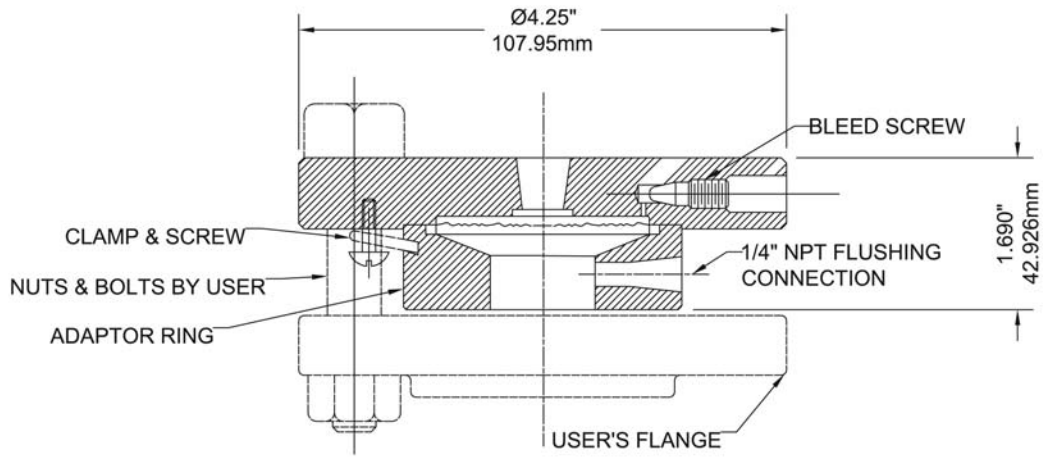
Type*	Instrument Connection	Diaphragm Material	Lower Housing Wetted Parts	Carbon Steel	Stainless Steel
				Upper Housing Non-Wetted Parts	Upper Housing Non-Wetted Parts
1" - 150#RF				Order Code	
Teflon® Diaphragm	1/2" NPT	Teflon®	316 SS - Teflon® lined	D44001	D44002
Teflon® Diaphragm	1/4" NPT	Teflon®	316 SS - Teflon® lined	D44003	D44004
1" - 300#RF					
Teflon® Diaphragm	1/2" NPT	Teflon®	316 SS - Teflon® lined	D44005	D44006
Teflon® Diaphragm	1/4" NPT	Teflon®	316 SS - Teflon® lined	D44007	D44008
1.5" - 150#RF					
Teflon® Diaphragm	1/2" NPT	Teflon®	316 SS - Teflon® lined	D44009	D44010
Teflon® Diaphragm	1/4" NPT	Teflon®	316 SS - Teflon® lined	D44011	D44012
1.5" - 300#RF					
Teflon® Diaphragm	1/2" NPT	Teflon®	316 SS - Teflon® lined	D44013	D44014
Teflon® Diaphragm	1/4" NPT	Teflon®	316 SS - Teflon® lined	D44015	D44016
2" - 150#RF					
Teflon® Diaphragm	1/2" NPT	Teflon®	316 SS - Teflon® lined	D44017	D44018
Teflon® Diaphragm	1/4" NPT	Teflon®	316 SS - Teflon® lined	D44019	D44020
2" - 300#RF					
Teflon® Diaphragm	1/2" NPT	Teflon®	316 SS - Teflon® lined	D44021	D44022
Teflon® Diaphragm	1/4" NPT	Teflon®	316 SS - Teflon® lined	D44023	D44024

*Replaceable diaphragms available
Other fill fluids (seal only) available upon request

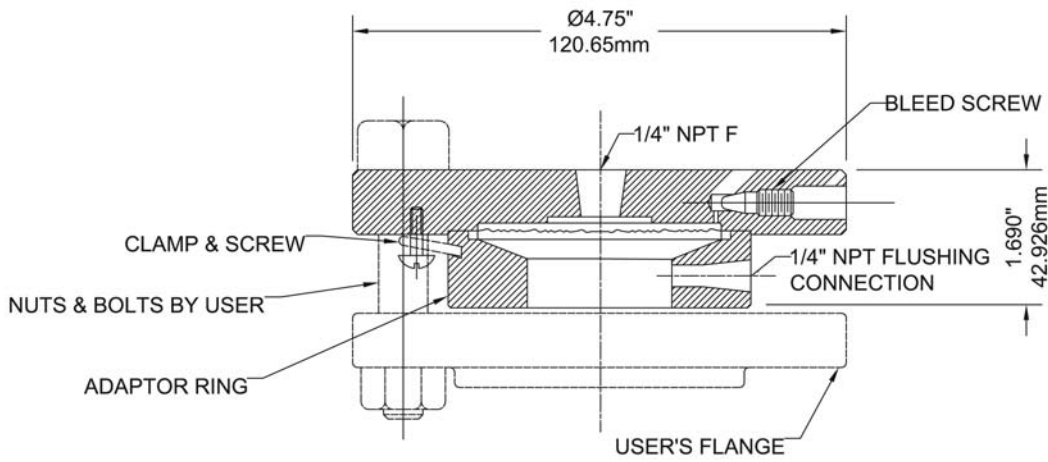
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Monel® is a registered trademark of Inco Alloys International
Teflon® is a registered trademark of Dupont Corporation

D44 #80 Flanged Diaphragm Seal (Teflon®)

150# RF C/W OPTIONAL FLUSHING PORT



300# RF C/W OPTIONAL FLUSHING PORT



Teflon® is a registered trademark of Dupont Corporation

Vac to 2,500 psi (-100 to 17,250 kPa)



Description & Features:

- “Continuous use” seals - backing plate will prevent diaphragm from rupturing if pressure sensing instrument fails. Pressure will be held until instrument is replaced
- Various sizes and housing materials available
- 1 year warranty

Applications:

- Used in industrial applications such as oil refineries, pulp and paper mills and chemical plants

Specifications	
Housing	316 SS, Monel®, Hastelloy® B & C, Titanium, Tantalum, PVC, Carbon steel, Teflon®, Alloy 20, other (nickel plated carbon steel or SS upper housing standard)
Construction	Two piece construction
Connection	¼", ½" NPT female gauge connections standard (Other NPTF gauges connections available) 1" (25mm), 1.5" (40mm) and 2" (50mm) pipe size and #150 and #300 pressure rating standard Other configurations available
Maximum Temperature Limit	450°F (232°C) Teflon® Lined: 400°F (204°C) (Higher temperature limits available)
Other	Cleanout type for easy cleaning and calibrating. Saddle diaphragm seals available upon request. Flushing connections available

Order Codes

Type*	Instrument Connection	Diaphragm Material	Lower Housing Wetted Parts	Carbon Steel	Stainless Steel
				Upper Housing Non-Wetted Parts	Upper Housing Non-Wetted Parts
1" - 150#RF				Order Code	
Welded Diaphragm	½" NPT	316 SS	316 SS	D441150SS5CS	D441150SS5SS
Welded Diaphragm	½" NPT	Tantalum	Teflon® Lined - 316 SS	D441150UL5CS	D441150UL5SS
Welded Diaphragm	½" NPT	Hastelloy® C	Monel®	D441150HM5CS	D441150HM5SS
Welded Diaphragm	½" NPT	Hastelloy® C	Hastelloy® C	D441150HH5CS	D441150HH5SS
Welded Diaphragm	¼" NPT	316 SS	316 316 SS	D441150SS25CS	D441150SS25SS
Welded Diaphragm	¼" NPT	Tantalum	Teflon® Lined - 316 SS	D441150UL25CS	D441150UL25SS
Welded Diaphragm	¼" NPT	Hastelloy® C	Monel®	D441150HM25CS	D441150HM25SS
Welded Diaphragm	¼" NPT	Hastelloy® C	Hastelloy® C	D441150HH25CS	D441150HH25SS
1" - 300#RF				Order Code	
Welded Diaphragm	½" NPT	316 SS	316 SS	D441300SS5CS	D441300SS5SS
Welded Diaphragm	½" NPT	Tantalum	Teflon® Lined - 316 SS	D441300UL5CS	D441300UL5SS
Welded Diaphragm	½" NPT	Hastelloy® C	Monel®	D441300HM5CS	D441300HM5SS
Welded Diaphragm	½" NPT	Hastelloy® C	Hastelloy® C	D441300HH5CS	D441300HH5SS
Welded Diaphragm	¼" NPT	316 SS	316 SS	D441300SS25CS	D441300SS25SS
Welded Diaphragm	¼" NPT	Tantalum	Teflon® Lined - 316 SS	D441300UL25CS	D441300UL25SS
Welded Diaphragm	¼" NPT	Hastelloy® C	Monel®	D441300HM25CS	D441300HM25SS
Welded Diaphragm	¼" NPT	Hastelloy® C	Hastelloy® C	D441300HH25CS	D441300HH25SS

*Replaceable and Teflon® diaphragms available

Other fill fluids (seal only), materials, pipe size and pressure ratings available upon request

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Teflon® is a registered trademark of Dupont Corporation

D44 #80 Flanged Diaphragm Seal (Welded)

Order Codes

Type*	Instrument Connection	Diaphragm Material	Lower Housing Wetted Parts	Carbon Steel	Stainless Steel
				Upper Housing Non-Wetted Parts	Upper Housing Non-Wetted Parts
1.5" - 150#RF				Order Code	
Welded Diaphragm	1/2" NPT	316 SS	316 SS	D4415150SS5CS	D4415150SS5SS
Welded Diaphragm	1/2" NPT	Tantalum	Teflon® Lined - 316 SS	D4415150UL5CS	D4415150UL5SS
Welded Diaphragm	1/2" NPT	Hastelloy® C	Monel®	D4415150HM5CS	D4415150HM5SS
Welded Diaphragm	1/2" NPT	Hastelloy® C	Hastelloy® C	D4415150HH5CS	D4415150HH5SS
Welded Diaphragm	1/4" NPT	316 SS	316 SS	D4415150SS25CS	D4415150SS25SS
Welded Diaphragm	1/4" NPT	Tantalum	Teflon® Lined - 316 SS	D4415150UL25CS	D4415150UL25SS
Welded Diaphragm	1/4" NPT	Hastelloy® C	Monel®	D4415150HM25CS	D4415150HM25SS
Welded Diaphragm	1/4" NPT	Hastelloy® C	Hastelloy® C	D4415150HH25CS	D4415150HH25SS
1.5" - 300#RF				Order Code	
Welded Diaphragm	1/2" NPT	316 SS	316 SS	D4415300SS5CS	D4415300SS5SS
Welded Diaphragm	1/2" NPT	Tantalum	Teflon® Lined - 316 SS	D4415300UL5CS	D4415300UL5SS
Welded Diaphragm	1/2" NPT	Hastelloy® C	Monel®	D4415300HM5CS	D4415300HM5SS
Welded Diaphragm	1/2" NPT	Hastelloy® C	Hastelloy® C	D4415300HH5CS	D4415300HH5SS
Welded Diaphragm	1/4" NPT	316 SS	316 SS	D4415300SS25CS	D4415300SS25SS
Welded Diaphragm	1/4" NPT	Tantalum	Teflon® Lined - 316 SS	D4415300UL25CS	D4415300UL25SS
Welded Diaphragm	1/4" NPT	Hastelloy® C	Monel®	D4415300HM25CS	D4415300HM25SS
Welded Diaphragm	1/4" NPT	Hastelloy® C	Hastelloy® C	D4415300HH25CS	D4415300HH25SS
2" - 150#RF				Order Code	
Welded Diaphragm	1/2" NPT	316 SS	316 SS	D442150SS5CS	D442150SS5SS
Welded Diaphragm	1/2" NPT	Tantalum	Teflon® Lined - 316 SS	D442150UL5CS	D442150UL5SS
Welded Diaphragm	1/2" NPT	Hastelloy® C	Monel®	D442150HM5CS	D442150HM5SS
Welded Diaphragm	1/2" NPT	Hastelloy® C	Hastelloy® C	D442150HH5CS	D442150HH5SS
Welded Diaphragm	1/4" NPT	316 SS	316 SS	D442150SS25CS	D442150SS25SS
Welded Diaphragm	1/4" NPT	Tantalum	Teflon® Lined - 316 SS	D442150UL25CS	D442150UL25SS
Welded Diaphragm	1/4" NPT	Hastelloy® C	Monel®	D442150HM25CS	D442150HM25SS
Welded Diaphragm	1/4" NPT	Hastelloy® C	Hastelloy® C	D442150HH25CS	D442150HH25SS
2" - 300#RF				Order Code	
Welded Diaphragm	1/2" NPT	316 SS	316 SS	D442300SS5CS	D442300SS5SS
Welded Diaphragm	1/2" NPT	Tantalum	Teflon® Lined - 316 SS	D442300UL5CS	D442300UL5SS
Welded Diaphragm	1/2" NPT	Hastelloy® C	Monel®	D442300HM5CS	D442300HM5SS
Welded Diaphragm	1/2" NPT	Hastelloy® C	Hastelloy® C	D442300HH5CS	D442300HH5SS
Welded Diaphragm	1/4" NPT	316 SS	316 SS	D442300SS25CS	D442300SS25SS
Welded Diaphragm	1/4" NPT	Tantalum	Teflon® Lined - 316 SS	D442300UL25CS	D442300UL25SS
Welded Diaphragm	1/4" NPT	Hastelloy® C	Monel®	D442300HM25CS	D442300HM25SS
Welded Diaphragm	1/4" NPT	Hastelloy® C	Hastelloy® C	D442300HH25CS	D442300HH25SS

* Replaceable and Teflon® diaphragms available
 Other fill fluids (seal only), materials, pipe size and pressure ratings available upon request. For technical drawings, refer to D44 Teflon®.

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 Teflon® is a registered trademark of Dupont Corporation

30 to 1,300 psi (207 to 8,970 kPa)



Description & Features:

- One-piece design - no internal gaskets or o-rings
- Diaphragm is flush to the gasket sealing surface so no internal cavities for media buildup
- Various sizes available
- 1 year warranty

Applications:

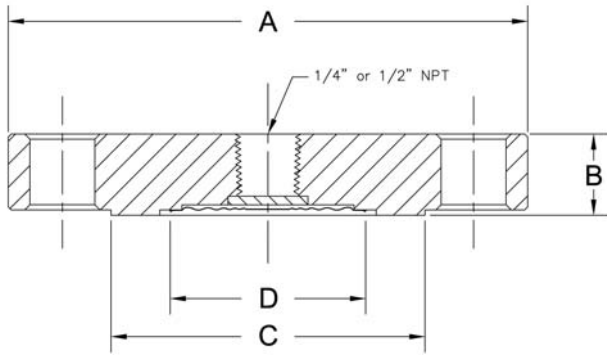
- Oil refineries, pulp and paper mills, chemical plants
- Where media buildup is a concern

Specifications	
Housing	316 SS
Diaphragm	316L bonded to housing
Construction	One piece construction
Connection	1/4", 1/2" NPT female gauge connections standard 1.5" (40mm), 2" (50mm) and 3" (75mm) pipe size
Maximum Temperature Limit	450°F (232°C)

Order Codes

Type	Instrument Connection	Diaphragm Material	Housing Material	Order Code
1.5" - 600#RF				
Bonded Diaphragm	1/4" NPT	316L SS	316 SS	D462538
Bonded Diaphragm	1/2" NPT	316L SS	316 SS	D462539
2" - 150#RF				
Bonded Diaphragm	1/4" NPT	316L SS	316 SS	D462548
Bonded Diaphragm	1/2" NPT	316L SS	316 SS	D462549
2" - 300#RF				
Bonded Diaphragm	1/4" NPT	316L SS	316 SS	D462550
Bonded Diaphragm	1/2" NPT	316L SS	316 SS	D462551
2" - 600#RF				
Bonded Diaphragm	1/4" NPT	316L SS	316 SS	D462552
Bonded Diaphragm	1/2" NPT	316L SS	316 SS	D462553
3" - 150#RF				
Bonded Diaphragm	1/4" NPT	316L SS	316 SS	D462554
Bonded Diaphragm	1/2" NPT	316L SS	316 SS	D462555
3" - 300#RF				
Bonded Diaphragm	1/4" NPT	316L SS	316 SS	D462556
Bonded Diaphragm	1/2" NPT	316L SS	316 SS	D462557
3" - 600#RF				
Bonded Diaphragm	1/4" NPT	316L SS	316 SS	D462558
Bonded Diaphragm	1/2" NPT	316L SS	316 SS	D462559

D46 Flanged Flush Mount Seal



Pipe Size	Rating	A	B	C	D
2"	150#	6"	0.88"	3.6"	2.2"
	300#	6.5"	0.88"		
	600#		1.25"		
3"	150#	7.5"	0.94"	5"	2.2" or 3"
	300#	8.2"	1.12"		
	600#		1.5"		

100 to 1,000 psi (690 to 6,900 kPa)



Description & Features:

- Compact, lightweight and economical
- Constructed of AISI 316 stainless steel and welded together into a one piece unit
- CRN registered
- 1 year warranty

Applications:

- Ideally suited for applications where space limitations exist

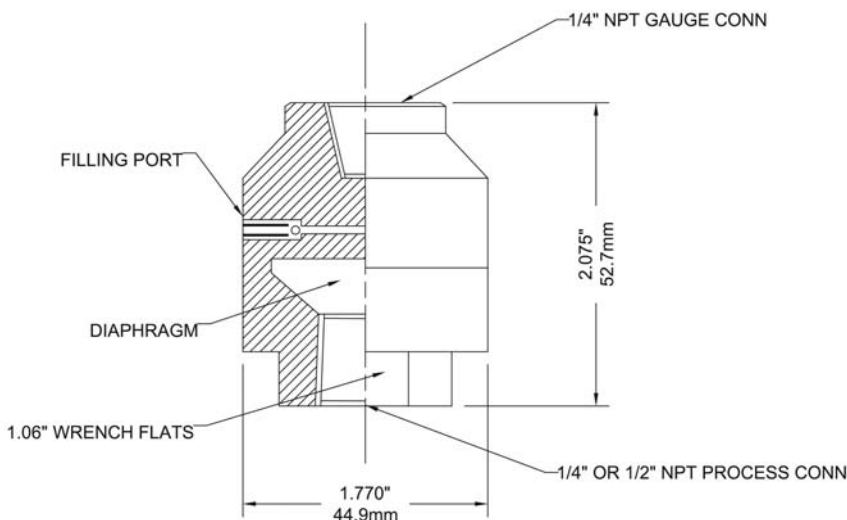
Specifications	
Housing	AISI 316 SS
Diaphragm	AISI 316L SS, welded
Minimum Operating Pressure	100 psi (690 kPa)
Maximum Operating Pressure	1,000 psi (6,900 kPa)
Gauge Connection	1/4" NPT female
Process Connection	1/4" NPT female/male, 1/2" NPT female
Process Temperature	-49°F to 302°F (-45°C to 150°C)

Order Codes

1/4" NPTF x 1/4" NPTF	1/4" NPTF x 1/4" NPTM	1/4" NPTF x 1/2" NPTF
D50970	D50971	D50990

Option suffix for above order codes only:

SF-D = Silicone fill (seal only)



D70 #70 Diaphragm Seal

30" Vac to 2,500 psi (-100 to 17,250 kPa)



Description & Features:

- Two piece construction and designed to withstand even the most severe process applications
- "Continuous use" seals - backing plate will prevent diaphragm from rupturing if pressure sensing instrument fails. Pressure will be held until instrument is replaced
- Diaphragm is separable for servicing and is available with a 1/8" NPT or 1/4" NPT flushing connection for removing any material which may clog the process connection
- Diaphragm is constructed of AISI 316 stainless steel and welded to the upper chamber of the seal for pressures 30 psi (200 kPa) and above; Viton® for ranges from 30" Hg Vacuum (-100 kPa) up to 100 psi (690 kPa). Others available
- Viton® is highly recommended for applications less than 10 psi
- CRN registered (all 316 SS only)
- 1 year warranty

Applications:

- Where the process fluid is corrosive or viscous and would clog instrument internals/solidify within the pressure gauge, switch or transmitter

Specifications

Specifications	
Housing	316 SS, Monel®, Hastelloy® C
Diaphragm	316 SS, Monel®, Hastelloy® C, Viton®
Construction	Two piece construction
Gasket Material	Buna N (Viton®, Teflon® optional)
Connection	Bottom: 1/4", 1/2", 3/4" and 1" NPT Top: 1/4" and 1/2" NPT
Process Temperature	-22°F to 212°F (-30°C to 100°C)
Other	Flushing connections available. Other materials such as Teflon®, PVC, Carbon steel, Alloy 20, Hastelloy® B, Titanium, Tantalum, etc. are available upon request

Hastelloy® is a registered trademark of Haynes International, Inc.
 Monel® is a registered trademark of Inco Alloys International
 Teflon® is a registered trademark of Dupont Corporation
 Viton® is a registered trademark of DuPont Performance Elastomers

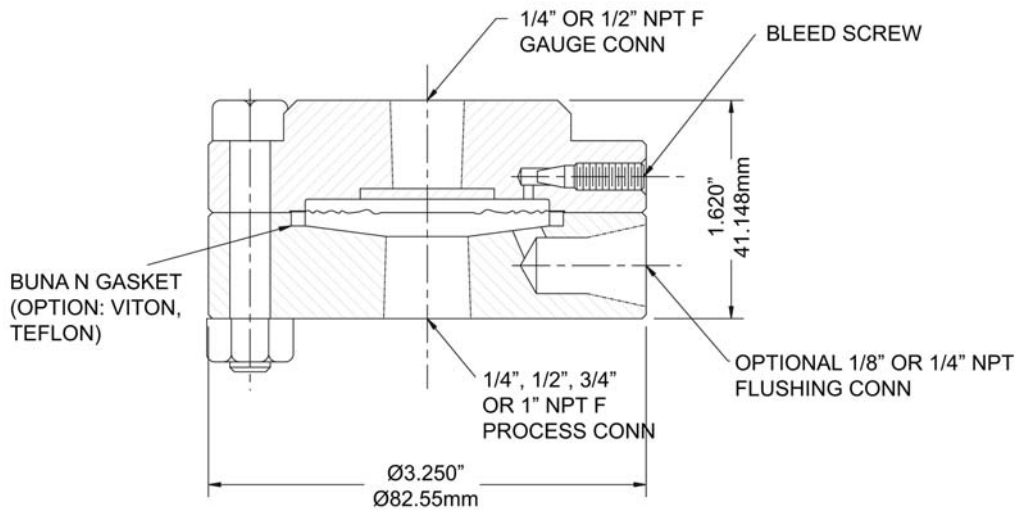
Order Codes (products in bold are normally in stock)

Lower Housing (Bottom)		Upper Housing (Top)	
316 SS, 1/4" NPT conn.	D70954	316 SS, 1/4" NPT conn., 316 SS diaphragm	D70950
316 SS, 1/2" NPT conn.	D70956	316 SS, 1/4" NPT conn., Monel® diaphragm	D70950M
316 SS, 1/2" NPT conn. with flushing	D70957	316 SS, 1/4" NPT conn., Hastelloy® C diaphragm	D70950HASC
316 SS, 3/4" NPT conn. with flushing	D70959	316 SS, 1/4" NPT conn., Viton® diaphragm	D70951
316 SS, 3/4" NPT conn.	D70963	316 SS, 1/2" NPT conn., 316 SS diaphragm	D70952
316 SS, 1" NPT conn.	D70964	316 SS, 1/2" NPT conn., Monel® diaphragm	D70952M
316 SS, 1" NPT conn. with flushing	D70965	316 SS, 1/2" NPT conn., Hastelloy® C diaphragm	D70952HASC
316 SS, 1/4" NPT conn., Viton®	D70954V	316 SS, 1/2" NPT conn., Viton® diaphragm	D70953
316 SS, 1/2" NPT conn., Viton®	D70956V		
316 SS, 1/2" NPT conn. with flushing, Viton®	D70957V		
316 SS, 3/4" NPT conn. with flushing, Viton®	D70959V		
316 SS, 3/4" NPT conn., Viton®	D70963V		
316 SS, 1" NPT conn., Viton®	D70964V		
316 SS, 1" NPT conn. with flushing, Viton®	D70965V		
Monel®, 1/4" NPT conn.	D70954M		
Monel®, 1/2" NPT conn.	D70956M		
Monel®, 1/2" NPT conn. with flushing	D70957M		
Monel®, 3/4" NPT conn. with flushing	D70959M		
Monel®, 3/4" NPT conn.	D70963M		
Monel®, 1" NPT conn.	D70964M		
Monel®, 1" NPT conn. with flushing	D70965M		
Hastelloy® C, 1/4" NPT conn.	D70954HASC		
Hastelloy® C, 1/2" NPT conn.	D70956HASC		
Hastelloy® C, 1/2" NPT conn. with flushing	D70957HASC		
Hastelloy® C, 3/4" NPT conn. with flushing	D70959HASC		
Hastelloy® C, 3/4" NPT conn.	D70963HASC		
Hastelloy® C, 1" NPT conn.	D70964HASC		
Hastelloy® C, 1" NPT conn. with flushing	D70965HASC		

Option suffix for above order codes only:

SF-D = Silicone fill (seal only)
 FL-D = Fluorolube fill (seal only)
 Teflon® Protected Diaphragm
 Other fill fluids (seal only) available upon request

Note: Both upper and lower housing must be specified
 Example: D70950 - D70956



Hastelloy® is a registered trademark of Haynes International, Inc.
 Monel® is a registered trademark of Inco Alloys International
 Teflon® is a registered trademark of Dupont Corporation
 Viton® is a registered trademark of DuPont Performance Elastomers

D71 #70 NACE Diaphragm Seal (Hastelloy® C)

30 to 2,500 psi (207 to 17,250 kPa)



Description & Features:

- Can be used on applications requiring a NACE compliant MR0103-2003 diaphragm seal
- 1 year warranty

Applications:

- Sour gas applications requiring instrumentation that meet NACE International Standards

Specifications	
Housing	Hastelloy® C
Diaphragm	Hastelloy® C, welded
Construction	Two piece construction
Gasket Material	Buna N (Viton®, Teflon® optional)
Connection	Top: 1/4" and 1/2" NPT Bottom: 1/4", 1/2", 3/4" and 1" NPT
Process Temperature	-22°F to 212°F (-30°C to 100°C)
Other	Flushing connections available. Other materials available upon request.

Order Codes

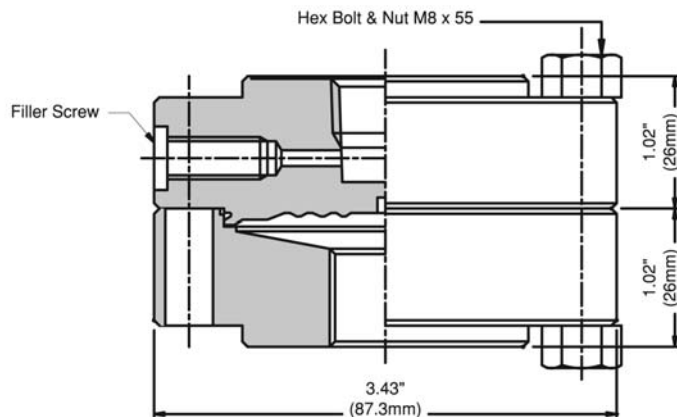
Upper Housing (Top)	
Hast. C, 1/4" NPT conn., Hastelloy® C diaphragm	D71966HASC75
Hast. C, 1/2" NPT conn., Hastelloy® C diaphragm	D71967HASC75
Lower Housing (Bottom)	
Hastelloy® C, 1/4" NPT conn.	D71954HASC75
Hastelloy® C, 1/2" NPT conn.	D71956HASC75
Hastelloy® C, 1/2" NPT conn. with flushing	D71957HASC75
Hastelloy® C, 3/4" NPT conn. with flushing	D71959HASC75
Hastelloy® C, 3/4" NPT conn.	D71963HASC75
Hastelloy® C, 1" NPT conn.	D71964HASC75
Hastelloy® C, 1" NPT conn. with flushing	D71965HASC75

Option suffix for above order codes only:

SF-D = Silicone fill (seal only)

FL-D = Fluorolube fill (seal only)

Other fill fluids (seal only) available upon request



Hastelloy® is a registered trademark of Haynes International, Inc.
Viton® is a registered trademark of DuPont Performance Elastomers

30 to 2,500 psi (207 to 17,250 kPa)



Description & Features:

- Can be used on applications requiring a NACE compliant MR0175-2003 diaphragm seal
- 1 year warranty

Applications:

- Sour gas applications requiring instrumentation that meet NACE International Standards

Specifications	
Housing	316 SS
Diaphragm	Monel®, welded
Construction	Two piece construction
Gasket Material	Buna N (Viton®, Teflon® optional)
Connection	Top: 1/4" and 1/2" NPT Bottom: 1/4", 1/2", 3/4" and 1" NPT
Process Temperature	-22°F to 212°F (-30°C to 100°C)
Other	Flushing connections available. Other materials available upon request.

Order Codes

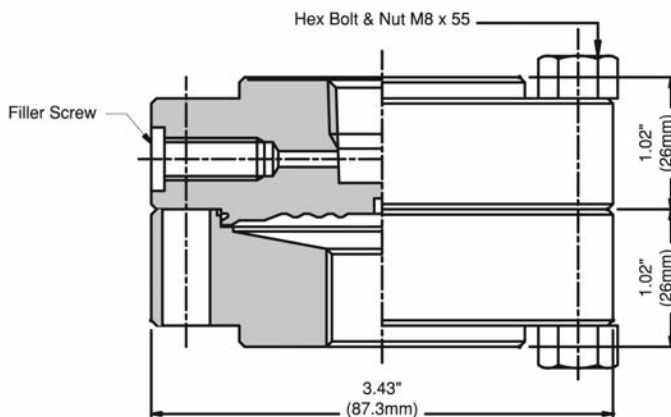
Upper Housing (Top)	
316 SS, 1/4" NPT conn., Monel® diaphragm	D7195003
316 SS, 1/2" NPT conn., Monel® diaphragm	D7195203
Lower Housing (Bottom)	
316 SS, 1/4" NPT conn.	D7195403
316 SS, 1/2" NPT conn.	D7195603
316 SS, 1/2" NPT conn. with flushing	D7195703
316 SS, 3/4" NPT conn. with flushing	D7195903
316 SS, 3/4" NPT conn.	D7196303
316 SS, 1" NPT conn.	D7196403
316 SS, 1" NPT conn. with flushing	D7196503

Option suffix for above order codes only:

SF-D = Silicone fill (seal only)

FL-D = Fluorolube fill (seal only)

Other fill fluids (seal only) available upon request



Monel® is a registered trademark of Inco Alloys International

TBM Bi-Metal Thermometer



Description & Features:

- A general purpose, versatile 1" (25mm) to 6" (150mm) dial, 304 stainless steel thermometer
- Bi-metallic sensing element for reliable readings
- Back, bottom or adjustable angle connection
- Welded stem length from 2.5" (63mm) and up
- $\pm 1\%$ accuracy
- Anti-parallax dial that reduces operator reading errors
- External recalibration screw is standard on the 2" (50mm) to 6" (150mm) dials
- 5 year warranty

Applications:

- Industrial process, heating and air conditioning, ventilation and wastewater

Specifications

Dial	1" (25mm), 2" (50mm): Aluminum with black markings, flat dial 3" (75mm), 4" (100mm), 5" (125mm), 6" (150mm): aluminum with black markings, anti-parallax dial
Case	AISI 304 SS
Stem	AISI 304 SS welded to socket, centre back, bottom or adjustable angle configurations (316 SS optional*) 2" (50mm) dial: centre back connection only
Recalibrator	Standard**
Lens	1" (25mm): Acrylic Others: Glass standard, hermetically sealed
Ring	AISI 304 SS
Connection	1" (25mm): None 2" (50mm): $\frac{1}{4}$ " NPT standard 3" (75mm), 4" (100mm), 5" (125mm), 6" (150mm): $\frac{1}{2}$ " NPT standard
Sensing Element	Bi-metallic coil
Pointer	Aluminum, painted black
Maximum Operating Pressure	125 psi (861 kPa)
Operating Temperature	75% of full scale value (recommended maximum)
Ambient Temperature	-58°F to 248°F (-50°C to 120°C)
Accuracy	$\pm 1\%$
Enclosure Rating	IP68

*Contact Winters for 316 SS requirements

**Not available on 1" pocket and 2" laboratory thermometer

Note: The use of a thermowell is recommended to protect the thermometer in corrosive or pressure applications, as well as to maintain a closed system during its removal from the process

To order, specify the code for each dial/stem length and the range: i.e. TBM20025 - B26

Dial Size	Stem Length	Fixed Centre Back	Bottom	Adjustable Angle
1" (25mm) pocket thermometer	5" (125mm)	TBM10050	-	-
2" (50mm) lab thermometer	8" (200mm)	TBM20080	-	-
2" (50mm)	2.5" (63mm)	TBM20025	-	-
	4" (100mm)	TBM20040	-	-
	6" (150mm)	TBM20060	-	-
	9" (225mm)	TBM20090	-	-
	12" (300mm)	TBM20120	-	-
3" (75mm)	2.5" (63mm)	TBM30025	TBM31025	TBM32025
	4" (100mm)	TBM30040	TBM31040	TBM32040
	6" (150mm)	TBM30060	TBM31060	TBM32060
	9" (225mm)	TBM30090	TBM31090	TBM32090
	12" (300mm)	TBM30120	TBM31120	TBM32120
4" (100mm)	2.5" (63mm)	TBM40025	TBM41025	TBM42025
	4" (100mm)	TBM40040	TBM41040	TBM42040
	6" (150mm)	TBM40060	TBM41060	TBM42060
	9" (225mm)	TBM40090	TBM41090	TBM42090
	12" (300mm)	TBM40120	TBM41120	TBM42120
5" (125mm)	2.5" (63mm)	TBM50025	TBM51025	TBM52025
	4" (100mm)	TBM50040	TBM51040	TBM52040
	6" (150mm)	TBM50060	TBM51060	TBM52060
	9" (225mm)	TBM50090	TBM51090	TBM52090
	12" (300mm)	TBM50120	TBM51120	TBM52120
6" (150mm)	2.5" (63mm)	TBM60025	TBM61025	TBM62025
	4" (100mm)	TBM60040	TBM61040	TBM62040
	6" (150mm)	TBM60060	TBM61060	TBM62060
	9" (225mm)	TBM60090	TBM61090	TBM62090
	12" (300mm)	TBM60120	TBM61120	TBM62120

°F & °C (Dual)	Code	°F only	Code	°C Only	Code
-100°F to 150°F & -70°C to 70°C	B1	-40°F to 120°F	B14	-80°C to 50°C	B26
-40°F to 120°F & -40°C to 50°C	B2	-40°F to 160°F	B15	-50°C to 50°C	B27
0°F to 140°F & -20°C to 60°C	B3	0°F to 140°F	B16	0°C to 50°C	B28
-40°F to 160°F & -40°C to 70°C	B4	0°F to 200°F	B17	-50°C to 100°C	B29
25°F to 125°F & -5°C to 50°C	B5	20°F to 240°F	B18	0°C to 100°C	B30
0°F to 200°F & -20°C to 90°C	B6	0°F to 250°F	B19	-20°C to 120°C	B31
20°F to 240°F & -5°C to 115°C	B7	50°F to 300°F	B20	0°C to 150°C	B32
0°F to 250°F & -20°C to 120°C	B8	50°F to 400°F	B21	0°C to 200°C	B33
50°F to 300°F & 10°C to 150°C	B9	50°F to 550°F	B22	0°C to 300°C	B34
50°F to 400°F & 10°C to 200°C	B10	150°F to 750°F	B23	0°C to 450°C	B35
50°F to 500°F & 10°C to 260°C	B11	0°F to 800°F	B24	100°C to 550°C	B36
150°F to 750°F & 100°C to 400°C	B12	200°F to 1,000°F	B25	0°C to 500°C	B39
200°F to 1,000°F & 100°C to 540°C	B13	14°F to 140°F	B38	-10°C to 60°C	B40
14°F to 140°F & -10°C to 60°C	B37	-	-	100°C to 400°C	B41
-	-	-	-	100°C to 540°C	B42
-	-	-	-	-30°C to 70°C	B45
-	-	-	-	20°C to 120°C	B46
-	-	-	-	-70°C to 170°C	B47
-	-	-	-	0°C to 120°C	B48
-	-	-	-	0°C to 400°C	B49
-	-	-	-	0°C to 250°C	B50

Other ranges, stem lengths and connection sizes available upon request. For glycerin fill, maximum temperature limit is 300°F (150°C). Silicone fill available.

Option suffix:

AP3 = 3" acrylic lens
 AP4 = 4" acrylic lens
 AP5 = 5" acrylic lens
 AP6 = 6" acrylic lens

BG3 = 3" glycerin filling
 BG4 = 4" glycerin filling
 BG5 = 5" glycerin filling
 BG6 = 6" glycerin filling

DUCT = Aluminum duct flange
 SCK = Socket conversion kit
 SPG3 = 3" Shatterproof glass lens
 SPG5 = 5" Shatterproof glass lens

Note: The use of a thermowell is recommended to protect the thermometer from corrosive or damaging environments, as well as to maintain a closed system during its removal from the process

TBM Bi-Metal Thermometer

Order Codes (products in bold are normally in stock)

1" (25mm) Dial, Fixed Centre Back	
Temperature Range	5" Stem Length Code
0°F to 250°F&C	TBM10050B8
-40°F to 160°F	TBM10050B15
0°F to 200°F	TBM10050B17
0°F to 250°F	TBM10050B19

2" (50mm) Dial, Fixed Centre Back		
Temperature Range	2.5" Stem Length Code	4" Stem Length Code
-40°F to 120°F&C	TBM20025B2	-
0°F to 140°F&C	TBM20025B3	-
0°F to 200°F &C	TBM20025B6	-
20°F to 240°F&C	-	TBM20040B7
0°F to 250°F&C	TBM20025B8	TBM20040B8
50°F to 300°F&C	TBM20025B9	-
50°F to 400°F&C	TBM20025B10	-
50°F to 500°F&C	TBM20025B11	TBM20040B11

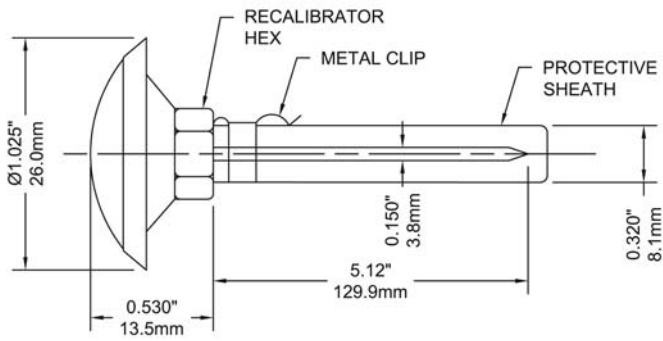
3" (75mm) Dial, Fixed Centre Back				
Temperature Range	2.5" Stem Length Code	4" Stem Length Code	6" Stem Length Code	9" Stem Length Code
-40°F to 120°F&C	TBM30025B2	TBM30040B2	TBM30060B2	TBM30090B2
0°F to 140°F&C	TBM30025B3	-	-	-
-40°F to 160°F&C	TBM30025B4	TBM30040B4	TBM30060B4	-
0°F to 200°F&C	TBM30025B6	TBM30040B6	TBM30060B6	-
20°F to 240°F&C	TBM30025B7	TBM30040B7	TBM30060B7	TBM30090B7
0°F to 250°F&C	TBM30025B8	TBM30040B8	TBM30060B8	TBM30090B8
50°F to 300°F&C	TBM30025B9	TBM30040B9	TBM30060B9	TBM30090B9
50°F to 400°F&C	TBM30025B10	TBM30040B10	TBM30060B10	-
50°F to 500°F&C	TBM30025B11	TBM30040B11	TBM30060B11	TBM30090B11
150°F to 750°F&C	-	TBM30040B12	TBM30060B12	TBM30090B12
200°F to 1,000°F&C	TBM30025B13	TBM30040B13	-	TBM30090B13
-40°F to 120°F	-	TBM30040B14	-	-
20°F to 240°F	-	TBM30040B18	-	-
0°F to 250°F	TBM30025B19	TBM30040B19	TBM30060B19	-
0°C to 100°C	TBM30025B30	-	-	-
0°C to 300°C	TBM30025B34	-	-	-

3" (75mm) Dial, Bottom		
Temperature Range	2.5" Stem Length Code	4" Stem Length Code
20°F to 240°F&C	TBM31025B7	TBM31040B7
0°F to 250°F&C	TBM31025B8	TBM31040B8
50°F to 500°F&C	TBM31025B11	-
0°F to 200°F	TBM31025B17	-
0°F to 100°C	TBM31025B30	-

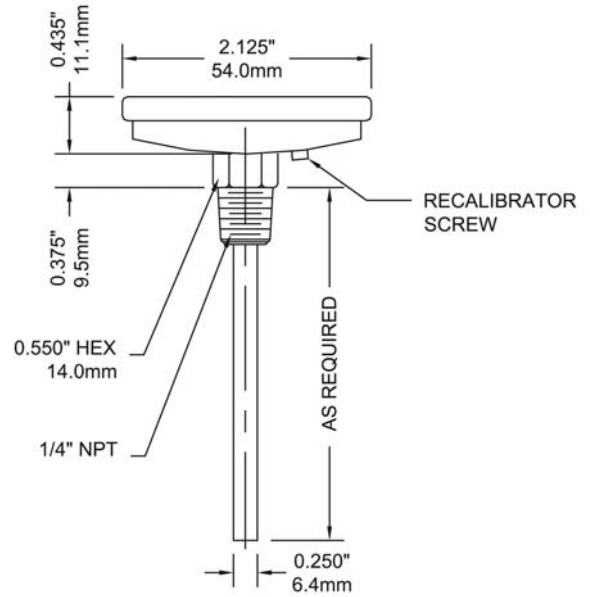
3" (75mm) Dial, Adjustable Angle				
Temperature Range	2.5" Stem Length Code	4" Stem Length Code	6" Stem Length Code	9" Stem Length Code
-40°F to 120°F&C	TBM32025B2	-	-	-
0°F to 140°F&C	TBM32025B3	TBM32040B3	TBM32060B3	-
-40°F to 160°F&C	TBM32025B4	TBM32040B4	TBM32040B4	TBM32090B4
0°F to 200°F&C	TBM32025B6	TBM32040B6	TBM32040B6	TBM32090B6
20°F to 240°F&C	TBM32025B7	TBM32040B7	TBM32040B7	TBM32090B7
0°F to 250°F&C	TBM32025B8	TBM32040B8	TBM32040B8	-
50°F to 300°F&C	TBM32025B9	-	-	-

5" (125mm) Dial, Adjustable Angle				
Temperature Range	2.5" Stem Length Code	4" Stem Length Code	6" Stem Length Code	9" Stem Length Code
0°F to 140°F&C	TBM52025B3	TBM52040B3	TBM52060B3	-
0°F to 200°F&C	TBM52025B6	TBM52040B6	TBM52060B6	-
20°F to 240°F&C	TBM52025B7	TBM52040B7	TBM52060B7	-
0°F to 250°F&C	TBM52025B8	TBM52040B8	TBM52060B8	TBM52090B8
50°F to 300°F&C	TBM52025B9	TBM52040B9	TBM52060B9	-
50°F to 400°F&C	-	-	-	-

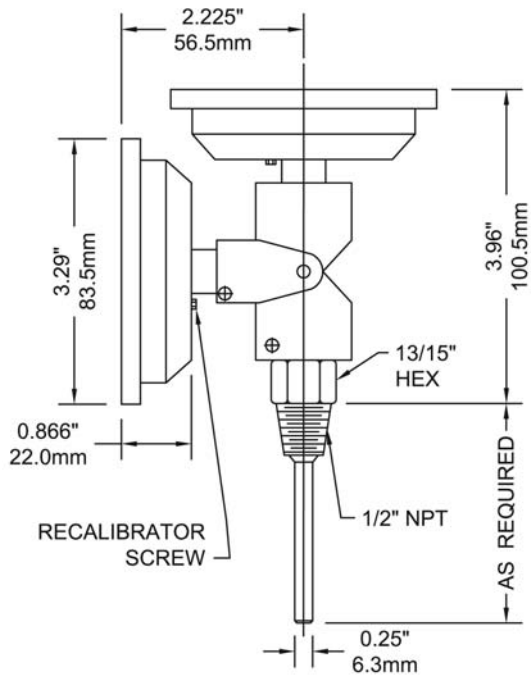
1" Back Connection



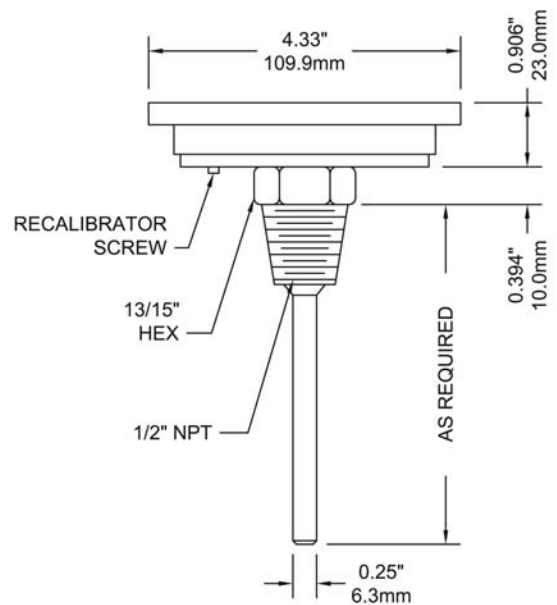
2" Back Connection



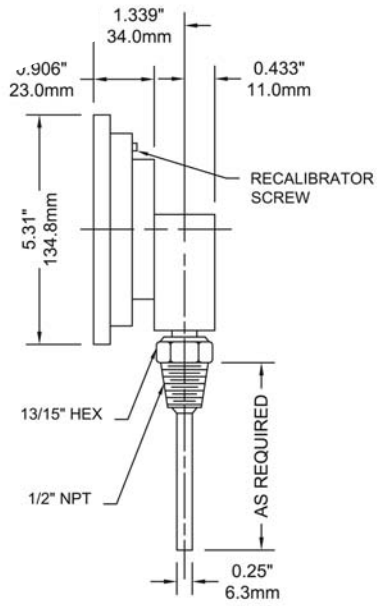
3" Adjustable Angle Connection



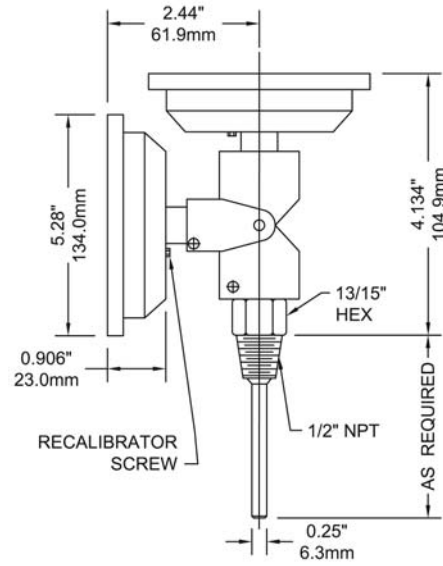
4" Back Connection



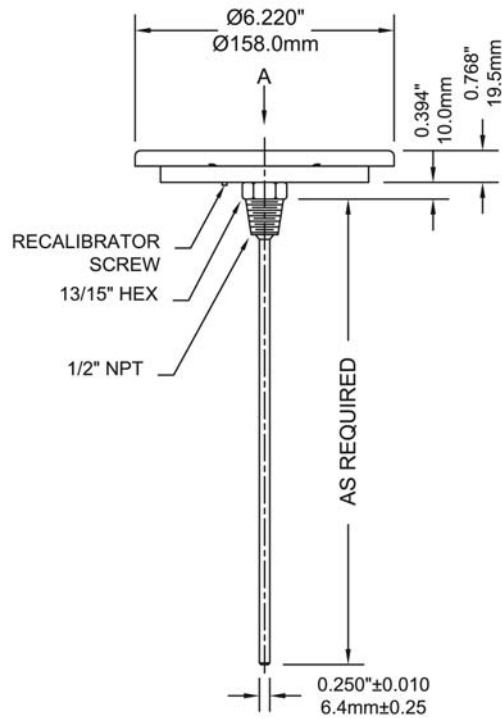
5" Bottom Connection



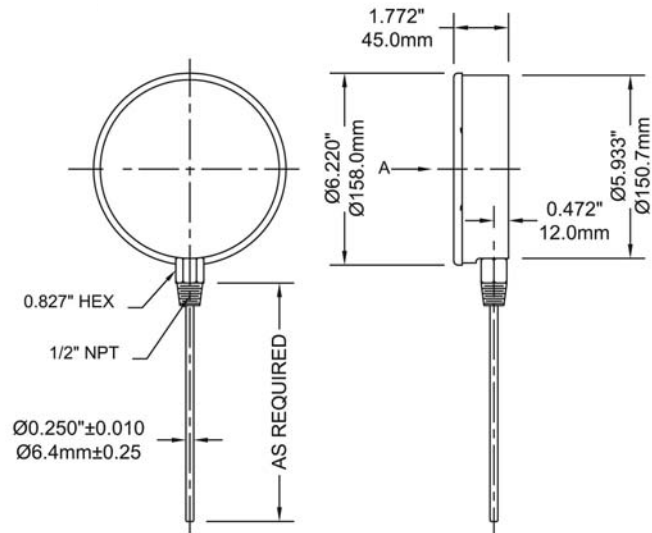
5" Adjustable Angle Connection



6" Back Connection



6" Bottom Connection





Description & Features:

- Versatile, heavy duty gas or vapour thermometer for remote reading
- Built to order
- Brass or stainless steel capillary and bulbs
- Plain, sliding union or thermowell connection
- Capillary lengths over 5 feet available
- 1/2" bulb diameter
- Panel or direct mount
- Gas: $\pm 0.5\%$ accuracy; Vapour: $\pm 2\%$ accuracy
- 5 year warranty

Applications:

- For remote temperature sensing

Note: RoHS applies only with SS bulb, SS capillary and SS thermowell

Specifications	
Dial	2.5" (63mm), 3.5" (90mm), 4" (100mm), 4.5" (115mm), 6" (150mm), 8.5" (215mm)
Case/Ring	2.5" (63mm): 316 SS 3.5" (90mm), 4" (100mm): Steel, painted black Others: Aluminum, painted black
Lens	2.5" (63mm) to 6" (150mm): Glass Others: Polycarbonate
Connection	Plain Brass or 316 SS sliding union Brass or 316 SS thermowell
Sensing Fill	Gas or vapour
Movement	Gas: 304 SS Vapour: Brass
Pointer	Aluminum, painted black
Accuracy	Gas: $\pm 0.5\%$ of full scale value Vapour: $\pm 2\%$ of full scale value
Bulb	6" (150mm), 1/2" diameter standard Custom sizes available

TRR Remote Reading Thermometer

Selection Notes

Gas-filled Systems

- For industrial applications requiring accurate and uniform response over the entire range. Scale is linear
- The capillary should be located in an area that has an ambient temperature of approximately 74°F (23°C). If the temperature around the capillary is significantly higher than 74°F (23°C), the thermometer will show a reading that is higher than actual process temperature. If the capillary ambient temperature is significantly lower than 74°F (23°C), the reading will be lower than the actual process temperature

Vapour-filled Systems

- Have non-linear scales and provide economical but reliable service for most industrial applications
- To ensure accurate readings, the operating temperature should fall in the 2/3 of the scale
- Thermometer may show a temperature offset to actual temperature value when the bulb and thermometer are installed at different elevations. To avoid this, install the bulb and thermometer at the same elevation wherever possible. Offset errors only occur when the thermometer's ambient temperature is higher than the bulb temperature

Capillary Protection

- Is recommended to protect the capillary from physical damage
- Copper braided armour is used in conjunction with brass bulb
- Stainless steel armour shall be used in conjunction with 316 SS bulb

Note: Winters recommends using a stainless steel bulb and capillary for all process temperatures above 500°F (260°C)

Order Codes

Specify the code for each section and the range:

e.g. TRR3 - 2 - 35 - 1 - 05 - 1 - 50/250°F

(Section I - II - III - IV - V - VI - range)

Section	Code	Description Type	Section	Code	Description Bulb and Capillary			
					Bulb Dimensions	Bulb Material	Capillary Material	Capillary Protection
I	TRR1	Gas Remote Reading	IV	1	6" OAL, 1/2" OD	Brass	Copper	Copper Dbl Braided
	TRR2	Gas Direct Reading		2	6" OAL, 1/2" OD	316 SS	316 SS	None
	TRR3	Vapour Remote Reading		3	6" OAL, 1/2" OD	316 SS	316 SS	SS Armour
	TRR4	Vapour Direct Reading	V	Capillary Length (ft)				
Case Type, Connection		05		5ft				
II	1	Bottom connection, back flange		10	10ft			
				30	30ft			
				XX	Use 2 digits in 5ft lengths, ie: 35 = 35ft			
				Connection				
2	Back connection, front flange	0		None				
		1		1/2" NPT brass sliding union				
3	Back connection, back flange	2		1/2" NPT SS sliding union				
		3		3/4" NPT brass sliding union				
4	Vari-angle connection, (Direct reading only)	4	3/4" NPT SS sliding union					
		5	1/2" NPT brass thermowell					
III	Dial Size		VI	6	1/2" NPT SS thermowell			
	25	2.5" (63mm)		7	3/4" NPT brass thermowell			
	35	3.5" (90mm) Back connection only		8	3/4" NPT SS thermowell			
	40	4" (100mm)						
	45	4.5" (115mm)						
	60	6" (150mm)						
85	8.5" (215mm)							

Vapour Ranges	°F only	°F & °C	°C only
All Dial Sizes	-40°F to 110°F	-40°F to 110°F & -40°C to 40°C	-40°C to 40°C
	0°F to 100°F	0°F to 100°F & -20°C to 38°C	-20°C to 38°C
	0°F to 180°F	0°F to 180°F & -20°C to 80°C	-20°C to 80°C
	20°F to 220°F	20°F to 220°F & 0°C to 100°C	0°C to 100°C
	50°F to 250°F	50°F to 250°F & 10°C to 120°C	10°C to 120°C
	100°F to 350°F	100°F to 350°F & 40°C to 175°C	40°C to 175°C
	200°F to 450°F	200°F to 450°F & 100°C to 230°C	100°C to 230°C
Gas Ranges			
All Dial Sizes	-40°F to 110°F	-40°F to 110°F & -40°C to 40°C	-40°C to 40°C
	-20°F to 120°F	-20°F to 120°F & -28°C to 48°C	-30°C to 50°C
	30°F to 150°F	30°F to 150°F & -1°C to 65°C	-1°C to 65°C
	0°F to 180°F	0°F to 180°F & -20°C to 80°C	-20°C to 80°C
	30°F to 240°F	30°F to 240°F & -1°C to 115°C	-1°C to 115°C
	40°F to 220°F	40°F to 220°F & 4°C to 100°C	0°C to 100°C
	80°F to 300°F	80°F to 300°F & 26°C to 148°C	0°C to 150°C
	100°F to 400°F*	100°F to 400°F* & 40°C to 204°C*	0°C to 200°C
	100°F to 500°F*	100°F to 500°F* & 40°C to 260°C*	0°C to 260°C
	0°F to 600°F*	0°F to 600°F* & -20°C to 315°C*	0°C to 300°C
	200°F to 1,000°F*	200°F to 1,000°F* & 100°C to 537°C*	0°C to 500°C

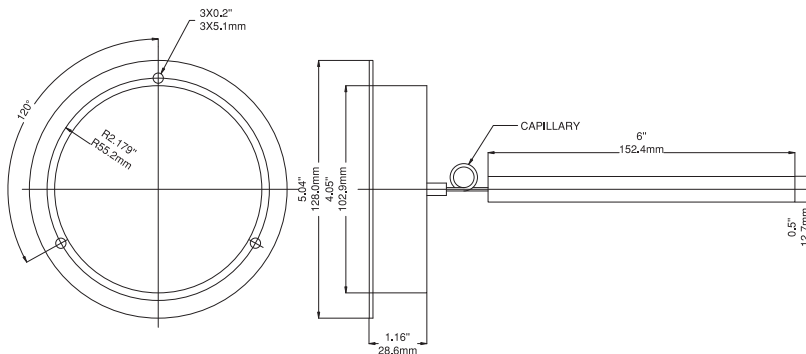
*Ranges require stainless steel capillary and bulb

Please contact us for:

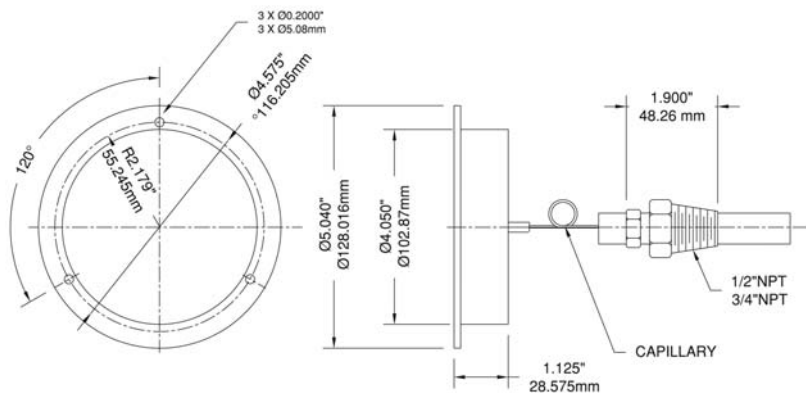
Duct flanges, sliding union, various bulb dimensions, averaging bulb (gas only), other ranges, stainless steel 4" (100mm) and 6" (150mm) cases and capillary available on gas remote/direct reading models

Note: The use of a thermowell is recommended to protect the thermometer in corrosive or pressure applications, as well as to maintain a closed system during its removal from the process.

4" Back Connection, Front Flange, Plain Bulb

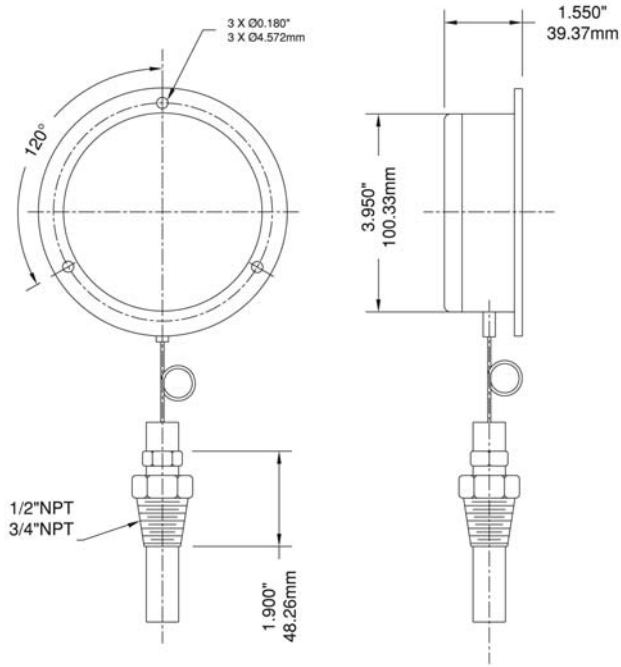


4" Back Connection, Front Flange, Sliding Union

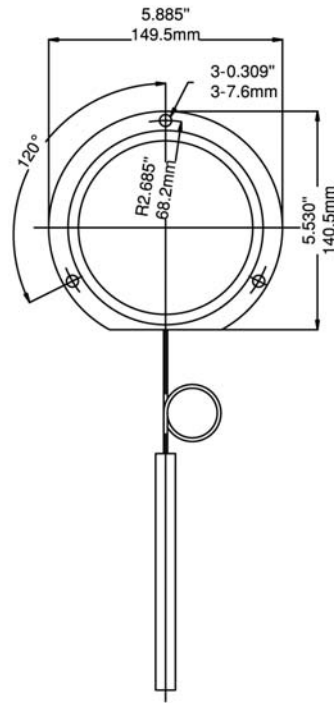


TRR Remote Reading Thermometer

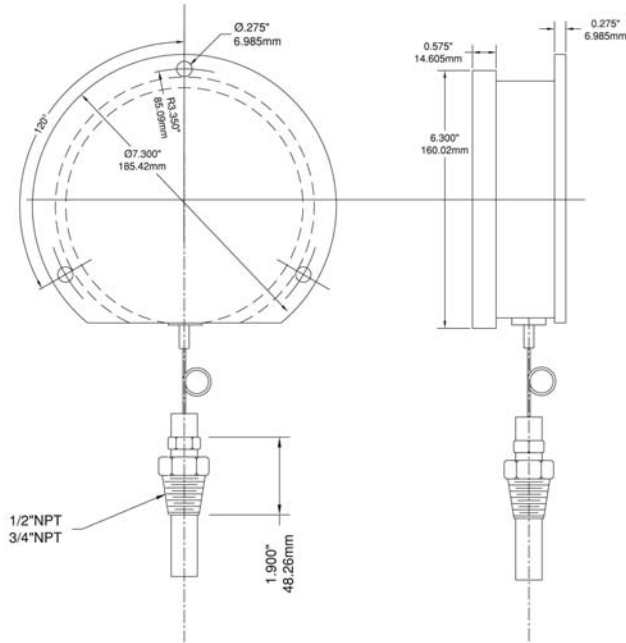
4" Bottom Connection, Back Flange, Sliding Union



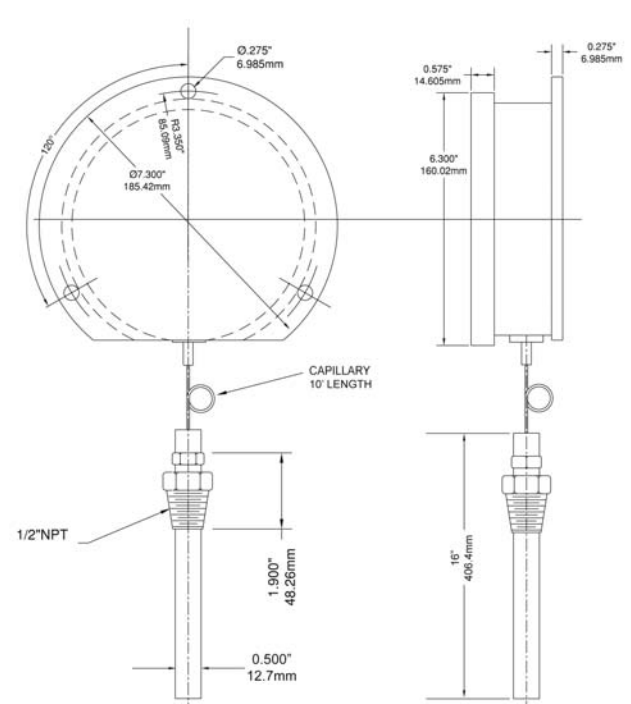
4.5" Bottom Connection, Back Flange, Plain Bulb



6" Bottom Connection, Back Flange, Sliding Union



6" Bottom Connection, Back Flange, c/w Thermowell





Description & Features:

- Available in a wide range of materials for use on most applications
- Standard “stepped construction” offering is complemented by an array of custom thermowells including: straight, tapered, sanitary and flanged configurations
- CRN registered
- 1 year warranty

Applications:

- Allows for the creation of a “sealed system”, whereby the thermometer can be removed from the application without the need for shutting down or draining the system
- To protect the thermometer from possible exposure to the process media



Specifications

Thermometer Connection	1/2" NPT female connection standard Other thread sizes are available upon request
Process Connection	3/4", 1/2" or 1" NPT connection standard Other thread sizes are available upon request
Bore	0.260" (6.5mm) bore standard
Construction	Stepped construction standard Tapered construction available upon request
Material	Brass, AISI 304 SS, AISI 316 SS standard Other materials available upon request

Material	Pressure - Temperature Rating (PSI)						
	70°F (21°C)	200°F (93°C)	400°F (204°C)	600°F (316°C)	800°F (427°C)	1000°F (538°C)	1200°F (649°C)
Brass	5,000	4,200	1,000	-	-	-	-
304 SS	7,000	6,200	5,600	5,400	5,200	4,500	1,650
316 SS	7,000	7,000	6,400	6,200	6,100	5,100	2,500

Note: For process media velocities above 10m/s (30 feet/s) contact Winters

TBR Bi-Metal Threaded Thermowell

Order Codes (Thermowells without lag. Products in bold are normally in stock)

Stem Length A	NPT Connection P	Material	Code	Standard Insertion Length U	Shank Diameter
2.5" (63mm)	1/2"	Brass	TBR2550	1 3/8" (35mm)	1/2" (12.5mm)
		304 SS	TBR2550-1		
		316 SS	TBR2550-2		
	3/4"	Brass	TBR25		
		304 SS	TBR25-1		
		316 SS	TBR25-2		
4" (100mm)	1/2"	Brass	TBR3550	2.5" (63mm)	1/2" (12.5mm)
		304 SS	TBR3550-1		
		316 SS	TBR3550-2		
	3/4"	Brass	TBR35		
		304 SS	TBR35-1		
		316 SS	TBR35-2		
	1"	Brass	TBR35100		
		304 SS	TBR35100-1		
		316 SS	TBR35100-2		
6" (150mm)	1/2"	Brass	TBR650	4.5" (115mm)	5/8" (16mm)
		304 SS	TBR650-1		
		316 SS	TBR650-2		
	3/4"	Brass	TBR6		
		304 SS	TBR6-1		
		316 SS	TBR6-2		
	1"	Brass	TBR6100		
		304 SS	TBR6100-1		
		316 SS	TBR6100-2		
9" (229mm)	1/2"	Brass	TBR950	7.5" (190mm)	5/8" (16mm)
		304 SS	TBR950-1		
		316 SS	TBR950-2		
	3/4"	Brass	TBR9		
		304 SS	TBR9-1		
		316 SS	TBR9-2		
	1"	Brass	TBR9100		
		304 SS	TBR9100-1		
		316 SS	TBR9100-2		
12" (305mm)	1/2"	Brass	TBR1250	10.5" (266mm)	5/8" (16mm)
		304 SS	TBR1250-1		
		316 SS	TBR1250-2		
	3/4"	Brass	TBR12		
		304 SS	TBR12-1		
		316 SS	TBR12-2		
	1"	Brass	TBR12100		
		304 SS	TBR12100-1		
		316 SS	TBR12100-2		

Order Codes (Thermowells with lag. Products in bold are normally in stock)

Stem Length A	NPT Connection P	Material	Code	Standard Insertion Length U	Lag Length T	Shank Diameter
6" (150mm)	1/2"	Brass	TBRN650	2.5" (63mm)	2"	1/2" (12.5mm)
		304 SS	TBRN650-1			
		316 SS	TBRN650-2			
	3/4"	Brass	TBRN6	2.5" (63mm)	2"	1/2" (12.5mm)
		304 SS	TBRN6-1			
		316 SS	TBRN6-2			
	1"	Brass	TBRN6100	2.5" (63mm)	2"	1/2" (12.5mm)
		304 SS	TBRN6100-1			
		316 SS	TBRN6100-2			
9" (229mm)	1/2"	Brass	TBRN950	4.5" (115mm)	3"	5/8" (16mm)
		304 SS	TBRN950-1			
		316 SS	TBRN950-2			
	3/4"	Brass	TBRN9	4.5" (115mm)	3"	3/4" (19mm)
		304 SS	TBRN9-1			
		316 SS	TBRN9-2			
	1"	Brass	TBRN9100	4.5" (115mm)	3"	7/8" (22mm)
		304 SS	TBRN9100-1			
		316 SS	TBRN9100-2			
12" (305mm)	1/2"	Brass	TBRN1250	7.5" (190mm)	3"	5/8" (16mm)
		304 SS	TBRN1250-1			
		316 SS	TBRN1250-2			
	3/4"	Brass	TBRN12	7.5" (190mm)	3"	3/4" (19mm)
		304 SS	TBRN12-1			
		316 SS	TBRN12-2			
	1"	Brass	TBRN1210	7.5" (190mm)	3"	7/8" (22mm)
		304 SS	TBRN1210-1			
		316 SS	TBRN1210-2			

Other configurations available. 1/4" NPT thermometer connection available. BSP threads available upon request. Tapered construction available upon request. Other lengths available up to 48" (welded construction only). Other materials such as Monel®, Inconel®, Hastelloy® C and Titanium are available upon request.

Note: Standard well is stepped as shown to 0.5" OD except U=2.5". Straight shank supplied as an option. Specify additional lagging extensions as needed

Option suffix:

SCK = Socket Conversion Kit

W60 = Brass cap and chain (1/2")

W60-1 = Stainless steel cap and chain (1/2")

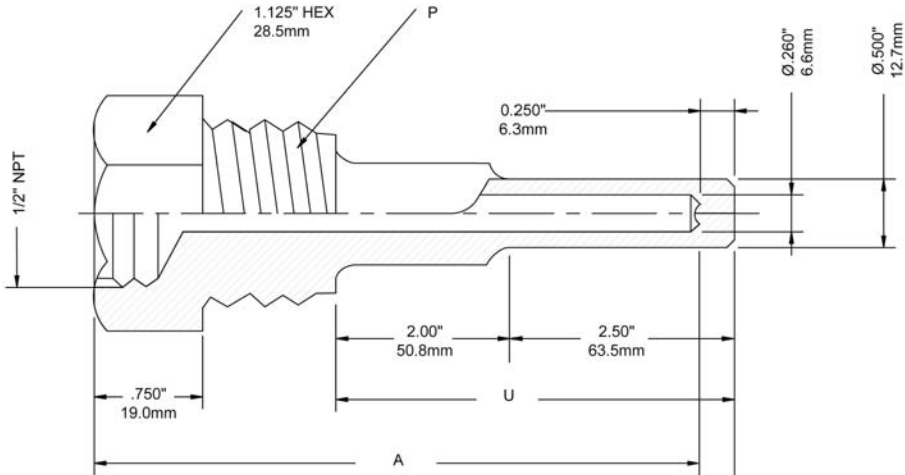
Hastelloy® is a registered trademark of Haynes International, Inc.

Inconel® is a registered trademark of Special Metals Corporation

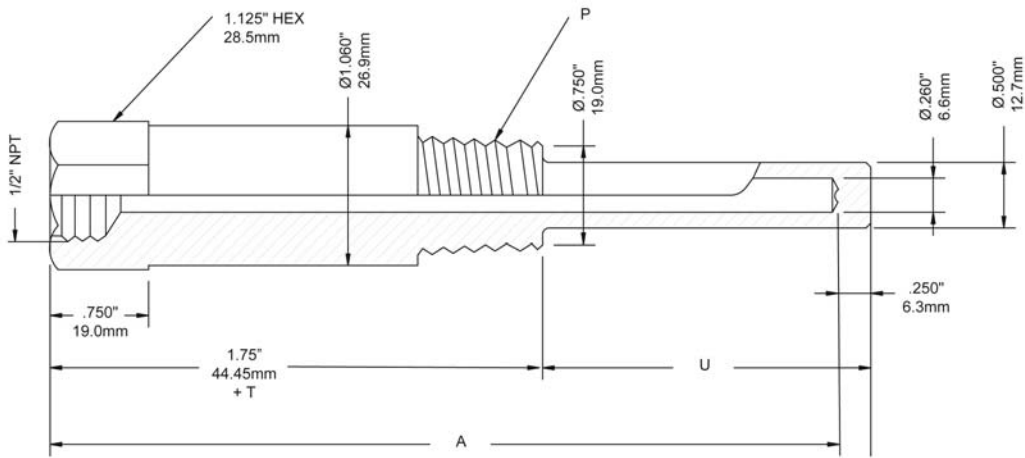
Monel® is a registered trademark of Inco Alloys International

TBR Bi-Metal Threaded Thermowell

Standard Thermowell without lag



Standard Thermowell with lag





Description & Features:

- Designed for use on a closed system
- 1 year warranty

Applications:

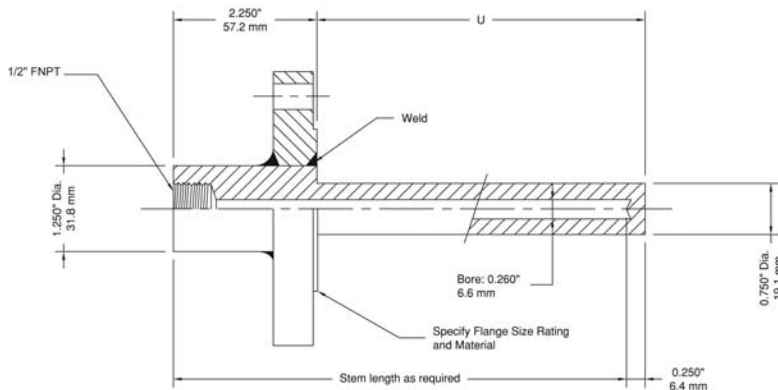
- Isolates temperature sensor from process media

Order Codes

Element Length	"U" Dimension	Material	Flange Size and Rating		
			1"	1.5"	2"
			150# Code		
4" stem	2"	304 SS	TWF11504304	TWF151504304	TWF21504304
4" stem	2"	316 SS	TWF11504316	TWF151504316	TWF21504316
6" stem	4"	304 SS	TWF11506304	TWF151506304	TWF21506304
6" stem	4"	316 SS	TWF11506316	TWF151506316	TWF21506316
9" stem	7"	304 SS	TWF11509304	TWF151509304	TWF21509304
9" stem	7"	316 SS	TWF11509316	TWF151509316	TWF21509316
12" stem	10"	304 SS	TWF115012304	TWF1515012304	TWF215012304
12" stem	10"	316 SS	TWF115012316	TWF1515012316	TWF215012316
15" stem	13"	304 SS	TWF115015304	TWF1515015304	TWF215015304
15" stem	13"	316 SS	TWF115015316	TWF1515015316	TWF215015316

Element Length	"U" Dimension	Material	Flange Size and Rating		
			1"	1.5"	2"
			300# Code		
4" stem	2"	304 SS	TWF13004304	TWF153004304	TWF23004304
4" stem	2"	316 SS	TWF13004316	TWF153004316	TWF23004316
6" stem	4"	304 SS	TWF13006304	TWF153006304	TWF23006304
6" stem	4"	316 SS	TWF13006316	TWF153006316	TWF23006316
9" stem	7"	304 SS	TWF13009304	TWF153009304	TWF23009304
9" stem	7"	316 SS	TWF13009316	TWF153009316	TWF23009316
12" stem	10"	304 SS	TWF130012304	TWF1530012304	TWF230012304
12" stem	10"	316 SS	TWF130012316	TWF1530012316	TWF230012316
15" stem	13"	304 SS	TWF130015304	TWF1530015304	TWF230015304
15" stem	13"	316 SS	TWF130015316	TWF1530015316	TWF230015316

Other configurations available.



Tri-Clamp® is a registered trademark of Tri-Clover, Inc.

TWS Socket Weld Bi-Metal Thermowell



Description & Features:

- Designed to be welded in place within the system
- Economical
- 1 year warranty

Applications:

- Tanks or feed water system on boilers where no internal threads are available

Specifications

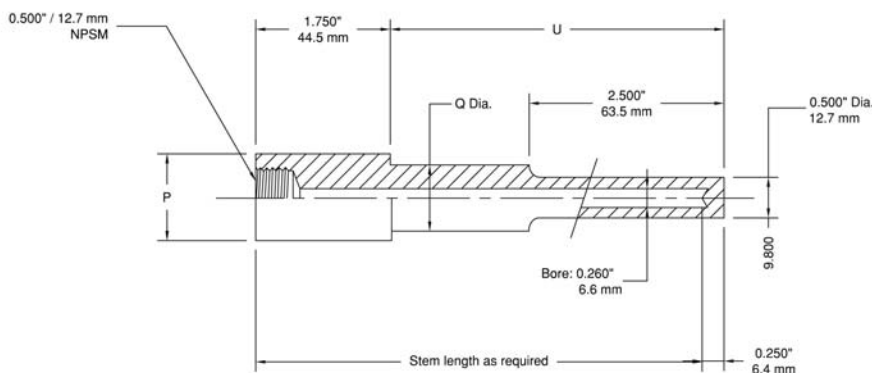
Material	304 or 316 SS
Thermometer Connection	1/2" NPT
Bore	0.260" (6.5mm) standard

Order Codes

Stem Length	Dimension U	Dimension Q	Dimension P	Pipe Diameter	Material	Code
4" (100mm)	2.5"	1/2"	1.05"	3/4"	304 SS	TWS754304
4" (100mm)	2.5"	1/2"	1.05"	3/4"	316 SS	TWS754316
6" (150mm)	4.5"	3/4"	1.05"	3/4"	304 SS	TWS756304
6" (150mm)	4.5"	3/4"	1.05"	3/4"	316 SS	TWS756316
9" (228.6mm)	7.5"	3/4"	1.05"	3/4"	304 SS	TWS759304
9" (228.6mm)	7.5"	3/4"	1.05"	3/4"	316 SS	TWS759316
12" (304.8mm)	10.5"	3/4"	1.05"	3/4"	304 SS	TWS7512304
12" (304.8mm)	10.5"	3/4"	1.05"	3/4"	316 SS	TWS7512316

Stem Length	Dimension U	Dimension Q	Dimension P	Pipe Diameter	Material	Code
4" (100mm)	2.5"	7/8"	1.315"	1"	304 SS	TWS14304
4" (100mm)	2.5"	7/8"	1.315"	1"	316 SS	TWS14316
6" (150mm)	4.5"	7/8"	1.315"	1"	304 SS	TWS16304
6" (150mm)	4.5"	7/8"	1.315"	1"	316 SS	TWS16316
9" (228.6mm)	7.5"	7/8"	1.315"	1"	304 SS	TWS19304
9" (228.6mm)	7.5"	7/8"	1.315"	1"	316 SS	TWS19316
12" (304.8mm)	10.5"	7/8"	1.315"	1"	304 SS	TWS112304
12" (304.8mm)	10.5"	7/8"	1.315"	1"	316 SS	TWS112316

Other configurations available.





Description & Features:

- Utilized where a welded thermowell is required
- 1 year warranty

Applications:

- Where high pressure or high flow of media is present (i.e. pipes)

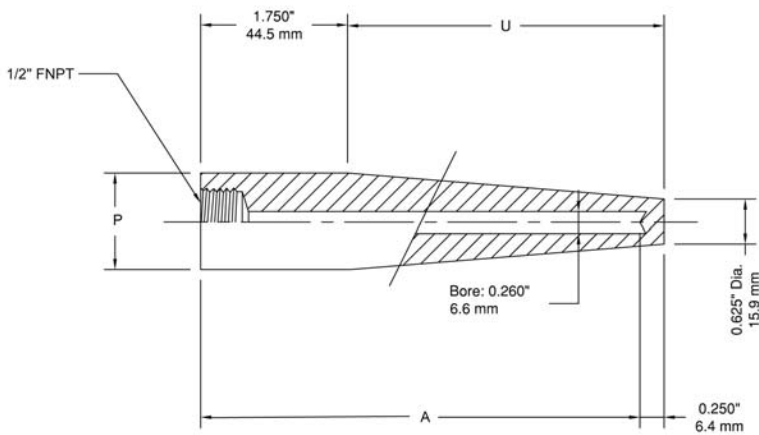
Specifications

Material	304 or 316 SS
Thermometer Connection	1/2" NPT
Bore	0.260" (6.5mm) standard
Other	1.5" connection pipe size standard

Order Codes

Stem Length A	Dimension U	Dimension P	Pipe Diameter	Material	Code
4" (100mm)	2.5	1.05"	3/4"	304 SS	TWW154304
4" (100mm)	2.5	1.05"	3/4"	316 SS	TWW154316
6" (150mm)	4.5	1.05"	3/4"	304 SS	TWW156304
6" (150mm)	4.5	1.05"	3/4"	316 SS	TWW156316
9" (228.6mm)	7.5	1.05"	3/4"	304 SS	TWW159304
9" (228.6mm)	7.5	1.05"	3/4"	316 SS	TWW159316
12" (304.8mm)	10.5	1.05"	3/4"	304 SS	TWW1512304
12" (304.8mm)	10.5	1.05"	3/4"	316 SS	TWW1512316

Other configurations available. Cap and chain supplied as an option. Thermowells for 1" pipe available. 0.385" bores available.



NVA Stainless Steel Needle Valve



Description & Features:

- Excellent flow regulation and leak tight
- The one-piece body construction (no welding) provides strength, safety and corrosion resistance
- "Slow opening" prevents sudden pressure surge and instrument damage
- Available in Soft Seat (up to 6,000 psi, Delrin® seat) and Hard Seat (up to 10,000 psi)
- CRN registered
- 1 year warranty

Applications:

- Refineries, liquid petroleum gas and processing plant systems

Order Codes

NPT Connection	Delrin® Soft Seat	SS Hard Seat	Carbon Steel Hard Seat
1/4" Female x 1/4" Female	NVA25SFFS	NVA25SFFH	NVA25CFFH
1/2" Female x 1/2" Female	NVA5SFFS	NVA5SFFH	NVA5CFFH
1/4" Male x 1/4" Female	NVA25SMFS	NVA25SMFH	NVA25CMFH
1/2" Male x 1/2" Female	NVA5SMFS	NVA5SMFH	NVA5CMFH

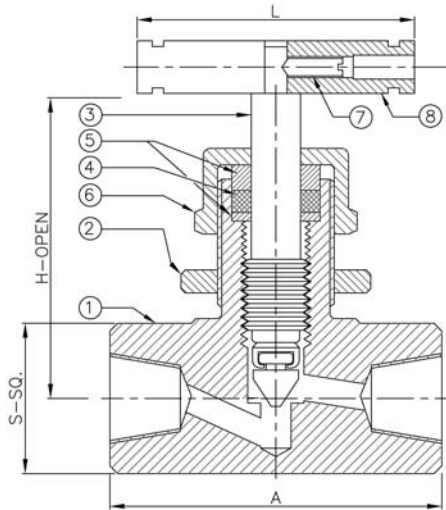
Note: Other configurations available

SS Needle Valves can be supplied to meet MR-01-75 NACE (Sour gas service)

Graphoil packing for high temperature applications available

Panel mounting kits available

Delrin® Soft® Soft Seat		
Description	Material	Drawing Number
Body	AISI 316 SS	1
Panel Nut	AISI 316 SS	2
Stem	AISI 316 SS	3
Packing	Teflon®	4
Washer	AISI 316 SS	5
Gland Nut	AISI 316 SS	6
Grub Screw	Steel Plated	7
Handle	AISI 304 SS	8
Seat Material	Delrin	-

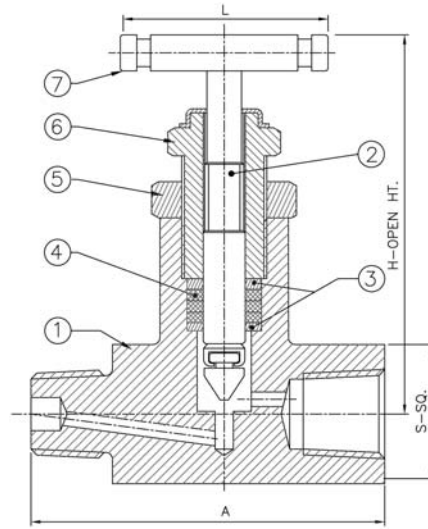


Size	A	S-SQ	H-Open	L
1/4"	1.95" (50mm)	0.86" (22mm)	2.69" (69mm)	1.95" (50mm)
1/2"	2.65" (68mm)	1.17" (30mm)	3.23" (83mm)	2.34" (60mm)

Teflon® and Delrin® are registered trademarks of Dupont Corporation

Stainless Steel Hard Seat		
Description	Material	Drawing Number
Body	AISI 316 SS	1
Stem	AISI 316 SS - Stellite V Tip	2
Packing Washer	AISI 316 SS	3
Gland Packing	Teflon®	4
Lock Nut	AISI 316 SS	5
Gland Retainer	AISI 316 SS	6
Handle	AISI 304 SS	7
Seat Material	AISI 316 SS	-

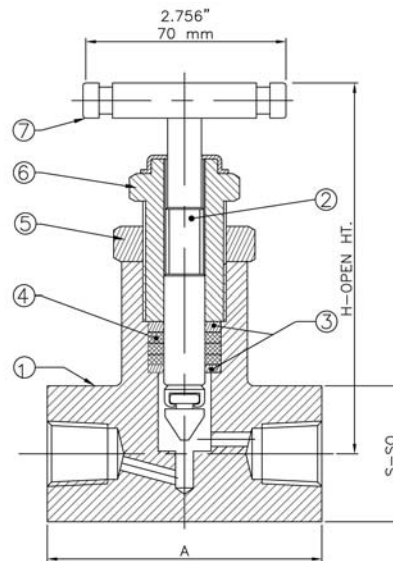
Temperature Range: -65°F to 450°F (-54°C to 232°C)



Size	A	S-SQ	H-Open	L
1/4"	2.36" (60mm)	0.98" (25mm)	3.35" (86mm)	2.36" (60mm)
1/2"	3.23" (82mm)	1.33" (34mm)	3.82" (98mm)	2.73" (70mm)

Carbon Steel Hard Seat		
Description	Material	Drawing Number
Body	Carbon Steel	1
Stem	AISI 316 SS - Stellite V Tip	2
Packing Washer	AISI 316 SS	3
Gland Packing	Teflon®	4
Lock Nut	Carbon Steel	5
Gland Retainer	Carbon Steel	6
Handle	Aluminum black anodized	7
Seat Material	Carbon Steel	-

Temperature Range: -65°F to 450°F (-54°C to 232°C)



Size	A	S-SQ	H-Open	L
1/4"	2.15" (55mm)	0.98" (25mm)	3.35" (86mm)	2.36" (60mm)
1/2"	2.93" (75mm)	1.33" (34mm)	3.82" (98mm)	2.73" (70mm)

SAS Adjustable Snubber



Description & Features:

- Prolongs the life of pressure instruments by reducing the damaging effects of pulsation
- CRN registered
- 1 year warranty

Applications:

- Can be utilized to change the amount of restriction
- Pumps, compressors, hydraulic presses or fluid power applications

Note: RoHS only applies to SS adjustable snubber

Specifications

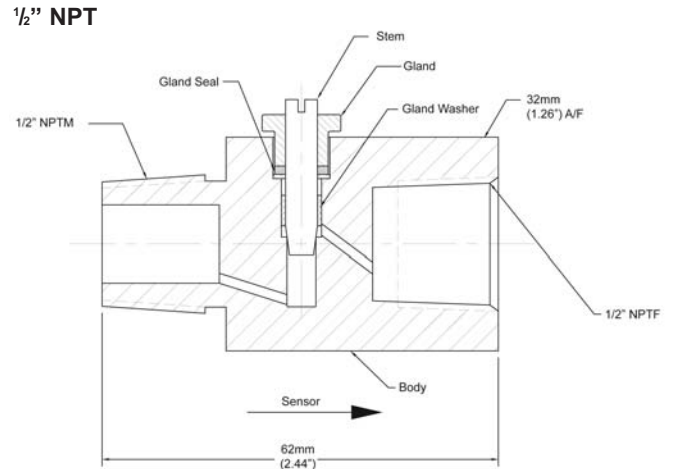
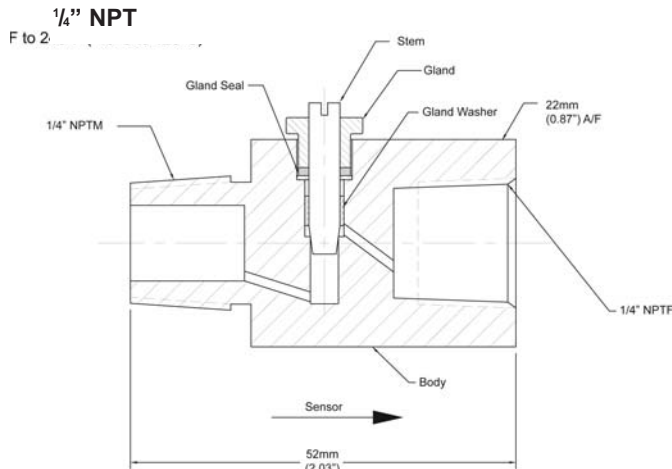
Body	Brass or SS
Connection	1/4" or 1/2" NPT male x female
Temperature Rating	-40°F to 248°F (-40°C to 120°C)

Order Codes

Pressure Rating	Material / NPT Connection	Seal	Code
6,000 psi/kPa	Brass 1/4" MxF	Teflon®	SAS540
6,000 psi/kPa	Brass 1/2" MxF	Teflon®	SAS541
6,000 psi/kPa	SS 1/4" MxF	Teflon®	SAS542
10,000 psi/kPa	SS 1/2" MxF	Teflon®	SAS543

Description	SS	Brass
Gland Seal	Teflon®	Teflon®
Stem	316 SS	316 SS
Gland	316 SS	Brass
Gland Washer	316 SS	316 SS
Body	316 SS	Brass

Caution: When adjusting the valve, do not adjust more than two turns from the closed position as leakage will occur



Teflon® is a registered trademark of Dupont Corporation



Description & Features:

- Perforated case c/w spiral tubing protects pressure gauges, switches and transmitters. Used where the process media temperature exceeds the rating of the instrument
- For process media temperatures up to 570°F. Can reduce the media temperature by as much as 500°F*
- CRN registered
- 1 year warranty

Applications:

- Clean (no particulate) media, gases
- When used with a diaphragm seal, the pressure rating of the diaphragm seal must be acknowledged

Note: Pressure gauge sold separately

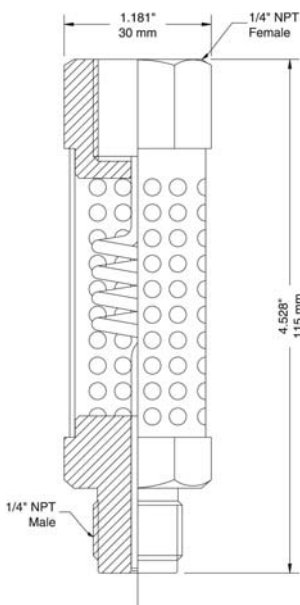
Specifications	
Body	316 SS
Maximum Operating Pressure	1,500 psi
Maximum Process Temperature	570°F (300°C)
Connection	1/4" NPT male x 1/4" NPT female 1/2" NPT male x 1/2" NPT female

Order Codes (products in bold are normally in stock)

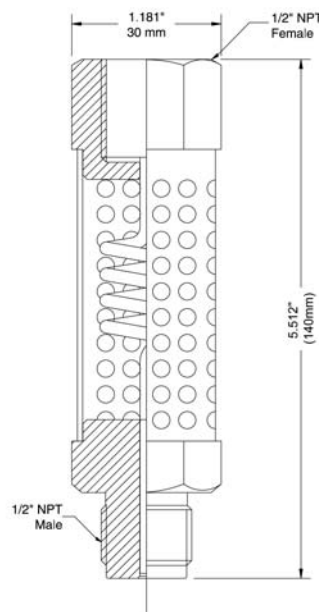
1/4" NPT Male x 1/4" NPT Female	1/2" NPT Male x 1/2" NPT Female
SCT-400	SCT-500

Note: Other connections available upon request

**1/4" NPT Male x
1/4" NPT Female**



**1/2" NPT Male x
1/2" NPT Female**



*Degree of cooling is dependent on ambient conditions



Description & Features:

- Setpoint adjustments are made by manipulating an external adjusting screw and lock nut
- Automatically shuts off pressure to the instrument once the adjustable preset pressure is exceeded
- CRN registered
- 1 year warranty

Applications:

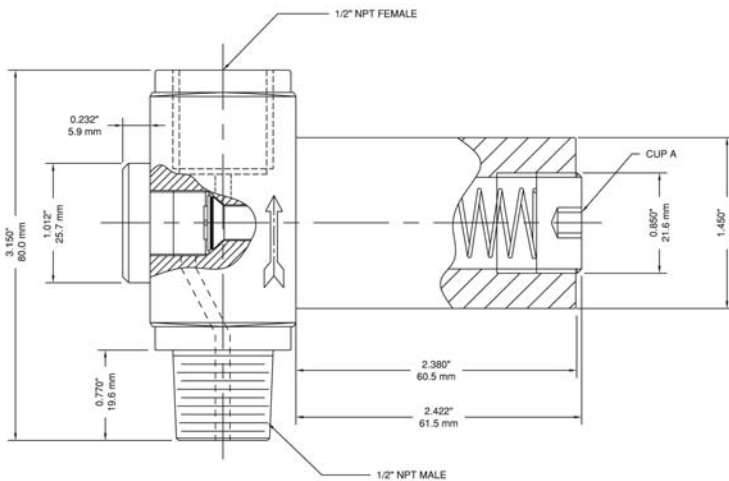
- Utilized to protect pressure instruments against surges and pulsations
- Available in Bellows and Piston Type

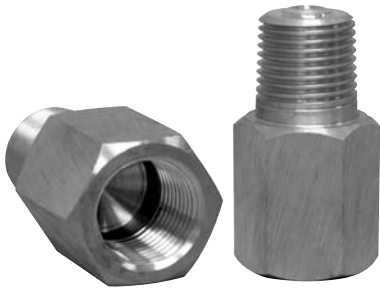
Specifications	
Body	Bellows Type: 316 SS Piston Type: 316 SS
Burst	10,000 psi/kPa
Temperature Rating	-40°F to 248°F (-40°C to 120°C)
Connection	1/4" x 1/4" NPT or 1/2" x 1/2" NPT

Order Codes (products in bold are normally in stock)

Bellows Type		
Adjustable Pressure Range	Connection NPT	
	1/4" x 1/4"	1/2" x 1/2"
3 to 20 psi	SOP32025	SOP32050
15 to 90 psi	SOP159025	SOP159050
Piston Type		
Adjustable Pressure Range	Connection NPT	
	1/4" x 1/4"	1/2" x 1/2"
90 to 230 psi	SOP9023025	SOP9023050
140 to 395 psi	SOP14039525	SOP14039550
435 to 1,160 psi	SOP435116025	SOP435116050
870 to 1,493 psi	SOP870149325	SOP870149350
1,450 to 5,800 psi	SOP1450580025	SOP1450580050

1/2" x 1/2"





Note: RoHS applies only to 316 SS version

Description & Features:

- Incorporates a sintered, porous 316 stainless steel snubbing element with a large surface area to ensure long term effectiveness
- Available in the three standard viscosity classifications of heavy oil, water and air
- Brass or stainless steel housings can be specified depending upon pressure media and operating pressure
- CRN registered
- 1 year warranty

Applications:

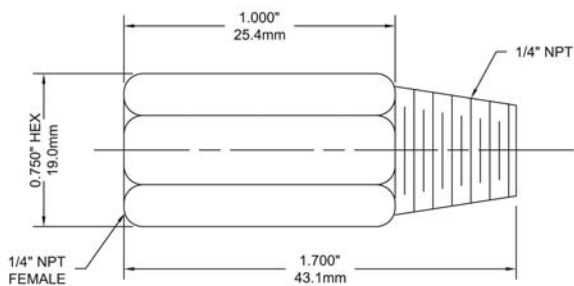
- To significantly lessen the damaging effects of pulsation on gauges, transducers, transmitters, manometers and pressure switches

Specifications	SS	Brass
Operating Temperature	-320°F to 1,500°F (-195°C to 815°C)	-65°F to 650°F (-53°C to 343°C)
Operating Pressure	Maximum 20,000 psi (137,900 kPa)	Maximum 10,000 psi (68,950 kPa)
Burst Pressure	60,000 psi (413,700 kPa)	30,000 psi (206,850 kPa)
Housing	316 SS	Brass
Snubbing Element	Sintered, porous type 316 SS	Sintered, porous type 316 SS
Retainer	300 series SS	300 series SS

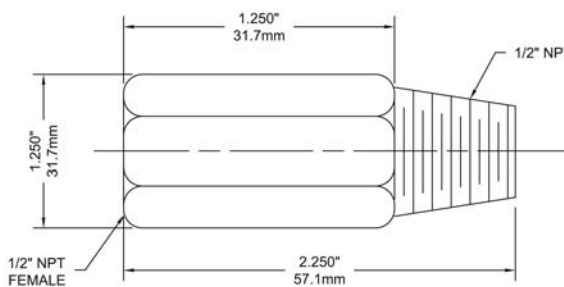
Order Codes (products in bold are normally in stock)

Model	Heavy Oil	Water	Air
1/4" Brass	SSN517	SSN515	SSN516
1/4" SS	SSN520	SSN518	SSN519
1/2" Brass	SSN514	SSN512	SSN513
1/2" SS	SSN531	SSN529	SSN530

1/4" Snubber



1/2" Snubber





Note: RoHS applies only to 304 SS and 316 SS versions

Description & Features:

- On steam service, the syphon will prevent hot steam from entering a pressure gauge, diaphragm seal or transmitter
- Available in brass/steel for non-corrosive applications and stainless steel for corrosive applications
- CRN registered
- 1 year warranty

Applications:

- Recommended for applications involving temperatures above 100°F (37°C)

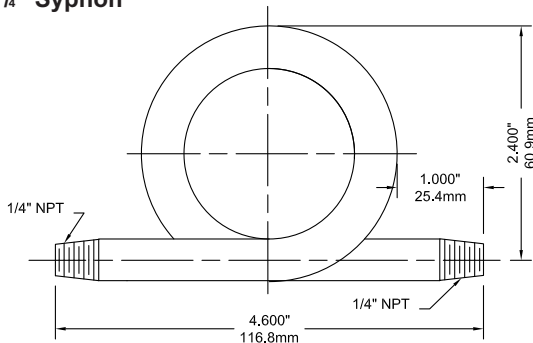
Specifications

Material	Schedule 40 steel coil welded, schedule 40 brass seamless, schedule 40, 80, 160 steel coil seamless, 304 SS seamless, or 316 SS seamless
Style	180 degree coil
Connection	1/4" NPT male x 1/4" NPT male or 1/2" NPT male x 1/2" NPT male
Maximum Operating Pressure	Schedule 40 welded: Steel suitable up to 175 psi at 340°F (171°C) Schedule 40 seamless: Brass, steel, 304 SS, 316 SS suitable up to 500 psi at 680°F (360°C) Schedule 80 seamless: Steel, 304 SS, 316 SS suitable up to 1,650 psi at 630°F (332°C) Schedule 160 seamless: Steel, 304 SS, 316 SS suitable up to 3,200 psi at 1,100°F (548°C)

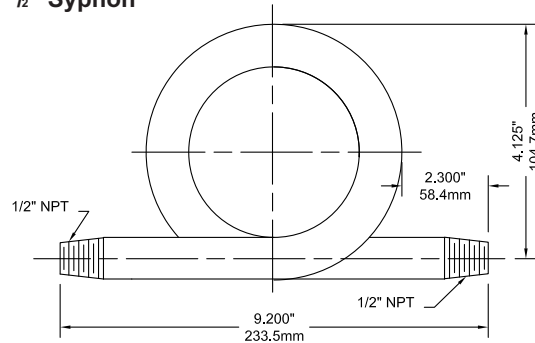
Order Codes (products in bold are normally in stock)

Material	1/4" NPT	1/2" NPT
Schedule 40 Steel (welded)	SSP525	-
Schedule 40 Brass	SSP545	SSP559
Schedule 40 Steel	-	SSP555
Schedule 40 304 SS	SSP535	SSP585
Schedule 40 316 SS	SSP554	SSP557
Schedule 80 Carbon Steel	SSP556	-
Schedule 80 304 SS	SSP595	-
Schedule 80 316 SS	-	-
Schedule 160 Carbon Steel	-	-
Schedule 160 304 SS	-	-
Schedule 160 316 SS	-	-

1/4" Syphon



1/2" Syphon





3A

The objective of the 3A Sanitary Standards Committee is to formulate standards and accepted practices for equipment and systems used to process milk and milk products. Such standards are developed through all levels of sanitarians, equipment manufacturers and equipment users so those standards are acceptable to those involved in the sanitary aspects of dairy and related industries. The 3A Symbol Administrative Council authorizes manufacturers to display the 3A symbol on processing equipment that is in compliance with 3A Sanitary Standards.



CSA

The Canadian Standards Association (CSA) includes Canadian consumers, manufacturers, labour, government, and other regulatory agencies among its actively participating influences. The various groups work together to generate standard requirements (CSA standards) that demonstrate product quality, enhance market acceptability and improve quality and safety control procedures in manufacturing and construction for the Canadian marketplace. The standards generated by CSA are the cornerstones for determining a product's eligibility for certification in hazardous locations in Canada. CSA also performs product evaluation, testing and ongoing inspection to these standards and also to American and European standards through new inter-laboratory agreements.



CE

Having a CE marking is a declaration that Winters' product conforms to a specific Directive adopted by the EEA (European Economic Area), and is a requirement if the product is to be sold into any of the countries in this 18 member group. CE is an abbreviation for the "Conformite Europeene", meaning European Conformance. Unlike dangerous location approvals, CE markings are granted to products that conform to Directives which were developed using IEC and Cenelec standards. The Directives that affect transmitters are the EMC (Electromagnetic Compatibility) and LVD (Low Voltage) Directives. These state that the products must meet specific electromagnetic emission and immunity, as well as electrostatic discharge standards.



RoHS

The Restriction of Hazardous Substances Directive restricts the use of six hazardous materials in the manufacturing of electronic and electrical equipment. These materials are: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls and polybrominated diphenyl ether. Being "RoHS compliant" is commonly interpreted as being "lead-free", or having under 0.1% of lead in the material.

ISO

ISO 9001:2008

Winters is a ISO 9001:2008 Corporation. ISO 9001:2008 requires an organization to demonstrate its ability to consistently provide products that meet customer and regulatory requirements, and enhance customer satisfaction through effective application of the system, including processes for continual improvement of the system and the assurance of conformity.



UL/ULC

Underwriters Laboratories and Underwriters Laboratories of Canada maintain a high commitment to public safety and dedication to exceed customer expectations through continual improvement in the delivery of quality services. The organizations develop and publish standards, classifications and specifications for products having a bearing on fire, accident or property hazards. If a product carries the UL mark, it means that UL found the product meeting UL's safety requirements. These requirements are based primarily on UL's own published Standards for Safety.

NACE

NACE

The National Association of Corrosion Engineers recommends practices such as methods of selection, design, installation, maintenance or operation of material or systems where corrosion is a factor. Some recommended practices focus on details of construction of a corrosion control system, methods of treating the surface of materials to reduce corrosion, requirements for using devices to reduce corrosion, and procedures for increasing the effectiveness, safety and economic benefits of an installation or system.



SIL 2

SIL, or Safety Integrity Level, defines the risk-reduction level or performance in a function. In general, there are four levels of SIL: 4 being the most dependable and 1 providing the least risk protection. SIL levels are determined based on quantitative as well as qualitative factors.

Ingress Protection (IP) Ratings

The **IP** Code indicates the **degree of protection** provided by enclosures for electrical equipment (i.e. IP65 = No dust entry and protected against low pressure jet of water).

The first numeral indicates protection of persons against access to dangerous parts and protection of internal equipment against the ingress of solid foreign objects.

- X Protection unspecified (untested)
- 0 No special protection provided
- 1 Protection of hand against accidental access to dangerous parts, and protection of equipment against objects larger than 50mm
- 2 Protection of fingers against access to dangerous parts, and protection of equipment against objects larger than 12mm
- 3 Protection against objects larger than 2.5mm (e.g. tools, wires)
- 4 Protection against objects larger than 1mm (e.g. line tools, wires)
- 5 Protection against entry of dust in sufficient quantity to interfere with satisfactory operation of equipment
- 6 Complete protection against entry of dust

The second numeral indicates protection of internal equipment against harmful ingress of water.

- X Protection unspecified (untested)
- 0 No special protection provided
- 1 Protection against drops of water falling vertically
- 2 Protection against drops of water falling vertically when the object is tilted by up to 15 degrees from its normal position (in any direction)
- 3 Protection against spraying water at up to 60 degrees from the vertical
- 4 Protection against splashing and spraying water from all practicable directions
- 5 Protection against a low pressure jet of water from all practicable directions
- 6 Protection against heavy seas or a strong jet of water from all practicable directions
- 6D Protection against driving rain at angles down to horizontal
- 7 Protection against immersion
- 8 Protection against submersion (tests subject to agreement, but no less severe than numeral 7)

Pressure Switch Reference

Class I	Locations in which flammable gases or vapours are or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures.
Class II	Locations which are hazardous because of the presence of combustible dust.
Class III	Locations which are hazardous because of the presence of easily ignitable fibers or flyings, but in which such fibers or flyings are not likely to be suspended in air in quantities sufficient to produce ignitable mixtures.
Division 1	Locations in which hazardous concentrations in the air exist continuously, intermittently, or periodically under normal operating conditions.
Division 2	Locations in which hazardous materials are handled, processed, or used, but where such materials are normally within closed containers or closed systems from which they can escape only in case of accidental rupture or breakdown.
Group A	Atmospheres containing acetylene.
Group B	Atmospheres containing hydrogen, or gases or vapours of equivalent hazard, such as manufactured gas.
Group C	Atmospheres containing ethyl-ether vapours, ethylene, or cyclo-propane.
Group D	Atmospheres containing gasoline, hexane, naphtha, benzene, butane, propane, alcohol, benzol, lacquer solvent vapours, or natural gas.
Group E	Atmospheres containing metal dust, including aluminum, magnesium and their commercial alloys and other metals of similar hazardous characteristics.
Group F	Atmospheres containing carbon black, coal or coke dust.
Group G	Atmospheres containing flour, starch or grain dust.

Hazardous Location Definitions - International

The International Electrotechnical Commission (IEC) classifies hazardous locations by Zone and Group. Zone is similar to the term "Division" in that it defines the likelihood of hazard:

Zone 0	An area in which an explosive gas/air mixture is constantly present or present for long periods of time.
Zone 1	An area in which an explosive gas/air mixture is likely to occur during normal operation (Similar to Division 1).
Zone 2	An area in which an explosive/air mixture is not likely to occur but if so, only for short periods of time (Similar to Division 2).

NEMA

Certain Winters products (i.e. pressure transmitters and pressure switches) can be classified per the National Electrical Manufacturer's Association Enclosure (NEMA) classifications. NEMA is a non-profit trade organization composed of manufacturers of electrical power apparatus. NEMA created voluntary standards for electrical enclosures. These classifications describe the environment in which the product can be used due to the protection the enclosure provides. ("Enclosure" includes electrical and mechanical connections and external adjustments). Among others, NEMA classifies enclosures based on the effects of external icing, corrosion and rusting, or contamination from oil and coolants.

Pressure switches, transmitters and other electronic products may also be classified according to the voluntary standards set by NEMA for electrical enclosures.

Type	Seal	Indoor/Outdoor	Description
1	General Purpose	Indoor	Accidental contact will not rust
2	Drip-proof	Indoor	Limited amounts of falling water and dirt will not rust
3	Dust-tight, rain-tight	Outdoor	Windblown dust, rain, sleet, and undamaged by external ice formation
3R	Dust-tight, rain-tight	Outdoor	Same as type 3 above, plus diverts water from live parts, provision for drainage, will not rust
3S	Dust-tight, rain-tight	Outdoor	Same as type 3 above, operation of external mechanism when ice laden, will not rust
4	Water-tight, dust-tight	Indoor/Outdoor	Windblown dust and rain, splashing water, and hose directed water, undamaged by ice formation, will not rust
4X	Water-tight, dust-tight	Indoor/Outdoor	Same as type 4 above, plus corrosion resistant, will not rust
5	Dust-tight	Indoor	Dust and falling dirt, will not rust
6	Water-tight/dust-tight	Indoor/Outdoor	Temporary entry of water during limited submersion (6ft for 30 Min), undamaged by formation of ice, will not rust
6P	Water-tight/dust-tight	Indoor/Outdoor	Same as type 6 above plus prolonged submersion at 6 psi, will not rust
7	Explosion proof/Class I/Groups A, B, C, D	Indoor Hazardous	Locations: Protection against corrosive effects of liquids and gases
8	Explosion proof/Class I	Indoor/Outdoor	Hazardous Locations: protection against corrosive effects of liquids and gases; contacts or connections immersed in oil
9	Explosion Proof/Class II Groups E or G	Indoor Hazardous	Locations: dust-tight, hazardous dust
10	Hazardous Locations	Indoor	MSHA Mine Safety and Health Adm. per 30 C.F.R., Part 18
11	Oil-tight/Corrosion	Indoor	Protection from corrosive effects of gases and liquid dripping, seepage and external condensation or corrosive, oil immersion
12	Oil-tight/Dust-tight	Indoor	Fibers, lint, dust and light splashing, seepage and dripping condensation or non-corrosive liquids
12K	Oil-tight/Dust-tight	Indoor	Same as type 12 above, enclosure has knockouts
13	Oil-tight/Dust-tight	Indoor	Dust, spraying of water, oil and corrosive coolant, oil resistant gaskets



Winters Approvals / Certifying Agencies

CRN (Canadian Registration Number)

The Canadian Registration Number (CRN) is a number issued by each province/territory in Canada to the design of boilers, pressure vessels or fittings. Industrial instrumentation such as pressure gauges, thermometers and related accessories all fall under this jurisdiction. The CRN identifies that the design has been accepted and registered for use in that province/territory.

PROVINCES	Product Category	Pressure Gauges	Diaphragm Seals D15, D20, D30, D40, D50 & D70 (ALL 316 SS/316L SS only)	Thermowells	Cooling Towers	Mini Ball Valves	Needle Valves	Syphons/ Snubbers
ONT	CRN	0F6751.5ADD4	0F6751.5ADD4 0F6751.5ADD5	0F6751.5ADD4	0F6751.5ADD4	0C6751.5R2	0C6751.5R2	0F6751.5ADD4
QB	CRN	0F6751.56ADD4	0F6751.56ADD4 0F6751.56ADD5	0F6751.56ADD4		0C6751.56R2	0C6751.56R2	0F6751.56ADD4
BC	CRN	0F6751.51ADD4	0F6751.51ADD4 0F6751.51ADD5	0F6751.51ADD4				0F6751.51ADD4
AB	CRN	0F06751.52	0F06751.52 0F06751.52	0F06751.52	0F06751.52	0C06751.52	0C06751.52	0F06751.52
MB	CRN	0F6751.56ADD4	0F6751.56ADD4 0F6751.56ADD5	0F6751.56ADD4		0C6751.56R2	0C6751.56R2	0F6751.56ADD4
SK	CRN	0F6751.56ADD4	0F6751.56ADD4 0F6751.56ADD5	0F6751.56ADD4		0C6751.56R2	0C6751.56R2	0F6751.56ADD4
NB	CRN	0F6751.57ADD4	0F6751.57ADD4 0F6751.57ADD5	0F6751.57ADD4		0C6751.57REV2	0C6751.57REV2	0F6751.57ADD4
NS	CRN	0F6751.58ADD4	0F6751.58ADD4 0F6751.58ADD5	0F6751.58ADD4		0C6751.58REV2	0C6751.58REV2	0F6751.58ADD4
PEI	CRN	0F6751.59ADD4	0F6751.59ADD4 0F6751.50ADD5	0F6751.59ADD4		0C6751.59REV2	0C6751.59REV2	0F6751.59ADD4
NFLD/LAB	CRN	0F6751.50ADD4	0F6751.50ADD4 0F6751.50ADD5	0F6751.50ADD4		0C6751.50REV2	0C6751.50REV2	0F6751.50ADD4
YUKON	CRN	0F6751.5YADD4	0F6751.5YADD4 0F6751.5YADD5	0F6751.5YADD4		0C6751.5YREV2	0C6751.5YREV2	0F6751.5YADD4
NWT	CRN	0F6751.5TADD4	0F6751.5TADD4 0F6751.5TADD5	0F6751.5TADD4		0C6751.5TREV2	0C6751.5TREV2	0F6751.5TADD4
NUNAVUT	CRN	0F6751.5NADD4	0F6751.5NADD4 0F6751.5NADD5	0F6751.5NADD4		0C6751.5NREV2	0C6751.5NREV2	0F6751.5NADD4

OTHER APPROVALS/STANDARDS THAT WINTERS ADHERES TO

- ASME B40.1
- NATO
- FCI
- CAN. DEPT. OF DEFENSE
- U.S. NAVY
- U.S. DEPT. OF DEFENSE
- U.S. COAST GUARD

Pressure Conversion Table



Pressure Conversion Table

Dial Scale	psi	kPa	kg/cm ²	cm of H ₂ O	feet of H ₂ O	inches of Hg	mm of Hg	inches of H ₂ O	ounces per square inch	atmosphere	bar	mbar	MPa
psi	1	6.894757	0.070306958	70.306927	2.306723	2.03602	51.71486	27.68068	16	0.0680460	0.06894757	68.9476	0.00689
kPa	0.1450377	1	0.01019716	10.19745	0.3345618	0.29522997	7.500610	4.01472	2.320603	0.009669235	0.01	10	0.001
kg/cm ²	14.223343	98.06694	1	1000.026	32.809312	28.95901	735.5588	393.711806	227.57349	0.967841596	0.98066494	980	0.09806
cm of H ₂ O	0.0142229	0.0980634	0.00099997	1	0.032808	0.0289581	0.7355372	0.3937	0.227566	0.000967814	0.000980634	0.9806	0.000098
feet of H ₂ O	0.433515	2.968961	0.03047912	30.480	1	0.882646	22.4192	12	6.93624	0.02949896	0.02968961	29.689	0.00298
inches of Hg	0.4911542	3.386389	0.0345316	34.53253	1.132957	1	25.4	13.595484	7.85847	0.0334211	0.03386389	33.8639	0.00386
mm of Hg	0.0193368	0.1333225	0.00135951	1.359554	0.0446046	0.039370079	1	0.535255	0.3093888	0.0013157895	0.001333225	1.33322	0.00013
inches of H ₂ O	0.03612628	0.2490819	0.00254219	2.54	0.08333	0.0735539	1.8682663	1	0.578020	0.00245825	0.002490819	2.49089	0.000249
ounces per square inch	0.0625	0.4309223	0.004394308	4.394308	0.14417	0.12725125	3.23218	1.73004	1	0.004252875	0.004309223	4.309	0.0004309
atmosphere	14.6960	101.32535	1.033231	1033.2633	33.8995	29.9213	760	406.794	235.136	1	1.0132535	1013.25	0.1013
bar	14.5038	100	1.019716	1019.7466	33.4833	29.5300	750.0626	401.8596	232.0608	0.986923	1	1000	0.1
mbar	0.0145	0.1	0.001019	1.019	0.03456	0.02953	0.75006	0.40146	0.23206	0.00099	0.001	1	0.0001
MPa	145	1000	10.197	10197.45	334.56	295.299	7500.61	4014.74	2320.603	9.669	10	10000	1

How to use Winters' conversion table:

1. Find the COLUMN with the unit of measure you want to convert from and move down that COLUMN until you find the number "1"
2. Move horizontally within the same ROW to find the Conversion Factor
3. Multiply the Conversion Factor (number in the box) by the amount you are changing from to get the pressure in the scale you are seeking (e.g. 50 bar to be converted to psi scale: 1 bar equals to 14.5038 psi (Conversion Factor), so 50 bar equals to 725.19 psi)

WINTERS INSTRUMENTS

MANUFACTURER OF INDUSTRIAL INSTRUMENTATION



Winters Instruments operates globally and is distributed in over 80 countries. Please contact us for your nearest Regional Manager.

Corporate

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