



We're There.



HVAC 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!



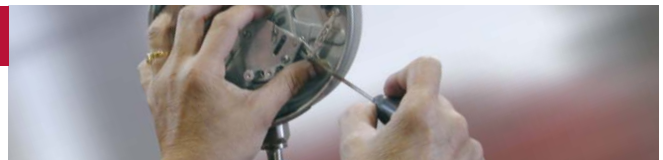
CUSTOM PRODUCTS

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.





Table of Contents

Project Highlights	3
Warranty	4
Winters Platinum Service	5
Repairs and Test Certificates	6
Custom Dials	7
How to Order Guide	8
Winters Approvals/Certifying Agencies	.96
Terms/Definitions and Standards	102
Pressure Conversion Table	Inside Back Cover
<i>Selection Guides</i>	
Pressure Gauges	9
Thermometers	55

PRESSURE

<i>Gauges</i>	P1S	100 Series Gauge	10	
	P3S	300 Series Gauge	13	
	P9S	90 Series Gauge	16	
	PAM	Ammonia Gauge	19	
	PCT	Contractor Gauge	22	
	PCT-LF	Lead Free Contractor Gauge	22	NEW
	PDT	Differential Gauge	23	
	PEM	Economy Gauge	25	
	PEM-LF	Lead Free Economy Gauge	25	NEW
	PET	Economy Test Gauge	29	
	PET-LF	Lead Free Economy Test Gauge	29	NEW
	PEU	Economy Panel Mounted Gauge	31	
	PFE	Sprinkler Gauge	33	NEW
	PFQ	Stainless Steel Liquid Filled Gauge	34	
	PFQ-LF	Lead Free Stainless Steel Liquid Filled Gauge	34	NEW
	PLP	Low Pressure Gauge	44	
	PLT	Low Pressure Test Kit	47	
	PPC	Process Gauge	48	
	PTK	Pressure and Temperature Kit	51	
<i>Transmitter</i>	LE3	LE3 Series Transmitter	53	

TEMPERATURE

<i>Thermometers</i>	TAG	HVAC Gold Case Thermometer	56	
	TAS	Industrial 5AS Thermometer	58	
	TAS-LF	Lead Free Industrial 5AS Thermometer	58	NEW
	TBM	Bi-Metal Thermometer	60	
	TBT	HVAC Bi-Metal Thermometer	65	
	TCT	Clamp-On Thermometer	66	
	THR	HVAC Remote Reading Thermometer	67	
	TIM	Industrial 9IT Thermometer	69	
	TIM-LF	Lead Free Industrial 9IT Thermometer	69	NEW
	TMT	Surface Magnet Thermometer	71	
	TRR	Remote Reading Thermometer	72	
	TSD	Industrial 9IT Solar Digital Thermometer	76	
	TSW	Hot Water Thermometer	78	
TSW-LF	Lead Free Hot Water Thermometer	78	NEW	
TTD	Tridicator	80		
<i>Thermowells</i>	TBR	Bi-Metal Threaded Thermowell	82	
	TDF	Duct Flange	86	
	TIW	Industrial 9IT Thermowell	87	
	TIW-LF	Lead Free Industrial 9IT Thermowell	87	NEW
	TST	Tridicator Shut-off Thermowell	89	

ACCESSORIES

<i>Accessories</i>	SAS	Adjustable Snubber	90	
	SMV	Mini Ball Valve	91	
	SMV-LF	Lead Free Mini Ball Valve	91	NEW
	SNV	Needle Valve	92	
	SNV-LF	Lead Free Needle Valve	92	NEW
	SSN	Snubber	93	
	SSN-LF	Lead Free Snubber	93	NEW
	SSP	Syphon	94	
	STP	Test Plug	95	
	STP-LF	Lead Free Test Plug	95	NEW

Specified, Installed and Trusted - We're There

HVAC

Atlantic Hotel	UAE
Bank of America	USA
BCE Place	Canada
Bow Valley Square	Canada
Burj Dubai	UAE
Burj Khalifa	UAE
Hamad Medical City	Qatar
Kansas City Airport	USA
Pearson International Airport	Canada
Prince of Wales Hospital	Hong Kong

Aerospace & Transport

Air Canada	Canada
Air New Zealand	New Zealand
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

Government

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

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
Ashbridges Bay	Canada
Bertam Water Treatment Plant	Malaysia
Chesapeake Utilities	USA
Petronas Dugun Water Supply	Malaysia
Siu Ho Wan Water Treatment	China

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
United Refining Company	USA

Automotive

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

Power Generation

Dayawan Nuclear Power Plant	China
General Electric	USA
Georgia Power	USA
Korean Electric Company	South Korea
New Zealand Thermal Power Plant	New Zealand
Ontario Hydro	Canada
Sembcorp Utilities	China
Takoradi Thermal Power Station	Ghana

Food & Beverage

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



Warranty

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

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:

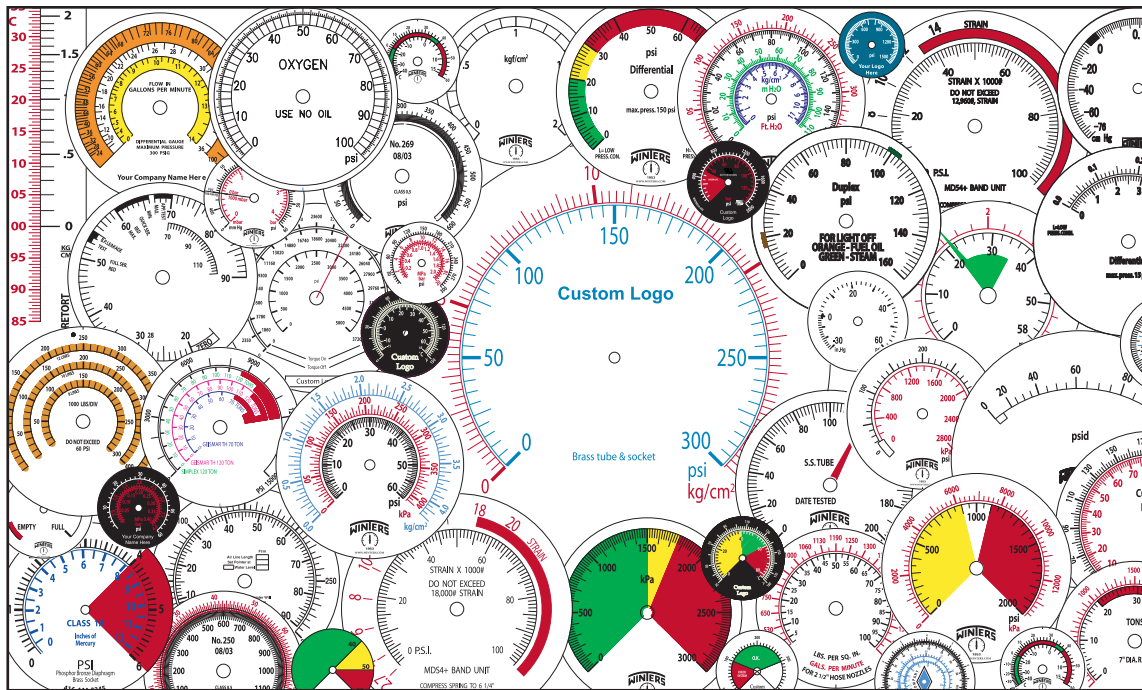
- Winters will certify the accuracy of a pressure gauge, thermometer or pressure switch with a National Standards Council test certificate
- Certificates are traceable to the National Institute of Standards and Technology (NIST)
- Certificates may be registered online for renewal reminders

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	3.5" (90mm)		4" (100mm)	4.5" (115mm)		6" (150mm)	
Case Material	Steel		Steel	Aluminum		Steel	Aluminum
Connection	Bottom	Centre Back	Centre Back	Bottom	Lower Back	Bottom	Lower Back
30" Hg. vacuum/kPa	P1S234	P1S460	P1S460	P1S410	P1S430	P1S250	P1S475
30"/0/15 psi/kPa	P1S230	P1S468	P1S468	P1S411	P1S431	P1S251C	P1S476
30"/0/30 psi/kPa	P1S231	P1S469	P1S469	P1S412	P1S432	P1S252C	P1S477
30"/0/60 psi/kPa	P1S232	P1S470	P1S470	P1S413	P1S433	P1S259C	P1S478
30"/0/100 psi/kPa	P1S233	P1S571	P1S471	P1S414	P1S434	P1S259C	P1S479
30"/0/160 psi/kPa	P1S229	P1S572	P1S472				
30"/0/200 psi/kPa							

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

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

P1S 100 Series Gauge



1. Optional Front Flange
2. Optional Back Flange

Description & Features:

- High quality, commercial grade gauge at an economical price
- $\pm 1\%$ accuracy
- Adjustable pointer
- Steel and aluminum cases
- Brass wetted parts
- CRN registered
- 5 year warranty

Applications:

- Plumbing and heating

Specifications	
Dial	3.5" (90mm), 4" (100mm), 4.5" (115mm), 6" (150mm) white aluminum dial
Case	3.5" (90mm), 4" (100mm): Steel painted black 4.5" (115mm): Aluminum 6" (150mm) Bottom: Steel painted black 6" (150mm) Back: Aluminum
Lens	3.5" (90mm), 4.5" (115mm) bottom connection, 6" (150mm): Glass 4" (100mm), 4.5" (115mm) back connection: Polycarbonate
Ring	3.5" (90mm), 4" (100mm), 4.5" (115mm) bottom connection: Polished brass 6" (150mm) bottom connection: Steel painted black 4.5" (115mm) back connection, 6" (150mm) back connection: SS, polished
Socket	Brass
Connection	$\frac{1}{4}$ " NPT standard
Bourdon Tube	Phosphor bronze
Pointer	Black aluminum, adjustable
Welding	Silver alloy
Over-Pressure Limit	25% of full scale value
Working Pressure	Maximum 75% of full scale value
Ambient/Process Temperature	-40°F to 200°F (-40°C to 93°C)
Accuracy	$\pm 1\%$ ANSI/ASME Grade 1A
Enclosure Rating	IP52

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

Dial Size	3.5" (90mm)		4" (100mm)	4.5" (115mm)		6" (150mm)	
Case Material	Steel		Steel	Aluminum		Steel	Aluminum
Connection	Bottom	Centre Back	Centre Back	Bottom	Lower Back	Bottom	Lower Back
30" Hg Vac/kPa	P1S234	<i>P1S560</i>	P1S460	P1S410	<i>P1S430</i>	P1S250	P1S475
30"/0/15 psi/kPa	P1S230	<i>P1S568</i>	P1S468	P1S411	<i>P1S431</i>	P1S251C	P1S476
30"/0/30 psi/kPa	P1S231	<i>P1S569</i>	P1S469	P1S412	<i>P1S432</i>	P1S252C	P1S477
30"/0/60 psi/kPa	P1S232	<i>P1S570</i>	P1S470	P1S413	<i>P1S433</i>	P1S259C	P1S478
30"/0/100 psi/kPa	P1S233	<i>P1S571</i>	P1S471	P1S414	<i>P1S434</i>	P1S253C	P1S479
30"/0/160 psi/kPa	P1S229	<i>P1S572</i>	P1S472	P1S416	<i>P1S436</i>	P1S254C	P1S480
30"/0/200 psi/kPa	-	<i>P1S573</i>	-	P1S417	<i>P1S437</i>	P1S255C	P1S481
30"/0/300 psi/kPa	P1S227	<i>P1S574</i>	P1S473	P1S418	<i>P1S438</i>	P1S256C	P1S482
0/15 psi/kPa	P1S228	<i>P1S561</i>	P1S461	P1S419	<i>P1S439</i>	-	-
0/30 psi/kPa	P1S235	<i>P1S562</i>	P1S462	P1S420	<i>P1S440</i>	P1S251	P1S483
0/60 psi/kPa	P1S236	<i>P1S563</i>	P1S463	P1S421	<i>P1S441</i>	P1S252	P1S484
0/100 psi/kPa	P1S237	<i>P1S564</i>	P1S464	P1S422	<i>P1S442</i>	P1S253	P1S485
0/160 psi/kPa	P1S238	<i>P1S565</i>	P1S465	P1S423	<i>P1S443</i>	P1S254	P1S486
0/200 psi/kPa	P1S239	<i>P1S566</i>	P1S466	P1S424	<i>P1S444</i>	P1S255	P1S487
0/300 psi/kPa	P1S240	<i>P1S567</i>	P1S467	P1S426	<i>P1S446</i>	P1S256	P1S488
0/600 psi/kPa	-	-	-	P1S490	-	-	-
0/1,000 psi/kPa	-	-	-	P1S491	-	-	-
0/3,000 psi/kPa	-	-	-	P1S492	-	-	-
0/5,000 psi/kPa	-	-	-	P1S493	-	-	-

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. P1S420-45QBF for BACK FLANGE.**

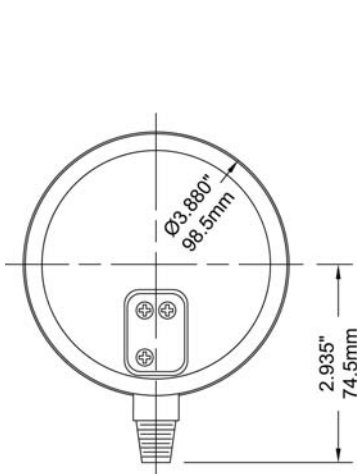
Option suffix:

35QBF = 3.5" Back flange
 4QBF = 4" Back flange

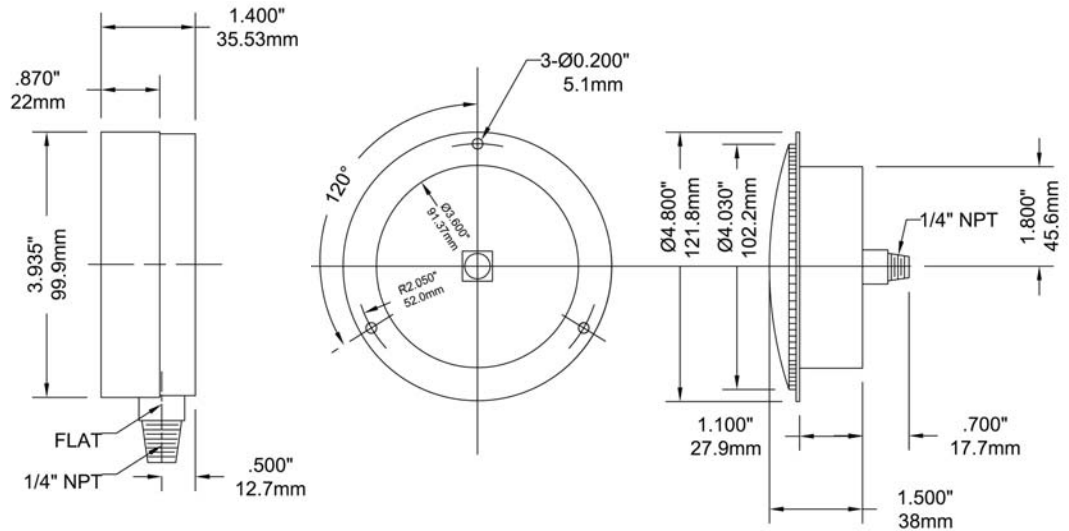
45QBF = 4.5" Back flange
 6QBF = 6" Back flange

Note: Syphon recommended for all steam applications

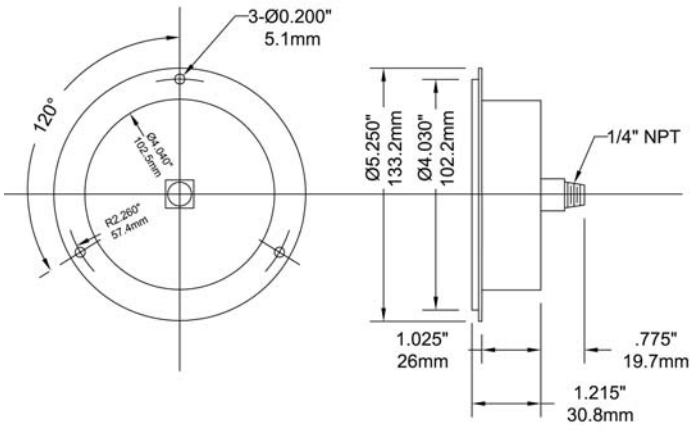
3.5" Bottom Connection



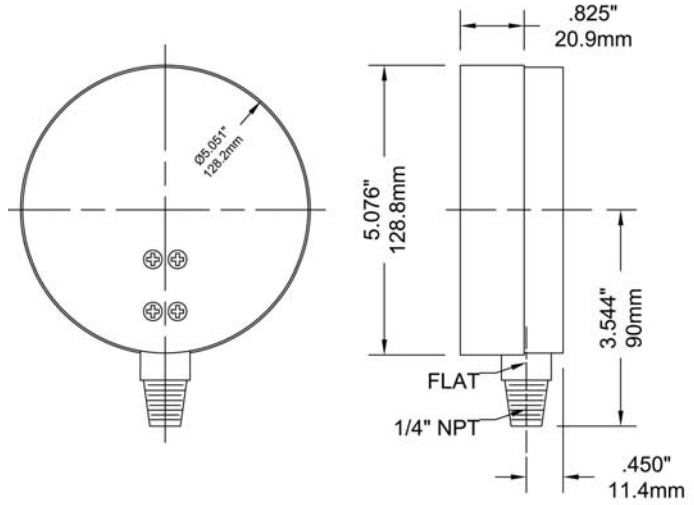
3.5" Back Connection



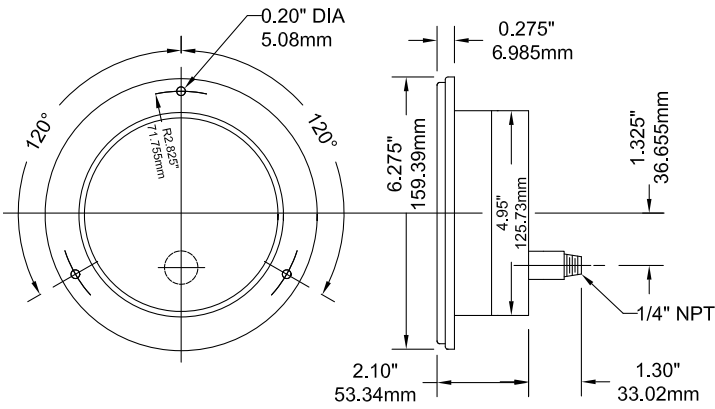
4" Centre Back Connection



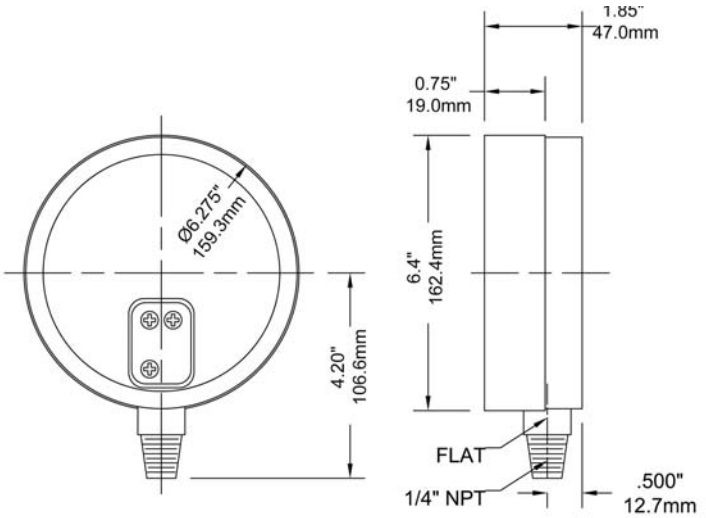
4.5" Bottom Connection



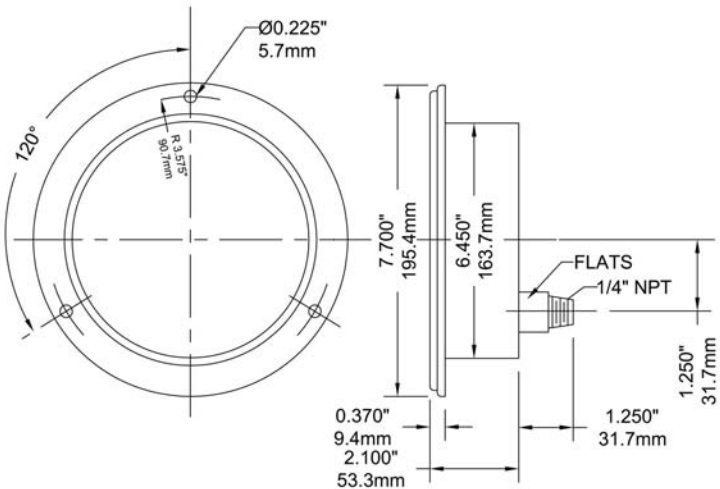
4.5" Lower Back Connection



6" Bottom Connection



6" Back Connection with Front Flange





1. Back Connection with Standard Front Flange
2. Optional Hinged Case Back Connection

Description & Features:

- Heavy duty, highly accurate aluminum case gauge
- $\pm 0.5\%$ accuracy
- Brass or stainless steel internals
- Large, easy-to-read dial
- CRN registered
- 5 year warranty

Applications:

- Use on air, steam, oil, fresh water
- Boiler and control room

Specifications	Stainless Steel Internals	Brass Internals
Dial	4.5" (115mm), 6" (150mm), 8.5" (215mm) and 10" (250mm) white aluminum	4.5" (115mm), 6" (150mm), 8.5" (215mm) and 10" (250mm) white aluminum
Case	Aluminum painted black	Aluminum painted black
Front Flange	4.5" (115mm), 6" (150mm): SS, polished 10" (250mm): Aluminum painted black	4.5" (115mm), 6" (150mm): SS, polished 10" (250mm): Aluminum painted black
Back Flange	8.5" (215mm), 10" (250mm): Aluminum, painted black 4.5" (115mm), 6" (150mm): Steel painted black (optional)	8.5" (215mm), 10" (250mm): Aluminum, painted black 4.5" (115mm), 6" (150mm): Steel painted black (optional)
Lens	4.5" (115mm), 6" (150mm): Glass 8.5" (200mm), 10" (250mm): Polycarbonate	4.5" (115mm), 6" (150mm): Glass 8.5" (200mm), 10" (250mm): Polycarbonate
Ring	4.5" (115mm), 6" (150mm): SS, polished 8.5" (215mm), 10" (250 mm): Anodized aluminum	4.5" (115mm), 6" (150mm): SS, polished 8.5" (215mm), 10" (250 mm): Anodized aluminum
Socket	316L SS	Brass
Connection	1/4" NPT for range 600 psi or lower, 1/2" NPT for range 1,000 psi or higher	1/4" NPT for range 600 psi or lower, 1/2" NPT for range 1,000 psi or higher
Bourdon Tube	316L SS	Phosphor bronze for ranges up to 600 psi (4,137 kPa) 316L SS for ranges over 600 psi (4,137 kPa)
Movement	304 SS	Brass
Pointer	Aluminum, anodized black, micrometer adjustable	Aluminum, anodized black, micrometer adjustable
Welding	316L SS TIG Argonarc	Tin/copper alloy for ranges up to 600 psi (4,137 kPa) Silver alloy for ranges over 600 psi (4,137 kPa)
Over-Pressure Limit	30% for pressures up to 600 psi (4,137 kPa) 25% for pressures over 600 - 1,400 psi (4,137 - 9,653 kPa) 15% for pressures over 1,400 psi (9,653 kPa)	30% for pressures up to 600 psi (4,137 kPa) 25% for pressures over 600 - 1,400 psi (4,137 - 9,653 kPa) 15% for pressures over 1,400 psi (9,653 kPa)
Working Pressure	Maximum 75% of full scale value	Maximum 75% 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	$\pm 0.5\%$ ANSI/ASME Grade 2A	$\pm 0.5\%$ ANSI/ASME Grade 2A
Enclosure Rating	IP52	IP52

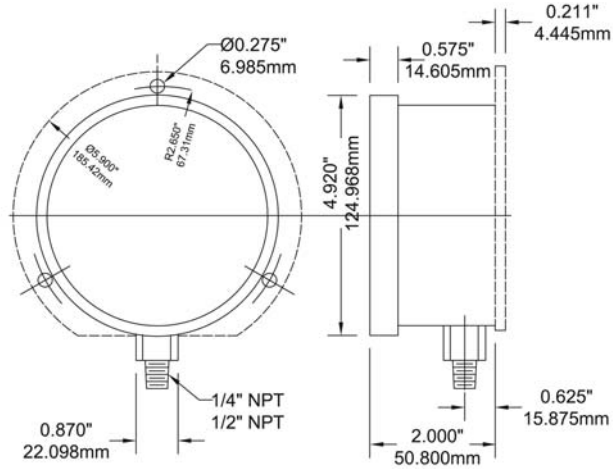
P3S 300 Series Gauge

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

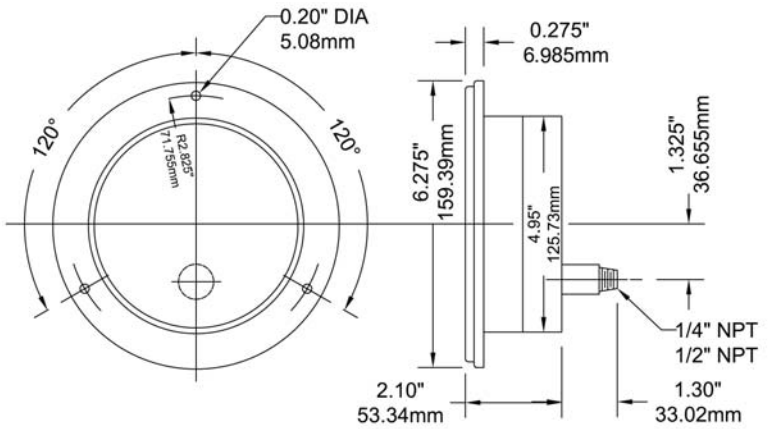
Connection	Bottom	Back (LB)	Bottom	Back (LB)	Bottom	Back (LB)	Bottom	Back (LB)
	Brass	Brass	SS	SS	Brass	Brass	SS	SS
Movement, Socket, Tube	Brass		SS		Brass		SS	
Dial Size	4.5" (115mm)				6" (150mm)			
30" Hg Vac/kPa	<i>P3S6000</i>	<i>P3S6000B</i>	<i>P3S6025</i>	<i>P3S6025B</i>	<i>P3S6075</i>	<i>P3S6075B</i>	<i>P3S6260</i>	<i>P3S6260B</i>
30"/0/15 psi/kPa	<i>P3S6001</i>	<i>P3S6001B</i>	<i>P3S6026</i>	<i>P3S6026B</i>	<i>P3S6076</i>	<i>P3S6076B</i>	<i>P3S6261</i>	<i>P3S6261B</i>
30"/0/30 psi/kPa	<i>P3S6002</i>	<i>P3S6002B</i>	<i>P3S6027</i>	<i>P3S6027B</i>	<i>P3S6077</i>	<i>P3S6077B</i>	<i>P3S6162</i>	<i>P3S6162B</i>
30"/0/60 psi/kPa	<i>P3S6003</i>	<i>P3S6003B</i>	<i>P3S6028</i>	<i>P3S6028B</i>	<i>P3S6078</i>	<i>P3S6078B</i>	<i>P3S6163</i>	<i>P3S6163B</i>
30"/0/100 psi/kPa	<i>P3S6004</i>	<i>P3S6004B</i>	<i>P3S6029</i>	<i>P3S6029B</i>	<i>P3S6079</i>	<i>P3S6079B</i>	<i>P3S6164</i>	<i>P3S6164B</i>
30"/0/160 psi/kPa	<i>P3S6005</i>	<i>P3S6005B</i>	<i>P3S6030</i>	<i>P3S6030B</i>	<i>P3S6080</i>	<i>P3S6080B</i>	<i>P3S6265</i>	<i>P3S6265B</i>
30"/0/200 psi/kPa	<i>P3S6006</i>	<i>P3S6006B</i>	<i>P3S6031</i>	<i>P3S6031B</i>	<i>P3S6081</i>	<i>P3S6081B</i>	<i>P3S6266</i>	<i>P3S6266B</i>
30"/0/300 psi/kPa	<i>P3S6007</i>	<i>P3S6007B</i>	<i>P3S6032</i>	<i>P3S6032B</i>	<i>P3S6082</i>	<i>P3S6082B</i>	<i>P3S6267</i>	<i>P3S6267B</i>
0/15 psi/kPa	<i>P3S6008</i>	<i>P3S6008B</i>	<i>P3S6033</i>	<i>P3S6033B</i>	<i>P3S6083</i>	<i>P3S6083B</i>	<i>P3S6098</i>	<i>P3S6098B</i>
0/30 psi/kPa	<i>P3S6009</i>	<i>P3S6009B</i>	<i>P3S6034</i>	<i>P3S6034B</i>	<i>P3S6084</i>	<i>P3S6084B</i>	<i>P3S6099</i>	<i>P3S6099B</i>
0/60 psi/kPa	<i>P3S6010</i>	<i>P3S6010B</i>	<i>P3S6035</i>	<i>P3S6035B</i>	<i>P3S6085</i>	<i>P3S6085B</i>	<i>P3S6100</i>	<i>P3S6100B</i>
0/100 psi/kPa	<i>P3S6011</i>	<i>P3S6011B</i>	<i>P3S6036</i>	<i>P3S6036B</i>	<i>P3S6086</i>	<i>P3S6086B</i>	<i>P3S6101</i>	<i>P3S6101B</i>
0/160 psi/kPa	<i>P3S6012</i>	<i>P3S6012B</i>	<i>P3S6037</i>	<i>P3S6037B</i>	<i>P3S6087</i>	<i>P3S6087B</i>	<i>P3S6102</i>	<i>P3S6102B</i>
0/200 psi/kPa	<i>P3S6013</i>	<i>P3S6013B</i>	<i>P3S6038</i>	<i>P3S6038B</i>	<i>P3S6088</i>	<i>P3S6088B</i>	<i>P3S6103</i>	<i>P3S6103B</i>
0/300 psi/kPa	<i>P3S6014</i>	<i>P3S6014B</i>	<i>P3S6039</i>	<i>P3S6039B</i>	<i>P3S6089</i>	<i>P3S6089B</i>	<i>P3S6104</i>	<i>P3S6104B</i>
0/400 psi/kPa	<i>P3S6015</i>	<i>P3S6015B</i>	<i>P3S6040</i>	<i>P3S6040B</i>	<i>P3S6090</i>	<i>P3S6090B</i>	<i>P3S6105</i>	<i>P3S6105B</i>
0/600 psi/kPa	<i>P3S6016</i>	<i>P3S6016B</i>	<i>P3S6041</i>	<i>P3S6041B</i>	<i>P3S6091</i>	<i>P3S6091B</i>	<i>P3S6106</i>	<i>P3S6106B</i>
0/1,000 psi/kPa	<i>P3S6017</i>	<i>P3S6017B</i>	<i>P3S6042</i>	<i>P3S6042B</i>	<i>P3S6092</i>	<i>P3S6092B</i>	<i>P3S6107</i>	<i>P3S6107B</i>
0/1,500 psi/kPa	<i>P3S6018</i>	<i>P3S6018B</i>	<i>P3S6043</i>	<i>P3S6043B</i>	<i>P3S6093</i>	<i>P3S6093B</i>	<i>P3S6108</i>	<i>P3S6108B</i>
0/2,000 psi/kPa	<i>P3S6019</i>	<i>P3S6019B</i>	<i>P3S6044</i>	<i>P3S6044B</i>	<i>P3S6094</i>	<i>P3S6094B</i>	<i>P3S6109</i>	<i>P3S6109B</i>
0/3,000 psi/kPa	<i>P3S6020</i>	<i>P3S6020B</i>	<i>P3S6045</i>	<i>P3S6045B</i>	<i>P3S6095</i>	<i>P3S6095B</i>	<i>P3S6110</i>	<i>P3S6110B</i>
0/5,000 psi/kPa	<i>P3S6021</i>	<i>P3S6021B</i>	<i>P3S6046</i>	<i>P3S6046B</i>	<i>P3S6096</i>	<i>P3S6096B</i>	<i>P3S6111</i>	<i>P3S6111B</i>
0/10,000 psi/kPa	<i>P3S6022</i>	<i>P3S6022B</i>	<i>P3S6047</i>	<i>P3S6047B</i>	<i>P3S6170</i>	<i>P3S6170B</i>	<i>P3S6180</i>	<i>P3S6180B</i>
0/15,000 psi/kPa	<i>P3S6023</i>	<i>P3S6023B</i>	<i>P3S6160</i>	<i>P3S6160B</i>	<i>P3S6171</i>	<i>P3S6171B</i>	<i>P3S6181</i>	<i>P3S6181B</i>
0/20,000 psi/kPa	<i>P3S6024</i>	<i>P3S6024B</i>	<i>P3S6161</i>	<i>P3S6161B</i>	<i>P3S6172</i>	<i>P3S6172B</i>	<i>P3S6182</i>	<i>P3S6182B</i>
Dial Size	8.5" (215mm)				10" (250mm)			
30" Hg Vac/kPa	<i>P3S6200</i>	<i>P3S6200B</i>	<i>P3S6300</i>	<i>P3S6300B</i>	<i>P3S6400</i>	<i>P3S6400B</i>	<i>P3S6500</i>	<i>P3S6500B</i>
30"/0/15 psi/kPa	<i>P3S6201</i>	<i>P3S6201B</i>	<i>P3S6301</i>	<i>P3S6301B</i>	<i>P3S6401</i>	<i>P3S6401B</i>	<i>P3S6501</i>	<i>P3S6501B</i>
30"/0/30 psi/kPa	<i>P3S6202</i>	<i>P3S6202B</i>	<i>P3S6302</i>	<i>P3S6302B</i>	<i>P3S6402</i>	<i>P3S6402B</i>	<i>P3S6502</i>	<i>P3S6502B</i>
30"/0/60 psi/kPa	<i>P3S6203</i>	<i>P3S6203B</i>	<i>P3S6303</i>	<i>P3S6303B</i>	<i>P3S6403</i>	<i>P3S6403B</i>	<i>P3S6503</i>	<i>P3S6503B</i>
30"/0/100 psi/kPa	<i>P3S6204</i>	<i>P3S6204B</i>	<i>P3S6304</i>	<i>P3S6304B</i>	<i>P3S6404</i>	<i>P3S6404B</i>	<i>P3S6504</i>	<i>P3S6504B</i>
30"/0/160 psi/kPa	<i>P3S6205</i>	<i>P3S6205B</i>	<i>P3S6305</i>	<i>P3S6305B</i>	<i>P3S6405</i>	<i>P3S6405B</i>	<i>P3S6505</i>	<i>P3S6505B</i>
30"/0/200 psi/kPa	<i>P3S6206</i>	<i>P3S6206B</i>	<i>P3S6306</i>	<i>P3S6306B</i>	<i>P3S6406</i>	<i>P3S6406B</i>	<i>P3S6506</i>	<i>P3S6506B</i>
30"/0/300 psi/kPa	<i>P3S6207</i>	<i>P3S6207B</i>	<i>P3S6307</i>	<i>P3S6307B</i>	<i>P3S6407</i>	<i>P3S6407B</i>	<i>P3S6507</i>	<i>P3S6507B</i>
0/15 psi/kPa	<i>P3S6208</i>	<i>P3S6208B</i>	<i>P3S6308</i>	<i>P3S6308B</i>	<i>P3S6408</i>	<i>P3S6408B</i>	<i>P3S6508</i>	<i>P3S6508B</i>
0/30 psi/kPa	<i>P3S6209</i>	<i>P3S6209B</i>	<i>P3S6309</i>	<i>P3S6309B</i>	<i>P3S6409</i>	<i>P3S6409B</i>	<i>P3S6509</i>	<i>P3S6509B</i>
0/60 psi/kPa	<i>P3S6210</i>	<i>P3S6210B</i>	<i>P3S6310</i>	<i>P3S6310B</i>	<i>P3S6410</i>	<i>P3S6410B</i>	<i>P3S6510</i>	<i>P3S6510B</i>
0/100 psi/kPa	<i>P3S6211</i>	<i>P3S6211B</i>	<i>P3S6311</i>	<i>P3S6311B</i>	<i>P3S6411</i>	<i>P3S6411B</i>	<i>P3S6511</i>	<i>P3S6511B</i>
0/160 psi/kPa	<i>P3S6212</i>	<i>P3S6212B</i>	<i>P3S6312</i>	<i>P3S6312B</i>	<i>P3S6412</i>	<i>P3S6412B</i>	<i>P3S6512</i>	<i>P3S6512B</i>
0/200 psi/kPa	<i>P3S6213</i>	<i>P3S6213B</i>	<i>P3S6313</i>	<i>P3S6313B</i>	<i>P3S6413</i>	<i>P3S6413B</i>	<i>P3S6513</i>	<i>P3S6513B</i>
0/300 psi/kPa	<i>P3S6214</i>	<i>P3S6214B</i>	<i>P3S6314</i>	<i>P3S6314B</i>	<i>P3S6414</i>	<i>P3S6414B</i>	<i>P3S6514</i>	<i>P3S6514B</i>
0/400 psi/kPa	<i>P3S6215</i>	<i>P3S6215B</i>	<i>P3S6315</i>	<i>P3S6315B</i>	<i>P3S6415</i>	<i>P3S6415B</i>	<i>P3S6515</i>	<i>P3S6515B</i>
0/600 psi/kPa	<i>P3S6216</i>	<i>P3S6216B</i>	<i>P3S6316</i>	<i>P3S6316B</i>	<i>P3S6416</i>	<i>P3S6416B</i>	<i>P3S6516</i>	<i>P3S6516B</i>
0/1,000 psi/kPa	<i>P3S6217</i>	<i>P3S6217B</i>	<i>P3S6317</i>	<i>P3S6317B</i>	<i>P3S6417</i>	<i>P3S6417B</i>	<i>P3S6517</i>	<i>P3S6517B</i>
0/1,500 psi/kPa	<i>P3S6218</i>	<i>P3S6218B</i>	<i>P3S6318</i>	<i>P3S6318B</i>	<i>P3S6418</i>	<i>P3S6418B</i>	<i>P3S6518</i>	<i>P3S6518B</i>
0/2,000 psi/kPa	<i>P3S6219</i>	<i>P3S6219B</i>	<i>P3S6319</i>	<i>P3S6319B</i>	<i>P3S6419</i>	<i>P3S6419B</i>	<i>P3S6519</i>	<i>P3S6519B</i>
0/3,000 psi/kPa	<i>P3S6220</i>	<i>P3S6220B</i>	<i>P3S6320</i>	<i>P3S6320B</i>	<i>P3S6420</i>	<i>P3S6420B</i>	<i>P3S6520</i>	<i>P3S6520B</i>
0/5,000 psi/kPa	<i>P3S6221</i>	<i>P3S6221B</i>	<i>P3S6321</i>	<i>P3S6321B</i>	<i>P3S6421</i>	<i>P3S6421B</i>	<i>P3S6521</i>	<i>P3S6521B</i>
0/10,000 psi/kPa	<i>P3S6222</i>	<i>P3S6222B</i>	<i>P3S6322</i>	<i>P3S6322B</i>	<i>P3S6422</i>	<i>P3S6422B</i>	<i>P3S6522</i>	<i>P3S6522B</i>
0/15,000 psi/kPa	<i>P3S6223</i>	<i>P3S6223B</i>	<i>P3S6323</i>	<i>P3S6323B</i>	<i>P3S6423</i>	<i>P3S6423B</i>	<i>P3S6523</i>	<i>P3S6523B</i>
0/20,000 psi/kPa	<i>P3S6224</i>	<i>P3S6224B</i>	<i>P3S6324</i>	<i>P3S6324B</i>	<i>P3S6424</i>	<i>P3S6424B</i>	<i>P3S6524</i>	<i>P3S6524B</i>

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

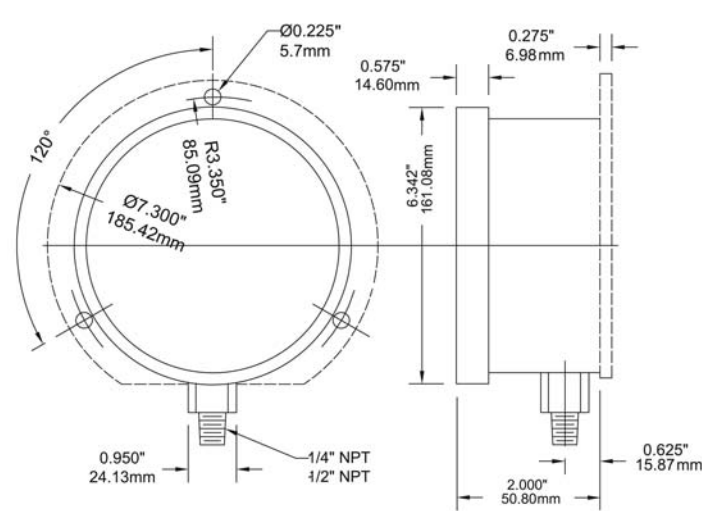
4.5" Bottom Connection with Back Flange Option



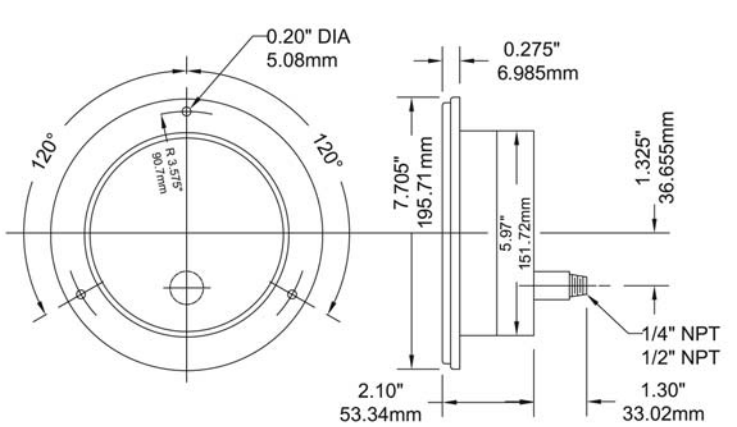
4.5" Back Connection with Standard Front Flange



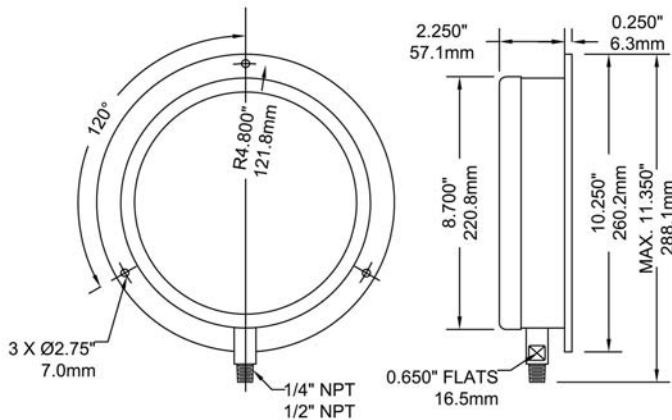
6" Bottom Connection with Back Flange Option



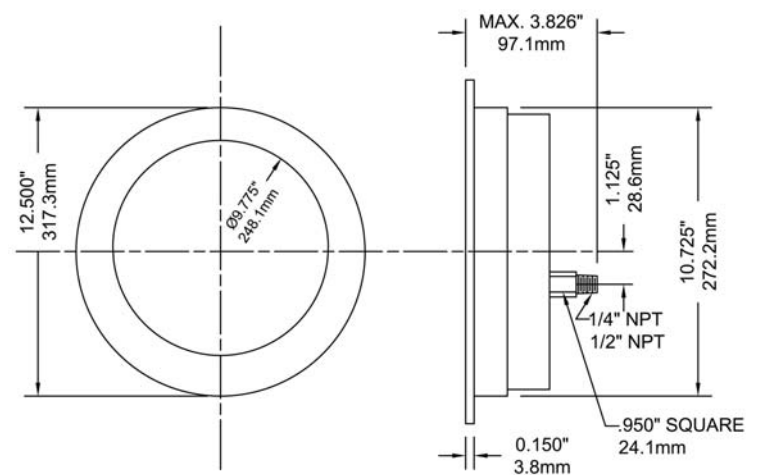
6" Back Connection with Standard Front Flange



8.5" Bottom Connection with Standard Back Flange



10" Back Connection with Standard Front Flange



P9S 90 Series Gauge



Description & Features:

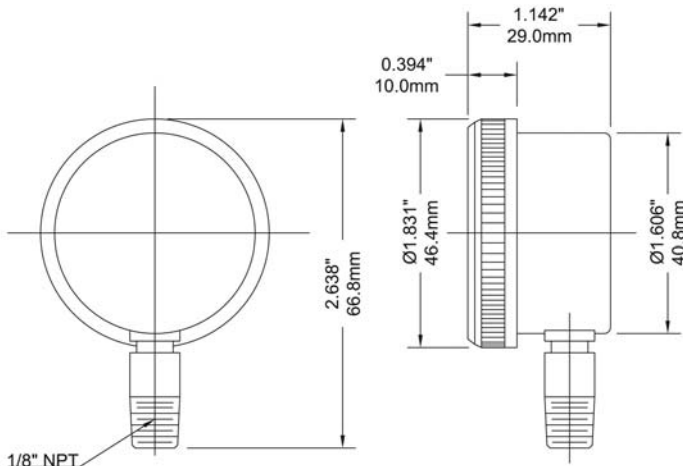
- A general-purpose gauge that is serviceable and pulsation resistant
- 1.5" (40mm) to 3.5" (90mm) dial sizes
- Dampened movement combined with a "flutterless" pointer
- Removable lens
- Zero-adjustment
- CRN registered
- $\pm 2-1-2\%$ accuracy
- 5 year warranty

Applications:

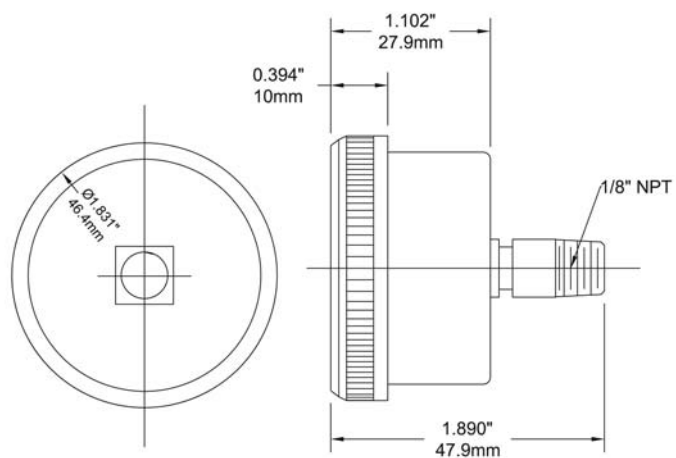
- Compressors, filters, regulators, water pumps, paint sprayers and a variety of other rapid pressure fluctuation applications

Specifications	
Dial	1.5" (40mm), 2" (50mm), 2.5" (63mm), 3.5" (90mm) white aluminum with black and red markings
Case	Steel, painted black
Lens	Acrylic, threaded
Socket	Brass
Connection	1/8" NPT or 1/4" NPT standard
Bourdon Tube	Phosphor bronze
Movement	Brass (flutterless) with zero adjustment
Pointer	Aluminum, black
Welding	<1000 psi: 60% tin 40% lead, ≥ 1000 psi: Silver alloy
Over-Pressure Limit	25% 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	$\pm 2-1-2\%$ ANSI/ASME Grade A

1.5" Bottom Connection



1.5" Back Connection

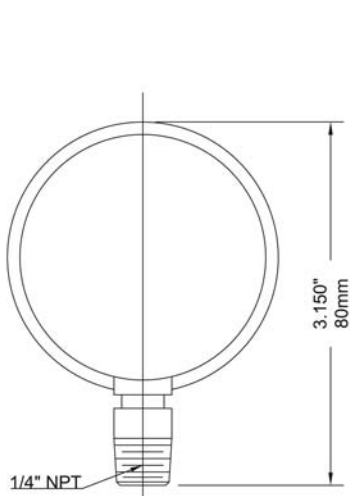


Order Codes (products in bold are normally in stock)

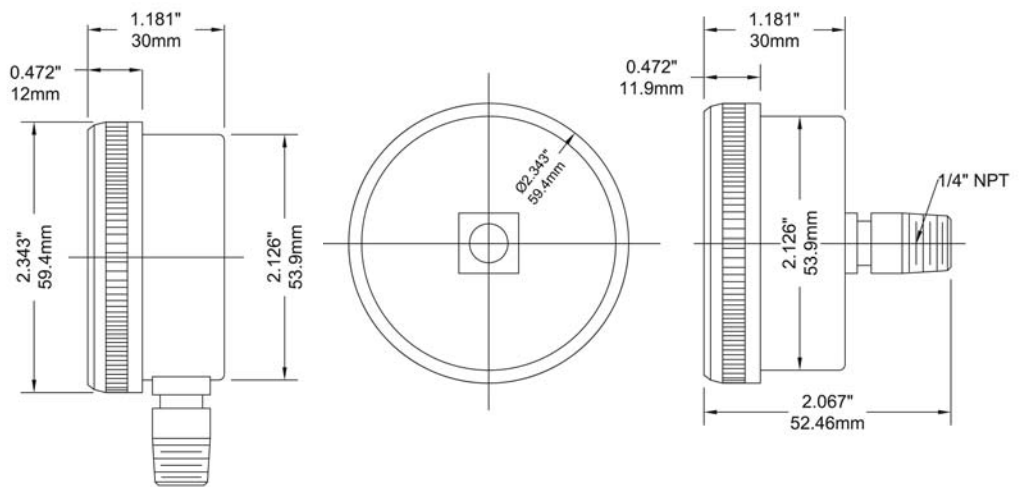
Dial Size	1.5" (40mm)		2" (50mm)				2.5" (63mm)		3.5" (75mm)	
Connection	1/8" Bottom	1/8" Centre Back	1/8" Bottom	1/8" Centre Back	1/4" Bottom	1/4" Centre Back	1/4" Bottom	1/4" Centre Back	1/4" Bottom	1/4" Centre Back
30" Hg Vac/kPa	P9S901297	P9S901397	P9S90195	P9S901424	P9S90135	P9S901428	P9S90210	P9S901431	P9S90220	P9S901455
30"/0/15 psi/kPa	-	-	-	-	-	-	P9S90152	-	-	-
30"/0/30 psi/kPa	-	-	-	-	-	-	P9S90153	-	-	-
30"/0/60 psi/kPa	-	-	-	-	-	-	P9S90154	-	-	-
30"/0/100 psi/kPa	-	-	-	-	-	-	P9S90155	-	-	-
0/15 psi/kPa	P9S901299	P9S901399	P9S90196	P9S901425	P9S90136	P9S901429	P9S90211	P9S901436	P9S90229	P9S901464
0/30 psi/kPa	P9S901300	P9S901400	P9S90206	P9S901402	P9S90199	P9S901403	P9S90212	P9S901437	P9S90221	P9S901456
0/60 psi/kPa	P9S901301	P9S901401	P9S90207	P9S901404	P9S90201	P9S901405	P9S90213	P9S901438	P9S90222	P9S901457
0/100 psi/kPa	P9S901320	P9S901420	P9S90208	P9S901406	P9S90202	P9S901407	P9S90214	P9S901439	P9S90223	P9S901458
0/160 psi/kPa	P9S901321	P9S901421	P9S90197	P9S901408	P9S90203	P9S901409	P9S90215	P9S901440	P9S90224	P9S901459
0/200 psi/kPa	P9S901322	P9S901422	P9S90209	P9S901426	P9S90204	P9S901410	P9S90216	P9S901441	P9S90225	P9S901460
0/300 psi/kPa	P9S901323	P9S901423	P9S90198	P9S901427	P9S90205	P9S901411	P9S90217	P9S901442	P9S90226	P9S901461
0/400 psi/kPa	P9S901324	P9S901443	P9S901449	P9S901445	P9S901451	P9S901447	P9S90219	P9S901453	P9S90227	P9S901462
0/600 psi/kPa	P9S901325	P9S901444	P9S901450	P9S901446	P9S901452	P9S901448	P9S90218	P9S901454	P9S90228	P9S901463

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

2" Bottom Connection

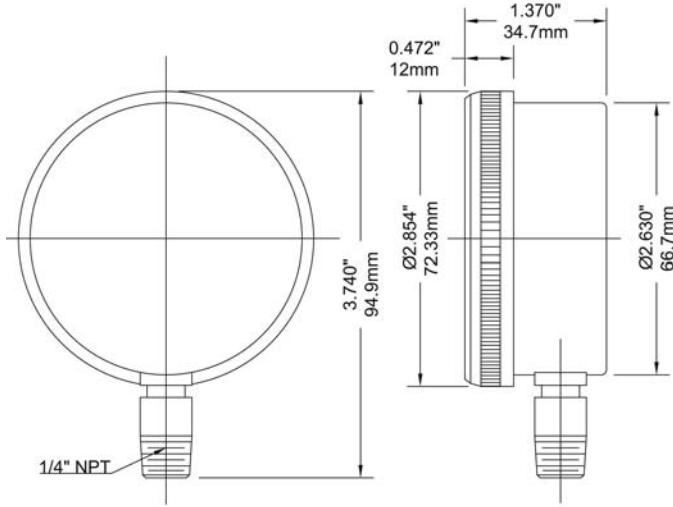


2" Back Connection

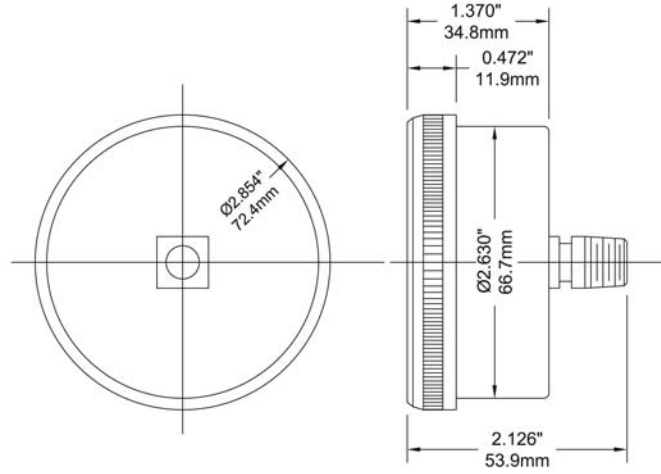


P9S 90 Series Gauge

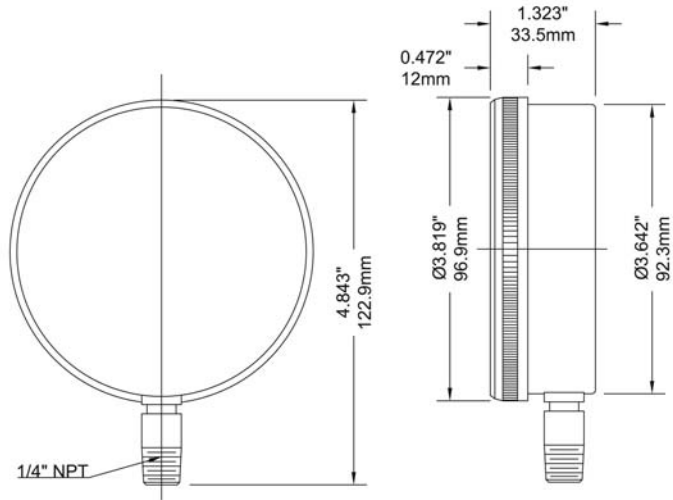
2.5" Bottom Connection



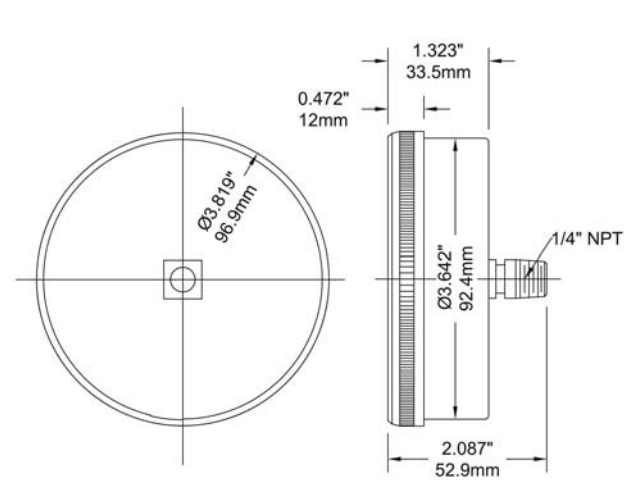
2.5" Back Connection



3.5" Bottom Connection



3.5" Back Connection





Note: RoHS applies only to SS internals

Description & Features:

- Wide variety to measure pressure and temperature of ammonia systems
- $\pm 0.5\%$ to $\pm 3-2-3\%$ accuracy available
- 2.5" (63mm) to 10" (250mm) dial sizes
- CRN registered
- 5 year warranty

Applications:

- Used to display pressure and temperature on closed refrigeration systems

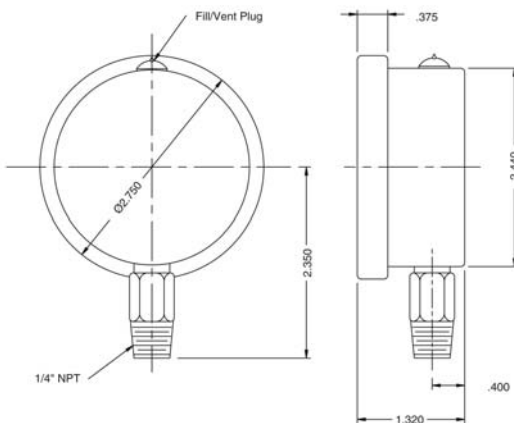
Specifications	Accuracy: $\pm 0.5\%$ to $\pm 1\%$	Accuracy: $\pm 1.5\%$	Accuracy: $\pm 3-2-3\%$
Dial	4" (100mm), 6" (150mm), 8.5" (215mm), 10" (250mm): White aluminum with black and red markings	2.5" (63mm), 3.5" (90mm), 4" (100mm): White aluminum	2.5" (63mm), 4" (100mm): White aluminum
Case	4" (100mm), 6" (150mm): AISI 304 SS 8.5" (215mm), 10" (250mm): Aluminum case	2.5" (63mm), 4" (100mm): AISI 304 SS 3.5" (90mm): Steel painted black	2.5" (63mm), 4" (100mm): Steel painted black
Lens	Polycarbonate	Polycarbonate	Polycarbonate
Ring	4" (100mm), 6" (150mm): 304 SS 8.5" (215mm), 10" (250mm): Aluminum	2.5" (63mm): SS 3.5" (90mm): Steel 4" (100mm): AISI 304 SS	2.5" (63mm): Steel, painted black 4" (100mm): Plated steel
Socket	316L SS	316L SS	2.5" (63mm): Steel 4" (100mm): Nickel plated steel
Connection	1/4" NPT	1/4" NPT standard	1/4" NPT standard
Bourdon Tube	316L SS, drawn seamless	316L SS, drawn seamless	316 SS
Movement	304 SS	304 SS	304 SS
Pointer	Aluminum, anodized black, micrometer adjustable	Aluminum, anodized black	Aluminum, anodized black
Welding	TIG	TIG	TIG
Over-Pressure Limit	30% of full scale value	30% of full scale value	30% of full scale value
Working Pressure	Maximum 75% of full scale value	Maximum 75% of full scale value	Maximum 75% of full scale value
Ambient/Process Temperature	-40°F to 150°F (-40°C to 65°C): Dry, -4°F to 150°F (-20°C to 65°C): Liquid filled (8.5" dry)	-40°F to 150°F (-40°C to 65°C): Dry -4°F to 150°F (-20°C to 65°C): Liquid filled	-40°F to 150°F (-40°C to 65°C): Dry
Accuracy	4" (100mm), 6" (150mm): $\pm 1\%$ ANSI/ASME Grade 1A 8.5" (215mm), 10" (250mm): $\pm 0.5\%$ ANSI/ASME Grade 2A	$\pm 1.5\%$ of full scale value	$\pm 3-2-3\%$ ANSI/ASME Grade B
Enclosure Rating	2.5" (63mm), 4" (100mm), 6" (150mm): IP65 8.5" (215mm), 10" (250mm): IP52	IP65	IP52

Order Codes (products in bold are normally in stock)

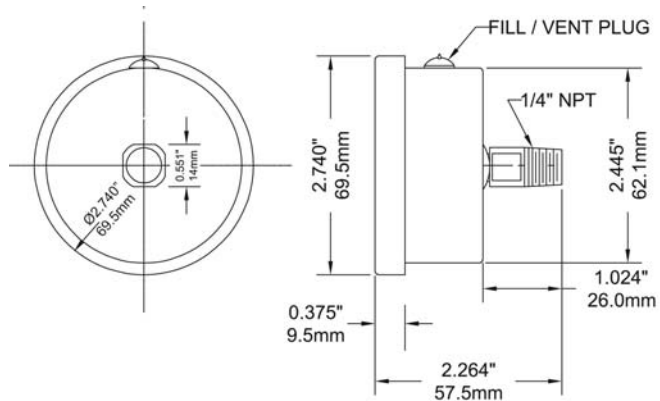
Dial Size	Accuracy: $\pm 0.5\%$ to $\pm 1\%$		Accuracy: $\pm 1.5\%$		Accuracy: $\pm 3-2-3\%$	
	30/0/150 psi $^{\circ}$ /F	30/0/300 psi $^{\circ}$ /F	30/0/150 psi $^{\circ}$ /F	30/0/300 psi $^{\circ}$ /F	30/0/150 psi $^{\circ}$ /F	30/0/300 psi $^{\circ}$ /F
2.5" (63mm) Bottom	-	-	PAM1750	PAM1751	PAM1699	PAM1700
2.5" (63mm) Back (CB)	-	-	PAM1752	PAM1753	-	-
3.5" (90mm) Bottom	-	-	PAM1717	PAM1818	-	-
4" (100mm) Bottom	PAM1705	PAM1706	PAM1701	PAM1702	PAM1695	PAM1696
4" (100mm) Back (LB)	PAM1708	PAM1709	-	-	-	-
4" (100mm) Back (CB)	-	-	PAM1703	PAM1704	PAM1697	PAM1698
6" (150mm) Bottom	PAM1710	PAM1711	-	-	-	-
8.5" (215mm) Bottom	PAM1712	PAM1713	-	-	-	-
10" (254mm) Bottom	PAM1714	PAM1715	-	-	-	-

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes.
Glycerin fill available (except on 8.5" (215mm), 10" (250mm) dials and gauges with a $\pm 3-2-3\%$ accuracy). Front/back flange and u-clamp available.

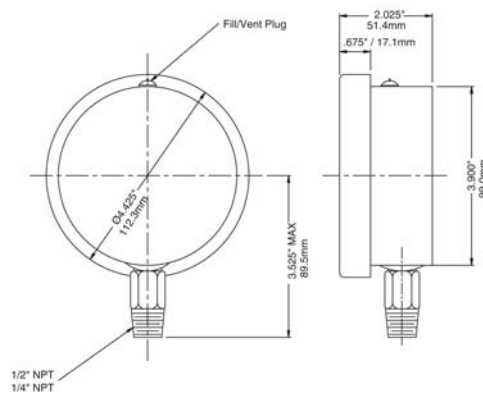
2.5" Bottom Connection



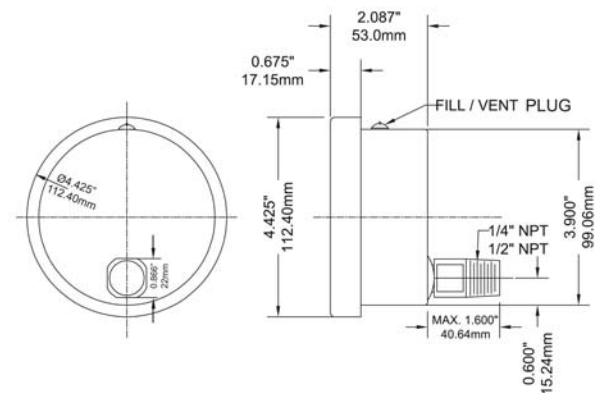
2.5" Back Connection



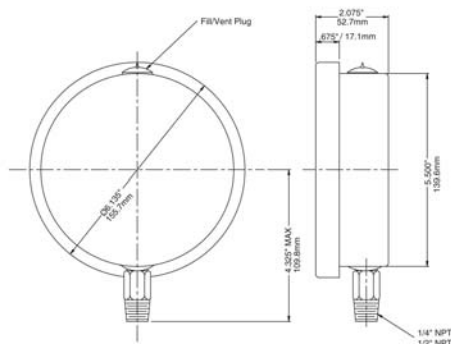
4" Bottom Connection



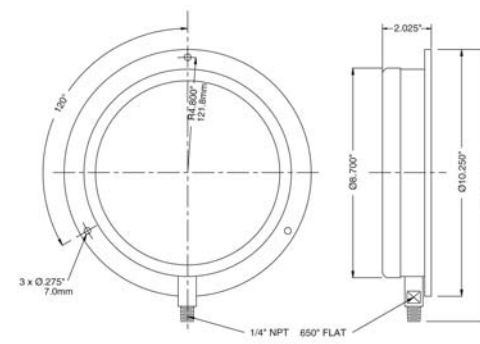
4" Back Connection



6" Bottom Connection

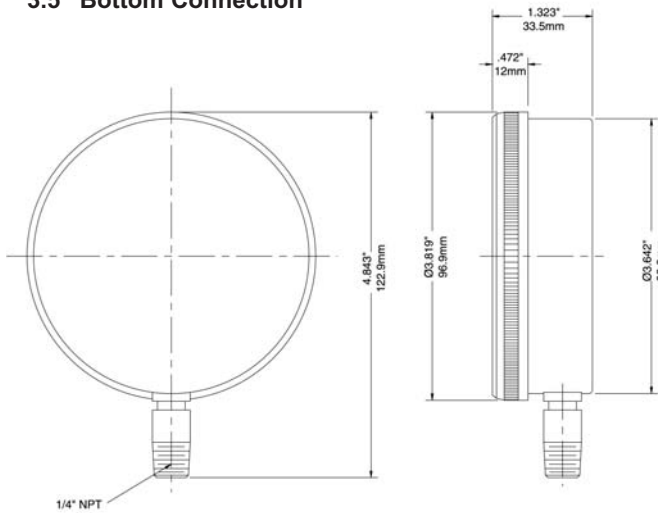


8.5" Bottom Connection with Back Flange



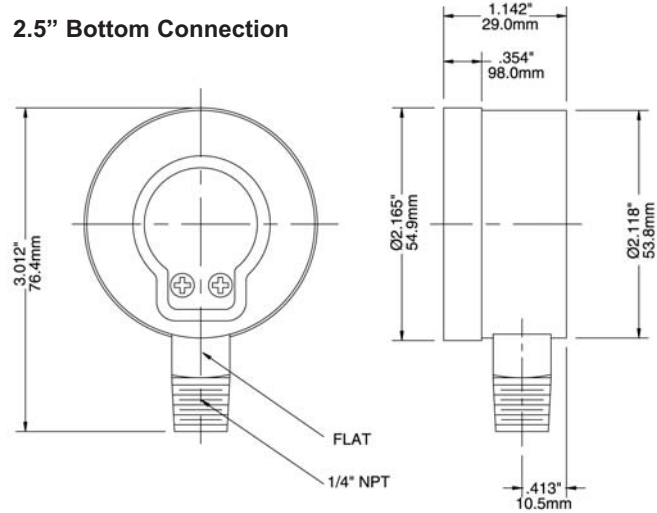
PAM with accuracy $\pm 1.5\%$

3.5" Bottom Connection

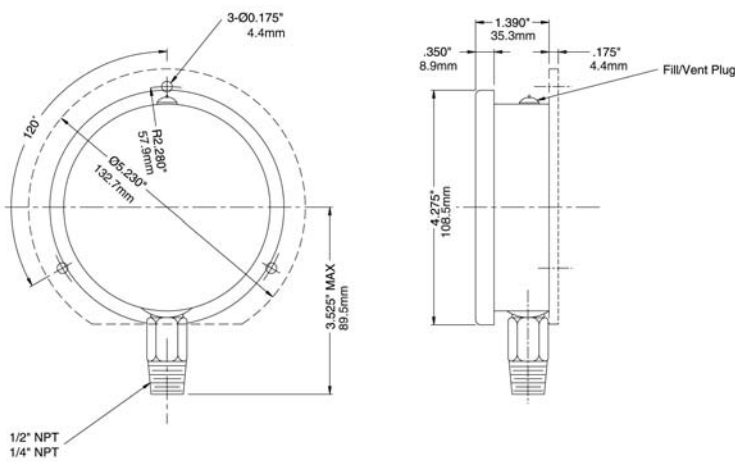


PAM with accuracy $\pm 3-3\%$

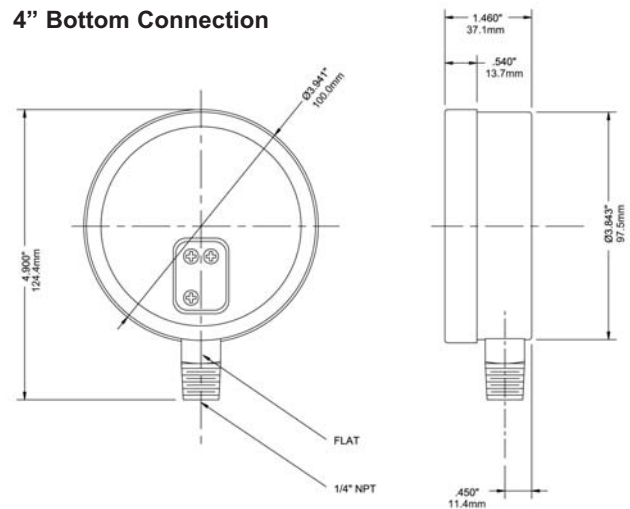
2.5" Bottom Connection



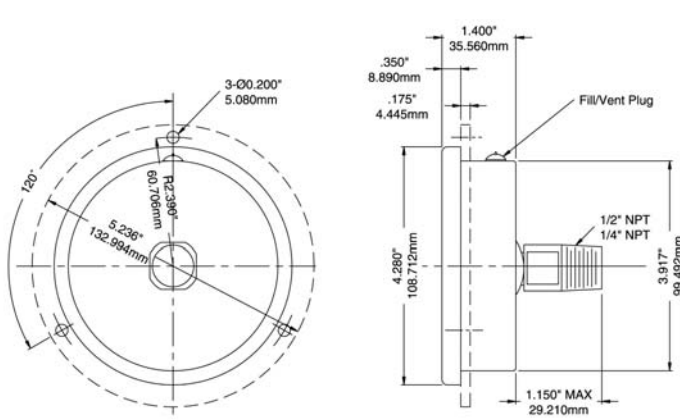
4" Bottom Connection



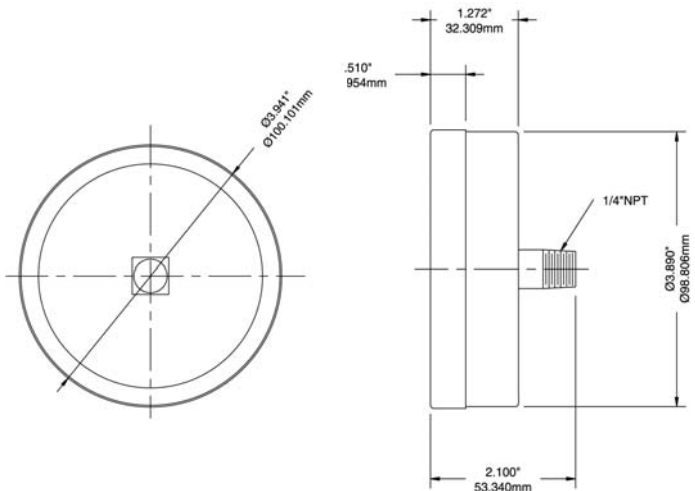
4" Bottom Connection



4" Back Connection



4" Back Connection



PCT, PCT-LF

Contractor Gauge, Lead Free Contractor Gauge



Description & Features:

- Economical 4.5" (115mm) stainless steel case gauge
- Brass or lead free brass wetted parts
- ±1% accuracy
- Zero adjustment screw
- 1/4" NPT
- CRN registered
- 5 year warranty

Applications:

- Most commercial air, water and steam services that require a ±1% full-scale accuracy

Specifications	
Dial	4.5" (115mm) white aluminum dial with black and red markings
Case	304 SS
Lens	Acrylic
Ring	304 SS
Socket	PCT: Brass PCT-LF: Lead free brass
Connection	1/4" NPT standard
Bourdon Tube	PCT: Phosphor bronze PCT-LF: Lead free phosphor bronze
Movement	Brass
Pointer	Aluminum, anodized black, recalibrator screw
Welding	Silver solder
Over-Pressure Limit	25% for pressures up to 1,400 psi (9,653 kPa) 15% for pressures over 1,400 psi (9,653 kPa)
Working Pressure	Maximum 75% of full scale value
Ambient/Process Temperature	-40°F to 200°F (-40°C to 93°C)
Accuracy	±1% ANSI/ASME Grade 1A
Enclosure Rating	IP52

PCT Order Codes (products in bold are normally in stock)

Connection	1/4 Bottom
30" Hg Vac/kPa	PCT320
30"/0/30 psi/kPa	PCT329
30"/0/60 psi/kPa	PCT330
30"/0/100 psi/kPa	PCT328
30"/0/160 psi/kPa	PCT332
30"/0/200 psi/kPa	PCT333
30"/0/300 psi/kPa	PCT334
0/15 psi/kPa	PCT319
0/30 psi/kPa	PCT321
0/60 psi/kPa	PCT322
0/100 psi/kPa	PCT323
0/160 psi/kPa	PCT324
0/200 psi/kPa	PCT325
0/300 psi/kPa	PCT326
0/400 psi/kPa	PCT327
0/600 psi/kPa	PCT331
0/1,000 psi/kPa	PCT293
0/3,000 psi/kPa	PCT294
0/5,000 psi/kPa	PCT295

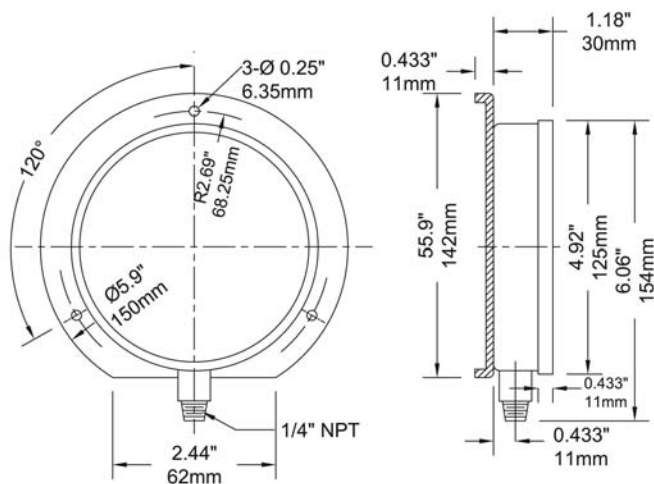
PCT-LF Order Codes (products in bold are normally in stock)

Connection	1/4 Bottom
30" Hg Vac/kPa	PCT320LF
30"/0/30 psi/kPa	PCT329LF
30"/0/60 psi/kPa	PCT330LF
30"/0/100 psi/kPa	PCT328LF
30"/0/160 psi/kPa	PCT332LF
30"/0/200 psi/kPa	PCT333LF
30"/0/300 psi/kPa	PCT334LF
0/15 psi/kPa	PCT319LF
0/30 psi/kPa	PCT321LF
0/60 psi/kPa	PCT322LF
0/100 psi/kPa	PCT323LF
0/160 psi/kPa	PCT324LF
0/200 psi/kPa	PCT325LF
0/300 psi/kPa	PCT326LF
0/400 psi/kPa	PCT327LF
0/600 psi/kPa	PCT331LF
0/1,000 psi/kPa	PCT293LF
0/3,000 psi/kPa	PCT294LF
0/5,000 psi/kPa	PCT295LF

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. PCT322-45QBF for BACK FLANGE.**

Option suffix:

45QBF = 4.5" (115mm) Back Flange





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

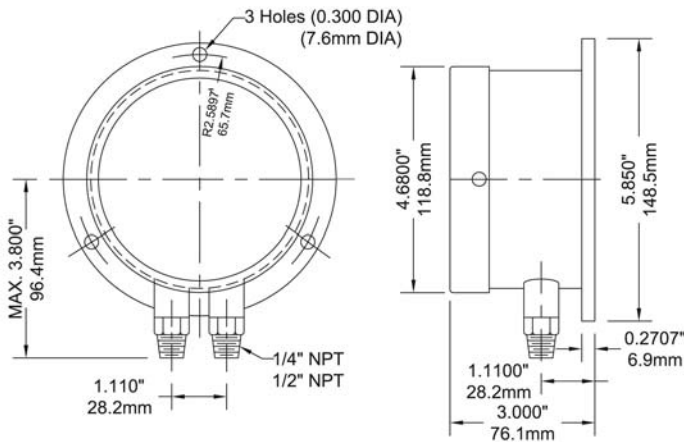
PDT Differential Gauge

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

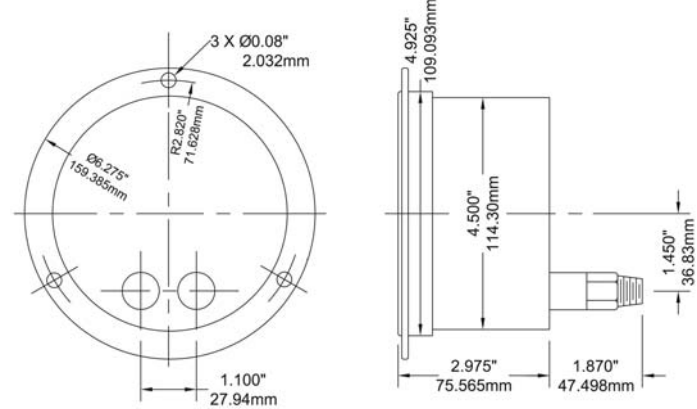
Max. Static Pressure	Dial Size	4.5" (115mm)				6" (150mm)			
	Tube, Socket	Brass	Brass	SS	SS	Brass	Brass	SS	SS
	Connection	1/4" NPT Bottom	1/4" NPT Back (LB)	1/4" NPT Bottom	1/4" NPT Back (LB)	1/4" NPT Bottom	1/4" NPT Back (LB)	1/4" NPT Bottom	1/4" NPT Back (LB)
22 psi	0/15 psi	<i>PDT8051</i>	<i>PDT8051B</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.

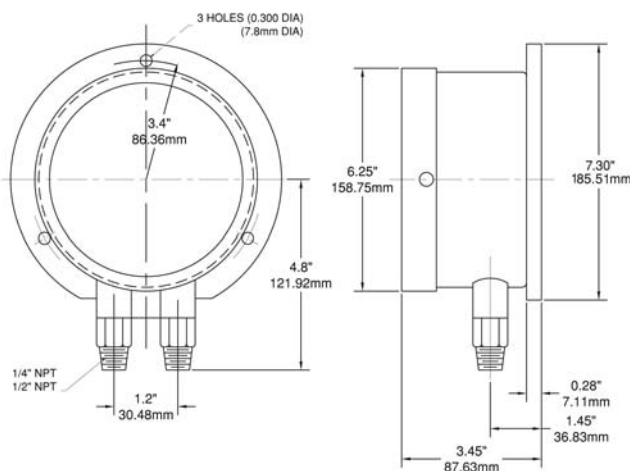
4.5" Bottom Connection



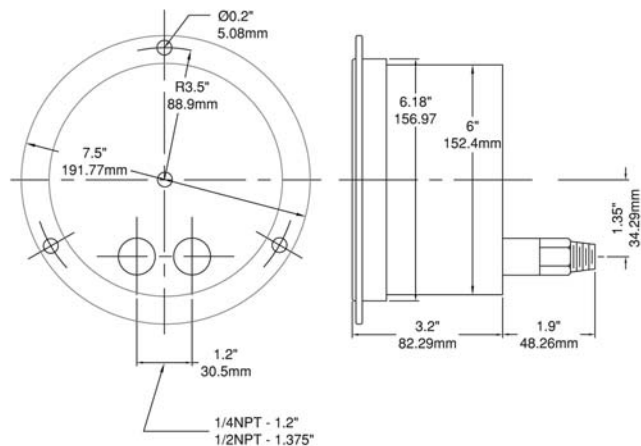
4.5" Back Connection



6" Bottom Connection



6" Back Connection



Economy Gauge, Lead Free Economy Gauge

PEM,
PEM-LF



Description & Features:

- Most economical, all-purpose pressure gauge
- 1.5" (40mm) to 4" (100mm) sizes
- Friction bezel rings
- Black steel case
- Brass or lead free brass wetted parts
- $\pm 3-2-3\%$ accuracy
- CRN registered
- 5 year warranty

Applications:

- Plumbing, heating, air conditioning, pneumatic, hydraulic, water tanks, air compressors, OEM

Specifications

Dial	1.5" (40mm), 2" (50mm), 2.5" (63mm), 4" (100mm) white aluminum with black and red markings
Case	Steel, painted black (plastic available)
Lens	1.5" (40mm), 2" (50mm), 2.5" (63mm): Polycarbonate 4" (100mm): Glass
Ring	1.5" (40mm), 2" (50mm): Steel, painted black 2.5" (63mm), 4" (100mm): Steel, chrome plated
Socket	PEM: Brass PEM-LF: Lead free brass
Connection	$\frac{1}{8}$ " NPT or $\frac{1}{4}$ " NPT standard
Bourdon Tube	PEM: Phosphor bronze PEM-LF: Lead free phosphor bronze
Movement	Brass
Pointer	Aluminum, black
Welding	Silver alloy
Over-Pressure Limit	25% 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	$\pm 3-2-3\%$ ANSI/ASME Grade B
Enclosure Rating	IP52

PEM, PEM-LF

Economy Gauge, Lead Free Economy Gauge

PEM Order Codes (products in bold are normally in stock)

Dial Size	1.5" (40mm)		2" (50mm)					2.5" (63mm)		4" (100mm)
Connection	¹ / ₈ " Bottom	¹ / ₈ " Centre Back	¹ / ₈ " Bottom	¹ / ₈ " Centre Back	¹ / ₄ " Bottom	¹ / ₄ " psi Only Bottom	¹ / ₄ " Centre Back	¹ / ₄ " Bottom	¹ / ₄ " Centre Back	¹ / ₄ " Bottom
Case Material	Steel	Steel	Steel	Steel	Steel	Plastic	Steel	Steel	Steel	Steel
30" Hg Vac/kPa	PEM1297	PEM1397	PEM195	PEM1424	PEM135	PEM1398	PEM1428	PEM210	PEM1431	PEM220
30"/0/15 psi/kPa	-	-	-	-	-	-	-	PEM152	-	-
30"/0/30 psi/kPa	-	-	-	-	-	-	-	PEM153	-	-
30"/0/60 psi/kPa	-	-	-	-	-	-	-	PEM154	-	-
30"/0/100 psi/kPa	-	-	-	-	-	-	-	PEM155	-	-
0/15 psi/kPa	PEM1299	PEM1399	PEM196	PEM1425	PEM136	-	PEM1429	PEM211	PEM1436	-
0/30 psi/kPa	PEM1300	PEM1400	PEM206	PEM1402	PEM199	PEM200	PEM1403	PEM212	PEM1437	PEM221
0/60 psi/kPa	PEM1301	PEM1401	PEM207	PEM1404	PEM201	PEM194	PEM1405	PEM213	PEM1438	PEM222
0/100 psi/kPa	PEM1320	PEM1420	PEM208	PEM1406	PEM202	-	PEM1407	PEM214	PEM1439	PEM223
0/160 psi/kPa	PEM1321	PEM1421	PEM197	PEM1408	PEM203	-	PEM1409	PEM215	PEM1440	PEM224
0/200 psi/kPa	PEM1322	PEM1422	PEM209	PEM1426	PEM204	-	PEM1410	PEM216	PEM1441	PEM225
0/300 psi/kPa	PEM1323	PEM1423	PEM198	PEM1427	PEM205	-	PEM1411	PEM217	PEM1442	PEM226
0/400 psi/kPa	-	-	-	-	-	-	-	PEM219	-	-
0/600 psi/kPa	-	-	-	-	-	-	-	PEM218	PEM3413	-
0/1,000 psi/kPa	-	-	-	-	-	-	-	PEM290	-	-
0/3,000 psi/kPa	-	-	-	-	-	-	-	PEM291	-	-
0/5,000 psi/kPa	-	-	-	-	-	-	-	PEM292	-	-

PEM-LF Order Codes (products in bold are normally in stock)

Dial Size	1.5" (40mm)		2" (50mm)					2.5" (63mm)		4" (100mm)
Connection	¹ / ₈ " Bottom	¹ / ₈ " Centre Back	¹ / ₈ " Bottom	¹ / ₈ " Centre Back	¹ / ₄ " Bottom	¹ / ₄ " psi Only Bottom	¹ / ₄ " Centre Back	¹ / ₄ " Bottom	¹ / ₄ " Centre Back	¹ / ₄ " Bottom
Case Material	Steel	Steel	Steel	Steel	Steel	Plastic	Steel	Steel	Steel	Steel
30" Hg Vac/kPa	PEM1297LF	PEM1397LF	PEM195LF	PEM1424LF	PEM135LF	PEM1398LF	PEM1428LF	PEM210LF	PEM1431LF	PEM220LF
30"/0/15 psi/kPa	-	-	-	-	-	-	-	PEM152LF	-	-
30"/0/30 psi/kPa	-	-	-	-	-	-	-	PEM153LF	-	-
30"/0/60 psi/kPa	-	-	-	-	-	-	-	PEM154LF	-	-
30"/0/100 psi/kPa	-	-	-	-	-	-	-	PEM155LF	-	-
0/15 psi/kPa	PEM1299LF	PEM1399LF	PEM196LF	PEM1425LF	PEM136LF	-	PEM1429LF	PEM211LF	PEM1436LF	-
0/30 psi/kPa	PEM1300LF	PEM1400LF	PEM206LF	PEM1402LF	PEM199LF	PEM200LF	PEM1403LF	PEM212LF	PEM1437LF	PEM221LF
0/60 psi/kPa	PEM1301LF	PEM1401LF	PEM207LF	PEM1404LF	PEM201LF	PEM194LF	PEM1405LF	PEM213LF	PEM1438LF	PEM222LF
0/100 psi/kPa	PEM1320LF	PEM1420LF	PEM208LF	PEM1406LF	PEM202LF	-	PEM1407LF	PEM214LF	PEM1439LF	PEM223LF
0/160 psi/kPa	PEM1321LF	PEM1421LF	PEM197LF	PEM1408LF	PEM203LF	-	PEM1049LF	PEM215LF	PEM1440LF	PEM224LF
0/200 psi/kPa	PEM1322LF	PEM1422LF	PEM209LF	PEM1426LF	PEM204LF	-	PEM1410LF	PEM216LF	PEM1441LF	PEM225LF
0/300 psi/kPa	PEM1323LF	PEM1423LF	PEM198LF	PEM1427LF	PEM205LF	-	PEM1411LF	PEM217LF	PEM1442LF	PEM226LF
0/400 psi/kPa	-	-	-	-	-	-	-	PEM219LF	-	-
0/600 psi/kPa	-	-	-	-	-	-	-	PEM218LF	PEM3413LF	-
0/1,000 psi/kPa	-	-	-	-	-	-	-	PEM290LF	-	-
0/3,000 psi/kPa	-	-	-	-	-	-	-	PEM291LF	-	-
0/5,000 psi/kPa	-	-	-	-	-	-	-	PEM292LF	-	-

Other ranges and connection sizes available upon request. For scale change, refer to How to Order Guide for scale codes. Lead free construction available. **For options, attach suffix to end of order code: i.e. PEM1399-GL15 for 1.5" GLASS LENS.**

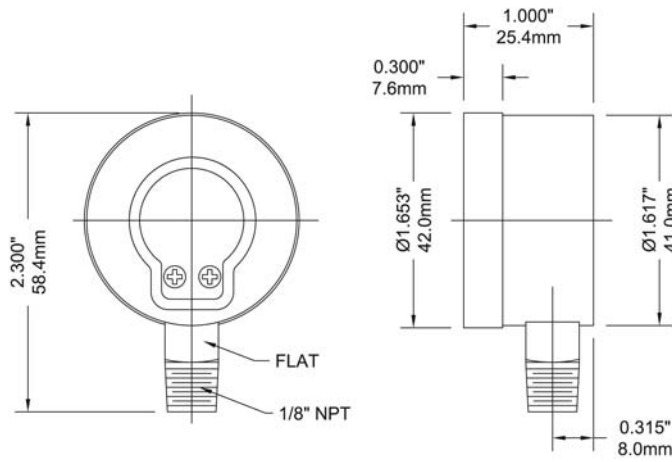
Option suffix:

GL15 = glass lens for 1.5" dial
 GL2 = glass lens for 2" dial
 GL25 = glass lens for 2.5" dial

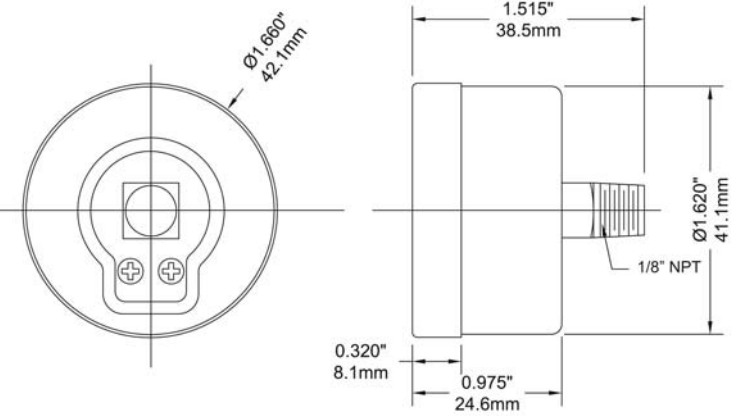
ECASE15SS BK = 1.5" SS back case connection
 ECASE15SS BTM = 1.5" SS bottom connection
 ECASE20SSBK = 2" SS Case back connection
 ECASE20SSBTM = 2" SS Case bottom connection

Note: For 1.5" to 2" SS internals, please see PRL Series Regulator Gauges.

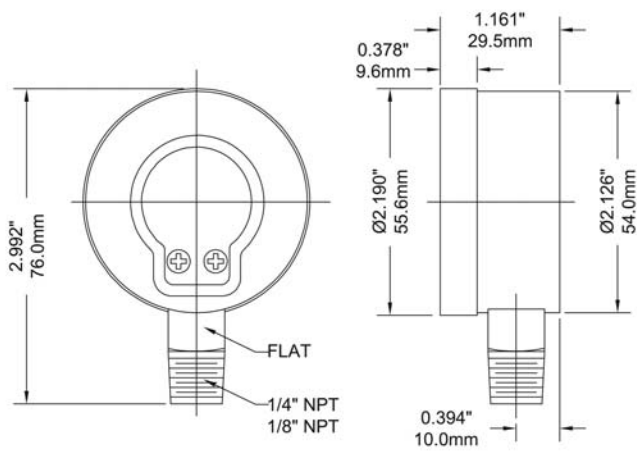
1.5" Bottom Connection



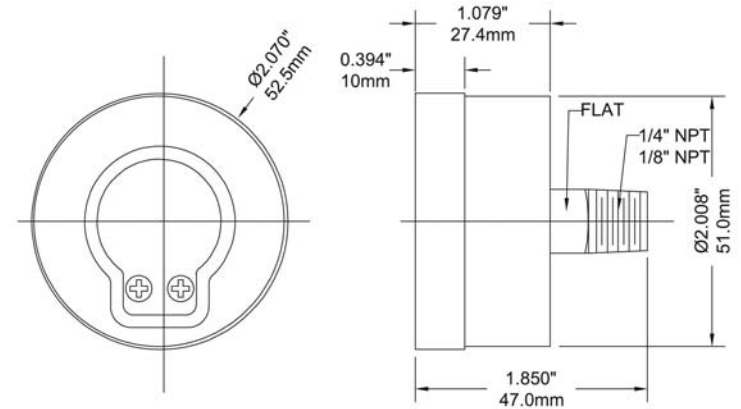
1.5" Back Connection



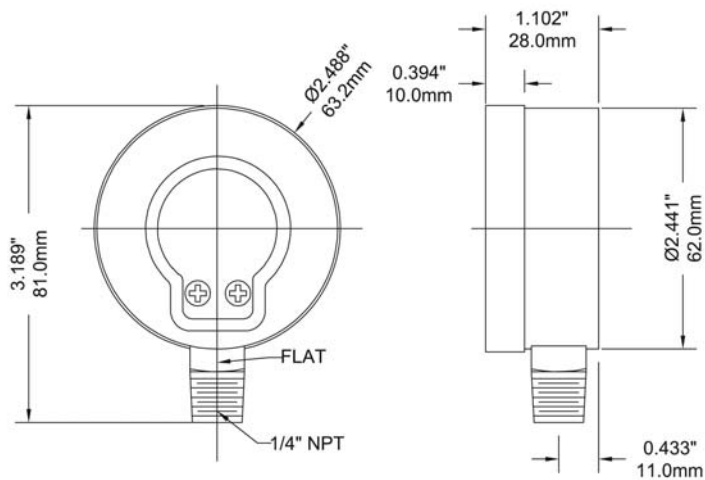
2" Bottom Connection



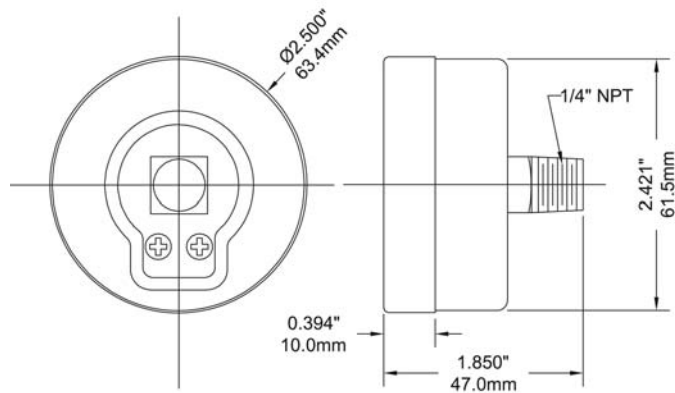
2" Back Connection



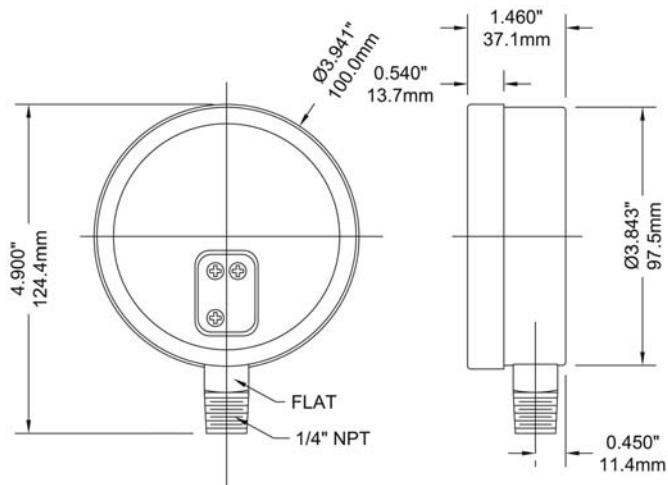
2.5" Bottom Connection



2.5" Back Connection

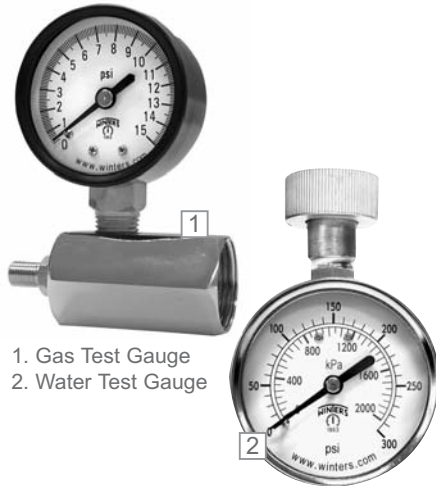


4" Bottom Connection



Economy Test Gauge, Lead Free Economy Test Gauge

PET,
PET-LF



1. Gas Test Gauge
2. Water Test Gauge

Description & Features:

- Economical pressure gauge and valve body assembly used for pressure testing
- Bleed port and plated housing on the gas test assembly
- Swivel hose adaptor on the Water Test Gauge
- Black steel case
- Brass or lead free brass wetted parts
- Dual scale (PSI/kPa)
- $\pm 3-2-3\%$ accuracy
- CRN registered
- 5 year warranty

Applications:

- Residential & commercial pressure testing of natural gas, air and water lines

Specifications	
Dial	2" (50 mm), 2.5" (63 mm) white aluminum with black and red markings
Case	Steel painted black
Lens	Polycarbonate
Ring	Steel, painted black
Bourdon Tube	PET: Phosphor bronze PET-LF: Lead free phosphor bronze
Movement	Brass
Pointer	Aluminum, black
Connection	Gas Test Gauge: $\frac{3}{4}$ " FNPT Water Test Gauge: $\frac{3}{4}$ " female swivel hose connection
Maximum Pointer	Available on Water Test Gauge only
Welding	#50 tin solder
Ambient/Process Temperature	-40°F to 150 °F (-40°C to 65°C)
Gas Test	40°F to 150 °F (-40°C to 65°C)
Water Test	32°F to 150 °F (0°C to 65°C)
Working Pressure	Maximum 75% of full scale value
Accuracy	$\pm 3-2-3\%$ ANSI/ASME Grade B
Enclosure Rating	IP52

PET, PET-LF

Economy Test Gauge, Lead Free Economy Test Gauge

PET Order Codes (products in bold are normally in stock)

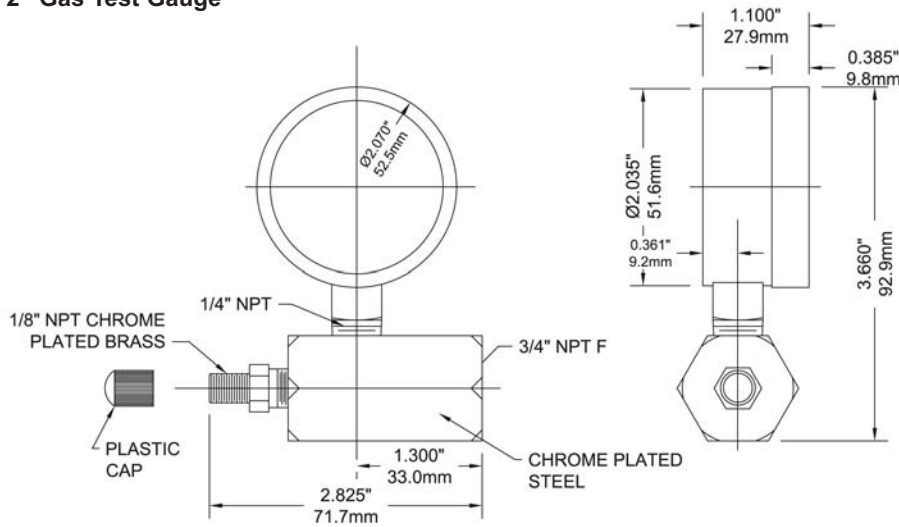
Product	Gas Test Gauge	Water Test Gauge	Maximum Pointer Water Test Gauge
Dial Size	2" (50mm)	2.5" (63mm)	2.5" (63mm)
Connection	Adapts to 3/4" FNPT	3/4" Female Swivel Hose Connection	3/4" Female Swivel Hose Connection
0/15 psi/kPa	PETG201	-	-
0/30 psi/kPa	PETG202	-	-
0/60 psi/kPa	PETG203	-	-
0/100 psi/kPa	PETG204	-	-
0/160 psi/kPa	-	PETW213	PETM213
0/300 psi/kPa	-	PETW217	PETM217

PET-LF Order Codes (products in bold are normally in stock)

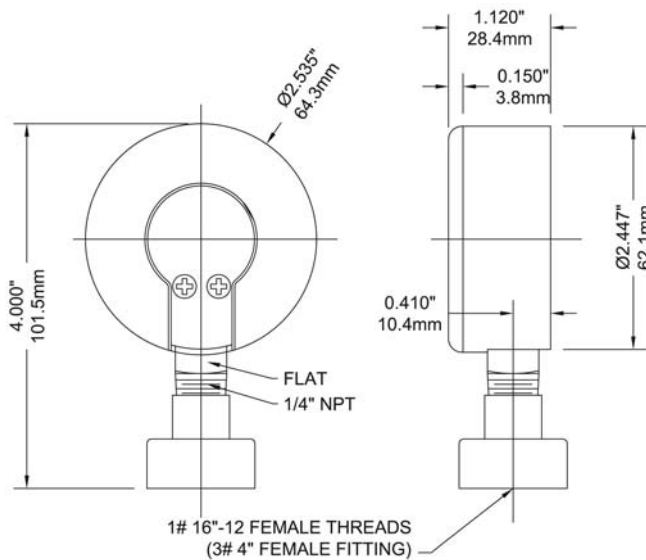
Product	Water Test Gauge	Maximum Pointer Water Test Gauge
Dial Size	2.5" (63mm)	2.5" (63mm)
Connection	3/4" Female Swivel Hose Connection	3/4" Female Swivel Hose Connection
0/160 psi/kPa	PETW213LF	PETM213LF
0/300 psi/kPa	PETW217LF	PETM217LF

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

2" Gas Test Gauge



2.5" Water Test Gauge





Description & Features:

- Most economical pressure gauge used for panels
- 1.5" (40mm) to 2.5" (63mm) dial sizes
- Black steel case
- Brass wetted parts
- Stainless steel crimp-on bezel
- Stud-style U-Clamp design for secure panel mounting
- ±3-2-3 accuracy
- Dual scale (psi/kPa)
- CRN registered
- 5 year warranty

Applications:

- For measuring gases, air, water and oils when equipment or processes require an economical panel mounted gauge

Specifications	
Dial	1.5" (40mm), 2" (50mm), 2.5" (63mm) white aluminum with black and red markings
Case	Steel, painted black
Lens	Plastic
Ring	SS
Socket	Brass
Connection	1/8" NPT or 1/4" NPT standard
Bourdon Tube	Phosphor bronze
Movement	Brass
Pointer	Aluminum, black
Welding	Silver alloy
Over-Pressure Limit	25% 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	±3-2-3% ANSI/ASME Grade B
Enclosure Rating	IP52

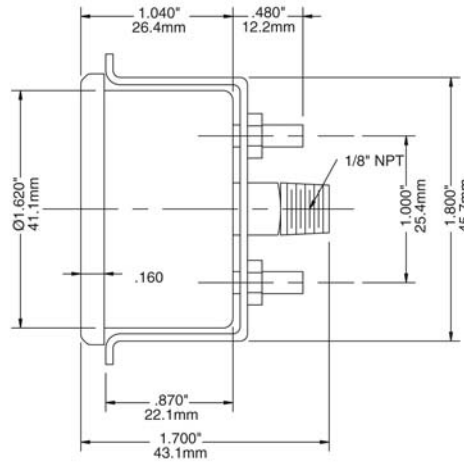
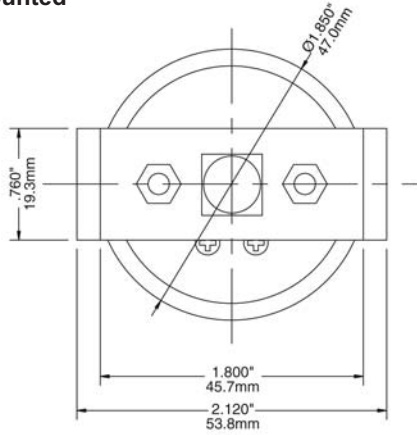
Order Codes (products in bold are normally in stock)

Dial Size	1.5" (40mm)	2" (50mm)	2" (50mm)	2.5" (63mm)
Connection	1/8" NPT	1/8" NPT	1/4" NPT	1/4" NPT
30" Hg Vac/kPa	PEU1399UC	PEU1396UC	PEU1428UC	PEU1431UC
0/15 psi/kPa	PEU1398UC	PEU1397UC	PEU1429UC	PEU1436UC
0/30 psi/kPa	PEU1400UC	PEU1402UC	PEU1403UC	PEU1437UC
0/60 psi/kPa	PEU1401UC	PEU1404UC	PEU1405UC	PEU1438UC
0/100 psi/kPa	PEU1420UC	PEU1406UC	PEU1407UC	PEU1439UC
0/160 psi/kPa	PEU1421UC	PEU1408UC	PEU1409UC	PEU1440UC
0/200 psi/kPa	PEU1422UC	PEU1412UC	PEU1410UC	PEU1441UC
0/300 psi/kPa	PEU1423UC	PEU1413UC	PEU1411UC	PEU1442UC

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

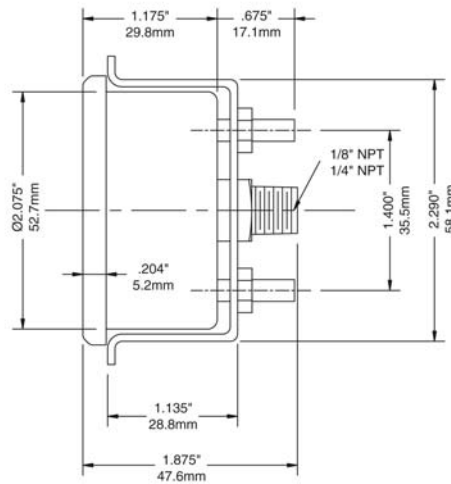
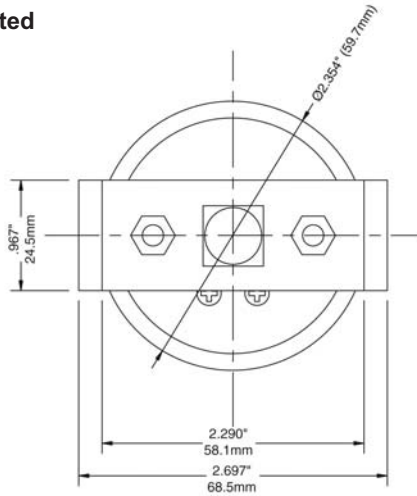
1.5" Panel Mounted

Panel cut-out
1.63"(42mm)
Outer diameter
1.84"(47mm)



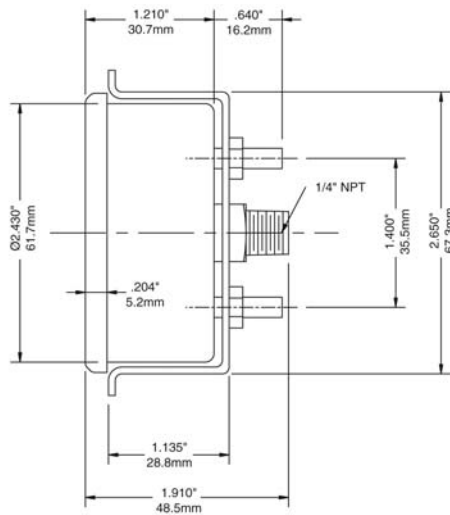
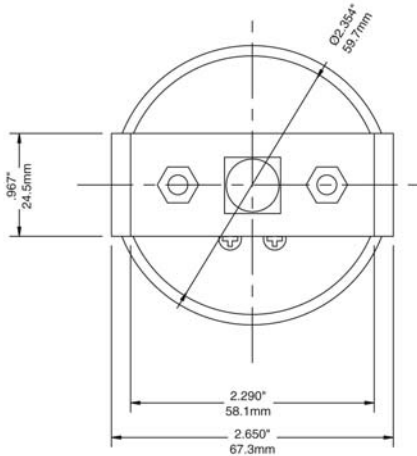
2" Panel Mounted

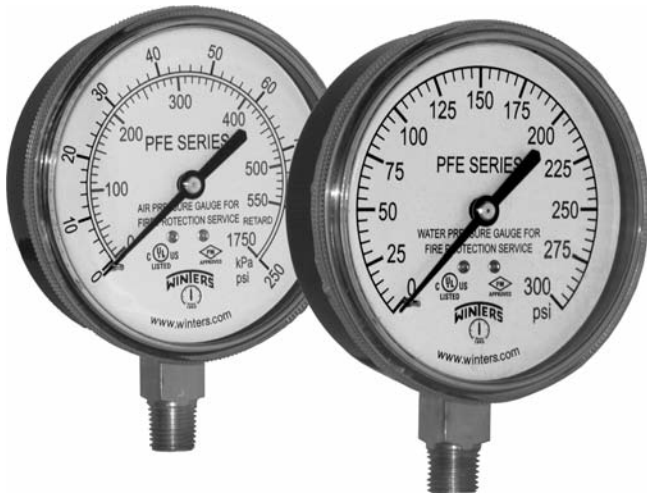
Panel cut-out
2.12"(54mm)
Outer diameter
2.29"(58mm)



2.5" Panel Mounted

Panel cut-out
2.44"(62mm)
Outer diameter
2.65"(67mm)

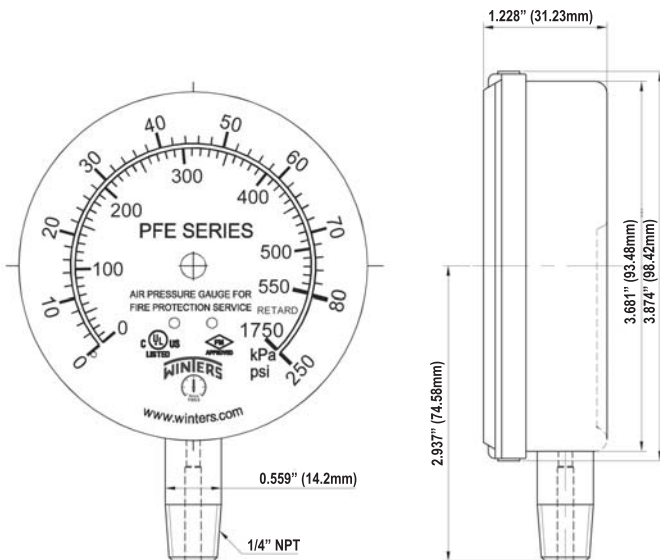




Description & Features:

- Specially designed for fire sprinkler systems
- Suitable for air and water media
- Corrosion resistant case
- Dual scale (psi/kpa) and single scale (psi) pressure ratings
- Approved by Factory Mutual (FM) and listed by Underwriter Laboratory (UL-393), USA and Canada
- Internal pointer travel over-stop
- CRN registered
- 5 year warranty

Specifications	
Dial	3.5" (90mm), white aluminum with black and red markings
Case	Black plastic
Lens	Polycarbonate, threaded
Socket	Brass
Connection	1/4" NPT standard, bottom
Bourdon Tube	Phosphor bronze
Movement	Brass
Pointer	Aluminum, black
Welding	Silver Alloy
Working Pressure	Maximum 75% of full scale value
Ambient/Process Temperature	-40°F to 150°F (-40°C to 65°C)
Accuracy	3-2-3% ASME Grade B
Enclosure Rating	IP52



Order Codes (products in bold are normally in stock)

Model	Air	Water	Air/Water
0/80/retard/250 psi	PFE3932R1	-	-
0/300 psi	-	PFE3933R1	PFE3935R1
0/80/retard/250 psi/kPa	PFE3932	-	-
0/300 psi/kPa	-	PFE3933	PFE3935



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 or lead free 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	PFQ: OT 58 brass or AISI 316 SS PFQ-LF: Lead free brass
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 or lead free 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

Stainless Steel Liquid Filled Gauge, Lead Free Stainless Steel Liquid Filled Gauge

**PFQ,
PFQ-LF**

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

Dial Size	1.5" (40mm)			
	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

PFQ, PFQ-LF

Stainless Steel Liquid Filled Gauge, Lead Free Stainless Steel Liquid Filled Gauge

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	PFQ2295R1	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:

20UC = 2" (52mm) U-Clamp
 2FF = 2" (52mm) 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

Stainless Steel Liquid Filled Gauge, Lead Free Stainless Steel Liquid Filled Gauge

PFQ, PFQ-LF

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" (52mm) U-Clamp

2FF = 2" (52mm) Front Flange

DRY = Supply 2" gauge less liquid fill

PFQ, PFQ-LF

Stainless Steel Liquid Filled Gauge, Lead Free Stainless Steel Liquid Filled Gauge

PFQ 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

PFQ-LF Dual 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/kPa	PFQ801LF	PFQ900LF
30"/0/15 psi/kPa	PFQ790LF	PFQ890LF
30"/0/30 psi/kPa	PFQ798LF	PFQ898LF
30"/0/60 psi/kPa	PFQ799LF	PFQ899LF
30"/0/100 psi/kPa	PFQ791LF	PFQ891LF
30"/0/150 psi/kPa	PFQ792LF	PFQ892LF
30"/0/200 psi/kPa	PFQ794LF	PFQ894LF
30"/0/300 psi/kPa	PFQ795LF	PFQ895LF
0/15 psi/kPa	PFQ800LF	PFQ901LF
0/30 psi/kPa	PFQ802LF	PFQ902LF
0/60 psi/kPa	PFQ803LF	PFQ903LF
0/100 psi/kPa	PFQ804LF	PFQ904LF
0/160 psi/kPa	PFQ805LF	PFQ905LF
0/200 psi/kPa	PFQ806LF	PFQ906LF
0/300 psi/kPa	PFQ807LF	PFQ907LF
0/400 psi/kPa	PFQ817LF	PFQ917LF
0/600 psi/kPa	PFQ808LF	PFQ908LF
0/1,000 psi/kPa	PFQ809LF	PFQ909LF
0/1,500 psi/kPa	PFQ816LF	PFQ914LF
0/2,000 psi/kPa	PFQ810LF	PFQ910LF
0/3,000 psi/kPa	PFQ811LF	PFQ911LF
0/5,000 psi/kPa	PFQ812LF	PFQ912LF
0/6,000 psi/kPa	PFQ814LF	PFQ915LF
0/7,500 psi/kPa	PFQ818LF	PFQ918LF
0/10,000 psi/kPa	PFQ813LF	PFQ913LF
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. **For options, attach suffix to end of order code: i.e. PFQ801-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

Stainless Steel Liquid Filled Gauge, Lead Free Stainless Steel Liquid Filled Gauge

PFQ,
PFQ-LF

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

Dial Size	2.5" (63mm)	
Connection	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	PFQ1524R1	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

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

Stainless Steel Liquid Filled Gauge, Lead Free Stainless Steel Liquid Filled Gauge

PFQ, PFQ-LF

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

Dial Size	4" (100mm)							
Connection	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

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

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

Dial Size	4" (100mm)			
	1/4" Bottom	1/4" Back (CB)	1/2" Bottom	1/2" Back (CB)
Movement, Socket, Tube	Brass	Brass	Brass	Brass
30" Hg Vac/kPa	PFQ700LF	PFQ730LF	PFQ1234LF	PFQ1285LF
30"/0/15 psi/kPa	PFQ701LF	PFQ731LF	PFQ1235LF	PFQ1286LF
30"/0/30 psi/kPa	PFQ702LF	PFQ732LF	PFQ1236LF	PFQ1287LF
30"/0/60 psi/kPa	PFQ703LF	PFQ733LF	PFQ1237LF	PFQ1288LF
30"/0/100 psi/kPa	PFQ704LF	PFQ734LF	PFQ1238LF	PFQ1289LF
30"/0/150 psi/kPa	PFQ705LF	PFQ735LF	PFQ1239LF	PFQ1290LF
30"/0/200 psi/kPa	PFQ706LF	PFQ736LF	PFQ1240LF	PFQ1291LF
30"/0/300 psi/kPa	PFQ707LF	PFQ737LF	PFQ1241LF	PFQ1292LF
0/15 psi/kPa	PFQ708LF	PFQ738LF	PFQ1242LF	PFQ1293LF
0/30 psi/kPa	PFQ709LF	PFQ739LF	PFQ1243LF	PFQ1294LF
0/60 psi/kPa	PFQ710LF	PFQ740LF	PFQ1244LF	PFQ1295LF
0/100 psi/kPa	PFQ711LF	PFQ741LF	PFQ1245LF	PFQ1296LF
0/160 psi/kPa	PFQ712LF	PFQ742LF	PFQ1246LF	PFQ1298LF
0/200 psi/kPa	PFQ713LF	PFQ743LF	PFQ1247LF	PFQ1524LF
0/300 psi/kPa	PFQ714LF	PFQ744LF	PFQ1248LF	PFQ1525LF
0/400 psi/kPa	PFQ715LF	PFQ745LF	PFQ1249LF	PFQ1526LF
0/600 psi/kPa	PFQ716LF	PFQ746LF	PFQ1250LF	PFQ1527LF
0/1,000 psi/kPa	PFQ724LF	PFQ192LF	PFQ717LF	PFQ747LF
0/1,500 psi/kPa	PFQ725LF	PFQ241LF	PFQ718LF	PFQ748LF
0/2,000 psi/kPa	PFQ726LF	PFQ242LF	PFQ719LF	PFQ749LF
0/3,000 psi/kPa	PFQ727LF	PFQ243LF	PFQ720LF	PFQ750LF
0/5,000 psi/kPa	PFQ728LF	PFQ244LF	PFQ721LF	PFQ751LF
0/6,000 psi/kPa	-	PFQ246LF	PFQ784LF	PFQ785LF
0/7,500 psi/kPa	-	PFQ247LF	-	-
0/10,000 psi/kPa	PFQ729LF	PFQ360LF	PFQ722LF	PFQ752LF
0/15,000 psi/kPa	-	PFQ361LF	PFQ723LF	PFQ753LF

Other ranges available upon request. **For options, attach suffix to end of order code: i.e. PFQ801LF-DRY for DRY CASE.**

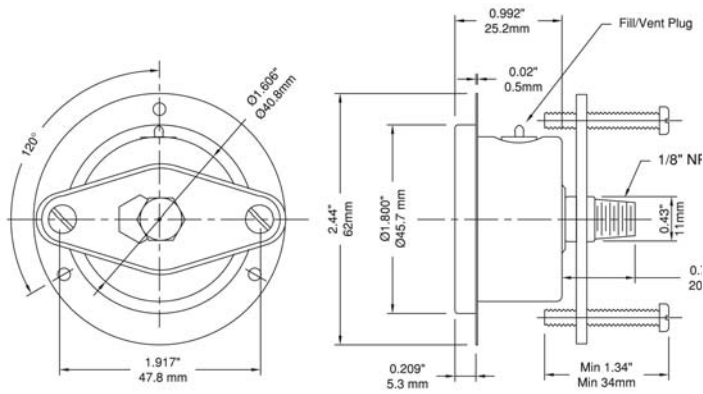
Option suffix:

- 4BF = 4" (100mm) Back Flange
- 4UC-P = 4" (100mm) U-Clamp
- 4DRY = Supply 4" gauge less liquid fill
- 4FF = 4" (100mm) Front Flange
- 4UC-Q = 4" (100mm) U-Clamp
- SF4 = Silicone fill

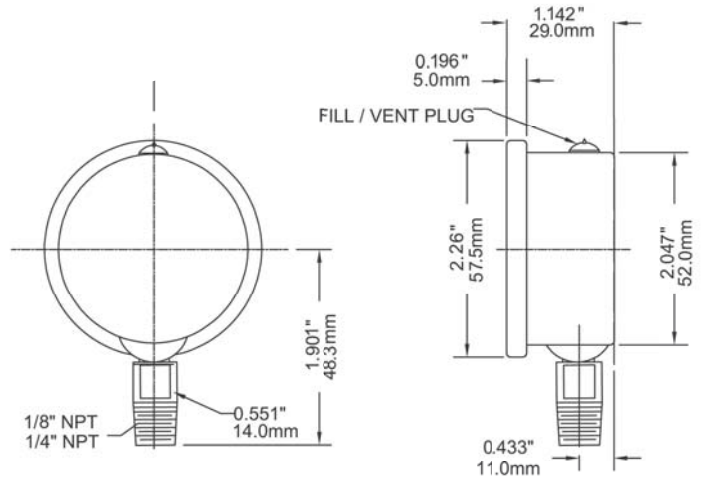
Stainless Steel Liquid Filled Gauge, Lead Free Stainless Steel Liquid Filled Gauge

PFQ,
PFQ-LF

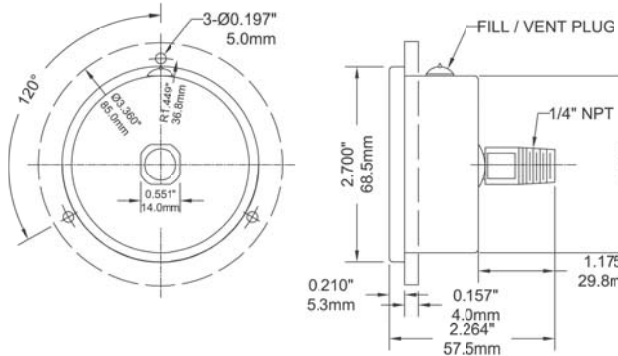
1.5" Back Connection with Front Flange and U-Clamp



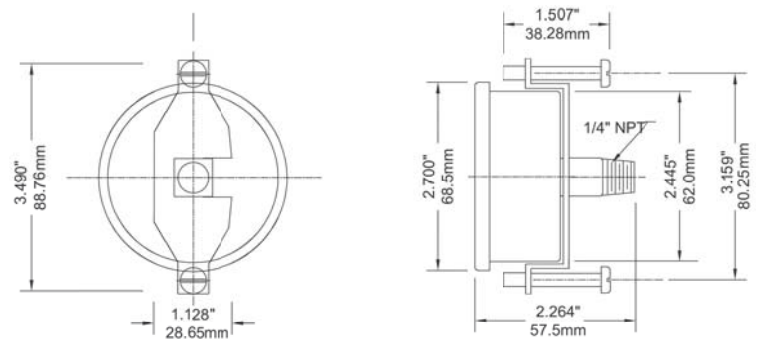
2" Bottom Connection



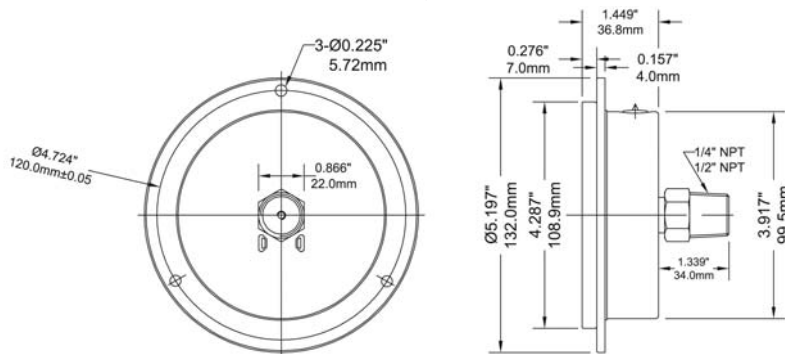
2.5" Back Connection with Front Flange

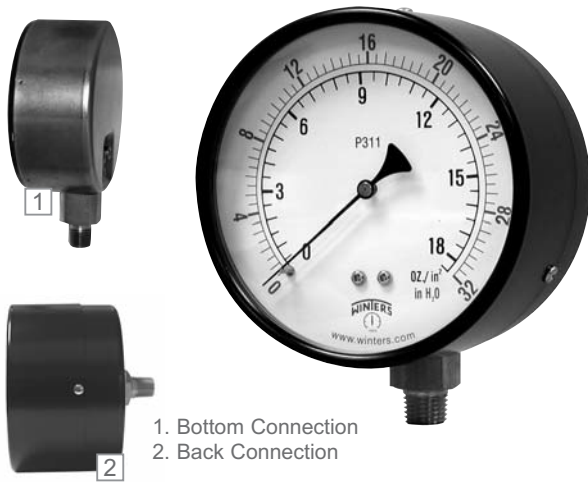


2.5" Back Connection with U-Clamp



4" Back Connection with Front Flange





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

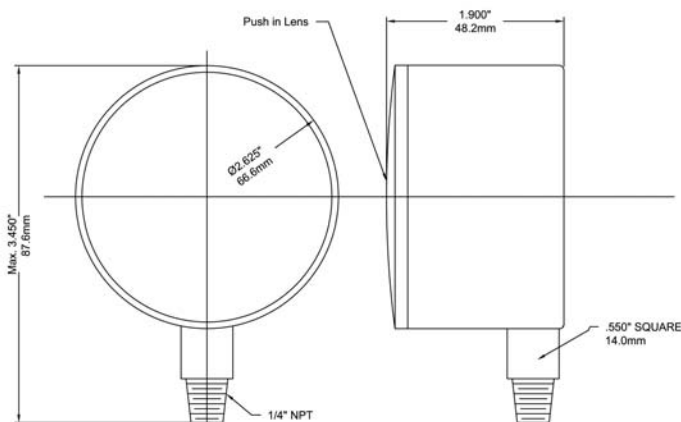
Dial Size	6" (150mm)			
Case Material	Aluminum		Aluminum	
Connection	Bottom 1/4"		Centre Back 1/4"	
Movement, Socket, Capsule	Brass	SS	Brass	SS
0/15" water/vac	PLP4310V	PLP4320V	-	-
0/32" water/vac	PLP4311V	PLP4321V	-	-
0/55" water/vac	PLP4312V	PLP4322V	-	-
0/100" water/vac	PLP4313V	PLP4323V	-	-
0/200" 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.**

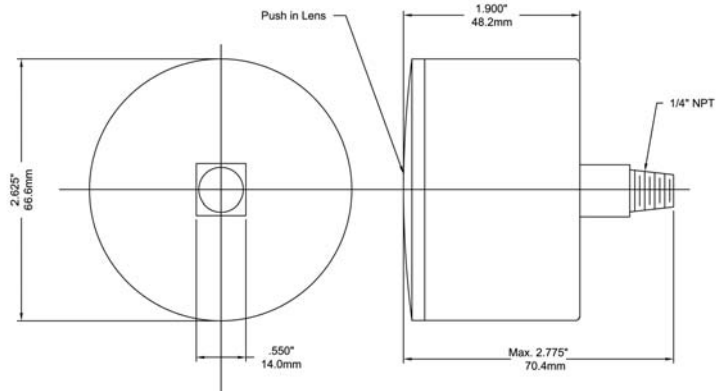
Option suffix:

- 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

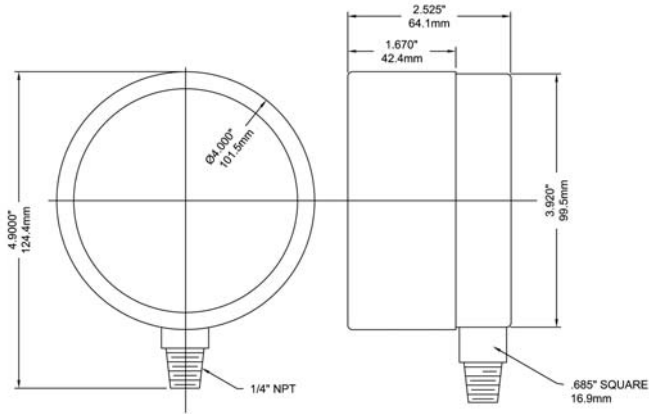


2.5" Back Connection Brass

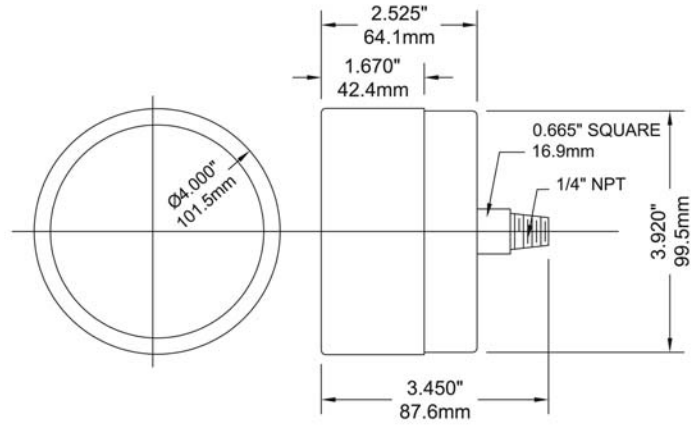


PLP Low Pressure Gauge

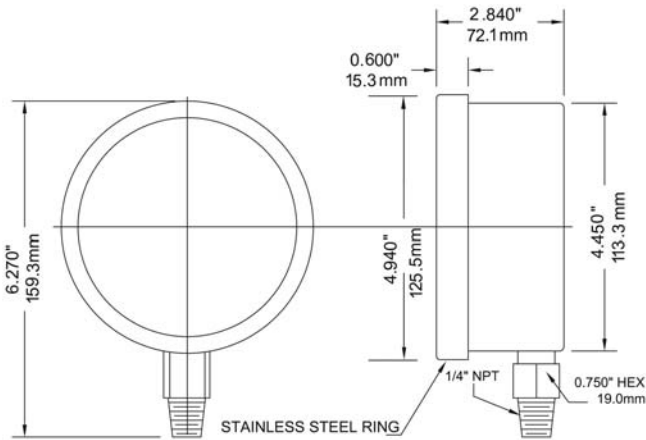
4" Bottom Connection Brass



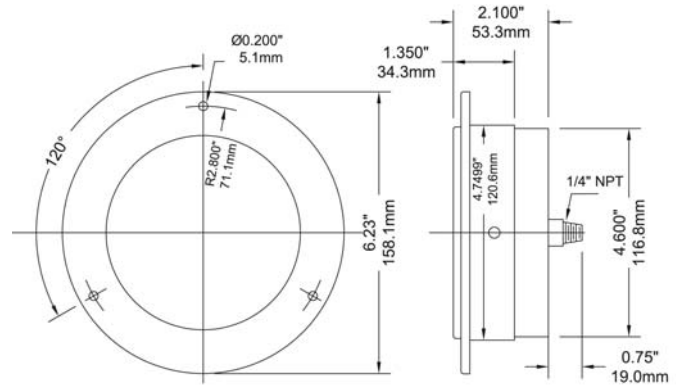
4" Back Connection Brass



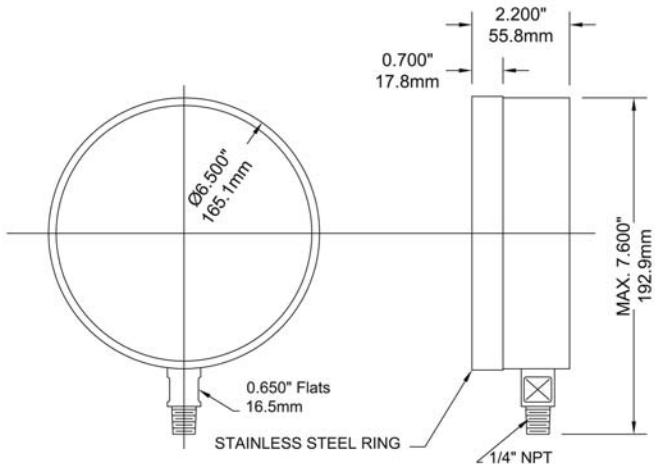
4.5" Bottom Connection Stainless Steel



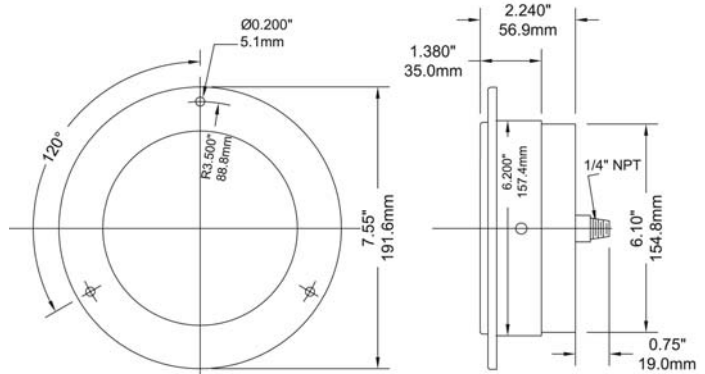
4.5" Back Connection Stainless Steel with Front Flange



6" Bottom Connection Stainless Steel



6" Back Connection Stainless Steel





Description & Features:

- Low pressure gauge built into protective case for ease in use and durability
- Sensitive diaphragm gauge available in 3 pressure ranges
- Re-zero with external recalibration screw
- Easier to use than a manometer
- Plastic blow molded case for added durability
- Sleek design featuring secure latch
- Facilitates safe handling
- CRN registered
- 5 year warranty

Applications:

- For checking low pressure (i.e. on natural gas equipment)

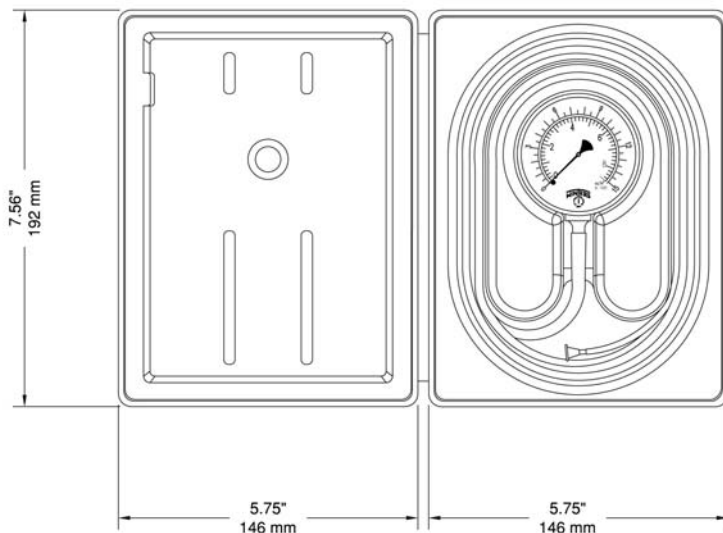
	Gauge Specifications
Dial	2.5" (63mm), white aluminum dial with red and black markings
Case/Ring	Steel, painted black
Lens	Polycarbonate
Connection	Brass hose barb (1/4")
Diaphragm Element	Phosphor bronze
Movement	Engineering plastic upper and lower plate with brass pinion and sector, with zero adjustment
Ambient Temperature	-40°F to 150°F (-40°C to 65°C)
Accuracy	±3-2-3% ANSI/ASME Grade B
Enclosure Rating	IP52

	Case Specifications
Tube Nipple	Rubber: 0.256" (6.5mm) ID x 0.472" (12mm) OD x 1.339" (34mm) L
Case Material	Plastic blow molded: 5.75" x 7.56" (146mm x 192mm)
Hose Tube	Rubber: 3' (91cm) in length; 0.197" (5mm) ID x 0.315" (8mm) OD

Order Codes (products in bold are normally in stock)

Pressure Range	Code
0/15" water/oz/in ²	PLT15
0/35" water/0/20 oz/in ²	PLT35
0/100" water/0/58 oz/in ²	PLT100

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



PPC Process Gauge



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
- $\pm 0.5\%$ 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	$\pm 0.5\%$ ANSI/ASME Grade 2A	$\pm 0.5\%$ 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.

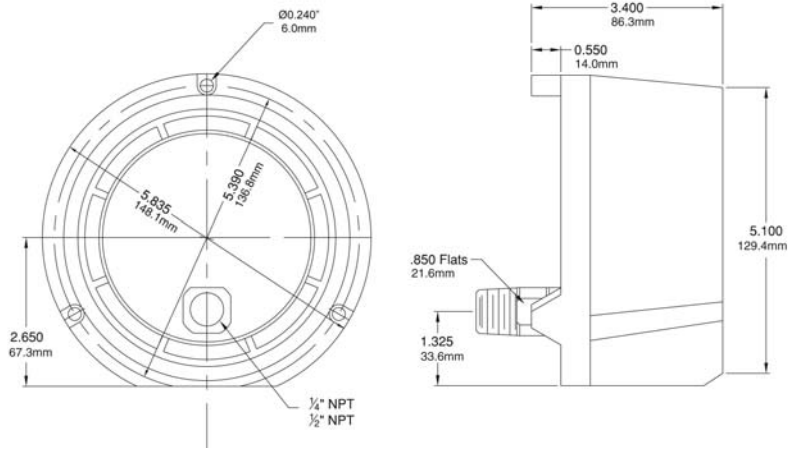
Option suffix:

- 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

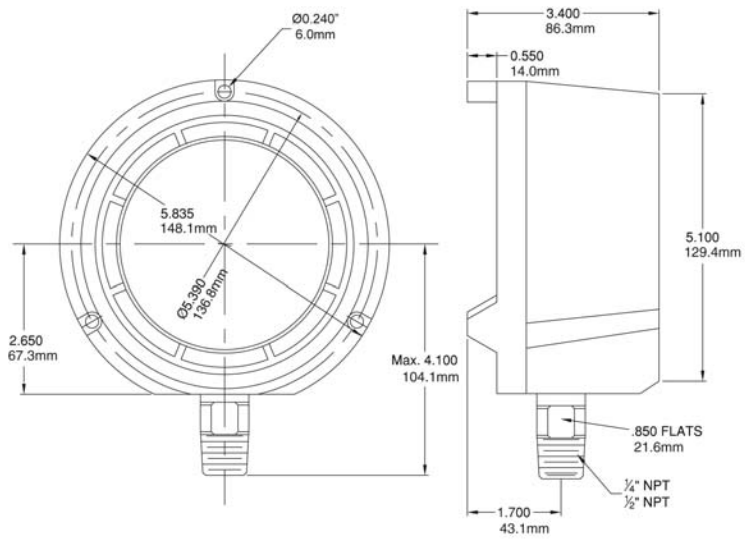
Dual Scale Order Codes (products in bold are normally in stock)

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





Kit contents

1. Gauge
2. Gauge Adaptors
3. Bimetal Pocket Thermometer 0°F to 250°F (-17°C to 121°C)
4. Bimetal Pocket Thermometer -40°F to 160°F (-40°C to 71°C)
5. Carrying Case

Description & Features:

- A portable kit with durable carrying case to protect the test instruments between uses and test locations
- Includes two thermometers for high or low temperature tests
- Pressure gauge includes secondary adjustable set pointer to assist the operator in pressure test evaluations
- Hardened stainless steel gauge adaptor probe for test plug insertion
- Eliminates the need for costly, permanently installed pressure gauges or recording devices
- Multi-scale (psi/ft H₂O/kPa/meters H₂O) pressure gauge dial face for acceptance in a variety of applications
- CRN registered
- 5 year warranty

Applications:

- To determine pressure or temperature levels where test plugs are installed in the process
- Used at start-up or periodic testing of pipelines or pressure vessels
- Chilled and hot water systems, refrigeration and hydronics, pneumatics, prototype equipment, new building construction, building maintenance

Component Specifications

Case	Black plastic with custom cut foam inserts for parts
Pressure Gauge	3.5" (90mm) dial, brass wetted, 0-100 psi/Ft H ₂ O/kPa/meters H ₂ O, 1/4" NPT bottom with attached gauge adaptor ±2-1-2% ANSI/ASME Grade A, Red stationary pointer
Gauge Adaptors (picture #2)	1.75" x 0.125" SS probe with 1/4" FNPT swivel gauge fitting
Thermometer (picture #3)	1" (25mm) dial, 5" x 0.142" (127mm x 3.6mm) stem, includes plastic sheath ±1% accuracy Range: 0°F to 250°F (-17°C to 121°C)
Thermometer (picture #4)	1" (25mm) dial, 5" x 0.142" (127mm x 3.6mm) stem, includes plastic sheath ±1% accuracy Range: -40°F to 160°F (-40°C to 71°C)

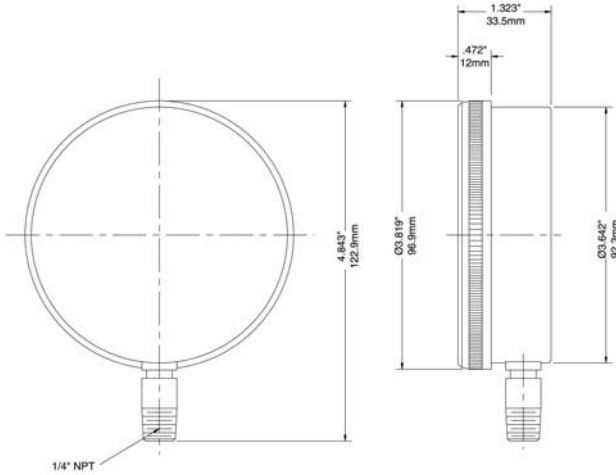
Order Codes

Kit Code
PTK1500

PTK Pressure and Temperature Kit

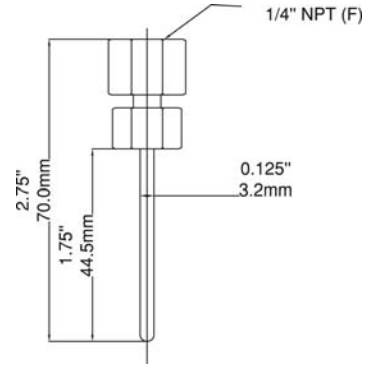
Code	Specifications Pressure Gauge
P9S90223R99STAT	3.5", 1/4 NPT bottom, 0/100 psi

Note: Contact Winters for gauges under 500 psi



Code	Specifications Gauge Adaptor
STP003	2.75" x 1.75" x 0.125" probe

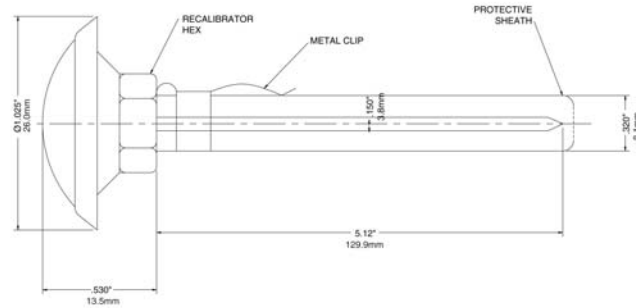
Optional Adaptor: STP004 = 2.25" x 1.75" x 0.125" probe



Bimetal Pocket Thermometers		
Product Code	Temperature Range	Specifications
TBM10050B15	-40°F to 160°F only	1" dial, 5" stem
TBM10050B19	0°F to 250°F only	1" dial, 5" stem

Optional Pocket Thermometers:

- TBM10050B14 = -40° to 120° F (F only)
- TBM10050B17 = 0° to 200° F (F only)
- TBM10050B22 = 50° to 550° F (F only)
- TBM10050B4 = -40° to 160°F (Dual scale)
- TBM10050B8 = 0° to 250° F (Dual scale)
- TBM10050B11 = 50° to 550° F (Dual scale)
- TBM10050B12 = 150 to 750° F (Dual scale)
- TBM10050B31 = -20° to 120° C (C only)
- TBM10050B33 = 0° to 200° C (C only)





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
- ±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 / Vs = 8-32 Vdc Optional 3-wire: 0-10 V / Vs = 14-30 Vdc Optional 3-wire ratiometric: Vsig = 0.5-4.5 Vs / Vs = 5 ± 0.5 Vdc
Accuracy	±0.5% FSO
Permissible Load	2-wire: Rmax = [(Vs - Vs min) / 0.02] Ohm 3-wire: Rmin = 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	<±0.5% 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 ₂ O 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	<±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

Viton® is a registered trademark of DuPont Performance Elastomers

LE3 General Purpose Transmitter

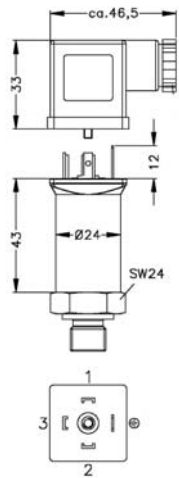
Order Codes (products in bold are normally in stock)

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

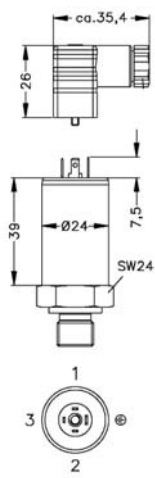
Electrical Connection

Standard

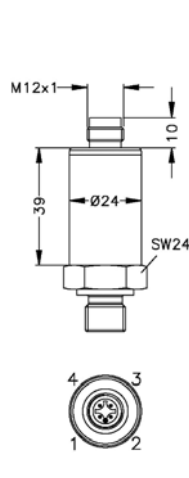


ISO 4400
(IP 65)

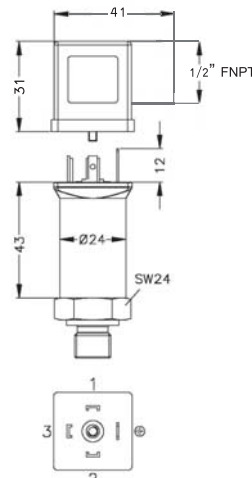
Optional



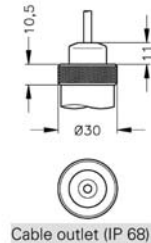
Micro, contact
distance 9.4 mm (IP 65)



M12x1, 4-pin
(IP 67)



DIN 43650 A
1/2" NPTF conduit fitting

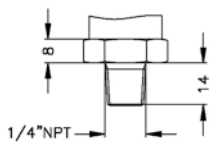


Cable outlet (IP 68)

5 Different cable types/lengths available

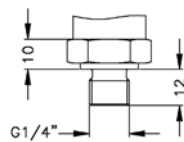
Mechanical Connection

Standard



1/4" NPT

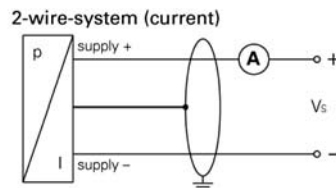
Optional



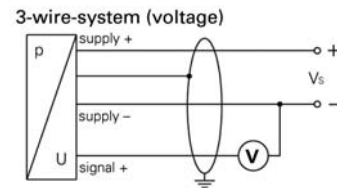
G1/4" DIN 3852

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

Thermometer Selection Guide



Catalogue Page	Series	Dial Size									Scale Size				Case Material				Wetted Parts		Connection Size			Accuracy									
		≤2"	2.5"	3"	3.5"	4"	4.5"	5"	≥6"	4.5"	5"	6"	8"	9"	Steel	SS	Aluminum	Valox®	Plastic	Brass	SS	1/4" NPT	1/2" NPT	3/4" NPT	0.5% and better (2A-4A)	1% (Grade A)	2% (Grade B)	2.5% (Grade B)	3% (Grade B)	With Thermowell	RoHS Compliant	Lead Free	
56	TAG HVAC Gold Case Thermometer								X		X					X			X	X		X				X				X			
58	TAS Industrial 5AS Thermometer									X								X	X			X					X			X	X		
58	TAS-LF Lead Free Industrial 5AS Thermometer									X								X	X			X					X			X	X		
60	TBM Bi-Metal Thermometer	X		X		X		X	X							X					X	X	X			X				X			
65	TBT HVAC Bi-Metal Thermometer				X										X					X			X				X						
66	TCT Clamp-On Thermometer		X												X														X				
67	THR HVAC Remote Reading Thermometer	X	X													X				X								X					
69	TIM Industrial 9IT Thermometer											X				X	X			X			X			X			X	X			
69	TIM-LF Lead Free Industrial 9IT Thermometer											X				X	X			X			X			X			X	X			
71	TMT Surface Magnet Thermometer	X													X												X						
72	TRR Remote Reading Thermometer		X		X	X	X		X						X	X	X			X	X		X	X	X		X			X			
76	TSD Industrial 9IT Solar Digital												X						X	X			X			X			X	X			
78	TSW Hot Water Thermometer	X	X									X			X	X				X		X				X			X				
78	TSW-LF Lead Free Hot Water Thermometer	X	X									X			X	X				X		X				X			X			X	
80	TTD Tridicator		X	X											X					X		X	X					X					

Valox® is a registered trademark of the General Electric Company

TAG HVAC Gold Case Thermometer



Description & Features:

- Available in 4.5" (110mm) or 6" (150mm) scales
- Offers ruggedness and durability in harsh industrial environments
- Brass socket 1/2" NPT is standard (stainless steel optional)
- Available in either a straight model (bottom connection) or 90° angle model (back connection)
- 5 year warranty

Applications:

- Heating, plumbing, air conditioning and ventilation applications

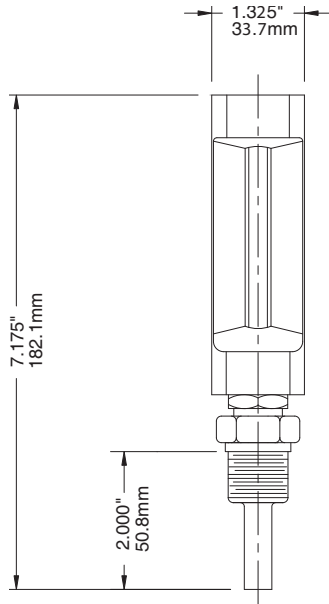
Specifications	
Scale	Aluminum, black markings
Case	4.5" (110 mm), 6" (150 mm) aluminum, anodized gold
Tube	Glass cushioned
Liquid Filling	Organic liquid (red)
Stem	Brass (stainless steel optional)
Connection	1/2" NPT (1/2" BSP optional)
Swivel Nut	Brass (SS optional; swivel and stem one unit)
Ambient/Process Temperature	-40°F to 400°F (-40°C to 200°C)
Operating Temperature	Maximum 80% of full scale value recommended
Accuracy	±2% of full scale
Enclosure Rating	IP65

Order Codes (products in bold are normally in stock)

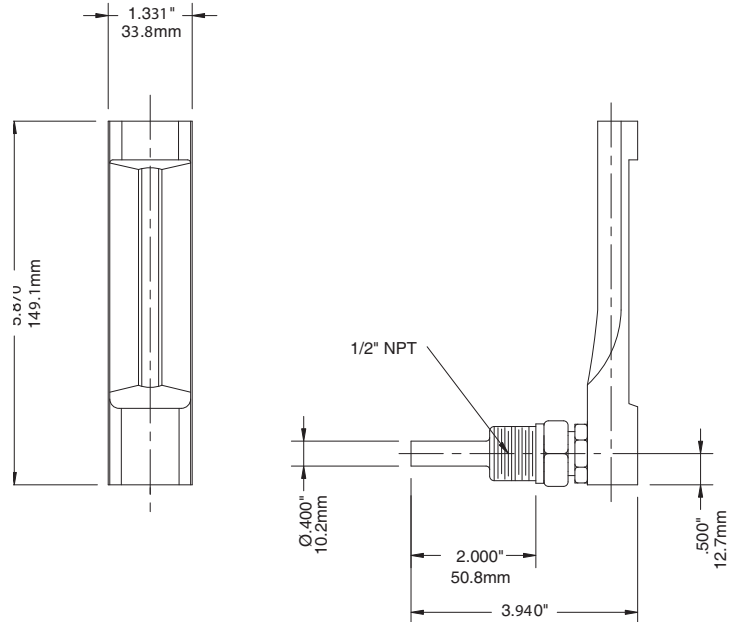
Ranges	Straight		Angle	
	4.5" (110mm)	6" (150mm)	4.5" (110mm)	6" (150mm)
-40°F to 110°F & -40°C to 40°C	TAG130AG4	TAG130AG6	TAG140AG4	TAG140AG6
20°F to 180°F & -5°C to 80°C	TAG131AG4	TAG131AG6	TAG141AG4	TAG141AG6
30°F to 240°F & 0°C to 115°C	TAG132AG4	TAG132AG6	TAG150AG4	TAG150AG6
30°F to 300°F & 0°C to 150°C	TAG134AG4	TAG134AG6	TAG143AG4	TAG143AG6
50°F to 400°F & 10°C to 200°C	TAG133AG4	TAG133AG6	TAG142AG4	TAG142AG6

Other ranges and connection sizes available upon request. 304 SS thermowell available upon request.

4.5" Straight



6" Angle





Note: RoHS applies only to SS thermowell

Description & Features:

- An all-purpose, economical thermometer with a vertical sensing tube and case
- Separable brass, lead free brass or stainless steel thermowell
- Impact resistant ABS case
- Red liquid-in glass
- Dual scale (°F & °C)
- Back or bottom connected
- ½" NPT process connection
- 5 year warranty

Applications:

- Hot water lines, boilers, heating, ventilation and air conditioning

Specifications	
Scale	Aluminum, painted white with black markings
Case	5" (125mm) black ABS
Lens	Glass
Tube	Glass, cushioned
Sensing Liquid	Kerosene, tinted red
Stem	Brass
Swivel Nut	Brass
Thermowell	TAS: Brass ½" NPT standard, (SS optional) TAS-LF: Lead free brass ½" NPT
Operating Pressure	Maximum 710 psi (50 kg/cm ²)
Ambient Temperature	-40°F to 122°F (-40°C to 50°C)
Process Temperature	-40°F to 400°F (-40°C to 200°C)
Accuracy	±2% of full scale
Enclosure Rating	IP50

Industrial 5AS Thermometer Lead Free Industrial 5AS Thermometer

TAS, TAS-LF

TAS Order Codes (products in bold are normally in stock)

Ranges	Straight	Angle
-40°F to 110°F & -40°C to 40°C	TAS130	TAS140
20°F to 180°F & -5°C to 80°C	TAS131	TAS141
30°F to 240°F & 0°C to 115°C	TAS132	TAS150
30°F to 300°F & 0°C to 150°C	TAS134	TAS143
50°F to 400°F & 10°C to 200°C	TAS133	TAS142

Thermowell

Connection	Material	Code
1/2" NPT - Standard (Included with thermometer)	Brass	TAS62
1/2" NPT - Optional	304 SS	TAS62-1
3/4" NPT - Optional	Brass	TAS64
3/4" NPT - Optional	304 SS	TAS64-1

TAS-LF Order Codes (products in bold are normally in stock)

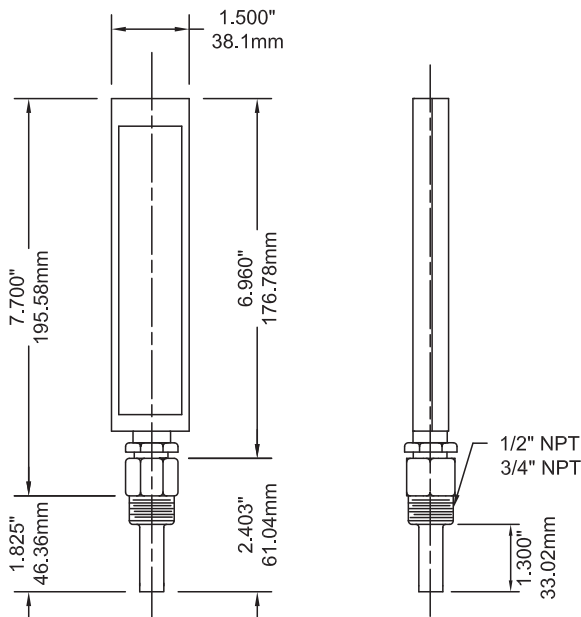
Ranges	Straight	Angle
-40°F to 110°F & -40°C to 40°C	TAS130LF	TAS140LF
20°F to 180°F & -5°C to 80°C	TAS131LF	TAS141LF
30°F to 240°F & 0°C to 115°C	TAS132LF	TAS150LF
30°F to 300°F & 0°C to 150°C	TAS134LF	TAS143LF
50°F to 400°F & 10°C to 200°C	TAS133LF	TAS142LF

Thermowell

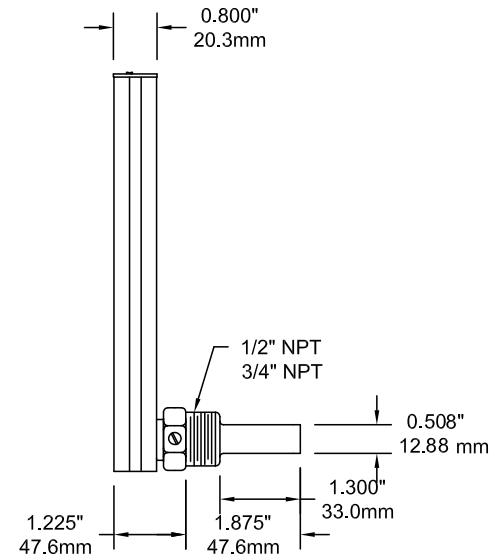
Connection	Material	Code
1/2" NPT - Standard (Included with thermometer)	Lead Free Brass	TAS62LF
3/4" NPT - Optional	Lead Free Brass	TAS64LF

Other ranges and connection sizes available upon request. 304 SS thermowell available upon request. Plastic lens available upon request. 3/4" NPT connection available upon request.

Straight



Angled



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	$\pm 1\%$ of full scale
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

Available Ranges					
°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
14°F to 140°F & -10°C to 60°C	B37	14°F to 140°F	B38	-10°C to 60°C	B40
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 120°C	B37
200°F to 1,000°F & 100°C to 540°C	B13	-	-	0°C to 400°C	B38
-	-	-	-	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

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

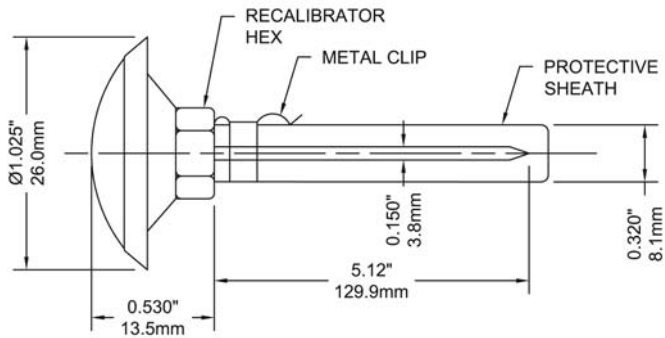
3" (75mm) Dial, Fixed Centre Back				
Temperature Range	2.5" Stem Length Code	4" Stem Length Code	6" Stem Length Code	9" Stem Length Code
-40°F to 120°F&C	TBM30025B2	TBM30040B2	TBM30060B2	TBM30090B2
0°F to 140°F&C	TBM30025B3	-	-	-
-40°F to 160°F&C	TBM30025B4	TBM30040B4	TBM30060B4	-
0°F to 200°F&C	TBM30025B6	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	-

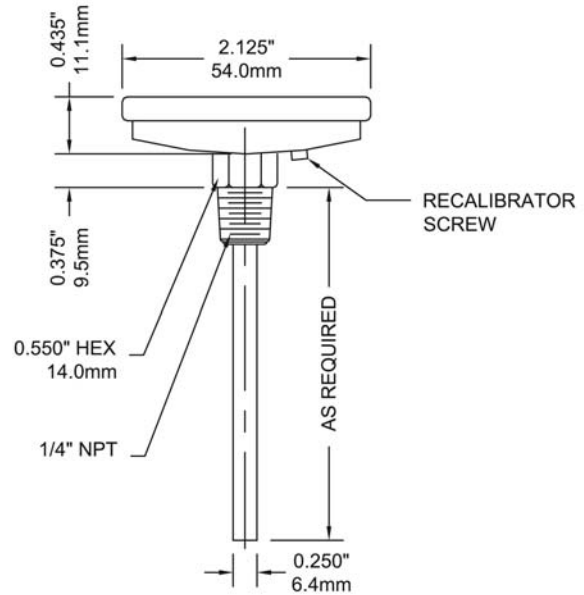
3" (75mm) Dial, Adjustable Angle				
Temperature Range	2.5" Stem Length Code	4" Stem Length Code	6" Stem Length Code	9" Stem Length Code
-40°F to 120°F&C	TBM32025B2	-	-	-
0°F to 140°F&C	TBM32025B3	TBM32040B3	TBM32060B3	-
-40°F to 160°F&C	TBM32025B4	TBM32040B4	TBM32060B4	TBM32090B4
0°F to 200°F&C	TBM32025B6	TBM32040B6	TBM32060B6	TBM32090B6
20°F to 240°F&C	TBM32025B7	TBM32040B7	TBM32060B7	TBM32090B7
0°F to 250°F&C	TBM32025B8	TBM32040B8	TBM32060B8	-
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	-	-	-	-

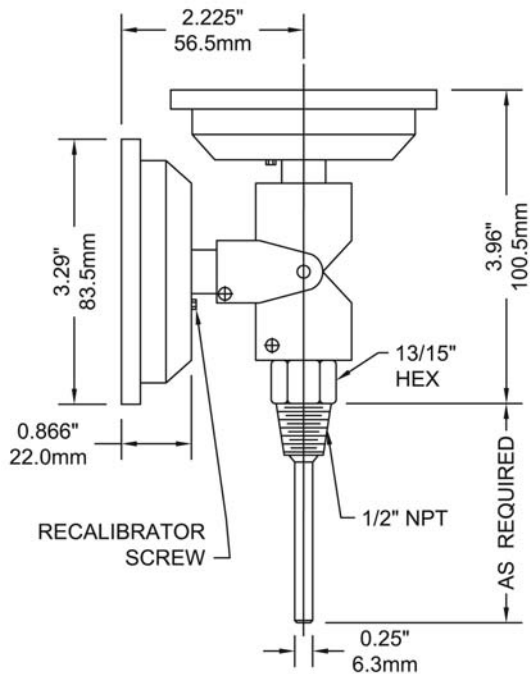
1" Back Connection



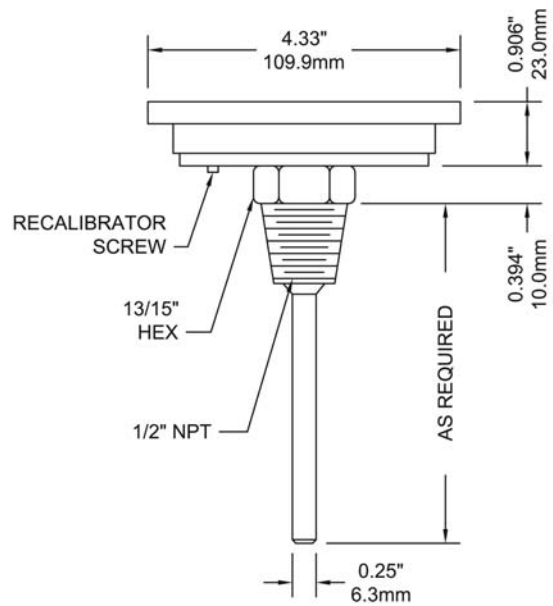
2" Back Connection



3" Adjustable Angle Connection

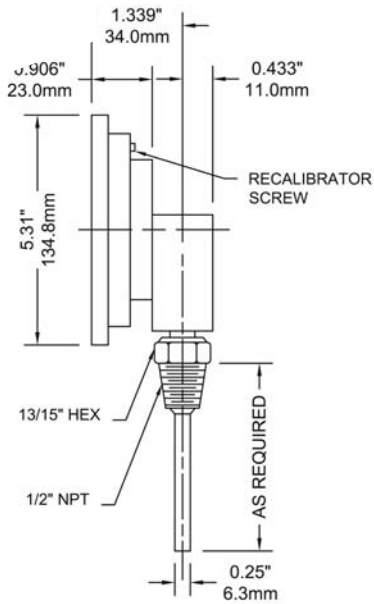


4" Back Connection

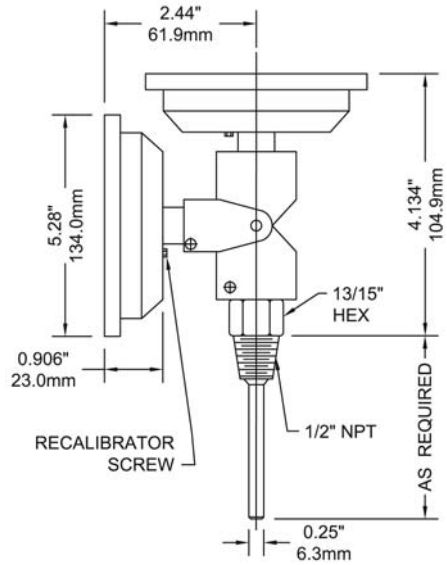


TBM Bi-Metal Thermometer

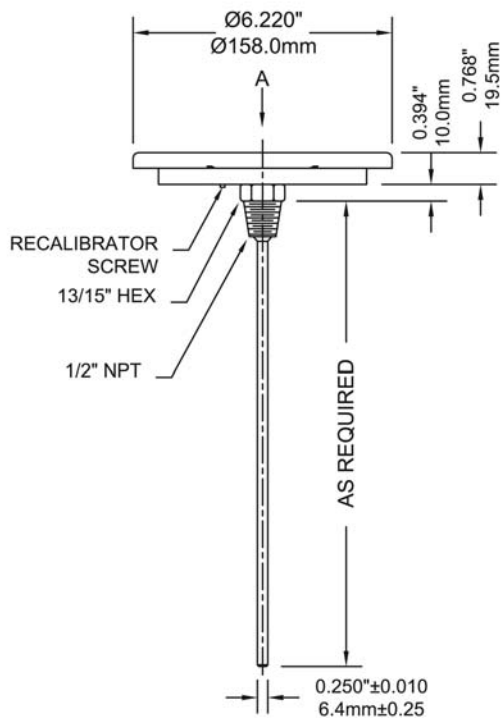
5" Bottom Connection



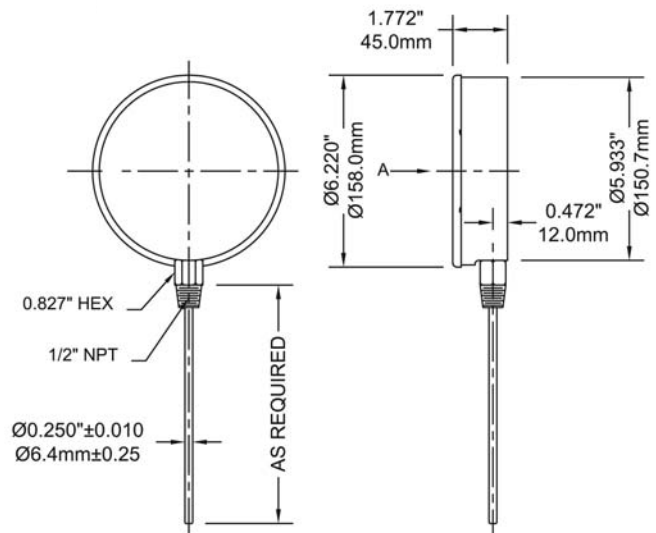
5" Adjustable Angle Connection



6" Back Connection



6" Bottom Connection





Description & Features:

- A durable and accurate thermometer with a rigid connection
- Separable thermowell
- Rugged steel case
- Bi-metallic element
- Dual scale (°F & °C)
- Back or bottom connected
- 1/2" NPT process connection
- 5 year warranty

Applications:

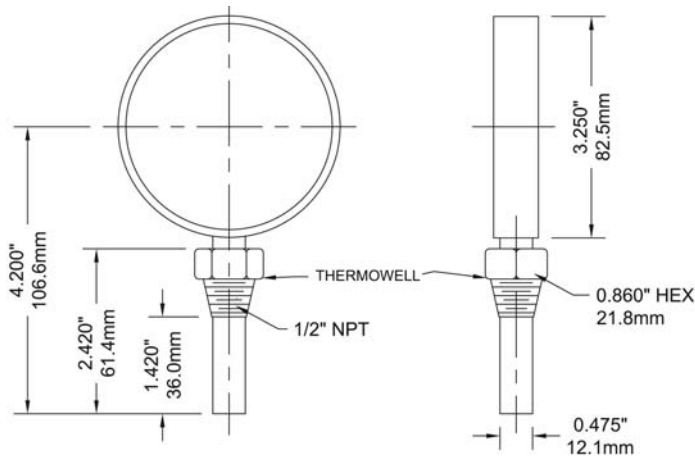
- Hot water lines, boilers and hydronic heating

Specifications	
Dial	3.5" (90mm), aluminum with black markings
Case	Steel
Lens	Glass
Ring	Steel chrome plated
Stem	Brass
Thermowell	Brass, 1/2" NPT (standard), separable
Recalibrator	Standard
Sensing Element	Bi-metallic coil
Pointer	Aluminum, painted black
Over Range Enclosure Rating	±25% of full scale value
Reset	Standard
Ambient Temperature	-22°F to 158°F (-30°C to 70°C)
Process Temperature	-22°F to 250°F (-30°C to 120°C)
Accuracy	±2% of full scale
Enclosure Rating	IP50

Order Codes (products in bold are normally in stock)

	Bottom	Back
30°F to 250°F & 0°C to 121°C	TBT165	TBT160
0°F to 120°F	-	TBT161

Other ranges and connection sizes available upon request.



TCT Clamp-On Thermometer



Description & Features:

- Provides an economical and accurate method to measure surface temperatures on a 1/2" (12.5mm) to 4" (100mm) pipe
- Clamp-on design with steel spring
- Dual scale (°F & °C)
- 3 ranges available
- Easy to install
- 5 year warranty

Applications:

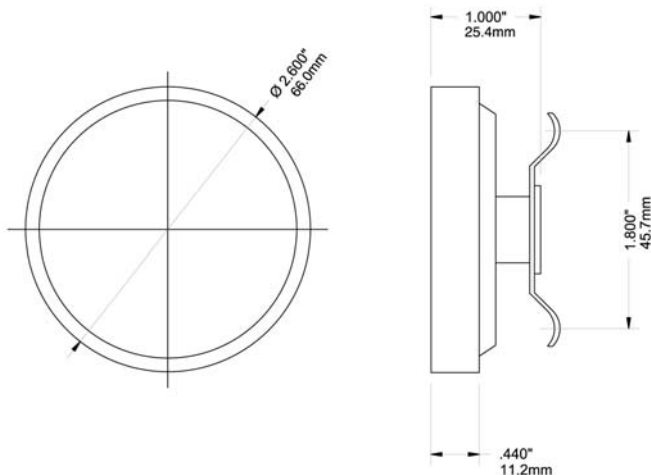
- To measure surface temperature on pipe in the heating, ventilation, air conditioning, wastewater, industrial process markets

Specifications	
Dial	2.5" (63mm) aluminum with black markings
Case	Mild steel
Lens	Plexiglass
Ring	Steel, chrome plated
Sensing Element	Bi-metallic coil
Pointer	Aluminum, painted black
Over-Range Enclosure Rating	25% of full scale value
Ambient/Process Temperature	-40°F to 390°F (-40°C to 200°C)
Accuracy	±3% of full scale
Enclosure Rating	IP52

Order Codes (products in bold are normally in stock)

Range	Code
-40°F to 110°F & -40°C to 40°C	TCT166
30°F to 250°F & 0°C to 120°C	TCT167
30°F to 390°F & 0°C to 200°C	TCT168

Other ranges and connection sizes available upon request.





Description & Features:

- An economical thermometer for remote reading applications
- Stainless steel case
- Vapour actuated
- Panel mounted (Front Flange or U-Clamp)
- Dual scale (°F & °C)
- 9 feet capillary length
- 5 year warranty

Applications:

- Freezers, walk-in refrigeration units, food storage cabinets, heating and ventilation. Widely specified in the HVAC, commercial and mechanical industry segments

Specifications	
Dial	Aluminum, painted white with black markings
Case	2" (50mm): SS front flange, SS U-Clamp case 2.5" (63mm): SS front flange, SS U-Clamp case
Lens	Plexiglass
Bourdon Tube	Phosphor bronze
Movement	Brass
Pointer	Aluminum, painted black
Welding	Silver alloy
Capillary	9 feet (3m) nickel plated brass
Protective Spring	SS
Bulb	Nickel plated brass
Operating Temperature	Recommended maximum 75% of full scale value
Accuracy	±2.5% of full scale
Enclosure Rating	IP52

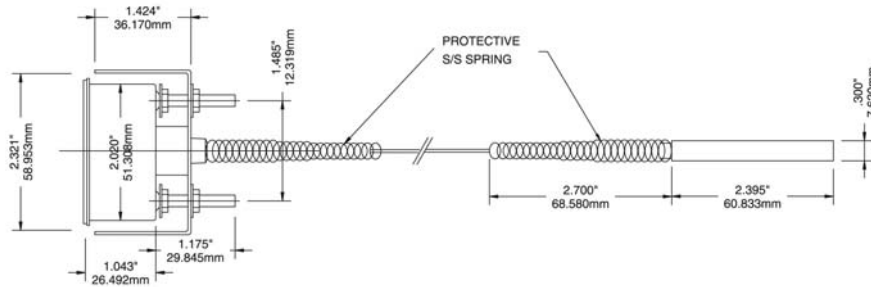
Order Codes

Dial Size	Panel Cut-out	Case Material	Case Style	Range	Code
2" (50mm)	2.05" (52mm)	SS	Front Flange	-40°F to 60°F & -40°C to 15°C	THR2214090R4
2" (50mm)	2.05" (52mm)	SS	Front Flange	-20°F to 120°F & -30°C to 50°C	THR2214090R5
2" (50mm)	2.05" (52mm)	SS	U-Clamp	-40°F to 60°F & -40°C to 15°C	THR2514090R4
2" (50mm)	2.05" (52mm)	SS	U-Clamp	-20°F to 120°F & -30°C to 50°C	THR2514090R5
2.5" (63mm)	2.55" (64mm)	SS	Front Flange	-40°F to 60°F & -40°C to 15°C	THR3214090R4
2.5" (63mm)	2.55" (64mm)	SS	Front Flange	-20°F to 120°F & -30°C to 50°C	THR3214090R5
2.5" (63mm)	2.55" (64mm)	SS	U-Clamp	-40°F to 60°F & -40°C to 15°C	THR3514090R4
2.5" (63mm)	2.55" (64mm)	SS	U-Clamp	-20°F to 120°F & -30°C to 50°C	THR3514090R5

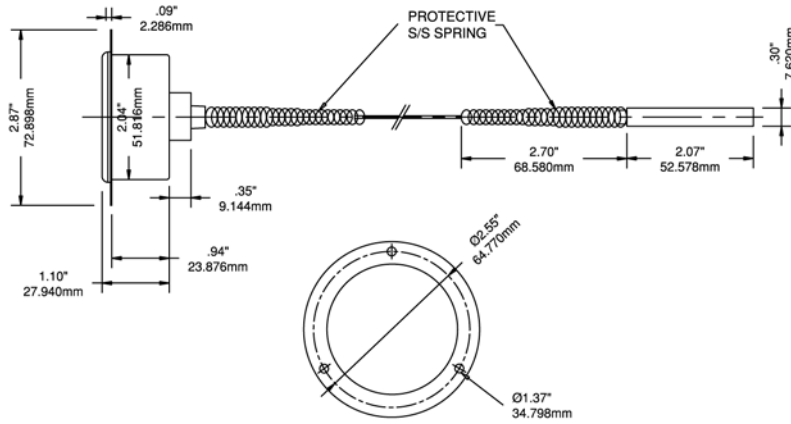
Other ranges and connection sizes available upon request.

THR HVAC Remote Reading Thermometer

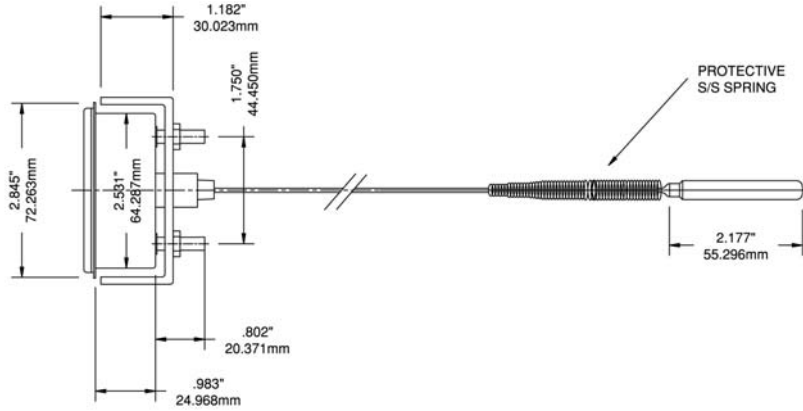
2" with U-Clamp



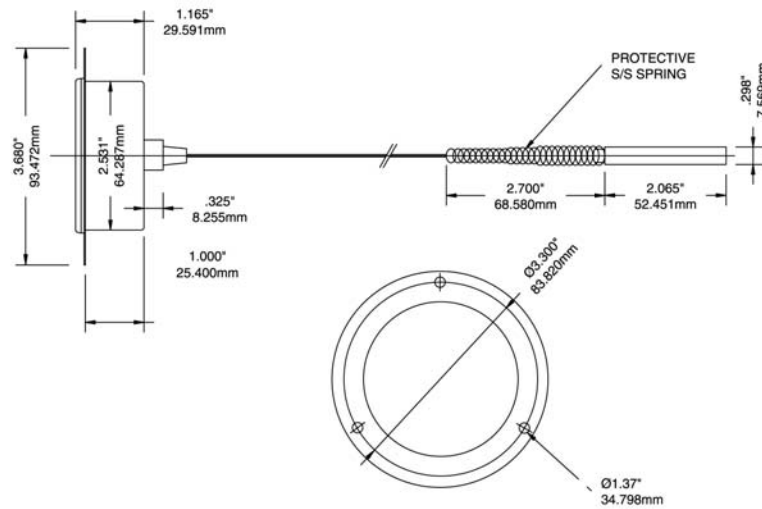
2" with Front Flange



2.5" with U-Clamp



2.5" with Front Flange



Industrial 9IT Thermometer Lead Free Industrial 9IT Thermometer

TIM, TIM-LF



Note: RoHS applies only with SS TIW thermowell

Description & Features:

- Widely specified in the industrial and commercial plumbing trade
- Includes a separable brass or lead free brass thermowell
- 3.5" (90mm) and 6" (160mm) stem
- Available in aluminum or Valox® (9") case
- Organic filled tube (non-mercury)
- Dual scale (°F & °C)
- Vari-angle connection and 360 degree case rotation for easy installation
- Graphite filled bulb chamber for maximum heat conduction
- ±1% accuracy
- 5 year warranty

Applications:

- New construction, plumbing, water lines, boilers, heating, ventilation and air conditioning

Specifications	
Scale	9" (230mm) aluminum or Valox® case, impact resistant
Lens	Glass
Connection	3/4" NPT with thermowell 1 1/4" - 18 UNEF swivel nut (no thermowell)
Scales	Aluminum painted white with black markings
Bulb Chamber	Tapered cast aluminum with graphite fill
Sensing Liquid	Organic fluid
Adjustment	Fully adjustable
Thermowell	TIM: 3/4" brass separable socket, (SS optional) TIM-LF: 3/4" Lead free brass separable socket
Accuracy	±1%
Enclosure Rating	IP54

Note: For an Industrial 9IT Thermowell, please refer to the Industrial 9IT Thermowell product page

TIM Order Codes (products in bold are normally in stock)

Stem	Aluminum Case		Valox® Case	
	3.5" (75mm)	6" (150mm)	3.5" (75mm)	6" (150mm)
-40°F to 110°F & -40°C to 40°C	TIM101A	TIM101-6A	TIM101	TIM101-6
0°F to 120°F & -15°C to 50°C	TIM102A	TIM102-6A	TIM102	TIM102-6
0°F to 160°F & -15°C to 70°C	TIM103A	TIM103-6A	TIM103	TIM103-6
30°F to 180°F & 0°C to 80°C	TIM104A	TIM104-6A	TIM104	TIM104-6
30°F to 240°F & 0°C to 115°C	TIM100A	TIM100-6A	TIM100	TIM100-6
30°F to 300°F & 0°C to 150°C	TIM105A	TIM105-6A	TIM105	TIM105-6

Other ranges and connection sizes available upon request. Duct flange available upon request. Union connection available upon request.

TIM, Industrial 9IT Thermometer, TIM-LF Lead Free Industrial 5AS Thermometer

TIM-LF Order Codes (products in bold are normally in stock)

Stem	Aluminum Case		Valox® Case	
	3.5" (90mm)	6" (150mm)	3.5" (90mm)	6" (150mm)
-40°F to 110°F & -40°C to 40°C	TIM101ALF	TIM101-6ALF	TIM101LF	TIM101-6LF
0°F to 120°F & -15°C to 50°C	TIM102ALF	TIM102-6ALF	TIM102LF	TIM102-6LF
0°F to 160°F & -15°C to 70°C	TIM103ALF	TIM103-6ALF	TIM103LF	TIM103-6LF
30°F to 180°F & 0°C to 80°C	TIM104ALF	TIM104-6ALF	TIM104LF	TIM104-6LF
30°F to 240°F & 0°C to 115°C	TIM100ALF	TIM100-6ALF	TIM100LF	TIM100-6LF
30°F to 300°F & 0°C to 150°C	TIM105ALF	TIM105-6ALF	TIM105LF	TIM105-6LF

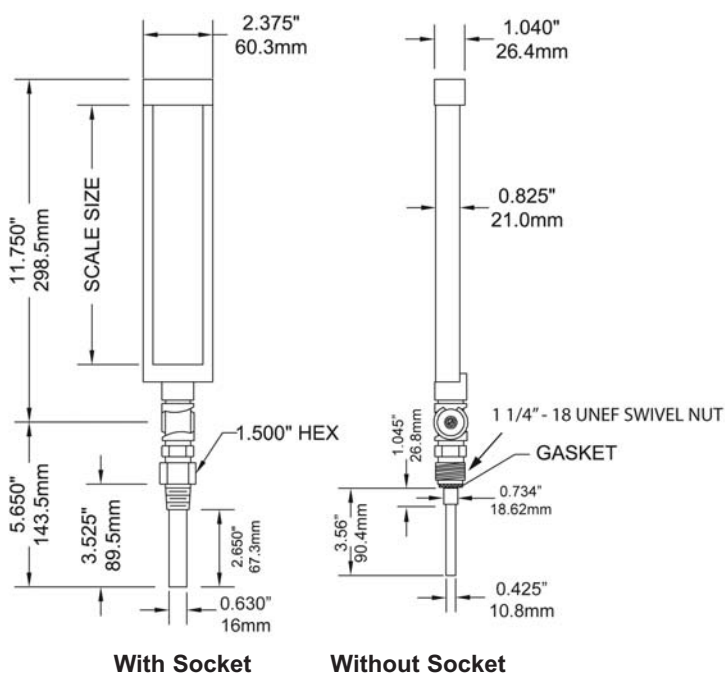
Other ranges available upon request.

Valox® is a registered trademark of the General Electric Company

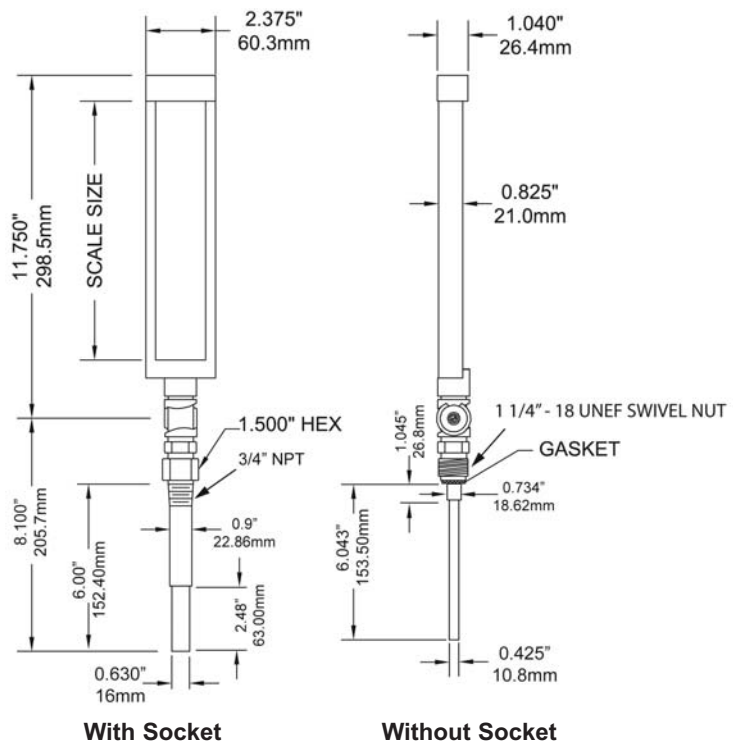
TIW-LF Thermowell Order Codes (products in bold are normally in stock)

Stem Length	Overall Length	Material	Insertion Length	Lagging Extension	3/4" NPT Connection
3.5" Without Lagging	4.25" (108mm)	Lead Free Brass	2.5" (63mm)	-	TIW01LF
3.5" With Lagging		Lead Free Brass	1.75" (40mm)	1" (25mm)	TIW03LF
6" Without Lagging	6.75" (172mm)	Lead Free Brass	5" (127mm)	-	TIW04LF
6" With Lagging		Lead Free Brass	2.5" (63mm)	2.5" (63mm)	TIW07LF

3.5" Stem



6" Stem





Description & Features:

- Provides an economical and accurate method to measuring the temperature on a flat metallic surface
- 2" (50mm) dial
- Dual scale (°F & °C)
- 3 ranges available
- Easy to install
- 5 year warranty

Applications:

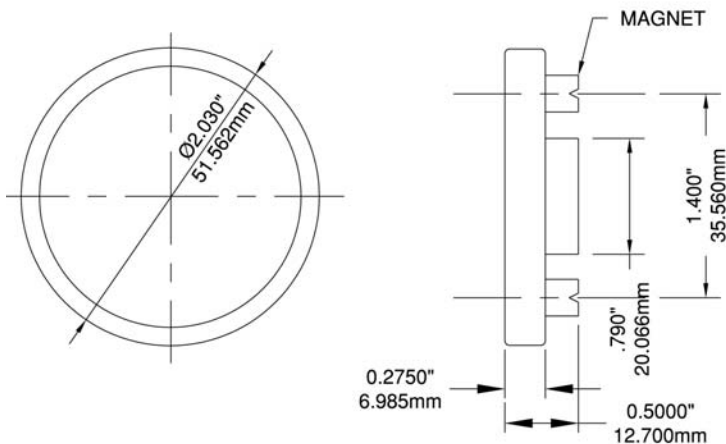
- Ductwork or motor housings

Specifications	
Dial	2" (50mm) aluminum with black and red markings
Case	Steel, painted black
Lens	Glass
Sensing Element	Bi-metallic coil
Pointer	Aluminum, painted black
Ambient/Process Temperature	Recommended maximum 75% of full scale value
Accuracy	±2% of full scale
Enclosure Rating	IP52

Order Codes (products in bold are normally in stock)

Range	Code
0°F to 250°F & -20°C to 120°C	TMT7412
0°F to 500°F & -15°C to 260°C	TMT7410
50°F to 750°F & 10°C to 400°C	TMT7409

Other ranges and connection sizes available upon request.



TRR Remote Reading Thermometer



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: ±0.5% accuracy; Vapour: ±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: ±0.5% of full scale value Vapour: ±2% of full scale value
Bulb	6" (150mm), 1/2" diameter standard Custom sizes available

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 $\frac{2}{3}$ 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			
	2	Back connection, front flange		VI	Connection			
	3	Back connection, back flange			0	None		
4	Vari-angle connection, (Direct reading only)	1			1/2" NPT brass sliding union			
		2			1/2" NPT SS sliding union			
III	Dial Size		VI	3	3/4" NPT brass sliding union			
	25	2.5" (63mm)		4	3/4" NPT SS sliding union			
	35	3.5" (90mm) Back connection only		5	1/2" NPT brass thermowell			
	40	4" (100mm)		6	1/2" NPT SS thermowell			
	45	4.5" (115mm)		7	3/4" NPT brass thermowell			
	60	6" (150mm)		8	3/4" NPT SS thermowell			
	85	8.5" (215mm)						

TRR Remote Reading Thermometer

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

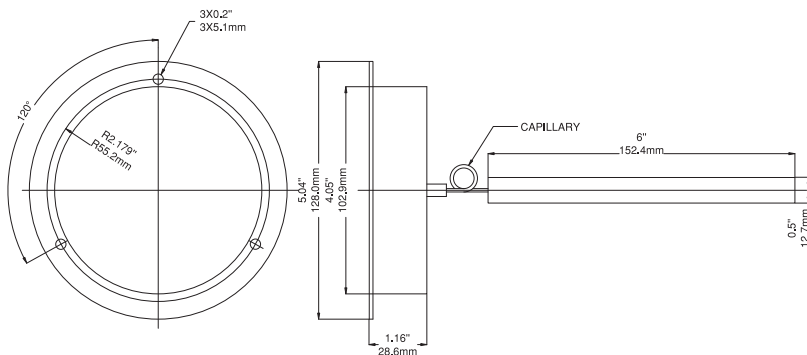
*Ranges require stainless steel capillary and bulb

Please contact us for:

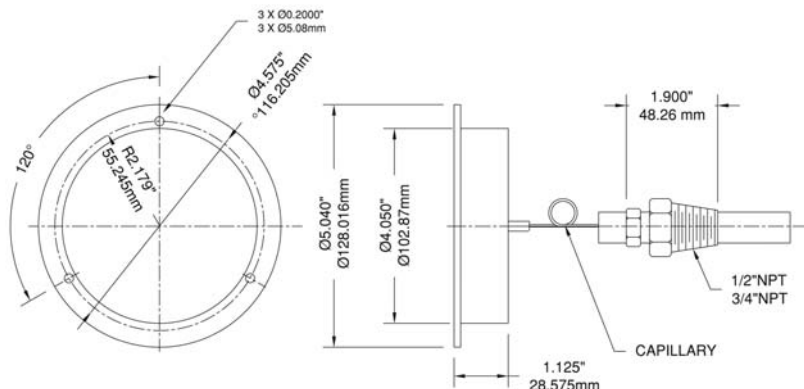
Duct flanges, sliding union, various bulb dimensions, averaging bulb (gas only), other ranges, stainless steel 4" (100mm) and 6" (150mm) cases and capillary available on gas remote/direct reading models

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.

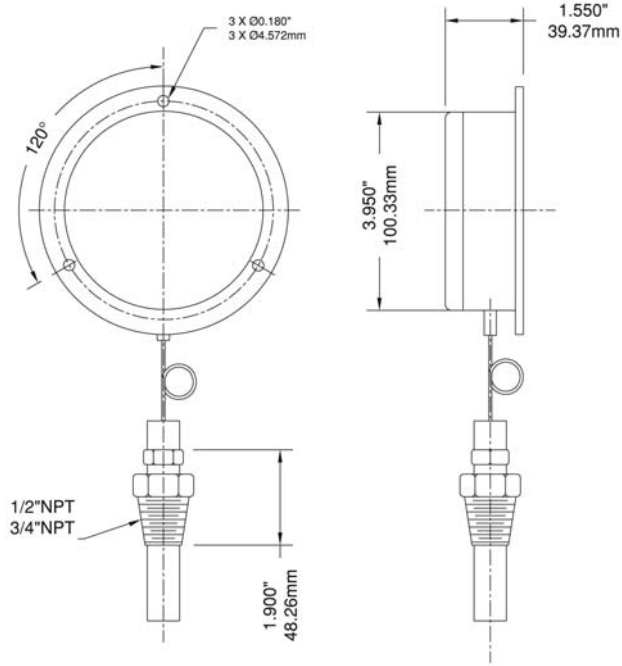
4" Back Connection, Front Flange, Plain Bulb



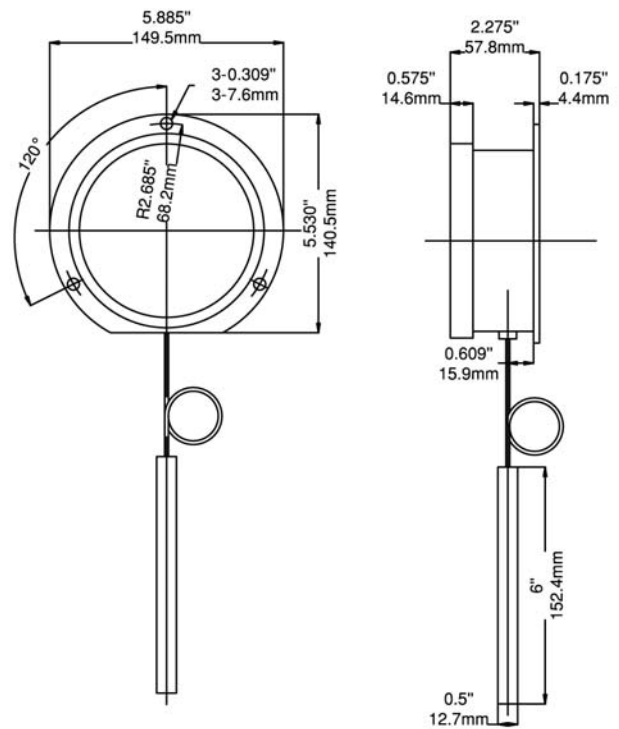
4" Back Connection, Front Flange, Sliding Union



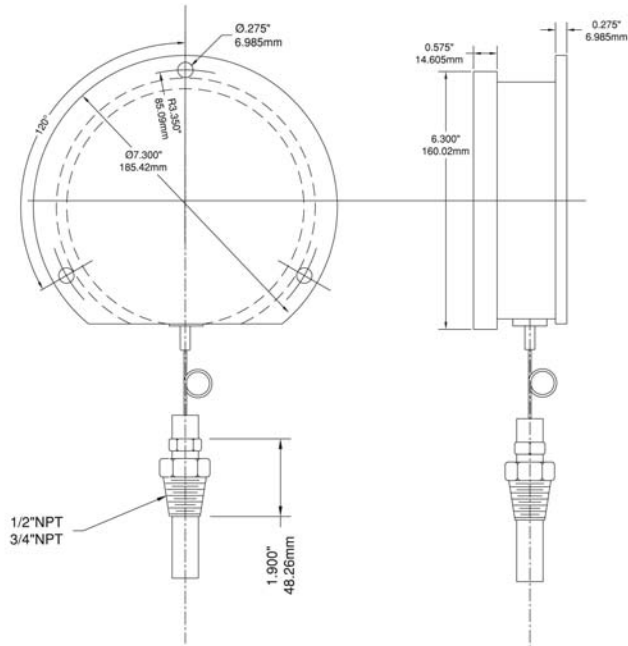
4" Bottom Connection, Back Flange, Sliding Union



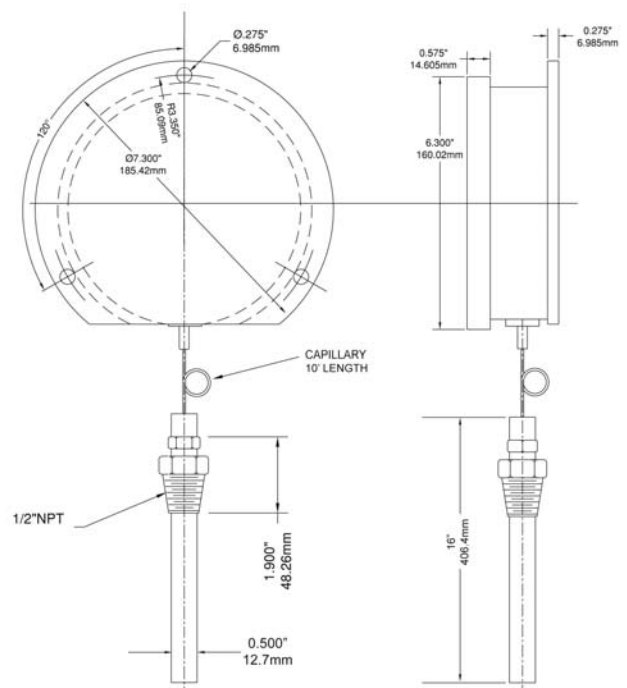
4.5" Bottom Connection, Back Flange, Plain Bulb



6" Bottom Connection, Back Flange, Sliding Union



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



TSD Industrial 9IT Solar Digital Thermometer



Note: RoHS applies only with SS TIR thermowell

Description & Features:

- A versatile thermometer that provides a solar powered digital read out commonly used in the industrial and commercial plumbing trade
- Low light compatible (16 Lux minimum)
- Includes a separable thermowell
- Durable ABS case
- Switchable temperature scale (°F or °C)
- Vari-angle connection for easy installation
- ±1% accuracy
- 5 year warranty

Applications:

- New construction, plumbing, water lines, boilers, heating, ventilation and air conditioning

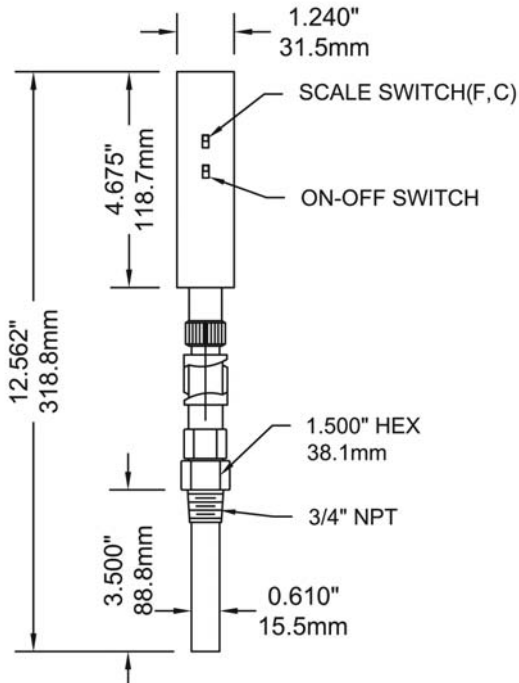
Specifications	
Display	2.55" x 4.67" (63.7mm x 116.7mm) solar powered display
Housing	High impact ABS plastic housing with aluminum movable parts
Lux Rating	16 Lux
Sensing Element	Liquid
Stem Length	3.5" (90mm), 6" (150mm)
Connection / Thermowell	3/4" NPT, with brass thermowell standard, (SS optional) 1 1/4" UNEF swivel nut (without thermowell)
Temperature Range	-50°F to 320°F (-45°C to 160°C)
Read Interval	Every 6 seconds
Ambient Temperature	14°F to 150°F (-10°C to 65°C)
Process Temperature	-50°F to 320°F (-45°C to 160°C)
Accuracy	±1%
Enclosure Rating	NEMA 5 / IP54

Order Codes (products in bold are normally in stock)

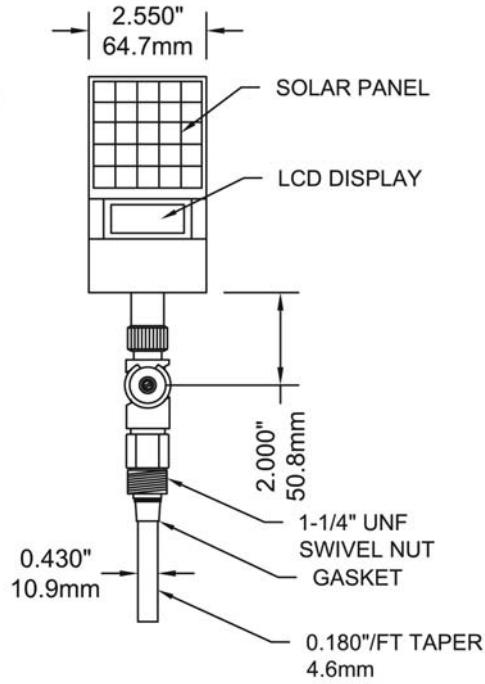
Stem/Ranges	Code (Includes Thermowell)
3.5" (90mm) Stem (-50°F to 320°F or -45°C to 160°C)	TSD9ITSD
6" (150mm) Stem (-50°F to 320°F or -45°C to 160°C)	TSD9ITSD6

Other ranges and connection sizes available upon request. Duct flange and union connection available upon request. 6" (150mm) stem available. For an Industrial 9IT Thermowell, please refer to the Industrial 9IT Thermowell product page.

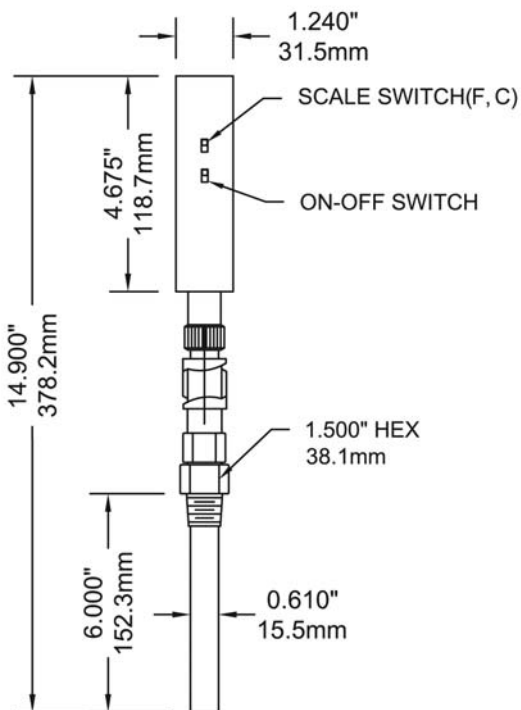
3.5" Stem with Thermowell



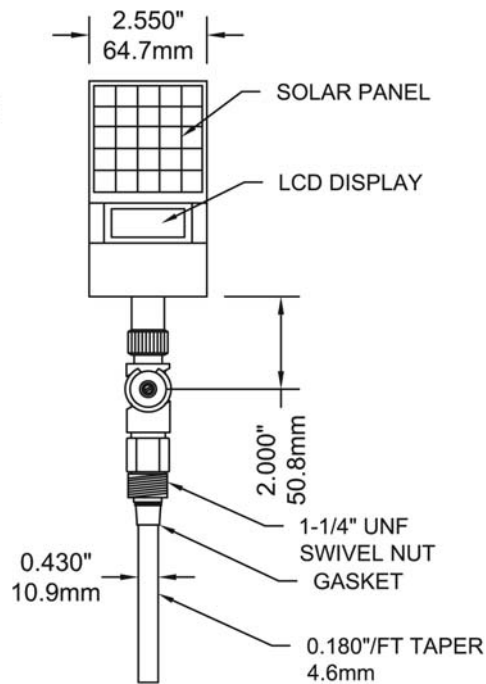
3.5" Stem without Thermowell



6" Stem with Thermowell



6" Stem without Thermowell





Dial Type



Scale Type

Description & Features:

- An economical and accurate way to measure air or water temperatures
- Separable brass or lead free brass thermowell
- Bi-metallic element (dial type only)
- Dual scale (°F & °C)
- Dial type or vertical scale type
- Easy to install
- 1/2" NPT process connection
- 5 year warranty

Applications:

- Hot water lines, boilers and hydronic heating

Specifications	Dial Type
Dial	2" (50mm), 2.5" (63mm) aluminum dial, painted white with black and red markings
Case	Aluminum
Lens	Glass
Ring	Steel, chrome plated
Thermowell	TSW: Brass (HPB59-1), 1/2" NPT standard, separable TSW-LF: Lead free brass, 1/2" NPT standard, separable
Stem	Brass
Sensing Element	Bi-metallic element
Pointer	Aluminum, painted black
Recalibrator	Standard
Accuracy	±1%

Specifications	Scale Type
Scale/Case	8" (200mm) scale with steel case, painted white with black markings
Tube	#N-16 glass
Sensing Liquid	Organic fluid
Thermowell	TSW: Brass (HPB59-1), 1/2" NPT standard, separable TSW-LF: Lead free brass, 1/2" NPT standard, separable
Accuracy	±1%

TSW Order Codes Dial Type (products in bold are normally in stock)

Dial	Range	Connection	Code
2" (50mm)	30°F to 250°F & 0°C to 120°C	1/2" NPT centre back	TSW174-2
2.5" (63mm)	30°F to 250°F & 0°C to 120°C	1/2" NPT centre back	TSW174
		3/4" Sweatwell	TSW174-SW

Other ranges, stem lengths, dial and connection sizes available upon request.

TSW Order Codes Scale Type (products in bold are normally in stock)

Scale	Range	Connection	Code
8" (200mm)	40°F to 280°F & 5°C to 135°C	Straight	TSW172
		Angle	TSW173

Other ranges and connection sizes available upon request.

Hot Water Thermometer Lead Free Hot Water Thermometer

TSW, TSW-LF

TSW-LF Order Codes Dial Type (products in bold are normally in stock)

Dial	Range	Connection	Code
2" (50mm)	30°F to 250°F & 0°C to 120°C	1/2" NPT centre back	TSW174-2LF
2.5" (63mm)	30°F to 250°F & 0°C to 120°C	1/2" NPT centre back	TSW174LF
		3/4" Sweatwell	TSW174-SWLF

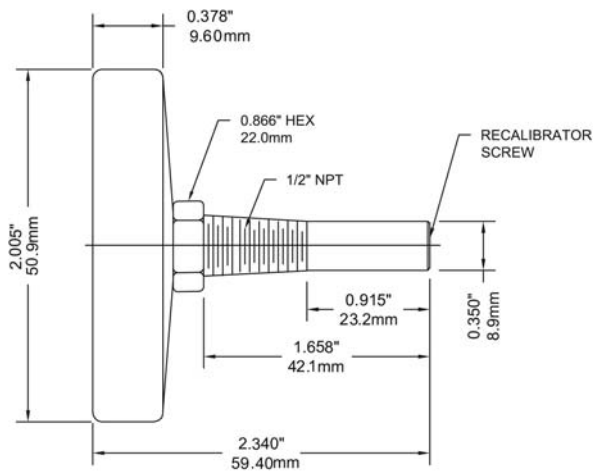
Other ranges available upon request.

TSW-LF Order Codes Scale Type (products in bold are normally in stock)

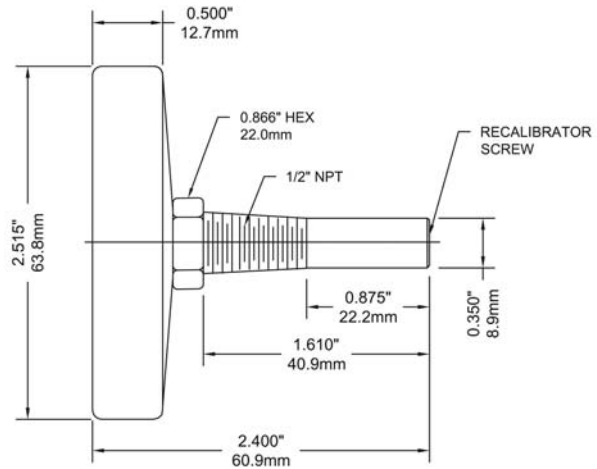
Scale	Range	Connection	Code
8" (200mm)	40°F to 280°F & 5°C to 135°C	Straight	TSW172LF
		Angle	TSW173LF

Other ranges available upon request.

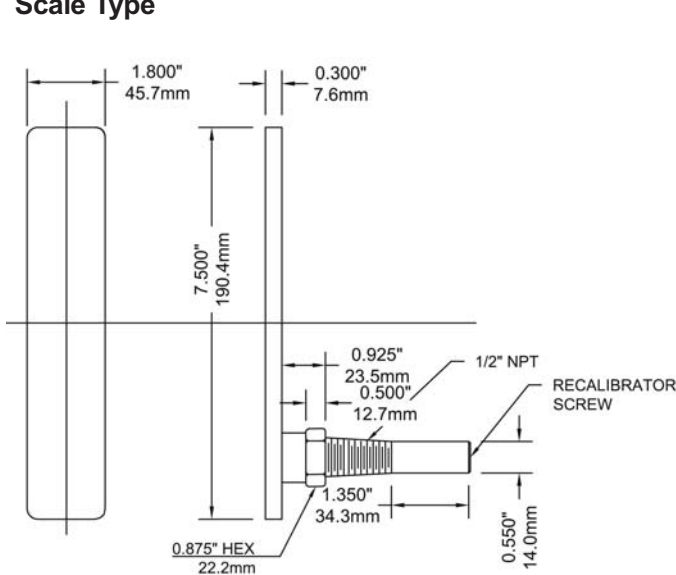
2" Dial Type



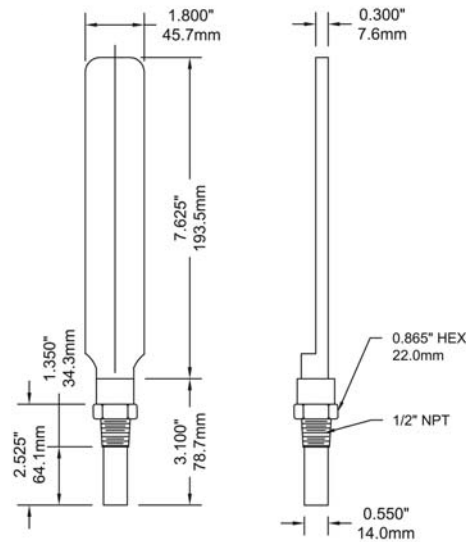
2.5" Dial Type



Scale Type



Back Connection



Bottom Connection



Description & Features:

- Measures both pressure and temperature on the same dial
- 2.5" (63mm) and 3" (75mm) dials
- Dual scale (°F & °C)
- Back or bottom connection
- Brass wetted parts
- 2" (50mm) stems
- Multiple pressure and temperature ranges available
- Ranges are compliant to industry standard ASME Boiler Code Section IV HG-612
- 5 year warranty

Applications:

- Hot water and steam pressure for boilers

Optional Thermowell

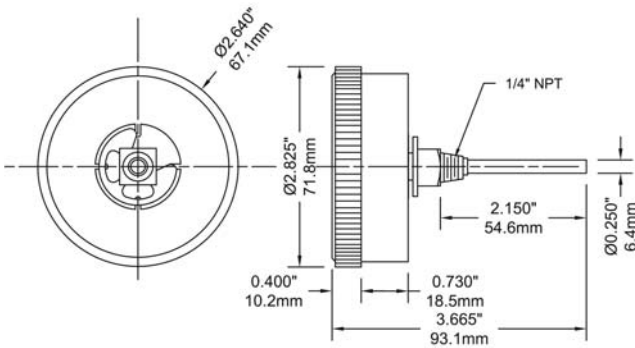
Specifications	
Dial	2.5" (63mm), 3" (75mm) aluminum, painted white
Case	Steel, painted black
Lens	2.5" (63mm): Plexiglass 3" (75mm): Glass
Ring	2.5" (63mm): Acrylic, threaded 3" (75mm): Chrome
Stem	Brass
Socket	Brass
Tube	Brass
Movement	Brass and phosphor bronze
Sensing Element	Temperature: Bi-metallic coil Pressure: Bourdon tube
Pointer	Aluminum, anodized black
Welding	Tin-alloy solder
Pressure Limit	75% of full scale range
Ambient Temperature	23°F to 122°F (5°C to 50°C)
Process Temperature	75% of full scale range
Accuracy	Pressure: ±3-2-3% Temperature: ±3% of full scale
Enclosure Rating	IP50

Order Codes (products in bold are normally in stock)

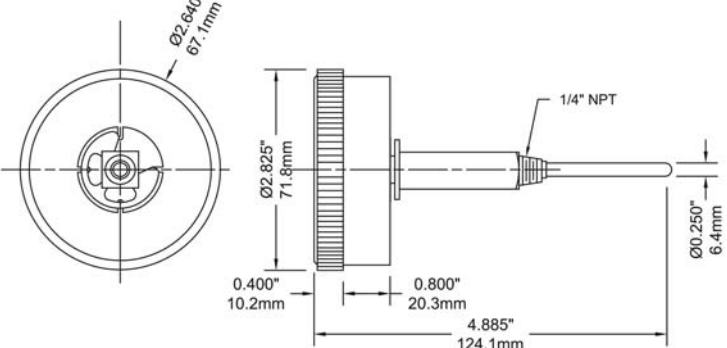
Range	Dial	Connection	Code
0-75psi/kPa, 50°F to 320°F & 10°C to 160°C	2.5" (63mm)	1/4" NPT, Back	TTD400
0-75psi/kPa, 30°F to 250°F & 0°C to 120°C	2.5" (63mm)	1/4" NPT, Extension Back	TTD401
0-75psi/kPa, 30°F to 250°F & 0°C to 120°C	2.5" (63mm)	1/4" NPT, Back	TTD404
0-75psi/kPa, 30°F to 250°F & 0°C to 120°C	3" (80mm)	1/2" NPT, Bottom	TTD403
0-75psi/kPa, 30°F to 250°F & 0°C to 120°C	3" (80mm)	1/2" NPT, Back	TTD402
0-200psi/kPa, 30°F to 250°F & 0°C to 120°C	3" (80mm)	1/2" NPT, Bottom	TTD405
0-200psi/kPa, 30°F to 250°F & 0°C to 120°C	3" (80mm)	1/2" NPT, Back	TTD407
0-100psi/kPa, 30°F to 250°F & 0°C to 120°C	3" (80mm)	1/2" NPT, Back	TTD408
0-100psi/kPa, 30°F to 250°F & 0°C to 120°C	3" (80mm)	1/2" NPT, Bottom	TTD409
0-250psi/kPa, 50°F to 250°F & 10°C to 120°C	3" (80mm)	1/2" NPT, Back	TTD398
0-250psi/kPa, 50°F to 250°F & 10°C to 120°C	3" (80mm)	1/2" NPT, Bottom	TTD399

Other ranges and connection sizes available upon request.

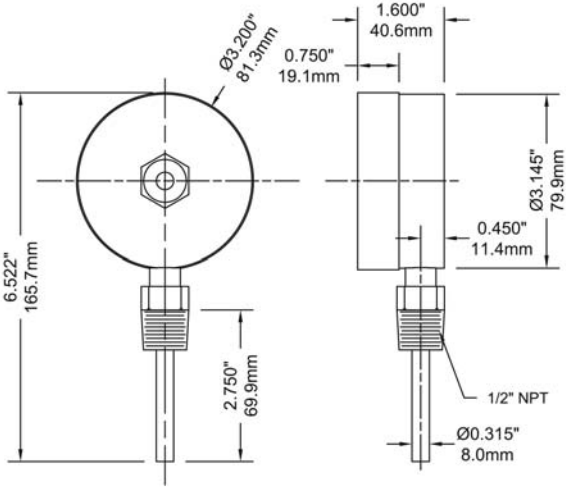
2.5" Back Connection



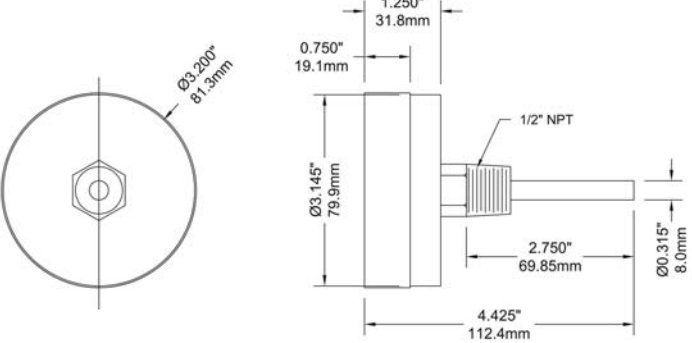
2.5" Extension Back Connection



3" Bottom Connection



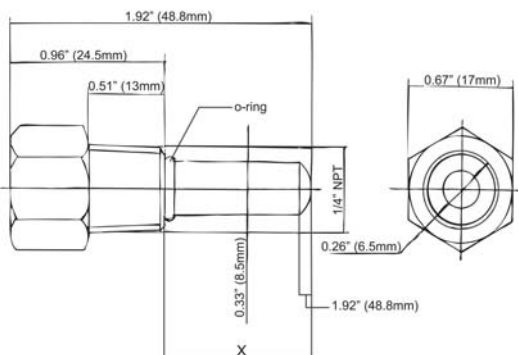
3" Back Connection



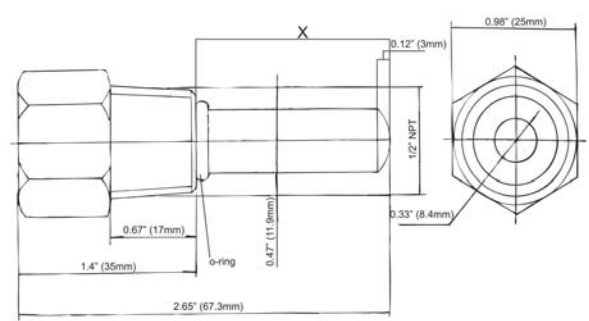
Order Codes (products in bold are normally in stock)

Stem Length	Maximum Extension (X)	Instrument & Pipe NPT Connection	Code
1.92" (48.8mm)	1.3" (33.8mm)	1/4"	TST025
2.65" (67.3mm)	1.6" (41.5mm)	1/2"	TST050

1/4" TST025



1/2" TST050



TBR Bi-Metal Threaded 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

Bi-Metal Threaded Thermowell TBR

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		3/4" (19mm)
		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		3/4" (19mm)
		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		3/4" (19mm)
		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		

TBR Bi-Metal Threaded Thermowell

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

TDF Duct Flange



Description & Features

- Ideal for ventilation installations
- Lightweight aluminum construction for durable mounting
- Instrument connections available for both TIM and TBM thermometers
- 304 SS and 316 SS options available

Applications:

- Especially designed for heating and air conditioning ventilation systems in residential and commercial buildings and industrial plants

Specifications

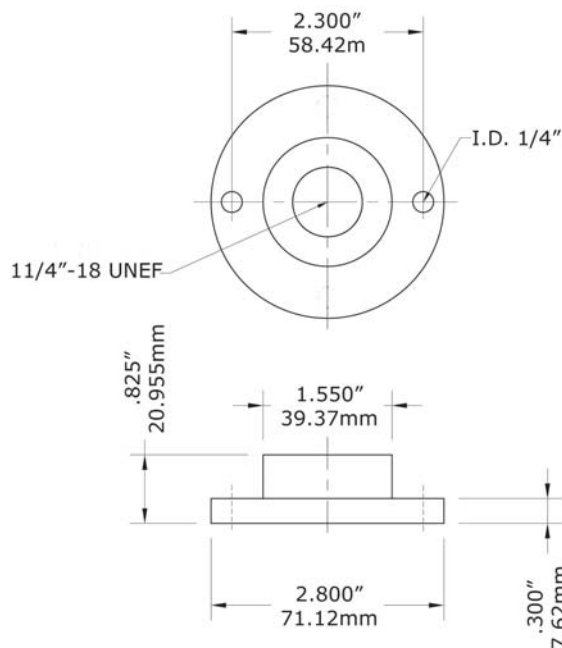
Material	Aluminum
Thermometer Connection	1-1/4"-18" UNEF or 1/2" NPT female

Order Codes

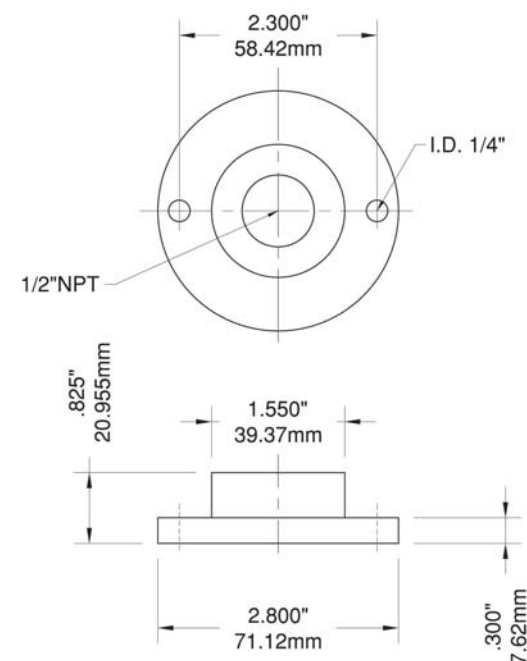
Thermometer	Thermometer Connection	Thermometer	Code
TIM Series	1-1/4"-18 UNEF	2 hole	TDF100
TBM Series	1/2" NPT	2 hole	TDF200

3 or 4 hole options available.

TDF100



TDF200



Industrial 9IT Thermowell Lead Free Industrial 9IT Thermowell

TIW, TIW-LF



Description & Features

- Designed for use with all 9" (228mm) industrial thermometers to create a "sealed system"
- Allows the easy replacement of thermometers without the need to shut down or drain the system
- CAN/CGSB-14.4-M88 Compliant
- CRN registered
- 1 year warranty

Applications:

- HVAC, pipes, chill water and hot water lines



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

Specifications

Material	TIW: Brass, AISI 304 SS, AISI 316 SS TIW-LF: Lead free brass
Bore Diameter	7/16" tapered
Form	Stepped standard, straight available
Thermometer Connection	1 1/4" UNF
Process Connection	3/4" NPT male standard

TIW Order Codes (products in bold are normally in stock)

Stem Length	Overall Length	Material	Insertion Length	Lagging Extension	1/2" NPT Connection	3/4" NPT Connection
					Code	
3.5" Without Lagging	4.25" (108mm)	Brass	2.5" (63mm)	-	-	TIW01
	4.25" (108mm)	304 SS	2.5" (63mm)	-	-	TIW01-1
	4.25" (108mm)	316 SS	2.5" (63mm)	-	-	TIW01-2
3.5" With Lagging	4.25" (108mm)	Brass	1 3/4" (44mm)	1" (25mm)	TIW02	TIW03
	4.25" (108mm)	304 SS	1 3/4" (44mm)	1" (25mm)	TIW02-1	TIW03-1
	4.25" (108mm)	316 SS	1 3/4" (44mm)	1" (25mm)	TIW02-2	TIW03-2
6" Without Lagging	6 3/4" (172mm)	Brass	5" (127mm)	-	-	TIW04
	6 3/4" (172mm)	304 SS	5" (127mm)	-	-	TIW04-1
	6 3/4" (172mm)	316 SS	5" (127mm)	-	-	TIW04-2
6" With Lagging	6 3/4" (172mm)	Brass	2.5" (63mm)	2.5" (63mm)	-	TIW07
	6 3/4" (172mm)	304 SS	2.5" (63mm)	2.5" (63mm)	-	TIW07-1
	6 3/4" (172mm)	316 SS	2.5" (63mm)	2.5" (63mm)	-	TIW07-2

TIW-LF Thermowell Order Codes (products in bold are normally in stock)

Stem Length	Overall Length	Material	Insertion Length	Lagging Extension	3/4" NPT Connection
3.5" Without Lagging	4.25" (108mm)	Lead Free Brass	2.5" (63mm)	-	TIW01LF
3.5" With Lagging		Lead Free Brass	1.75" (40mm)	1" (25mm)	TIW03LF
6" Without Lagging	6.75" (172mm)	Lead Free Brass	5" (127mm)	-	TIW04LF
6" With Lagging		Lead Free Brass	2.5" (63mm)	2.5" (63mm)	TIW07LF

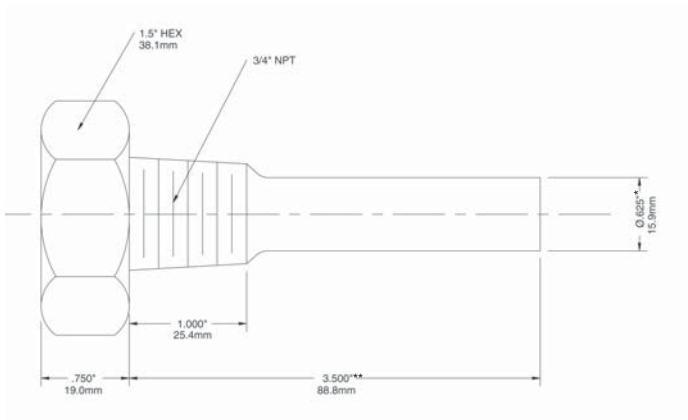
Other configurations available. Other threads available upon request. Longer thermowells available upon request. Other materials such as Monel®, Inconel®, Hastelloy® C and Titanium are available upon request.

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

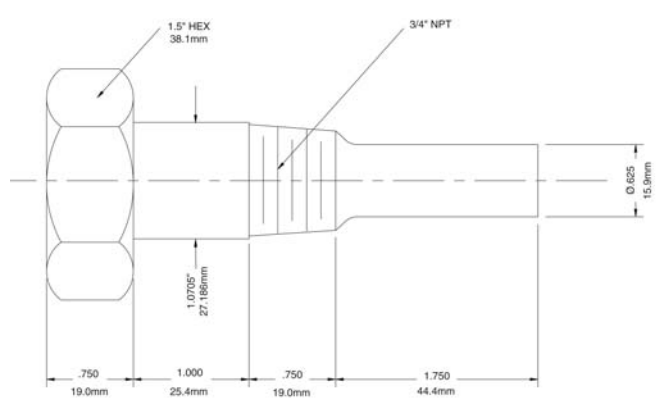
Option suffix:

W61 = Brass cap and chain (1.25" UNF)
W61-1 = SS cap and chain (1.25" UNF)

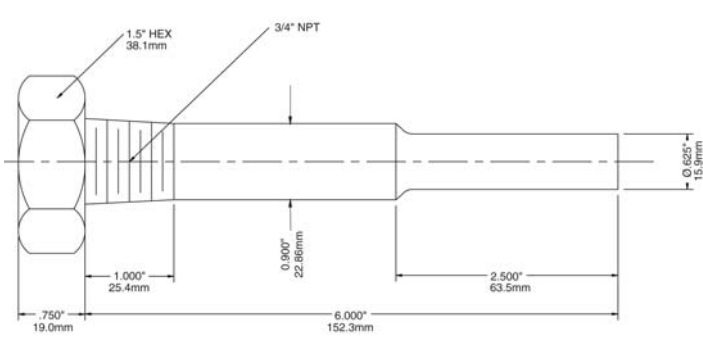
3.5" Stem Without Lagging



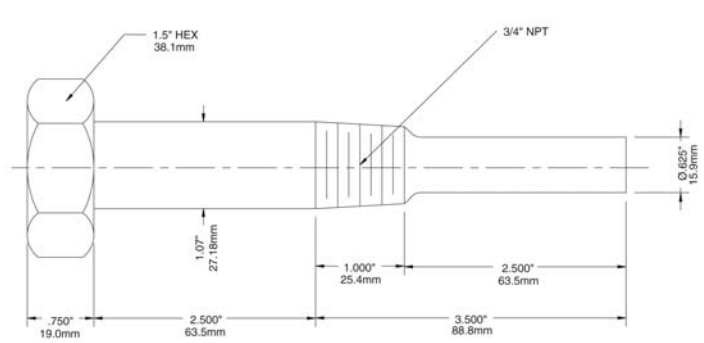
3.5" Stem With Lagging



6" Stem Without Lagging



6" Stem With Lagging





Description & Features

- Spring loaded allowing TST to stay open when tridicator is installed. Once tridicator is removed thermowell closes preventing media from exiting the system
- Minimizes system downtime with quick instrument replacement
- CRN registered
- Up to 250 psi pressure rating (matching TTD Tridicator)
- 1 year warranty

Applications:

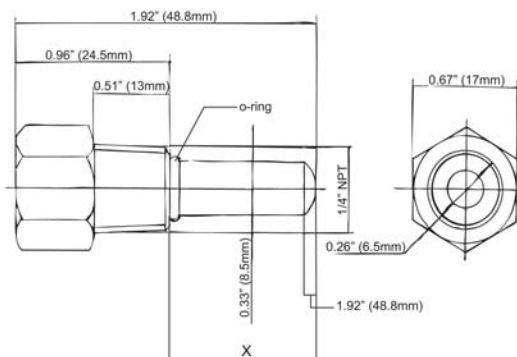
- Boilers and hydronic heating systems

Specifications	
Material	Brass
Tridicator Connection	1/4" or 1/2" male NPT standard

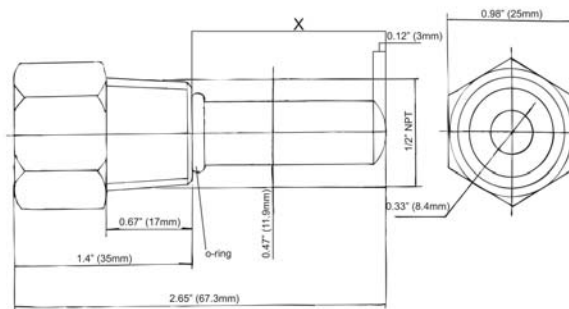
Order Codes (products in bold are normally in stock)

Stem Length	Maximum Extension (X)	Instrument & Pipe NPT Connection	Code
1.92" (48.8mm)	1.3" (33.8mm)	1/4"	TST025
2.65" (67.3mm)	1.6" (41.5mm)	1/2"	TST050

1/4" TST025



1/2" TST050



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)

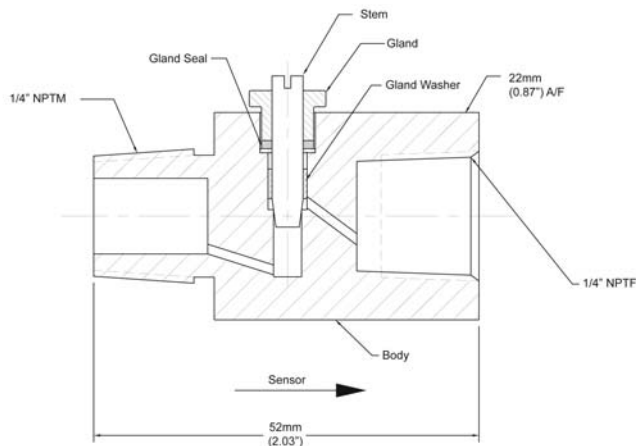
Order Codes

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

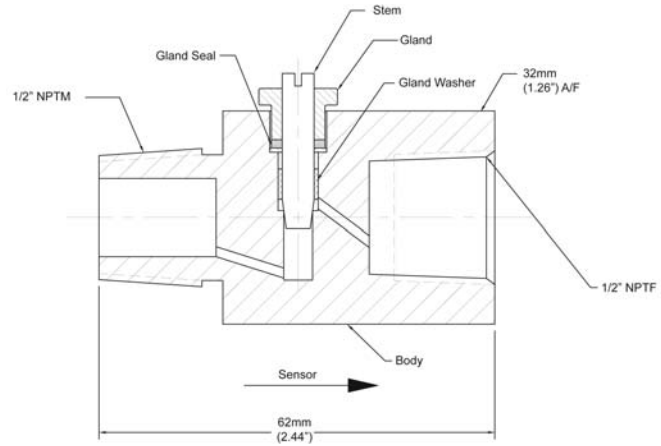
Description	SS	Brass
Gland Seal	Teflon®	Teflon®
Stem	316 SS	316 SS
Gland	316 SS	Brass
Gland Washer	316 SS	316 SS
Body	316 SS	Brass

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

1/4" NPT



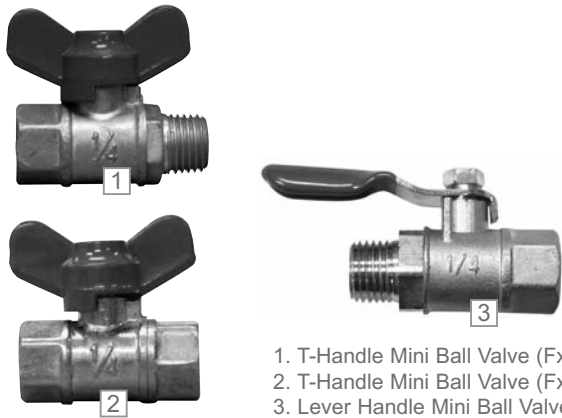
1/2" NPT



Teflon® is a registered trademark of Dupont Corporation

Mini Ball Valve, Lead Free Mini Ball Valve

SMV, SMV-LF



1. T-Handle Mini Ball Valve (F x M)
2. T-Handle Mini Ball Valve (F x F)
3. Lever Handle Mini Ball Valve

Description & Features:

- An economical isolation valve for pressure gauges and transmitters
- Brass or lead free brass wetted parts
- CRN registered
- 1 year warranty

Applications:

- Provides flow control for non-corrosive applications including water lines

Specifications	
Body	SMV: #59-1 Forged brass SMV-LF: Lead free forged brass
Ball	SS
Gaskets	Teflon®
Handle	Steel, plated, plastic covered
Process Temperature	-9°F to 212°F (-23°C to 100°C)
Maximum Operating Pressure	400 psi (2,758 kPa)
Connection	1/4" NPT Female x 1/4" NPT Male 1/4" NPT Female x 1/4" NPT Female

SMV Order Codes (products in bold are normally in stock)

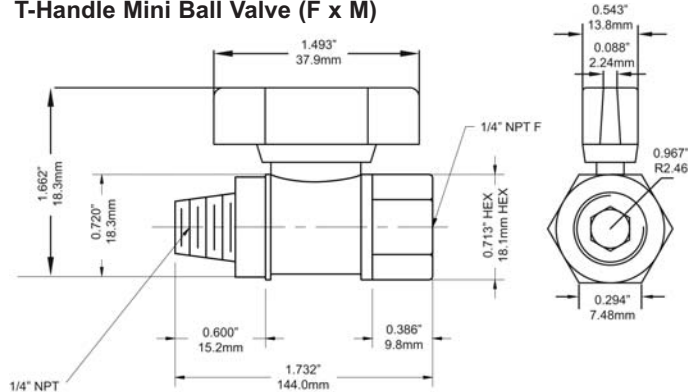
Connection	T-Handle	Lever Handle
F x M	SMV532	SMV500
F x F	SMV533	-

SMV-LF Order Codes (products in bold are normally in stock)

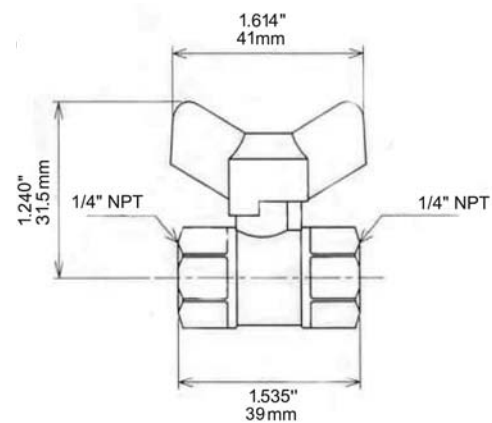
Connection	T-Handle	Lever Handle
F x M	SMV532LF	SMV500LF
F x F	SMV533LF	-

Note: Other sizes and materials available upon request.

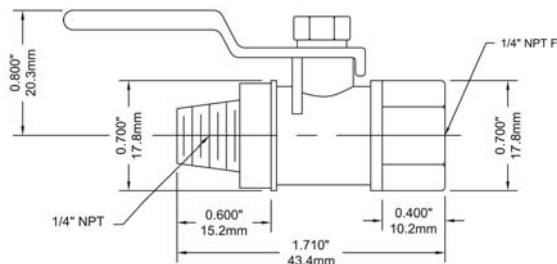
T-Handle Mini Ball Valve (F x M)



T-Handle Mini Ball Valve (F x F)



Lever Handle Mini Ball Valve



Teflon® is a registered trademark of Dupont Corporation

SNV, SNV-LF

Needle Valve Lead Free Needle Valve



Description & Features:

- An isolation valve for pressure gauges and transmitters
- For mild applications, this valve can be used to throttle pulsation. Please see NVA Stainless Steel Needle Valve for more demanding applications
- Brass or lead free brass wetted parts
- CRN registered
- 1 year warranty

Applications:

- Provides precision flow control for any non-corrosive application up to 400 psi (2,758 kPa)

Specifications	
Body	#59-1 forged brass
Handle	ABS plastic, dyed red
O-ring	Rubber
Shaft	SNV: #59-1 brass SNV-LF: Lead free brass
Nut	SNV: #59-1 brass SNV-LF: Lead free brass
Process Temperature	-9°F to 212°F (-23°C to 100°C)
Maximum Operating Pressure	400 psi (2,758 kPa)
Connection	1/4" NPT female

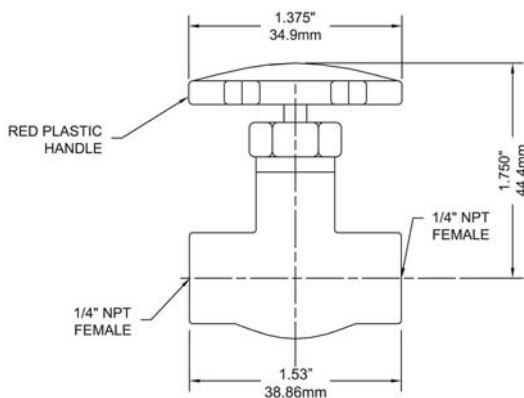
SNV Order Codes (products in bold are normally in stock)

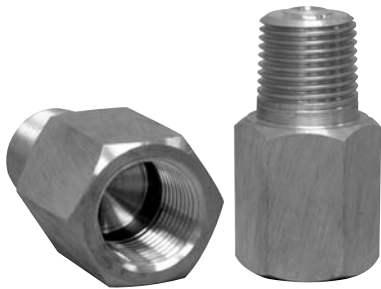
Code	SNV510
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SNV-LF Order Codes (products in bold are normally in stock)

Code	SNV510LF
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Note: Other configurations and materials available upon request





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, lead free 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	SSN: Brass SSN-LF: Lead free brass
Snubbing Element	Sintered, porous type 316 SS	Sintered, porous type 316 SS
Retainer	300 series SS	300 series SS

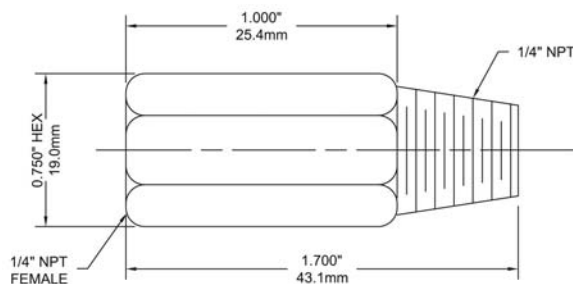
SSN Order Codes (products in bold are normally in stock)

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

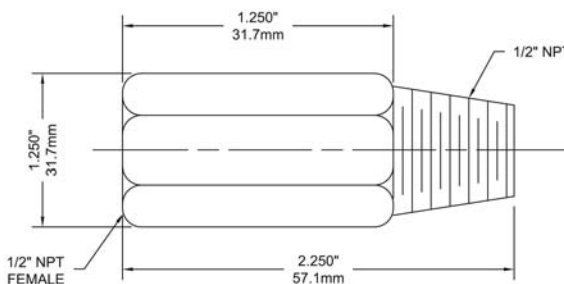
SSN-LF Order Codes (products in bold are normally in stock)

Model	Water
1/4" Brass	SSN515LF
1/2" Brass	SSN512LF

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

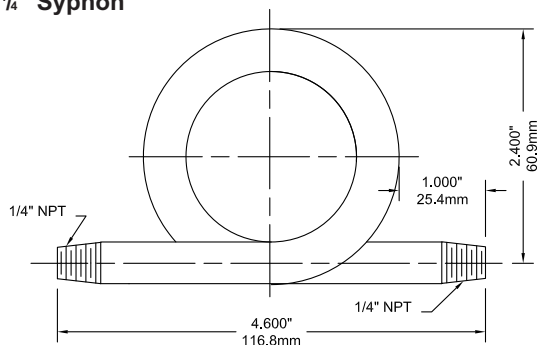
Material	Schedule 40 steel coil welded, schedule 40 brass seamless, schedule 40, 80, 160 steel coil seamless, 304 SS seamless, or 316 SS seamless
Style	180 degree coil
Connection	1/4" NPT male x 1/4" NPT male or 1/2" NPT male x 1/2" NPT male
Maximum Operating Pressure	Schedule 40 welded: Steel suitable 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)

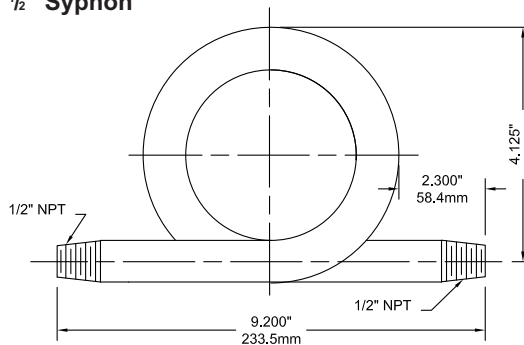
Material	1/4" NPT	1/2" NPT
Schedule 40 Steel (welded)	SSP525	-
Schedule 40 Brass	SSP545	SSP559
Schedule 40 Steel	-	SSP555
Schedule 40 304 SS	SSP535	SSP585
Schedule 40 316 SS	SSP554	SSP557
Schedule 80 Carbon Steel	SSP556	-
Schedule 80 304 SS	SSP595	-
Schedule 80 316 SS	-	-
Schedule 160 Carbon Steel	-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

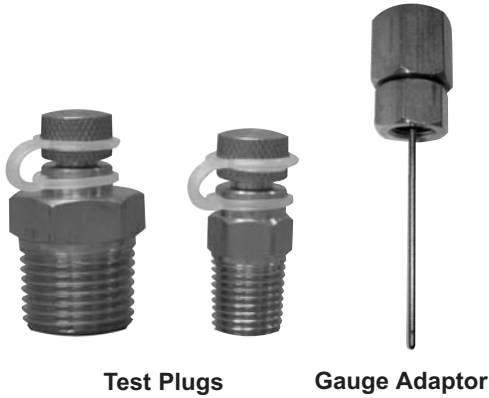
Note: Schedule 80 316 SS and extra-extra strong schedule available

1/4" Syphon



1/2" Syphon





Description & Features:

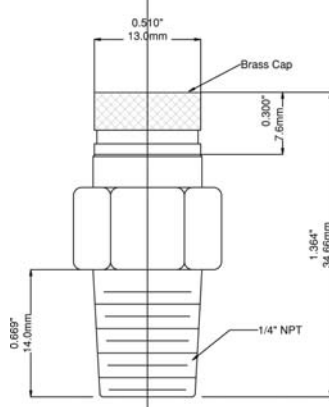
- Facilitates quick pressure and temperature readings at recommended test points within process
- Test plugs are available with brass or lead free brass wetted parts
- Gauge adapters ship with protective aluminum sleeve
- 1 year warranty

Applications:

- Mainly used in heating, ventilation and air conditioning industries

Specifications	
Material/Body	STP: Brass STP-LF: Lead free brass
Diaphragm/Core	NBR (Buna N)
Temperature Rating	-40°F to 302°F (-40°C to 150°C)
Maximum Pressure Rating	1,000 psi (6,895 kPa)
Connection	1/4" NPT or 1/2" NPT

0.25" Test Plug



STP Order Codes (products in bold are normally in stock)

Brass Test Plug	
1/4" NPT Connection Male	STP001
1/2" NPT Connection Male	STP002

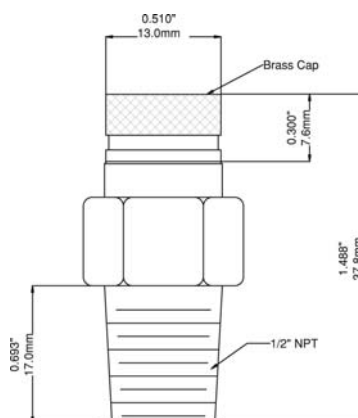
Gauge Adaptor	
2.75 OAL x 1.75" x 0.125" probe	STP003
2.25 OAL x 1.75" x 0.125" probe	STP004

STP-LF Order Codes

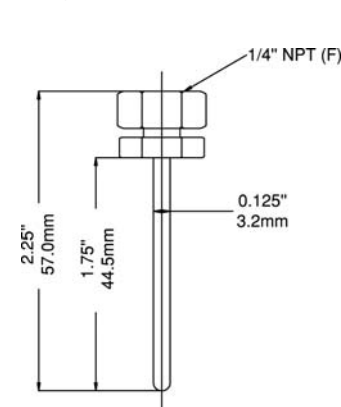
Brass Test Plug	
1/4" NPT Connection Male	STP001LF
1/2" NPT Connection Male	STP002LF

Note: Other sizes and materials available upon request

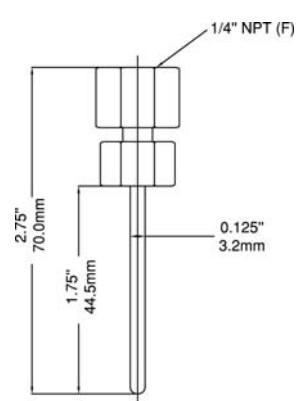
0.5" Test Plug



Gauge Adaptor 2.25"



Gauge Adaptor 2.75"





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

Hazardous Location Definitions

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, benzine, 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



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		0C6751.51R2	0C6751.51R2	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		0C6751.57	0C6751.57	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



Terms/Definitions and Standards

Winters is pleased to offer a line of environmentally responsible lead free products for all potable water applications. Winters 'LF' Series of lead free products comply with the 2014 US Drinking Water Act and NSF 61 / 372.

U.S. Safe Drinking Water Act (SDWA) - This Bill was signed into Law in 2011 limiting the lead content to 0.25% maximum for products in contact with drinking water. The items in question include pipes, pipe fittings, plumbing fittings and fixtures. The Law takes into effect on January 4th 2014, after which, it will be illegal for service providers to install and manufacturers to sell products that do not meet the new 'lead free' content law.

Exceptions to SDWA - The new law does not apply to pipes, pipe fittings, plumbing fittings or fixtures that are used exclusively for non-potable services such as manufacturing, industrial processing, irrigation, outdoor watering, toilets, shower valves or any other uses whereby water is not anticipated to be used for human consumption.

California, Vermont, Maryland, Louisiana state laws - Over the years, individual states have also passed their own similar laws limited lead products in drinking water installations. California was the first state introducing their law followed by Vermont. However, California law AB 1953, deviates somewhat from the federal Law by broadening its coverage to include any pipe or fixture which is intended for human consumption, which could even consider hot water tanks and fire hydrants.

NSF 61 - National Sanitation Foundation (NSF) first published standard NSF 61 in 1988 to establish minimum requirements for plumbing products that come into contact with drinking water in order to prevent adverse health effects in humans from the unintentional ingestion of metallic and non-metallic contaminants, including lead. Furthermore, NSF 61 also assessed the content of lead and other regulated substances by measuring the amount of contaminants that leached from tested products into water. In January 2009, NSF 61 Annex G was introduced to better define the method for calculating the weighted average lead content of a product, which was consistent with the requirements of California's AB 1953.

NSF 372 - Released in late 2010, NSF 372 only addresses the weighted content of lead and that applies to any drinking water system component as outlined by California's AB 1953 ie weighted lead content of not more than 0.25% and includes all plumbing products intended for human consumption.

Weighted Average Calculation - The weighted average is determined by multiplying the lead content of each wetted component times the proportion of the total wetted surface area represented by that component and summing up the results.

Enforcement of SDWA - The Environmental Protection Agency (EPA) is tasked with implementing the U.S. SDWA, however, the primary responsibility for enforcement is left to each state. Most states would then delegate responsibility to local cities, towns and municipal utilities who would leverage health and plumbing codes to drive enforcement.

Notes



Notes

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)

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