

PALMER
INSTRUMENTS, INC.

PRESSURE GAUGES



Featuring
Palmer's
Fearless
UNDER PRESSURE

Pressure Gauges

PALMER **Wahl**
INSTRUMENTATION GROUP



25BB Brass Case Gauge



45TS Solid Front Process Gauge



60AB Test Grade Gauge

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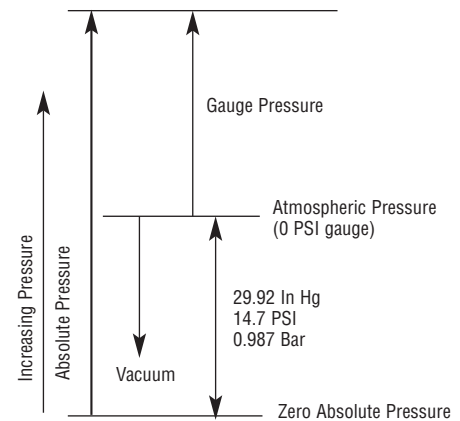
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Pressure Gauge Selection Guide

Free Lifetime Recalibration Service

Dial Size	2-1/2"	4"	4-1/2"	6"	
Model Number	25SF	40DS	40NS	45GF	60AB
		40FS	40SF	45TF	60SS
		40FM	40SS	45TM	
		40MS		45TS	

- Palmer agrees to recalibrate any time during the useful life of the above indicated pressure gauges, if returned to our factory, transportation charges prepaid.
- This offer does not include repairing, cleaning, certifying or the return freight on gauges.
- Palmer will also repair or recalibrate gauges of other manufacturers at a nominal charge.
- Please call **(800) 421-2853** to receive a Return Merchandise Authorization.



How To Select A Pressure Gauge

Selecting a Palmer Pressure Gauge: The subjects listed below can be used as a guide to ensure that proper consideration is given to all factors affecting the choice of a pressure gauge.

Caution: Operating conditions including, but not limited to, system pressure, media compatibility and ambient conditions must be considered when selecting gauges and accessories. Improper selection and use of gauges could cause gauge failure and lead to possible property damage and personal injury. Refer to ANSI B40.1 for the correct selection and use of gauges. This document may be obtained from ASME, United Engineering Center, 345 East 47th Street, New York, NY 10017. For general pressure terminology see the diagram, above right.

Case Construction: If your environment is severe or corrosive, a stainless steel case may be indicated. If you are considering a gauge which will be monitored by an operator, a process gauge with a solid front construction will provide an extra measure of safety. If you require in-house calibration, specify a micrometer adjustable pointer and bayonet ring case. While a large case will be easier to read, case size considerations are generally driven by available space, connecting considerations and accuracy requirements. See Dial Size Reference Chart on page 2 for specific size gauges.

Environmental Considerations: Ambient temperature, humidity, vibration, corrosive gasses, and weather must all be considered when selecting a pressure gauge. The environmental temperature limits for most Palmer gauges are shown in the table below. Generally all Palmer Pressure Gauges are dust proof, and filled gauges are waterproof.

Environmental Limits		
Damping Fluid	Recommended Temperature Range	
Dry	-13 to 150°F	-25 to 65°C
Glycerine	60 to 150°F	15 to 65°C
Silicone	-50 to 150°F	-45 to 65°C
Fluorolube	-76 to 150°F	-60 to 65°C
Neobee M20	0 to 400°F	-17 to 200°C

Working Fluid: If the working fluid is corrosive, stainless steel wetted parts should be considered, see All Stainless Steel Gauges pages 6 - 9. In extreme cases, it may be necessary to use K Monel wetted parts or to use a diaphragm seal. If pressure pulses are expected, consider the use of a snubber, which can be field adjusted for different working fluid viscosities. This will also limit the rate of

fluid loss in the unlikely event of gauge mechanical failure. See individual gauge pages for working fluid temperature limits. If high temperatures are expected, and for all steam applications, a steam syphon will reduce the exposure of the instrument to high working fluid temperatures. See page 23 for more information. Needle Valves are used to regulate pressure, Ball Valves are designed to turn on or off the flow of pressure, allowing removal of a gauge for calibration or replacement. See page 24 for information about these products.

Fearless Gauges: These gauges are designed for use in applications requiring the vibration and pulsation damping qualities of a filled gauge. The Fearless Gauges yield filled gauge performance with all the advantages of dry gauges, such as in situ calibration, field crystal replacement, plus no potential leaks. See pages 6 - 7, and 10 - 11 for details about our Fearless Gauges.

WARNING: Caution should be used when selecting a fluid filled gauge for any applications using oxidizing mediums such as chlorine, oxygen, hydrochloric or nitric acid, hydrogen peroxide, and others. Glycerine or silicone could result in a spontaneous chemical reaction or explosion when combined with these agents. Optional Fluorolube Filled or Fearless Dampened Movement dry gauges (pages 6 - 7, and 10 - 11) are recommended.

Mounting: As a rule, all gauges are available in Stem Mount, Lower Connected (mounting code **L**), and Stem Mount, Back Connected (**B**). Not all gauges are available in all mounting configurations. For a sketch of mounting types see the Mounting Codes Examples illustration on page 4. If your application involves excessive vibration or requires a large gauge, consider specifying a gauge which is mounted by some method other than the stem; for example, a U-clamp (**U**) or Surface Mount (**I**) gauge. This will reduce the stress on the stem and promote more reliable operation.

Connection: Palmer Pressure Gauges are available in a wide variety of connections. NPT threads are the standard configuration. If you have a requirement for a connection not listed, contact Palmer Customer Service.

Range: Select a range so that the expected operating pressure falls in the middle half of the gauge (25% to 75% of full scale). If short duration pressure pulses are expected, the range may need to be increased to avoid damage to some types of gauges.

Accuracy: Select a gauge with sufficient accuracy to satisfy your requirements. Liquid filling a gauge reduces the accuracy of that gauge, check the individual pages for available accuracy.

Calibration Services Available

How To Identify A Palmer Pressure Gauge

Palmer Pressure Gauges are ordered by part number. The part number is composed of several elements which consist of one or more symbols or letters. To identify the Palmer Pressure Gauge which best meets your requirements, use the table on the opposite page, and the option information on each catalog page pertaining to the different types of pressure gauges, and select the following:

- 1) **Case Size**
- 2) **Case Material / Style**
- 3) **Element Material**
- 4) **Dry or Filled**
- 5) **Mounting Type** (See Mounting Code illustration below)
- 6) **Connection Type**
- 7) **Range and Scale**, refer to Range Tables on pages 26 & 27
- 8) **Options**, using the Options Table on each page

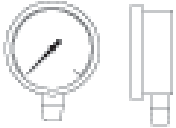
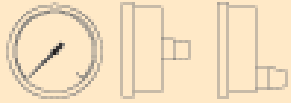

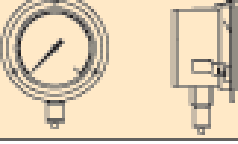

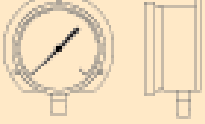
For example a typical Part No. for a Palmer Pressure gauge would look like this: **40SSWLH60#L**. This is a 4" (**40**), Stainless Steel Case (**S**), Bayonet Connected Bezel Ring Gauge, with All Stainless Steel

working parts (**S**). It is Fluid Filled (**W**), and Stem Mounted, Lower Connected (**L**), with 1/2" NPT threads (**H**). The dial is marked in pounds per square inch and graduated from 0 to 60 PSI (**60#**). The final code indicates that this gauge will be filled with Flourolube (**L**) instead of the standard glycerine fill. The **X** option code should be used for any option request not indicated on the list.

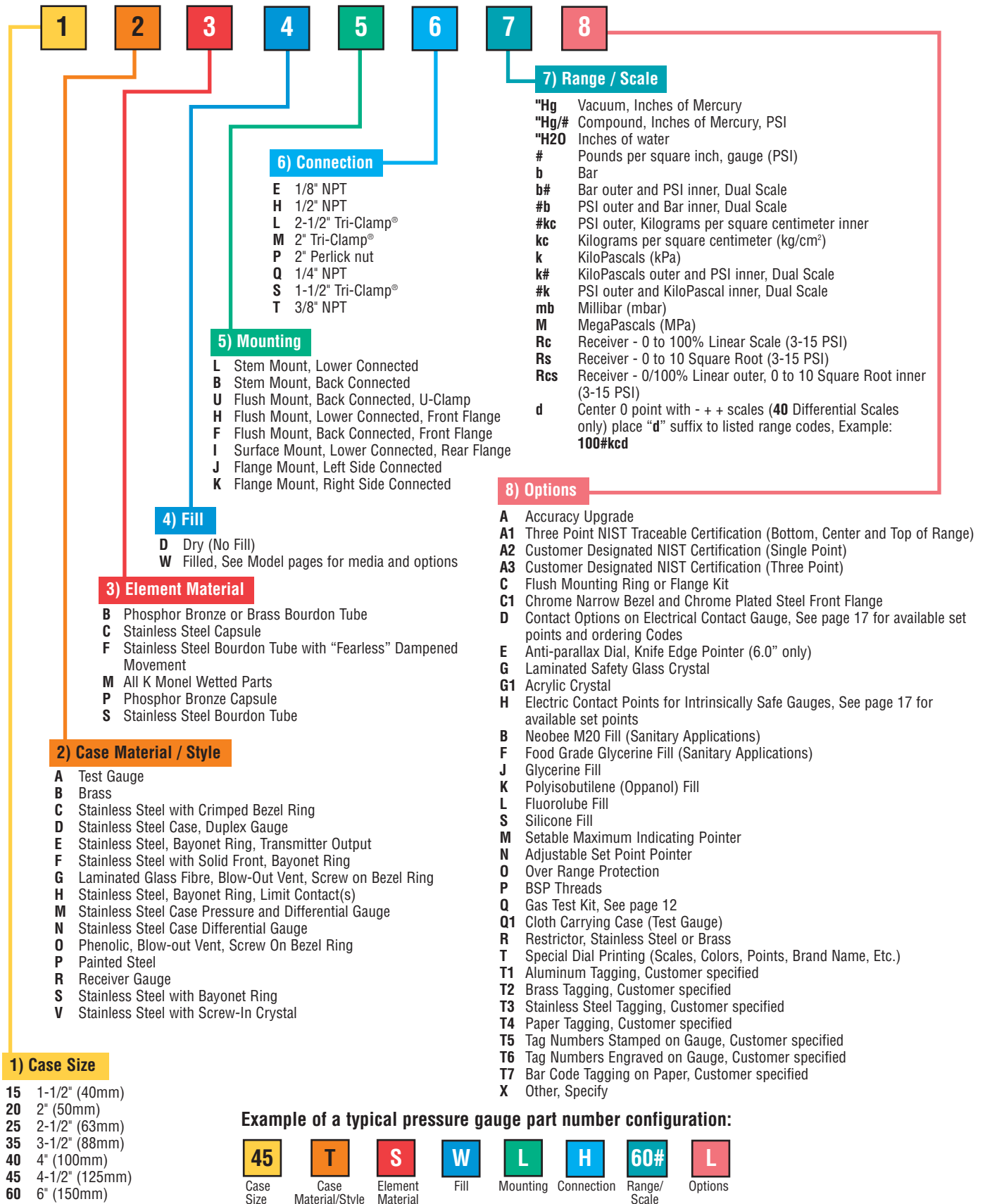
Please note that not all configurations are available! The total possible combinations would exceed two million! After reviewing the general information in "How to Select a Pressure Gauge" on page 3, refer to the pages in this catalog regarding the specific type of pressure gauge you want. Then, using the table on page 5 as a guide, refer to the description and option availability tables regarding each instrument, and *if they apply*, construct your part number based on the information regarding that gauge.

If you have questions or have a requirement which cannot be met by the instruments in this catalog, please contact Palmer Customer Service. We can custom manufacture a wide variety of high quality pressure gauges. Our long history of manufacturing industrial instruments of all types enables us to deliver to our customers the best in quality and service at the right price!

Mounting Codes

Code	Illustration	Description
L		Stem Mount, Lower Connected
B		Stem Mount, Back Connected
U		Flush Mount, Back Connected with U-Clamp
H		Flush Mount, Lower Connected with Front Flange
F		Flush Mount, Back Connected with Front Flange
I		Surface Mount, Lower Connected with Rear Flange

How To Identify A Palmer Pressure Gauge



Calibration Services Available

Fearless Gauges
All Stainless Steel
Fearless Gauges

Model 25SF • 40SF

All Stainless Steel Gauges



Palmer Fearless Gauges offer Filled Gauge performance without the disadvantages of Liquid Filled.



- Vibration and Pulsation Resistant Readings similar to a Liquid Filled Gauge
- Easy Shipping, Handling, and Storage
- Long Instrument Life
- Low Maintenance
- In Situ Calibration
- Replaceable Crystal
- Accuracy $\pm 0.5\%$ for 4" up to 3000 PSI
Accuracy $\pm 1\%$ for all 2-1/2", and 4" over 3000 PSI
- No Possibility of Chemical Reactions From Fill Media when Dry

Palmer Fearless All Stainless Steel Gauges are the highest quality instruments available for gas or liquid media. Their rugged construction and watertight bayonet case/ring design is enhanced by the new **Fearless** vibration and pulsation resistant **Dampened Movement**. The results are a Pressure Gauge suitable for demanding applications in all industries.

Specifications

Case: AISI 304 Stainless Steel in 2-1/2" (63mm), 4" (100mm).

Ring: AISI 304 Stainless Steel bayonet ring.

Window: Instrument quality Glass; Laminated Safety Glass and Acrylic optional.

Socket: AISI 316 Stainless Steel Socket and Tube, argon welded.

Bourdon Tube: AISI 316 Stainless Steel.

Movement: AISI Stainless Steel special Dampened Movement with wear-resistant, self-lubricating Delrin® gears.

Pointer: Balanced black aluminum, micrometer adjustable. Optional adjustable set pointer and maximum indicating pointer.

Dial: White Aluminum with black markings. Markings and graduations in accordance with ASME B40.1-1998.

Range Availability: See matrix at right.

Process Temperature Limits: -67 to 212°(-55 to 100°C).

Ambient Temperature Limits: -67 to 176°F (-55 to 80°C).

Overpressure Limits: 30% of range span Standard.

Blow Out Disc: 25mm diameter latex disc located at rear of case.



Fearless Gauge comparison to a Filled Gauge and a Dry Gauge under identical test conditions.

Please note the effects of vibration on the Dry Gauge, as compared to the Fearless Gauge which is vibration and pulsation resistant, similar to a Filled Gauge.



Model 25SF • 40SF

Fearless Gauges
All Stainless Steel
Fearless Gauges

Ordering and Options

1) Case Size

25 2-1/2" (63mm)
40 4" (100mm)

2) Case Material / Style

S Stainless Steel with Bayonet Ring (Standard)

5) Mounting

L Stem Mount, Lower Connection (Standard)
B Stem Mount, Back Connected
U Flush Mount, Back Connected with U Clamp
F Flush Mount, Back Connected with Front Flange
I Surface Mount, Lower Connected with Rear Flange

6) Connection

H 1/2" NPT (Standard on 40SF)
Q 1/4" NPT (Standard on 25SF)
X Other, Specify

7) Range / Scale

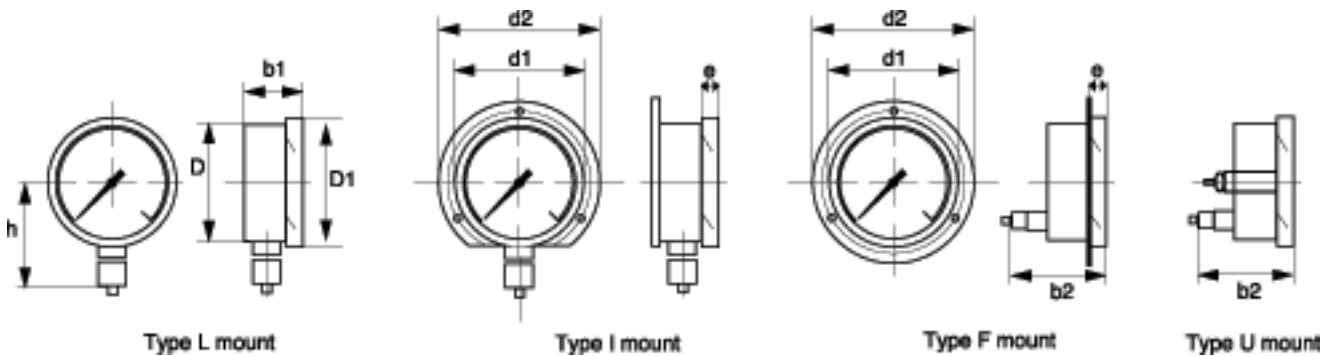
PSI Ranges		Compound Ranges
15#	0-15psi	-30" Hg/15# 30"Hg/0-15psi
30#	0-30psi	-30" Hg/30# 30"Hg/0-30psi
60#	0-60psi	-30" Hg/60# 30"Hg/0-60psi
100#	0-100psi	-30" Hg/100# 30"Hg/0-100psi
160#	0-160psi	-30" Hg/160# 30"Hg/0-160psi
200#	0-200psi	
300#	0-300psi	Vacuum Range
400#	0-400psi	-30"Hg to 0
800#	0-800psi	Metric Scales
1000#	0-1000psi	Bar, kg/cm ² , kPa
1500#	0-1500psi	Single or Dual Ranges available
2000#	0-2000psi	
3000#	0-3000psi	
4000#	0-4000psi	
5000#	0-5000psi	
6000#	0-6000psi	
7500#	0-7500psi	
10,000#	0-10,000psi	
15,000#	0-15,000psi	

8) Options

A1	M	T3	X
A2	N	T4	
A3	T	T5	
G	T1	T6	
G1	T2	T7	

See page 5 for descriptions.

Dimensions



Dimensions in inches (mm)

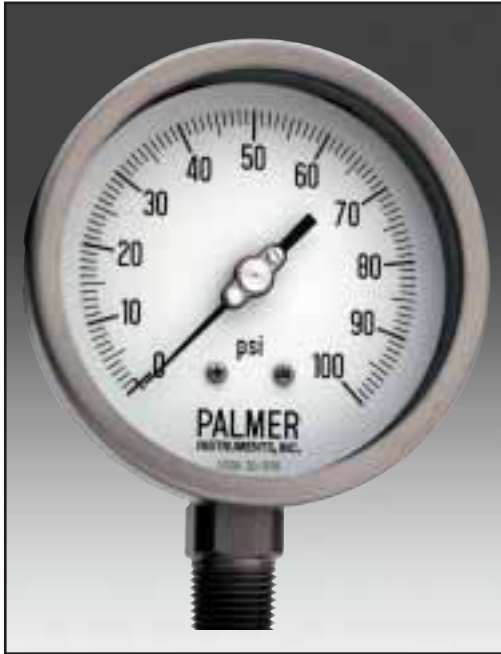
Case Size	D	D1	d1	d2	h	b1	b2	e	weight kg appr.
25SF	2.5 (62)	2.7 (68.5)	3 (75)	3.3 (85)	2.2 (55.5)	1.3 (32.5)	2.6 (65)	0.4 (11.5)	0.18
40SF	3.9 (99)	4.4 (112.5)	4.6 (116)	5.2 (132)	3.5 (89.5)	1.9 (48.5)	3.4 (85)	0.6 (16.5)	0.65

Calibration Services Available



Model 25CS • 40SS • 60SS & 40RS • 60RS

All Stainless Steel & Receiver Gauges



A complete line of high strength Gauges.

Process Fluid Temperatures: 212°F (100°C) maximum for standard tube and socket materials, 450° F (230° C) maximum for optional K Monel dry gauge.

Overpressure Limits: As a percent of full scale value:

- 30% for ranges up to 870 PSI (60 Bar).
- 25% for ranges from 870 to 1400 PSI (100 Bar).
- 15% for ranges above 1400 PSI (100 Bar).

Overpressure in excess of these values may affect calibration but will not damage the movement due to the mechanical stops.

Receiver Gauge Option: 40RS and 60RS Receiver Gauges are the same in all descriptions as 40SS and 60SS gauges, except for specifications listed below:

- Pressure Range: 3-15 psi.
- Dial Scales: 0-100% linear; 0-10 square root; 0-100% and 0/10 square root dual scale.
- Accuracy: ±1% on 4" and 6".

- Built-In Over-Range and Under-Range Protection
- Welded Socket to Case on 6"
- Reinforced Sector Improves Accuracy Over Life of Gauge
- Gauges Come with Removable Stainless Steel Restrictor on 4" & 6"

Specifications

Case: AISI 304 Stainless Steel in 2-1/2" (63 mm), 4" (100mm), and 6" (150mm) sizes, Filled or Dry. Case and socket welded together on 6" gauges.

Ring: AISI 304 Polished Stainless Steel, Bayonet Connection on 4" and 6" gauges. Crimped on 2-1/2" gauges.

Window: Instrument glass, Safety Glass and Acrylic optional.

Socket: AISI 316 Stainless Steel, TIG welded to the elastic element using 316 Stainless Steel. K Monel optional on 4" and 6" gauges. High Range 4" and 6" gauges come with removable Stainless Steel Restrictor. No restrictor on 2-1/2".

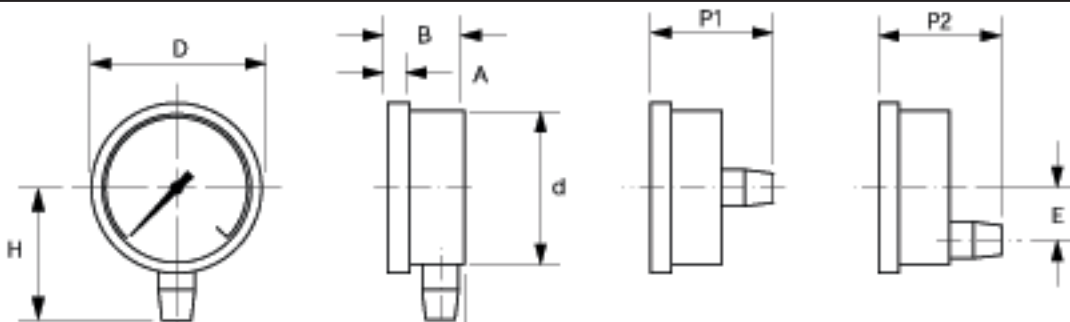
Bourdon Tube: All Pressure Sensing Elements are AISI 316L Stainless Steel. All 2-1/2" gauges less than 600 PSI, and 4" and 6" gauges less than 1000 PSI range use a C-tube configuration. All other gauges use a spiral tube. K Monel optional on 4" & 6".

Movement: Stainless Steel, Reinforced Stainless in 4" and 6" gauges only.

Pointer: Balanced black aluminum. Micrometer adjustable in 4" and 6" only.

Dial: White Aluminum with black markings. Markings and graduations in accordance with ASME B40.1-1998.

Basic Dimensions



Dimensions in inches (mm)

	A	B	C	D	d	E	H	P1	P2	Wrench
2-1/2" (63mm)	.037 (9.5)	1.18 (30.0)	0.47 (12.0)	2.68 (68.0)	2.48 (63.0)		2.05 (52.0)	2.09 (53.0)		14mm
4" (100mm)	0.57 (14.5)	1.99 (50.5)	0.61 (15.5)	4.41 (112.0)	3.98 (101.0)	1.22 (31.0)	3.39 (86.0)		3.43 (87.0)	24mm
6" (150mm)	0.65 (16.5)	2.11 (53.5)	0.61 (15.5)	6.54 (166.0)	5.91 (150.0)	1.89 (48.0)	4.65 (118.0)		3.35 (85.0)	24mm

Industrial Gauges
Solid Front
with Blow-Out Back

Model 40FS • 45TF • 45TS
Solid Front Blow-Out Back

Accurate, Tough and Adjustable



45TSDLH100

Safety Features: Palmer Process Gauges are designed to provide the maximum safety for personnel monitoring the gauges in the event of gauge failure, and to resist the most severe operating conditions created by the ambient environment and the process medium. These gauges are constructed with a solid barrier between the sensing element and the dial front, welded to the socket giving it exceptional strength. In addition to protecting the user from fluid and particles in the event of failure, the back of these cases is designed to blow out to release pressure inside the case.

• **40FS** designed to withstand high overpressure up to 4 times the full scale value (see Overpressure Limits tables, pg 11)

• **45TS** has a safety construction featuring a stainless steel "solid front" safety cell protecting the front and sides, and a blow out back.

• **45TF Fearless Gauge** has a safety construction featuring a stainless steel "solid front" safety cell protecting the front and sides, and a blow out back. It also has the added feature of a **Dampened Movement**, making it resistant to high vibrations and pulsating pressure. **Note:** See illustration of how a Fearless Gauge is resistant to vibration and pulsating pressure on page 6.



Specifications

Case and Blow-Out Disk: 40FS AISI 304 Stainless Steel in 4" (100mm), 45TF, 45TS Polyamide, Fiberglass Reinforced in 4-1/2" (125mm). Available either Filled or Dry.

Ring: 40FS AISI 304, Polished Stainless Steel with Bayonet Connection, 45TF, 45TS (4-1/2") Polypropylene, Fiberglass reinforced.

Window: 40FS Safety Glass standard, 45TF, 45TS Plexiglass standard, Safety Glass optional.

Socket: AISI 316L Stainless Steel, TIG welded to the elastic element using 316 Stainless Steel. Optional K Monel.

Bourdon Tube: All Pressure Sensing Elements are made from AISI 316L Stainless Steel. C-tube configuration is used for ranges below 1000 PSI. Spiral tube configuration for higher ranges. Optional K Monel.

Connections: 1/2" NPT threads with built in Stainless Steel Restrictor; 1/4" NPT optional.

Movement:

40FS Stainless Steel with Internal Limit Stops for Minimum and Maximum Pressure.

45TF AISI Stainless Steel special Dampened Movement with wear-resistant, self-lubricating Delrin® gears.

45TS Reinforced Stainless Steel with Internal Limit Stops to prevent damage in the event of inadvertent over-range and under-range.

Pointer: Balanced black aluminum, micrometer adjustable.

Dial: White aluminum with black markings. Markings and graduations in accordance with ASME B40. 1-1998.

Process Fluid Temperatures: 212° F (100°C) maximum for standard tube and socket materials, 450° F (230° C) maximum for optional K Monel dry gauge.

Accuracy: 0.5% of full scale, Dry, or 1.0% Filled.

Overpressure Limits: As a percent of full scale value:

- 30% for ranges up to 870 PSI (60 Bar)
- 25% for ranges from 870 to 1400 PSI (100 Bar)
- 15% for ranges above 1400 PSI (100 Bar)

Overpressures in excess of these values may result in a calibration shift but will not damage the movement due to the built in stops.

45TF Overpressure Limits, see tables on pg 11.

Temperature Errors: For a normal temperature of 68° F (20° C) approximately +0.3% (+0.4% for 4-1/2 inch) error for a temperature increase of 18° F and -0.3% (+0.4% for 4-1/2 inch) error for a temperature decrease of 18° F (10°C).

Range Availability: Consult Range Charts pages 26 and 27 for PSI, Metric, and Dual Scale range availability. K Monel option is not available for ranges above 3000 PSI (250) Bar.

Additional

Options: A1, A2, A3. See page 5 for descriptions.

Accuracy		
Dial Size	Fill	Accuracy
40FS	Dry	0.5%
	Glycerin	1%
45TF	Dry	0.5%
	Glycerin	1%
45TS	Dry	0.5%
	Glycerin	1%

Calibration Services Available



Model 40FS • 45TF • 45TS

**Industrial Gauges
Solid Front
with Blow-Out Back**



Cut away showing Solid Front feature

When Safety is Paramount!

Options	Mounting	Connections	Options	4"		4-1/2"		
				40FSW	40FSD	45TFD	45TSW	45TSD
Stem Mount, Lower Connected	L			S	S	S	S	S
Flush Mount, Back Connected, U-Clamp	U							
Surface Mount, Lower Connected, Rear Flange	I			•	•			
Stem Mount, Back Connected	B					S		S
Flush Mount, Back Connected, Front Flange	F					•	•	•
1/4" NPT		Q		•	•	•	•	•
3/8" NPT		T		•	•			
1/2" NPT		H		S	S	S	S	S
BSP Threads			P	•	•	•	•	•
Safety Glass Crystal			G	S	S	•	•	•
Glycerine Fill			J					
Silicone Fill (same accuracy as glycerine)			S	•			•	
Fluorolube Fill (same accuracy as glycerine)			L	•			•	
Wetted Parts of K Monel (see note below)			R	•	•	•	•	•

S indicates standard configuration
• indicates option availability

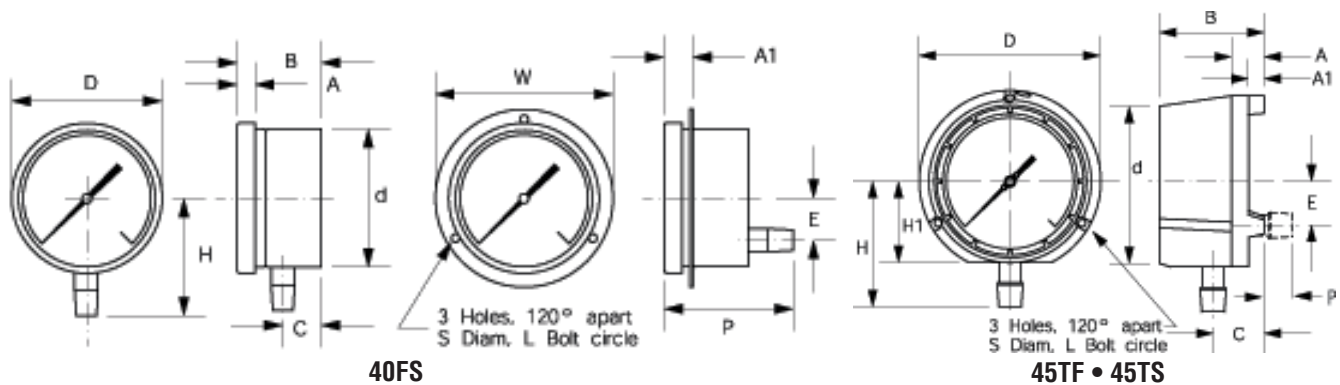
Note: To specify a gauge with all wetted parts of K Monel, replace the fourth character (an S) with the letter M in the Model Number.

40FS Overpressure Limits

Overpressure Limits - PSI																	
Range	0+15	0+30	0+60	0+100	0+160	0+200	0+300	0+400	0+600	0+1000	0+1500	0+2000	0+3000	0+4000	0+6000	0+10000	0+15000
Overpressure	60	120	240	400	480	600	900	1000	1200	2000	3000	4000	6000	8000	10000	15000	20000

Vacuum & Compound Limits - PSI				
Range	-30+0	-30+15	-30+30	-30+150
Overpressure	45	100	125	450

Dimensions



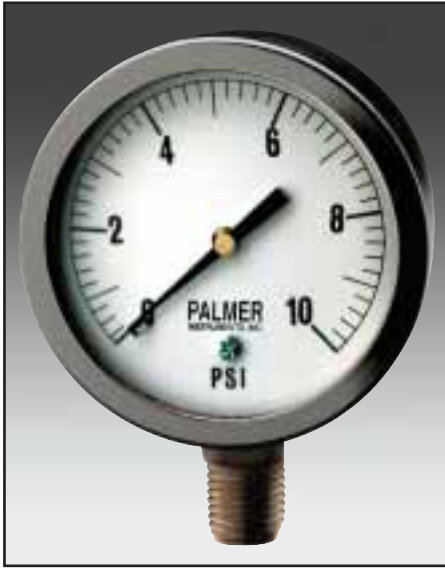
Dimensions in inches (mm)																
		A	A1	B	C	D	d	E	H	H1	L	P	S	W	Wrench	
4"	40FS	0.51 (13.0)	0.83 (21.0)	2.42 (61.5)	1.10 (28.0)	4.33 (110.0)	3.98 (101.0)	1.22 (31.0)	3.39 (86.0)		4.57 (116.0)	3.78 (96.0)	0.24 (6.0)	5.12 (130.0)	17mm	
4-1/2"	45TF 45TS	1.06 (27.0)	0.51 (13.0)	3.39 (86.0)	1.65 (42.0)	5.83 (148.0)	5.08 (129.0)	1.22 (31.0)	4.06 (103.0)	2.62 (66.5)	5.39 (137.0)		0.24 (6.0)		17mm	

Calibration Services Available



Model 25PP • 40PP • 40SC • 60SC

Low Pressure Gauges



An accurate, rugged gauge for all your low pressure needs.

25PP and 40PP Capsule Type Pressure Gauges are applied to measure low and extremely low positive or negative pressure. The capsule is a modification of diaphragm element with two convoluted membranes, leakproof soldered around the circumference to form the capsule.

Specifications

Case and Bezel: **25PP, 40PP** Corrosion Resistant Black Painted Steel in 2-1/2" (63mm), and 4" (100mm). **40SC, 60SC** AISI 304 Stainless Steel in 6" (150mm).

Ring: **25PP, 40PP** Black Painted Steel. **40SC, 60SC** AISI 304 Stainless Steel with Bayonet Connections.

Window: **25PP** Plastic Standard. **40PP** Glass or Acrylic. **40SC, 60SC** Glass standard, Safety Glass and Acrylic optional.

Socket: **25PP, 40PP** Brass. **40SC, 60SC** AISI 316 Stainless Steel.

Pointer: Black painted aluminum. **40SC, 60SC** Black painted aluminum, micrometer adjustable

Movement: Brass, high sensitivity type.

Pressure Sensing Element: **25PP, 40PP** Capsule sealed with O-ring gasket. Phosphor Bronze (Brass for ranges less than 60 inches of water); **40SC, 60SC** AISI 316 Stainless Steel on models 40SC and 60SC.

Overpressure Limits: Overpressure is not permitted on gauges with Phosphor Bronze elastic elements. Overpressure on gauges with Stainless Steel elastic elements is limited to 15% of full scale.

Temperature Errors: For an increase of 18° F (10° C) from the calibration temperature of 68°F an additional +.04% error can be expected, for a similar decrease in temperature, a -.04% error will occur; 4" and 6" gauges only.

Dial: White Aluminum with black markings. Markings and graduations in accordance with ASME B40.1-1998.

Accuracy: **25PP** ±3.2.3% f.s.d. **40PP** ±1.5% f.s.d. **40SC, 60SC** 1.6% of full scale.

Operating Range: 60% full scale reading for fluctuating loads. 75% full scale reading for static loads.

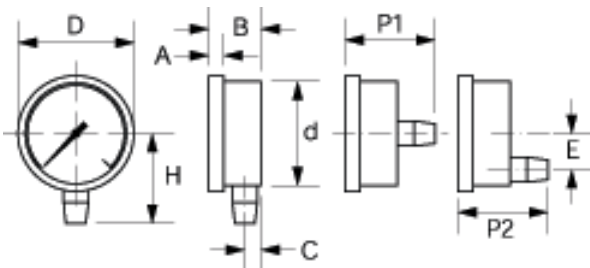
Additional Options: A1, A2, A3. See page 5 for descriptions.

Available Ranges				
Range	25CPD	40SPD	40SCD	60SCD
-30" H2O / 0 (Vac)		•		•
0 / 10" H2O	•	•		
0 / 15" H2O		•		•
0 / 30" H2O	•	•	•	•
0 / 35" H2O / 20oz	•	•	•	•
0 / 60" H2O	•	•	•	•
0 / 60" H2O / 35oz	•	•	•	•
0 / 100" H2O		•	•	•
0 / 160" H2O		•	•	•
0 / 200" H2O	•	•	•	•
0 / 3 PSI	•	•		
0 / 5 PSI	•	•		
0 / 10 PSI	•	•		

Options

	Mounting	Connections	Options	25PPD	40PPD	40SCD	60SCD
Stem Mount, Lower Connected	L			S	S	S	S
Flush Mount, Back Connected, U-Clamp	U			S	S	S	S
Surface Mount, Lower Connected, Rear Flange	I				S	S	S
Stem Mount, Back Connected	B			S	S	S	S
Flush Mount, Back Connected, Front Flange	F				S	S	S
1/4" NPT		Q		S	S	•	•
3/8" NPT		T					
1/2" NPT		H				S	S
BSP Threads		P				•	•
Acrylic Crystal		G1				•	•

S indicates standard configuration
• indicates option availability



Dimensions in inches (mm)

	D	d	H	A	B	C	P1	P2	E
2-1/2" (63mm)	2.49 (63.3)	2.42 (61.5)	2.08 (52.8)	0.42 (10.7)	1.21 (30.7)	0.21 (5.3)	2.08 (52.8)		
4" (100mm)	4.41 (112.0)	3.98 (101.0)	3.43 (87.0)	0.57 (14.5)	1.99 (50.5)	0.61 (15.5)		3.39 (86.0)	1.36 (34.5)
6" (150mm)	6.54 (166.0)	5.91 (150.0)	4.65 (118.0)	0.65 (16.5)	2.11 (53.5)	0.61 (15.5)		3.50 (89.0)	2.09 (53.0)

Model 25BB 2-1/2" Brass Case Gauge

Specifications

Case: 2-1/2" (63mm) One piece die cast Brass Case and Socket, Glycerine Filled

Connection: 1/4" NPT with 17mm wrench flats cast into Stem Mount, Lower Connected, 14 mm wrench flats cast into Stem Mount, Back Connected.

Ring: Highly Polished Brass.

Window: Polycarbonate.

Bourdon Tube: Phosphorus Bronze for gauges with ranges up to 8000 PSI, AISI 316L Stainless Steel above 8000 PSI. C-tube configuration is used below 900 PSI, spiral tube for higher ranges.

Movement: All Brass Gear and Plates.

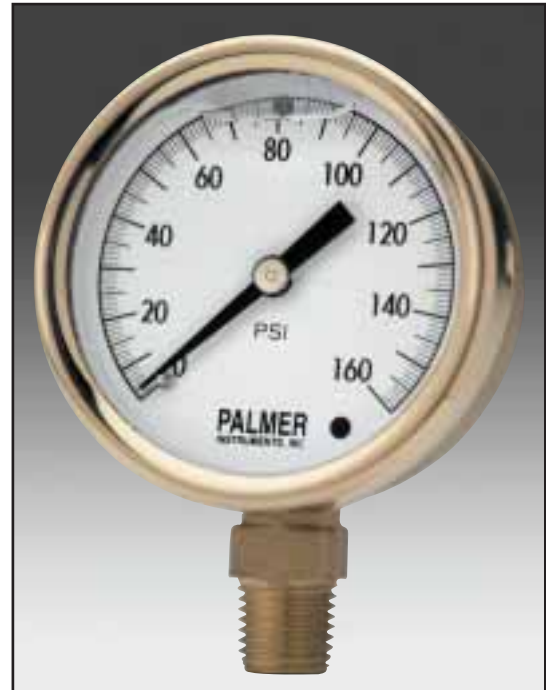
Pointer: Balanced black aluminum, non adjustable.

Dial: White Aluminum with black markings. Markings and graduations in accordance with ASME B40.1-1998.

Accuracy: 1.5% of full scale.

Options: Chrome Plated Steel Front Flange, Chrome Narrow bezel with U-Clamp.

Additional Options: A1, A2, A3, C1. See page 5 for descriptions.



The classic look of brass in a tough, modern gauge.

Available Ranges		
Gauge	Figure Interval	Graduation Interval
-30" Hg / 0 PSI	5" Hg	0.5" Hg
-30" Hg / 0 / 30 PSI	10" Hg. 5 PSI	1" Hg. 0.5 PSI
0 / 15	1	0.1
0 / 30	5	0.2
0 / 60	5	0.5
0 / 100	10	1
0 / 160	20	1
0 / 200	20	2
0 / 300	50	2
0 / 600	50	5
0 / 1000	100	10
0 / 1500	300	10
0 / 2000	200	20
0 / 3000	500	20
0 / 5000	500	50
0 / 10,000	2000	100
0 / 15,000	3000	200

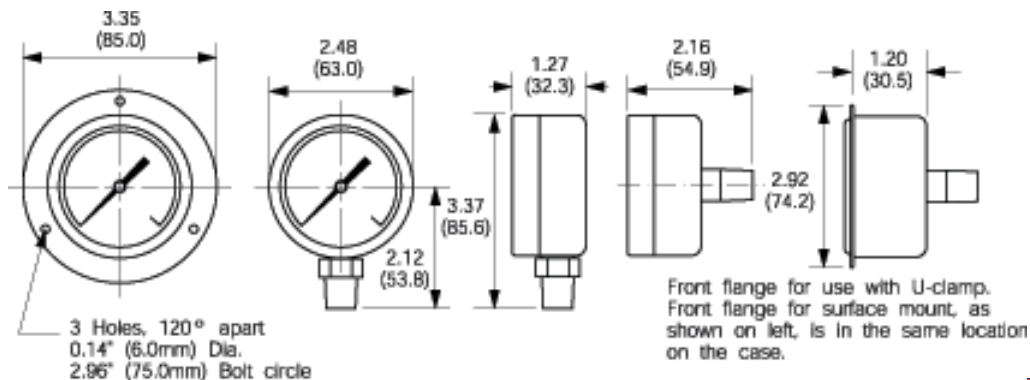
Options

	Mounting	25BBWL	25BBWB
Stem Mount, Lower Connected	L	S	
Flush Mount, Back Connected, U-Clamp	U		•
Stem Mount, Back Connected	B		S
Flush Mount, Back Connected, Front Flange	F		•
1/4" NPT	Q	S	S

S indicates standard configuration

• indicates option availability

Dimensions



Calibration Services Available

Utility Gauges Stainless Steel Case Gauges

Type 15CB • 20CB • 25CB • 40CB Stainless Steel Case Gauges

A full line of economical Gauges featuring the toughness and beauty of stainless steel cases.

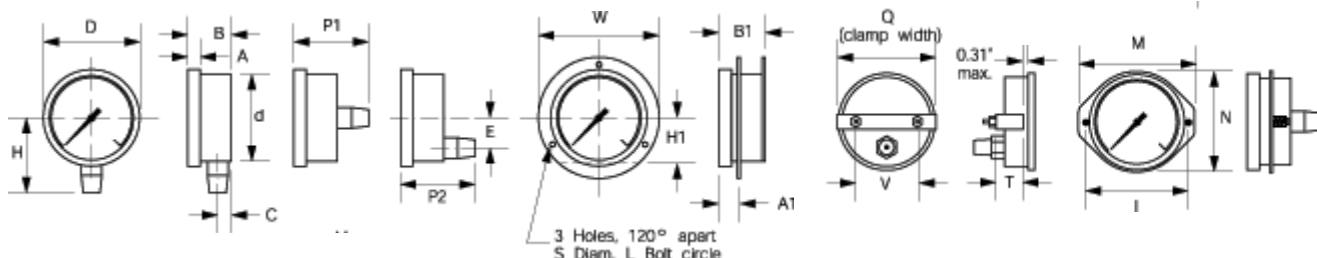


Options

	Mounting	Connections	Options	1-1/2"		2"		2-1/2"		4"	
				15CBW	15CBD	20CBW	20CBD	25CBW	25CBD	40CBW	40CBD
Stem Mount, Lower Connected	L			S	S	S	S	S	S	S	S
Flush Mount, Back Connected, U-Clamp	U							•	•	•	•
Surface Mount, Lower Connected, Rear Flange	I							•	•	•	•
Stem Mount, Back Connected	B			S	S	S	S	S	S	S	S
Flush Mount, Back Connected, Front Flange	F							•	•	•	•
1/8" NPT		E		S	S						
1/4" NPT		Q				S	S	S	S	S	S
1/2" NPT		H								•	•
BSP Threads			P					•	•	•	•
Silicone Fill			S					•		•	
Glycerine Fill			J					S		S	

S indicates standard configuration
• indicates option availability

Dimensions



Dimensions in inches (mm)

	D	d	H	A	B	C	P1	P2	E	W	H1	B1	A1	Q	V	T	M	N	I
2-1/2" (63mm)	2.68 (68.0)	2.48 (63.0)	2.17 (55.0)	0.24 (6.0)	1.18 (30.0)	0.47 (12.0)	2.09 (53.0)			3.35 (85.0)	1.26 (32.0)	1.34 (34.0)	0.28 (7.0)				3.21 (81.5)	2.72 (69.0)	2.76 (70.0)
4" (100mm)	4.33 (110.0)	3.98 (101.0)	3.23 (82.0)	0.30 (7.5)	1.34 (34.0)	0.43 (10.8)		2.91 (74.0)	1.14 (29.0)	5.12 (130.0)	2.05 (52.0)	1.50 (38.0)	0.71 (18.0)	4.41 (112.0)	2.76 (70.0)	1.63 (41.5)			

Model 35SS • 45SS Sanitary Gauges

Meets 3-A Sanitary Standard 37-01 and USDA, FDA Regulations

Specifications

Case: AISI 304 Stainless Steel in 3-1/2" (88mm) or 4-1/2" (125 mm). Case can withstand high-pressure cleaning.

Ring: AISI 304 Polished Stainless Steel with Bayonet Connections.

Window: Polycarbonate

Socket: AISI 316 Stainless all welded construction.

Bourdon Tube: AISI 316L Stainless Steel.

Connections: Gauge is welded to diaphragm seal. Standard is either **S15** (1-1/2") or **S20** (2") Tri-Clamp®.

Diaphragm Seal: Polished 316 Stainless Steel heavy duty one piece welded construction. No exposed threads.

Diaphragm Backup: Machine convoluted backup.

Fill: Diaphragm Assembly filled with Food Grade Glycerine, also case on wet gauge. Optional Neobee M20 fill available.

Movement: All Stainless plates and gears.

Pointer: Black balanced aluminum, micrometer adjustable.

Dial: White Aluminum with black markings. Markings and graduations in accordance with ASME B40.1-1998.

Range: See range matrix at right for availability. 50% over-range protection is standard.

Accuracy: 1% of full scale on 3-1/2" gauges (ASME Grade 1A), 1/2% of full scale on 4-1/2" gauges (ASME Grade 2A). 1-1/2% of full scale for both gauge sizes on 0/15 PSI.

Operating Limitations: The maximum operating pressure should not exceed approximately 75% of the full scale range.

Additional Options: A1, A2, A3.

See page 5 for descriptions.

®Tri-Clamp is a registered trademark of the Tri-Clover Co.

Tri-Clamp® Size	S
S 15 1-1/2" Tri-Clamp®	1.99 (50.5)
S 20 2" Tri-Clamp®	2.52 (64.0)

Options

	Mounting	Connection	Option	3-1/2"		4-1/2"	
				35SSW	35SSD	45SSW	45SSD
Lower Connected	L			S	S	S	S
Back Connected	B			S	S	S	S
1-1/2" Tri-Clamp®		S		S	S	S	S
2" Tri-Clamp®		M		S	S	S	S
Food Grade Glycerine			E	S		S	

S indicates standard configuration
• indicates option availability

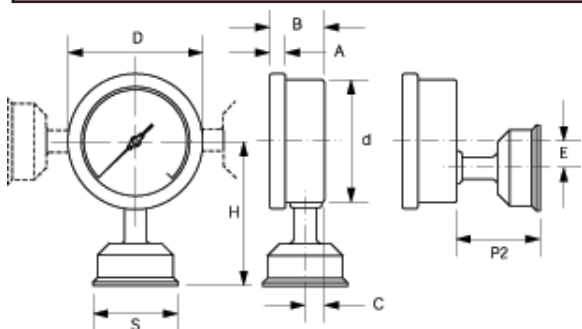
Available Ranges

PSI
-30"Hg / 0 / 15 PSI
-30"Hg / 0 / 30 PSI
15*
60
100
160
200
300
400
500
600
1000

*Accuracy of this range is 1.5%, full scale.



Dimensions



Dimensions in inches (mm)

	D	H	B	A	d	C	P2	E
3-1/2" (88 mm)	3.98 (101.1)	3.85 (97.8)	1.63 (41.4)	0.47 (11.9)	3.63 (92.2)	0.65 (16.5)	2.03 (51.6)	0.77 (19.6)
4-1/2" (125 mm)	4.91 (124.7)	4.72 (119.9)	2.13 (54.1)	0.48 (12.2)	4.55 (115.6)	0.71 (18.0)	2.35 (59.7)	0.96 (24.4)

Calibration Services Available

Model 40HB • 40HS

Electrical Contact Gauges



Specifications

Case: AISI 304 Stainless Steel in 4" (100mm) Dial size. Available Dry or Filled with Polyisobutylene (Oppanol), or Fluorolube (see page 5). Available in Stem Mount Lower Connected, or Back Connected.

Ring: AISI 304 Polished Stainless Steel, Bayonet Connection. **Window:** Acrylic.

Socket: 40HB: OT58 Brass; 40HS: AISI 316 Stainless Steel.

Bourdon Tube: 40HB Phosphor Bronze for ranges up to 600 PSI. AISI 316L Stainless Steel for ranges above 600 PSI. 40HS AISI 316L Stainless Steel for all ranges. For ranges less than 1000 PSI (60 Bar) a C-tube is used, higher ranges use a spiral tube.

Connection: 1/2" NPT, 1/4" NPT available.

Movement: 40HB OT59 Brass, AISI 304 Stainless Steel plates. 40HS Reinforced Stainless Steel.

Pointer: Balanced black aluminum, micrometer adjustable

Dial: White aluminum with black markings. Markings and graduations in accordance with ASME B40. 1-1998.

Ambient Temperature Limits: -13 to 150°F (-25 to 65°C).

Process Fluid Limits: 212°F (100°C) maximum.

Accuracy: 1.0% of full scale value (ASME grade 1A), 1.6% filled.

Temperature Errors: For a normal temperature of 68°F (20°C) approximately +0.3% error for temperature increase of 18°F (10°C) and -0.3% error for temperature decrease of 18°F (10°C).

Contact Point Options: Specify Code from table on pg 17.

Options: A1, A2, A3, D, H. See page 5 for descriptions.

Available Ranges	
PSI	Bar
15	1
30	1.6
60	2.5
100	4
160	6
250	10
400	16
600	25
800	40
1000	60
1500	100
2000	160
2500	250
3000	400
5000	600
6000	1000
10,000	
15,000	

Electrical Contact Specifications

General Characteristics: Gauges can be supplied with one or two contacts, which are designed to either open or close as the pressure gauge pointer passes the set point. Mechanical contacts are made from a silver alloy and feature a magnetic block to avoid sparking or faulty switching in high vibration environments. See page 17 for configurations and ordering Codes.

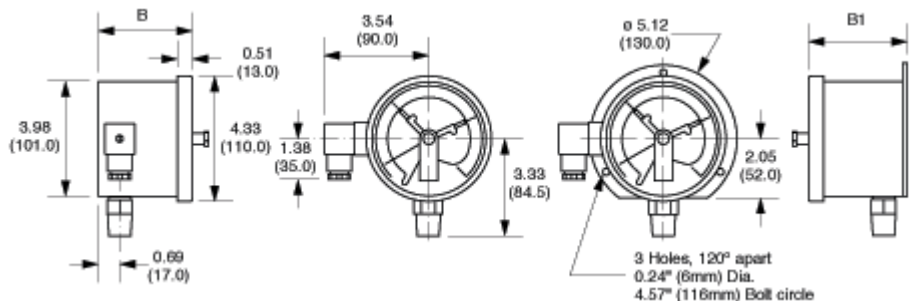
Inductive Contacts: Designed for use in hazardous areas, and certified to conform to CENELEC 50014/50020 standards with protection degree EEx ia IIC T6 where intrinsically safe instruments are required.

Design Contact & Operation: The inductive contact is an electric contact which operates without mechanical contact. It mainly consists of a control head containing a transistorized oscillator and two axial coils. The magnetic coupling between the two axial coils is changed by a control flag which is moved by the pointer. This action changes the internal control unit resistance which is used, by means of an amplifier, to trigger a switch amplifier which in turn causes the actual switch.

Electrical Rating: The contacts can be used with either AC or DC with a maximum voltage of 380 volts and are rated at 30 Watts/50VA. For specific recommendation see the accompanying table at left.

Electrical Ratings		
Volts	AC	DC
380	80mA	75mA
220	135mA	130mA
110	270mA	250mA
50	0.5 A	0.4A


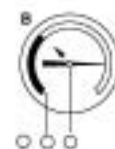
























Case Thickness (see drawing)		
Model	B	B1
Single	2.81	2.97
Contact	71.4	75.4
Double	3.25	3.41
Contact	82.6	86.6





Calibration Services Available

Model 40HB • 40HS

Electrical Wiring for Mechanical Contacts

Scheme	Activation	Non Activated	Switch Function <i>clockwise</i> movement of the pointer	Contact Type	Code
MPI  	White Area, Pos. B	Black Area, Pos. A	Pointer passing the set point opens the contact	Magnetic Mechanical	D1
					H1
MAO  	White Area, Pos. A	Red Area, Pos. B	Pointer passing the set point closes the contact	Magnetic Mechanical	D2
					H2
MINI-MAXI   	Black & White Areas, Pos. A ~ Red & White Areas, Pos. C	White Area, Pos. B	Pointer passing the set point opens contact 1 and closes contact 2	Magnetic Mechanical	D3
MAXI-MAXI   	White Area, Pos. A ~ Red & White Areas, Pos. B	Red Area, Pos. C	Pointer passing the set point closes contact 1 and contact 2	Magnetic Mechanical	D4
MAXI-MPI   	Black & White Areas, Pos. A ~ Red & White Areas, Pos. C	Red & Black Areas, Pos. B	Pointer passing the set point opens contact 1 and closes contact 2	Magnetic Mechanical	D5
MINI-MPI   	Black & White Areas, Pos. B ~ White Area, Pos. C	Black Area, Pos. A	Pointer passing the set point opens contact 1 and contact 2	Magnetic Mechanical	D6
INDEPENDENT MINI-MAXI   	Black & White Areas, Pos. A ~ Red & White Areas, Pos. C	White Area, Pos. B	Pointer passing the set point opens contact 1 and closes contact 2	Magnetic Mechanical	D7
					H7
INDEPENDENT MAXI-MAXI   	White Area, Pos. A ~ Red & White Areas, Pos. B	Red Area, Pos. C	Pointer passing the set point closes contact 1 and contact 2	Magnetic Mechanical	D8
					H8

 Set point MIN
 Set point MAX
 Adjustable over 270°

When the contact is open the current is interrupted.
 When the contact is closed the current goes through.
Wire colors: contact 1 = brown, contact 2 = black, supply 3 = grey, supply 4 = blue, ground = yellow-green.

Calibration Services Available

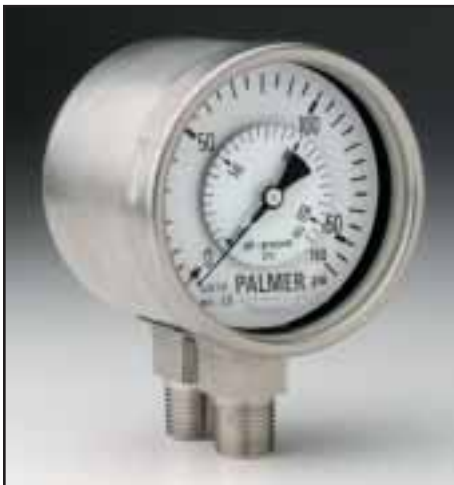


Specialty Gauges Differential and Duplex Gauges

Model 40DS • 40MS • 40NS Differential And Duplex Gauges



40DS Stainless Steel Duplex Gauge



40MS Stainless Steel Pressure and Differential Gauge



40NS Stainless Steel Differential Gauge

Differential and Dual Pressure Gauges utilize two independent Bourdon Tube Systems.

- **40DS Stainless Steel Duplex Gauge**

Current pressure readings from two sources indicated by two separate pointers on a common dial, with differential pressure calculated by subtraction.

- **40MS Stainless Steel Pressure & Differential Gauge**

Current pressure reading from one primary source indicated by one pointer on the outer scale and differential pressure from a second source displayed on a separate rotating center dial.

- **40NS Stainless Steel Differential Gauge**

One pointer on a dial indicates the differential pressure between two connected sources.

Specifications

Case: AISI 304 Stainless Steel in 4" (100mm) with blow-out disc. Available Filled or Dry.

Ring: AISI 304 Stainless Steel Bayonet Connection.

Window: Instrument quality Glass, Laminated Safety Glass or Acrylic optional.

Socket: Two separate AISI 316 Stainless Steel Bourdon Systems, each socket and tube argon welded. K-Monel optional.

Bourdon Tube: All Pressure Serving Elements are made from AISI 316 Stainless Steel. K-Monel optional.

Movement: AISI Stainless Steel with wear-resistant Stainless Steel gears.

Pointer:

40DS: Aluminum pointers, one black for primary pressure, one red for duplex pressure.

40MS: Black Aluminum pointer for primary pressure, dial indication of differential value.

40NS: Black Aluminum pointer, micrometer adjustable for differential value only.

Dial: White aluminum dial or dials with black numerals and graduations.

Range Availability: See Range/Scale matrix pg 19.

Process Temperature Limits: -67 to 212°F (-55 to 100°C).

Ambient Temperature Limits: -67 to 176°F (-55 to 80°C).

Accuracy: 1% full scale.

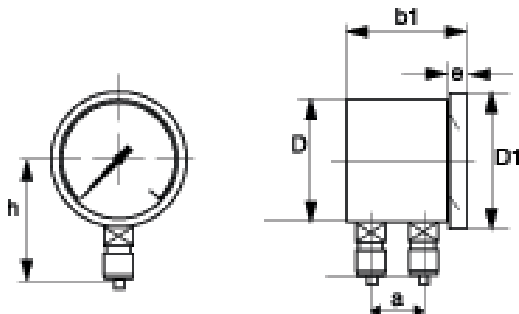
Overpressure Limits: 30% of range is standard, optional extended protection.

Model 40DS • 40MS • 40NS

Ordering and Options

<p>1) Case Size 40 4" (100mm)</p>	<p>2) Case Material / Style D Stainless Steel Duplex Gauge N Stainless Steel Differential Gauge M Stainless Steel Pressure & Differential Gauge</p>	<p>3) Element Material M All K Monel Wetted Parts S Stainless Steel Bourdon Tube</p>	<p>4) Fill D Dry W Fill, Glycerine Standard, Specify other fills from options table</p>	<p>5) Mounting L Stem Mount, Lower Connected (Standard) H Flush Mount, Lower Connected with Front Flange I Surface Mount, Lower Connected with Rear Flange</p>	<p>6) Connection H 1/2" NPT (Standard) Q 1/4" NPT X Other, Specify</p>	<p>7) Range / Scale PSI Ranges 10# 0-10psi 15# 0-15psi 30# 0-30psi 60# 0-60psi 100# 0-100psi 160# 0-160psi 200# 0-200psi 300# 0-300psi 400# 0-400psi 800# 0-800psi 1000# 0-1000psi 1500# 0-1500psi 2000# 0-2000psi 3000# 0-3000psi 4000# 0-4000psi 5000# 0-5000psi 6000# 0-6000psi 7500# 0-7500psi 10,000# 0-10,000psi 15,000# 0-15,000psi <i>Metric ranges available</i> NS Series available also in ± ranges with 0 point in center of scale - add "d" behind range. Example: 3000#d</p>	<p>8) Options A1 Three point NIST Traceable Certification, Test Points-Bottom, Center and Top of Range A2 Customer Designated Single Point NIST Traceable Certification A3 Customer Designated Three Point NIST Traceable Certification G Laminated Safety Glass Crystal G1 Acrylic Crystal J Glycerine Filled K Polyisobutylene (Oppanol) Filled L Fluorolube Filled S Silicone Filled M Setable Maximum Indicating Pointer, NS only N Adjustable Set Pointer, NS only O Over range Protection (300%) P BSP Threads X Other, Specify See pg 5 for descriptions</p>
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Dimensions



Dimensions in inches (mm)							
Case Size	D	D1	h	b1	a	e	weight kg approx.
4" (101.6mm)	99 (3.90)	112.5 (4.43)	75 (2.95)	85 (3.35)	3.6 (0.142)	55.5 (2.9)	1.3

Calibration Services Available

Model 40ES

Current Loop Transmitter Gauges



The reliability of a mechanical gauge with the interface flexibility of an electronic sensor.

Available Ranges	
PSI	Bar
-30" Hg / 0 PSI	-1/0 Bar
15	1
30	1.6
60	2.5
100	4
160	6
200	10
300	16
400	25
600	40
1000	60
1500	100
2000	160
3000	250
4000	400
5000	

Specifications

Case: AISI 304 Stainless Steel in 4" (100mm). Available Silicone Filled or Dry.

Ring: AISI 304 Polished Stainless Steel. Bayonet connection.

Window: Laminated Safety Glass.

Socket: AISI 316 Stainless Steel.

Pressure Sensors: Bourdon Tube is made from AISI 316L Stainless Steel. Electronic sensor is thick film on ceramic, seal is PTFE (Teflon®). Sensors are completely independent of one another giving the instrument a built-in back up and calibration check capability.

Connection: 1/2" NPT, 1/4" optional.

Movement: Reinforced Stainless Steel.

Pointer: Balanced black aluminum, micrometer adjustable.

Dial: White aluminum with black markings. Markings and graduations in accordance with ASME B40. 1-1998.

Temperature Limits: -4°F to 150°F for Filled gauge (ambient and process fluids).

Overpressure Limits: As a percent of full scale value:

30% for ranges up to 870 PSI (60 Bar)

25% for ranges from 870 to 1400 PSI (100 Bar)

15% for ranges above 1400 PSI (100 Bar)

Optional 200% over range (changes accuracy to 1% of full scale).

Accuracy: 0.5% of full scale value (ASME grade 2A) on Dry Gauges, 1.0% (ASME grade 1A) on Filled Gauges.

Temperature Errors: For a normal temperature of 68°F (20°C) approximately +0.3% error for a temperature increase of 18°F and -0.3% error for a temperature decrease of 18°F (10°C).

Options: A1,A2, A3, O, P, See page 5 for descriptions.

Transmitter Specifications

Output Signal: Industry standard 4 to 20mA current loop.

Power Supply: 18 to 32 volts, 25 mA.

Accuracy: 0.5% of full scale value including linearity and hysteresis.

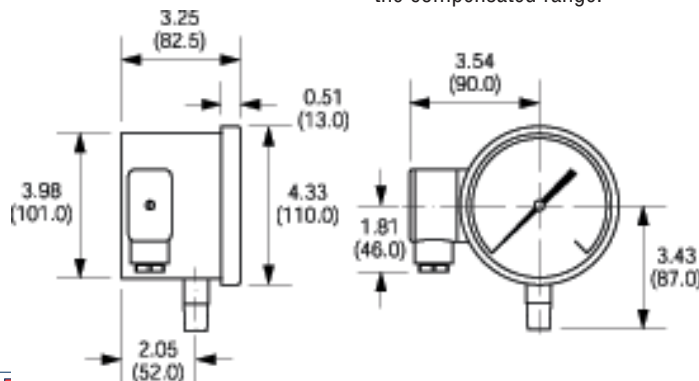
Operating Temperature Range: -13 to 160°F (-25 to 85°C)

Compensated Temperature Range: 14 to 104°F (-10 to 40°C)

Temperature Effect On Zero Balance: Less than 0.02% °F (0.03% °C) in the compensated range.

Temperature Effect On Output: Less than 0.006% °F (0.01% °C) in the compensated range.

; than 0.01%/year.



Model 60AB Test Grade Gauges

Specifications

Case: AISI 304 Stainless Steel, 6" (150 mm) diameter. Case features a Solid Front construction and has a Blowout Back for safety.

Ring: AISI 304 Polished Stainless Steel with Bayonet Connection.

Window: Glass.

Socket: AISI 316 Stainless Steel, welded to Bourdon tube using a silver alloy fill.

Bourdon Tube: All Pressure Sensing Elements are made from Beryllium Copper. C-tube configuration is used for ranges below 1000 PSI (60 Bar), spiral tube configuration for higher ranges.

Connections: 1/2" NPT connection is standard, 1/4" NPT is optional. BSP threads are also available in place of 1/2" NPT. 24mm wrench flats are used on the Stem Mount, Lower Connected gauge, 17 mm flats on the Stem Mount, Back Connected gauges.

Movement: High precision geared movement.

Pointer: Balanced, knife-edge, black pointer featuring micrometer adjustment.

Dial: Anti-parallax mirror dial constructed of aluminum. Finish is a light green for easy reading with black markings.

Accuracy: Accurate to 0.25% of full scale value (ASME grade 3A) at 68° F (20° C), in vertical position.

Temperature Errors: For an increase of 18°F (20° C) from the calibration temperature an additional +0.05% error can be expected, for a similar decrease in temperature, a -0.05% error will occur.

Operating Limitations: Operation should be restricted to 75% of full scale value.

Options: Certification tracing the accuracy and calibration to NIST is available. Gauge may also be ordered with a fabric carrying case.

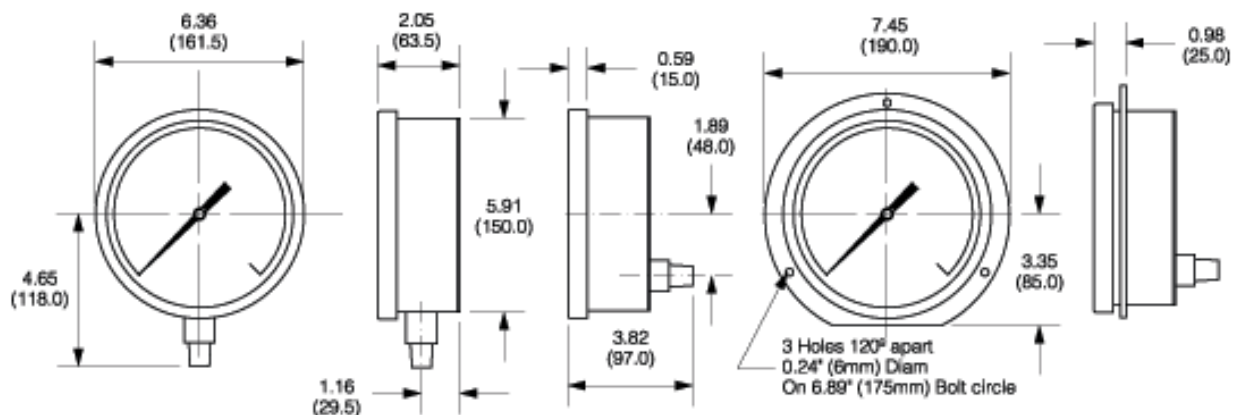


ASME grade 3A gauge featuring a safety front stainless case.

Available Ranges

Range, PSI	10	30	60	100	250	400	600	1000	2000	3000	6000	10,000
Minor Graduation	0.05	0.1	0.2	0.5	1	2	2	5	10	10	20	50
Figure Interval	1	2	5	10	20	20	50	100	100	200	500	1000

Dimensions



Calibration Services Available

PALMER Wahl
INSTRUMENTATION GROUP

Steel Case Gauges

An economical solution to a wide range of applications.

Painted Steel Case Utility Gauges Type 15PB • 20PB • 25PB • 40PB



Case: Corrosion Resistant Black Painted Steel, available in 1-1/2" (40mm), 2" (50mm), 2-1/2" (63mm), and 4" (100mm).

Window: Acrylic, Glass on 4".

Bourdon Tube: Brass or Phosphor Bronze.

Socket: Brass.

Connections: 1/8" NPT on 1-1/2" gauge, 1/4" NPT on 2", 2-1/2" and 4" gauges. All gauges available in Stem Mount, Lower Connected or Stem Mount, Back Connected.

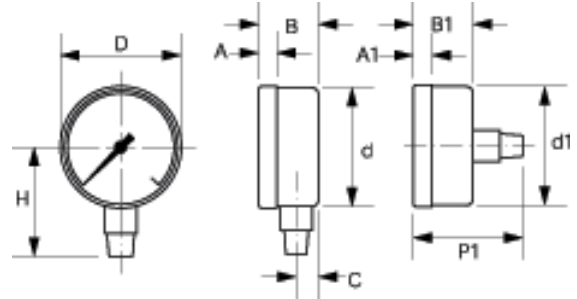
Movement: Low friction, durable Brass.

Pointer: Black painted aluminum, nonadjustable.

Dial: White background with black graduations and lettering.

Accuracy: 1-1/2", 2" and 2-1/2" gauges are $\pm 2\%$ mid-range. 4" gauges are $\pm 1.5\%$ mid-range.

Options: A1, A2, A3. See page 5.

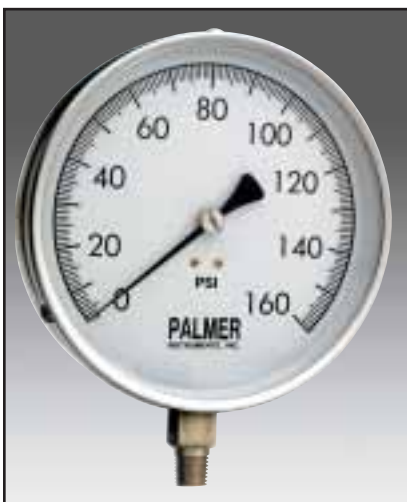


Available Ranges				
Range	1-1/2"	2"	2-1/2"	4"
-30" Hg / 0 PSI		•	•	•
-30" Hg / 0 / 30 PSI		•	•	•
15 PSI*	•	•	•	•
30	•	•	•	•
60	•	•	•	•
100	•	•	•	•
160	•	•	•	•
200	•	•	•	•
300		•	•	•
400		•	•	•
600		•	•	•

dimensions in inches (mm)										
	A	A1	B	B1	C	D	d	d1	H	P1
1-1/2" (40 mm)	0.26 (6.5)	0.26 (6.5)	0.87 (22.0)	0.91 (23.0)	0.26 (6.5)	1.63 (41.5)	1.59 (40.5)	1.57 (40.0)	1.44 (36.5)	1.57 (40.0)
2" (50 mm)	0.37 (9.5)	0.37 (9.5)	1.16 (29.5)	1.11 (28.0)	0.53 (9.0)	2.11 (53.5)	2.06 (52.2)	2.06 (52.2)	1.77 (45.0)	1.85 (47.0)
2-1/2" (63mm)	0.35 (9.0)	0.33 (8.5)	1.10 (28.0)	1.04 (26.5)	0.41 (10.5)	2.64 (64.0)	2.48 (63.0)	2.48 (63.0)	2.07 (52.5)	2.07 (50.5)
4" (100mm)	0.87 (22.0)		1.48 (37.5)		0.59 (15.0)	3.96 (100.5)	3.90 (99.0)		2.97 (75.5)	

*Accuracy of this range is 1.5%, full scale.

Stainless Steel Case Contractor Gauges Type 45SB



Case: 304 Series Stainless Steel Case and Removable Bezel Ring, available only in 4-1/2" (125mm).

Window: Acrylic.

Socket: Brass.

Bourdon Tube: Brass.

Connections: 1/4" NPT Standard.

Mounting: Stem Mount, Lower Connected only.

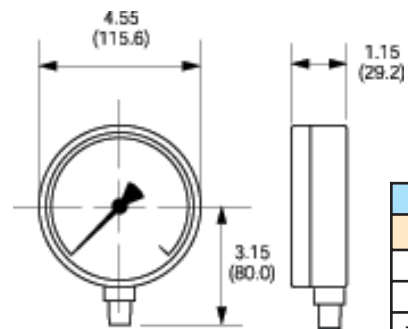
Movement: Brass.

Pointer: Black painted aluminum, zero adjustable.

Dial: White finished aluminum with black numerals and graduations.

Accuracy: $\pm 1\%$ mid-range.

Options: A1, A2, A3. See page 5 for descriptions.



Ranges
PSI
-30" Hg / PSI
-30" Hg / 30 PSI
-30" Hg / 100 PSI
30
60
100
160
200
300
500

Snubbers and Syphons

Piston Type Snubbers

All products from Palmer Instruments are constructed of the finest materials and designed for reliable service in severe environments. However, some applications occasionally arise where additional protection is needed. Where rapid pulsations or hydraulic hammering is likely to be encountered, a Snubber is recommended to protect the pressure gauge.

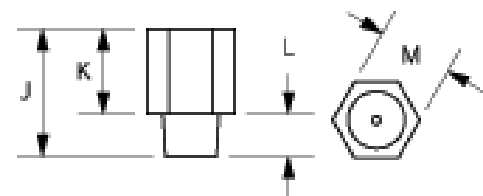
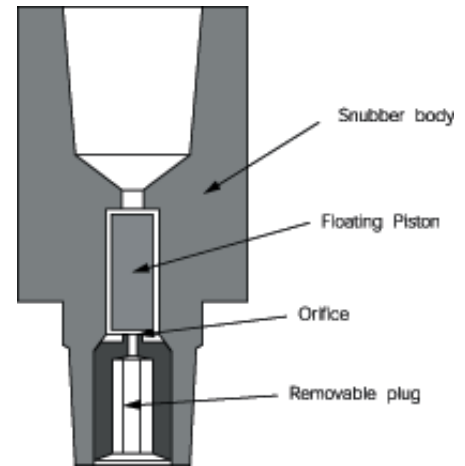
Palmer Piston Type Snubbers, unlike sintered metal snubbers, resist clogging and are self-cleaning. During rapid fluid flow, the floating piston is forced up against the orifice, choking the flow and protecting the gauge. By changing the diameter of the piston, the system can be “tuned” to your specific working fluid. The Snubber comes with five different pistons which are easily changed in the field. Piston recommendations are included in the table below.

Material Specifications: Model Numbers and Pressure Ratings are displayed in the table below.

Piston Recommendations	
Piston	Suggested Use
A, B*	Gases
B*, C	Water
C, D	Light Oil
E	Heavy Oil

Snubber is shipped with the “B” piston installed.

Model Numbers and Specifications			
Part No.	Size	Material	Rating
1300	1/4" NPT	Brass	1,000 PSI
1325	1/4" NPT	Brass	6,000 PSI
1335	7/16-20SAE-4	Brass	6,000 PSI
1350	1/2" NPT	Brass	6,000 PSI
5025	1/4" NPT	316 Stainless Steel	15,000 PSI
5050	1/2" NPT	316 Stainless Steel	15,000 PSI



Dimensions in inches (mm)				
Size	J	K	L	M
1/4" NPT	1.562 (39.7)	1.062 (27.0)	0.531 (13.5)	0.812 (20.6)
1/2" NPT	1.875 (47.6)	1.250 (31.8)	0.625 (15.9)	1.125 (28.6)

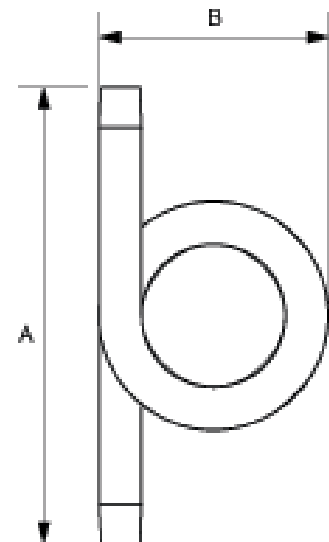
Steam Syphons

Steam Syphons, also called “pigtail” syphons should be given serious consideration whenever steam pressure measurement is required. By filling the coil with water, a protective barrier is formed between the high temperature steam and the instrument.

Material Specifications: Model Numbers and Pressure Ratings are displayed in the table below.

Model Numbers and Specifications					
Part No.	Model	Pressure Rating	Material	A	B
1025	1/4" NPT	308 PSI @ 400° F	Welded Steel Schedule 40	5.80" (147.3mm)	2.50" (63.5mm)
1050	1/2" NPT	1097 PSI @ 500° F	Welded Steel Schedule 80	9.00" (228.6mm)	4.50" (114.3mm)
2025	1/4" NPT	552 PSI @ 400°F	Welded 316 Stainless Schedule 40	3.85" (97.8mm)	2.50" (63.5mm)
2050	1/2" NPT	1967 PSI @ 400° F	Seamless 316 Stainless Schedule 80	9.00" (228.6mm)	4.50" (114.3mm)

High Pressure Version available. Contact Palmer Customer Service.



Calibration Services Available

Accessories

Needle Valves

Ball Valves

Palmer Needle and Ball Valves offer economical, quality solutions for the most demanding applications.

Needle Valves

Material: Needle Valves come in Brass, 303 SS, and 316 SS with working pressures to 5000 PSI.

Bonnet: Screwed Bonnet type.

Stem: Externally adjustable, wear compensating, virgin teflon stem packing offers long trouble free service life in most liquid or gas applications.

Connections: Valves are available with 1/4" NPT connections in either male or female. See the Model Number Table at right.

Operating Limitations:

Maximum Pressure @100°F (38°C):

Brass: 3000 PSI (206 bar)

303 & 316 SS: 5000 PSI (345 bar)

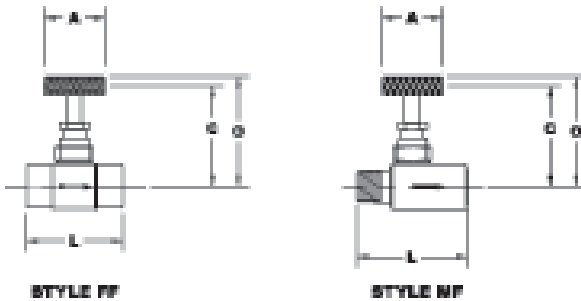
Flow Coefficient:

Globe (.187" Orifice): 0.40 Cv

Block (.312" Orifice): 0.90 Cv

Temperature Rating: Kel-F Stem Tip Stem: -65 to 200°F (-54 to 93°C)

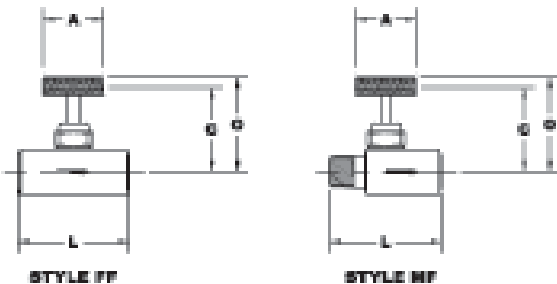
Brass Needle Valves



STYLE FF

STYLE MF

Stainless Steel Needle Valves



STYLE FF

STYLE MF

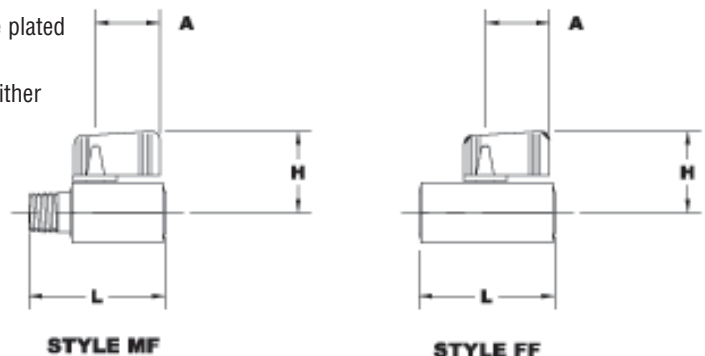
Needle Valve Model Numbers					Needle Valve Dimensions			
Material	Seat	Connection	Style	Model #	A	C	H	L
Brass	Hard	1/4" NPT	FF	NHQ-FFB	0.980	1.935	2.115	1.625
		1/4" NPT	MF	NHQ-MFB				
303SS	Soft	1/4" NPT	FF	NSQ-FFC	0.980	1.730	1.925	1.875
		1/4" NPT	MF	NSQ-MFC				
316SS	Soft	1/4" NPT	FF	NSQ-FFS	1.015	1.790	1.965	1.875
		1/4" NPT	MF	NSQ-MFS				

Needle Valve Body Material			
Component	Brass	303 Stainless Steel	316 Stainless Steel
Valve Body, Bonnet, Packing Nut	Brass, ASTM B16	303 SS, ASTM A582	316SS, ASTM A479
Stem		303SS, ASTM A582/Kel-F (CTFE)	316SS, ASTM A582/Kel-F (CTFE)
Handle		Brass, ASTM B16 (Nickel Plated, ASTM689)	
Set Screw	ANSI B18.3 (Alloy Steel)		
Packing	Virgin TFE		
Packing Nut	Brass, ASTM B16	Brass, ASTM B16 (Nickel Plated, ASTM689)	
Tamper Proof Cap		N/A	

Ball Valves

Material: Ball Valves come in nickel plated brass with a hard chrome plated brass ball. May be installed for flow in either direction. Nylon handle.

Rating: to 450 PSI and 200°F ambient. May be installed for flow in either direction.



STYLE MF

STYLE FF

Ball Valve Body Material	
Chrome Plated Body	OT58 Brass
Retainer Nut	OT58 Brass
Retainer Seat	PFE
Chrome Plated Ball	OT58 Brass
Body Seat	PFE
Unplated Stem	OT58 Brass
Screw	SS
Green O-Ring	Vitron
Black Handle	Nylon

Ball Valve Model Numbers					Ball Valve Dimensions		
Material	Ball	Connection	Style	Model #	A	H	L
Nickel Plated Brass	Hard Chrome Plated Brass	1/4" NPT	FF	BHQ-FFB	0.885	1.122	1.712
		1/4" NPT	MF	BHQ-MFB	0.885	1.122	1.712
		1/2" NPT	FF	BHH-FFB	0.885	1.200	2.106
		1/2" NPT	MF	BHH-MFB	0.885	1.200	2.106

Calibration Services Available

Media Application

Media Application	Element/Connection				Media Application	Element/Connection				Media Application	Element/Connection			
	Brass to Bronze	Steel	316 SS	Monel		Diaphragm Seals**	Brass to Bronze	Steel	316 SS		Monel	Diaphragm Seals**	Brass to Bronze	Steel
Acetone ^{(a)(b)}	✓	✓	✓	✓	Crude Oil (Sweet)	✓	✓	✓	✓	Palmitic Acid > 99% ^{(a)(b)}	✓	✓	✓	✓
Acetic Acid > 40%			✓	✓	Ethyl Acetate	✓	✓	✓	✓	Phosphoric Acid < 80% ^{(a)(b)}	✓	✓	✓	✓
Acetic Anhydride				✓	Ethylene Oxide > 99%	✓	✓	✓	✓	Picric Acid < 10%	✓	✓	✓	✓
Acetylene (Dry)	✓	✓			Ferric Chloride < 40%					Propane (Dry)	✓	✓	✓	✓
Acrolein 100%				✓	Ferric Sulfate < 10%			✓	✓	Sea Water (Flowing)				✓
Air	✓	✓	✓	✓	Ferrous Chloride < 30%				✓	Silver Nitrate < 70%				✓
Alcohol, Ethyl	✓	✓	✓	✓	Ferrous Sulfate < 50%				✓	Sodium Bicarbonate < 20%			✓	✓
Alum. Chloride > 10%				✓	Fluorine Gas (Dry)			✓	✓	Sodium Bisulfate < 30%				✓
Alum. Sulfate 10-50%			✓		Formaldehyde < 95%			✓	✓	Sodium Carbonate < 40%				✓
Ammonia Gas (Dry)	✓	✓			Formic Acid ^{(a)(b)}				✓	Sodium Chromate < 60%	✓	✓	✓	✓
Ammonium Chloride < 40%				✓	Freons			✓	✓	Sodium Cyanide ^{(a)(b)}	✓	✓	✓	✓
Ammonium Nitrate < 50%			✓	✓	Furfural < 10%				✓	Sodium Hydroxide < 40%			✓	✓
Ammonium Sulfate < 60%				✓	Gasoline			✓	✓	Sodium Hypochlorite < 25%				✓
Aniline > 99%			✓	✓	Glycerin > 99%	✓	✓	✓	✓	Sodium Phosphate, Tri < 60%	✓	✓	✓	✓
Argon	✓	✓	✓	✓	Hydrobromic Acid				✓	Sodium Silicate < 50%	✓	✓	✓	✓
Beer			✓	✓	Hydrochloric Acid				✓	Sodium Sulfide < 50%				✓
Benzidine > 99%				✓	Hydrofluoric Acid				✓	Stannous Chloride < 10%			✓	✓
Benzene < 50%			✓	✓	Hydrofluosilic Acid				✓	Steam (Use Siphon)	✓	✓	✓	✓
Benzoic Acid < 70%			✓	✓	Hydrogen ^(a)	✓	✓	✓	✓	Stearic Acid			✓	✓
Boric Acid < 25%			✓	✓	Hydrogen Peroxide < 50%			✓	✓	Sulfur Dioxide (Dry) > 99%				✓
Bromine (Dry)				✓	Kerosene	✓	✓	✓	✓	Sulfur Trioxide (Dry) > 99%				✓
Butane	✓	✓	✓	✓	Lactic Acid < 70% ^{(a)(b)}				✓	Sulfurous Acid				✓
Butyric Acid < 10%			✓	✓	Magnesium Chloride < 40%				✓	Tannic Acid < 80%	✓	✓	✓	✓
Calcium Chloride < 80%				✓	Mercuric Chloride < 60%			✓	✓	Tartaric Acid < 50%			✓	✓
Calcium Hydroxide < 50%				✓	Mercury > 99%				✓	Tin Chloride (ous) < 10%			✓	✓
Carbon Dioxide	✓	✓	✓	✓	Milk			✓	✓	Toluene > 99%	✓	✓	✓	✓
Carbon Monoxide > 99%	✓	✓	✓	✓	Naphtha > 99%	✓	✓	✓	✓	Turpentine > 99%	✓	✓	✓	✓
Chlorine (Dry)				✓	Naphthalene > 99%			✓	✓	Water	✓	✓	✓	✓
Chlorine (Moist) ^{(a)(b)}				✓	Nickel Chloride > 99%				✓	Whiskey			✓	✓
Chloroform (Dry)			✓	✓	Nitric Acid < 95% ^{(a)(b)}			✓	✓	Zinc Chloride < 25% ^{(a)(b)}				✓
Chromic Acid				✓	Nitrogen	✓	✓	✓	✓	Zinc Sulphate < 40%				✓
Citric Acid 10-50%			✓	✓	Oleic Acid	✓	✓	✓	✓					
Corn Oil			✓	✓	Oxalic Acid ^{(a)(b)}				✓					
Crude Oil (Sour)			✓	✓	Oxygen (Gas)	✓	✓	✓	✓					

(a) Use 316 Stainless Steel system a pressure > 1000psi.

(b) Media < 100°F / 37.8°C.

** Diaphragm Seal Usage Note: diaphragm seals may be used with any of the standard tube or bellows materials. However, gauge selection should be made with the operational environment in mind.

PSI Range Chart

PSI Pressure Gauges											
Range, PSI	ASME Range	Industrial Gauges						Utility Gauges			
		25CS Pg. 8-9	40SS Pg. 8-9	60SS Pg. 8-9	40FS Pg. 10-11	45TF Pg. 10-11	45TS Pg. 10-11	15CB Pg. 14	20CB Pg. 14	25CB Pg. 14	40CB Pg. 14
-30"Hg/ 0	3	#, #b, #kc	#kc	#, #b, #kc	#kc		#	#	#	#	#
-30"Hg/ 0 / 15	3	#, #b, #kc	#, #b, #kc	#, #b	#, #b, #kc	#	#	#	#	#	#
-30"Hg/ 0 / 30	3	#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#	#	#	#	#
-30"Hg/ 0 / 60	3	#, #b, #kc	#, #b, #kc	#, #b	#, #b, #kc	#	#	#	#	#	#
-30"Hg/ 0 / 100	3	#, #b	#, #b, #kc	#, #b	#, #b, #kc	#	#	#	#	#	#
-30"Hg/ 0 / 150	3	#b	#b, #kc	#, #b	#b, #kc	#	#	#	#	#	#
-30"Hg/ 0 / 200		#, #b	#		#			#	#	#	#
-30"Hg/ 0 / 300		#, #b	#, #b, #kc	#b, #kc	#, #b, #kc	#	#	#	#	#	#
10			#		#			#	#	#	#
15	3	#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
30	3	#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
60	3	#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
100	3	#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
160		#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
200	3	#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
300	3	#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
400		#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
500		#b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
600	3	#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
800		#		#		#	#, #b	#	#	#	#
1000	3	#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
1500	3	#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
2000		#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
2500				#		#	#, #b	#	#	#	#
3000	3	#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
4000		#, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
5000		#b	#b	#b	#b	#	#, #b	#	#	#	#
6000	3	#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
10,000	3	#, #b, #kc	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
15,000	3	#, #b	#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#
20,000			#, #b, #kc	#, #b, #kc	#, #b, #kc	#	#, #b	#	#	#	#

Range availability subject to change.

#: Available in PSI markings (standard). Note: Vacuum is marked in inches of Mercury.

#b: Available with PSI outer markings and Bar inner markings (Dual Scale).

#kc: Available with PSI outer markings, and Kilograms per square centimeter inner markings.

NOTE: Ranges for types **25CP**, **40SP**, **40SC**, and **60SC** (Low Pressure Industrial Gauges) are listed on the individual pages. For ranges on Specialty and Commercial gauges, refer to those sections of the catalog.

Metric Range Chart

Metric Pressure Gauges						
Range, Bar	Industrial Gauges					
	25CS Pg. 8-9	40SS Pg. 8-9	60SS Pg. 8-9	40FS Pg. 10-11	45TF Pg. 10-11	45TS Pg. 10-11
-1 / 0	b, k, kc, k#	b, k, kc, k#	b, k, k#	b, k, kc, k#		k, k#
-1 / 0 / 0.6	b, kc	b, kc	b, kc	b, kc		
-1 / 0 / 1.5	b, k, kc	b, k, kc	b, k, kc	b, k, kc	b, kc	b, k, kc
-1 / 0 / 3	b, k, kc	b, k, kc	b, k, kc	b, k, kc	b, kc	b, k
-1 / 0 / 5	b, k, kc	b, k, kc	b, k, kc	b, k, kc	b, kc	b, k
-1 / 0 / 9	b, k, kc	b, k, kc	b, k, kc	b, k, kc	b, kc	b, k
-1 / 0 / 15	b, k, kc	b, k, kc	b, k, kc	b, k, kc	b, kc	b, k
-1 / 0 / 24	b, k, kc	b, k, kc	b, k, kc	b, k, kc		b, k, kc
0.6	b, k, kc	b, k, kc	b, k, kc	b, k, kc		b, k, kc
1	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#		b, k, kc, k#
1.6	b, k, kc	b, k, kc	b, k, kc	b, k, kc	M	b, k, kc
2.5	b, k, kc	b, k, kc	b, k, kc	b, k, kc	b#, kc, k#, M	b, k, kc
4	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b#, kc, k#, M	b, k, kc, k#
6	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b#, kc, k#, M	b, k, kc, k#
10	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b#, kc, k#, M	b, k, kc, k#
16	b, k, kc	b, k, kc	b, k, kc	b, k, kc	b#, kc, k#, M	b, k, kc
25	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b#, kc, k#, M	b, k, kc, k#
40	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b#, kc, k#, M	b, k, kc, k#
60	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b#, kc, k#, M	b, k, kc, k#
100	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b, k, kc, k#	b#, kc, k#, M	b, k, kc, k#
160	b, M, kc	b, M, kc	b, M, kc	b, M, kc	b#, kc, k#	b, k
250	b, M, kc, k#	b, M, kc, k#	b, M, kc, k#	b, M, kc, k#	b#, k, kc, k#	b, k, k#
400	b, M, kc, k#	b, M, kc, k#	b, M, kc, k#	b, M, kc, k#	b#, k, kc, k#	b, k, k#
600	b, M, kc, k#	b, M, kc, k#	b, M, kc, k#	b, M, kc, k#	b#, k, kc, k#	b, k, k#
1000	b, M, kc, k#	b, M, kc, k#	b, M, kc, k#	b, M, kc, k#	b#, k, kc, k#	b, k, k#
1600	b	b, kc	b, M, kc	b, kc		b, k
2500		b, kc	b, M, kc	b, kc		b

b: Available in Bar markings (standard).

Range availability subject to change.

M: Available in MPa markings.

k: Available with kPa markings.

k#: Available with kPa outer marks and PSI inner marks (dual scale).

b#: Available with Bar outer marks and PSI inner marks (dual scale).

#kc: Available with PSI outer marks, and Kilograms per square centimeter inner marks.

NOTE: Ranges for types **25CP**, **40SP**, **40SC**, and **60SC** (Low Pressure Industrial Gauges) are listed on the individual pages. For ranges on Specialty and Commercial gauges, refer to those sections of the catalog.

Pressure Equivalent Table								
PSI	in. HG	mm HG	kg/cm2	ft. water	in. water	atm	kPa	Bars
1	2.0442	51.924	0.07031	2.3118	27.735	0.06805	6.8948	0.06894
0.48920	1	25.401	0.03439	1.1309	13.568	0.03329	3.3864	0.03386
0.01926	0.03937	1	0.00135	0.04453	0.53418	0.00131	0.13332	0.001333
14.223	29.075	738.51	1	32.881	394.57	0.96784	98.068	0.98068
0.43256	0.88426	22.460	0.03041	1	12.000	0.02943	2.9890	0.02989
0.03606	0.07368	1.8721	0.00254	0.08333	1	0.00245	0.24908	0.00249
14.696	30.042	763.07	1.0332	33.974	407.69	1	101.325	1.01325
0.14504	0.29530	7.5006	0.01019	0.33456	4.0147	0.009869	1	0.01000
14.504	29.530	750.06	1.0197	34.456	401.47	0.98692	100	1

Calibration Services Available





The World's Finest Manufacturers of Temperature, Pressure, and Humidity Instrumentation



- Industrial Glass Thermometers
- Bimetal Dial Thermometers
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- Heat Prober® Meter/Probe Thermometer Systems
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- In situ RTD and Thermocouple Probes and Connection Systems
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- Specialty Probes for OEM applications
- Probe extension Cables and Connectors



- Portable Electronic Temperature and Process Calibrators
- Bench Top Electronic Temperature and Process Calibrators
- Bench Top Precision Thermometers



- Dataloggers for Temperature, Humidity, Barometric Pressure, CO2 and Meteorological Conditions
- Modular Data Logger for Measuring, Logging & Control
- Hand-Held RTD, Dual Thermocouple, and Combination Thermocouple and RTD Meters
- Hand-Held Pressure and Differential Pressure Meters, Temperature, Humidity, and Dew Point Meters
- Electronic Weather Stations

Instrumentation Group Warranty

Manufacturer warrants all products listed in this catalog to be free from defects in material or workmanship under normal use and service. The Manufacturer agrees to repair or replace any product which upon examination is revealed to have been defective due to faulty workmanship or material if returned to our factory, transportation charges prepaid, within the product specific warranty period stated in the catalog by the manufacturer. This warranty is in lieu of all other warranties, expressed or implied and of all obligations or liabilities on its part for damages including but not limited to consequential damages, following the use or misuse of instruments sold by the Manufacturer. No agent is authorized to assume for Manufacturer any liability except as set forth above.

In addition, a pressure gauge will not be considered defective if failure is due to back surges, over-range, incompatibility of environment or product, or uses for which pressure gauges are not intended. Manufacturer warrants all gauges provided that the pressure gauges be operated within the prescribed working pressure limits and ambient temperatures outlined in the operating specifications below.

Operating Specifications: 1. Working Pressure Limits

- A. Dynamic Pressure Applications
The working pressure on gauges should be limited to 60% of the dial range.
- B. Static Pressure Applications
The working pressure on gauges, where no sharp fluctuations are encountered, may be 90% of dial range.

2. Ambient Temperature Ranges

The gauges must operate within specified ambient temperature ranges.

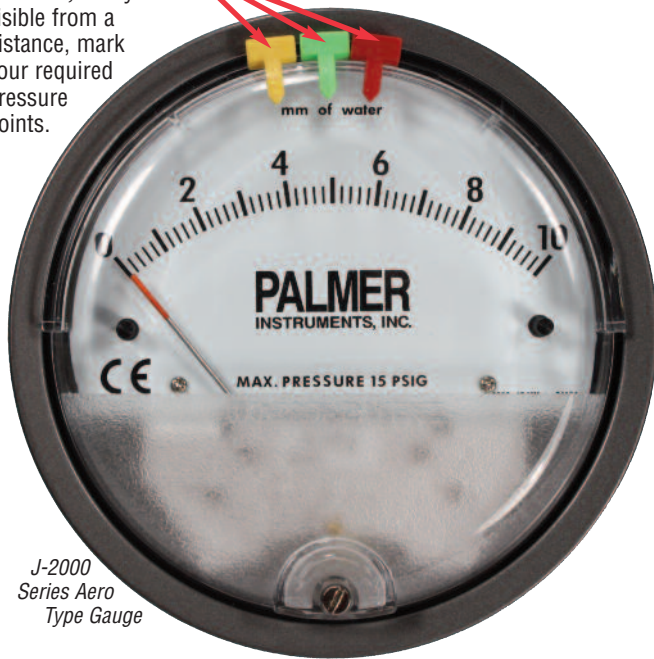
Two Year Warranty - Fluid Filled Gauges, Fearless

One Year Warranty- Dry Gauges

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www.palmerwahl.com

Aero Type Low Pressure Differential Gauges • J-2000 Series

Patented Safe-Slide Pointers, easily visible from a distance, mark your required pressure points.



J-2000 Series Aero Type Gauge

High, Low, or Differential Pressures Read at a glance - to within 2% Accuracy

The **NEW! J-2000 Series Low Pressure Differential Gauges** from Palmer Instruments feature a friction-free gauge movement, and patented Safe-Slide Pointers. The quick response of the gauge indicates low air or non-corrosive gas pressures, while the sliding pointers allow for easy reading of high, low, or differential pressures.

The J-2000 Series gauges resist over-pressures, vibration, and shock without fluid fill - resulting in no trouble with leveling, evaporation, or freezing. Over 100 ranges are available in 6 measuring units for a wide variety of applications. See our website for full range availability.

Applications

- Air and Non-combustible Gases
- Automatic Valves
- Fan or Blower Pressure
- Furnace Draft
- Gas - Air Ratio Controls
- Pressure Fluctuations
- Process Controls
- Screening Filter Resistance
- Wind Velocity
- Blood & Respiratory Pressure in Medical Equipment

Specifications

Case: 4" (100mm). Corrosion resistant, die cast aluminum case and bezel. Standard Flush Mount, optional Surface Mount.

Dial: White aluminum dial with black numerals and graduations, and ABS Plastic Lens.

Accuracy: ± 2% of Full Scale

Process Connections: High and Low Pressure: 1/8" drill tube thread on back and side.

Internal Pointer: Heat treated Aluminum with easy to read red tip.

Pointers: Patented Safe-Slide Pointers slide around the lens, allowing the user to set Safe, Warning, and Danger Points; all easily visible at a distance.

Range Availability: Inches H₂O, PSI, cm H₂O, mm H₂O, Pa, kPa

Temperature Limits: 20°F to 140°F (-7 to 60°C)

Specifications subject to change without notice.



Aero Type Gauge shown with optional J-299 Surface Mount Bracket.

Cross cut view details important features of the Palmer Aero Type Differential Gauge:

Bezel acts as flange for standard flush mount.

Pressure integrity of case is assured by use of an O-ring seal.

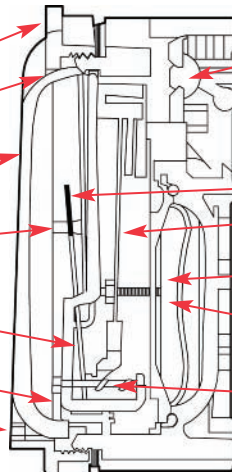
Break Resistant ABS plastic crystal allows clear view of dial face and pointer.

Over-travel or damage of pointer is prevented by rubber stops.

Helix, helix bearings and pointer are wishbone mounted.

Motion dampened, shock-resistant jeweled bearings allow friction-free motion of helix.

Front mounted adjustment screw allows zero reset without removing cover.



Blowout Plug serves as a relief valve when over-pressure reaches approximately 25 psig. The rubber plug unseats and vents the interior of the gauge.

Corrosion resistant die cast aluminum case can be surface or flush mounted in all standard pressure options.

Easy to read red tipped pointer.

Range spring of flat spring steel, and tight range of motion offers consistency and long life.

Rubber diaphragm with integrated O-ring is locked and sealed with front and back plates and retaining ring.

Diaphragm restrictor prevents over-pressure damage.

Helix rotates without mechanical linkages on a spring mounted samarium cobalt magnet.



Complete Calibration Services Available

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Aero Type Differential Gauge Ranges

Available Ranges Inches H2O	
Model Number	Inches H2O
J-2000-00N	0.05 / 0 / 0.20**
J-2000-00	0 / 0.25**
J-2000-0	0 / 0.5*
J-2001	0 / 1.0
J-2002	0 / 2.0
J-2003	0 / 3.0
J-2004	0 / 4.0
J-2005	0 / 5.0
J-2006	0 / 6.0
J-2008	0 / 8.0
J-2010	0 / 10
J-2012	0 / 12
J-2015	0 / 15
J-2020	0 / 20
J-2025	0 / 25
J-2030	0 / 30
J-2040	0 / 40
J-2050	0 / 50
J-2060	0 / 60
J-2080	0 / 80
J-2100	0 / 100
J-2120	0 / 120
J-2150	0 / 150
J-2160	0 / 160
J-2180 ¹	0 / 180
J-2250 ¹	0 / 250
Zero Center Ranges	
J-2300-00	0.125 / 0 / 0.125**
J-2300-0	0.25 / 0 / 0.25*
J-2301	0.50 / 0 / 0.50
J-2302	1 / 0 / 1
J-2304	2 / 0 / 2
J-2310	5 / 0 / 5
J-2320	10 / 0 / 10
J-2330	15 / 0 / 15

Available Ranges PSI	
Model Number	PSI
J-2201	0 - 1
J-2202	0 - 2
J-2203	0 - 3
J-2204	0 - 4
J-2205	0 - 5
J-2210 ¹	0 - 10
J-2215 ¹	0 - 15
J-2220 ¹	0 - 20
J-2230 ¹	0 - 30

*Accuracy ± 3%, **Accuracy ± 4%,
¹ Call factory for additional options.
 For special scales contact factory.

Available Ranges cm H2O	
Model Number	cm H2O
J-2000-15CM	0 - 15
J-2000-20CM	0 - 20
J-2000-25CM	0 - 25
J-2000-50CM	0 - 50
J-2000-80CM	0 - 80
J-2000-100CM	0 - 100
J-2000-150CM	0 - 150
J-2000-200CM	0 - 200
J-2000-250CM	0 - 250
J-2000-300CM	0 - 300
Zero Center Ranges	
J-2300-4CM	2 - 0 - 2
J-2300-10CM	5 - 0 - 5
J-2300-30CM	15 - 0 - 15

Available Ranges mm H2O	
Model Number	mm H2O
J-2000-6MM	0 - 6**
J-2000-10MM	0 - 10*
J-2000-15MM	0 - 15
J-2000-25MM	0 - 25
J-2000-30MM	0 - 30
J-2000-50MM	0 - 50
J-2000-80MM	0 - 80
J-2000-100MM	0 - 100
J-2000-125MM	0 - 125
J-2000-150MM	0 - 150
J-2000-200MM	0 - 200
J-2000-250MM	0 - 250
J-2000-300MM	0 - 300
Zero Center Ranges	
J-2300-6MM	3 - 0 - 3**
J-2300-10MM	5 - 0 - 5*
J-2300-20MM	10 - 0 - 10*

Available Ranges Pa	
Model Number	Pa
J-2000-60NPA	10 - 0 - 50**
J-2000-60PA	0 - 60**
J-2000-100PA	0 - 100*
J-2000-125PA	0 - 125*
J-2000-250PA	0 - 250
J-2000-300PA	0 - 300
J-2000-500PA	0 - 500
J-2000-750PA	0 - 750
J-2000-1000PA	1 - 1000
Zero Center Ranges	
J-2300-60PA	30 - 0 - 30**
J-2300-100PA	50 - 0 - 50*
J-2300-120PA	60 - 0 - 60
J-2300-200PA	100 - 0 - 100
J-2300-250PA	125 - 0 - 125
J-2300-300PA	150 - 0 - 150
J-2300-500PA	250 - 0 - 250
J-2300-1000PA	500 - 0 - 500

Available Ranges kPa	
Model Number	kPa
J-2000-0.5KPA	0 - 0.5
J-2000-1KPA	0 - 1
J-2000-1.5KPA	0 - 1.5
J-2000-2KPA	0 - 2
J-2000-2.5KPA	0 - 2.5
J-2000-3KPA	0 - 3
J-2000-4KPA	0 - 4
J-2000-5KPA	0 - 5
J-2000-8KPA	0 - 8
J-2000-10KPA	0 - 10
J-2000-15KPA	0 - 15
J-2000-20KPA	0 - 20
J-2000-25KPA	0 - 25
J-2000-30KPA	0 - 30
Zero Center Ranges	
J-2300-1KPA	0.5 - 0 - 0.5
J-2300-2KPA	1 - 0 - 1
J-2300-2.5KPA	1.25 - 0 - 1.25
J-2300-3KPA	1.5 - 0 - 1.5

Better value as compared to the competition!

Accessories

J-299 - Surface Mount Bracket for use with basic mounting hardware included with gauge.

J-300 - Flush Mount Bracket for use only if back of mounting surface is not accessible, call Customer Service for details and availability.

Minimum purchase quantity is 100 pieces. Mix and match with all models. Please call Customer Service for information.



Complete Calibration Services Available



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PW1132 Rev B
 01/11

NEW! Gas Test Gauge • Model 40KB Series

Dual Scale 6PSI/12" Hg • 15PSI/30" Hg



Palmer Class 1 Diaphragm Gauge shown with included Hex Body and Schrader Air Valve.

- Model 40KBDLA6#Hg
- Model 40KBDLA15#Hg
- Class 1A Accuracy
- Equipped with Set Hand
- Hex Body and Schrader Air Valve
- Solid Brass Internal Body
- 4" (100mm) Painted Black Steel Case
- Dual Scale (PSI/Inches of Hg) in Dual Color
- Measures in 1/10th lb increments, 1/2" Hg
- Internal Over-Pressure Protection Device
- Phosphor Bronze Diaphragm
- Heavy Duty Gear Movement
- Available in 6# or 15# Ranges
- Heavy Duty Construction
- Environmentally Safe Alternative to Mercury Columns

Applications

Test for Leaks in Residential & Commercial Gas, Air & Water Lines

Test for Leaks in Drain, Waste and Vent lines

Test for Low Pressure Plumbing Lines

Gas Test Gauge Part Number configuration example:

40	K	B	D	L	A	6#Hg
Case Size	Case Material Style	Element Material	Fill	Mounting	Connection	Range Scale

Why Calibration is important for your Instruments

- Accurate measure of leak loss.
- Increase customer satisfaction by saving them money.
- Ensure traceability throughout entire service by maintaining accuracy records.
- Register your product for our Calibration eMinder Service to be reminded when calibration is due. Go to: www.palmerwahl.com/register

**PALMER PRESSURE GAUGES,
QUALITY YOU CAN TRUST!**

40KB Test Gauge Specifications		
Range	6 PSI / 12" Hg	15 PSI / 30" Hg
Dial	4" (100mm) White Aluminum with Black and Blue markings	
Scale	Dual Scale, White Background 6 PSI Outer Scale Black Lettering 12" Hg Inner Scale Blue Lettering	Dual Scale, White Background 15 PSI Outer Scale Black Lettering 30" Hg Inner Scale Blue Lettering
Accuracy	1%	
Ambient Operating Range	-4°F to 160 °F (-20°C to -60°C)	
Case	Painted Black Steel Case	
Lens	Plastic Lens	
Bourdon Tube	Phosphor Bronze Diaphragm Internals	
Fill	Dry	
Pointer	Set Pointer for Leak Off	
Connection	Lower Connected Brass Valve Body with Schrader Valve, and 3/4"NPT Process Connection	
Options	Certificate of Conformance	

Specifications subject to change without notice

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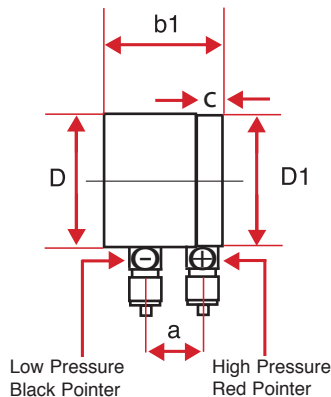
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NEW! Differential Pressure Gauge with Double Bourdon Tube • Models 40MB • 40MS



40MS Differential Gauge

Dimensions



Dimensions in inches (mm)					
Case Size	a	b1	c	D	D1
4" (100 mm)	1.25" (32 mm)	3.14" (80 mm)	0.62" (16 mm)	3.975" (100 mm)	3.872" (98 mm)
Weight	e	f	g	i	j
2.4 lbs (1.08kg)	4" (102 mm)	3.74" (95 mm)	0.11" (3 mm)	0.78" (20 mm)	0.86" x 0.86" (22 x 22 mm)

Specifications subject to change without notice.

High, Low, and Differential Pressures Read all three at a glance!

Palmer Instruments introduces two new **Industrial Strength Differential Pressure Gauges**. Featuring double bourdon tube construction, these versatile gauges allow you to see the high and low pressures, as well as the differential between the two – with just a quick glance. The black pointer indicates the low on the outer scale; the red, knife-edge pointer indicates the high on the outer scale, and allows for direct reading of the differential pressure on the inner scale.

- **40MS Stainless Steel Case Pressure & Differential Gauge with Stainless Steel Internals for Use in Corrosive Environments**
- **40MB Stainless Steel Case Pressure & Differential Gauge with Brass Internals for General Use**

Specifications

Case: 4" (100mm) Stainless Steel.

Dial: Two white aluminum dials with black numerals and graduations.

Window: 3mm Glass.

Pointer: Red aluminum knife-edge pointer indicates both the primary or high pressure, and the differential. Black aluminum pointer indicates low pressure.

Difference is calculated by:

$$\Delta P = (P+)(\text{High}) - (P-)(\text{Low})$$

O-Ring and Blow-out Vent: Rubber

Socket: 40MS: 316 Stainless Steel
40MB: Brass

Welding: 40MS: AISI 316 Stainless Steel, TIG Argonarc
40MB: Tin Welding

Connection: 1/2" NPT, 1/4" NPT

Double Bourdon Tubes:
40MS: 316 Stainless Steel
40MB: Brass

Movement: 40MS: 316 SS
40MB: Brass

Accuracy: ± 1.5% of Full Scale

Range Availability: 15 - 1000 PSI,
or 0.1 - 6 MPa

Operating Medium Temperature:

40MS: 100°C.
40MB: < 80°C

Ambient Temperature:

-4° to 140°F (-20° to +60°C)

Mounting: Stem Mount, Lower Connected.
Front or Back Flange optional.

Protection: IP45.

Available Ranges

Code	PSI
15#	15 PSI
30#	30 PSI
60#	60 PSI
100#	100 PSI
160#	160 PSI
200#	200 PSI
300#	300 PSI
600#	600 PSI
1000#	1000 PSI
Code	MPa
0.1m	0.1 MPa
0.16m	0.16 MPa
0.25m	0.25 MPa
0.4m	0.4 MPa
0.6m	0.6 MPa
1m	1 MPa
1.6m	1.6 MPa
2.5m	2.5 MPa
4m	4 MPa
6m	6 MPa

Complete Calibration Services Available