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<td>40PB</td>
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<tr>
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<td>Fearless Stainless Steel Gauges</td>
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<td>Sanitary All Stainless Steel Gauges</td>
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<td>Stainless Steel Case Contractors Gauges</td>
<td>4SBB</td>
<td>23</td>
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<td>Solid Front Process Gauges</td>
<td>4SBS</td>
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<td>Solar Digital Gauges</td>
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<tr>
<td>Low Pressure Gauges</td>
<td>60PP/SC</td>
<td>10</td>
</tr>
<tr>
<td>All Stainless Steel Gauges</td>
<td>60SS</td>
<td>8 - 9</td>
</tr>
</tbody>
</table>

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Register your product at www.palmerwahl.com/register
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 at: www.asme.org/shop/standards. For General Pressure Terminology see the diagram on pg 4.

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 dustproof, and filled gauges are waterproof.

<table>
<thead>
<tr>
<th>Damping Fluid</th>
<th>Environmental Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry</td>
<td>-13 to 150°F</td>
</tr>
<tr>
<td>Glycerine</td>
<td>60 to 150°F</td>
</tr>
<tr>
<td>Silicone</td>
<td>-50 to 150°F</td>
</tr>
<tr>
<td>Fluorolube</td>
<td>-76 to 150°F</td>
</tr>
<tr>
<td>Neobee M20</td>
<td>0 to 400°F</td>
</tr>
</tbody>
</table>

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 25 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 provide 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 for details about our Fearless Gauges.

Mounting: As a rule, all gauges are available in Stem Mount, Lower Connected (mounting code L), and Stem Mount, Back Connected (mounting code 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 reliable operation.

Connection: Palmer Pressure Gauges are available in a wide variety of connections, NPT threads are the standard configuration. Optional adaptors also available. 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.

Oxygen Service: For gauges requiring Oxygen Service please contact our Customer Service Department.

Palmer Instruments, Inc. is the first manufacturer of temperature instrumentation in the United States. Our longevity alone speaks volumes to the level of customer satisfaction we are able to deliver with each and every order. We are an ISO9001:2008 registered company with the simple mission of doing things right the first time. We have achieved a level of quality and service that is unparalleled in the industry. This is what we strive for, and continue to achieve. Thank you from all of us at Palmer Wahl for considering our products.

No-Charge Gauge Stocking Service! We are now pleased to offer a service to stock gauges for you - at no charge! Palmer will stock any standard gauge that you use. Send us your requirements, and the number used each year, and we will quote you accordingly. Get guaranteed delivery with a Blanket Order. Simply contact our Customer Service department, meet our simple terms and conditions, and we will provide you with the lowest cost and guaranteed fastest delivery of your gauges.

Need NIST traceability? No problem, we can supply NIST Traceable Test Reports for you at an additional charge. NIST traceable testing is done in our labs in Asheville, North Carolina.

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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 pg 5 as a guide. Specific configurations and option information pertaining to the different types of pressure gauges is on each catalog page, and will guide you in the selection of 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 product pages
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 Fluorolube (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. On these pages you will find the ordering guide for that specific gauge. The table on page 5 serves as a general guide with description and option availability for how to construct your part number. For Solar or EDG Digital Gauges see specific product page for ordering information.

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!

### General Pressure Terminology

- **Increasing Pressure**
  - Gauge Pressure
  - Atmospheric Pressure (0 PSI gauge)
  - Vacuum
- **Absolute Pressure**
  - 29.92 In Hg
  - 14.7 PSI
  - 1.190 Bar
- **Zero Absolute Pressure**

### Mounting Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Illustration</th>
<th>Description</th>
</tr>
</thead>
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<tr>
<td>L</td>
<td><img src="image" alt="Stem Mount, Lower Connected" /></td>
<td>Stem Mount, Lower Connected</td>
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<tr>
<td>B</td>
<td><img src="image" alt="Stem Mount, Back Connected" /></td>
<td>Stem Mount, Back Connected</td>
</tr>
<tr>
<td>U</td>
<td><img src="image" alt="Flush Mount, Back Connected with U-Clamp" /></td>
<td>Flush Mount, Back Connected with U-Clamp</td>
</tr>
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<td>H</td>
<td><img src="image" alt="Flush Mount, Lower Connected with Front Flange" /></td>
<td>Flush Mount, Lower Connected with Front Flange</td>
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<tr>
<td>F</td>
<td><img src="image" alt="Flush Mount, Back Connected with Front Flange" /></td>
<td>Flush Mount, Back Connected with Front Flange</td>
</tr>
<tr>
<td>I</td>
<td><img src="image" alt="Surface Mount, Lower Connected with Rear Flange" /></td>
<td>Surface Mount, Lower Connected with Rear Flange</td>
</tr>
</tbody>
</table>

For other Pressure Gauge configurations contact Customer Service at 800-421-2853
How To Identify A Palmer Pressure Gauge

1) Case Size
- 15 1-1/2" (40mm)
- 20 2" (50mm)
- 25 2-1/2" (63mm)
- 40 4" (100mm)
- 45 4-1/2" (125mm)
- 60 6" (150mm)

2) Case Material / Style
- A Test Gauge
- B Brass
- C Stainless Steel with Crimped Bezel Ring
- E Stainless Steel, Bayonet Ring, Transmitter Output
- F Stainless Steel with Solid Front, Bayonet Ring
- G Laminated Glass Fiber, Blow-Out Vent, Screw on Bezel Ring
- H Stainless Steel, Bayonet Ring, Limit Contact(s)
- K Painted Black Steel
- M Stainless Steel Case Pressure and Differential Gauge
- P Phenolic, Blow-out Vent, Screw on Bezel Ring
- R Painted Steel
- S Stainless Steel with Bayonet Bezel Ring

3) Element Material
- B Phosphor Bronze or Brass Bourdon Tube
- C Stainless Steel Capsule
- F Stainless Steel Bourdon Tube with “Fearless” Dampened Movement
- M All K Monel Wetted Parts
- P Phosphor Bronze Capsule
- S Stainless Steel Bourdon Tube

4) Fill
- D Dry (No Fill)
- W Filled, See Model pages for media and options

5) Mounting
- L Stem Mount, Lower Connected
- B Stem Mount, Back Connected
- U Flush Mount, Back Connected, U-Clamp
- H Flush Mount, Lower Connected, Front Flange
- F Flush Mount, Back Connected, Front Flange
- I Surface Mount, Lower Connected, Rear Flange

6) Connection
- A Brass Valve Body with Schrader Valve
- E ½" NPT
- H 1/2" NPT
- L 2-1/2" Tri-Clamp®
- M 2" Tri-Clamp®
- P 2" Perlick nut
- Q 1/4" NPT
- S 1-1/2" Tri-Clamp®
- T 3/8" NPT

7) Range / Scale
- *Hg Vacuum, Inches of Mercury
- *Hg#/ Compound, Inches of Mercury, PSI
- *H2O Inches of water
- # Pounds per square inch, gauge (PSI)
- b Bar
- b/# Bar outer and PSI inner, Dual Scale
- #b PSI outer and Bar inner, Dual Scale
- #k PSI outer, Kilograms per square centimeter outer, Dual Scale
- #kc Kilograms per square centimeter outer, PSI inner, Dual Scale
- k Kilograms per square centimeter (kg/cm²)
- k# Kilopascals (kPa)
- k#/ KiloPascals outer and PSI inner, Dual Scale
- #k* PSI outer and KiloPascal inner, Dual Scale
- mb Millibar (mbar)
- m MegaPascals (MPa)
- Rc Receiver - 0 to 100% Linear Scale (3-15 psi)
- Rs Receiver - 0 to 10 Square Root (3-15 psi)
- Rcs Receiver - 0/100% Linear outer, 0 to 10 Square Root inner (3-15 psi), Dual Scale
- d Center 0 point with + and - scales (40 Differential Scales only)

8) Options
- A Accuracy Upgrade
- A1 Three Point NIST Traceable Certification (Bottom, Center & Top of Range)
- A2 Customer Designated NIST Certification (Single Point)
- A3 Customer Designated NIST Certification (Three Point)
- C Flush Mounting Ring or Flange Kit
- C1 Chrome Narrow Bezel and Chrome Plated Steel Front Flange
- D Contact Options on Electrical Contact Gauge, See page 17 for available set points and ordering Codes
- E Anti-parallax Dial, Knife Edge Pointer (4.0", 6.0", & 10.0" only)
- G Laminated Safety Glass Crystal
- GT1 Acrylic Crystal
- H Electric Contact Points for Intrinsically Safe Gauges, See page 17 for available set points
- B Neobee M20 Fill (Sanitary Applications)
- F Food Grade Glycerine Fill (Sanitary Applications)
- J Glycerine Fill
- K Polyisobutylene (Oppanol) Fill
- L Fluorolube Fill
- S Silicone Fill
- M Settable Maximum Indicating Pointer
- N Adjustable Set Point Pointer
- O Over Range Protection
- P BSP Threads
- Q Gas Test Kit
- R Restrictor, Stainless Steel or Brass
- T Special Dial Printing (Scales, Colors, Points, Brand Name, Etc.)
- T1 Aluminum Tagging, Customer specified
- T2 Brass Tagging, Customer specified
- T3 Stainless Steel Tagging, Customer specified
- T4 Paper Tagging, Customer specified
- T5 Tag Numbers Stamped on Gauge, Customer specified
- T6 Tag Numbers Engraved on Gauge, Customer specified
- T7 Bar Code Tagging on Paper, Customer specified
- V 1/2" to 1/4" NPT SS Adaptor
- V1 1/4" to 1/2" NPT Brass Adaptor
- W Button Lockout (Gauge only)
- X Other, Specify

For Solar Digital Gauges see ordering matrix on pg 11 for exact ordering details. EDG Digital Gauges are ordered simply by part number.
For Palmer’s new line of Precision Digital Gauges please see our new Precision Digital Gauge catalog.

Please note that not all configurations are available!

Example of a typical pressure gauge part number configuration:

- 45 Case Size
- S Case Material/Style
- S Element Material
- W Fill
- L Mounting
- H Connection
- 60# Range/Scale
- L Options

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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 using micro adjustable gear drive pointer.
- AISI Stainless Steel Special Dampened Movement
- Replaceable Crystal
- 1/4 turn Bayonet lock removable Bezel Ring.

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 Palmer’s 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 Solid Front in 2-1/2" (63mm) and 4" (100mm) diameter watertight case. |
| Fill: | Dry |
| Ring: | AISI 304 Stainless Steel Bayonet Bezel Ring |
| Window: | Instrument Quality Glass |
| Socket: | AISI 316 Stainless Steel Socket and Tube, Argon welded |
| Connection: | 25SF - 1/4", 40SF - 1/2" |
| Accuracy: | ±1% |
| 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 |
| Dial: | White Aluminum with black markings in accordance with ASME B40.1 - 2005 |
| Range Availability: | See matrix at right |
| Process Temperature Limits: | -4 to 176°C (-20 to 80°C) |
| Ambient Temperature Limits: | -40 to 248°F (-40 to 120°C) |
| Overpressure Limits: | 20% of full scale value |

Precision instruments from Palmer offer you the quality and reliability you rely on for your process!

Specifications subject to change without notice.
Models 25SF • 40SF
Fearless All Stainless Steel Gauges

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.

Ordering Guide

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

2) Case Material / Style
   S  Stainless Steel with Bayonet Ring

3) Element Material
   F  Stainless Steel with Solid Front, Bayonet Bezel Ring

4) Fill
   D  Dry
   W  Wet (Glycerin is standard)

5) Mounting
   L  Stem Mount, Lower Connected
   B  Stem Mount, Back Connected
   U  Flush Mount, Back Connected, U Clamp
   F  Flush Mount, Back Connected, Front Flange
   I  Surface Mount, Lower Connected, Rear Flange

6) Connection
   H  1/2" NPT (40SF only)
   Q  1/4" NPT (25SF only)

7) Range / Scale
   PSI Ranges
   15#  0-15psi
   30#  0-30psi
   60#  0-60psi
   100# 0-100psi
   150# 0-150psi
   200# 0-200psi
   300# 0-300psi
   400# 0-400psi
   500# 0-500psi
   600# 0-600psi
   750# 0-750psi
   10,000# 0-10,000psi
   15,000# 0-15,000psi
   20,000# 0-20,000psi

   Compound Ranges
   -30"Hg/15#  30°Hg/0-15psi
   -30"Hg/30#  30°Hg/0-30psi
   -30"Hg/60#  30°Hg/0-60psi
   -30"Hg/100# 30°Hg/0-100psi

   Vacuum Range
   -30°Hg to 0

   Metric Scales
   Bar, kg/cm², kPa

   Single or Dual Ranges available

8) Options
   S  Silicone Filled
   V  1/2" to 1/4" SS Adaptor

Please Note: Not all configurations are available! Call Factory for availability.

Specifications subject to change without notice.

Register your product at www.palmerwahl.com/register
Models 25CS • 25SS • 40SS (40SS is being Phased Out) • 60SS All Stainless Steel Gauges

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

Durable and corrosion resistant, our Stainless Steel gauges are made to provide maximum protection in harsh conditions.

Specifications

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

**Fill**: Glycerine Filled or Dry, (Dry gauges can be filled). Silicone optional on 4" and 6" gauges.

**Ring**: AISI 304 Polished Stainless Steel, Bayonet Connection on 25SS, 40SS, and 60SS. Crimped Bezel Ring on 25CS.

**Window**: Instrument Glass. Safety Glass optional on 4" and 6" gauges.

**Socket**: AISI 316 Stainless Steel. Ranges over 200 psi on 4" and 6" gauges come with removable Stainless Steel Restrictor. No restrictor on 2-1/2" gauge.

**Connection**: 1/4" on 2-1/2", 1/2" NPT on 4" and 6", Optional 1/2" F to 1/4" M NPT SS Adaptor.

**Bourdon Tube**: All Pressure Sensing Elements are AISI 316 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.

**Movement**: Stainless Steel.

**Pointer**: Balanced Black Aluminum. Micrometer adjustable in 25SS, 40SS, and 60SS only.

**Dial**: White Aluminum with black markings in accordance with ASME B40.1-2005.

**Range Availability**: PSI, Metric, and Dual Scales. See information on pg 9.

**Process Fluid Temperatures**: 212°F (100°C) maximum for standard tube and socket materials.

**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.

<table>
<thead>
<tr>
<th>Dial Size</th>
<th>Fill</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>25CS</td>
<td>Dry</td>
<td>1.5%</td>
</tr>
<tr>
<td>25SS</td>
<td>Glycerin</td>
<td>1.5%</td>
</tr>
<tr>
<td>40SS</td>
<td>Glycerin</td>
<td>1%</td>
</tr>
<tr>
<td>60SS</td>
<td>Dry</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>Glycerin</td>
<td></td>
</tr>
</tbody>
</table>

Specifications subject to change without notice.

Register your product at www.palmerwahl.com/register
Models 25CS • 25SS • 40SS • 60SS
All Stainless Steel Gauges

Ordering Guide

1) Case Size
   - 25: 2-1/2" (63mm)
   - 40: 4" (100mm)
   - 60: 6" (150mm)

2) Case Material / Style
   - C: SS with Crimped on Bezel Ring (2-1/2" only)
   - S: Stainless Steel with Bayonet Bezel Ring

3) Element Material
   - S: Stainless Steel Bourdon Tube

4) Fill
   - D: Dry
   - W: Wet

5) Mounting
   - L: Stem Mount, Lower Connected
   - B: Stem Mount, Back Connected
   - U: Flush Mount, Back Connected, U Clamp
   - F: Flush Mount, Back Connected, Front Flange
   - I: Surface Mount, Lower Connected, Rear Flange

6) Connection
   - H: 1/2' NPT (40SS, 60SS only)
   - Q: 1/4' NPT (25SS, 24SS only)

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
   - 500#: 0-500psi
   - 600#: 0-600psi
   - 800#: 0-800psi
   - 1000#: 0-1000psi
   - 1500#: 0-1500psi
   - 2000#: 0-2000psi
   - 2500#: 0-2500psi
   - 3000#: 0-3000psi
   - 4000#: 0-4000psi
   - 5000#: 0-5000psi
   - 6000#: 0-6000psi
   - 10,000#: 0-10,000psi
   - 15,000#: 0-15,000psi
   - 20,000#: 0-20,000psi

   Compound Ranges
   - -30" Hg/15#: 30" Hg/0-15psi
   - -30" Hg/30#: 30" Hg/0-30psi
   - -30" Hg/60#: 30" Hg/0-60psi
   - -30" Hg/100#: 30" Hg/0-100psi
   - -30" Hg/150#: 30" Hg/0-150psi
   - -30" Hg/200#: 30" Hg/0-200psi
   - -30" Hg/300#: 30" Hg/0-300psi

   Metric Scales
   - Bar, kg/cm², kPa
   - Single or Dual Ranges available

8) Options
   - G: Safety Glass
   - S: Silicone Fill
   - V: 1/2" to 1/4" SS Adaptor
   - No options on 25CS

Filled Gauge
- IP64 COMPLIANT

Dry Gauge
- IP54 COMPLIANT

THE RIGHT GAUGE FOR YOUR APPLICATION....

Our sales agents and factory engineers are ready to help you with your application. If you don’t find a gauge with the features that fit your needs, please contact our Customer Service department and we will work with you to build the right product for your installation.
Models 25PP • 40PP • 60PP • 25SC
40SC • 60SC • Low Pressure Gauges

Palmer Low Pressure Gauges. Capsule type Pressure Gauges measure low and extremely low positive or negative pressure. The capsule is a modification of a diaphragm element with two convoluted membranes leakproof soldered around the circumference to form the capsule.

Specifications

Case: 25PP, 40PP, 60PP: Corrosion Resistant Black Painted Steel in 2-1/2’’ (63mm), 4’’ (100mm), and 6’’ (150mm) diameter.
25SC, 40SC, 60SC: AISI 304 Stainless Steel in 2-1/2’’ (63mm), 4’’ (100mm) and 6’’ (150mm) diameter.
Fill: Dry.
Ring: 25PP, 40PP, 60PP: No Ring. 25SC, 40SC, 60SC: AISI 304 Stainless Steel with Bayonet Connections.
Connection: 25PP, 40PP, 60PP: 1/4” NPT. 25SC, 40SC, 60SC: 1/2” NPT.
Movement: Brass, high sensitivity type.
Accuracy: 25PP, 25SC: 2.5% of full scale 40PP, 60PP, 40SC, 60SC: 1.5% of full scale.
Dial: White Aluminum with black markings in accordance with ASME B40.1 -2005.
Pressure Sensing Element: 25PP, 40PP, 60PP: Capsule sealed with O-ring gasket. Phosphor Bronze (Brass for ranges less than 60 inches of water); 25SC, 40SC, 60SC: AISI 316 Stainless Steel.

Ordering Guide

1) Case Size
25 2-1/2’’ (63mm)
40 4’’ (100mm)
60 6’’ (150mm)

2) Case Material / Style
P Painted Steel
S Stainless Steel with Bayonet Bezel Ring

3) Element Material
P Phosphor Bronze Capsule (only with Painted Steel case)
C Stainless Steel Capsule (only with Stainless Steel case)

4) Fill
D Dry

5) Mounting
L Stem Mount, Lower Connected (Standard)
B Stem Mount, Back Connected
Contact factory for other configurations

6) Connection
H 1/2” NPT (25SC, 40SC, 60SC only)
Q 1/4” NPT (25PP, 40PP, 60PP only)

7) Range / Scale
PSI Ranges
3# 0 to 3psi
5# 0 to 5psi
10# 0 to 10psi
Vacuum Ranges
-30’’H2O -30’’ H2O / 0 (Vac)
10’’H2O 0 / 10’’ H2O
15’’H2O 0 / 15’’ H2O
30’’H2O 0 / 30’’ H2O
35’’H2O/20OZ 0 / 35’’ H2O / 20oz
60’’H2O 0 / 60’’ H2O
60’’H2O/35OZ 0 / 60’’ H2O / 35oz
100’’H2O 0 / 100’’ H2O
160’’H2O 0 / 160’’ H2O
200’’H2O 0 / 200’’ H2O

8) Options
G1 Acrylic Crystal (SC only)
V 1/2’’ to 1/4’’ SS Adaptor

Specifications subject to change without notice.

Register your product at www.palmerwahl.com/register
NEW! Palmer PSP Solar Digital Process Pressure Gauges offer advanced technology in pressure measurement. Solar power enables the gauge to be care free when installed in various industrial applications, with no need to change batteries.

The PSP150 solar gauge with transmitter requires a current loop to provide the 4-20mA output. If loop power is removed the transmitter will stop sending 4-20mA and the gauge will draw power from it’s solar cell. A gauge that will automatically power itself with solar cells when loop power is removed is a handy feature, especially in energy efficient applications.

- **IP65 Weatherproof Housing**
- **4-20 mA Output**
- **ASME B40.7 Conformance**
- **< 10 Lux Rating**
- **Shock and Vibration Resistant**
- **Large Display**

**Specifications**

- **Case:** 4-1/2’ (114 mm) diameter Black Glass Reinforced Thermo Plastic (PBTP).
- **Window:** Acrylic.
- **Connection:** Stainless Steel. Lower Connected, 1/4” NPT or 1/2” NPT.
- **Blow-Out Back:** Solid Front Construction with Blow Out Back, IP65 Weatherproof.
- **Sensor:** Capacitor design, gold plated ceramic.
- **Wetted Materials:** 316SS.
- **Stem Material:** Standard Cast Aluminum Stem and Seat
- **Ranges:** Vacuum to 1,000 psi.
- **Accuracy:** 0.5% Full Scale ASME 40.7 AA*
- **Ambient Temperature:** -15° to 150°F (-25° to 65°C).
- **Display:** LCD with (4) 5/8” high digits.
- **Lux Rating:** < 10 Lux (only one foot-candle).
- **Resolution:** 1/4% first half of scale, 1/2% second half of scale.

**User Selectable Functions**

- **Left/Units:** Select from 4 units of measure PSI, kPa, KG/CM2 or Bar with corresponding Vacuum.
- **Center/Zero:** Adjustment ±4 increments.
- **Right/Average:** Set reading in average of 1, 2, 4, 8 seconds.
- **Update:** One second, Two seconds (under 20 Lux).
- **Overpressure Limits:** 2 times Full Scale Range.

**Ordering Guide**

- **1) Model Series**
  - PSP100 Solar Gauge, no output
  - PSP150 Solar Gauge, 4-20mA output

- **2) Upper Connection**
  - S 316SS

- **3) Mount**
  - L Stem Mount, Lower Connected
  - B Stem Mount, Back Connected

- **4) Lower Connection**
  - H 1/2” NPT
  - Q 1/4” NPT

- **5) Range**
  - V15# Vac to 15 psi
  - V60# Vac to 60 psi
  - V100# Vac to 100 psi
  - O200# 0 to 200 psi
  - O400# 0 to 400 psi
  - O1000# 0 to 1000 psi

- **6) Options**
  - C Flush Mount Ring or Flange Kit
  - G Safety Glass (no selector access with this option)
  - V 1/2” to 1/4” SS Adaptor
  - W Button Lockout

Specifications subject to change without notice.
Industrial Gauges
Solid Front
with Blow-Out Back

Models 40FS (40FS is Discontinued) • 45TS
Solid Front Blow-Out Back Gauges

Accurate, Tough, and Adjustable

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 process medium. These gauges are constructed with a solid barrier between the sensing element and the dial front, welded to the socket to give them exceptional strength. In addition to protecting the user from fluid and particles in the event of failure, the backs of these cases are designed to blow out to release pressure inside the case. Filled gauges reduce pointer fluctuation, reduce wear of rotating parts of the movement when pulsant vibrations and pulsations occur, and prevent condensation and corrosion which could damage the internal parts.

- 40FS designed to withstand high overpressure up to 4 times the full scale value
- 45TS has a safety construction featuring a stainless steel “solid front” safety cell protecting the front and sides, and a blow-out back.

When Safety is Paramount!

Specifications

Case and Blow-Out Disk: 40FS: AISI 304 Stainless Steel in 4” (100mm) diameter, 45TS: Phenolic, Fiberglass Reinforced in 4-1/2” (125mm) diameter.

Fill: Available either Dry or Filled. Glycerine standard, optional Fluorolube or Silicone.*

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


Socket: AISI 316 Stainless Steel, TIG welded to the elastic element using 316 Stainless Steel. 45TS: Optional K Monel.

Connections: 1/2” NPT threads, with built in SS Restrictor. Optional BSP Threads.

Bourdon Tube: 40FS: Seamless tube, AISI 316L Stainless Steel for ranges up to 20,000 psi (0 to 1000 bar); Duplex SS for ranges over 20,000 psi (0 to 1400 bar). 45TS: AISI 316 Stainless Steel. C-tube configuration for ranges below 1000 psi. Spiral tube configuration for higher ranges. Optional K Monel.

Movement: Stainless Steel with Internal Limit Stops for Minimum and Maximum Pressure.

Pointer: Black Aluminum, micrometer adjustable.

Note: Instruments for Oxygen - Glycerine or silicone should not be used with highly oxidizing agents such as oxygen, chlorine, nitric acid or hydrogen peroxide, because of danger of spontaneous chemical reaction, inflammability or explosion. The use of fluorinated fluid is recommended in these cases.

*40FS Dry model is available with optional vented housing and IP67 protection. Call Customer Service for more information.

Specifications subject to change without notice.

<table>
<thead>
<tr>
<th>Mounting Options</th>
<th>Lower (L)</th>
<th>Back (B)</th>
<th>Front Flange (F)</th>
<th>Rear Flange (R)</th>
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</thead>
<tbody>
<tr>
<td>40FS Dry</td>
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<td>✔️</td>
<td>✔️</td>
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<tr>
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<td>✔️</td>
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<tr>
<td>45TS Dry</td>
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<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>45TS Wet</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

40FS: Filled Gauge

40FS: Dry Gauge

Cut away showing Solid Front feature

Register your product at www.palmerwahl.com/register
Models 40FS (40FS is Discontinued) • 45TS Solid Front Blow-Out Back Gauges

Ordering Guide

1) Case Size
40 4” (100mm)
45 4-1/2” (125mm)

2) Case Material / Style
F Stainless Steel with Solid Front, Bayonet Ring
T Phenolic, Blow-Out Vent, Screw-on Bezel Ring

3) Element Material
S Stainless Steel Bourdon Tube
M all K Monel Wetted Parts* (45TS only)

4) Fill
D Dry
W Wet

5) Mounting
L Stem Mount, Lower Connected
B Stem Mount, Back Connected (not 40TSW)
F Flush Mount, Back Connected, Front Flange (40FS only)
I Surface Mount, Lower Connected, Rear Flange (40FS only)

6) Connection
H 1/2” NPT

7) Range / Scale
PSI Ranges
-30” Hg/0 psi
-30” Hg/50 psi
-30” Hg/150 psi
0-50 psi
0-100 psi
0-150 psi
0-300 psi
0-600 psi
0-1000 psi
0-1500 psi
0-2000 psi
0-3000 psi
0-5000 psi

8) Options
G Safety Glass
L Fluorolube Fill
P BSP Threads*
R SS Restrictor*
S Silicone Fill
V 1/2” to 1/4” SS Adaptor (*45TS only)

AvailableRanges

<table>
<thead>
<tr>
<th>PSI Ranges</th>
<th>PSI inner</th>
<th>PSI outer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PSI inner</td>
<td>PSI outer</td>
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<tr>
<td>PSI inner</td>
<td>PSI outer</td>
<td></td>
</tr>
<tr>
<td>PSI outer</td>
<td>PSI inner</td>
<td></td>
</tr>
</tbody>
</table>

Notes for above Range Tables
1 Vacuum measurement unit: inHg.
2 45TS only.
3 Working pressure: max 75% of FSV,
Overpressure: 10% of FSV.
4 Not available on 45TS.
5 40FS only.
6 Not available on filled model.

Specifications subject to change without notice.
Palmer 40KB Gas Test Gauges feature a durable plastic face and brass internals. Used to test new gas installations for leaks and for passing inspection codes. After installing the gas test gauge and pressurizing the system with air through the schrader valve, red set pointer is placed over gauge pointer, and left for a time interval. System leakage will be shown by a pressure drop away from red set pointer.

- **Model 40KBDLA 6psi / 12"Hg**
- **Model 40KBDLA 15psi / 30"Hg**
- **Model 40KBDLA 30psi / 60"Hg**
- **Class 1A Accuracy**
- **Hex Body and Schrader Air Valve**
- **Solid Brass Internal Body**
- **4" (100mm) Painted Black Steel Case**
- **Dual Scale (PSI-Outer/Inches of Hg-Inner) in Dual Color**
- **Measures in 1/10th lb increments, 1/2" Hg (6psi/12"Hg,15psi/30"Hg)**
- **Measures in 1/5 lb increments, 1" Hg (30psi/60"Hg)**
- **Internal Overpressure Protection Device**
- **Phosphor Bronze Diaphragm**
- **Heavy Duty Gear Movement**
- **Heavy Duty Construction**
- **Environmentally-Safe Alternative to Mercury Columns**

### Specifications

**Case:** 4" (100 mm) diameter Painted Black Steel.

**Fill:** Dry.

**Ring:** Painted Black Stainless Steel with Bayonet Ring.

**Window:** Plastic.

**Socket / Connection:** Lower Connected Brass Valve Hex Body with Schrader Valve, and 3/4" NPT Process Connection.

**Bourdon Tube:** Phosphor Bronze Diaphragm Internals.

**Movement:** Heavy Duty Gear Movement.

**Pointer:** Set Pointer for Leak Off. Set hand.

**Dial:** Dual Scale, White Background, PSI-Outer Scale Black Lettering, inches of Hg-Inner Scale Blue Lettering.

**Accuracy:** 2.1.2%.

**Overpressure:** Internal overpressure protection device.

**Ambient Operating Range:** -4°F to 160 °F (-20°C to -60°C).

### Ordering Guide

1. **Case Size**
   - 40 (40" (100mm))

2. **Case Material / Style**
   - K Painted Black Steel

3. **Element Material**
   - B Phosphor Bronze or Bourdon Tube

4. **Fill**
   - D Dry

5. **Mounting**
   - L Stem Mount, Lower Connected

6. **Connection**
   - A Brass Valve Body with Schrader Valve, and 3/4" NPT Process Connection

7. **Range / Scale**
   - PSI Ranges
     - 6# 6psi/12"Hg
     - 15# 15psi/30"Hg
     - 30# 30psi/60"Hg

### 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

Specifications subject to change without notice.

Register your product at www.palmerwahl.com/register
Model 40MS (40MS is being phased out) •
Differential Gauges with Double Bourdon Tube

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

Palmer Instruments 40MS Industrial Strength Differential Pressure Gauge features double bourdon tube construction. This versatile gauge allows 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.

### Specifications
- **Case:** 304 SS 4" (100mm) diameter.
- **Fill:** Dry.
- **Ring:** 304 Stainless Steel Bayonet Connection.
- **Window:** 3mm Instrument Quality Glass.
- **Socket:** 316 Stainless Steel.
- **Connection:** 1/2" NPT.
- **O-Ring and Blow-out Vent:** Rubber.
- **Double Bourdon Tubes:** 316 Stainless Steel.
- **Movement:** 316 SS with wear-resistant Stainless Steel gears.
- **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:
  \[ \Delta P = (P+)_{\text{High}} - (P-)_{\text{Low}} \]
- **Dial:** Two white Aluminum dials with black numerals and graduations in accordance with ASME B40.1 -2005.
- **Welding:** AISI 316 Stainless Steel, TIG Argonarc.
- **Accuracy:** ± 1% of Full Scale.
- **Operating Medium Temperature:** 100°C.
- **Ambient Temperature:** -4° to 140°F (-20° to +60°C).

### Ordering Guide

1) **Case Size**
   - 40: 4" (100mm)

2) **Case Material / Style**
   - M: Stainless Steel Pressure & Differential Gauge

3) **Element Material**
   - S: Stainless Steel Bourdon Tube

4) **Fill**
   - D: Dry

5) **Mounting**
   - L: Stem Mount, Lower Connected
   - H: Flush Mount, Lower Connected, Front Flange
   - I: Surface Mount, Lower Connected, Rear Flange

6) **Connection**
   - H: 1/2" NPT

7) **Range / Scale**
   - PSI Ranges:
     - 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

8) **Options**
   - V: 1/2" to 1/4" SS Adaptor

Specifications subject to change without notice.

Register your product at www.palmerwahl.com/register
Model 25BB • Brass Case
2-1/2" Gauges

Designed for commercial and heavy-duty industrial applications requiring the use of rugged gauges. The sturdy brass case adds extra protection, while the glycerine fill dampens the effects of pulsation and vibration. This also prevents corrosion of the moving parts, extending the life of the gauge.

Specifications

Case: 2-1/2" (63mm) diameter Forged Brass Case.
Fill: Glycerine Filled.
Ring: Highly Polished Brass.
Window: Polycarbonate.
Socket: Brass.
Wetted Parts: Phosphorus Bronze.
Connection: 1/4" NPT.
Bourdon Tube: Phosphorus Bronze.
Movement: All-Brass Gear and Plates.
Pointer: Balanced black Aluminum, non-adjustable.
Dial: White Aluminum with black markings in accordance with ASME B40.1 -2005.
Accuracy: 1.5% of Full Scale.
Ambient Temperature: 30° to 160°F (1° to 71°C).
Working Pressure: Maximum 100% of full scale value.

The classic look of brass in a tough, modern gauge

Ordering Guide

1) Case Size
25 2-1/2" (63mm)

2) Case Material / Style
B Brass

3) Element Material
B Phosphor Bronze or Brass Bourdon Tube

4) Fill
W Wet

5) Mounting
L Stem Mount, Lower Connected

6) Connection
Q 1/4" NPT

7) Range / Scale
PSI Ranges
15# 0-15psi
30# 0-30psi
60# 0-60psi
100# 0-100psi
150# 0-150psi
200# 0-200psi
300# 0-300psi
400# 0-400psi
600# 0-600psi
1000# 0-1000psi
1500# 0-1500psi
2000# 0-2000psi
3000# 0-3000psi
5000# 0-5000psi
7500# 0-7500psi
10,000# 0-10,000psi
Compound Ranges
-30° Hg/0# 30Hg/0psi

Available Ranges

Gauge Figure Interval Graduation Interval
-30° Hg / 0 psi 5 Hg 0.5 Hg
0 / 15 2 0.1
0 / 30 3 0.2
0 / 60 5 0.5
0 / 100 10 1
0 / 200 20 2
0 / 300 30 2
0 / 500 50 5
0 / 750 50 5
0 / 1000 100 10
0 / 1500 200 10
0 / 2000 200 10
0 / 3000 500 20
0 / 5000 500 50
0 / 7500 500 50
0 / 10,000 1000 100

Specifications subject to change without notice.

Register your product at www.palmerwahl.com/register
Utility Gauges
Stainless Steel Case Gauges

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

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

Specifications

**Case:**
AISI 304 Stainless Steel. 1-1/2” (40mm), 2” (50mm), 2-1/2’ (63mm), and 4” (100mm) diameter.

**Fill:**
Available either Glycerine Filled or Dry. Silicone Fill optional on 2-1/2’ and 4’.

**Ring:**
AISI 304 Polished Stainless Steel, Crimped Bezel Ring.

**Window:**
Glass or Engineered Plastic on 1-1/2”, Acrylic on 2”, 2-1/2”, and 4”.

**Socket:**
Brass.

**Connection:**
1/8” NPT on 1-1/2”, 1/4” NPT on 2”, 2-1/2” and 4”.

**Bourdon Tube:**
Brass or Phosphor Bronze.

**Movement:**
OT59 Brass Gears with 304 Stainless Steel plates.

**Pointer:**
Black painted Aluminum (non-adjustable).

**Dial:**
White Aluminum with black markings in accordance with ASME B40.1 -2005.

**Accuracy**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Dial Size</strong></td>
<td><strong>Accuracy</strong></td>
<td></td>
</tr>
<tr>
<td>15CB</td>
<td>2%</td>
<td></td>
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<tr>
<td>20CB</td>
<td>1.5%</td>
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<tr>
<td>25CB</td>
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<tr>
<td>40CB</td>
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</tr>
</tbody>
</table>

**Ordering Guide**

1) **Case Size**

- 15: 1-1/2” (40mm)
- 20: 2” (50mm)
- 25: 2-1/2” (63mm)
- 40: 4” (100mm)

2) **Case Material / Style**

- C: Stainless Steel with Crimped Bezel Ring

3) **Element Material**

- B: Phosphor Bronze or Brass Bourdon Tube

4) **Fill**

- D: Dry
- W: Wet

5) **Mounting**

- L: Stem Mount, Lower Connected
- B: Stem Mount, Back Connected

6) **Connection**

- E: 1/8” NPT (15CB only)
- Q: 1/4” NPT (not on 15CB)

7) **Range / Scale**

<table>
<thead>
<tr>
<th>PSI Ranges</th>
<th>Compound Ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td>10#</td>
<td>0-10psi</td>
</tr>
<tr>
<td>15#</td>
<td>0-15psi</td>
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<td>30#</td>
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<tr>
<td>4000#</td>
<td>0-4000psi</td>
</tr>
</tbody>
</table>

Specifications subject to change without notice.

Register your product at www.palmerwahl.com/register

(800) 421-2853 • FAX (828) 658-0728

PW1130
03/14 Rev A
Models PB • SB
Steel Case Gauges

An economical solution to a wide range of applications.

Painted Steel Case Utility Gauges 15PB • 20PB • 25PB • 40PB
Case: Corrosion Resistant Black Painted Steel, 15PB, 1-1/2" (40mm), 20PB, 2" (50mm), 25PB, 2-1/2" (63mm), and 40PB, 4" (100mm) diameter.
Fill: Dry.
Window: Acrylic. Instrument Glass on 4".
Socket: Brass or Phosphor Bronze
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.
Bourdon Tube: Brass or Phosphor Bronze.
Movement: Low friction, durable Brass.
Pointer: Black painted Aluminum, non-adjustable.
Dial: White background with black markings in accordance with ASME B40.1 -2005.
Accuracy: 1-1/2", 2", and 2-1/2" gauges are ± 2% mid-range. 4" gauges are ± 1.5% mid-range.

Stainless Steel Case Contractor Gauge • 45SB
Case: 304 Series Stainless Steel Case, in 4-1/2" (125mm) diameter.
Fill: Dry.
Ring: 304SS Removable Bezel Ring with 3 screws.
Window: Acrylic.
Socket: Brass.
Connections: 1/4" NPT Standard.
Mounting: Stem Mount, Lower Connected only.
Bourdon Tube: Phosphor Bronze C-Tube.
Movement: Brass.
Pointer: Black painted Aluminum, zero-adjustable.
Dial: White Aluminum with black markings in accordance with ASME B40.1 -2005.
Accuracy: ± 1% Full Scale.
Operating Temperature Limit: -4° to 140°F (-20 to 60°C).
Applications: HVAC, Water, Air Gas, Oil, and other applications not corrosive to wetted parts.

Ordering Guide

<table>
<thead>
<tr>
<th>1) Case Size</th>
<th>2) Case Material / Style</th>
<th>3) Element Material</th>
<th>4) Fill</th>
<th>5) Mounting</th>
<th>6) Connection</th>
<th>7) Range / Scale</th>
<th>8) Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>P Painted Steel (not on 4-1/2&quot; Gauge)</td>
<td>B Brass or Phosphor Bronze</td>
<td>D Dry</td>
<td>L Stem Mount, Lower Connected</td>
<td>E 1/8&quot; NPT (15PB only)</td>
<td>PSI Ranges</td>
<td>V1 1/4&quot; to 1/2&quot; Brass Adaptor</td>
</tr>
<tr>
<td>20</td>
<td>S Stainless Steel with Bayonet Bezel Ring</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Q 1/4&quot; NPT (not on 15PB)</td>
<td>Compound Ranges</td>
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<tr>
<td>25</td>
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<td>40</td>
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</tr>
</tbody>
</table>

Specifications subject to change without notice.
Needle and Ball Valves

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

**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. Blow-out proof stem. Black Nylon wedge handle. **Rating:** to 450 psi and -4° to 200°F.

**Ball Valve Body Material**

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
<th>Style FF</th>
<th>Style MF</th>
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<tbody>
<tr>
<td>Chrome Plated Body</td>
<td>OT58 Brass</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retainer Nut</td>
<td>OT58 Brass</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retainer Seat</td>
<td>PFE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chrome Plated Ball</td>
<td>OT58 Brass</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body Seat</td>
<td>PFE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unplated Stem</td>
<td>OT58 Brass</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screw</td>
<td>SS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green O-Ring</td>
<td>Vitron</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black Handle</td>
<td>Nylon</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Needle Valves**

**Material:** Needle Valves come in Brass, 316SS, and Carbon Steel.

**Bonnet:** Screwed Bonnet type.

**Stem:** Externally adjustable, wear compensating, virgin PTFE 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.

**Brass Needle Valves**

**Stainless Steel Needle Valves**

**Operating Limitations:**
- Brass: 3000 psi (207 bar) @100°F (38°C)
- 316 SS: 5000 psi (345 bar) @100°F (38°C)
- Carbon Steel: 6000 psi (413 bar) @200°F (93°C)

**Flow Coefficient:**
- Globe and Angle (.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)
Snubbers and Syphons

Palmer Snubbers and Syphons offer the protection you need for your instruments.

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. Recommendations for Pistons are included in the table below.

**Material Specifications:** Model Numbers and Pressure Ratings are displayed below.

<table>
<thead>
<tr>
<th>Piston</th>
<th>Suggested Use</th>
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</thead>
<tbody>
<tr>
<td>A, B*</td>
<td>Gases</td>
</tr>
<tr>
<td>B*, C</td>
<td>Water</td>
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<tr>
<td>C, D</td>
<td>Light Oil</td>
</tr>
<tr>
<td>E</td>
<td>Heavy Oil</td>
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</table>

*Snubber assembled and shipped with the “B” piston installed.

**Piston Type Snubbers Model Numbers and Specifications**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Size</th>
<th>Material</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1300</td>
<td>1/4&quot; NPT</td>
<td>Brass</td>
<td>9,000 psi</td>
</tr>
<tr>
<td>1325</td>
<td>1/4&quot; NPT</td>
<td>Brass</td>
<td>6,000 psi</td>
</tr>
<tr>
<td>1335</td>
<td>SAE J1926 - 3/7/16-20</td>
<td>Brass</td>
<td>6,000 psi</td>
</tr>
<tr>
<td>1350</td>
<td>1/2&quot; NPT</td>
<td>Brass</td>
<td>6,000 psi</td>
</tr>
<tr>
<td>5025</td>
<td>1/4&quot; NPT</td>
<td>316 SS</td>
<td>15,000 psi</td>
</tr>
<tr>
<td>5035</td>
<td>SAE J1926 - 3/7/16-20</td>
<td>316 SS</td>
<td>8,000 psi</td>
</tr>
<tr>
<td>5050</td>
<td>1/2&quot; NPT</td>
<td>316 SS</td>
<td>15,000 psi</td>
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</table>

Dimensions in inches (mm)

<table>
<thead>
<tr>
<th>Size</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; NPT</td>
<td>1.60 (40.6)</td>
<td>1.04 (26.4)</td>
<td>0.56 (14.2)</td>
<td>0.812 (20.6)</td>
</tr>
<tr>
<td>1/2&quot; NPT</td>
<td>1.875 (47.6)</td>
<td>1.25 (31.8)</td>
<td>0.625 (15.9)</td>
<td>1.125 (28.6)</td>
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<tr>
<td>SAE J1926 - 3/7/16-20</td>
<td>1.60 (40.6)</td>
<td>1.24 (31.5)</td>
<td>0.36 (9.1)</td>
<td>0.812 (20.6)</td>
</tr>
</tbody>
</table>

Pigtail Steam Syphons

**180° Coil Style 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.

**Pigtail Steam Syphons Model Numbers and Specifications**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Model</th>
<th>Pressure Rating</th>
<th>Material</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1025</td>
<td>1/4&quot; NPT</td>
<td>308 psi @ 400°F</td>
<td>Carbon Steel Carbon 40</td>
<td>5.80&quot; (147.3mm)</td>
<td>2.50&quot; (63.5mm)</td>
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<tr>
<td>1050</td>
<td>1/2&quot; NPT</td>
<td>1097 psi @ 400°F</td>
<td>Carbon Steel Schedule 80</td>
<td>9.00&quot; (228.6mm)</td>
<td>4.50&quot; (114.3mm)</td>
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<tr>
<td>2025</td>
<td>1/4&quot; NPT</td>
<td>552 psi @ 400°F</td>
<td>316 SS Schedule 40</td>
<td>5.80&quot; (147.3mm)</td>
<td>2.50&quot; (63.5mm)</td>
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<tr>
<td>2050</td>
<td>1/2&quot; NPT</td>
<td>1967 psi @ 400°F</td>
<td>316 SS Schedule 80</td>
<td>9.00&quot; (228.6mm)</td>
<td>4.50&quot; (114.3mm)</td>
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</table>


**Specifications subject to change without notice.**
### Media Application

<table>
<thead>
<tr>
<th>Bourdon Tube or Bellows Material</th>
<th>Brass or Bronze</th>
<th>Steel</th>
<th>Monel</th>
<th>Diaphragm Seals*</th>
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<td>Media Application</td>
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<td>✔</td>
<td>✔</td>
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<tr>
<td>Acetic Acid &lt; 40%</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
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<tr>
<td>Acetic Anhydride</td>
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<td>✔</td>
<td>✔</td>
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<tr>
<td>Acetylene (Dry)</td>
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<td>✔</td>
<td>✔</td>
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</tr>
<tr>
<td>Acrolein 100%</td>
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<tr>
<td>Air</td>
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<tr>
<td>Alcohol, Ethyl</td>
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<td>✔</td>
<td>✔</td>
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<tr>
<td>Alkali Cleaners</td>
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<td>✔</td>
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<tr>
<td>Alum. Chloride &gt; 10%</td>
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<tr>
<td>Alum. Hydroxide</td>
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<td>✔</td>
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<tr>
<td>Alum. Sulfate &lt; 60%</td>
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<td>Ammonia Gas (Dry)</td>
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<tr>
<td>Ammonium Chloride &lt; 40%</td>
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<td>Ammonium Nitrate &lt; 50%</td>
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<td>Ammonium Sulfate &lt; 60%</td>
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<tr>
<td>Aniline &gt; 99%</td>
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<td>✔</td>
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<tr>
<td>Argon</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Beer</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Bauxite &amp; Water</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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<tr>
<td>Benzene &lt; 50%</td>
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<td>✔</td>
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<tr>
<td>Benzidine &lt; 99%</td>
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<tr>
<td>Benzoic Acid &lt; 70%</td>
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<td>✔</td>
<td>✔</td>
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<tr>
<td>Black Liquor</td>
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<tr>
<td>Boric Acid &lt; 25%</td>
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<td>Bromine (Dry)</td>
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<td>Butane</td>
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<tr>
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<td>Caustic Soda</td>
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<td>Cement Slurry</td>
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<td>Chlorine Dioxide</td>
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<td>Cider</td>
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<td>✔</td>
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</tbody>
</table>

Information provided is intended as a guide. Please consult Customer Service for your exact application.

Bronze and AISI 316 SS are acceptable for oxygen service, provided the gauge has been cleaned for oxygen service and is free from oil.

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

(1) Use 316 Stainless Steel system for pressure > 1000psi
(2) Media < 100˚F / 37.8˚C

---

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Continuous Innovation Since 1836

PW1130
03/14 Rev A
# Pressure Equivalent Table

<table>
<thead>
<tr>
<th>PSI</th>
<th>atmospheres</th>
<th>in H2O</th>
<th>mm H2O</th>
<th>cm H2O</th>
<th>oz/in²</th>
<th>kg/cm²</th>
<th>in Hg</th>
<th>mm Hg</th>
<th>cm Hg</th>
<th>mbar</th>
<th>bar</th>
<th>Pa</th>
<th>kPa</th>
<th>mPa</th>
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Use this chart to convert pressure from one unit to another:
1) Find the column heading with the units to convert from.
2) Move down the same column until you find the number “1”.
3) Staying in the same row, move horizontally to the column with units heading you are converting to.
4) Multiply the number in that box by the amount you are changing from to get the converted value.

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**Palmer Wahl Pressure Gauge 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 are operated within the prescribed working pressure limits and ambient temperatures outlined in the operating specification 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 - or; 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 Gauges
   - **One Year Warranty** - Dry Gauges, Digital and Solar

Specifications subject to change without notice.

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Register your product at [www.palmerwahl.com/register](http://www.palmerwahl.com/register)

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Wahl designs and manufactures to the most stringent quality standards. We provide certified, traceable calibration data in support of companies whose requirements include meeting ISO 9001:2008, FAA and FDA quality standards. Calibrations to both IPTS-68 and ITS-90 are available. Choose from two levels of calibrations services to meet your quality system requirements.

### CALIBRATION SERVICES

**STANDARD CERTIFICATION:** Unit is calibrated to factory specifications using NIST traceable equipment. Unit is provided with:
- **Certificate of Conformance** - Statement that our product meets published specifications. Included on the packing list with each shipment.
- **“Long Form” Certificate of Conformance** - Available upon request. Includes Certificate of Conformance with customer’s PO number, items shipped, and any product serial numbers for products included in the shipment.
- **Calibration Sticker** - Advising you of the date your instrument(s) was/were calibrated, and the suggested date for the next calibration. This is provided with most products at time of purchase, and when you return a product for calibration.

**NIST TRACEABLE TEST REPORT:** Unit is calibrated to factory specifications using NIST Traceable equipment. Unit is provided with:
- **NIST Traceable Test Report** - Provides instrument test data with details of standard instruments used to perform the calibration. “As Received” and “As Left” Test Data is provided, as appropriate, with any out-of-tolerance conditions noted, and a unique test number assigned.
- **NIST Traceable Calibration Sticker** Provides the date your instrument(s) was/were calibrated, technician performing the calibration, suggested date for the next calibration, and references the unique test number shown in the Test Report. Our Quality Management System is certified to conform to ISO9001:2008. We maintain a calibration system in conformance with ANSI/NCSL Z-540 and MIL-STD-45662A.

### REPAIR AND OTHER SERVICES

**REGISTER YOUR PRODUCT:** Registration is fast and easy. In about a minute you can register your product for Warranty Protection and our Calibration Reminder Service to keep your QC Program in compliance. Go to: [www.palmerwahl.com/register](http://www.palmerwahl.com/register)

**REPAIR SERVICES:** Palmer Wahl offers repair and calibration services on most products we sell. The customer will receive a written estimate for approval before proceeding with work. Repair pricing includes Standard Certification as listed above.

- **Detailed Repair Report** - Available upon request, this report provides details of evaluation and repairs made.
- **Custom Points** - Palmer Wahl will calibrate your instruments at your specified temperature or pressure points.
- **Special Requests** - When calibrating your instrument, our experienced personnel will help you to achieve the level of quality you require in your facility. **Note:** Before returning your product to us please contact us to obtain a **Return Merchandise Authorization Number**, (RMA). Call Customer Service at 1-800-421-2853 or go to [www.palmerwahl.com](http://www.palmerwahl.com) and click on: Service > Product Return Request.

Palmer Pressure Gauges are available from:

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**Palmer Wahl 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.

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