

Pressure Gauges

Ultrahigh-Purity and Clean Dry Air



PGU and PGC Series

- 40 and 50 mm (1 1/2 and 2 in.) dial sizes
- Accuracy in accordance with ASME B40.100
- 316L VAR end connections (PGU series)
- Center-back and lower mount configurations

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Features

Swagelok offers Bourdon tube pressure gauges to monitor positive system pressure and vacuum. Gauges are available for use in a wide range of applications, from bulk gas distribution to process tool applications.

Technical Data

Dial Ranges

See page 4 for PGU series and page 5 for PGC series dial range information.

Accuracy

- 50 mm (2 in.) dial size: $\pm 2\%$ / 1% / 2% of span (ASME B40.100, Grade A, EN 837-1 Class 2.5, JIS B7505 Class 2.5)
- 40 mm (1 1/2 in.) dial size: $\pm 3\%$ / 2% / 3% of span (ASME B40.100, Grade B, EN 837-1 Class 4, JIS B7505 Class 4)

Operating Temperature

- **Ambient:** -40 to 140°F (-40 to 60°C)
- **Media:** -40 to 212°F (-40 to 100°C)

Temperature Error

$\pm 0.4\%$ for every 18°F (10°C) temperature change from 68°F (20°C)

Testing and Calibration

Every ultrahigh-purity and clean dry air gauge is 100 % factory calibrated and helium leak tested to a maximum rate of 1×10^{-9} std cm^3/s .

Cleaning and Packaging

PGU Series

- UHP “clean” for semiconductor gas applications, in accordance with SEMI/SEMATECH
- Cleaned and packaged in class 100/10 cleanroom
- Packaged in two bags
- Purged with nitrogen
- Protective cap over threaded connection

PGC Series


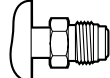

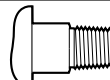
- Assembled, cleaned and packaged in class 100 cleanroom
- Packaged in single nylon bag
- Purged with nitrogen
- Protective cap over threaded connection
- ASME B40.100, Level IV

Materials of Construction

| Component | Materials | |
|-----------------------|---|---|
| | Ultrahigh-Purity (PGU Series) | Clean Dry Air (PGC Series) |
| <i>End connection</i> | 316L VAR, electropolished | 316 SS |
| <i>Bourdon tube</i> | 316L SS | 316 SS |
| Case | 304 SS | |
| Movement | Stainless steel | |
| Lens | Snap-in acrylic (40 mm [1 1/2 in.] dial) Twist-lock polycarbonate (50 mm [2 in.] dial) | Twist-lock polycarbonate (50 mm [2 in.] dial) |
| Dial | Aluminum | |
| Pointer | | |

Wetted components listed in *italics*.

Process Connections

| Connection | | Designator |
|--|---|------------|
| Ultrahigh-Purity (PGU Series) | | |
| 1/4 in. female VCR® face seal fitting |  | 4FSF |
| 1/4 in. rotatable male VCR face seal fitting |  | 4FSM |
| 1/4 in. integral male VCR face seal fitting |  | 4FFM |
| Clean Dry Air (PGC Series) | | |
| 1/4 in. male NPT |  | 4NPT |

Refer to Swagelok® *VCR Metal Gasket Face Seal Fittings* catalog, [MS-01-24](#), for additional information about VCR fitting end connections.

NPT end connections comply with ASME B1.20.1.

Dimensions and Dial Ranges

Dimensions, in inches (millimeters), are for reference only and are subject to change.

See page 6 for **Ordering Information** and **Dial Range Designators**.

PGU Series: Ultrahigh-Purity Gauges

50 mm (2 in.) Gauges

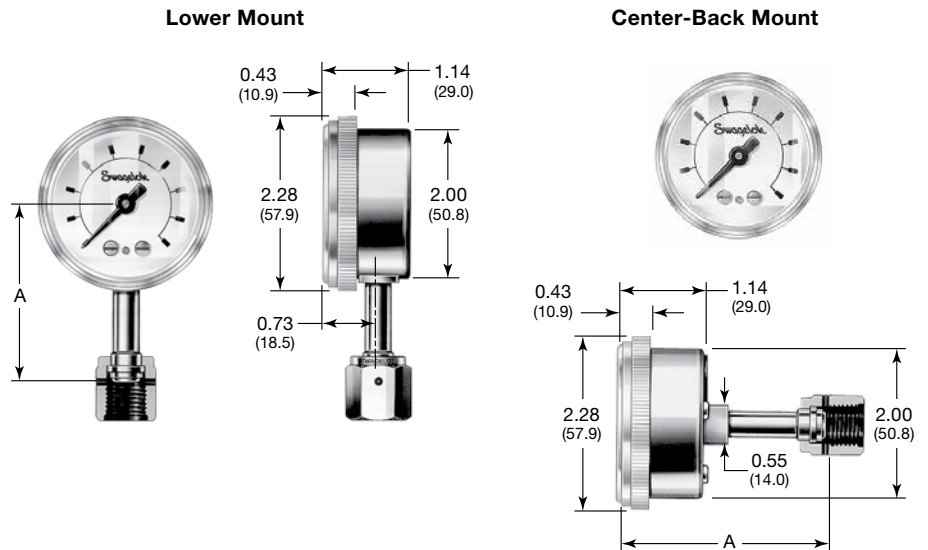
Dial Ranges

Compound Gauges

- Vacuum to 15 psi through vacuum to 300 psi
- Vacuum to 0.1 MPa through vacuum to 2.1 MPa

Positive Pressure Gauges

- 0 to 15 psi through 0 to 3000 psi
- 0 to 0.1 MPa through 0 to 21 MPa



| End Connection | | A in. (mm) |
|--------------------------------------|---------|----------------|
| Type | Size | |
| Female VCR face seal fitting | 1/4 in. | 2.32 (58.9) |
| Rotatable male VCR face seal fitting | | 1.88 (47.8) |
| Integral male VCR face seal fitting | | |

| End Connection | | A in. (mm) |
|--------------------------------------|---------|----------------|
| Type | Size | |
| Female VCR face seal fitting | 1/4 in. | 2.59 (65.8) |
| Rotatable male VCR face seal fitting | | 2.23 (56.6) |
| Integral male VCR face seal fitting | | |

40 mm (1 1/2 in.) Center-Back Mount Gauges

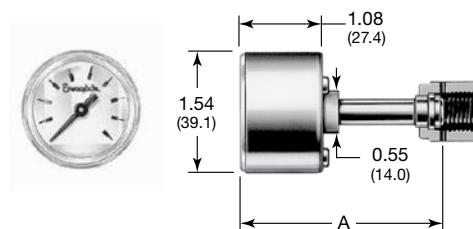
Dial Ranges

Compound Gauges

- Vacuum to 15 psi through vacuum to 300 psi
- Vacuum to 0.1 MPa through vacuum to 2.1 MPa

Positive Pressure Gauges

- 0 to 15 psi through 0 to 3000 psi
- 0 to 0.1 MPa through 0 to 21 MPa



| End Connection | | A in. (mm) |
|--------------------------------------|---------|----------------|
| Type | Size | |
| Female VCR face seal fitting | 1/4 in. | 2.57 (65.3) |
| Rotatable male VCR face seal fitting | | 2.16 (54.9) |
| Integral male VCR face seal fitting | | |

Dimensions and Dial Ranges

Dimensions, in inches (millimeters), are for reference only and are subject to change.

See page 6 for **Ordering Information** and **Dial Range Designators**.

PGC Series: Clean Dry Air Gauges

50 mm (2 in.) Gauges

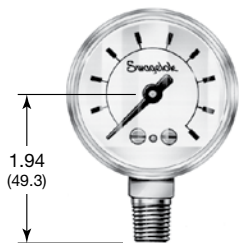
Dial Ranges

Compound Gauges

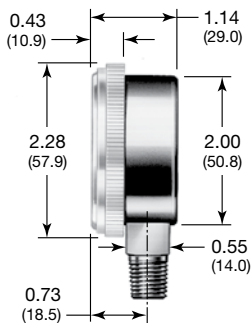
- Vacuum to 15 psi through vacuum to 300 psi
- Vacuum to 0.1 MPa through vacuum to 2.1 MPa

Positive Pressure Gauges

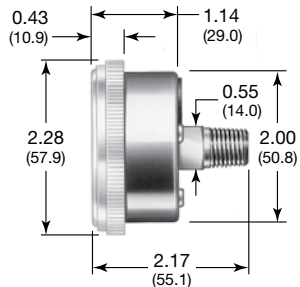
- 0 to 15 psi through 0 to 6000 psi
- 0 to 0.1 MPa through 0 to 40 MPa



Lower Mount

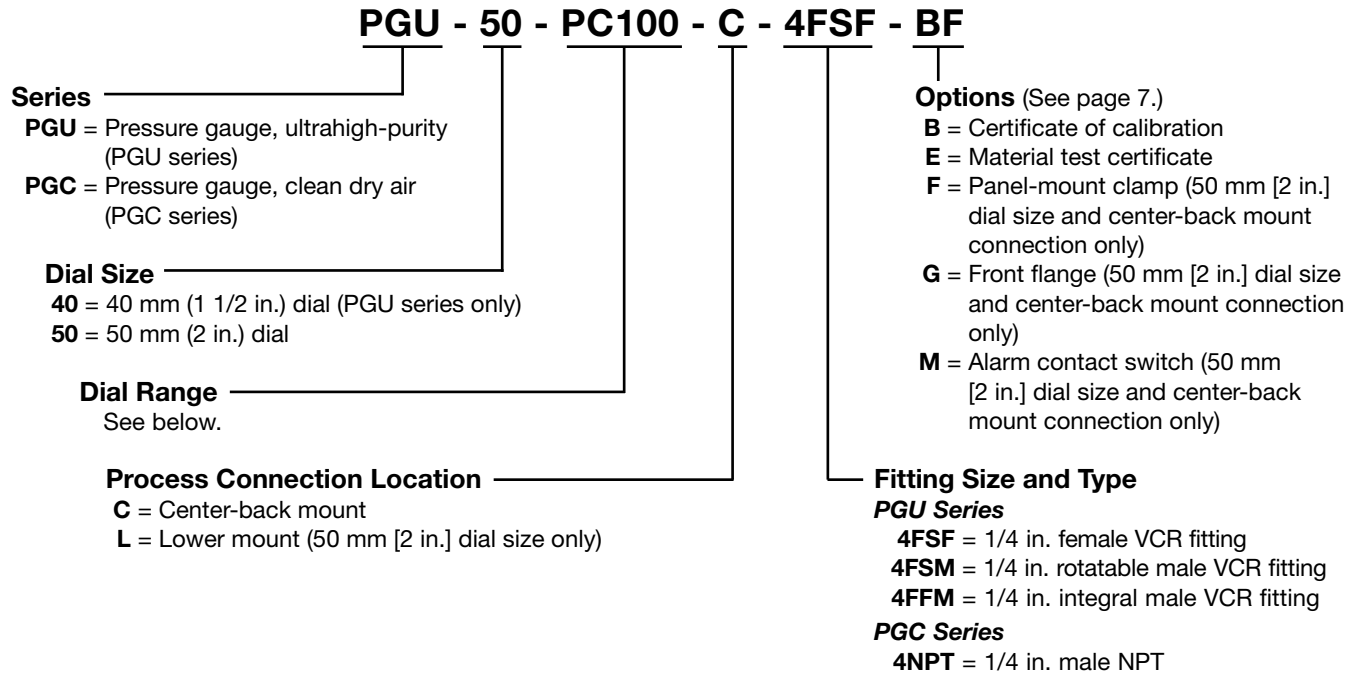


Center-Back Mount



Ordering Information

Build a gauge ordering number by adding the designators as shown below. List option designators *alphabetically*.



Dial Range Designators

The selected dial range should be approximately two times the system working pressure, and the system working pressure should be in the middle half (25 to 75 %) of the dial range. Contact your authorized Swagelok sales and service representative if the system working pressure will exceed 75 % of the dial range.

Maximum pressure is limited by the end connection.

| Dial Range, psi (bar) (primary scale: psi; secondary scale: bar) | | |
|---|------------|------------|
| Minimum | Maximum | Designator |
| PGU and PGC Series | | |
| -30 in. Hg (-1 bar) | 15 (1) | PC15 |
| | 30 (2) | PC30 |
| | 60 (4) | PC60 |
| | 100 (6.8) | PC100 |
| | 160 (11) | PC160 |
| | 200 (13.6) | PC200 |
| | 300 (20.4) | PC300 |
| 0 psi (0 bar) | 15 (1) | P15 |
| | 30 (2) | P30 |
| | 60 (4) | P60 |
| | 100 (6.8) | P100 |
| | 160 (11) | P160 |
| | 200 (13.6) | P200 |
| | 300 (20) | P300 |
| | 600 (40) | P600 |
| | 1000 (68) | P1000 |
| 3000 (200) | P3000 | |
| PGC Series Only | | |
| 0 psi (0 bar) | 4000 (272) | P4000 |
| | 5000 (340) | P5000 |
| | 6000 (400) | P6000 |

| Dial Range, MPa (primary scale: MPa; no secondary scale) | | |
|---|---------|------------|
| Minimum | Maximum | Designator |
| PGU and PGC Series | | |
| -0.1 MPa | 0.1 | MC01 |
| | 0.2 | MC02 |
| | 0.4 | MC04 |
| | 0.7 | MC07 |
| | 1.1 | MC11 |
| | 1.4 | MC14 |
| | 2.1 | MC21 |
| 0 MPa | 0.1 | M01 |
| | 0.2 | M02 |
| | 0.4 | M04 |
| | 0.7 | M07 |
| | 1.1 | M11 |
| | 1.4 | M14 |
| | 2.1 | M21 |
| | 4.0 | M40 |
| | 7.0 | M70 |
| | 21 | M210 |
| PGC Series Only | | |
| 0 MPa | 28 | M280 |
| | 35 | M350 |
| | 40 | M400 |

Options and Accessories

Factory-installed options are specified in gauge ordering numbers, as shown in **Ordering Information**.

Certificates of Calibration

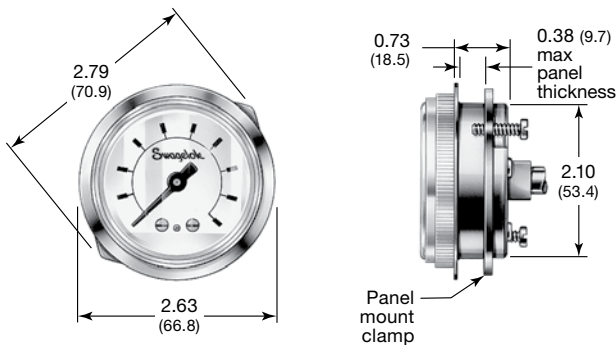
This option provides the user with a calibration sheet and a serial-numbered gauge, which has been calibrated with a gauge that is traceable to National Institute of Standards and Technology.

Material Test Certificates

These documents certify that the material composition of the wetted components has been tested by representatives independent from the factory.

Panel-Mount Clamps

Factory-installed stainless steel panel-mount clamps are available for flush mounting of center-back mount gauges.

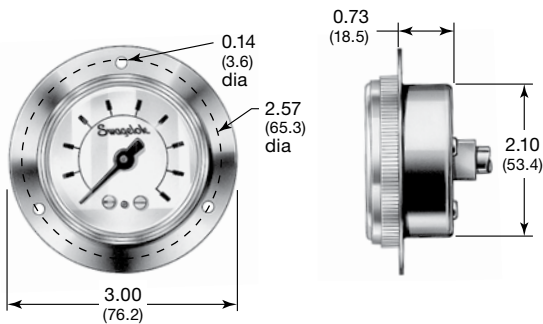


Panel hole cutout 2.17 (55.0)

Dimensions, in inches (millimeters), are for reference only and are subject to change.

Front Flanges

Polished stainless steel front flanges are available for flush panel mounting of center-back mount gauges.



Panel hole cutout 2.17 (55.0)

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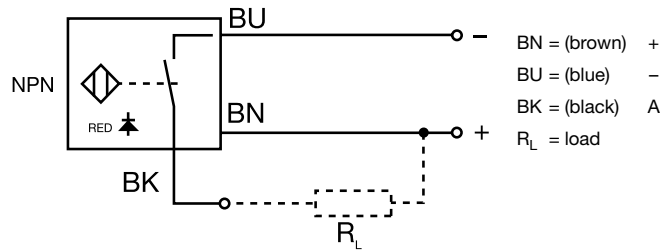
Alarm Contact Switches

The alarm contact switch option is available for the 50 mm (2 in.) dial size. The factory-assembled switch has one adjustable set point, which can be used for high- or low-pressure indication.

Specifications

| | |
|--|---|
| Operating Voltage | 10 to 30 V (dc) |
| Residual Ripple | 10 % |
| No-Load Current | ≤ 10 mA |
| Maximum Switching Current | ≤ 100 mA |
| Leakage Current | ≤ 10 μA |
| Voltage Drop at I_{MAX} | ≤ 0.7 V |
| Switching Frequency | 1000 Hz |
| Ambient Temperature | -25 to 70°C (-13 to 158°F) |
| Output Function | Normally open (closed and red LED ON when pressure less than set point) |
| Output Type | NPN |
| Switch Point | Approx 55 % of insert depth |
| Protection Class (DIN 40050) | IP 67 |
| Cable Length | 1 m (3.2 ft) |

Wiring Diagram



⚠ WARNING

Do not mix/interchange Swagelok products or components not governed by industrial design standards, including Swagelok tube fitting end connections, with those of other manufacturers.

Introduction

Since 1947, Swagelok has designed, developed, and manufactured high-quality, general-purpose and specialty fluid system products to meet the evolving needs of global industries. Our focus is on understanding our customers' needs, finding timely solutions, and adding value with our products and services.

We are pleased to provide this global edition of the book-bound *Swagelok Product Catalog*, which compiles more than 100 separate product catalogs, technical bulletins, and reference documents into one convenient, easy-to-use volume. Each product catalog is up to date at the time of printing, with its revision number shown on the last page of the individual catalog. Subsequent revisions will supersede the printed version and will be posted on the Swagelok website and in the Swagelok electronic Desktop Technical Reference (eDTR) tool.

For more information, visit your Swagelok website or contact your authorized Swagelok sales and service representative.

Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit swagelok.com or contact your authorized Swagelok representative.

Safe Product Selection

When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

WARNING

Do not mix/interchange Swagelok products or components not governed by industrial design standards, including Swagelok tube fitting end connections, with those of other manufacturers.

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15-7 PH—TM AK Steel Corp.
AccuTrak, Beacon, Westlock—TM Tyco International Services
Atlas—TM Asahi Glass Co., Ltd.
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Microsoft, Windows—TM Microsoft Corp.
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