

Installation and Operation Manual

PG15 & PG20 Series Pressure Gauges

BROOKS®
INSTRUMENT

Beyond Measure

Essential Instructions

Read before proceeding!

Brooks Instrument designs, manufactures and tests its products to meet many national and international standards. These products must be properly installed, operated and maintained to ensure they continue to operate within their normal specifications. The following instructions must be adhered to and integrated into your safety program when installing, operating and maintaining Brooks Instrument products.

- To ensure proper performance, use qualified personnel to install, operate and maintain the product.
- Read all instructions prior to installing, operating and servicing the product. If this instruction manual is not the correct manual, please see back cover for local sales office contact information. Save this instruction manual for future reference.
- ▲ **WARNING: Do not operate this instrument in excess of the specifications listed in the Instruction and Operation Manual. Failure to heed this warning can result in serious personal injury and / or damage to the equipment.**
- If you do not understand any of the instructions, contact your Brooks Instrument representative for clarification.
- Follow all warnings, cautions and instructions marked on and supplied with the product.
- ▲ **WARNING: Prior to installation ensure this instrument has the required approval ratings to meet local and national codes. Failure to heed this warning can result in serious personal injury and / or damage to the equipment.**
- Install your equipment as specified in the installation instructions of the appropriate instruction manual and per applicable local and national codes. Connect all products to the proper pressure sources.
- Operation: (1) Slowly initiate flow into the system. Open process valves slowly to avoid flow surges. (2) Check for leaks around the flow meter inlet and outlet connections. If no leaks are present, bring the system up to the operating pressure.
- Please make sure that the process line pressure is removed prior to service.
- ▲ **WARNING: For liquid flow devices, if the inlet and outlet valves adjacent to the devices are to be closed for any reason, the devices must be completely drained. Failure to do so may result in thermal expansion of the liquid that can rupture the device and may cause personal injury.**

Section 1 Introduction

Product Description 4

Specifications 5

Section 2 Installation

General 6

Receipt of Equipment 6

Recommended Storage Practice..... 6

Removal from Storage..... 6

Transit Precautions..... 6

Mechanical Installation 7

Return Shipment Instructions 7

Warranty, Local Sales/Service Contact Information Back Cover

Figures

1-1 Dimensions - PG15 & PG20 Series 5

Tables

1-1 Specifications - PG15 & PG20 Series 4

Product Description

The Brooks Instrument PG15 & PG20 Series stainless steel gauges were designed and developed for the demanding high-purity applications of the semiconductor industry. The multi scale dial faced gauges offer a reliable and efficient way to monitor pressure locally. These durable measuring devices come in a variety of process connections, pressure ranges, and socket orientations.

This manual is organized into the following sections:

Section 1 - Introduction

Section 2 - Installation

Back Cover - Limited Warranty and Contacts

It is recommended that this manual be read in its entirety before attempting to operate or repair the PG15 & PG20 Series.

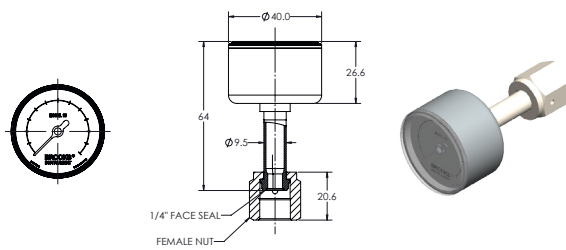
Specifications

Table 1-1 Specifications - PG15 & PG20 Series

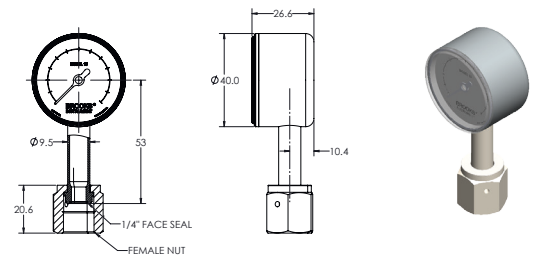
	PG15 (C15 and S15)	PG20 (C20 and S20)
Product Specifications		
Socket Orientation	Center Back or Stem Mounted	
Dial Size	1 ½"	2"
Pressure Unit	PSI, MPA, KPA	PSI, MPA, KPA, BAR, KG/CM²
Fitting Max Pressure Rating	8000 PSI for ¼" NPT, 4400 PSI for ¼" Face Seal (SM and SF), 750 PSI for 1.125" C-Seal (CS)	
Pressure Span	15 PSI (-15~0 PSIG or 0~15 PSIG) Min to 4000 PSI Max and not exceeding fitting pressure ratings	
Accuracy	3/2/3% or Class B	2/1/2% or Class A
Gauge Damping	DRY. USE NO OIL	
Pressure Cycle Usage	25-75% F.S.	
Helium Leak Check	< 4 x 10 ⁻⁹ inboard std. cc/sec	
Proof Pressure Rating	110% F.S.	
Burst Pressure Rating	400% of Max pressure rating and no exceeding fitting pressure ratings	
Operating (Ambient) Temperature	-40°F to 174°F (-40°C to 79°C)	
Media Temperature	Gas or Fluid, -40°C to 100°C	
Cleanliness	ASME B40.1 Level IV	
Wetted Material	316L Stainless Steel	
Wetted Surface Finish	< 32 Ra, excluding weld joints and threads	
Safety Relief	Unrestricted blow-out rubber plug on back	
Approximate Weight	~0.20 lbs (0.09 kg)	~0.23 lbs (0.10 kg)
Materials of Construction		
Case Material	300 series SS, outside surface with bright finish	
Bezel and Lens Material	Clear polycarbonate, snap on	Clear polycarbonate, snap on or screw on

PG15

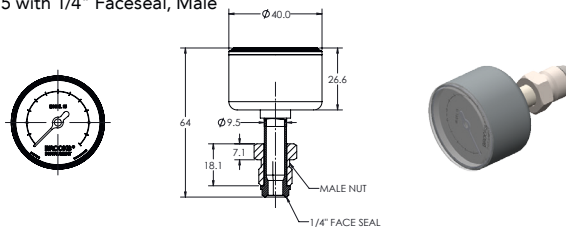
C15 with 1/4" Face Seal, Female



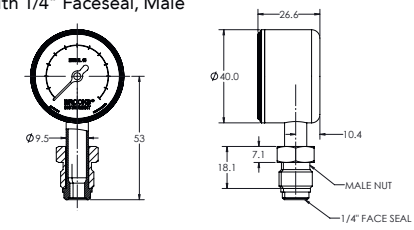
S15 with 1/4" Face Seal, Female



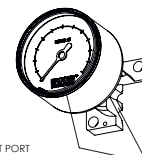
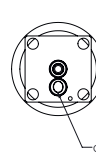
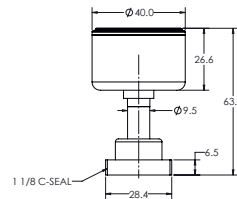
C15 with 1/4" Face Seal, Male



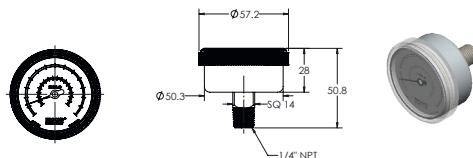
S15 with 1/4" Face Seal, Male



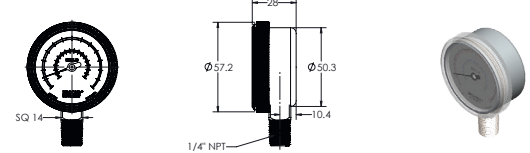
C15 with 1.125" C-Seal

ALIGN C-SEAL OUTLET PORT
WITH BROOKS LOGO

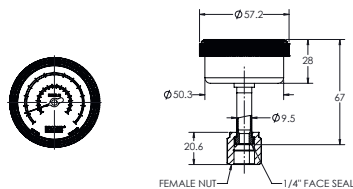
C20 with 1/4" NPT



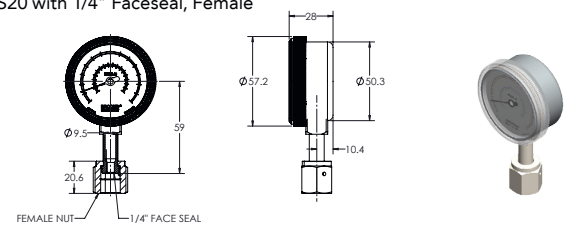
S20 with 1/4" NPT



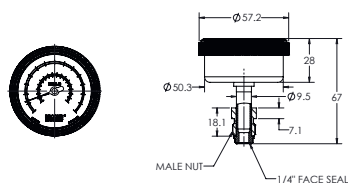
C20 with 1/4" Face Seal, Female



S20 with 1/4" Face Seal, Female



C20 with 1/4" Face Seal, Male



S20 with 1/4" Face Seal, Male

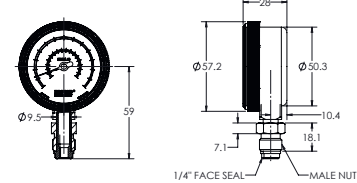


Figure 1-1 Dimensions - PG15 & PG20 Series

General

This section provides installation instructions for the Brooks® PG15 & PG20 Series Pressure Gauge devices. Refer to Section 1 of this manual for dimensions and process connections.

Receipt of Equipment

Upon receiving your pressure gauge, confirm the pressure range and type of the gauge match the intention. Inspect the outer packaging for any signs of damage sustained during shipment. If damage is present, immediately notify the shipping carrier to address potential liability. Additionally, report the issue to the nearest Brooks Instrument service center listed on our Global Service Network page:

BrooksInstrument.com/GlobalSupportCenters

Next, locate and remove the envelope containing the packing list. Carefully unpack the instrument and check for any visible damage.

Recommended Storage Practice

For short or long-term storage, follow these best practices:

- Store the equipment in its original shipping container.
- Maintain storage conditions within the following environmental limits:
 - Ambient temperature: 25°C (78°F) nominal; max 79°C (174°F); min -40°C (-40°F)
 - Relative humidity: Max 70%

Removal from Storage

Visually inspect the instrument for any signs of damage or degradation. If stored beyond the recommended environmental conditions, conduct a pneumatic pressure test according to applicable vessel codes before installation

Transit Precautions

To prevent transit damage, reuse the original shipping container when moving the device to the installation site, if possible.

Mechanical Installation

1. Cleanroom Packaging Precaution
 - a. The pressure gauge is double-bagged for cleanroom applications. Do not remove it from its packaging until ready for installation.
 - b. Remove the gauge from its box and transport it to the gray area.
 - c. Discard the outer protective bag.
 - d. Carry the inner-bagged gauge to the installation site.
2. Installation Procedure
 - a. Prepare the connection fitting on the gas line. Clean all components, such as stainless steel gaskets, using filtered gas.
 - b. Maintain a minimum flow of 1 slpm (0.05 scfm) of inert gas (recommended: electronic-grade Nitrogen) during installation to reduce contamination by moisture or particles.
 - c. Open the inner bag and remove the gauge. Remove any protective caps and connect the gauge to the mating fitting.
 - d. Tighten the pressure connection in accordance with standard industry procedures. (Never apply torque directly to the gauge housing when securing the connection)
3. Post-Installation Checks
 - a. Perform a helium leak test to confirm the integrity of all seals.
 - b. Turn the gas flow ON and OFF 10 times to purge particles that may have been introduced during installation. Use a flow rate that matches or exceeds the intended process flow.

Return Shipment Instructions

Before returning any instrument to Brooks for service or other reasons:

1. Visit www.BrooksInstrument.com/Service to:
 - a. Obtain a Return Materials Authorization (RMA) number.
 - b. Complete the Decontamination Statement.
2. Include a Material Safety Data Sheet (MSDS) for the fluids used in the instrument.

Note: Instruments returned without these documents will not be processed.
3. Ensure the instrument has been properly purged according to guidelines provided for the service personnel's safety.

LIMITED WARRANTY

Visit www.BrooksInstrument.com for the terms and conditions of our limited warranty.

BROOKS SERVICE AND SUPPORT

Brooks is committed to assuring all of our customers receive the ideal pressure measurement solution for their application, along with outstanding service and support to back it up. We operate first class repair facilities located around the world to provide rapid response and support. Each location utilizes primary standard calibration equipment to ensure accuracy and reliability for repairs and recalibration and is certified by our local Weights and Measures Authorities and traceable to the relevant International Standards.

Visit www.BrooksInstrument.com to locate the service location nearest to you.

START-UP SERVICE AND IN-SITU CALIBRATION

Brooks Instrument can provide start-up service prior to operation when required.

For some process applications, where ISO-9001 Quality Certification is important, it is mandatory to verify and/or (re)calibrate the products periodically. In many cases this service can be provided under in-situ conditions, and the results will be traceable to the relevant international quality standards.

SEMINARS AND TRAINING

Brooks Instrument can provide seminars and dedicated training to engineers, end users and maintenance persons.

Please contact your nearest sales representative for more details.

Due to Brooks Instrument's commitment to continuous improvement of our products, all specifications are subject to change without notice.

TRADEMARKS

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Installation-Manual-PG15-PG20-EN/2025-10

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