PKP Prozessmesstechnik GmbH

Borsigstrasse 24

D-65205 Wiesbaden-Nordenstadt

Tel: 06122 / 7055 - 0

Fax: 06122 / 7055 – 50

Bedienungsanleitung

PMR06

Precision Bourdon tube pressure gauge

Contents

1 Introduction

Series PMR06 presssure gauges are noted for their reliable function and easy operation.
To obtain the greatest benefit from this device, please observe the following cautionary statement:
Persons who are responsible for setting up or operating this device must be sure to read the and understand the operating instructions and the safety information pertaining to it.

2 Safety Information

2.1 General Instructions

To ensure safe operation, the device must only be operated according to the information in the operating instructions. When the device is in use, the regulations and safety standards applicable to the specific application must also be observed. This statement also applies to the use of accessories.

2.2 Proper Usage

Series PMR06 pressure gauges are designed for measuring different process pressures.
Any application extending beyond this specific intended use does not constitute proper usage.
Series PMR06 must not be employed as the sole means of avoiding hazardous conditions in machinery and installations.
The machinery and installations must be designed in such a manner that faulty conditions and malfunctions will not present hazardous situations for operating personnel.

2.3 Qualified Personnel

Series PMR06 must only be used by qualified, knowledgeable personnel trained in correct use of these devices. Qualified personnel are those persons familiar with setting up and assembling these devices, placing them in service and operating them. In addition, such personnel must also be qualified to perform the work associated with the application for which the device is being used.

3 Functional Description

A coiled, drawn brass or stainless steel tube filled with the fluid or gas being monitored is deformed to an extent depending on the pressure exerted by the fluid or gas. The resulting movement of the coil is transmitted to an indicator mechanism with a graduated display.

4 Installation

For connections with cylindrical screw threads, use suitable gaskets to seal the pressure gauge connections to the sealing face. For connections with tapered thread (e.g. NPT screw thread), apply a sealing component such as Teflon tape directly to the screw threads (EN 837-2). In order to be able to bring the measuring device into a position where it can be most easily read, we recommend the use of a tension bushing or gland nut.
During installation and removal, pressure gauges must not be turned by the housing. Be sure to only tighten and loosen gauges with suitable wrenches at the hexagonal drive points provided for this purpose.
If the pressure gauge is to be installed below the pressure tapping point, then the process line must be thoroughly flushed out first to remove any foreign objects before the gauge is installed. Some device models have a pressure-relief opening that can be vented and closed to equalize the internal pressure. In as-delivered condition, this pressure-relief opening is closed. Before checking these devices and/or after installation but before placing them in service, these devices must be vented (refer to label on housing). When pressure testing or purging piping systems or tanks, make sure that the pressure gauge is not subjected to pressure beyond the upper scale value. If this cannot be ensured, the pressure gauge must first be isolated or removed from the system. Before removing the pressure gauge, be sure to relieve the pressure in the measuring element. To do this, it may also be necessary to relieve the pressure in the process line.

> **Caution:** Exposure to residue and deposits of materials being measured may pose a danger to people, the environment and the apparatus.
> Be sure to follow proper safety procedures. Pressure gauges with measuring elements filled with water or mixtures containing water must be protected against frost.

5 Maintenance

Mechanical pressure gauges are maintenance-free.
The measuring accuracy (as defined per DIN EN 837) of the pressure gauge should be checked regularly. Inspection or recalibration should only be performed by trained, qualified personnel with suitable equipment.

> **Caution:** If the pressure gauge is being used to monitor **hazardous substances** such as oxygen, acetylene, flammable or combustible materials, or poisonous materials and/or being used in **refrigeration systems, compressors**, etc., then the regulations applying in such cases must be also be observed in addition to the ones generally applicable. Be sure to take appropriate precautions and follow proper safety procedures.

PMR06

Precision Pressure Gauge

- Accuracy class 0.6
- Nominal sizes: 160 and 250 mm
- Designs with brass connection and stainless steel housing or completely in stainless steel
- Measuring ranges from –1200 to 0 mbar up to 0 to 1600 bar
- With or without liquid filling for vibration dampening
- Fast delivery

Description:

Model series PMR06 precision pressure gauges operate according to the Bourdon tube principle. They can be supplied in brass or stainless steel versions, with filled or unfilled gauges. A coiled, drawn brass or stainless steel tube filled with the fluid or gas being monitored is deformed to an extent depending on the pressure exerted by the fluid or gas. The resulting movement of the coil is transmitted to an indicator mechanism with a graduated display. This movement can be dampened by means of an optionally available liquid filling so that any vibrations have far less impact on the accuracy and stability of the reading. The natural lubricating properties of this liquid filling also reduce wear to moving parts, entry of caustic/corrosive gases and accumulation of condensation. The stainless steel version allows pressure measurement of even the most caustic liquids and gases. These pressure gauges are fitted with a threaded connection at the bottom or on the back.

Applications:

Model series PMR06 precision pressure gauges are used wherever precise pressure measurements have to be performed. For mobile use, designs are available with gauge in a carrying case, including shut-off valve and connection fittings. Stainless steel versions are designed to withstand contact with the very caustic/corrosive media often encountered in the chemical and petrochemical industries, the food and beverage industries, pharmaceutical production processes or in power plants, where they have provided the best service for decades.

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Tel.: +49 (0) 61 22 - 70 55 - 0 · Fax: +49 (0) 61 22 - 70 55 - 50
e-mail: info@pkp.de · homepage: www.pkp.de

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Designs:

Nominal size: Housing diameter 160 or 250 mm

Materials:

PMR06.x.M: Housing of stainless steel 1.4301, measuring element of copper alloy As of 100 bar, stainless steel, connection of brass

PMR06.x.E: Housing of stainless steel 1.4301, measuring element and connection of stainless steel 1.4571

Process connection: G1/2 or 1/2“ NPT at bottom or on back

Vibration dampening: Optional with glycerin filling

Measuring Ranges:

Measuring range (bar)	Bestellcode					
						
	For all nominal sizes					Not for NG 250
-1200...0 mbar	A17	B17	C17	D17	E17	F17
-1...0	A16	B16	C16	D16	E16	F16
-0,6...+1.0	A18	B18	C18	D18	E18	F18
-1...+0.6	A42	B42	C42	D42	E42	F42
-1...+1.5	A43	B43	C43	D43	E43	F43
-1...+3	A44	B44	C44	D44	E44	F44
-1...+5	A45	B45	C45	D45	E45	F45
-1...+9	A46	B46	C46	D46	E46	F46
-1...+15	A49	B49	C49	D49	E49	F49
0...0.6	A67	B67	C67	D67	E67	F67
0...1	A69	B69	C69	D69	E69	F69
0...1.6	A70	B70	C70	D70	E70	F70
0...2.5	A72	B72	C72	D72	E72	F72
0...4	A73	B73	C73	D73	E73	F73
0...6	A74	B74	C74	D74	E74	F74
0...10	A75	B75	C75	D75	E75	F75
0...16	A76	B76	C76	D76	E76	F76
0...25	A78	B78	C78	D78	E78	F78
0...40	A79	B79	C79	D79	E79	F79
0...60	A80	B80	C80	D80	E80	F80
0...100	A81	B81	C81	D81	E81	F81
0...160	A82	B82	C82	D82	E82	F82
0...250	A84	B84	C84	D84	E84	F84
0...400	A86	B86	C86	D86	E86	F86
0...600	A87	B87	V87	D87	E87	F87
0...1000	A88	B88	C88	D88	E88	F88
0...1600	A89	B89	C89	D89	E89	F89

Model Coding:

Order number: **PMR06. 16. M. 1. 0. A75. 0. 0**

Precision pressure gauge

Design:
16 = 160 mm
25 = 250 mm

Materials:
M = Housing of stainless steel, connection of brass
E = Housing of stainless steel, connection of stainless steel
S = Special materials (please specify in writing)

Process connection:
1 = G 1/2 at bottom
2 = G 1/2 eccentric on back
3 = 1/2“ NPT at bottom
4 = 1/2“ NPT eccentric on back
9 = Custom connection

Vibration dampening:
0 = None
1 = With glycerin filling

Design and measuring ranges:
A17...F89 = see “Measuring Ranges” table

Supplementary electrical devices
0 = None

Options and accessories (more than one may be selected)
0 = None
xx = see “Options and Accessories” table

Technical Details:

Housing: Round gauge housing of stainless steel, d = 160 or 250 mm
Protection type IP45

Liquid-filled design: Glycerin filling, with pressure-relief opening and inside pressure equalization
Protection type IP65

Stainless steel version: with pressure-relief opening (optional for increased safety with solid baffle wall and blow-out back)

Pressure responsive element:

PMR06.xx.M: Bourdon tube, up to 60 bar copper alloy, soft soldered As of 100 bar, stainless steel 1.4571, brazed

PMR06.xx.E: Bourdon tube of stainless steel 1.4571

Indicator element:

PMR06.xx.M: Brass, moving parts of nickel silver

PMR06.xx.E: Stainless steel 1.4571/1.4301

Dial face: Aluminum, white, black characters, as per EN 837-1

Viewing window:

PMR06.xx.M: Instrument glass

PMR06.xx.E: Multilayer safety glass

Accuracy: Class 1.0

Maximum liquid temperature: 60°C, for PMR06.xx.M up to 60 bar, 100°C for all other devices

Overload protection: Short-term 1.3 times

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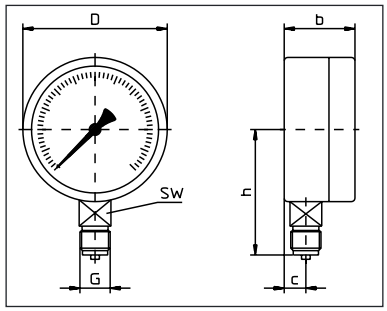
Options and Accessories

Description	Code	For model PMR06...
Design for increased safety (solid baffle wall and blow-out back)	ES	x.E..., unfilled, not for NG 250 only designs A,B
Bright metal bezel	FP	designs B,E,F
Housing suitable for tropical climates	GT	only unfilled devices
Indicator element of stainless steel	ZE	x.M... unfilled
Multiple-scale	SM	all models
Scale labeling	SA	all models
Print plate for creating special scale (single color or multi-colored)	SS1 SSx	all models
Measuring system free of oil and grease for use with oxygen	MO	all models
Measuring system free of silicone	MS	all models
Glycerin filled	FG	all models
Pressure throttling screw in the connection, d = 0.8 or 0.3 mm	D08 D03	all models
Process connection G 1/4 female thread, G 3/8 B,3/8“, Small flange DN10, stainless steel	Px	all models only x.E...
Red graduations on dial face	MR	all models
Red gliding mark pointer in the viewing window	ZR	all models
Maximum pointer, can be reset, 1 or 2	ZS1 ZS2	all models
Adjustable pointer on bushing	ZZ	all models
Can be calibrated as per calibration regulations	E	all models
Test log	P	all models
Factory certificate as per EN-10204, 2.1, 2.2, 2.3, 3.1B	Wxxx	all models
Carrying case with pressure gauge Shut-off angle valve and accessories	TK	only NG 160

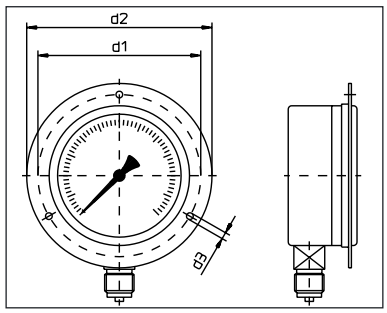
Dimensions:

Measuremet:	Dimensions in mm	
	NG 160	NG250
b	50	55
b1	56	61
b2	88	93
c	14.5	16
c1	50	50
D	161.3	251
d1	178	271
d2	196	285
d3	5.8	5.8
d4	166	---
h	118	165
Size A/F	22	22
Weight (kg)	1.1	2.2

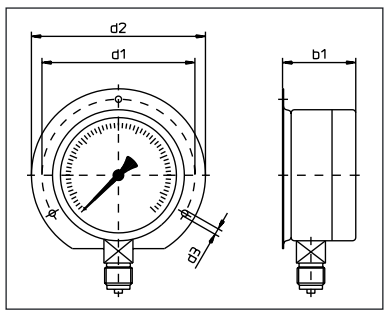
Designs



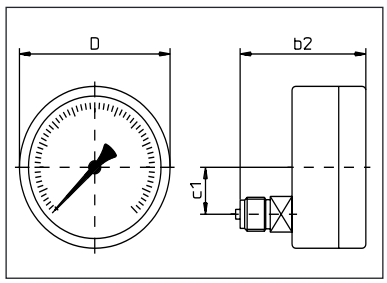
Design A:
Connection at bottom



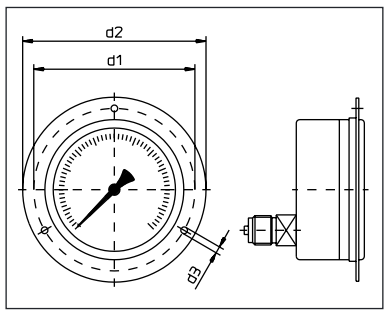
Design B:
Connection at bottom, rim at front



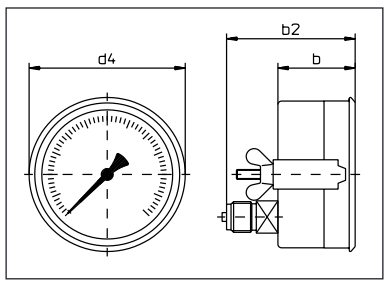
Design C:
Connection at bottom, rim at back



Design D:
Connection on back



Design E:
Connection on back, rim at front



Design F:
Connection on back, Triangular front ring and retaining clip

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Precision Pressure Gauge in Test Case

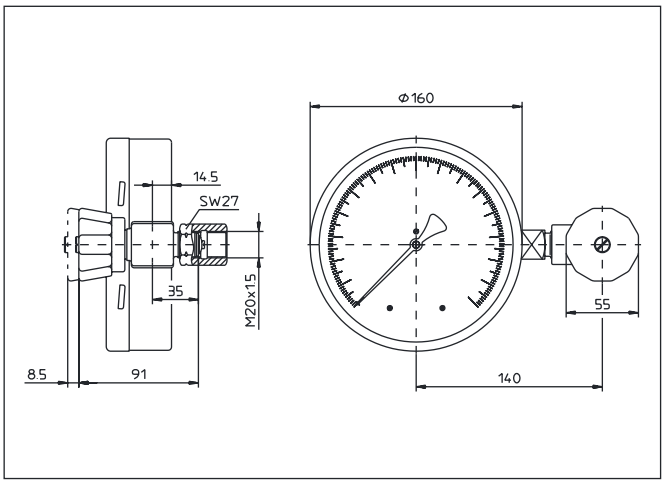
Design ...TK

For mobile use, models PMR06.16, etc.
can be supplied in a carrying case complete with
assembly fittings

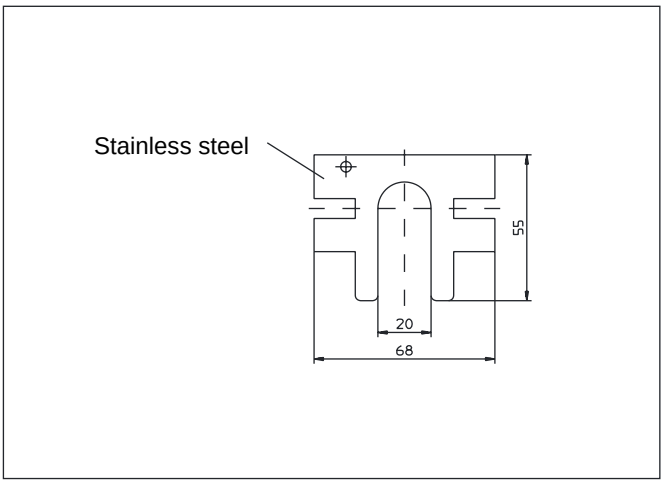
The mounting fittings include:

- Shut-off angle valve
- Socket clamp M20x1.5 - LH /RH as per DIN 16238
- Transition piece with test flange and accessories
- Branched connection for test flange
- Sturdy carrying case
- Test log

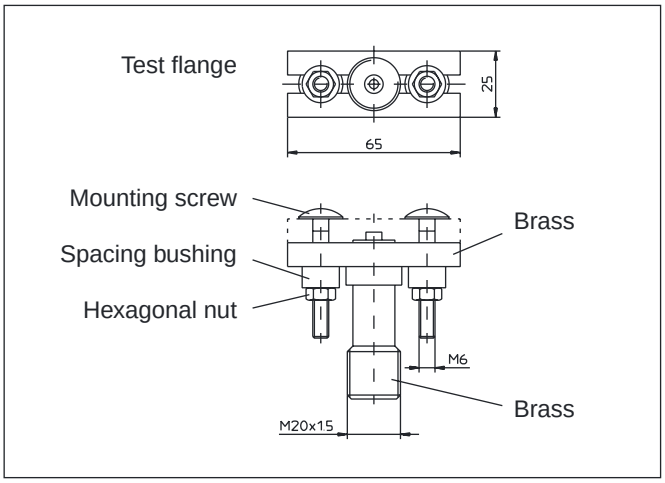
Dimensions



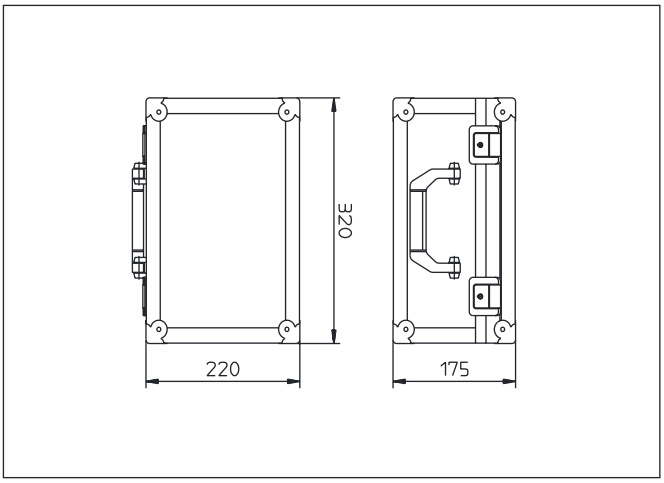
PMR06.16... with shut-off angle valve and socket clamp



Branched connection for test flange



Transition piece with test flange



Carrying case

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