



*PKP Prozessmesstechnik GmbH*

*Borsigstrasse 24*

*D-65205 Wiesbaden-Nordenstadt*

*Tel: 06122 / 7055 - 0*

*Fax: 06122 / 7055 – 50*

## **Operating Instructions**

### **PDR02**

*Differential pressure gauge with double Bourdon tubes  
for measuring relative and differential pressures*

# INSTRUCTION LEAFLET FOR PRESSURE GAUGES

## **WARNING:**

Incorrect use of pressure gauges can cause damage and injuries. Under this Directive, the user must ensure that pressure gauges are installed and used in such a way that pressure-related hazards are eliminated to a maximum extent.

*Before starting installation, follow the recommendations of standard EN 837-2:*

Check that the pressure gauge, designed in compliance with standard EN 837-1/3, is suitable for the planned use in terms of:

- Operating pressure (OP)
- Operating temperature (OT)
- Safety level of the pressure gauge
- Connection interface
- Type of mounting
- Compatibility of materials in contact with the fluid to be measured
- Environmental conditions, vibrations, shocks, pulses, ambient atmosphere
- Check that the pressure gauge is compatible with the surrounding atmosphere

## **USE IN AN OXYGEN CIRCUIT**

Check that the pressure gauge is designed for such an application. The dial must have the word OXYGEN printed in red and the international symbol "oil-free" (a crossed-out burette). The pressure gauge must not have been in contact with oil or grease that is incompatible with oxygen:

**RISK OF EXPLOSION!**

## **Mounting**

A pressure gauge must be mounted in compliance with standard practice.

- We advise to mount with an isolation valve.
- The user must check that the connections are perfectly sealed by using suitable seals that are compatible with the fluid to be measured.
- Use a correctly sized spanner to tighten connections. NEVER TWIST THE CASE IN ORDER TO TIGHTEN CONNECTIONS.
- Comply with the instructions given on the device when putting it into service.
- For pressure gauges fitted with a rear blow-out disc for protection against overpressure, ensure that there is a gap of at least 10 mm between the rear panel of the casing and the panel immediately next to it.
- Likewise, for this type of rear blow-out disc and a casing filled with damping fluid, do not remove the disc from its location.
- Only re-use a pressure gauge if the medium is the same as for its first use.

## **USE**

**Warning:** The operating conditions must be such that the device can be used safely.

**THE PRESSURE GAUGE MUST NOT BE SUBJECTED TO:**

- Mechanical shocks: if there is a risk install it at a distance with a hose connection.
- Vibrations: if there is a risk install it at a distance with a hose connection or use a liquid filled pressure gauge.
- Pressure pulses: if there is a risk mount a pulsation damper.

**Warning:** pressure pulses cause a considerable shortening of the operating life of pressure gauges.

- Pressures greater than operating pressures (OP). Otherwise use a pressure relief valve.
- Temperatures greater or less than operating temperatures (OT). If there is a risk use a siphon mount or mount with hose connection to respect the temperature at the pressure gauge.

## **NOTE:**

Failure to observe the conditions above may reduce pressure gauge safety. In such cases contact us.

## **DISASSEMBLY**

- During disassembly, check that the pressure gauge is no longer under pressure. As a precaution, disassemble it slowly.
- Check that the temperature of the pressure gauge body is not sufficient to cause burning.
- Check that residues of the product present in the tube and block of the pressure gauge are not dangerous for the operator and the environment.

## **MAINTENANCE**

- The general safety of a facility often depends on the reliability of indications on the pressure gauges installed in the facility.
- Any pressure gauge that seems to be giving false readings must be removed immediately, then tested. If the tests prove it is unreliable, it must be replaced with a new device.
- Periodic verifications should be carried out to check the accuracy of pressure gauges.
- Any pressure gauge considered to have been subjected to abnormal conditions of use (e.g. fire, wrong fluid, blows, etc.) must not be used.

**MAINTENANCE, VERIFICATION OR RECALIBRATION MUST BE CARRIED OUT BY PERSONNEL APPROVED BY THE CONSTRUCTOR AND USING SUITABLE EQUIPMENT.**

## **IMPORTANT**

The instructions in this leaflet must be strictly followed.

The manufacturer declines all responsibility for any direct or indirect damage to property or persons as well as for the consequence, for example, of lost production resulting from failure to observe the instructions in this leaflet.

# PDR02

## Double Bourdon Tube Differential Pressure Gauge for Relative and Differential Pressure

- nominal sizes 100 and 160 mm
- accuracy class 1,0
- completely made of stainless steel,  
fully welded version
- measuring ranges from -1...0 bar  
to 0...1600 bar
- all measuring ranges available  
for all designs



### Description:

The pressure gauges PDR02 have two independent bourdon tube measuring systems with two pointers, which indicate the measured pressure on the same scale.

These devices can either be used monitor two separate measuring points or to determine the differential pressure (e.g. on a filter). The differential pressure corresponds to the difference in the display of the two pointers. Optionally, the differential pressure can also be read directly by means of an additional, rotatable scale.

The devices are always supplied completely in stainless steel in the housing sizes 100 or 160 mm. Housing versions for practically all installation situations are available.

### Typical applications:

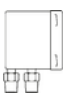
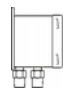
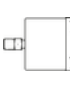
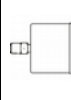
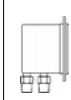
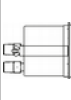
The differential pressure gauges PDR02 are mainly used in the following areas of applications:

- filter monitoring
- chemistry and petrochemistry
- shipbuilding
- general industrial applications

## Models:

<b>Nominal sizes:</b>	housing diameter 100 or 160 mm
<b>Materials:</b>	stainless steel housing 1.4301, bourdon tube and process connection made of stainless steel 1.4571
<b>Process connection:</b>	2 x G 1/2 AG or 2 x 1/2" NPT male thread
<b>Designs:</b>	
Version K:	for pipe mounting, connection at bottom
Version L:	for wall mounting, with rear rim, connection at bottom
Version M:	for pipe mounting, connection at back
Version N:	for panel mounting, with three-hole front ring, connection at back
Version O:	for panel mounting, with three-hole front ring, connection at bottom
Version H:	for panel mounting, with front ring and hangers, connection at back

## Measuring Ranges:

Measuring range in bar	Design					
						
	Order code					
-1...0	K16	L16	M16	N16	O16	H16
-1...0,6	K42	L42	M42	N42	O42	H42
-1...1,5	K43	L43	M43	N43	O43	H43
-1...3	K44	L44	M44	N44	O44	H44
-1...5	K45	L45	M45	N45	O45	H45
-1...9	K46	L46	M46	N46	O46	H46
-1...15	K49	L49	M49	N49	O49	H49
-1...24	K52	L52	M52	N52	O52	H52
0...0,6	K67	L67	M67	N67	O67	H67
0...1	K69	L69	M69	N69	O69	H69
0...1,6	K70	L70	M70	N70	O70	H70
0...2,5	K72	L72	M72	N72	O72	H72
0...4	K73	L73	M73	N73	O73	H73
0...6	K74	L74	M74	N74	O74	H74
0...10	K75	L75	M75	N75	O75	H75
0...16	K76	L76	M76	N76	O76	H76
0...25	K78	L78	M78	N78	O78	H78
0...40	K79	L79	M79	N79	O79	H79
0...60	K80	L80	M80	N80	O80	H80
0...100	K81	L81	M81	N81	O81	H81
0...160	K82	L82	M82	N82	O82	H82
0...250	K84	L84	M84	N84	O84	H84
0...400	K86	L86	M86	N86	O86	H86
0...600	K87	L87	M87	N87	O87	H87
0...1000	K88	L88	M88	N88	O88	H88
0...1600	K89	L89	M89	N89	O89	H89

**Rotatable scale for direct reading of differential pressure:**



The static pressure of each bourdon tube must not exceed the measuring range.

## Order Code:

<b>Order number:</b>	<b>PDR02.</b>	<b>10.</b>	<b>E.</b>	<b>15G.</b>	<b>0.</b>	<b>K75.</b>	<b>0.</b>	<b>0</b>
<b>Double bourdon tube differential pressure gauge</b>								
<b>Models:</b>								
10 = housing diameter 100 mm								
16 = housing diameter 160 mm								
<b>Material:</b>								
E = completely stainless steel								
<b>Process connection:</b>								
15G = 2 x G 1/2 male thread								
15N = 2 x 1/2" NPT male thread								
S = special connection (see: options)								
<b>Vibration damping:</b>								
0 = without								
1 = with glycerine filling								
<b>Design and measuring range:</b>								
K16...H89 = see table „Measuring Ranges“								
<b>Additional electrical equipment:</b>								
0 = without								
<b>Options and accessories: (multiple selection possible)</b>								
0 = without								
xxx = see table „Options and Accessories“								

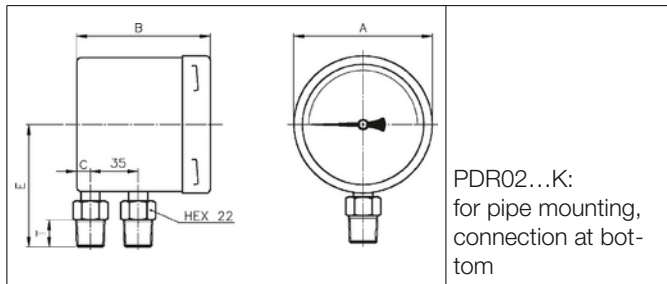
## Technical Data:

<b>Housing:</b>	round stainless steel housing 1.4301, d = 100 or 160 mm
<b>Measuring element:</b>	2 x stainless steel bourdon tube 1.4571
<b>Pointer mechanism:</b>	brass
<b>Viewing class:</b>	mineral glass (4 mm)
<b>Scale and pointer:</b>	aluminium, white, black pointer
<b>Process connection:</b>	1/2" G or NPT (standard), 1/4", 3/8" G or NPT (optional) made of stainless steel 1.4571, other connection on request
<b>Liquid-filled version:</b>	glycerine
<b>Measuring ranges:</b>	see table „Measuring Ranges“
<b>Overload safety:</b>	1,3 x full scale value
<b>Media temperature:</b>	-20 ... +100 °C
<b>Accuracy:</b>	class 1,0
<b>Protection class:</b>	IP65

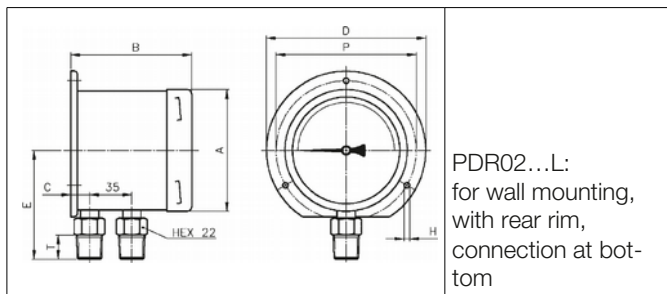
## Options and Accessories:

Description	Code
scale in psi	P
double scale in bar / psi	BP
differential pressure scale	SD
special scale	SK...
process connection G 1/4	08G
process connection G 3/8	10G
process connection 1/4" NPT	08N
process connection 3/8" NPT	10N

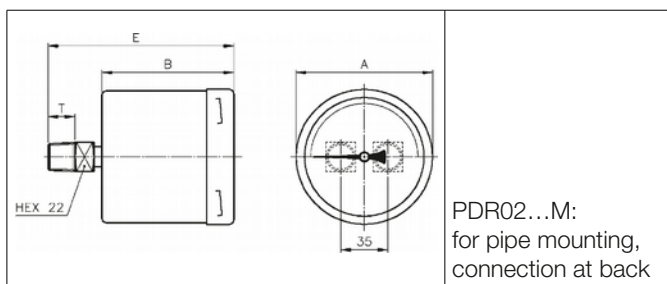
## Dimensions:



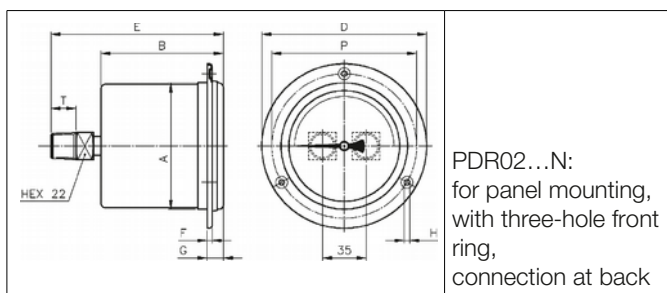
	Dimensions [mm]	
	Ø 100	Ø 160
A	101,5	162
B	97	100
C	14	18
E	90	120
T	20	20



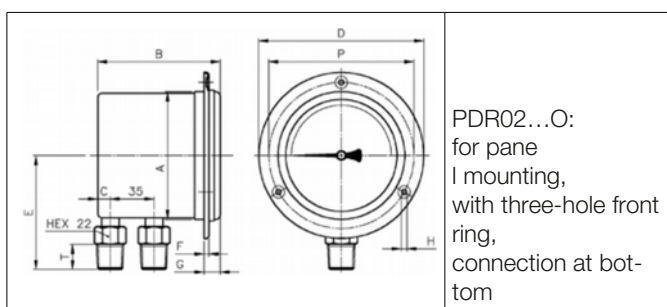
	Dimensions [mm]	
	Ø 100	Ø 160
A	101,5	162
B	100	102
C	14	18
D	132	196
E	90	120
P	116	178
H	4,5	6
T	20	20



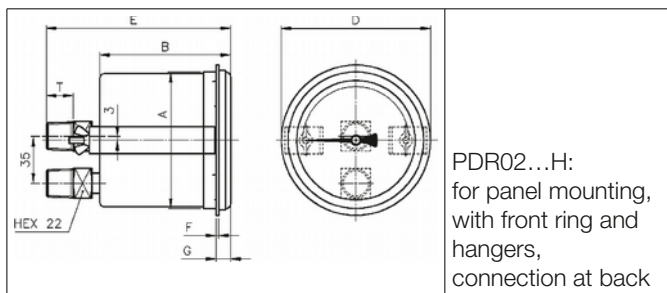
	Dimensions [mm]	
	Ø 100	Ø 160
A	101,5	162
B	97	100
E	137	140
T	20	20



	Dimensions [mm]	
	Ø 100	Ø 160
A	101,5	162
B	97	100
D	132	196
E	137	140
F	3,5	3
G	13	15,5
H	4,5	6
P	116	178
T	20	20



	Dimensions [mm]	
	Ø 100	Ø 160
A	101,5	162
B	97	100
C	14	18
D	132	196
E	90	120
F	3,5	3
G	13	15,5
H	4,5	6
P	116	178
T	20	20



	Dimensions [mm]	
	Ø 100	Ø 160
A	101,5	162
B	97	100
D	110	180
E	137	140
F	2	2
G	10,5	9
T	20	20