**Operating instructions** **GB**

# Pressure gauge models 1 and 213 per directive 94/9/EC (ATEX)

**II 2 GD c TX**

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WIKA

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## Contents



Declarations of conformity see www.wika.com
Specifications: see data sheet on www.wika.com
Subject to technical modifications.


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## 1. Safety

**WARNING!**
Before installation, commissioning and operation, ensure that the appropriate pressure gauge has been selected in terms of measuring range, design and specific measuring conditions.

- Check the compatibility with the medium of the materials subjected to pressure!
- In order to guarantee the measuring accuracy and long-term stability specified, the corresponding load limits must be observed.
- Non-observance can result in serious injury and/or damage to the equipment.
- Only qualified persons authorised by the plant manager are permitted to install, maintain and service the pressure gauges.

## 2. Description

- Nominal sizes

| | | | |
|---|---|---|---|
| Model 111.10: | NS 40, 50, 63, 80, 100, 160 | Model 113.53: | NS 40, 80, 100 |
| Model 111.11/16: | NS 40, 50, 63 | Model 213.40: | NS 63, 80 |
| Model 111.12: | NS 40, 50, 63, 80, 100 | Model 213.53: | NS 50, 63 |

- The instruments measure the pressure by means of resilient Bourdon tube pressure elements
- The measuring characteristics are in accordance with the EN 837-1 standard

## 3. Specifications and intended use

### Pressure limitation

Steady: 3/4 x full scale value
Fluctuating: 2/3 x full scale value
Short time: Full scale value

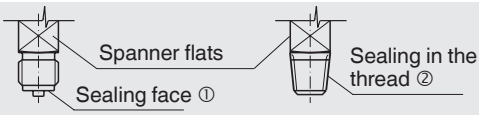
### Mechanical connection

In accordance with the general technical regulations for pressure gauges (e.g. EN 837-2 "Selection and installation recommendations for pressure gauges").

When screwing gauges in, the force required for this must not be applied through the case, but rather through the spanner flats (using a suitable tool) provided for this purpose on the square shaft of standard connections.

Installation with open-ended spanner

Correct sealing of pressure gauge connections with parallel threads ① must be made using suitable flat gaskets, sealing rings or WIKA profile sealings. The sealing of tapered threads (e.g. NPT threads) is made by providing the thread ② with additional sealing material such as, for example, PTFE tape (EN 837-2).




The torque depends on the seal used. Connecting the gauge using a clamp socket or a union nut is recommended, so that it is easier to orientate the gauge correctly.

When a blow-out device is fitted to a pressure gauge, it must be protected against being blocked by debris and dirt.

After mounting, set the compensating valve (if available) from CLOSE to OPEN.

**Temperature effect**

When the temperature of the measuring system deviates from the reference temperature (+20 °C):
max. ±0.4%/10 K of full scale value

**Ingress protection per EN 60529 / IEC 529**

| | |
|---|---|
| Model 111.xx: | IP 42 |
| Models 113.53, 213.40 and 213.53: | IP 65 |

**Permissible temperatures**

Ambient:

| | |
|---|---|
| Model 111.xx: | -40 ... +60 °C |
| Models 113.53, 213.40 and 213.53: | -20 ... +60 °C |

Medium: max. +60 °C

**Attention!** With gaseous substances, the temperature may increase as a result of compression warming. In these cases it may be necessary to throttle the rate of change of pressure or reduce the permissible medium temperature.

The effective maximum surface temperature is not only dependant upon these instruments, but mainly on the respective medium temperature!

**Materials**

| | | |
|---|---|---|
| Wetted parts: | Cu-alloy | |
| Movement: | Cu-alloy | |
| Dial: | NS 40, 50, 63: Plastic<br>NS 80, 100, 160: Aluminium | |
| Pointer: | Plastic (NS 160: Aluminium) | |
| Case: | Models 111.10, 111.12, 111.16: | Plastic |
| | Model 111.11: | Steel |
| | Models 113.53, 213.53: | Stainless steel |
| | Model 213.40: | Forged brass |
| Window: | Plastic (NS 160: Instrument glass) | |

**Installation**

- Nominal position per EN 837-1 / 9.6.7 Figure 9: 90° ( ⊥ )
- Process connection lower mount (LM) or back mount (BM)
- In order to avoid any additional heating, the instruments must not be exposed to direct solar irradiation while in operation!
- Pressure gauges must be earthed via the process connection!

**Permissible ambient and operating temperatures**

When mounting the pressure gauge it must be ensured that, taking into consideration the influence of convection and heat radiation, no deviation above or below the permissible ambient and medium temperatures can occur. The influence of temperature on the indication accuracy must be observed.

**Permissible vibration load at the installation site**

- The instruments should always be installed in locations free from vibration.
- If necessary, it is possible to isolate the instrument from the mounting point by installing a flexible connection line between the measuring point and the pressure gauge and mounting the instrument on a suitable bracket.
- If this is not possible, the following limit values must not be exceeded:

| | |
|---|---|
| Dry gauges: | Frequency range < 150 Hz |
| (Model 111) | Acceleration < 0.7 g (7 m/s²) |
| Liquid-filled gauges: | Frequency range < 150 Hz |
| (Model 113, 213) | Acceleration < 4 g (40 m/s²) |

The liquid filling must be checked on a regular basis.
The liquid level must not drop below 75 % of the gauge diameter.

## 4. Commissioning

During the commissioning process pressure surges must be avoided at all costs. Open the shut-off valves slowly.

## 5. Maintenance and cleaning

- The instruments are maintenance-free.
- The indicator should be checked once or twice every year. For this the instrument must be disconnected from the process to check with a pressure testing device.
- Clean the pressure gauge with a moist cloth.
- Repairs must only be carried out by the manufacturer or appropriately qualified skilled personnel.
- When dismounting, close the compensating valve (if available).

**WARNING!**
Residual media in dismounted pressure gauges can result in a risk to persons, the environment and equipment.
Take sufficient precautionary measures.

## Appendix 1: Declaration of conformity

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WIKA

Druck- und Temperaturmesstechnik
Pressure and Temperature Measurement

**Konformitätserklärung**
**Richtlinie 94 / 9 / EG (ATEX)**

**Declaration of Conformity**
**Directive 94 / 9 / EC (ATEX)**

Wir erklären in alleiniger Verantwortung, dass nachstehend genannte Produkte, Druckmessgeräte mit Rohrfeder, gemäß gültigem Typenblatt mit der Richtlinie übereinstimmen und dem Konformitäts-bewertungsverfahren

'Interne Fertigungskontrolle'

unterzogen wurden.

We declare under our sole responsibility that the products mentioned below, i.e. bourdon tube pressure gauges, according to the current data sheet correspond with the directive and were subjected to the conformity assessment procedure

'Internal Control of Production'.

| WIKA-Typ / WIKA model | Typenblatt / data sheet |
|---|---|
| 111.10 | PM 01.01 |
| 111.11 | PM 01.03 |
| 111.12 | PM 01.09 |
| 111.16 | PM 01.10 |
| 113.53 | PM 01.08 |
| 213.53 | PM 02.12 |
| 213.40 | PM 02.06 |

Die Unterlagen werden aufbewahrt unter der Aktennummer 8000362966 bei der benannten Stelle Nr. 0044

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The dossier is retained under file nr. 8000362966 at the notified body No. 0044

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Die Geräte werden gekennzeichnet mit

CE Ex II 2 GD c TX

The gauges are marked with

CE Ex II 2 GD c TX

Angewandte Normen:

EN 13463-1 Nicht-elektrische Geräte für den Einsatz in explosionsgefährdeten Bereichen
- Grundlagen und Anforderungen

EN 13463-5 - Schutz durch Konstruktive Sicherheit 'c'

Applied standards:

EN 13463-1 'Non electrical equipment for potentially explosive atmospheres
- Basic method and requirements'

EN 13463-5 - Protection by constructional safety 'c'

**WIKA**
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Klingenberg, 18.02.2010

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