

ACCESSORIES

MANOMETER FOR PRESSURE $P_{MAX} \leq 50$ MBAR • DATA-SHEET



Suitable for: RITTER Drum-type Gas Meters $p_{max} = 50$ mbar

Type	Wide-scale Manometer			
Measuring				
Range (over- / underpressure)	0 to 10 mbar	0 to 20 mbar	0 to 40 mbar	0 to 50 mbar
Resolution	0.1 mbar	0.1 mbar	0.1 mbar	0.1 mbar
Dimensions	190 x 40 x 15 mm	305 x 40 x 15 mm	540 x 40 x 15 mm	650 x 40 x 15 mm
Weight	0.30 kg	0.40 kg	0.62 kg	0.72 kg

Material: PMMA



Application

The Manometer for pressure $p_{max} \leq 50$ mbar can be used for measurement of the gas pressure while measuring the gas flow. Among other reasons, this is necessary if the measured and indicated **actual volume** of gas must be recalculated into the **norm volume**. The **actual** volume is the volume at the **actual** temperature and the **actual** pressure.

The **norm volume** of a gas is the volume at **norm conditions** which are (in Germany):

Norm Temperatur = 273,15 Kelvin (= 0 °C)

Norm Druck = 1.013,25 mbar

The formula for converting the actual volume into norm volume is:

$$V_u = V_i \times \frac{p_u}{p_i} \times \frac{T_i}{T_u} \quad \text{where}$$

V_u	= Norm Volume in	[ltr]
V_i	= indicated Volume in	[ltr]
p_u	= Norm Pressure in	[mbar]
p_i	= actual Pressure in	[mbar]
T_u	= Norm Temperature in	[Kelvin]
T_i	= indicated Temperature in	[Kelvin]

Note: The indicated gas pressure at the manometer is the differential pressure between the gas pressure at the gas inlet and the actual atmospheric air pressure. Thus, the actual gas pressure (pa) to use in the above formula is the **indicated gas pressure** at the manometer **plus** the **actual atmospheric air pressure** in [mbar].

Installation

Unpack the Manometer. Mount the Manometer into the Manometer support. Unscrew the closing cap of the »Manometer Connection« port located at the »Gas Inlet« nozzle at the center of the rear plate. The removed closing cap of the port can be stored easily by screwing it onto the respective thread support at the rear side of the Manometer. Screw the closing cap, which is attached to the flexible Manometer pipe, tight to the »Manometer Connection« port.

Filling the Manometer

The Manometer is to be filled with the red Special-Equipment Filling Oil (»Spezial-Gerätefüllöl«) provided with the Manometer. First remove the white thumb screw from the Filling Hole. Pour in the Oil until the Oil column reaches the »0«-mark on the front of the Manometer. Replace the white thumb screw. **Please note: Only the specially provided red oil should be used with this Manometer** (Density 0.88)! If the manometer is filled with an oil with a different density, the Manometer indication will inevitably be wrong.

Then, unscrew the closing cap of the »Manometer Connection« port located at the Gas Inlet nozzle (on the rear side of the Gas Meter casing). The removed closing cap of the port can be stored easily by screwing it onto the thread support on the rear of the Manometer. Lastly, tightly screw the closing cap attached to the flexible Manometer tube, onto the »Manometer Connection« port. The Manometer is then ready for use.

Reading the Manometer

The oil column of the Manometer indicates the differential pressure in [mbar] of the gas between the Gas Inlet of the Gas Meter and the atmospheric pressure.

Caution: If the Manometer is connected to the gas inlet of the Gas Meter **but** not filled with oil, gas will leak through the Manometer. This will inevitably cause a **measurement error** of the Gas Meter.

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The most recent version of this data-sheet can be found at <https://www.ritter.de/en/data-sheets/manometer-tg-wide-scale/>

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