

Laboratory Meter

High Accuracy Gas Meter

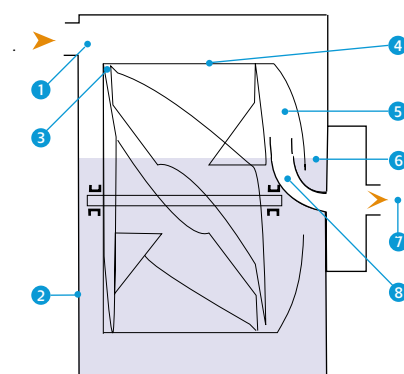
- ▶ High accuracy
- ▶ Very low pressure loss
- ▶ Easy to read
- ▶ Excellent repeatability

Applications

This meter is used for volume measurement in calibration and accurate measurements in laboratories.

Description

This laboratory gas meter, known as a “wet-meter” requires a certain quantity of liquid, combined with high accuracy in measuring, to operate. It is a positive displacement meter.



Operating Principle

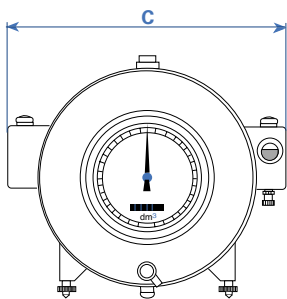
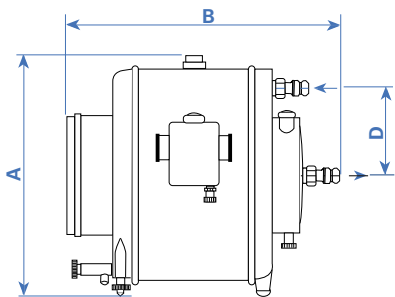
A cylindrical drum (4), with a spindle through its centre, is mounted in a casing (2) which is set on bearings allowing it to revolve freely, on which the inlet (1) and outlet (7) are mounted. The drum consists of 4 compartments with propeller shaped blades (3). A cover (5) is fitted to one side of the drum. This cover has an opening in the centre which is large enough to allow a bent duct or “sprout” (8), to pass and rise above the liquid level (6). This liquid level (water and oil) separates the inlet and outlet and determines the volume of the compartment. The drum rotates as a result of the pressure difference between the inlet and the outlet. This rotation causes each compartment in turn to be filled with gas. Once full, each compartment is emptied into the cover, after which the gas travels to the outlet through the “sprout”. The drum axis activates a counter.

Technical Features

Application	Volume-measuring of filtered gases which, under normal circumstances, are resistant to used materials and used filling liquids.
Gas Temperature	+ 10°C to + 30°C
Max. Flow (m³/h)	± 0.5 % from the measuring quantity. In general, precision gas meters are calibrated with water as the filling liquid. However, on request, oil is possible as well. A factory calibration certificate is supplied with each meter.
Pointer-index	The meters are supplied with a circular indicator-plate. One rotation of the indicator is equal to one drum-rotation. The meter index contains 8 figures (dm ³).
Liquid	Distilled water, or mineral oil, with a viscosity of 6 to 8 centistokes at 20°C N.B. If the liquid is changed from water to oil (or vice versa), the meter must be recalibrated.
Construction	Casing and drum: brass Bearings: rilsan Drain tap: polyacetal



▶ Laboratory meter



Dimensions

Meter type	A (mm)	B (mm)	C (mm)	D (mm)	Weight (kg)
1 dm ³	235	260	288	91	3.9
5 dm ³	300	427	350	122	5.3
25 dm ³	490	507	540	111	14.4
100 dm ³	750	737	790	170	41

Specifications

Meter type	1 dm ³	5 dm ³	25 dm ³	100 dm ³
Starting flow (dm ³ /h)	1	5	25	100
Max. flow (m ³ /h)	0.5	2	8	24
Volume per rev. (dm ³)	1	5	25	100
Pressure loss (air) at max. flow (mbar)	0.5	0.9	0.8	0.8
Max. working pressure (mbar)	100	100	100	100
Min. pointer indication (dm ³)	0.01	0.1	0.5	1
Connection (mm)	12	12	25	50
Quantity of liquid (dm ³)	3	8	38	141

Pulse Emitter

The base of the pulse transmitter comprises a printed circuitboard, with a mounted potentiometer and an opto switch. During operation, the rotations of the brass stroboscopic disk (provided 50 grooves) will be detected by an opto switch, generating 50 pulses per revolution. The obtained signals are converted by the printed circuit board into a free of interference pulse signal. The pulse sensibility can be set up with the help of the potentiometer. The printed circuit board is installed on the gas meter with 2 screws. The 3 wires are connected to a three-piled Binderplug. A prototype of this PRECISION GAS METER with PULSE TRANSMITTER (type 1 dm³) has been approved by the Nmi, according to the EMC guidelines EN 50081-1 and EN 50082-1.

Optional Features

- ▶ An encoder for digital output
- ▶ A thermometer for measuring gas temperature

Ordering information:

- Type of meter
- Type of liquid (water or oil)
- Type of gas
- Options: thermometer / encoder