

# metrixitalia



## INSTRUCTIONS FOR INSTALLATION AND OPERATION

Residential diaphragm gas-meter UG G1,6, UG G2,5  
and UG G4 with steel / aluminium body

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## APPLICATIONS

The residential gas-meter UG are designed acc. to the European Norm EN1359 to measure the consumption of gas in households and at other consumer, where the maximum consumption of all gas appliance does not exceed 2,5 m<sup>3</sup>/h in case of gas meter UG G1.6, 4m<sup>3</sup>/h in case of gas meter UG G2.5 and 6m<sup>3</sup>/h in case of gas meter UG G4, of the air of density 1.2 kg/m<sup>3</sup>. They are suitable to measure the consumption of natural gas, synthetic gases and their mixtures. They can be equipped with low frequency pulse transmitter type NI-3.

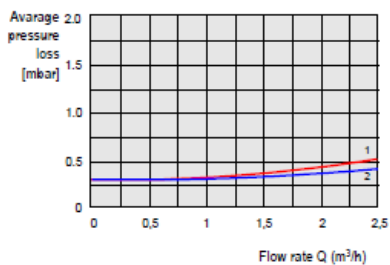
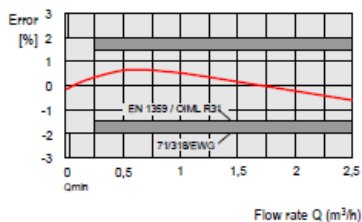
## TECHNICAL DATA:

	UG G1.6	UG G2.5	UG G4
Nominal flow rate Q <sub>n</sub>	1,6 m <sup>3</sup> /h	2,5 m <sup>3</sup> /h	4 m <sup>3</sup> /h
Minimal flow rate Q <sub>min</sub>	0,016 m <sup>3</sup> /h	0,025 m <sup>3</sup> /h	0,04 m <sup>3</sup> /h
Optional		0,016 m <sup>3</sup> /h	0,016 m <sup>3</sup> /h 0,025 m <sup>3</sup> /h
Maximum flow rate Q <sub>max</sub>	2,5 m <sup>3</sup> /h	4 m <sup>3</sup> /h	6 m <sup>3</sup> /h
Cyclic volume – V			1,2 dm <sup>3</sup>
Allowable indication errors limit during EEC initial verification:			
➤ Q <sub>min</sub> to 0,1Q <sub>max</sub> – E			± 3%
➤ 0,1Q <sub>max</sub> to Q <sub>max</sub> – E			± 1,5%
Maximum working pressure P <sub>max</sub>			50 kPa (0,5 bar)
Max. Pressure drop Δ at – Q <sub>max</sub>			UG AL – 200 kPa (2 bar) ≤ 200 Pa (2 mbar)
Index measuring range			99999,999 m <sup>3</sup>
Pulse value			0,01 m <sup>3</sup>
Distance between connection bosses			100/110/130/152,4/220
Weight			~ 2 kg
Possible connection standards: ISO, British standard, NPT, NEN and others.			

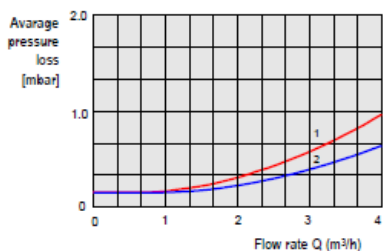
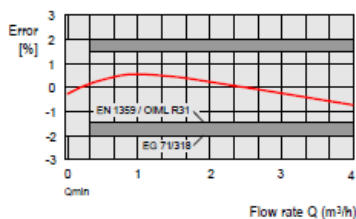
### TYPICAL ERROR CURVE

### TYPICAL PRESSURE LOSS CURVE

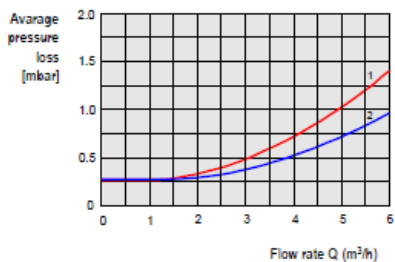
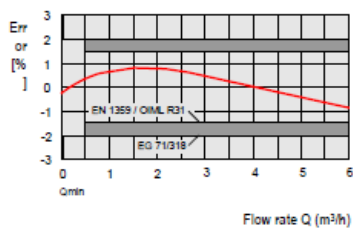
G1.6



G2.5

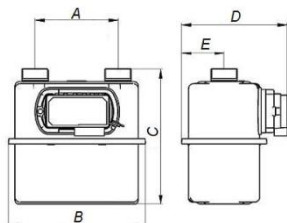


G4



1 – air 2 – natural gas

## DIMENSIONS



A (mm)	B (mm)			C (mm)			D (mm)			E (mm)		
	Variant I (*)	Variant II (**)	Amumin. Body	Variant I (*)	Variant II (**)	Amumin. Body	Variant I (*)	Variant II (**)	Amumin. Body	Variant I (*)	Variant II (**)	Amumin. Body
130	216	200	-	214	211	-	167	162	-	67	65	-
110	216	200	210	214	211	210	167	162	176	67	70 (65)	74
100	216	200	210	214	211	210	167	162	176	67	65	74
152,4 (6")	235	-	-	268	-	-	177	-	-	73	-	-
220	283	-	-	222	-	-	176	-	-	72	-	-

(\*) standard – (\*\*) UG-F version

## ADDITIONAL EQUIPMENT

Upon request of our clients the gas-meter can be additionally equipped with:

- Washer 2 pcs.
- Joint 2 pcs.
- Nut 2 pcs.

Or with different pipes (threads, excenter pipes, etc)

## CONSTRUCTION OF THE GAS METER

The gas-meter consists of three basic units:

- Measuring unit
- Gas meter case
- Index

### 1 – MEASURING UNIT

It contains two measuring chambers including diaphragm, distributing duct and control mechanism including valves and sliders, rocking levers, connecting rods, crank and crankshaft. The measuring unit is equipped with the a device to prevent the registration of reverse flow acc. to the Norm EN1359.

### 2 – GAS METER CASE

It consists two subassemblies, i.e. top case and bottom case. These units are joint hermetically by means of a case hoop (band). The following parts belong to the top case: magnetic drive with internal and external magnet subassembly and a driving pinion.

### 3 – INDEX

It is connected to the top case with screws and is protected from outside by the index housing, which can be locked by a lead seal or the index blockade. The index is also equipped with an additional device to prevent the registration of the reverse flow acc. to the Norm EN1359.

### OPERATING PRINCIPALS

The highly precise instrument – gas-meter – measures the volume of gas that moves through it. Gas entering the meter flows through the holes of the distribution duct and causes a diaphragm to move, allowing gas into a chamber. The movement of the diaphragms cause a rotary reversible movements of the connected shafts. The rocking levers are fastened on the shafts. The rocking levers are connected throughout the connecting rods to the crank shaft. The rotary movement of the crank shaft is transferred to the slider and through the transmission and magnetic drive to the index driving pinion.

As the cycle continues, the gas is moved from the chambers into the gas line that feeds home's gas appliances. The meter records the number of times the chamber is filled and emptied.

### INITIAL VERIFICATION (SEALING)

The gas-meter under obligation are subject of initial verification. The sealing is carried out by authorized staff. The proof of initial verification is the stamp in the right-down corner of the index window or on a traditional seal. Sealing is invalid in case of gas-meter damage or if the indication error exceeds the permissible error settled by appropriate regulations.

### STORAGE AND TRASPORTATION

#### 1 – STORAGE

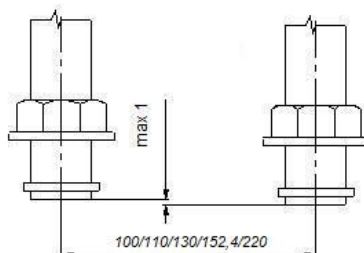
The gas-meter must be stored in their single packages in a dry storing room free from dust and chemical fumes of strong corrosive effects. During storing the gas-meter pipes must be protected by pipe plugs. The pipe plugs should not be removed from sealing time up to gas meter installation. Under condition that the gas-meter must be protected from falling and overturning, in the single packages they can be placed one on each other according to the signs on the packages. The storage room temperature must be between  $-25^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  and relative humidity not more than 75%.

#### 2 – TRANSPORTATION

The gas-meter must be transported in single packages placed according to the signs of the packages. During transportation they must be well protected against falling and displacing. Because of damage possibility transportation of a single gas-meter to its installation point without the package is not allowed.

### INSTALLATION OF GAS METERS

The gas pipes installation is to be carried out allowing to install the gas-meter without casing tension. A properly carried out gas-meter installation with spacing 100/110/130/152,4/220 mm is shown on the illustration. It is recommended to use a special installation terminal assuring a proper installation of the gas-meter.



Before installing the gas-meter a valve must be installed on the gas pipe to make it possible to turn off the gas inflow. Gas inflow direction is marked on top of the gas-meter case.

The gas-meter must be connected to the gas installation by means of the attached nuts, screwing them manually, then use a spanner not longer than 30cm. Screwing moment of the nuts can not exceed 70 Nm. The gas-meter and the gas installation junction must be tight fitting.

## ATTENTION!

- IN ORDER TO AVOID ANY DAMAGE, MAKE SURE THAT IN THE PIPE WHERE GAS-METER WILL BE INSTALLED THE PRESSURE **NEVER CAN BE HIGHER** THAT THE MAXIMUM WORKING PRESSURE BY THE METER (PAGE 2)
- DURING INSTALLATION ENSURE THAT DOWNSTREAM NEXT THE GAS-METER THERE ARE NOT AUTOMATIC ON-OFF VALVES THAT COULD DAMAGE THE METER
- UPSTREAM AND DOWNSTREAM VALVE MUST BE **GRADUALLY OPENED**, IN ORDER TO ALLOW A REGULAR GAS FLOW AND TO AVOID ANY SUDDEN STROKE, WHICH COULD DAMAGE THE INTERNAL PARTS OF THE METER

## USING GAS-METER

Diaphragm gas meter does not need any service. Before the end of initial verification expiry date, gas-meter must be disconnected from the gas installation and checked on leakage and indication errors. A positive result of the mentioned tests allows the renewal of the verification validity. Indication errors and verification expiry periods are specified by appropriate internal regulations in the appropriate country. Periodical checking of gas installation including gas meters are carried out according to utility regulations.

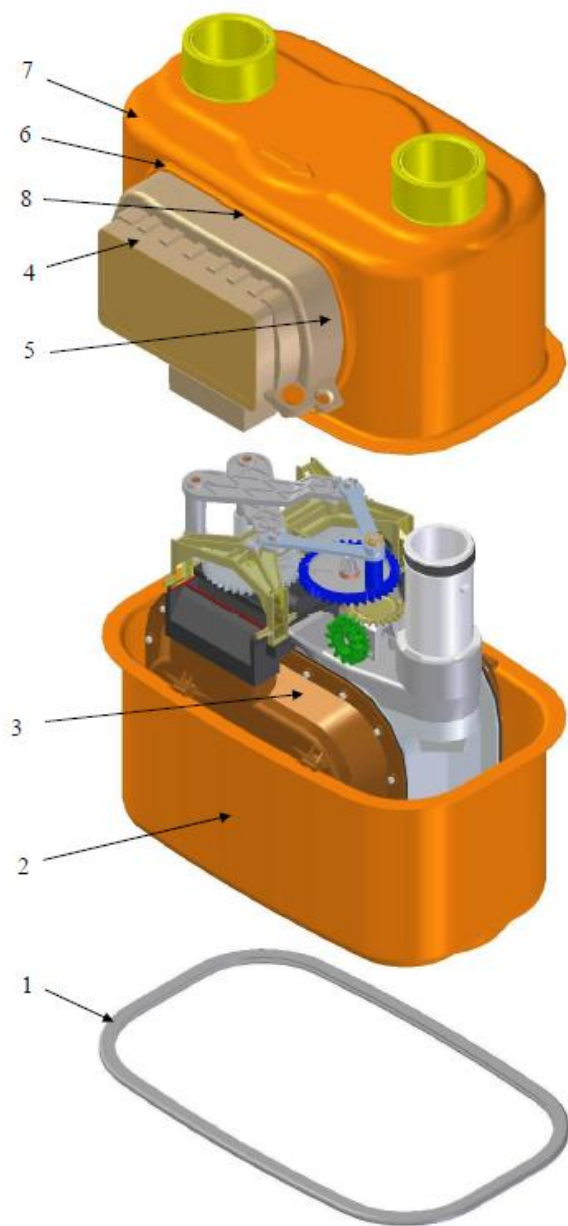
## REPARATION

In case of impairment gas-meter must be repaired by the manufacturer or at a certified service point. Manufacturer provides training, instructions and supply spare parts necessary to repair gas-meter. After repairing service point must place a fix marks on the index plate. These signs are necessary to define the service point (for example 01M means that the repairing is done by Metrix in 2001).

Indication errors of a repaired gas-meter must be checked and gas-meter must be sealed by the appropriate Office of Measures. Reading errors and expiry date of verification are specified by appropriate regulations of OM.

## PARTS OF UG GAS-METER

1. Band
2. Bottom case
3. Measuring unit
4. Index
5. Gears
6. Sealing insert
7. Top case
8. Transmission gear-wheel



**PARTS OF UG AL GAS-METER**

1. Seal gasket
2. Bottom case
3. Measuring unit
4. Index
5. Gear assembly
6. Screw
7. Top case
8. Transmission gear-wheel

