

RF1 G1.6 - G6

Residential Diaphragm Gas Meter

The RF1 is a compact residential gas meter designed to measure accurately volumes of natural gas, LPG and all non-corrosive gases.

Application

The RF1 long-term metrology stability makes it the obvious choice for demanding, high consumption residential gas markets.

Metrology

The RF1 gas meter meets strict metrological requirements such as MID, O.I.M.L and EN 1359 as well as DIN, PTB, DVGW and KVGW.

The RF1 is a combination of proven and reliable gas meter concepts:

- Reciprocating plastic diaphragm
- Crank-controlled and oscillating slides
- Robust and tight connections between components
- Use of precise, light-weight and noise-free plastic parts

During the preliminary test controls on the sonic nozzle test benches, all meters are tested at Q_{min} , $0.2 Q_{max}$ and Q_{max} . In accordance with the EC regulation, the maximum permissible error is $\pm 3\%$ from Q_{min} to $0.2 Q_{max}$, and $\pm 1.5\%$ from $0.2 Q_{max}$ to Q_{max} .

Operating Principle

The RF1 is a positive displacement diaphragm gas meter with a stand-alone twin chamber measuring unit.

The twin chambers are each fitted with a flexible and gas-tight diaphragm which is moved by the differential between the inlet and outlet pressure. The gas enters one side of the diaphragm pan while on the other side it comes out through a separate port on the valve. When one side is full, the sliding valve moves on to the next position, allowing the gas to fill the empty side.

A transmission gear and a magnetic coupling or stuffing box transfer the reciprocating motion to the mechanical or electrical index.

The measuring unit is housed in a robust gas-tight casing.



> G4 RF1 Double Pipe

> Basic Features

- Compact size
- 2 dm^3 cyclic volume
- Multi-range G1.6, G2.5, G4 & G6
- EN 1359 & O.I.M.L compliance
- EC (MID) / EEC approved

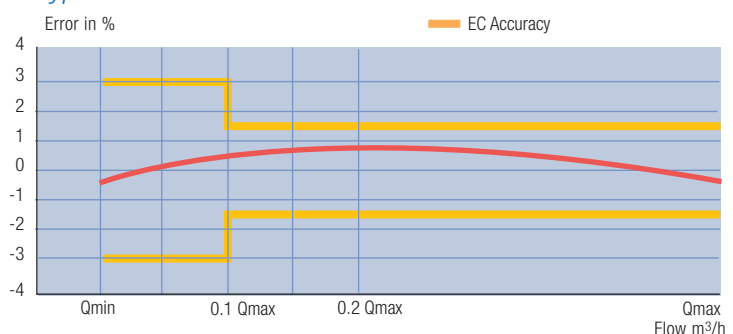
> Design

- Robust construction
- Environment-friendly
- Long-term accuracy & safety
- Ready for remote reading & data management

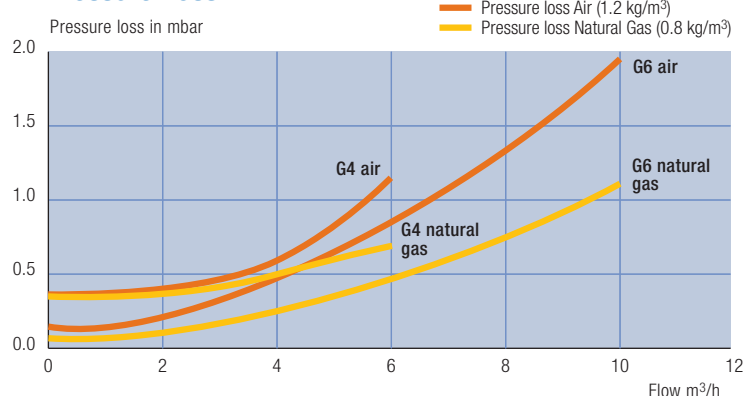
> Quality

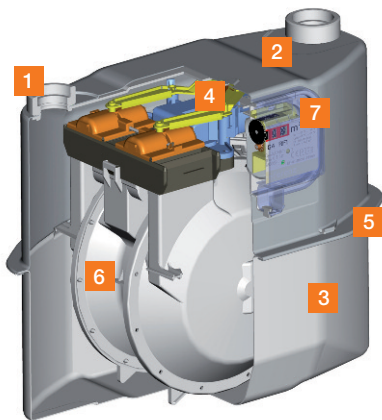
- World-class, ISO 9001 certified, European Engineering and Manufacturing

Typical error Curve



Pressure Loss





> *Measuring Unit*

Construction

> 1 - Connections

- Moulded connections ensure optimum resistance to corrosion
- Material protected against corrosion (500h salt spray test)
- Available in different versions.

> 2 - Backflow Flap

- (Option for 210-250 mm versions)
- Available with and without backflow flap
- Protects against the backflow of gas.

> 3 - Body

- Made from aluminium-coated sheet steel, i.e. protected against corrosion
- Additional coating with solvent-free paint
- Integrated crimp
- Alternatively in sturdy aluminium casing for High Pressure application.

> 4 - Backrun Stop

- Prevents the meter from running backwards.

> 5 - Crimped Body

- Crimped version for PN 0.1 – PN 0.2 – PN 0.5.
- No water residues due to integrated crimp
- Safe, DVGW-approved sealing material.



> 6 - Plastic Measuring Unit

- Two-litre measuring unit
- Good recyclability due to the use of the same classes of plastic (where possible)
- Resistance to chemicals and gas
- High gliding properties to protect against the wear of moving parts
- Optimum long-term functioning.

> 7 - DIN 3374 Counter

- Protected against fraud:
 - by a stable, sheet metal, retention plate
 - by its labyrinth shape
 - tampering is indicated by markings on the type plate.
- *Dirt Resistant*
Resistant to fine dust IP 54.
- *Legible Counter*
Broad reading angles
- Customer-specific, type plates available, e.g. bar code.
- *Pulse Generator (Option)*
Available with a permanent magnet in counter roller
- Can be refitted with a pulse transmitter (read switch).

Quality Assurance

The gas meter - produced in accordance with DIN EN ISO 9001/BS 5750 and DIN EN ISO 14001 requirements - guarantees quality, accuracy and long-term stability.

Technical Characteristics

Gas Type	Natural Gas, air, propane, butane, nitrogen and all non-corrosive gases	
Cyclic Volume	2 dm ³	
Temperature range	Ambient:	-25°C to +55°C
	Gas:	-25°C to +40°C (-10°C to +40°C for G1.6)
	Storage:	-40°C to +70°C
Maximum Operating Pressure	0.5 bar (0.1 bar HTL) for steel version 1.5 bar for aluminium version (HP)	
Measuring Range	G1.6	Qmin 0.016 m ³ /h Qmax 2.5 m ³ /h
	G2.5	Qmin 0.025 m ³ /h Qmax 4 m ³ /h
	G4	Qmin 0.04 m ³ /h Qmax 6 m ³ /h
	G6	Qmin 0.06 m ³ /h Qmax 10 m ³ /h
Pulse Generator	Standard 0.1 m ³ / pulse Optional 0.01 m ³ / pulse	
Pulse Transmitter	Retrofittable LF-system, 24 Vdc max – 50 mA max. standard 0.1 m ³ /pulse, Different versions: with 1m cable, binder plug or connecting block	
Casing Material	Steel or aluminium	
Connections Threads	ISO 228-1 standards: G 1" A; G 1" 1/4 A; G 1" 3/4" A; GM 1"; GM 3/4"; Others on request	
Colour	RAL 7035 for steel RAL 9010 for aluminium	

Dimensions

Connection	DN	20	25	25*	25*	25*	25**	25**	25		
A (Spacing)	mm	220	250	210	250	110	130	152 (6")	250	152 (6")	Single Pipe
B	mm	273	267	267	272	264	276	320	274	274	
C	mm	71	71	71	71	71	77	80	71	71	
D	mm	325	325	233	233	233	316	297	233	233	
E	mm	177	177	177	177	177	211	198	177	177	
Weight	kg	2.7	2.7	2.5	2.5	2.5	4.2	4	2.5	2.5	
Pmax	bar	0.5	0.5	0.5	0.5	0.5	1.5	1.5	0.5	0.5	

* Only G1.6 to G4 size available

** Version HP (aluminium) only G6 size available

Options

- > Aluminium HP version (G6 version only)
- > Retrofittable pulse transmitter
- > Mechanical temperature corrector (-10°C to +40°C standard, other temperatures on request)*.
- > Electronical temperature corrector (-10°C to +40°C)*

* The compensated volume on the indicator refers to a base temperature of 15°C

Environmental Aspects

Itron is increasingly concerned with environmental issues. In the development of the RF1 range, environmental aspects have been taken into account:

- use of an environment-friendly coating process (water-based paint)
- lead-free sheet metal
- weight reduction
- low-noise
- plastic parts of the same class as far as possible (recyclable, all plastic parts are marked accordingly)



> G4 RF1 Single Pipe Steel Version



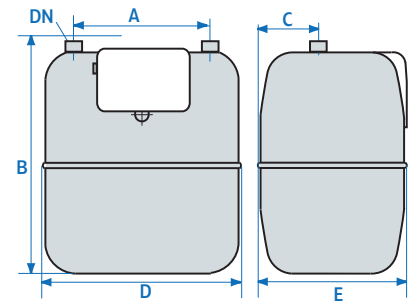
> G6 RF1 Double Pipe 250 mm Aluminium Version



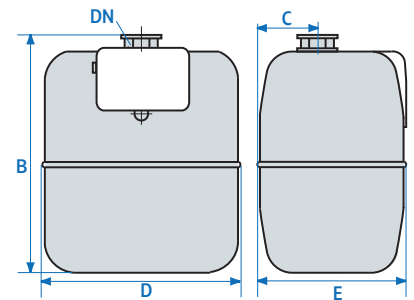
> G4 RF1-MM Double Pipe 110 mm Steel Version

Ordering Information

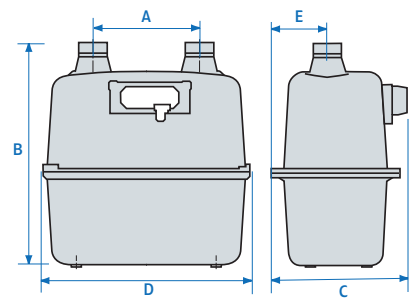
- Measuring Range
(G1.6, G2.5, G4, G6)
- Maximum working pressure
(0.1-0.5-1.5 bar)
- Meter interaxis and connection type
- Specific marking
(serial number, logo, bar code)
- Options



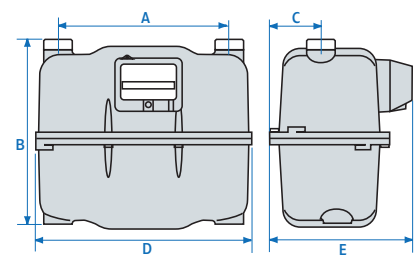
> Double Pipe Steel Version



> Single Pipe Steel Version



> G6 Double Pipe 6" HP Aluminium Version



> G6 Double Pipe 250 HP Aluminium Version

About Itron Inc.

Itron Inc. is a leading technology provider to the global energy and water industries. Our company is the world's leading provider of metering, data collection and utility software solutions, with nearly 8,000 utilities worldwide relying on our technology to optimize the delivery and use of energy and water. Our products include electricity, gas and water meters, data collection and communication systems, including automated meter reading (AMR) and advanced metering infrastructure (AMI); meter data management and related software applications; as well as project management, installation, and consulting services. To know more, start here: www.itron.com

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