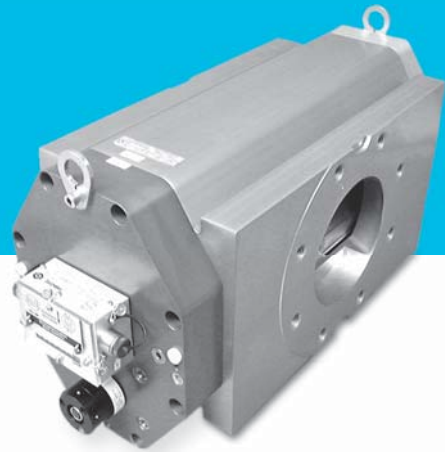


# IRM-3 and IRM-3 DUO

Rotary gas meter  
G 25 - G 1000



## Applications

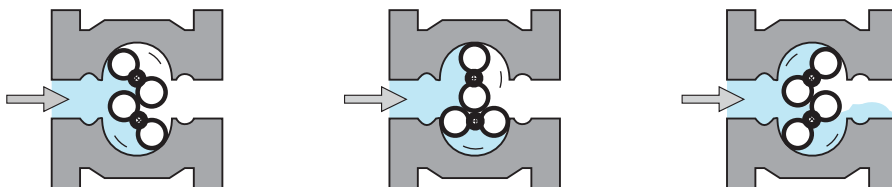
Media: Natural gas, town gas, inert gases  
Industries: Gas industry, furnace construction, chemicals industry  
Tasks: Measurement, control, regulation

## Brief information

**Operating principle:** Elster-Instromet IRM-3 and IRM-3 DUO rotary gas meters are volumetric measuring devices for gaseous media which operate according to the positive displacement principle. They record the operating volume. Electronic volume correctors can be used in order to correct the volume to the standard volume.

The IRM-3 measuring chamber consists of two 8-shaped impellers which, together with the housing, form four measuring chambers per revolution that are periodically filled and emptied.

The number of revolutions is proportional to the measured volume. The rotation is transferred to a mechanical index via a gear assembly and the volume is then recorded.



IRM-3 DUO meters operate with two phase-shifted pairs of impellers which create two separate units of measurement. Pulsations are thereby eliminated, which are generated by conventional rotary gas meters. This leads to an extremely quiet, resonance-free and almost silent operation of these meters.

**General:** Rotary gas meters are characterised by a high measuring range and a compact design. Due to their measuring principle, they do not require a straight inlet or outlet pipe section. In order to guarantee long service life, the rotary gas meters are lubricated with oil. The standard double index allows the meter to be adapted to any flow direction.

## Main features

- Meter sizes: G25 – G1000
- Flow rates from 0.6 to 1600 m<sup>3</sup>/h
- Nominal sizes DN 40 – DN 200
- Pressure ratings  
PN 10/16 and ANSI 150
- Aluminium housing
- DUO principle for pulsation-free, resonance-free and low-noise operation from G 400 - G1000
- Double index for universal installation and flow direction
- Optional: Bypass G1000
- Optional: Absolute-ENCODER S1D
- Optional: Cyro index  
(for measurements at gas temperatures below 0° C)
- Optional: Mechanical index drive

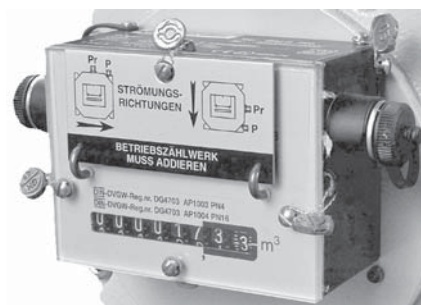
## IRM-3 and IRM-3 DUO: Rotary gas meters G 25 - G 1000

Technical data	
Operating temperature	-20 °C to +60 °C
Operating pressure	Max. 16 bar
Protection class	IP44: Meter with universal index, ventilated IP65: Meter with universal index, closed IP54: Meter with multi index IP67: Meter with Absolute-ENCODER index SID
Housing	Aluminium, piston made of Aluminium
Metrological approvals	PTB, NMI
ATEX approval	Ex II 2 Gc T6, according to ATEX directive 94/9/EC
Media	Natural gas, town gas, inert gases; other gases on request
Max. error ± 1 % for $Q_t - Q_{max}$ ± 2 % for $Q_{min} - Q_t$	$Q_t = 0.2 \quad Q_{max}$ , for measuring range ≤ 1:20 $Q_t = 0.15 \quad Q_{max}$ , for measuring range > 1:30 $Q_t = 0.1 \quad Q_{max}$ , for measuring range = 1:50 $Q_t = 0.05 \quad Q_{max}$ , for measuring range > 1:50
Reproducibility	< 0.1%
Applicable standards	EN 12480, DIN EN 13463-1 and -5, EN 50020:2002
Index variants	Universal index (double index), standard Multi Index, option Absolute-ENCODER SID, option
Outputs	- 4 LF pulse generators (reed contact) on 2 separate connection sockets - 1 HF pulse generator (option), not possible with integrated Absolute-ENCODER index SID (direct mounting on housing cover)
Pressure/temperature tapping	2 pressure tappings 1/4" NPT, 2 thermowells standard

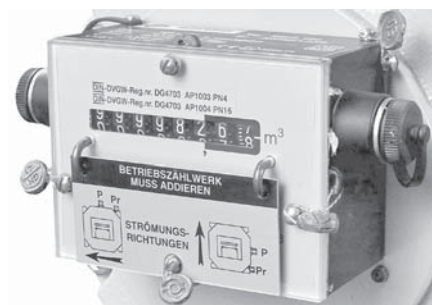
Measuring ranges according to PTB approval										
Size	Nominal diameter	Measuring range		$Q_{min}$ [m³/h]		$Q_{max}$ [m³/h]	Measuring volume dm³		HF* [imp/m³] (option)	
		national	EC approval	national	EC approval		Single	Duo	Option 1	Option 2
G 25	40/50	1 : 65	1 : 20	0.6	2.0	40	0.795	-	2510	5020
G 40	40/50	1 : 100	1 : 20	0.6	3.0	65	0.795	-	2510	5020
G 65	50	1 : 160	1 : 20	0.6	5.0	100	0.795	-	2510	5020
G 100	80	1 : 65	1 : 20	2.5	8.0	160	1.443 DIN	-	1388	2776
G 160	80	1 : 100	1 : 20	2.5	13.0	250	3.469	-	576	1151
G 250	100	1 : 160	1 : 20	2.5	20.0	400	4.424	-	451	903
G 400	100/150	1 : 100	1 : 20	6.5	32.0	650	-	5.530	-	720
G 650	150	1 : 160	1 : 20	6.5	50.0	1000	-	8.849	-	450
G 1000	200	1 : 160	1 : 20	10.0	80.0	1600	-	14.180	-	282

\* Stated HF pulse values nominal, specific values may differ

### Universal index



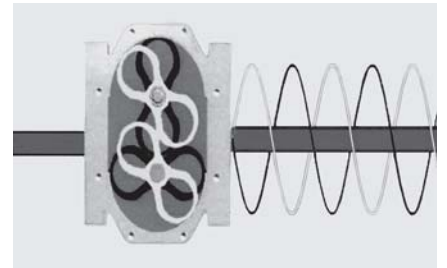
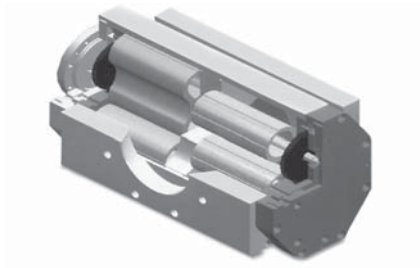
Flow direction: left - right  
respectively. top - bottom



Flow direction: right - left  
respectively. bottom - top

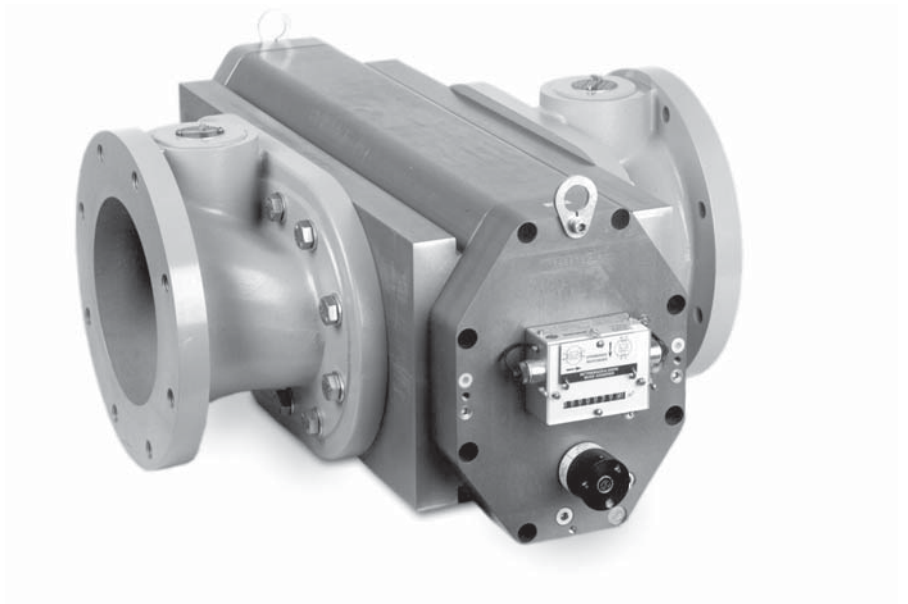
## DUO principle

The meters of sizes G 400 - G 1000 have two phase-shifted pairs of impellers (DUO), which form two separate units of measurement. The pulsations of both measurement units eliminate each other. The result is an extremely quiet operation without resonance and pulsations. The resulting additional enhanced measurement characteristic allows the use of these meters as a test rig master meter with a high measuring range.



## IRM 3 DUO G 1000 version

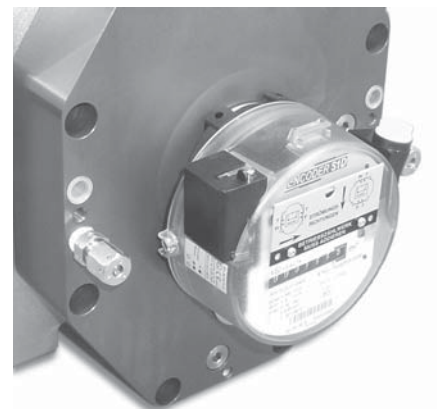
The IRM-3 DUO G 1000 DN200 is adapted to DN200 using the appropriate fittings. For attachment it is possible to use an external bypass, which can be opened in the event of a failure due to piston blockage. The reliability of the gas supply is thereby also ensured in the event of any failure.



## Absolute-ENCODER index S1D

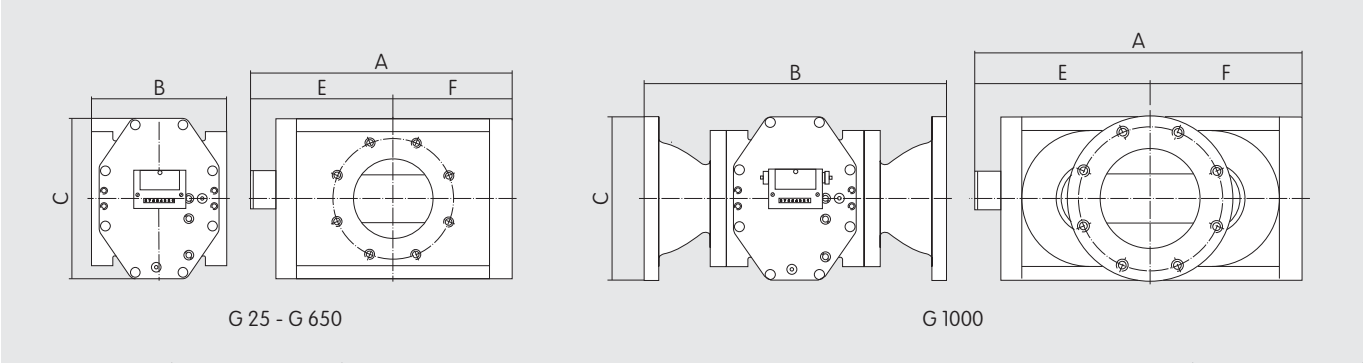
- Electronically readable mechanical double index
- PTB and ATEX approval
- Various data interfaces available

Detailed information can be found on the data sheet "Absolute-ENCODER S1"



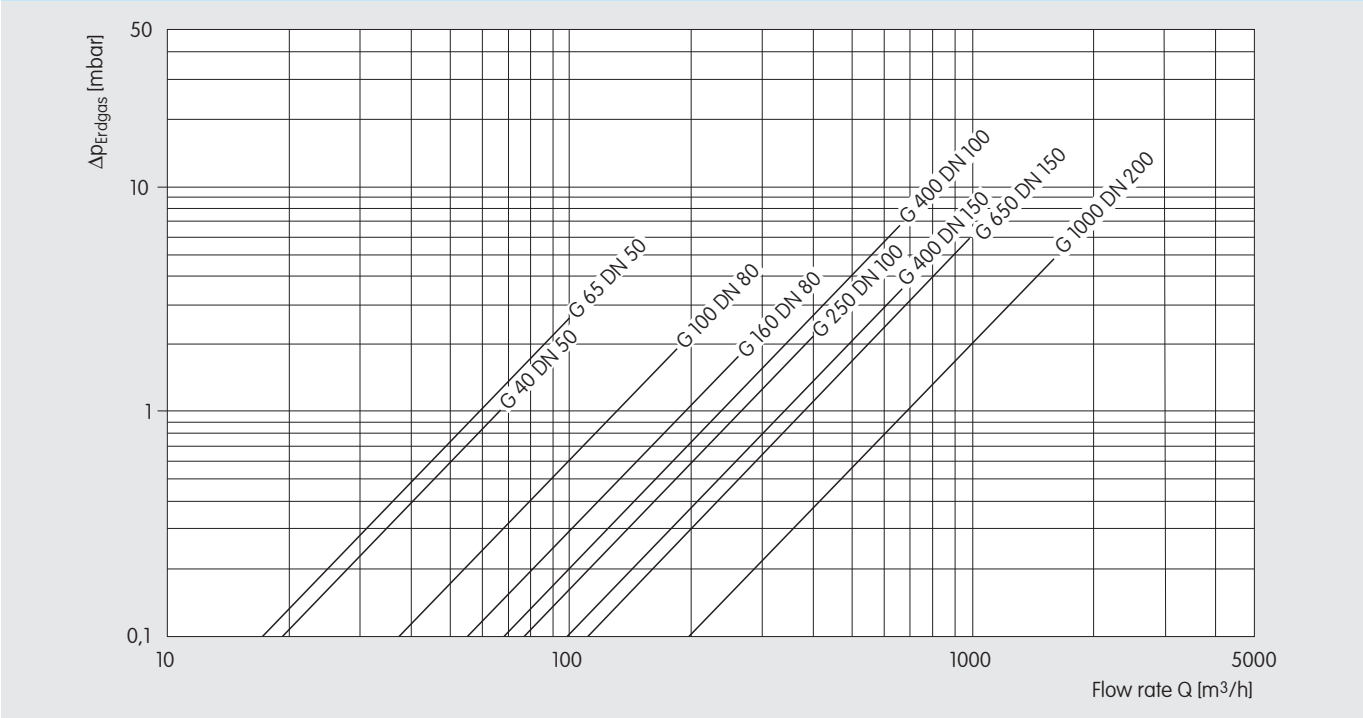
# IRM-3 and IRM-3 DUO: Rotary gas meters G 25 - G 1000

## Dimensions and Weights



Size	Nominal diameter	Dimensions					Weight [kg]
		A	B	C	E	F	
G 25	40/50	228	171	202	137	91	11
G 40	40/50	228	171	202	137	91	11
G 65	50	228	171	202	137	91	11
G 100	80	290	171	202	168	122	14
G 160	80	305	241	308	175	130	29
G 250	100	343	241	308	194	149	32
G 400	100/150	466	241/260	308	270	196	46/50
G 650	150	598	260	308	336	262	62
G 1000	200	810	600	340	442	368	113

## Pressure loss



The pressure loss values refer to natural gas (0.8 kg/m<sup>3</sup>) at atmospheric pressure.  
When using natural gas at higher operating pressures, these values must be multiplied by the absolute pressure (in bar).

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IRM 3 EN01

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