Common CGR-FX MID Rotary Gas Meters

CGR40 - CGR100

The rotary gas meters are positive displacement meters, designed to measure quantity of gas, for custody transfer or technical measurement applications. The devices are mainly applied for gas flow ranges from 0.2 up to 650 m³/h, and the pressure range up to 20 bar.

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The CGR-FX Meters are applied in measurement systems where high accuracy is required:

- Transportation and distribution of natural gas
- Primary and secondary measurements
- Control metering of natural gas and non aggressive technical gases in industry
- Flow Measurement for technical purposes

At a glance

- Inline gas meters with wafer connections to suit PN16 flanges, ANSI 150 alternative
- Fitted with low frequency pulse output as standard
- Aluminium body, suitable for natural gas and LPG, -20°C to +60°C
- Nominal rangeability 1:50, Meters read in cubic metres, index can be head rotated through 360°

Technical Data

Model	DN mm	Minimum Flow Rate m3/h	Maximum Flow Rate m3/h	Max Pressure	Interface
CGR/40G16	40	0.5	25	20 bar	Pulse
CGR/40G25	40	0.8	40	20 bar	Pulse
CGR/40G40	40	1.3	65	20 bar	Pulse
CGR/50G16	50	0.5	25	20 bar	Pulse
CGR/50G40	50	1.3	65	20 bar	Pulse
CGR/50G65	50	2	100	20 bar	Pulse
CGR/80G65	80	2	100	20 bar	Pulse
CGR/80G160	80	5	250	20 bar	Pulse
CGR/80G250	80	8	400	20 bar	Pulse
CGR/100G100	100	3.2	160	20 bar	Pulse
CGR/100G160	100	5	250	20 bar	Pulse
CGR/100G250	100	8	400	20 bar	Pulse
CGR/100G400	100	13	650	20 bar	Pulse

Features

- Pressure rating: PN16, ANSI150 other on request
- HTR version available
- Nominal diameter: DN40 up to DN100
- Meter external housing:aluminium or cast iron
- Flow: 0.2 to 650 m3/h
- Rangeability: up to 1:250
  (depending on the meter)
- Temperature range:
  gas temperature -20°C to +60°C
  ambient temperature -25°C to +70°C
- Operating position: horizontal or vertical
- Accuracy class 1,0 according to EN12480 standard:
  Qt÷ Qmax < ±1%
  Qmin ÷ Qt < ±2%
- Approvals:
  MID, PED, ATEX
- Traceabilty to PTB standards

Outputs

- As an option the meters can be provided with maximum 6 pulse transmitters
- 2 off LFK – low frequency reed contact pulse sensor
- 2 off LFI – low frequency inductive pulse sensor (NAMUR)
- 2 off HF – inductive pulse sensors in the index head (NAMUR)
- AFK – anti-fraud reed contact
  (available as an option)
- Amphenol TUCHEL connectors
- Index housing made of aluminium what perfectly protects index head against accidental damages
- Index housing may be provided with two separate sockets
- 2 pressure measurement taps as standard
- 2 temperature measurement taps
  (thermowells on request)

Dimensions and weight

Overall dimensions and weights of CGR-FX meters

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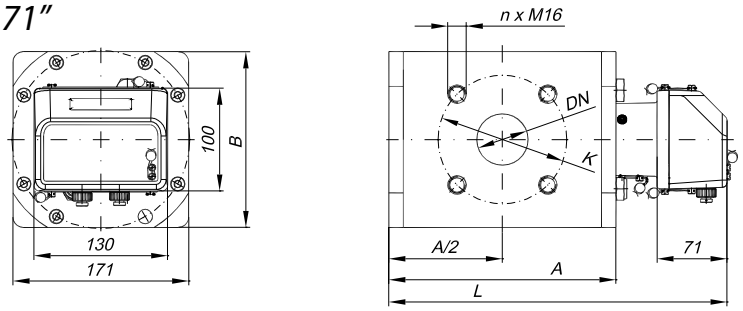

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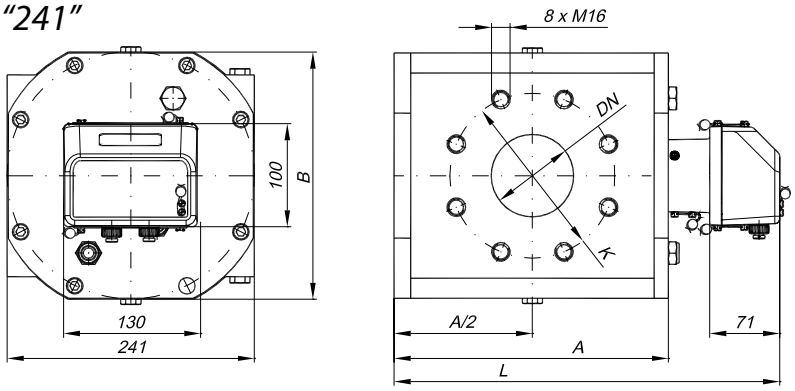


Table 1: Dimensions and weights of rotary gas meters (standard version).

	DN				n	A	B	L	Weight	Cyclic volume
	40	50	80	100		mm	mm	mm	kg	dm^3
ALUMINIUM CASING										
G10	+	+			4	165	171	277	10	0,23
G16	+	+			4	165	171	277	10	0,23
G25	+	+			4	184	171	296	12	0,31
G40	+	+			4	225	171	337	14	0,50
G65		+			4	295	171	407	19	0,81
G100		+			4	391	171	503	24	1,24
G100			+		8	391	171	503	24	1,24
G100			+	+	8	249	241	356	25	1,29
G160			+	+	8	314	241	421	31	2,00
G250			+	+	8	439	241	546	42	3,34
G400				+	8	439	241	546	42	3,34
CAST IRON CASING										
G10	+	+			4	246	181	358	33	0,50
G16	+	+			4	246	181	358	33	0,50
G25	+	+			4	246	181	358	33	0,50
G40	+	+			4	246	181	358	33	0,50
G65		+			4	316	181	428	38	0,81
G100		+			4	412	181	524	45	1,24
G100			+		8	412	181	524	45	1,24
G100			+	+	8	327	253	439	64	2,00
G160			+	+	8	327	253	449	64	2,00
G250			+	+	8	452	253	564	78	3,34
G400				+	8	452	253	564	78	3,34

All information included in the table refer to Basic version of the meters. It is possible to manufacture compact version (smaller sizes, higher possible rangeability, higher noise level) and low speed version (bigger sizes, smaller possible rangeability, lower noise level).
Contact your local representative or the producer to get more information about the products.

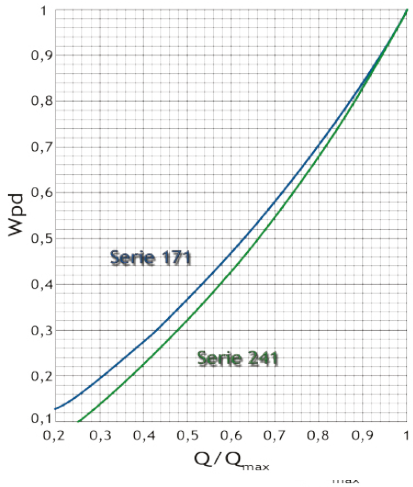
Pressure loss

Pressure drop during the gas flow through the meter according to EN12480 is determined for air at atmospheric conditions. To calculate pressure drop for other gases at higher pressures, the following formula may be used:

$$\Delta p_{rz} = \rho_w \cdot \left(\frac{p_a + p}{p_a}\right) \cdot W_{pd} \cdot \Delta p$$

Definitions:

Δp_{rz} = pressure loss at p [Pa]
W_{pd} = coefficient from the diagram below
Δp = pressure loss at Q_{max} from Table 2 [Pa]
ρ_w = specific density of gas related to air
p_a = base pressure (1.01325 bar)
p = gauge pressure upstream



Accessories

✓ Thermowells

✓ 3-way valve

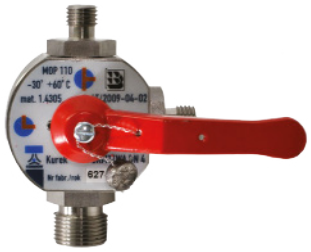


Table 2: Specification of the rotary gas meters in aluminium and cast iron housings

DN mm	G	Max flow Q_{max} [m^3/h]	Minimum flow Q_{min} [m^3/h] 1:50	1:65	1:100	1:160	1:200	1:250	LF pulse rate [pulse/m^3]	HF pulse rate [pulse/m^3]	V cyclic volume [dm^3]	Pressure loss at Q_{max} [Pa]	Series
ALUMINIUM CASINGS													
40/50	10	16	0,30	0,25	0,16	-	-	-	10	15459	0,23	110/85	171
	16	25	0,50	0,40	0,25	0,16	-	-	10	15459	0,23	185/140	171
	25	40	0,80	0,65	0,40	0,25	0,20	0,16	10	11470	0,31	240/180	171
	40	65	1,30	1,00	0,65	0,40	0,30	0,25	10	7111	0,50	280/210	171
50/80	65	100	2,00	1,60	1,00	0,65	0,50	0,40	10	4390	0,81	325/290	171
	100	160	3,20	2,50	1,60	1,00	0,80	0,65	1	2867	1,24	505/395	171
80/100	100	160	3,20	2,50	1,60	1,00	0,80	0,65	1	1654	1,29	220/160	241
	160	250	5,00	4,00	2,50	1,60	1,30	1,00	1	1067	2,00	370/280	241
80/ 100	250	400	8,00	6,50	4,00	2,50	2,00	1,60	1	639	3,34	510	241
100	400	650	13,00	10,00	6,50	4,00	3,20	2,50	1	639	3,34	1380	241
CAST IRON CASINGS													
40/50	10	16	0,30	0,25	-	-	-	-	10	7111	0,50	33/17	171
	16	25	0,50	0,40	0,25	-	-	-	10	7111	0,50	45/35	171
	25	40	0,80	0,65	0,40	0,25	-	-	10	7111	0,50	110/80	171
	40	65	1,30	1,00	0,65	0,40	0,30	0,25	10	7111	0,50	280/210	171
50/80	65	100	2,00	1,60	1,00	0,65	0,50	0,40	10	4390	0,81	325/290	171
	100	160	3,20	2,50	1,60	1,00	0,80	0,65	1	2867	1,24	505/395	171
80/100	100	160	3,20	2,50	1,60	1,00	-	-	1	1067	2,00	180/135	241
	160	250	5,00	4,00	2,50	1,60	1,30	1,00	1	1067	2,00	370/280	241
80/100	250	400	8,00	6,50	4,00	2,50	2,00	1,60	1	639	3,34	510	241
100	400	650	13,00	10,00	6,50	4,00	3,20	2,50	1	639	3,34	1380	241

NOTE: G40 and G65 meters available as DN65 on request.

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