



GM-60

Gas Mass Flow Meter

Description:

The series GM-60 is used to measure mass flow of gaseous media in pipes and channels. Media, such as air and other non-explosive and non-corrosive gases.

The device operates according to the proven and highly precise differential-pressure metering method and contains built-in integrated sensors for differential pressure, static pressure and temperature. Two separate chambers of the GM-60 probe profile are fitted with so-called pressure-sensing holes. These holes are used to create different pressure in the chambers; one of them in the up-stream chamber for higher dynamic and one in the downstream chamber for lower dynamic pressure. The result is a differential pressure proportional to the flow which will be measured by the differential pressure transmitter. In parallel, the current density of the medium is calculated and finally, together with the pipe cross-section, the mass flow is determined and transmitted as electrical signal to the control unit. The two analog outputs operate independently of each other and, in addition to mass flow, they also provide an output signal for pressure or temperature.

Range of application:

The rugged construction and large span of media temperature allows the GM-60 to solve measuring tasks, it is specifically designed with the requirement of the entire industry in mind. With only one insertion length, it fits almost all pipes or channels („one fits all technology“). The GM-60 thus has very short delivery times and reduces warehousing costs.

Typical applications:

- Pressurized air
- Pneumatics
- Exhaust systems
- Process air monitoring
- Combustion air regulation
- Exhaust gas measurement
- Exhaust gas volume measurement
- Building service (heating, ventilation, air-conditioning)

- Media temperature -80°C up to $+250^{\circ}\text{C}$
- Microcontroller technology
- Simple parameterization
- High measuring dynamic
- High zero point stability
- For pipe sizes starting at DN20
- Output signals 4 to 20 mA and 0 to 10VDC

Versions:

The GM-60 is available in two accuracy classes. The standard type offers an accuracy of 4%. Optionally it is available as calibrated probe with a calibration certificate and an accuracy of 2%.

The measuring transmitter has 4 to 20 mA and 0 to 10 VDC analogue outputs and can be programmed via the integrated DIP switches (1x 4 to 20 mA for flow or temperature, 1x 0 to 10 VDC for flow or pressure).

Technical specifications:

Principle:	differential-pressure with pressure and temperature compensation
Measured quantities:	mass flow, static pressure, temperature
Measurement range:	four measuring ranges are available, depending on the pipe diameter (see nomogram)
Span:	1:25
Pipe sizes:	starting from DN 20
Accuracy:	standard 4% of measured value from 10% of the ultra-low-flow metering range calibrated: 2% of measured value from 15% of the ultra-low-flow metering range or 4% from 7% of the ultra-low-flow metering range
Down- and upstream straight pipe distance:	15 x D inflow and 2 x D outflow
Media:	gases, non-explosive/corrosive; dust-/particle load max. 50 mg/m ³
max. rel. humidity:	100%
max. pressure:	10 bara, (other on request)
Burst pressure:	16 bar
Temperature	
media:	-80 °C to 250 °C
ambient:	-40 °C to 120 °C
Material	
profile:	stainless steel 1.4571 (SS316Ti)
housing:	stainless steel 1.4571 (SS316Ti)
Probe length:	max. insertion length: 100 mm

Ordering codes:

Ordering number: GM-60. 1. 1. 1. 0

GM-60 Gas Mass Flow Meter

Process connection:

- 1 = welding nozzle (cutting ring) stainless steel 1.4571 ^{A)}
- 2 = welding nozzle (cutting ring) C-steel ^{A)}

Sensor size:

- 1 = standard

Accuracy:

- 1 = standard 4 %
- 2 = calibrated 2 %, (option 1, calibration certificate required)

Option:

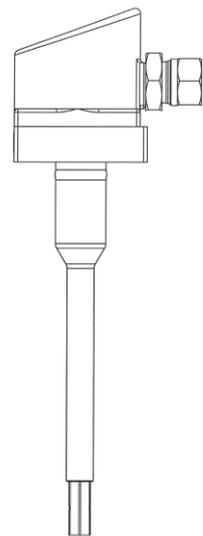
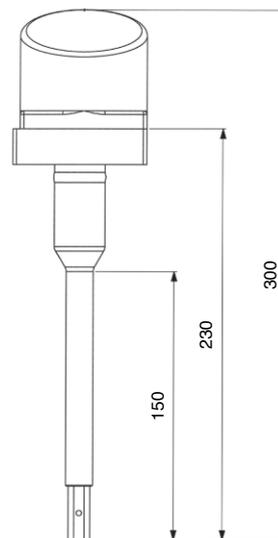
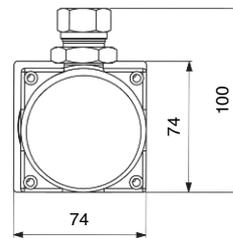
- 0 = none
- 1 = calibration certificate (three-point)

^{A)} requires a hole of 21.5 mm (± 0.5 mm)

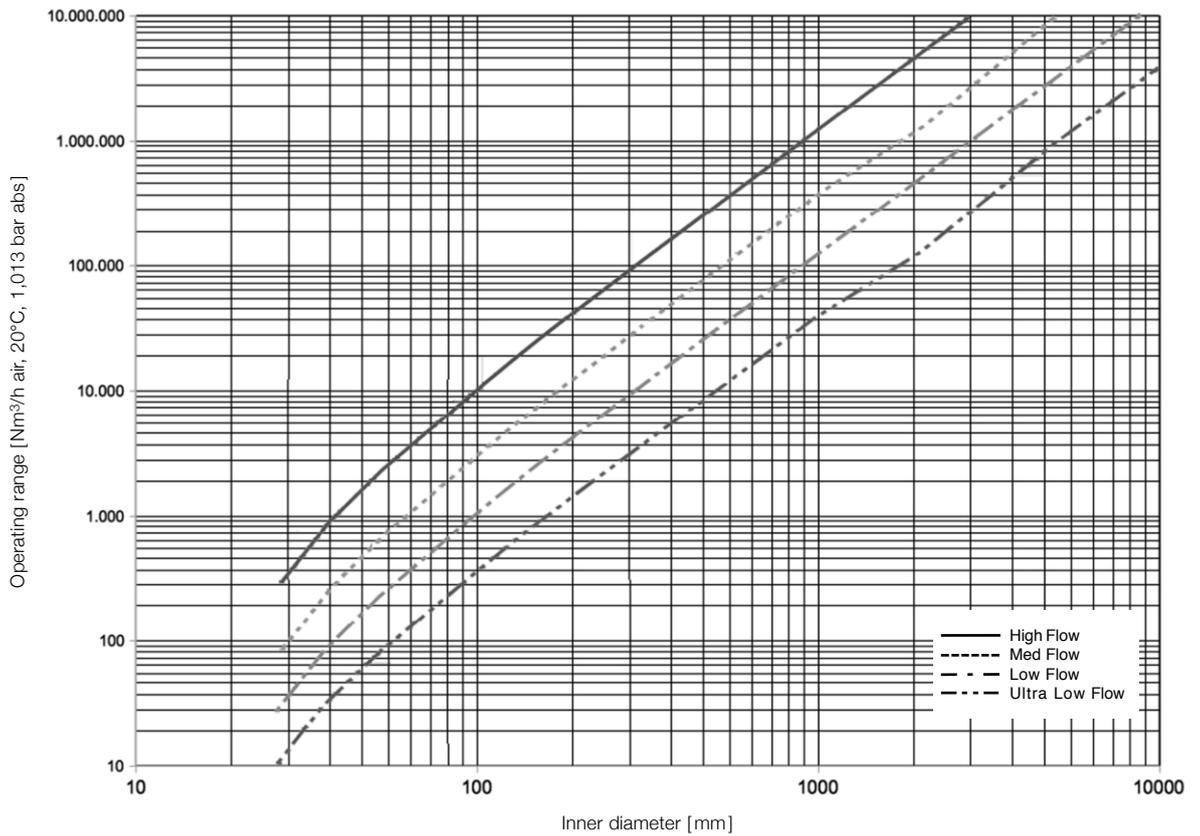
Electrical specifications:

Voltage supply:	18 to 36 VDC (3-wire)
Power consumption:	50 mA (inrush rating max. 100 mA), 24 VDC
Output signals:	1x 4 to 20 mA for flow or temperature 1x 0 to 10 VDC for flow or pressure
Load:	40 Ω integrated, 0 to 500 Ω allowed from outside
Electr. connector:	4 terminal screws (max. 1.5 mm ²)
CE-Kennzeichen:	as per low voltage directive 2006/95/EG as per EMV directive 2004/108/EG
Protection class:	IP 67

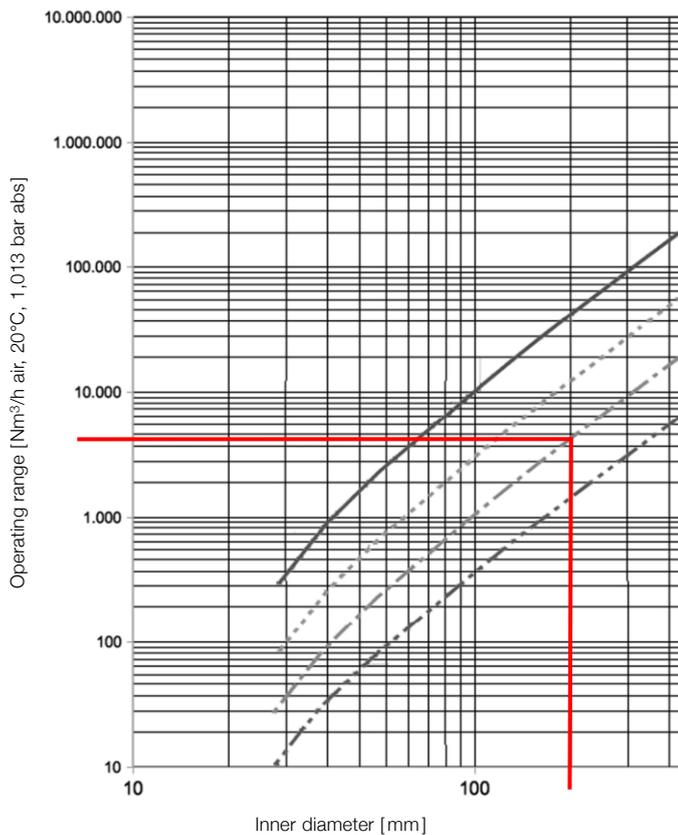
Dimensions:



Flow nomogram GM-60



Flow nomogram GM-60 - Example for pipe inside diameter 200 mm -



This example assumes a pipe inside diameter of 200 mm. The „Low Flow“ is a possible measuring range, with a full scale value of approximately 4700 Nm³/h. For this pipe you could also choose between three other measuring ranges (span).

Measuring range Ultra Low Flow
 › ME = approx. 1.700 Nm³/h

Measuring range Med Flow
 › ME = approx. 14.000 Nm³/h

Measuring range High Flow
 › ME = approx. 45.000 Nm³/h

Sizing for other media or different process conditions on request.

— High Flow
 - - - Med Flow
 - · - Low Flow
 ··· Ultra Low Flow

