

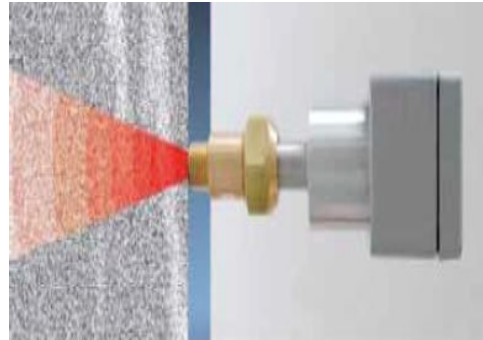
MEASUREMENT GAUGE MMF-9

MEASUREMENT OF MASSFLOW [kg/h]

MMF-9 is a gauge especially developed for measuring the flow rate of solids transferred through metallic ducts.

It has successfully implemented for real-time, online-measuring of the flow for :

- • powders, granulates, types of dust
- • grain size between 1 nm and 1 cm
- • pneumatically conveyed materials
- • in free fall after mechanical conveying systems



*Edit_Laser sensor

FUNCTION

The sensor works on the base of microwave technology. It is exclusively used in metallic ducts.

A measuring field is produced by special linking of the microwaves together with the duct. The microwave energy is being backscattered by the solids particles and received by the sensor. The signals are evaluated in frequency and amplitude.

The sensor works alike a particle counter, which counts the quantity of the moving particles per time unit. Due to the selective frequency evaluation only moving particles are measured and deposits are suppressed.

MEASURING SYSTEM

A complete measuring system consists of :

- The gauge (sensor) with 5 m connecting cable
- One sensor Adapter (a drill \varnothing 32mm) with three (3) screws
- One Power Supply & Terminal Connection Box

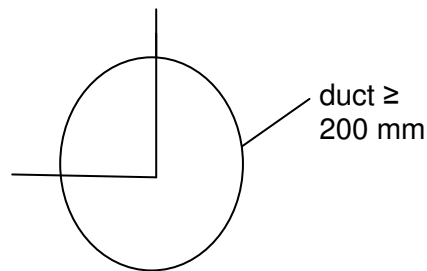
Sensor is mounted on the pipe. It is necessary to drill a hole into the pipe for introducing the waveguide of the sensor.

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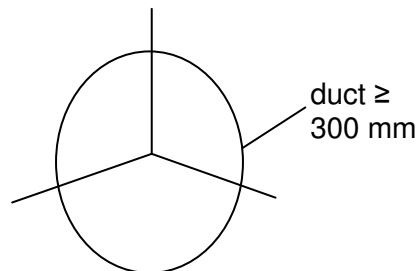
MOUNTING AND PLACEMENT

To ensure the best operation conditions for the gauge, it is necessary to apply some position requirements

- Do not place sensor just before or just after a bend.
- In the case of a pneumatic pipe, it is recommended to keep a minimum distance equal to **five times the diameter of the pipe between bent and sensor**.
- In the case of free fall pipe, the ideal is to keep a **minimum distance of 1 m** from the falling point
- **For duct diameters > 200mm** (two sensors recommended positioned at an angle of 90deg)



- **For duct diameters > 300mm** ((three sensors recommended positioned at an angle of 120deg)



- In the case of a horizontal pipe, place the sensor on the upper part of the pipe.
- However it is strongly recommended to install the sensor on Vertical pipes when it is possible.

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M E T A LTD.

THE INNOVATORS IN GAUGING

G.17

TECHNICAL SPECIFICATIONS

Gauge housing	stainless steel 1.4541, Protection IP65
Operating temperature sensor	-20 to +80 oC (Option up to 200 oC)
Operating temperature electronics	+0 ... +60 oC
Max working pressure	1 bar (option 10 bar)
Operating frequency	K-band, 24.125 GHz
Microwave power	max 5 mW
Measurement Uncertainty	+/- 2 to 5%
Power Supply	110/230 Vac (24 Vdc from electronic box - 0.5A @ 24Vdc)
Output	2X Out 4 - 20 mA (R<500 Ohm) 1X Pulses (24Vdc, 100mA), counting
Dimensions Gauge Electronic Box	Ø 20, L=230 mm (top sensor 115X90 mm) 258 X 237 X 174 mm (L X H X D)
Weight Gauge Electronic Box	1.3 kg 2.5 kg

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