

MF 3000

Mass flow measurement for bulk materials



Application and Function


Our solids flow meter MF 3000 is designed for bulk-solids flow measurement in metallic pipes from a few kg/h to many t/h. The system is suitable for on-line measurements of powders, dusts, pellets, and granules from 1nm up to 2cm in pneumatic or free fall conditions.

The measurement principle of the MF 3000 is based on the Doppler-Effect, where the sensor generates a uniform field in the microwave frequency range inside the metallic pipe. These microwaves are being reflected by particles passing through the pipe. Calculation

of frequency and amplitude changes allows for accurate determination of solids flow. Non-moving particles like accumulated dust are excluded from the calculation.

The installation is simple and cost effective via a welded branch, through which the sensor is screwed flush to the inside of the pipe. The sensor is connected to a DIN-rail mounted transmitter with 4...20 mA, RS232 and RS485 output. The calibration is made easy by using our MF-SMART software and a reference solids flow value.

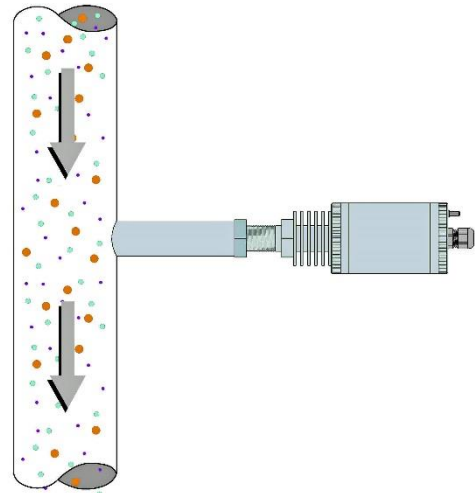
Main Benefits

- ◆ For pneumatic conveyors and free falling processes
- ◆ For all solid materials from a few kg/h to many t/h
- ◆ No armatures inside the pipe and inside flush fitting
- ◆ Very fast and non-contact measurement
- ◆ Easy, quick and cost effective installation and start-up
- ◆ Galvanic separated DIN-Rail Transmitter with RS232- and RS485-Interface
- ◆ Robust stainless steel version, abrasion and maintenance free
- ◆ Limit value monitoring with alarm contact
- ◆ Sensor-transmitter distance up to 2.000 m
- ◆ Easy and quick calibration
- ◆ Adjustable sensitivity
- ◆ Optional: ATEX for Zone 20 and Zone 2 

Putting into work

A branch is welded onto the pipe. A 18 mm hole is drilled, the sensor is mounted flush with the inner diameter of the pipe. For commissioning and calibration a laptop with our MF-SMART software needed.

Calibration can be performed with either one or multiple reference flow amounts. The measurement value is output as either analog or as a digital signal. A serial COM interface is available at the front of the transmitter to connect a notebook computer and a RS485 interface for connection to a PLC system.



Application examples of successfully measured products

The MF 3000 has been used in pneumatic transportations and free falling processes. The product's grain size can be between 1 nm and

20mm. The moisture level of the product is allowed to vary by up to 12%.

<p>Materials:</p> <p>All dust, powders, granulates, panels, threads etc. Also sticking or abrasive materials</p> <p>Industries:</p> <p>Animal feed industry Building materials industry Cement industry Chemical industry Detergent industry Engineering companies Food industry Glass production Metal production</p>	<p>Range of detection:</p> <p>From kg/h to many t/h</p> <p>Pharmaceuticals Pigment production Plastic industry Production of ceramics Production of rubber goods Production of textiles Tobacco industry Washing powder industry</p>
--	---

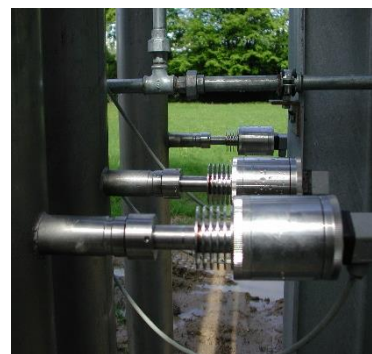
Applications



Wood Dust



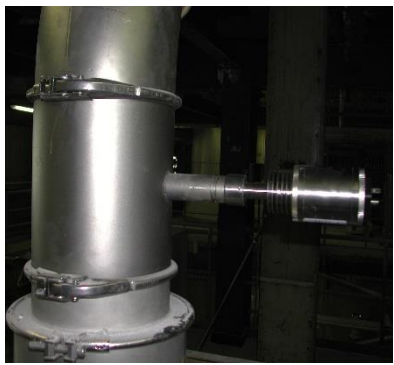
Jet Material



Plastic Granules



Coal Dust



Fertilizer



Iron-II-Sulfate

Process Data

MF 3000

Measurement start free fall :	Ca. 1 kg/h
Measurement start pneumatic transport	Ca. 1 kg/h
Max. pipe diameter	DN 300 (bigger diameter on request)
Grain size	1 Nanometer up to 20 mm
Moisture	Dependant on the product
Pressure	Up to 6 bar (Option up to 30 bar)
Process temperature	-20 up to +90°C (Option up to +750°C)

Technical Data

Sensor

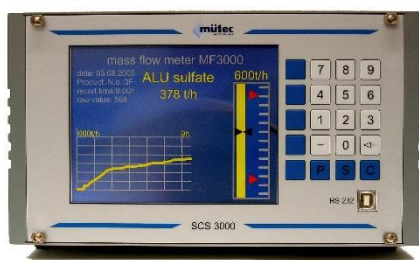
Medium touched parts	Stainl. steel 1.4307 and PA 6.6
Process connecting	Welding flange
Housing material	Stainl. steel 1.4307 or ST52
Protection class	IP 65
Power supply	Via transmitter

Technical Data

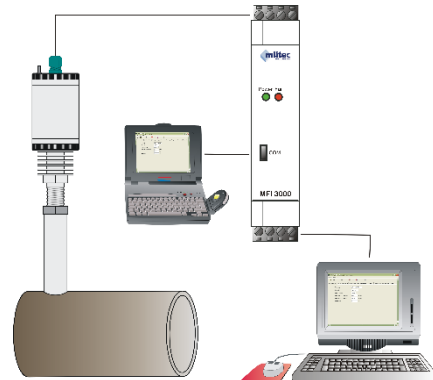
Transmitter

Construction	DIN-Rail, 22,5 mm
Power Supply	24 V AC/DC
Power consumption	Max. 2W (+0,3 – 8,5W for thermocouple)
Ambient temperature	-10 to +60°C
Protection class	IP 30

Communication Unit (Optional)

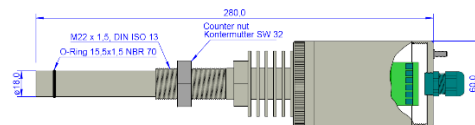


System components



A complete measuring system MF3000 contains the sensor, a cable, a DIN-rail transmitter and the software MF-SMART .

Sensor



Transmitter

