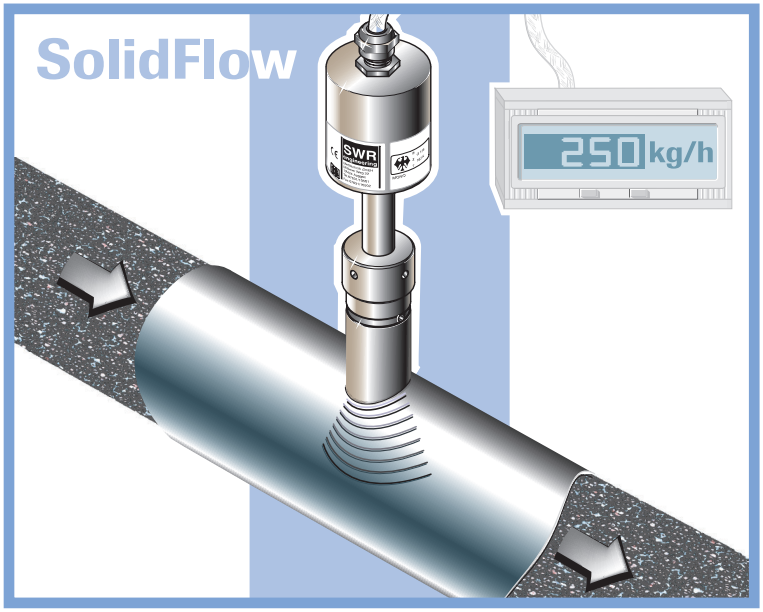
Product Information

GLOBAL TECHNOLOGY SYSTEMS

Introduces a new line of products by SWR engineering

SolidFlow

Solids Flow Measurement for Dilute Phase – Conveying and Free Fall Conditions



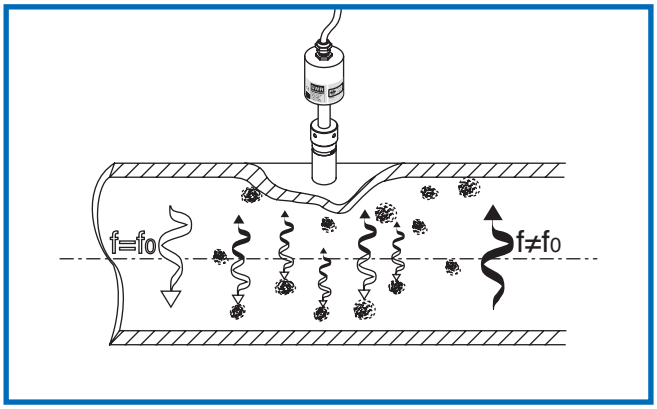
Description

SolidFlow is a mass flow measurement system developed for dilute phase solids that are pneumatically conveyed or in free-fall condition in metallic pipes. The system has been proven for the online measurement of:

- Dusts, powders, and granulates
- Grain Size between 1nm and 1cm
- Pneumatically conveyed materials
- Free falling materials after mechanical conveyance such as a screw feeder

Function

Using the latest microwave technology, a measuring field is created in the metallic pipe. The microwave energy is reflected by the particles and received by the sensor. This energy is evaluated by frequency and amplitude. The selective frequency used allows the sensor to only evaluate moving particles. Because of this, build up and deposits are ignored. This ultimately allows the SolidFlow to act as an extreme high speed particle counter.



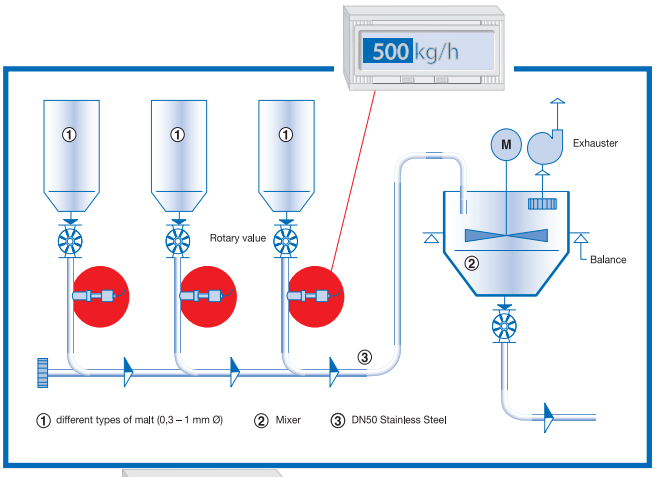
Applications – Practical Examples

- **Proportioning System**

Different materials are added via pneumatic conveyance to make a finished product. The materials used are added at varying rates. Reproducing the rates at which they are added is difficult, specifically in small quantities.

Benefit:

The use of the SolidFlow system allows the dosing of the materials with a level of repeatability that was previously unobtainable.

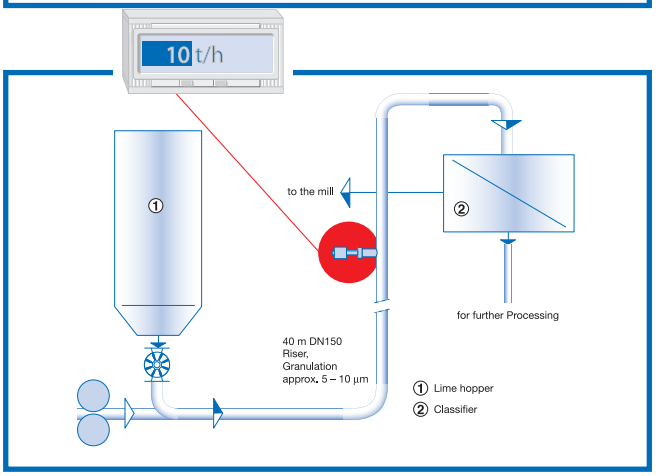


- **Totalizing**

Raw material from storage silos is brought into the process

Benefit:

The SolidFlow system allows the mass flow rate to be measured and documented. This flow rate will also give the ability to balance and control the flow with respect to the process.

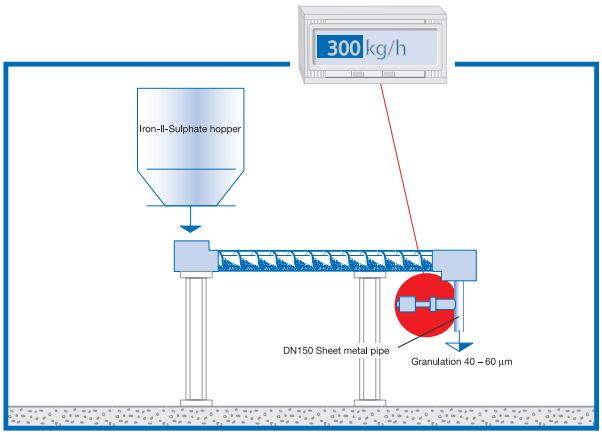


- **Free Fall Applications**

Material falling off of a screw conveyor, etc., needs to be measured to regulate the proportioning. For example: the addition of Iron II sulfphate to raw cement at roughly 0.2 to 0.3%.

Benefit:

By using the SolidFlow system, the measurement can easily be achieved and regulation of the flow rate can be made by adjusting the speed of the screw feeder.

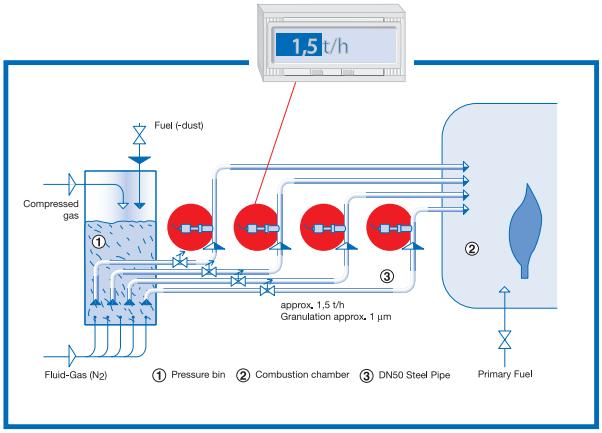


- **Secondary Fuel Output**

In boilers, different types of dusts are pneumatically conveyed into the combustion chamber as a secondary fuel. Unbalanced flow rates create inefficiency.

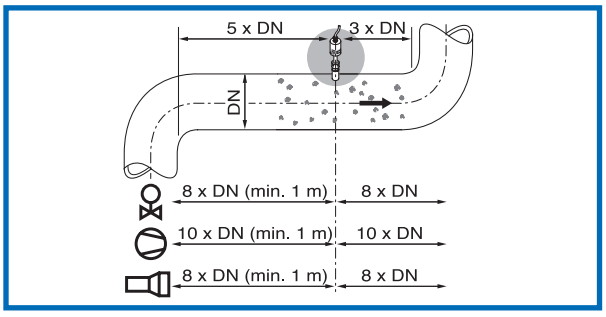
Benefit:

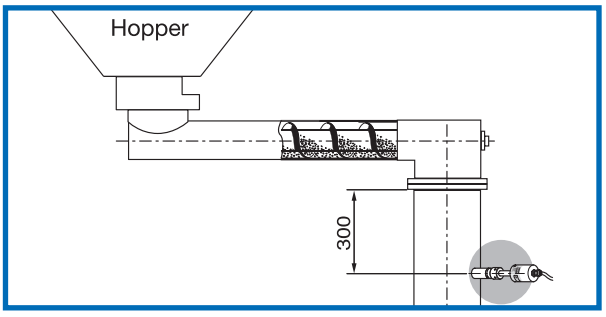
Each pipe is monitored by the SolidFlow system. The resultant measurement information allows the operator to balance the flow rate. The uniform distribution of the fuel will create optimal efficiency.

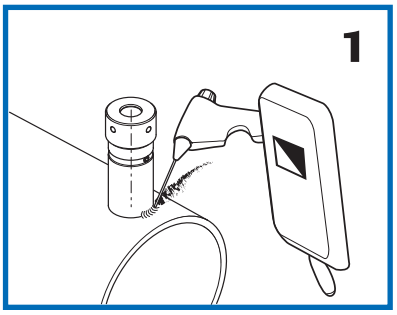


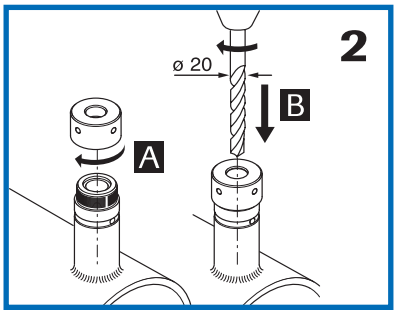
Mounting & Installation

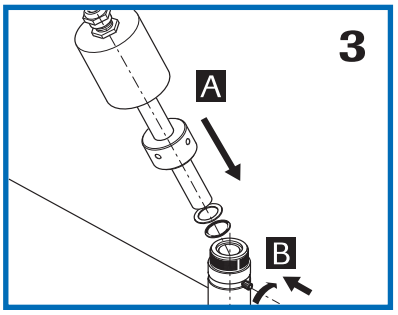
Placement of the sensor must be made with respect to the inlet and outlet section. A socket will be welded to the duct or pipe. A 20 mm hole will then be drilled into the pipe through the socket. Once this is done, the sensor fits into the socket and is flush with the inside diameter. For pipes greater than 8 inches in diameter, a 2 or 3 probe system must be used.









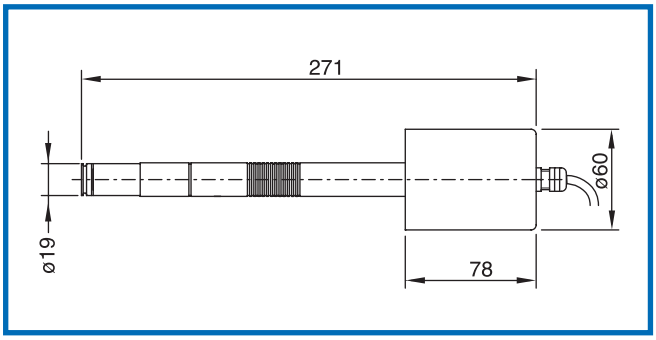


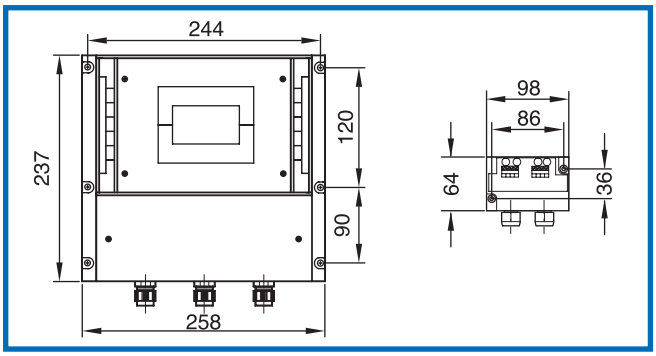
Technical Data

Sensor/Sensor accomodation	
Housing	*Stainless steel 1.4541/ASTM321* (Optional *Galvanized Steel* St 52)
Protection category	NEMA 4x (IP65)
Operating temperature • *front end of sensor* • optional • *sensor electronic*	 -20 … +80 °C *[-4 … +176 °F]* -20 … +200 °C [-4 … +392 °F] +0 … +60 °C [+32 … +140 °F]
Max. working pressure	14.5 psi, optional 145 psi version
Working frequency	K-Band 24,125 GHz, ±100 MHz
Transmitting power	max. 5 mW
Weight	Approx. 2.9 lbs (1.3 kg)
Dimension	Ø 60, Ø 20, L 271 mm (10.66")
Accuracy	± 2 … 5% in calibrated range

Evaluation-Unit	
Supply voltage	110/230 V, 50 Hz, 24 V DC
Power consumption	20W/24 VA
Current consumption	Max. 1 A @ 24 V
Protection category	NEMA 4x (IP65)
Operating temperature	-10 … +45 °C [+14 … +113 °F]
Enclosure dimensions	10.1 x 9.3 x 6.8 inches (W x H x D)
Weight	approx. 5.5 lbs
Interface	RS 485
Cable glands	3 x M16 (4.5-10 mm Ø)
Screw terminals	0,2-2,5 mm² [AWG 24-14]
Current output signal Voltage output signal	4 … 20 mA (0 … 20 mA), Load < 700 Ω 2 … 10 V (0 … 10 V), Load > 2 kΩ
Measurement value alarm relay output 3x	Relay with switching contact Max. 250 V AC, 1A
Totalizer	Reset function
Data storage	Flash
Pulse output	Open Collector

C-Box (Junction Box)	
Size	3.8 x 2.5 x 1.4 inches (W x H x D)

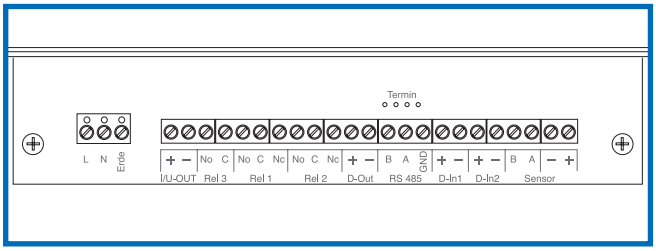




certificated according to **ATEX**

Electrical Data

230 v AC	230 v AC	Ground	Output +	Output -	Rel 3 N.O.	Rel 3 Com	Rel 1 N.O.	Rel 1 Com	Rel 1 N.C	Rel 2 N.O	Rel 2 Com	Rel 2 N.C	Digital out +	Digital out -	Not in use	Not in use	Not in use	Not in use	Not in use	Not in use	Wire 4	Wire 3	Wire 2	Wire 1
Current			**Out-put**		*Types of Alarms*								**Pulse Output**		*Not in use*						**Sensor**			



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