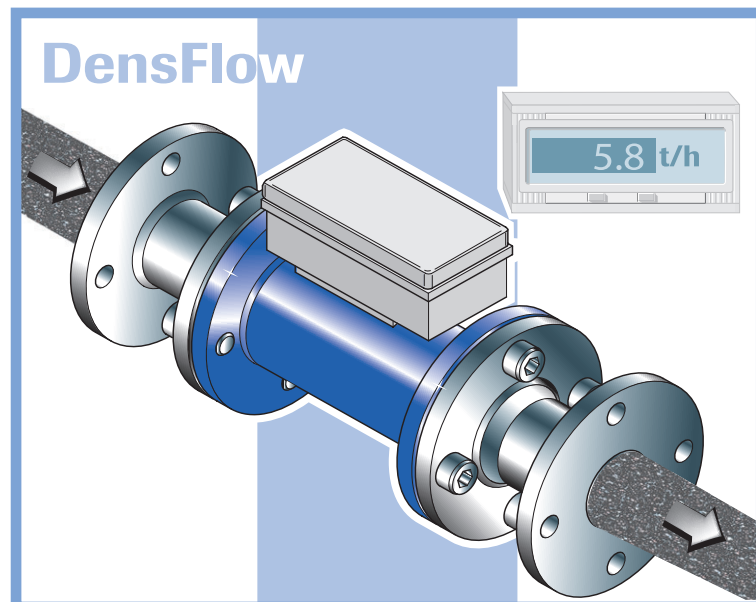


Introduces a new line of products by



# DensFlow

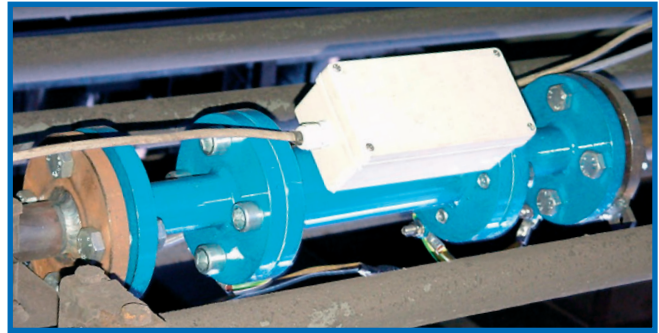
Solids Flow-Measurement  
for Densephase-Conveying



## Description

DensFlow is a system designed for the flow rate measurement of conveyed solids in dense phase. The system has been proven for the online measurement of:

- Powders and Granulates
- Pneumatically conveyed materials in dense phase
- After mechanical conveying systems, e.g. chutes, slides, and pipes
- Large flow rates

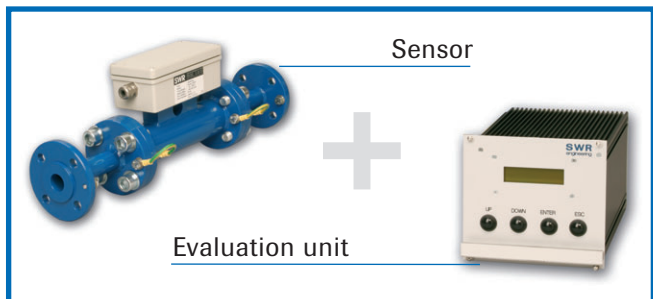


## System

A complete measurement system consists of:

- Measurement spool piece
- Evaluation unit

Interconnection between sensor and electronics is made by a 5 conductor, shielded cable with a maximum separation of 1,000 feet.

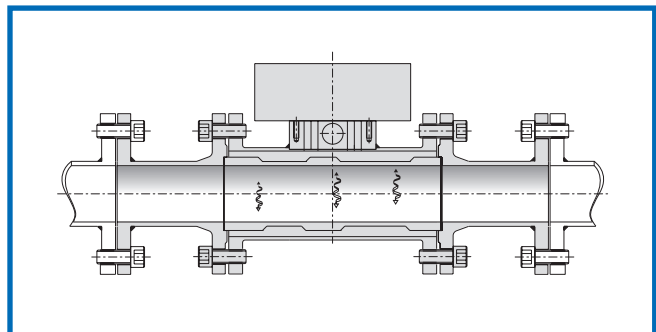


## Function

By a special linking of a high frequency electromagnetic field, the DensFlow can measure the attenuation of the signal. The resultant measurement is the concentration of material in the measurement pipe.

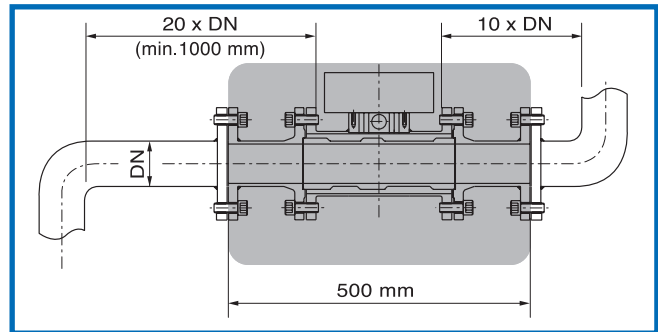
Additionally, two more sensing rings set at a fixed distance apart, will measure the velocity of the conveyed material.

When these two measurement values, concentration (K) and velocity (V), coupled with the known cross-sectional area (A), are integrated, a flow rate is determined according to the formula:  $Q=K \times V \times A$



## Mounting and Installation

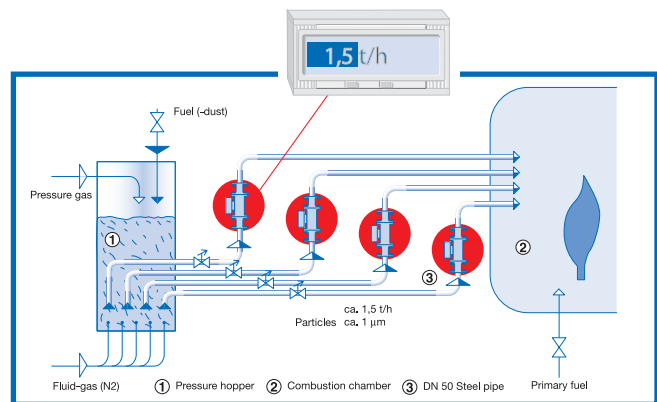
Placement of the sensor must be made with respect to the inlet and outlet section. At the determined mounting position, the DensFlow will be coupled to the process by way of flange connections.



## Applications – Practical Examples

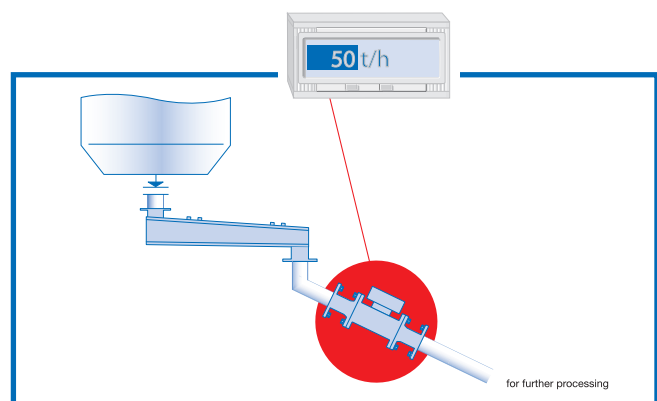
### • Fuel conveying

Combustion fuels are conveyed in dense phase to the furnace. The most efficient combustion occurs when these fuels enter the process at a balanced rate in all pipes. The DensFlow will provide the flow rate so that adjustments can be made to achieve this.



### • Mechanical conveying

Large flow rates normally occur as a result of the use of mechanical conveyance, such as air chutes or screw feeders. DensFlow can measure the flow rate directly after the outlet of these conveyance systems.

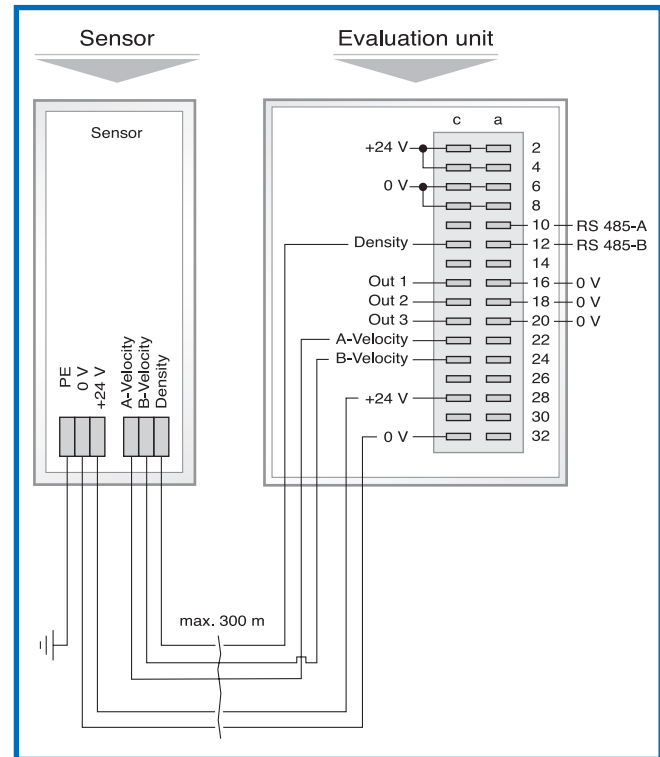


## Technical Data

Sensor pipe	
Housing	Galvanized Steel St 52, powder coated (optional Stainless Steel EN1.4541/ASTM321)
Inner pipe	POM, PTFE
Protection category	NEMA 4x (IP65)
Ambient temperature	Sensor electronic: -4 ... +140 °F Sensor pipe: -4 ... +176 °F (higher temperature on request)
Max. working pressure	232 psi, optional 362 psi version (higher pressure on request)
Working frequency	100 kHz
Weight	Depending on meter size
Diameter Sizes	0.75, 1, 1.25, 2.5, 3, 4, 5, 8, 10 inches (DN20, 32, 65, 80, 100, 125, 200, 250 mm)
Accuracy	± 2...5 % in calibrated range

Evaluation unit (Electronics)	
Supply voltage	24 V DC
Power consumption	12 W
Operating temperature	14 ... +113 °F
Dimension	19"-rack system, 3HE, 28TE, L 227 mm
Weight	Approx. 1.5 lbs
Additional Data	
Input	2 x Velocity 0 ... 20 mA 1 x Density 0 ... 20 mA
Connection	Connector (DIN 41612) Type B 32 pol.
Current output	Flow rate: 4 ... 20 mA Velocity: 4 ... 20 mA Density: 4 ... 20 mA Load < 500 Ω
Serial output	RS 485, Modbus Protocoll
Control unit	LCD-Display, lighted, 16 x 2 Digits, 4 x Push button
Data protection	EEPROM

## Electrical Connection



Evaluation unit (Electronics)			
Terminal No.	Connection		
Connection of the supply voltage			
2a/c + 4a/c	Input supply voltage +24V DC		
6a/c + 8a/c	Input supply voltage GND		
Connections			
RS 485	10 a	RS 485 Mod Bus Data A	
	12 a	RS 485 Mod Bus Data B	
I-OUT 1	16 c	Output 4...20 mA +	
Flow rate	16 a	Output 4...20 mA - (GND)	
I-OUT 2	18 c	Output 4...20 mA +	
Density	18 a	Output 4...20 mA - (GND)	
I-OUT 3	20 c	Output 4...20 mA +	
Velocity	20 a	Output 4...20 mA - (GND)	
Sensor			
	12 c	Density	4...20 mA
	22 c	Velocity A	4...20 mA
	24 c	Velocity B	4...20 mA
	28 a/c	Output supply voltage +24 V	+24 V DC
	32 a/c	Output supply voltage 0 V	GND

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