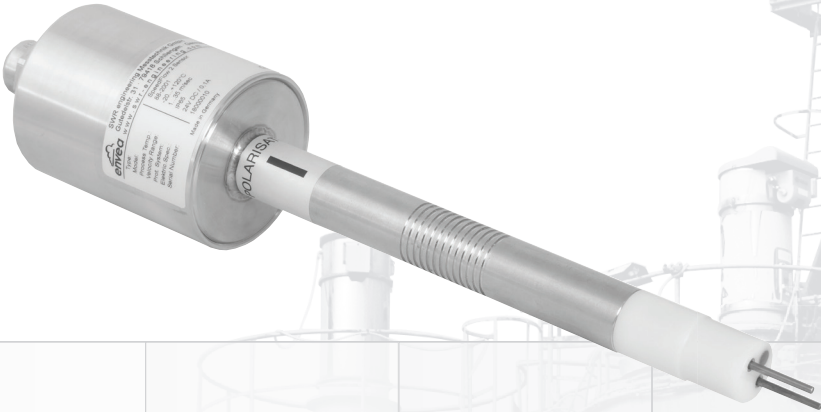


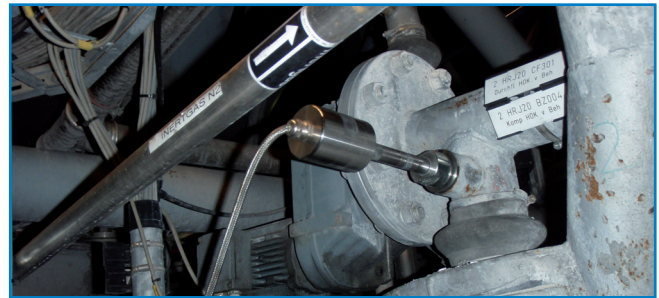
# SpeedFlow 2.0

Measurement of velocity  
for solids



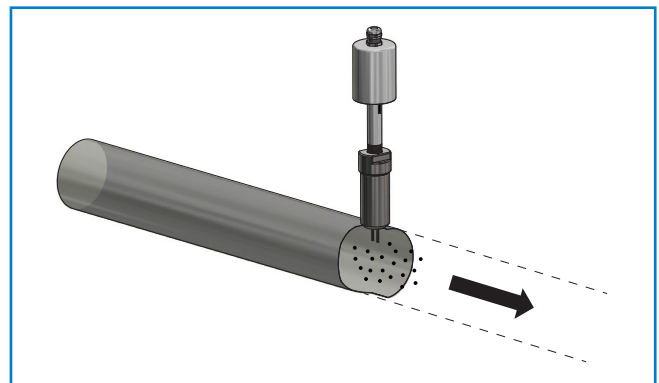
## Use

SpeedFlow 2.0 has been specially developed for the continuous speed measurement of solids such as granules, powder and dust in metal pipelines. As the measurement is taken directly in the stream of material, the material can be measured during free fall or while being transported on pneumatic conveyors. The measurement is completely independent of the material itself. Its range of application starts at material speeds of 0.75 m/s.



## Function

The measurement of SpeedFlow 2.0 is based on electro-dynamics. Thus, the passing and impingement of the solid particles lead to a charge transfer (induction voltage). These electrical signals are supplied to the correlator, which precisely calculates the transit time between the two electrodes. Due to the defined distance between the two electrodes the speed can be determined. Commissioning takes place in the installed state and by using of the supplied software. The speed is displayed as a 4 ... 20 mA signal.



## System

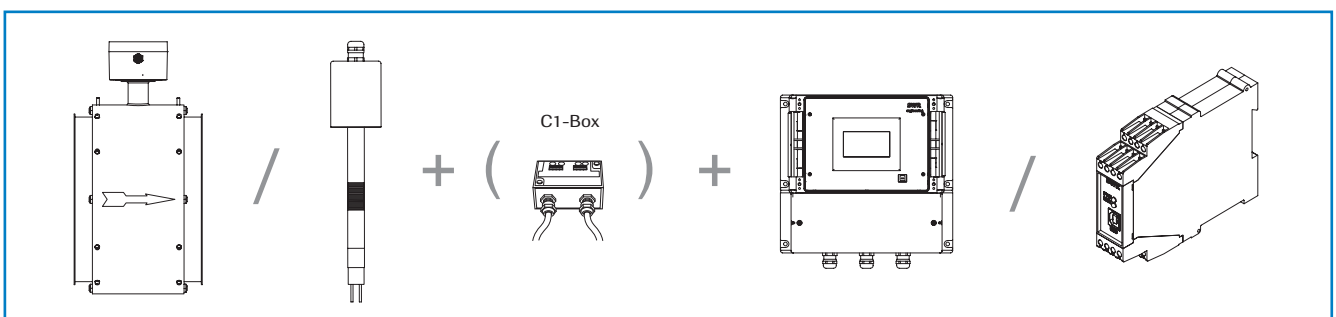
A complete measuring point consists of the following components:

Pipe version:

- Sensor in Jacob-pipe version:  
DN 80 / 100 / 150 / 200 / 250 / 350
- Transmitter DIN rail or field housing
- Software
- Optional: C1-box

Rod version:

- Weld-on socket, including sealing plug
- Sensor with 2 m cable
- Transmitter DIN rail or field housing
- Software
- Optional: C1-box

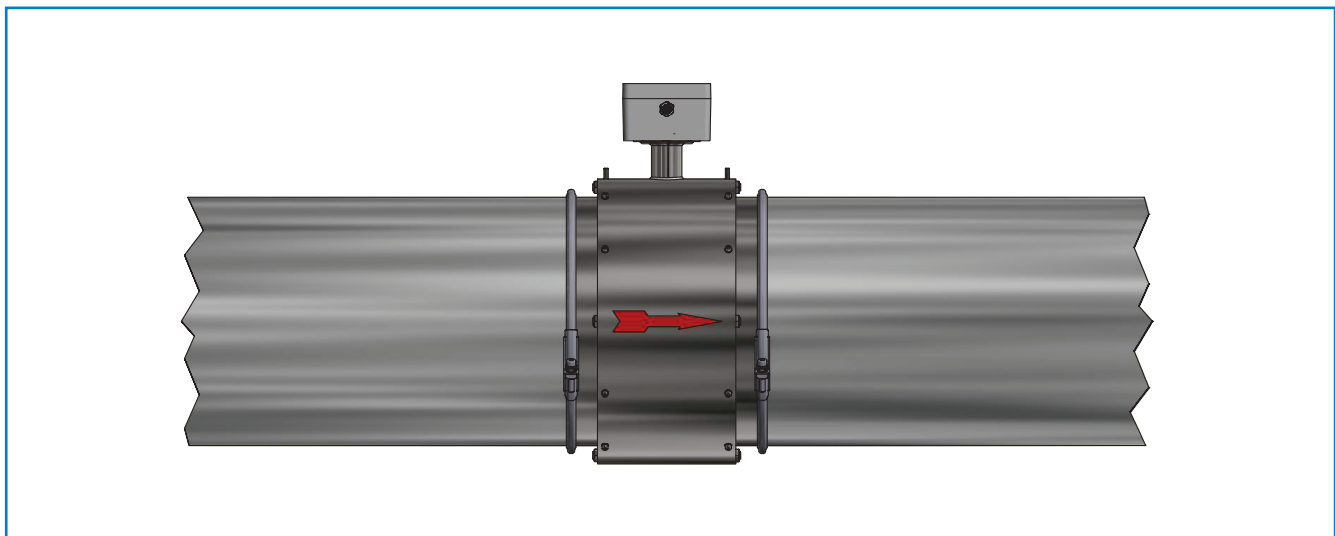
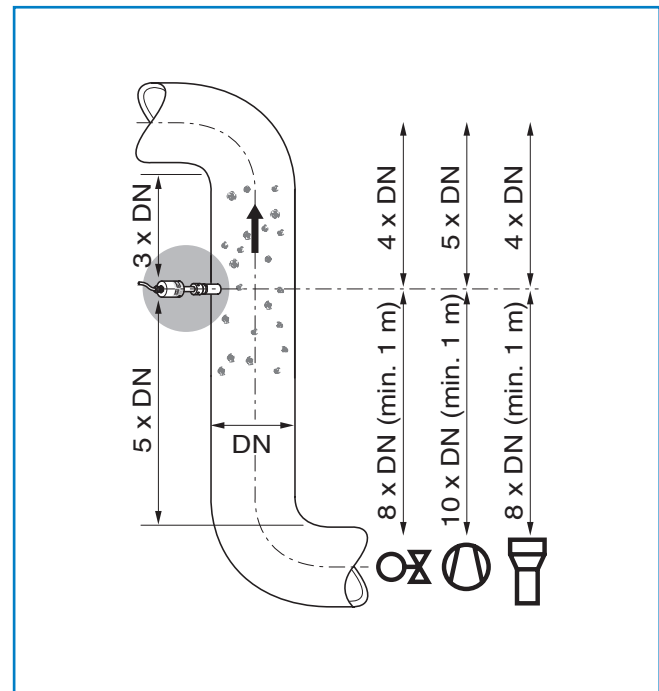


## Mounting and installation

For mounting the sensor, the installation location is determined according to the required inlet and outlet sections. The SpeedFlow 2.0 sensor in the tube version comes with a JACOBS tube connection and can be easily inserted into an existing pipe system. Alternative adapters can be purchased via ENVEA - SWR engineering.

For the SpeedFlow 2.0 in the rod version, the weld-on socket is mounted at the specified installation location and a 20 mm borehole is drilled through the socket and through the pipe wall. Then the sensor is adapted to the wall thickness, inserted and fixed with the help of the union nut.

The distance between sensor and transmitter must not exceed 300 m. The connecting cable between the sensor and the evaluation unit should be four-wire, twisted in pairs and shielded.



## Start-up procedure

Commissioning of the measurement takes place via an transmitter in the field housing or DIN Rail housing. Both evaluation units can be parameterized via software. The PC software offers a input of parameters such as measuring range, required physical units or measuring signal attenuation. At the evaluation unit in the field housing, the parameterization could be carried out additionally without software on the touch display.

For signal output, a change-over relay contact, ModBus and a current output 4 ... 20 mA are available. The menu language (German, English or French) can be freely selected on the display as well as in the software.

## Technical data

Sensor in pipe version	
Innerdiameter	DN: 80, 100, 150, 200, 250, 350 (other sizes on request)
Material inner pipe	PMMA
Mechanical connection	JACOBS flange
Protection category	IP 54
Max. pressure	100 mbar
Velocity range	1... 35 m/s
Temperature inside the pipe	0... +50 °C
Temperatur outside the pipe	0... +45 °C
Power supply	24 V DC
Weight	Depend on diameter
Measuring accuracy	± 1 % (in the calibrated measuring range)

Sensor in rod version	
Weld-on socket	St52 or steel 1.4571
Rod	Wolframcarbid
Housing	Steel 1.4571
Protection category	IP 65 to EN 60529/10.91
Rod length	15 mm
Velocity range	0.75... 35 m/s
Temperature inside the pipe	-20... +80 °C (higher temperature on request)
Temperatur outside the pipe	0... +60 °C
Power supply	24 V DC
Weight	Approx. 1.5 kg
Dimensions	Ø 60, Ø 20, L 320 mm (incl. rod length)
Measuring accuracy	± 1 % (in the calibrated measuring range)

Transmitter (DIN Rail)	
Power supply	24 V DC ±10 %
Power consumption	20 W / 24 VA
Protection type	IP 40 to EN 60 529
Ambient operating temperature	-10 ... +45 °C
Dimensions	23 x 90 x 118 mm (W x H x D)
Weight	Approx. 172 g
DIN rail fastening	DIN 60715 TH35
Connection terminals cable cross-section	0.2-2.5 mm <sup>2</sup> [AWG 24-14]
Current output	1 x 4 ... 20 mA (0 ... 20 mA), load < 500 Ω
Interface	RS 485 (ModBus RTU) / USB
Pulse output	Open collector - max. 30 V, 20 mA
Relay contact	Max. rated load: 250 V AC Max. peak current: 6 A Max. rated load 230 V AC: 250 VA Max. breaking capacity DC1: 3/110/220 V: 3/0.35/0.2 A Min. switching load: 500 mW (10 V / 5 mA)
Data backup	Flash memory

Transmitter (field housing)	
Power supply	110 / 230 V AC 50 Hz (optional 24 V DC)
Power consumption	20 W / 24 VA
Protection type	IP 65 to EN 60 529/10.91
Ambient operating temperature	-10 ... +45 °C
Dimensions	258 x 237 x 174 mm (W x H x D)
Weight	Approx. 2.5 kg
Cable screw connectors	3 x M20 (4,5 - 13 mm Ø)
Connection terminals cable cross-section	0.2-2.5 mm <sup>2</sup> [AWG 24-14]
Current output	3 x 4 ... 20 mA (0 ... 20 mA), load < 500 Ω
Interface	RS 485 (ModBus RTU) / USB
Pulse output	Open collector - max. 30 V, 20 mA
Relay contact	Max. rated load: 250 V AC Max. peak current: 6 A Max. rated load 230 V AC: 250 VA Max. breaking capacity DC1: 3/110/220 V: 3/0.35/0.2 A Min. switching load: 500 mW (10 V / 5 mA)
Data backup	Flash memory

