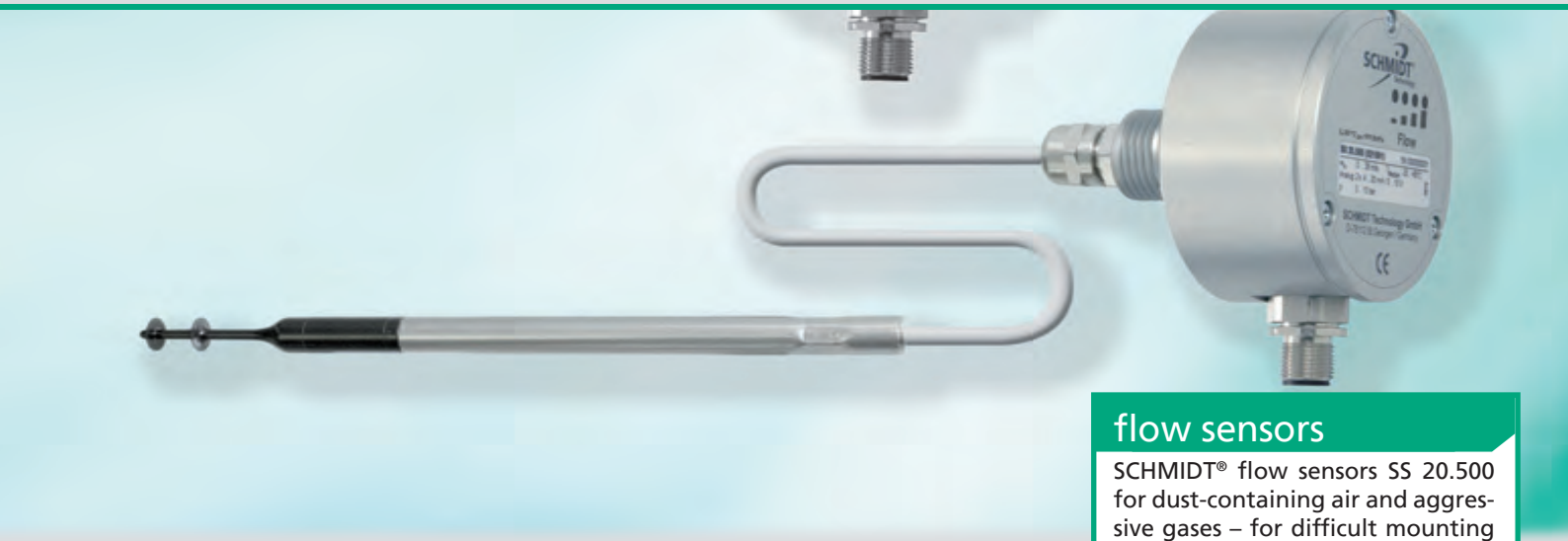


flow sensors

SCHMIDT® flow sensors SS 20.500 for dust-containing air and aggressive gases – for difficult mounting situations in a version with remote sensor

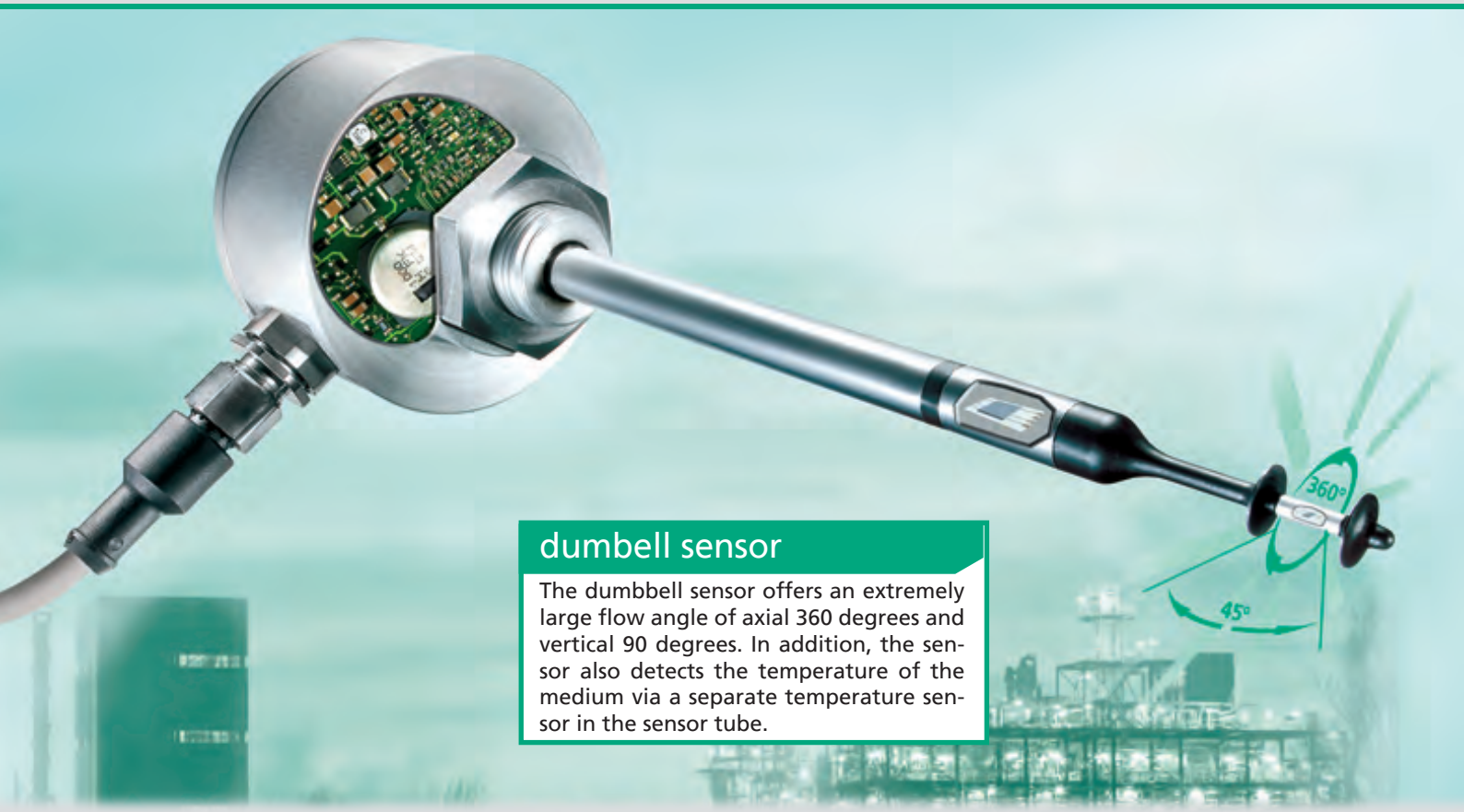
SCHMIDT® flow sensors with ATEX certificate

For use in flammable media

The SCHMIDT® thermal flow sensors SS 20.500 are distinguished by their dirt-resistant design. They measure flow velocities even in dust-containing media or aggressive gases with high precision and without any effect on the measured value. For applications in potentially explosive areas, upon request the sensors are available in Ex design conforming to ATEX Directive 94/9/EC (ATEX 95).

What makes the SCHMIDT® flow sensor SS 20.500 predestined for use in dust-containing air and aggressive gases is its patented dumbbell. The aerodynamically optimized dirt-resistant and seamless design reduces cumbersome deposits of dust and dirt on the sensor in contact with the medium. Moreover, the sensor design allows easy cleaning or disinfection. In practice, this means: Measurement without effect on the measured values, on request also available with high precision and a proven measuring accuracy of ±1%.

Another advantage of the SS 20.500 dumbbell sensors is their extremely large flow angle of axial 360 degrees and vertical 90 degrees. This simplifies their positioning in the gas flow. This is also helped by the two characteristic dumbbell disks on the sensor head, which act as flow rectifiers. This allows even relatively non-uniform flows to be measured. No complicated alignment in the flow to be measured is required. The wide measuring range from 0.06 to 35 m/s of standard velocity offers a wide application range in many energy-efficient and demanding processes, e.g. extractions, volumetric flow controls, drying processes, biogas plants, gas volume detectors, and many more. The sensor also detects the temperature of the medium in addition to the flow velocity. Its compact size for detecting both measuring quantities results in easy mounting and low purchase costs.



dumbell sensor

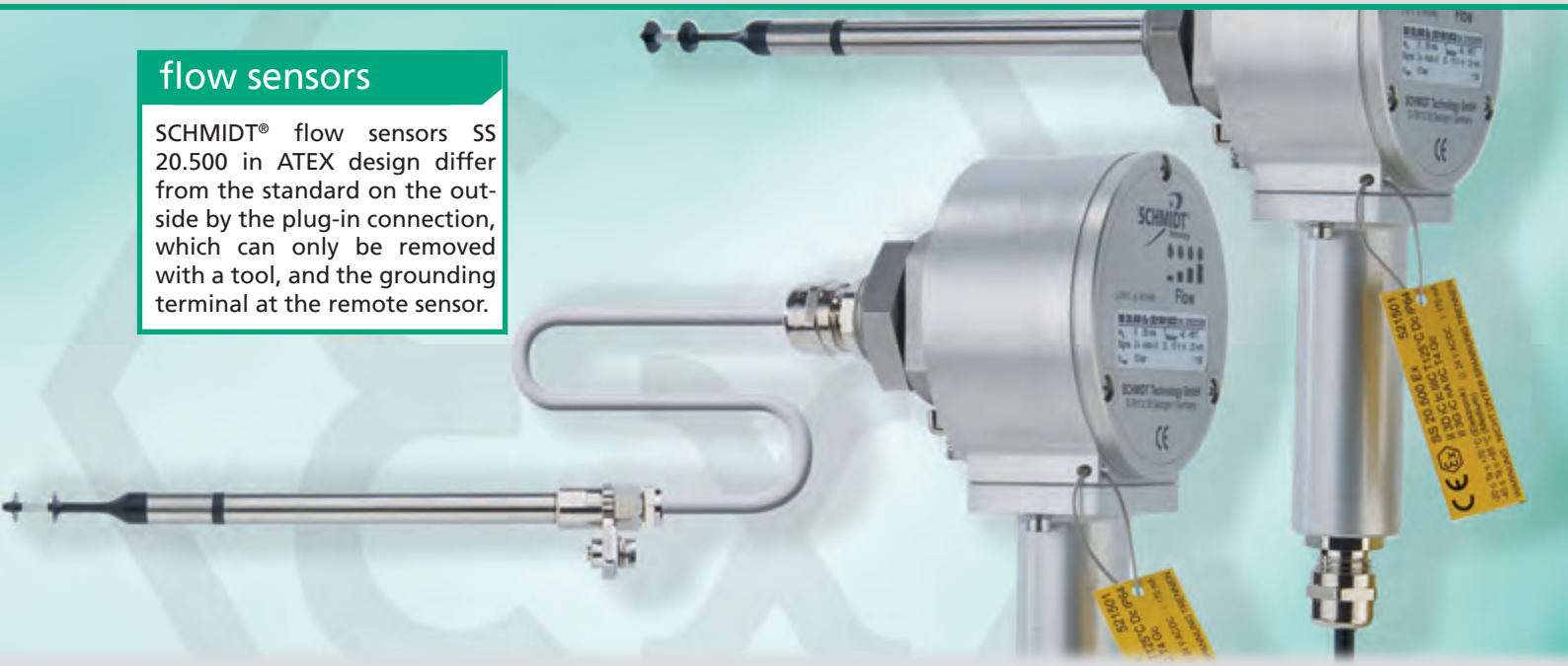
The dumbbell sensor offers an extremely large flow angle of axial 360 degrees and vertical 90 degrees. In addition, the sensor also detects the temperature of the medium via a separate temperature sensor in the sensor tube.

Measurement in potentially explosive media

These characteristics allow the SCHMIDT® flow sensor SS 20.500 to meet already important requirements for use in dust and gas atmospheres. However, these atmospheres are often also potentially explosive, which gives rise to additional requirements that the systems, units and components must meet in such environments. For these applications, SCHMIDT Technology offers the SS 20.500 in ‚Ex' design. They comply with the ATEX Directive 94/9/EC (ATEX 95 and 100a), which has been in effect since July 1st, 2003. This EU directive has created a basis for binding and uniform design, installation and maintenance requirements relating to explosion protection. It regulates the marketing of products used in potentially explosive atmospheres in the aim to protect persons and the environment.

For Zone 2 and Zone 22

In their appropriate design, the SCHMIDT® flow sensors 20.500 meet the ATEX requirements according to category 3 for Zone 2 (gases and vapors) and Zone 22 (dusts). To this end, special protective functions have been integrated, such as the protective sleeve for the plug-in connector of the connecting cable and the grounding terminal on the housing. For difficult mounting situations, the version with remote sensor, i.e., separated from the electronic housing, is recommended. Both components can be used on their own in Zone 2 or Zone 22 and are connected directly to the power supply without a Zener barrier. In the remote version, additional grounding is done on the sensor tube. If an SS 20.500 Ex is used in free flow, the so-called intrinsic safety with limited power supply to the sensor ensures that no ignition spark can be formed when the sensor becomes damaged or breaks. The suitability of the SS 20.500 Ex according to the above-mentioned directive was determined and certified by the external test institute DEKRA EXAM GmbH.



flow sensors

SCHMIDT® flow sensors SS 20.500 in ATEX design differ from the standard on the outside by the plug-in connection, which can only be removed with a tool, and the grounding terminal at the remote sensor.

Resistant to aggressive media

The SCHMIDT® sensors SS 20.500 , i.e., their sensor tubes, are in general made of high-quality stainless steel. The actual sensor head also consists of stainless steel and glass-fiber-reinforced PBT (polybutylene terephthalate). Upon request, all SS 20.500 designs can also be used with an additional protective coating made of a chemically resistant polyurethane derivative. This makes the flow sensors from SCHMIDT Technology even more resistant to aggressive media such as hydrochloric acid, acetone or sulfuric acid.

Over the course of the ATEX certification, the electronic housing has undergone modifications. The convenient LED display for function monitoring and for quick on-site error analysis is visible from the outside and has still the same appearance. The analog outputs can be flexibly connected thanks to the automatic V or mA switchover as a function of the connected load.

Flow measurement made easy

In the standard and ATEX versions equipped with dumbbell sensors in selectable lengths of up to 1 m, the SCHMIDT® SS flow sensors 20.500 can be optimally adapted to the environmental conditions. And that's how the sensor works: The flow sensor in its stainless steel sleeve between the two ‚dumbbell disks' is heated to 40 K above the temperature of the medium. This temperature is measured with a separate temperature sensor. The power required for maintaining the excess temperature is a measure of the flow velocity, which is output as ‚standard velocity'. Thus, no additional measurement of pressure or of the temperature of the medium is required.

Mehr zum Thema

http://www.schmidttechnology.de