

## Combined probe sensor

Single rod measurement probe for simultaneous measurement of

- Dust concentration [mg/Nm<sup>3</sup>]
- Volume flow [Nm<sup>3</sup>/h]
- Temperature [°C]
- Absolute pressure [hPa]

### Features

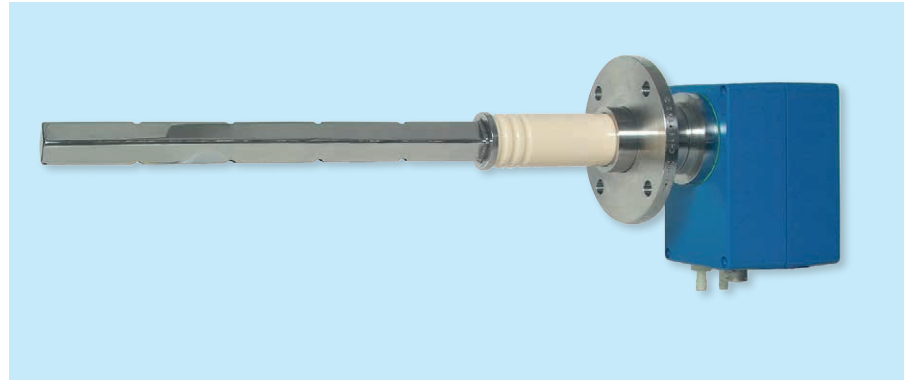
- Only one probe/ installation opening in the exhaust gas channel
- Compact design
- No moving parts
- Automatic zero and reference point check

### Applications

- For measurements in accordance with TI Air (Technical Instructions for Maintaining Air Purity), 13., 17. and 27. BImSchV
- ✘ Not suitable for use behind electrostatic precipitators. Please consult us

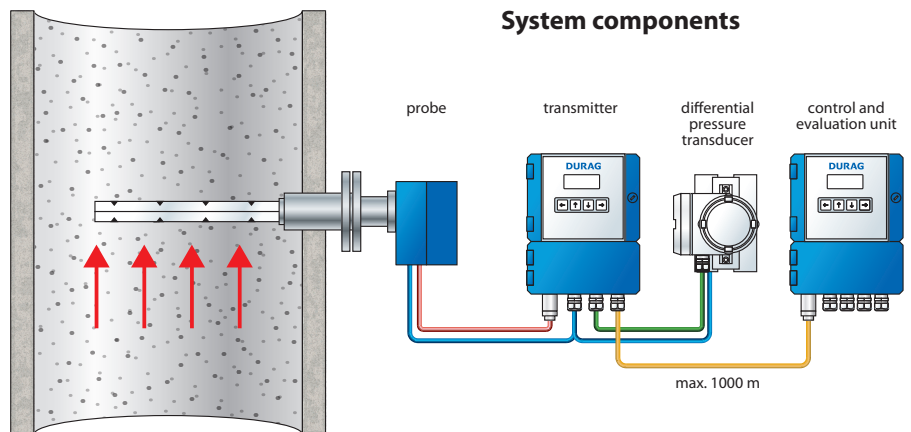
### Approvals

- Suitability-tested by the TÜV Cologne, test report 936/800006/A
- MCERTS



### Measuring principle

- The **dust concentration** is determined according to the triboelectric measuring principle. The tribo probe measures the electric charge of the impinging particles.
- The measurement of the **volume flow** is based on the mechanical action principle. The probe has two separate chambers, between which a differential pressure builds up under flow.
- The **absolute pressure** in the flue gas is measured by a pressure transmitter in one chamber of the probe.
- The **temperature** is measured directly in the centre of the flue gas flow in a separate chamber within the probe with a temperature sensor.



### System components

### Options

- Weather protection cover
- Switch-over cock for back purging/ zero point control
- Automatic cyclic probe back purging for high dust concentrations
- Hastelloy probes for corrosive gases
- Purge air connection at flange

measurements	dust concentration, volume flow, absolute pressure, temperature	digital inputs	6 potential free inputs
measuring ranges	0 ... 10 ... 0 ... 500 mg/Nm <sup>3</sup> 0 ... 9,999,999 Nm <sup>3</sup> /h <sup>1)</sup> 0 ... 200 °C, optional 0 ... 350 °C 800 ... 1,300 hPa	detection limit	<2% of measuring range
measuring principle	dust: tribo electric volume flow: differential pressure	power supply	115/ 230 VAC, 50/ 60 Hz, 50 VA
flue gas temperature	above dew point up to 200 °C, optional up to 350 °C, flue gas humidity <80%	dimensions (h x w x d) probe length	probes: 180 x 180 x (340 + probe length) mm 250, 400, 700, 1000 mm
flue gas pressure	-200 ... 200 hPa	weight	probe 9.5 kg electronics 22 kg
duct diameter	0.3 ... 5 m	probe back purging (option)	purge air supply 3 bar
ambient temperature	-20 ... +50 °C	insulator purging (option)	continuous purge air supply approx. 2 m <sup>3</sup> /h
protection	IP65	remarks	<sup>1)</sup> flue gas velocity >5 m/s concentration after gravimetric calibration
measuring outputs	4x 0/ 4 ... 20 mA/ 500 Ohm, Modbus RTU (RS485)	digital outputs	7 relay outputs, permissible load 48 V/ 0.5 A