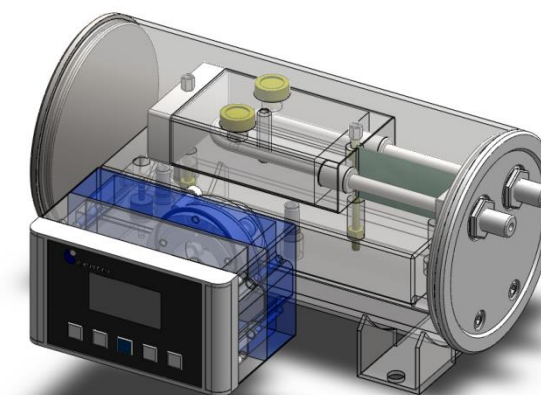


HF Measurement in Semiconductor Manufacturing

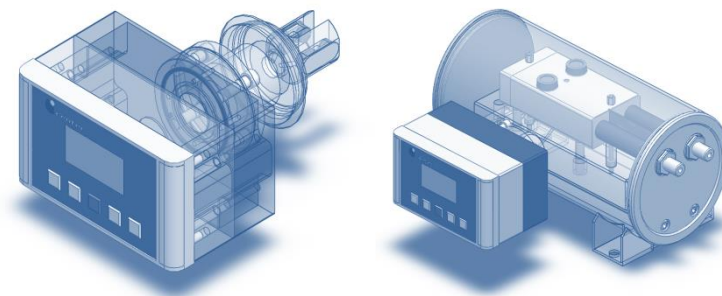
Application Report



Automated
process skids
and high precision
sensors from a
single source.
Centec.

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Centec is a privately owned group of companies. With a focus on the processing industries, we are rapidly growing in the major world markets. We have a global sales and service structure, with our own subsidiaries and a network of qualified distributors. Our international operations include mechanical, electrical and process automation engineering, with skid manufacture and pipework fabrication; as well as our own switch cabinet production. This infrastructure allows efficient logistics, short lead times and strict adherence to delivery deadlines. The quality of our products is excellent, so is the price-performance ratio.



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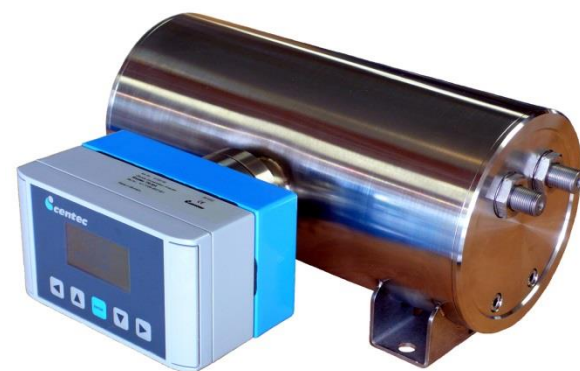
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RHOTEC

Application and Measurement Principle

Semiconductor manufacturing is the process used to create integrated circuits present in everyday electrical and electronic devices. It is a multiple-step sequence of photolithographic and chemical processing steps during which the circuits are gradually created on a silicon wafer. Hydrofluoric acid (HF) is used for cleaning and wet chemical etching of the wafers. The concentration of HF is absolutely crucial for the outcome of the manufacturing process and determined with highest precision based on density measurement.

For density measurement, the liquid consisting of 2 components flows through a U-shaped tube. While the tube is electronically excited to oscillate at resonance, the oscillation frequency is observed. Any change in the fluid density has an impact on the detected signal and can thus be identified. Based on the correlation between concentration and density, the concentration is calculated and displayed.



RHOTEC
Transmitter Version

- Available as Transmitter Version with Local Display and as Sensor
- Highly Precise and Fast Determination of the Concentration
- Based on Density Measurement
- Applicable for a Huge Number of Liquids in Various Industries
- Short Response Time and Excellent Long-Term Stability
- Hygienic Execution, Full CIP Capability, Maintenance Free
- Outstanding Price-Performance-Ratio

Technical Data	RHOTEC
Measuring Range	0 - 3 g/cm ³
Accuracy	± 0,0001 g/cm ³
Repeatability	± 0,00001 g/cm ³
Response Time	≤ 1 s
Pressure of Operation	max. 50 bar
Temperature of Operation	- 25 - + 125 °C
Temperature Compensation	Pt1000
Material	1.4571/AISI 316Ti; Hastelloy C276; Monel 400; Incoloy 825; Tantalum; others on request
Connections	thread 3/8"; compatible to Varivent© Inline-Housings DN40 - DN150; others on request
Input Transmitter Version	6 x digital (24 VDC)
Output Transmitter Version	3 x digital (24 VDC) & 2 x analog (4 - 20 mA)
Profibus DP Transmitter Version	option
Sensor (w/o local display)	standard
Enclosure Rating	IP65
Explosion Protection Ex II 2G EEx d IIC T6	option
Power Supply	24 VDC