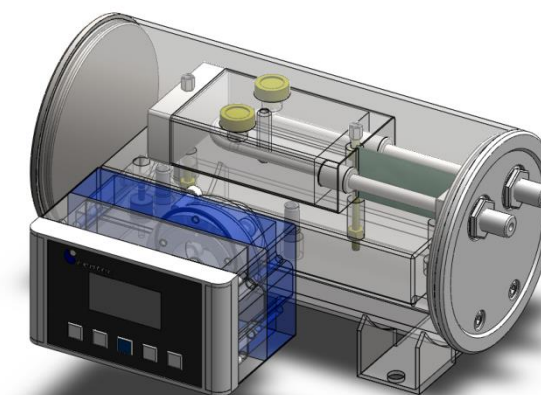


Concentration Measurement of Acids

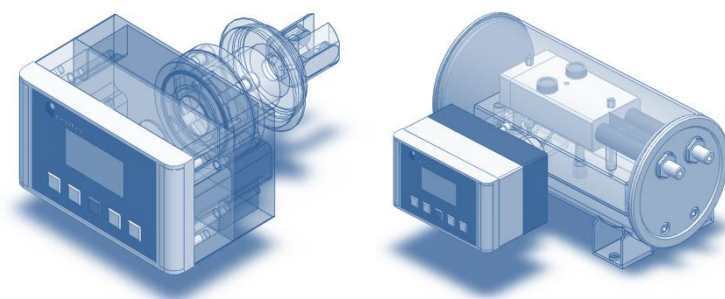
Application Report



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

The Centec Group

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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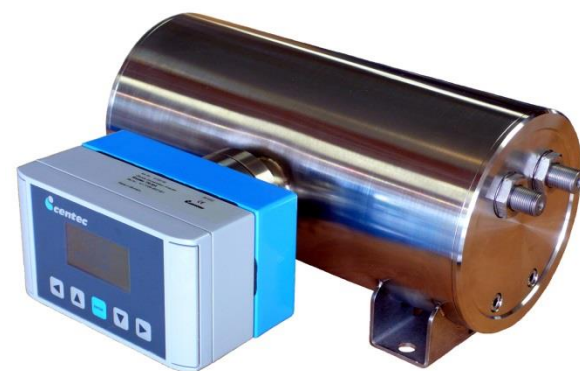
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RHOTEC

Application and Measurement Principle

Corrosive acids are used in various industries. Their concentration needs to be measured with highest precision. Hydrochloric acid (HCl) is used for the removal of rust from steel and for the production of compounds like PVC. The main application of nitric acid (HNO₃) and phosphoric acid (H₃PO₄) lies in the manufacturing of fertilizers. Sulphuric acid (H₂SO₄) plays a role in the production of nearly all industrial goods such as dyes, explosives and batteries. It is used in petroleum refining to wash impurities out of gasoline and in metal processing to clean (pickle) iron and steel before plating. In nuclear power plants boric acid (H₃BO₃) serves as neutron poison to control the nuclear chain reaction. Hydrofluoric acid (HF) is used as etching agent.

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