

❖ Field Showcase

Non-invasive Strength Measurement, Sulphuric Acid



Client: Ineos
Location: Runcorn, UK
Application: Sulphuric Acid Production Line
Solution: Non-invasive DensiCheckTx

The DensiCheckTx was selected by Ineos to monitor and control liquid strength on a sulphuric acid production line.

However, due to the highly volatile and corrosive nature of the process medium, the installation specification was very restrictive.

- No threaded connections
- Sensor needed to be protected by a PFA lining

The team at Rototherm Canongate researched and engineered a creative adaptation of the DensiCheckTx, which uses two sensors in parallel. Precision electrical and mechanical engineering were required, as the new solution raised a number of potential difficulties. After some testing, Ineos commissioned Rototherm Canongate to manufacture a completely non-invasive solution built into a steel spool section. The instrument has been in service without fault since 2007.



Ineos Chemical Plant, Runcorn



Client Profile:

Ineos is a leading chemical company. It boasts figures of 64 million tonnes of production per annum, revenue in excess of £35 billion and 17,000 employees. They cover an array of services and products, with clients in O&G, petrochem and manufacturing industries.

Ineos & Rototherm Group:

Ineos and Rototherm have a working relationship dating back over 30 years. Ineos have a number of custom temperature sensors, incorporating exotic materials, which have been manufactured by Rototherm's talented team since the 1980s.



DensicheckTX in service at Ineos, Runcorn

Non-invasive DensiCheckTX gives the customer the ability to carefully monitor hazardous substances without risk of exposure

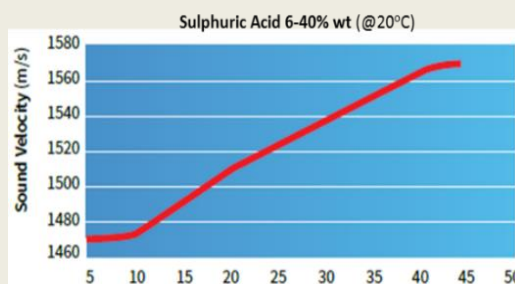
- ▶ Non-invasive installation means convenient, safe retrofit solution for pipe lines of all shapes and dimensions
- ▶ Suitable on a number of different hazardous and non-hazardous liquids

Key Features & Benefits:

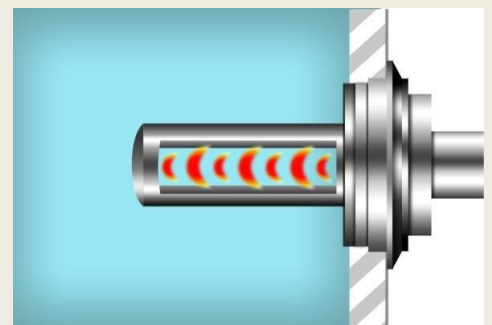
- ▶ Non-invasive and invasive
- ▶ High accuracy and repeatability
- ▶ No moving parts
- ▶ High reliability
- ▶ Low ownership costs
- ▶ Increased process efficiency
- ▶ Improved quality monitoring
- ▶ Rapid payback of investment

Site engineer Luan Wainwright comments:

"Ineos has built its name for producing ultra-pure chemicals for key industries around the world. The DensiCheckTX gives us the confidence that we are supplying the customer with exactly what they need: in this case that is either 96.0% or 98.0% strength pure sulphuric acid. It's so important to our production that we carry an exact replacement so production can continue in case there are any problems"



Typical DensiCheckTX Calibration Program, Sulphuric Acid



DensiCheck TX – General Specification

Rating:	IP65
Accuracy:	Typically +/- 0.1% (product dependant)
Repeatability:	+/- 0.01 m/s, +/- 0.02°C
Response Time:	< 1 second
Update:	Every 2 seconds
Stability:	No drift
Calibrations:	Two
Supply:	24Vdc, 250mA
Outputs:	0..5V or 4..20mA (Active, non-isolated) Two digital for hi/lo alarm open collector
Input:	Digital input for no-flow indication or product selection
Electronics Approval:	Ⓔ II 2G Ex d IIB T5 Gb (- 20°C ≤ Ta ≤ 60°C) Cert No(s). Baseefa13ATEX0047
Serial Communications:	RS485, Modbus RTU / ASCII CCOM2

Ultrasonic Transducer

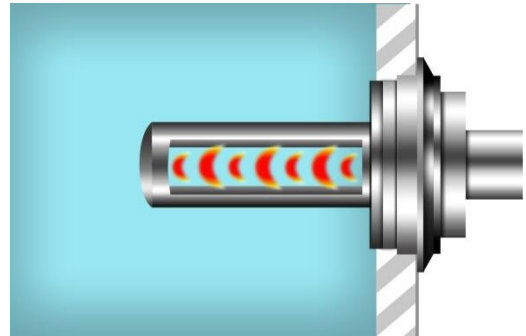
Rating: Ⓔ II 2G Ex mb IIC T5 Gb (- 20°C ≤ Ta ≤ 60°C)
Cert No(s). Baseefa03ATEX0087X

Standard and ATEX Product: -20°C to +60°C, -4°F to 140°F

Remote Electronics: -10°C to +110°C (continuous) (14°F to 230°F)
150°C (5 min intermittently) (320°F)

Standard Process Connections:

- ▶ Non-invasive strap-on / min. dia 50mm (2")
- ▶ Varivent – probe depth 63 mm
- ▶ Tri-clamp – probe depth 81mm
- ▶ Flanged – probe depth 133mm
- ▶ DIN 50 – probe depth 63mm



DensiCheckTX installed with Varivent connection

Product Identification Code

