

Remote Ultrasonic Corrosion Monitoring



Predictive and reactive corrosion management

Whether you need to predict the remaining lifetime of an asset or closely monitor a known or anticipated corrosion area: reliable and accurate numbers are crucial. Remote ultrasonic corrosion monitoring provides a non-intrusive tool to gather wall thickness data and increase the accuracy and flexibility of your corrosion management. Besides more accurately determining the remaining lifetime, the increased insight can be leveraged to deal with greater variations in operating conditions, feedstock or fuel.

DEKRA offers this data-as-a-service in collaboration with Sensor Networks Inc. so you can benefit from reliable and known technology in an innovative and flexible way. A conventional ultrasonic wall thickness probe is installed permanently on the asset to monitor throughout the asset's service life. Alternatively, it can be installed temporarily to monitor a known corrosion or pitting area until the next maintenance interval or replacement.

Reliable and well-structured data

With a user-defined time interval the wall thickness is measured and communicated either wired or wireless to the central database. This can be on our easily accessible cloud-based platform or integrated into your company's environment. Compared to conventional manual ultrasonic wall thickness measurements the accuracy, reproducibility and ease of data-handling is much better. The central database can optionally apply temperature compensation to the wall thickness data. It will calculate long and short term corrosion rates and trigger alarms as levels are crossed.

Advantages

- > Non-intrusive tool and less staff in hazardous environment
- > Reduced cost for access and preparation
- > Increased accuracy of corrosion rate with highly reproducible readings
- > Improved responsiveness to changes in degradation

- > Cellular, hard-wired (Modbus/RS-485) or datalogging
- > Probes withstand temperatures from -30°C to 500°C
- > 16 single element or 8 dual element probes per unit
- > Battery life 5 years (typical, based on 1 reading/day)



Examples

Crude oil line

Objective

- > Monitor corrosion to plan inspection
- > Allow for wider quality of crude oil
- > Pipeline 12 meters above ground

Execution

- > 8 sensors per critical location
- > 1 reading every 2 days
- > Cellular transmission every 6 days
- > Estimated battery life ~ 4 yrs.



Distillation tower

Objective

- > Replaced due to earlier corrosion
- > Need to monitor corrosion rate
- > At 75 meter height
- > 100°C surface temperature

Execution

- > Installation by rope access
- > 8 sensors connected to cellular module
- > Collect and transmit every 12 hours



Buried pipeline

Objective

- > In Line Inspection reported defects
- > Episodic in nature or growing?
- > Avoid repair, monitor corrosion rate

Execution

- > Follow-up to find exact position
- > 8 sensors on critical defects
- > Coated and buried
- > Datalogger, collected periodically



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