

CorrSense™

A solution sensitive to magnetic permeability changes in steel components due to loss of thickness caused by internal corrosion.

Simple wireless product for pipe wall monitoring of steel components based on magnetic field leakage sensitive to internal thickness loss.

Background

Problems like Flow-Accelerated Corrosion (FAC) in pipes (an insidious, persistent and widespread problem in feed water systems carrying boiling water) usually creates a pipe wall thickness reduction of 1mm/year with some cases reaching 4mm/year. In pipelines where high rates of corrosion, like FAC, are present, a higher inspection frequency is required than for pipes under low corrosion rate conditions.

System offering

CorrSense™ is a low-cost system for monitoring wall thickness loss in ferromagnetic materials, caused by internal corrosion. This has **potential to replace ultrasonic thickness gauging**, especially in **difficult and dangerous to access areas** where costs of inspection are high. The system was developed to focus on **expected areas of erosion/corrosion**.

Description/ Benefits

- **CorrSense™** is a cost effective solution that protects valuable assets, reduces losses and helps preserve the environment.
- Alternative solution to conventional wall thickness inspection by ultrasonic thickness gauges.
- Permanently installed system on components under insulation. that detects corrosion in hard to access locations,
- Bespoke software that analyses the sensor data, providing thickness measurements.
- Hazardous environments where inspection represents a risk.
- Cost effective approach to safer inspections in hazardous environments.
- Asset managers will be able to use the data generated to extend the lifespan of assets without compromising safety. to assess the fitness for service (FFS) of pipelines.

Applications

- **Power plants:** water and steam pipelines and piping systems.
- **Oil and Gas:** wall thinning, pitting corrosion, corrosion in sweet and sour environments.
- **Offshore installations:** pipeline corrosion in seawater.
- **Renewable energy:** corrosion in geothermal energy production (due to dissolved CO₂, H₂S, NH₃, sulphate and chloride ions).
- **Civil/Structural:** propellant storage facilities, jet fuel and aviation gasoline installations.
- **Sewage:** biogenic sulphide corrosion.
- **Manufacturing:** processes where Flow-accelerated corrosion (FAC) and erosion-corrosion are problems.

Features

- **Operating temperatures:** up to 300°C.
- **Wireless** data transmission and reception system.
- Data available via **downloadable App** on a smart device.
- Safe to use in **high hazard areas**.
- Auto start and stop setup to gather data at an specified date at time.

Potential Offering Extension

Possibility to combine automated capabilities for Fitness-For-Service (**FFS, API 579**) and Risk-based inspection (**API 581**) standard assessments, through TWI's code-compliant software for FFS assessment designed for evaluating the integrity of ageing pipework, pipelines, and different components, **IntegriWISE®**, and **RiskWISE®** for optimising plant inspection and maintenance.

