NDT & Inspection

Guided Waves Pipe Inspection

Guided Waves enables volumetric screening of pipes which covers 100% of the cross sectional area of the pipes within the diagnostic length of test. In most cases, tens of meters can be screened from a single test position making it a rapid and cost effective NDT method. Additionally, access to the pipe under test is only required at the test position (remote inspection) which makes guided wave screening technology an ideal solution for inspecting pipes that are

Key advantages of Guided Waves

There are many advantages of using the Wavemaker Pipe Screening System for rapid long-range pipe screening:

- The test can be carried out at elevated temperatures without taking the pipe out of service
- 100% of the pipe is inspected (within the diagnostic length of a test)
- Ability to detect metal loss and planar defects at long range
- Metal loss may be internal or external
- Sensitivity can be as good as 1% loss of cross-section in ideal conditions.

Wavemaker Pipe Screening System

The Wavemaker Pipe Screening System (WPSS) is a screening method by means of ultrasound. A probe ring is placed around the pipe and transmits guided waves through the pipe in either direction of the probe ring. The pulse echo type operation provides information on feature position and severity.

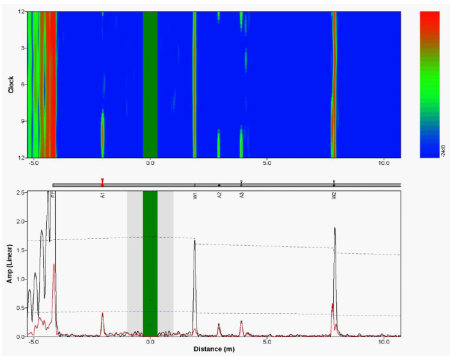
Standard application:

- Seamless, longitudinally or spiral welded pipe types
- Pipe size 2 – 24 inches (smaller or larger diameters can be possible under certain conditions)
- Surface temperature -40°C to 120°C (diameter < 10") or -40°C to 80°C (diameter >8"). Under certain conditions surface temperatures up to 300°C are possible.

Typical Wavemaker pipe screening applications are:

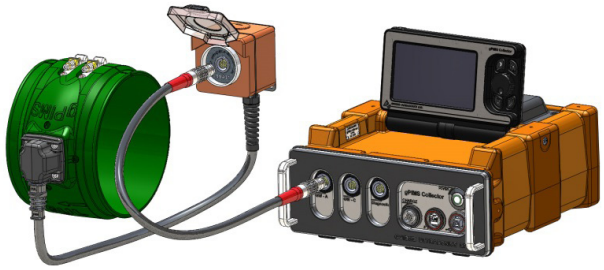
- Screening of insulated pipe for external or internal corrosion without removing the insulation (other than at the test positions)
- Screening of pipe in racks with limited access
- Sreening of inaccessible areas such as cased crossings
- Screening of pipe passing through bund walls
- Screening of river crossing pipelines and jetty lines
- Screening of offshore pipe-work including the riser splash zone
- Screening of buried pipelines between inspection pits.

The system has been designed to operate as a screening tool that can quickly identify problem areas. When the pipe is accessible, it is frequently recommended that a detailed inspection (using complementary techniques) is performed at any identified corrosion areas.



gPIMS® Monitoring

In many situations, the cost of accessing a pipe is much higher than the cost of inspecting a pipe. This access cost can make repeat inspections with removable rings prohibitively expensive. The gPIMS® range of sensors has been developed to be bonded onto the pipe, sealed and then left in place. A permanently attached cable connects the gPIMS® sensor to a connection box that can be located in a convenient, easy to access location. By performing repeat inspections and comparing the results to previous inspections, improved sensitivity and confidence in the calls can be achieved.



gPIMS® assembly

Applus+

Applus+ provides the following services as individual packages or combined to provide a total Asset Integrity Management program.

- Advanced (non-intrusive) Inspection Services
- Sub-sea Inspection Services
- Engineering Design Solutions
- Risk Based Inspection Planning
- Inspection Management Services
- In Service Inspection
- Plant Life Management
- Metallurgical Services.

Importantly, Applus+ can also call upon extensive in-house expertise and resources for advanced inspection and conventional NDT, providing a total capability for management of through life plant integrity.

Applus+, in collaboration with our local and international partners, has extensive experience in the application of these services to a wide range of industries including:

- Oil & Gas
- Petrochemical
- Refining
- Ore Processing and Handling
- Power Generation.