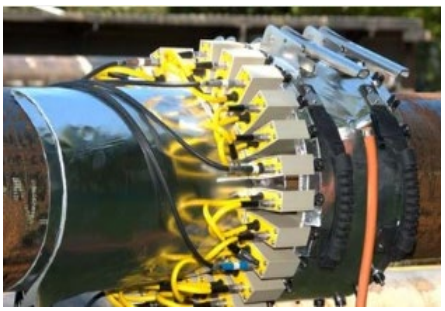
Long Range Ultrasonic Testing (LRUT)

Long Range Ultrasonic Testing (LRUT) system uses guided waves for rapid screening of long lengths of pipe for external or internal corrosion as well as axial and circumferential cracking. LRUT can be used on a wide variety of pipes including those that are buried or insulated. Hundreds of meters of pipe can be inspected per day and 100% of the pipe wall is inspected during the test. LRUT testing can be done while a plant is in operation with minimal disruption.

LRUT is a widely used screening method to inspect pipework in many industrial disciplines, such as oil & gas, petrochemical and power generation sectors. The torsional guided wave mode is highly sensitive to multiple defect types while experiencing low attenuation in most situations.



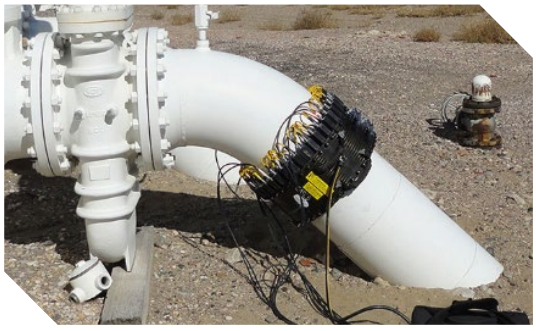
LRUT on a high temperature pipeline

In the majority of applications, this mode is ideal for the inspections of long lengths of pipework. Welds, supports, defects, and other features generate echoes from which their locations and severities (in the case of a defect) can be measured.

Inspection is carried out by wrapping a removable transducer ring around the circumference of the tube/pipe at the desired location, which can be many meters away from the region of interest. The data is analysed on-site so any follow-up or complementary inspections can be performed immediately.

Applications

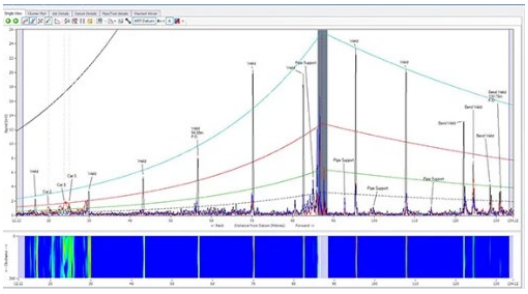
- Corrosion under Insulation
- Buried pipelines
- Elevated temperatures up to 350°C
- River and road crossing
- Offshore Caisson inspection
- Insulated Sphere legs



LRUT being used to inspect a buried section of pipeline

Advantages

- Detection and positioning of corrosion under insulated pipes without removing lagging other than for probe application
- Screening of inaccessible areas such as sleeved road crossings and wall penetrations
- Screening of onshore and offshore pipework, even in tightly packed racks
- Longitudinal and torsional wave modes, providing a comprehensive inspection
- Save on excessive insulation removal costs
- 100% examination including areas such as at clamps, and sleeved or buried pipes
- Capable of inspecting inaccessible areas other NDT techniques cannot reach



Guided wave data example.