Inspection of corrosion under pipe supports
Enabling fast identification and assessment
The Challenge
Inspection of non-accessible areas

Corrosion under pipe supports is one of the leading causes of topside process piping failure. Above-ground piping typically lies on supports of various geometries but with similar implications regarding the need for regular inspections of the pipe-to-support interface for corrosion.

Locations such as pipe supports are typically areas of increased risk:

- Crevice inherent by design or natural formation
- Moisture entrapment and hold-up
- Coating failure
- Corrosion
- Loss of containment

Visual examination by qualified piping inspectors or piping engineers is key. However, as pipe support corrosion is typically a hidden threat, it is not always feasible to perform a visual examination. Lifting the pipe from the support for inspection is not ideal due to increased risk of product release and associated health, safety and environmental risks.
The Solution
Full coverage, high sensitivity

ROSEN offers an automated scan system for reliably detecting and sizing corrosion under pipe supports, including pitting. Corrosion under pipe supports services leverage EMAT technology, which is capable of rapidly scanning, detecting and sizing anomalies on inner and outer surfaces of a pipeline, especially at pipe-to-support interfaces. Other applications include corrosion scanning of coated piping, tank shell scanning, and inspection of elevated pipes and pipe racks or at interfaces like soil or concrete.

CIRC and AXUS are ROSEN EMAT inspection tools that are free-running and therefore fast and easy to use. The acquisition and control software makes it possible to quickly scan several portions of a pipeline to detect and report threatening wall losses. Moreover, it can be used on rough surfaces and pipes that are positioned in close proximity to each other.

Reports are automatically generated by the software, providing a comprehensive overview of the inspected objects and detected features. Feature properties like position and width are reported, accompanied by digital photographs of the inspected object.

**Standard operating specifications**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Diameter range</td>
<td>3” – 64”</td>
</tr>
<tr>
<td>Sensor temperature</td>
<td>-20 °C to 100 °C (-4 to 212 °F)</td>
</tr>
<tr>
<td>Wall thickness range</td>
<td>3 – 15 mm (1/8” ~ 9/16”)</td>
</tr>
<tr>
<td>Coating thickness</td>
<td>&lt; 500 μm</td>
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</tbody>
</table>

**Detection capabilities**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Detection threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pitting</td>
<td>0.30 t</td>
</tr>
<tr>
<td>Notch</td>
<td>0.20 t</td>
</tr>
<tr>
<td>Thinning</td>
<td>0.15 t</td>
</tr>
</tbody>
</table>

**Notes:**
- Probability of detection at 80% certainty; no coating; clean surface
- Pitting diameter: Diameter = 3 × depth (3:1 aspect ratio)
- Axial notches: 50 mm length (2”)
- Thinning diameter: 50 mm × 50 mm (2” × 2”)
- Sizing: ± 15% t (typical)
- Abbreviations: t = wall thickness
The Benefit
EMAT technology you can rely on

EMAT offers substantial benefits over traditional ultrasonic technology as EMAT technology induces a sound wave inside the object without the need for a coupling medium or extensive surface preparation.

Key features:
- Inspection of non-accessible areas
- In-service inspection method
- High sensitivity to small defects, both internal and external
- Fast scanning and assessment
- Automatic sizing of corrosion at supports (operator independent)
- Excellent repeatability
- Battery powered system
- Inspection raw data is stored and can be post-processed if required
- Easy and clear reporting
- Inspection through coating up to 500μm
- Also suitable for (a/o) wall penetrations and complete pipe screening in addition to supports