EVO 1.0 UMp

Flexible Risers Ultrasonic Metal Loss Inspection

Inspecting Flexible Risers with UT Wall Thickness Measurement

Flexible risers are critical equipment in offshore operations and subject to the most demanding of operational conditions. Given their location and environment, the inspection of flexible risers has been extremely challenging.

The average lifetime for flexible risers is estimated to be 20-30 years with replacement often required during this time frame.

At NDT Global, technological advancements and innovation in flexible pipe analysis have successfully identified a developmental process that continuously provides new inspection capabilities.

Accurate assessment of the remaining life of a flexible riser is vital for operators to avoid costly premature change outs. The composite construction of unbonded flexible pipes makes failure modes complex. Failure risks and mitigation is an important aspect when selecting the correct inspection method for flexible risers.

Axial Cracks

Circumferential Cracks

Metal Loss

Geometry Ovalities

Mapping

Damages to the Inner Carcass — a Critical Threat

NDT Global's wall thickness measurement solution delivers additional information about the condition of the riser to extend and preserve operating life. Risks can also be reduced by completing regular inspections or monitoring measures to detect signs of initiation of failure.

In some cases, implementing an integrity management program can prolong the operating life through the use of preventive maintenance procedures.

Capabilities

- Identify and confirm the position of the inner carcass looking for signs of sliding
- Evaluate the condition of the isolation ring
- Identify and detect possible deformations of the inner carcass
- Complete a dataset comparison by repeating inspections to monitor change

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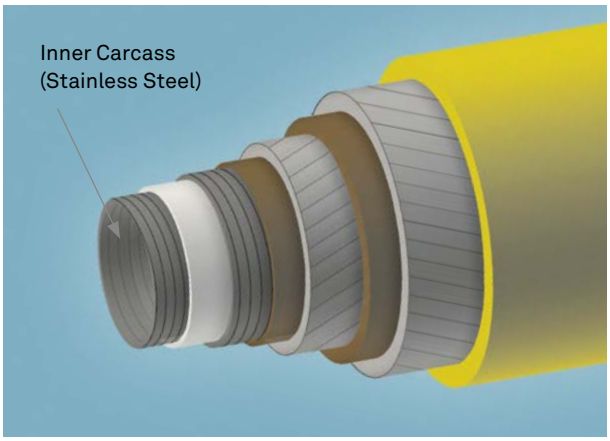
Specifications

Key Tool Specifications: EVO 1.0 UMp+

Tool sizes	6" to 48"	6" to 48"
Pipeline medium	Liquid	Liquid
Max. operation speed	4 m/s	9 mph
Temperature range	-10 to +50 °C	14 to 122 °F
Max. pressure	120 bar	1740 psi
Min. bend radius	1.5 D 90°	1.5 D 90°
Min. axial sampling distance	0.75 mm	0.03 in
Circumferential sensor spacing	4 mm	0.16 in

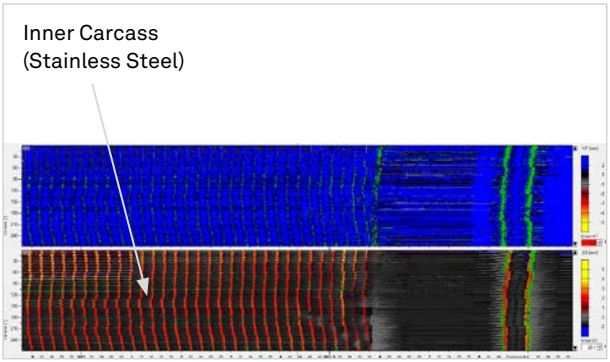
Max. operating speed and min. axial sampling distance depend on specific ILI tool set-up. Special configurations for high-temperature, high-pressure, multi-diameter and bi-directional inspections available upon request.



A sample flexible riser. Here you can see the different layers of this pipe, most importantly the Stainless Steel Inner Carcass.

Defect Location Accuracy

Axial from nearest girth weld	±0.1 m	±3.94 in
Circumferential		
• for Ø < 20"	±10°	±10°
• for Ø ≥ 20"	±5°	±5°



Sample data of a flexible riser inspection captured during an inspection using NDT Global's UMp robot.

Key Performance Specifications (referring to API 1163)

POD for corrosion and metal loss features ≥ 90%		
• Min. diameter	5.0 mm	0.20 in
• Min. depth	0.8 mm	0.03 in
Depth sizing accuracy	±0.4 mm	±0.02 in
Wall thickness determination	±0.4 mm	±0.02 in
Mid-wall features, laminations and inclusions • Min. diameter	10.0 mm	0.39 in
Location in pipe wall • Internal/external/mid-wall	Yes	Yes

Please note: Tool and performance specifications depend on inspection and pipeline conditions. Please contact your local NDT Global representative for further information. NDT Global reserves the right to introduce modifications and changes without prior notice.