

ULTRASONIC CIRCUMFERENTIAL CRACK INSPECTION

EVO SERIES 1.0 UCc



DETECTING AND SIZING CIRCUMFERENTIAL CRACKS

Circumferential cracks can be addressed with in-line inspection (ILI) tools utilizing ultrasonic shear wave technology. To accurately detect circumferential cracking, a shear wave pulse travels through the pipe wall at an angle of 45° and is reflected either by an external or internal flaw. Based on the individual pattern of the reflected signal and supported by algorithms, experienced data analysts can read and translate the information into flaw properties, e.g. length, width, depth and type. Reference sensors onboard measure medium properties like temperature, pressure, sound velocity, and attenuation to ensure that the tool is always operated within optimum settings.

Ultrasonic ILI tools play an important role in the integrity management of circumferential cracks. This inspection technology has a proven POD of $\geq 90\%$ for all crack fields and crack-like indications as well as a depth sizing tolerance of ± 1 mm (0.04 in) at 80% certainty. Circumferential crack inspection technology is a reliable and accurate technology that assists with the overall integrity program for pipeline operators.

EVO SERIES 1.0 UCc

- Absolute crack sizing for full range of crack depth
- Faster tool speed ensuring no reduction of flow rate
- Available for diameters from 8" to 48"

Evo Series 1.0

Your benefits

Up to four times faster inspection speed	No reduction of flow rate
Up to four times higher axial resolution	High performance crack profiling inspection
Shorter tool length	Enhanced tool operation
Maximized ILI tool flexibility	Customization to your needs



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SPECIFICATIONS

Key tool specifications: Evo Series 1.0 UCc

Tool sizes	8" to 48"	8" to 48"
Pipeline medium	Liquid	Liquid
Max. operation speed	2 m/s	4.5 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	10 mm	0.39 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.

Defect location accuracy

Axial from nearest girth weld	±0.1 m	±3.94 in
Circumferential		
▪ for $\phi < 20"$	±10°	±10°
▪ for $\phi \geq 20"$	±5°	±5°

Key performance specifications (referring to API 1163)

POD for circumferential cracks, crack-like anomalies and linear indications $\geq 90\%$

Min. depth of crack with $L \geq 30$ mm (1.18 in)

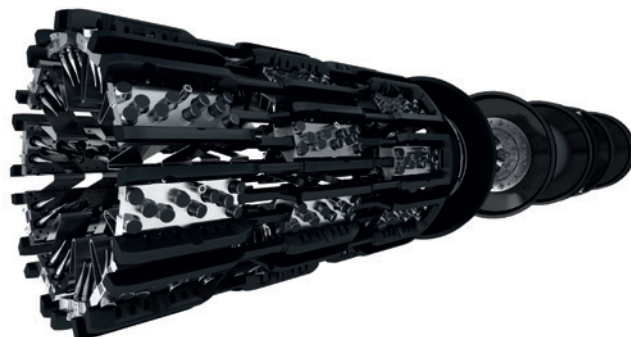
▪ Base material & at weld	1 mm	0.04 in
▪ In weld	2 mm	0.08 in

Depth sizing accuracy at 80% certainty

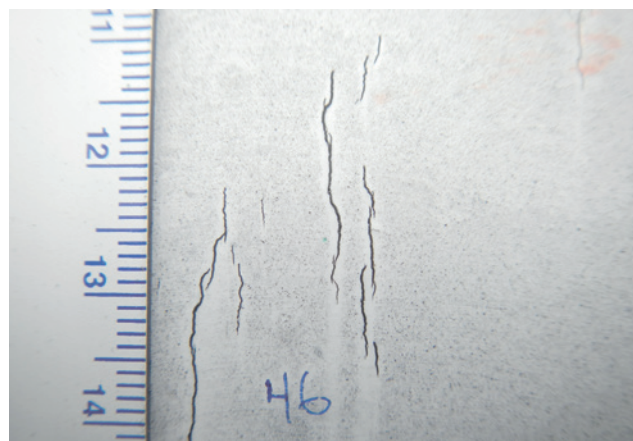
▪ 1 ... < 4 mm (0.04 ... < 0.16 in)	±1 mm	±0.04 in
▪ ≥ 4 mm (0.16 in)	±1.3 mm	±0.05 in

Length sizing accuracy at 90% certainty

Location in pipe wall		
▪ Internal/external	Yes	Yes



In-line inspection tool – Evo Series UCc 1.0



Circumferentially oriented crack field

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.

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