

EVO 1.0

Interacting Threats



Elevated Risk through Defect Interaction


The detection and identification of threats are key to maintaining pipeline safety. According to industry standards, specific pipeline threat root causes are grouped into three categories:

- Time-dependent threats
- Time-independent threats
- Resident threats

Prevention, detection and mitigation of distinct threats such as metal loss, cracking or excavation damage are considered by operator integrity management programs. These include complex processes to determine if two or more threats of a different nature occur independently of each other.

Interacting threats in a pipe segment can result in an increased chance of pipeline failure. While an individual defect may not be a major concern, the discovery of multiple types of defects at the same location may be critical for the safe operation of the same pipe segment.

 Axial Cracks

 Circumferential Cracks

 Metal Loss

 Geometry Ovalities

 Mapping

Challenging Interacting Threats

NDT Global delivers one of the most accurate and reliable ultrasonic inline inspection service available today. The development of dedicated inspection robots and technologies allow for the assessment of isolated and interacting pipeline defects. Two or more inspection technologies can be customized in a combined robot configuration for a single inspection, saving operational costs and enabling evaluation of interacting threats at the same time.

Multiple datasets are gathered by a combined high-resolution inspection, for example, through capturing both the geometry of the pipe and metal loss defects during the same inspection.

Data analysts at NDT Global combine the acquired data to develop a single dataset containing multiple technologies. This allows for enhanced detection and identification of interacting threats as all defects are fully aligned. Combined reporting, for example, metal loss or cracks associated with dents, geometric anomalies, wrinkles or buckles helps to prioritize and manage interacting threats in pipelines today.

Interacting Threats



Technology Selection Guide

		Metal loss				Crack			Milling		Deformation			Mapping		
		Internal	External	Narrow axial	Gouges	Axial	Hook	Circumferential	Lamination	Lack of fusion	Dents	Wrinkles	Roof topping	Ovalities	Bends	Pipe coordinates
Metal loss	Internal	●														
	External	●	●													
	Narrow axial	●	●	●												
	Gouges	●	●	●	●											
Crack	Axial	●	●	●	●	●										
	Hook	●	●	●	●	●	●									
	Circumferential	●	●	●	●	●	●	●								
Milling	Lamination	●	●	●	●	●	●	●	●							
	Lack of fusion	●	●	●	●	●	●	●	●	●						
Deformation	Dents	●	●	●	●	●	●	●	●	●	●					
	Wrinkles	●	●	●	●	●	●	●	●	●	●	●				
	Roof topping	●	●	●	●	●	●	●	●	●	●	●	●			
	Ovalities	●	●	●	●	●	●	●	●	●	●	●	●	●		
Mapping	Bends	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	Pipe coordinates	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Exemplary Key Performance Combination

EVO 1.0 UMp⁺

EVO 1.0 Atlas UG

Detection and sizing @ POD ≥ 90%	Min. depth	0.8 mm (0.03 in)	Min. dent depth	2.0 mm (0.08 in)
	Min. diameter	5.0 mm (0.20 in)	Min. ovality	2.0 mm (0.08 in)
Depth sizing accuracy @ 90% certainty	±0.4 mm (0.02 in)		±1.0 mm (0.04 in)	
Length sizing accuracy @ 90% certainty	±1.5 mm (0.06 in)		±10 mm (0.39 in)	
Width sizing accuracy @ 90% certainty	±4 mm (0.16 in)		±15 mm (0.59 in)	
Discrimination internal/external	yes		n.a.	
Axial sampling distance	0.75 mm (0.03 in)		1.5 mm (0.06 in)	
Circumferential resolution	4.0 mm (0.16 in)		15.0 mm (0.59 in)	

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.