

GROUND-BASED INSPECTION SYSTEM

Technical Specifications of Rover based Current Magnetometry Inspection

The specifications stated below only refer to the undisturbed case. The case is considered undisturbed if no external disturbances are present. External disturbances result from poor GPS-signal, metal parts and electromagnetic disturbances in close proximity to the pipeline and to the inspection system.

Specifications Advanced 3D Mapping & Geometry

Max. error XYZ mapping (RTK FIX GNSS)	1 cm
Max. error XYZ mapping (magnetic field) ¹⁾	3 cm
Max. error absolute mapping of the pipeline (axis) ¹⁾	4 cm
Max. error depth of cover mapping 0-2 m (radar + magnetic field) ²⁾	2 cm
Max. error depth of cover mapping 2-6 m (radar + magnetic field) ²⁾	2 %
Min. angle for the reporting bend angles	0.1 °
Max. error for the measurement of bend angles	1 °
Min. angle for the reporting of bend radii	15 °
Max. error for the measurement of bend radii	0.5 D

¹⁾ For a distance pipeline (axis) to sensors ≤ 3 m | ²⁾ Depending on vegetation height

Specifications Advanced Integrity

Punctual detection of magnetic anomalies	possible
PoD for anomalies > 50 mm * 50 mm * 50 metal loss ¹⁾	96 %
Detection threshold	20 % metal loss
Sizing of anomalies	relative

¹⁾ For a distance pipeline (axis) to sensors ≤ 1.5 m

Specifications other services

Leak detection (gas)	
Measurement range	1 ~ 50,000 ppm-m
Measurement error	10 %
Detection of pipe stress	possible with first run
ILI tool detection	no limitation
Right of way assessment	no limitation
Pipe movement monitoring	possible with second run
Mapping of above ground infrastructure (e.g. CP posts)	no limitation
Detection of girth welds	possible if weld is inhomogeneous
Min. pipe diameter	DN 60
Measurement error for the mapping of girth welds	+/- pipe depth

Specifications Final Report

GPS coordinate systems	WGS 84; others are possible
Min. distance data points	1 cm
Reporting standard (Excel file)	POF 2016
Reporting app	EMPIT Pathfinder App

Specifications inspection rover

Weight	23-25 kg
Dimensions	200(l) x 120 (w) x 180(h)
Resolution inspection camera	1.920 x 1.080
Inspection mode	stepped
Max. inspection speed ⁴⁾	200 m/h
Ø daily productivity ⁴⁾	1 km
Lidar resolution	1 cm
Radar resolution	0,1 cm
Weather resistance	splash-proof
Operating temperature	-10 bis +30 ° C
Max. wind speed	40 km/h

⁴⁾ Depending on ground surface

Specifications pipe

Max. pipe depth	~ 6 m
Max. wall thickness	no limitation
Max. diameter	no limitation
Medium	no limitation
Construction type	no limitation
Max. operating pressure	no limitation
Coating	no limitation
Pipeline out of services	no limitation
Inspection length	no limitation