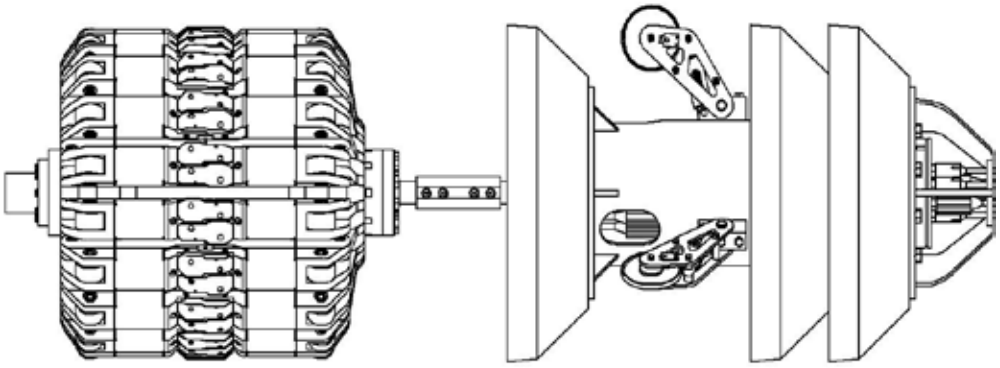
24" Magnetic Flux Leakage Inspection Tool



General		
Pipeline size	24"	inch
Tool length	1920	mm
Weight	510	kg
No. of bodies	2	
Inertial unit [1]	3D mapping standard accuracy	
Maximum runtime	42 (expandable)	hrs

Pipeline specifications		
Maximum pipe length	230 (expanable)	km
Minimum bore	465	mm
Minimum bend radius	1.5D	
Velocity range [2]	0.1-4	m/s
Temperature range [3]	0 - 80	ºC
Maximum pressure [4]	300	bar
Minimum back pressure	20	bar
Required differential launch pressure	2	bar

Measurement specifications		
Direction of magnetisation	axial	
Measurement Type	triaxial Hall	
Maximum wall thickness for accurate measurement	25.4	mm
Magnetisation level at maximum wall thickness	10	kA/m
Axial sampling frequency, variable	2000	Hz
Circumferential sensor spacing	4	mm
Internal / External discrimination	Eddy Current	
Odometers	3 channels	
Marker system	Time benched GPS	
Pressure measurement accuracy	± 0.15	bar
Temperature measurement accuracy	± 1	ºC

Location accuracy		
Location accuracy [5]	0.1	%
Accuracy to girth weld	0.1	m
Clock position resolution	± 5	º

1 refer to 3D & inertial datasheet, GPS mapping available on request
2 recommended operating range is 0.1-2.0 m/s
3 higher temperatures available on request
4 higher pressures available on request
5 relative to closest above ground marker

Detection and sizing capabilities

Sizing accuracy is dependent on external factors, such as contamination of pipeline and operational conditions or heavily patterned seamless pipe. The below table specifies the sizing accuracy in terms of percentage of wall thickness (t) at 80% confidence level for welded pipe and seamless pipe.

Sizing accuracy in welded pipe

Feature	*Minimum depth at 90% POD*	*Depth sizing accuracy*	*Length sizing accuracy*	*Width sizing accuracy*
General metal loss	5%	± 10%	± 10mm	± 10mm
Pitting	10%	± 10%	± 10mm	± 10mm
Axial grooving	10%	± 10%	± 10mm	± 10mm
Circumferential grooving	10%	± 10%	± 10mm	± 10mm
Axial slotting	20%	± 10%	± 10mm	± 10mm
Circumferential slotting	10%	± 10%	± 10mm	± 10mm
Corrosion near girth welds	20%	± 10%	± 10mm	± 20mm

Sizing accuracy in seamless pipe

Feature	*Minimum depth at 90% POD*	*Depth sizing accuracy*	*Length sizing accuracy*	*Width sizing accuracy*
General metal loss	15%	± 10%	± 10mm	± 10mm
Pitting	15%	± 10%	± 10mm	± 10mm
Axial grooving	15%	± 10%	± 10mm	± 10mm
Circumferential grooving	15%	± 10%	± 10mm	± 10mm
Axial slotting	20%	± 20%	± 10mm	± 10mm
Circumferential slotting	15%	± 10%	± 10mm	± 10mm
Corrosion near girth welds	20%	± 20%	± 10mm	± 20mm

Identification of features

Feature	*Yes POI >90%*	*No POI <50%*	*Possibly 50%<POI<90%*
Internal / external discrimination	✓		
Metal loss feature in body of pipe	✓		
Metal loss feature in weld area	✓		
Metal loss pipe mill feature	✓		
Mid wall feature			✓
Grinding	✓		
Gouging	✓		
Dent / Dent with metal loss	✓		
Spalling			✓
Axial crack		✓	
Circumferential crack			✓
Eccentric pipeline casing	✓		
Fitting	✓		
Sleeve	✓		
Valve	✓		
Tee	✓		
Bends (5D or less)	✓		
Close metal object	✓		
Clock position of longseam weld	✓		
Girthweld	✓		
Patch	✓		