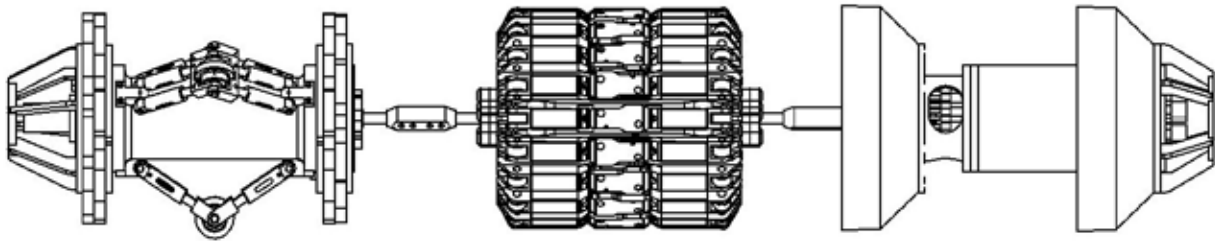


## 10" Magnetic Flux Leakage Inspection Tool



General			Measurement specifications		
Pipeline size	10"	inch	Direction of magnetisation	axial	
Tool length	1577 <sup>1</sup>	mm	Measurement Type	triaxial Hall	
Weight	100	kg	Maximum wall thickness for accurate measurement	12,7	mm
No. of bodies	3 <sup>2</sup>		Magnetisation level at maximum wall thickness	10	kA/m
Inertial unit	3d mapping standard accuracy <sup>3</sup>		Axial sampling frequency, variable	2000	Hz
Maximum runtime	36 (expandable)	hrs	Circumferential sensor spacing	4	mm
			Internal / External discrimination	Eddy current based	
Pipeline specifications					
Maximum pipe length	350 (expandable)	km	Odometers	3 channels	
Minimum bore	205	mm	Marker system	Time benched GPS	
Minimum bend radius	1.5D		Pressure measurement accuracy	± 0.15	bar
Velocity range <sup>4</sup>	0.1-4	m/s	Temperature measurement accuracy	± 1	°C
Temperature range <sup>5</sup>	0 - 80	°C	Location accuracy		
Maximum pressure <sup>6</sup>	300	bar	Location accuracy <sup>7</sup>	0,1	%
Minimum back pressure	20	bar	Accuracy to girth weld	0.1	m
Required differential launch pressure	2	bar	Clock position resolution	± 5	°

<sup>1</sup> Tool length is 1850 mm with pig transmitter  
<sup>2</sup> Number of bodies is 4 with pig transmitter  
<sup>3</sup> refer to 3D & inertial datasheet, GPS mapping available on request  
<sup>4</sup> recommended operating range is 0.1-1.5 m/s  
<sup>5</sup> higher temperatures available on request  
<sup>6</sup> higher pressures available on request

<sup>7</sup> 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 lonaseam weld	✓		
Girthweld	✓		
Patch	✓		