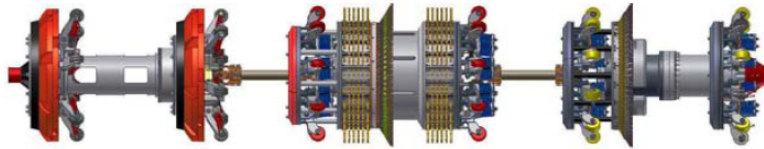




2 Tool Specifications

30" LINALOG® Max-LF



389108

Overall Tool Length
Tool Mass

Imperial
176.7 in.
3600 lb.

Metric
4488 mm
1633 kg

<u>Lengths</u>	<u>Imperial (in.)</u>	<u>Metric (mm)</u>
Section 1	56.1	1425
Section 2	60.4	1534
Section 3	60.2	1529

TYPICAL INSPECTION SPECIFICATION

DETECTION PARAMETERS (Grading @ 90% Confidence)	SIZING ACCURACY (Grading @ 80% Confidence)		LOCATING ACCURACY
	<u>Depth</u>		<u>Axial</u>
<u>Minimum Detectable Thresholds</u>	<u>Pitting</u>	<u>General Metal Loss</u>	<u>Localized</u>
t < 0.380 in. (10 mm) = 0.380 in. (10 mm) t ≥ 0.380 in. (10 mm) ≥ 1t (t = wall thickness)	<u>Pipe Body</u> ± 10%	± 10%	± 0.3% General ± 1 in. (25 mm)
Dent 1 in. L x 1 in. W (25 x 25 mm) Ovality 1 in. L x 2 in. W (25 x 50 mm)	<u>Heat-affected Zone (HAZ)</u> ± 15%	± 15%	<u>Circumferential</u> ± 5°
<u>Minimum Sizeable Depth</u>	<u>Pitting</u> Length ± 0.25 in. (6.4 mm) Width ± 0.75 in. (19 mm)		<u>Sensor Count</u>
Pitting Corrosion 15% Pipe Body 25% HAZ	<u>General Metal Loss</u> Length ± 0.75 in. (19 mm) Width ± 1.00 in. (25 mm)		186 Corrosion ± 62 Deformation 62 ID/OD ± 186 HardSpot/ Reduced Field
General Corrosion 10% Pipe Body 20% HAZ	<u>Deformation</u> Length ± 0.10 in. (2.5 mm) Width ± 1.00 in. (25 mm)		
Deformation 0.10 in. (2.5 mm)			

TOOL PARAMETERS

	<u>Imperial</u>	<u>Metric</u>	<u>Time</u>	<u>Distance</u>
<u>Temperature Range</u>	32° to 160° F	0° to 71° C	<u>Run Duration</u> 210 hr.	210 mi. 338 km
<u>Inspection Speed Range</u>	<0.5 to 9.0 mph	<0.2 to 4.0 m/s	<u>*Wall Thickness Inspection Range</u>	
<u>Optimum Speed Range</u>	3.0 to 7.0 mph	1.3 to 3.1 m/s	0.188 in. To 0.625 in.	
<u>Maximum Operating Pressure</u>	3250 psi	22.41 MPa	4.8 mm To 15.9 mm	

PIPELINE CONDITIONS

<u>Bend (90°)</u>	<u>Back to Back Transition</u>		<u>Minimum ID in Bend</u>	
	<u>inch</u>	<u>mm</u>	<u>inch</u>	<u>mm</u>
1.5D	0	0	28.0	711
3D	0	0	26.0	660
5D	0	0	25.7	653
<u>Straight Pipe (Fittings)</u>			25.7	653
<u>Straight Pipe (Continuous)</u>			26.6	676

Comments

*Increased wall thickness inspection available
± Optional inspection services available

INS/GPS available
Contact NDT Sales person for details

This information is intended for the use of NDT Systems & Services customers only. The above data is standard specification only. If pipeline requirements or conditions are not within these parameters, please contact NDT Systems & Services (America) Inc at 713-799-5430 for specific applications. This information is subject to revision without notice and is not to be construed as a warranty or guarantee of any nature.



HARD SPOT SPECIFICATIONS

Hard Spot = ## BRINELL

Those indications that have been determined to have been incurred by the Quenching Process. This classification is detailed on the anomaly list and has been determined by comparing the data collected from current survey with other known hard spots. The phrase "know hard spot" is comprised of indications similar or like in active & residual magnetic flux signature that have been detected using the same technology and within the same or similar pipeline environments. These indications have been excavated and have had their Brunel measurement confirmed, documented and reviewed according to peak deflection, active & residual flux leakage characteristics and physical dimensions. The indications have been confirmed within the NDT software, processing and analysis techniques.

(TOLERANCE +/- 50 Brunell)

Working Hard Spot –

This type of hard spot is depicted at consistent intervals/pattern throughout the joint. These Hard Spots are typically low in Brunell measurement and caused by contact with the cooling racks within the milling process.

(TOLERANCE +/- Brunel)

Hard Spot ##/Expander Marks/Possible Bend/Possible Dent/Arc Burn –

These Hard Spots are not incurred through the quenching process rather they are a result of post mill cold working of the identified affected area. Assigned Brinell measurements are not bound by tolerances attributed to quenched hard spots due to inconsistencies displayed in the active and residual MFL Field. Brunell measurements attributed are for reference and potential prioritization should scalable field results be established.

API Standard 5L, Section 7.8 quantifies an anomaly requiring remediation as any defect that is at a minimum 2" in length in any direction with a minimum hardness of 327 Brinell; 35 Rockwell or 345 Vickers.