WIRELINE LOGGING SOLUTIONS

Magnetic Thickness Tool

The Magnetic Thickness Tool is based on an electromagnetic phenomenon that can be observed by placing coils in a conductive pipe. The measurement is made with a coil arrangement that produces a magnetic field that opposes the primary field casing attenuation and phase-shift.

The magnitude of the phase shift is a function of the casing electrical conductivity, magnetic permeability and thickness of the metal present in the field. Defects in the pipe disrupt the eddy currents and are detected by the far field detector as increases in amplitude and shorter transit times. Multiple coil spacing and frequencies are used to control the depth of investigation and measure electromagnetic properties. The Magnetic Thickness Tool measures casing wall thickness using a Remote Eddy Current Field measurement. Phase-shift of the signal received by the far field detector is proportional to wall thickness. A differential thickness measurement is made by a second receiver coil closely spaced to the far field detector. This provides an enhanced resolution of small defects in the casing wall.

An additional coil pair array provides an electromagnetic caliper which measures casing inner diameter. This measurement can be used in conjunction with a mechanical caliper to determine magnetic properties of an indicated defect.

Magnetic Thickness Tool

Specifications - 3.5 in. Magnetic Thickness Tool				
Outside Diameter (O.D.)	3.5 in.	(8.89 cm)	**Operating Parameters:**	
Length	7.25 ft.	(2.21 m)	Data	Casing wall thickness, internal diameter of casing
Weight (in air)	110 lbs.	(63.2 kg)	Signal Input	Probe PTX Telemetry
Casing Size Mimimum	4.5 in.	(11.43 cm)	Output	Circumferential internal casing diameter & casing
Casing Size Maximum	9.625 in.	(23.1 cm)	Logging Speed	1800 ft/hr (549 m/h)
Maximum Pressure	20,000 psi	(137.9 MPa)	Measurement Range	Phase frequency
Maximum Temperature	350 °F	(177 °C)	Radial Resolution Thickness	1.5” / MagCal: 0.5”
			Accuracy	± 1%
Limitations:			Depth of Investigation	up to 9.625 in. casing
Maximum Pressure	15,000 psi	103.4 Mpa	Combinability	Gamma Ray/CCL./Multiarm Caliper
Maximum Temperature	350 °F	177 °C	Current Consumption	30 mA. DC

Specifications courtesy of Probe Technology Services, Inc.

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