



CASED HOLE LOGGING Casing Inspection Tool

Spartek Systems specializes in providing the oil and gas industry with high quality data to monitor well performance and diagnose potential problems. Founded in 1994, Spartek Systems leads the industry in providing cost effective solutions for acquiring reliable well integrity data.

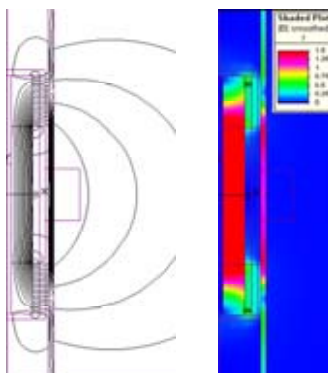
Product Overview

Preventing failure of any wellbore integrity is critical. A failure can result in lost production, environmental pollution, and costly repairs. The first step to prevention is to monitor wells to determine if corrosion, erosion, or geological deformation has compromised the integrity of the well. If defects in the well's integrity are known before they become catastrophic, an inexpensive corrective action may be implemented to extend the life and net profit for the well.

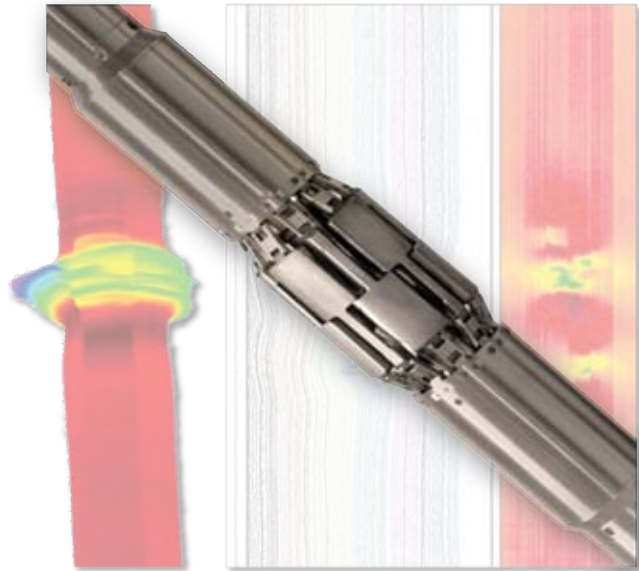
The Casing Inspection Tool utilizes Magnetic Flux Leakage technology to determine changes in the pipe wall thickness. This is the same technology that is used in monitoring most pipelines. The technology can measure metal loss both internally and externally.

- ▶ High Resolution Full Radial Coverage
 - ◆ 80 to 160 circumferential sensors
 - ◆ .25 in (6.4 mm) for an isolated pit
 - ◆ 20% wall thinning
- ▶ High Vertical Sampling
 - ◆ 200 samples/sec
 - ◆ 0.125 inch (3.2 mm) sampling at 120 feet per minute.
- ▶ Repeatability +/- 10%

The magnetic circuit of the CIT was extensively modeled to ensure the design would provide the magnetic field strength necessary to saturate the casing.



High Flux Density
B = 1.1 Tesla



Depending on casing size, the MFL sensor section has 8 to 16 pads. Each pad has 8 magnetic field sensors for measuring the magnetic flux leakage independent of logging speed, and two shallow discriminator measurements to determine if the measured flux leakage is internal or external. Together with a high speed memory section, the CIT provides the highest resolution 3D image of the integrity of the casing.

Primary Features

- ▶ Tubular inspection for both internal and external corrosion (metal loss).
- ▶ Optimized MFL Sections for larger casing sizes.
- ▶ Surface Read Out quick look interpretation with high resolution memory data or memory only operation.
- ▶ Combinable with a Multi-Finger Caliper tool for internal diameter information.
- ▶ Compatible with the "Warrior" logging system built by Scientific Data Systems
- ▶ Compatible with Windows 7/Vista/XP/NT/2000

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Specifications:

Casing Inspection Tool				
Operating Specifications: Pressure (max) Temperature (max) Housing Material	15,000 psi (103.4 MPa) 300° F (150° C) Inconel 718 (sour rated)	Electrical Specifications Input Voltage Input Current Required		125 – 200 VDC 0.06 A
Measurement Specifications Casing penetration range Defect Sensitivity Accuracy (%) Repeatability (%) Magnet Strength (MGOe) Radial Coverage	20 – 100 % .25 in (6.4 mm) ± 15 % (isolated pit) ± 10 % 30 100 %	Data Acquisition Memory Capacity Memory Recording Time Number of Pads Sensors per Pad MFL EC Temperature		4 GBytes 12.1 to 22.9 hours 8 to 16 Pads 8 2 1
Memory Section Overall Length Make-up Length Diameter Weight	1.65 ft (0.48 m) 1.27 ft (0.39 m) 3.75 in (95.2 mm) 34.0 lbs (15.4 kg)	Sample Rate Logging Speed Vertical Resolution Communication to PC		200 samples /sec 120 ft/min (36.6 m/min) 0.01 ft (.003 m) USB
MFL	MFL-375	MFL-450	MFL-575	MFL-800
Diameter Collapsed Maximum	3.75 in (95.2 mm) 4.3 in (109.2 mm)	4.5 in (114.3 mm) 5.1 in (129.5 mm)	5.75 in (146.0 mm) 6.60 in (167.6 mm)	8.0 in (203.2mm) 12.75 in (323.8 mm)
Length Overall Length Make Up Length	3.66 ft (1.12 m) 3.48 ft (1.06m)	3.91 ft (1.19 m) 3.73 ft (1.14 m)	4.35 ft (1.32 m) 4.17 ft (1.27 m)	4.67 ft (1.42 m) 4.44 ft (1.35 m)
Weight	103 lb (46.7 kg)	133 lb (60.3 kg)	193 lb (87.5 kg)	353 lb (160.1 kg)
Sensors Configuration Number of Pads Pad Curvature Pad Arc Length MFL Sensors EC Sensors Temperature Sensors Total Sensors	8 4.0 in (101.6 mm) 1.9 in (48.3 mm) 64 16 8 88	10 5.0 in (127 mm) 1.9 in (48.3 mm) 80 20 10 110	12 7.0 in (178 mm) 1.9 in (48.3 mm) 96 24 12 132	16 9.0 in (229 mm) 1.9 in (48.3 mm) 128 32 16 176
Centralizer				
Operating Specifications Type Overall Length Make Up Length Weight	Roller Centralizer 1.12 ft (0.34 m) 1.00 ft (0.30 m) 23 lbs (10.4 kg)	Operating Range ID Collapsed Diameter Material		3.75 in to 6.50 in 95.2 mm to 165.1 mm 3.75 in (95.2 mm) 4140

Specifications subject to change without notice

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