

WELL INTEGRITY: PIPE EVALUATION

# Digital Magnelog (DMAG) service

## Detect wall thickness changes in casing strings

### Applications

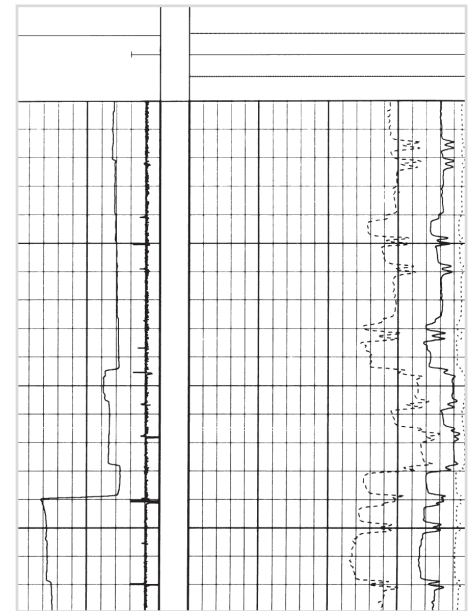
- Identify varying weights and wall thicknesses in casing and joints
- Determine presence of corrosion activity in casing
- Find holes greater than 2 in. (51 mm) in diameter
- Locate casing collars and other casing hardware
- Determine the bottom of outside casing strings

### Benefits

- Identification and quantification of general corrosion activity in a variety of casing strings
  - Provides quick casing assessments
- Detection of small defects and anomalies in casing walls
  - Provides immediate feedback on equipment health

The **Digital Magnelog (DMAG) casing inspection service** is an electromagnetic, multifrequency, multispacing casing inspection service to detect wall thickness changes in single or multiple casing strings for potential corrosion activity. The amount of magnetic field shift, which affects casing thickness and permeability, determines casing wall thickness. An electronic caliper measures the magnetic permeability of the void between the tool and the inner wall of the casing, indicating average inside diameter. A differential anomaly indicator provides a curve that displays small defects on the inside wall of the casing.

The wall thickness and caliper measurements permit a distinction between internal and external loss of metal from the casing. The wall thickness curve shows external loss. The electronic caliper and anomaly indicator detector curves respond to metal loss from the inside of the casing. The DMAG service records all data—phase shifts, amplitudes, circumferential section calipers, and differential anomaly indicators—simultaneously on a single logging pass. This allows selection of the frequency and spacing best suited to specific field conditions.



DMAG amplitude plot

## Digital Magnelog (DMAG) service specifications

Tool series	2933	2934	2935
Casing range	4½-in. to 7⅝-in. (114.3 to 193.6 mm)	7-in. to 9⅝-in. (177.8 to 244.4 mm)	9⅝-in. to 13⅜-in. (244.4 to 339.7 mm)
Instrument length	13.8 ft (4.22 m)	13.92 ft (4.24 m)	16.58 ft (5.05 m)
Instrument weight	250 lb (113.6 kg)	300 lb (136.1 kg)	350 lb (158.7 kg)
Logging speed	60 ft/min (9.14 m/min)	60 ft/min (9.14 m/min)	60 ft/min (9.14 m/min)
Maximum pressure	20,000 psi (137.9 MPa)	20,000 psi (137.9 MPa)	20,000 psi (137.9 MPa)
Maximum temperature	350°F (177°C)	350°F (177°C)	350°F (177°C)