



# Electro-Magnetic (EM) Wire Rope Testing

Electro-Magnetic (EM) Instruments can provide reliable data on the internal and external deterioration of ferromagnetic steel wire rope caused by corrosion, wear and various changes of rope structure. This includes locked coil ropes and plastic coated ropes.

EM Instruments simultaneously indicate Local Fault (LF) patterns and measure Loss of Metallic Cross-sectional Area (LMA). Broken wires, lay distortion, inter-strand nicking, external wear or corrosion pitting can cause Local Fault patterns.

Combined LF and LMA information can be used to assist with:

- Determining when a steel wire rope has reached the end of its safe working life and should be removed.
- Estimating the Loss of Breaking Strength (LBS) of a steel wire rope.

Portable EM Instruments allow steel wire rope testing on site. The instruments consist of two inter-connected components:

- A Test Head through which the rope travels.
- A Console which displays the test results.

## PREVENTATIVE SAFETY

To ensure safety, it's critical that steel wire rope be regularly non-destructively tested using an EM Instrument and augmented by a visual inspection of sections of the steel wire rope where significant deterioration is indicated. This two-fold information can be used to accurately determine the complete condition of the steel wire rope and track its rate of deterioration so that a valid assessment can be made for preventative measures to slow down the rate of deterioration or to determine replacement.

**In many jurisdictions, government regulations require that steel wire ropes utilized in underground mining operations be regularly tested using EM instrumentation.**