

MAGNETIC TESTING OF WIRE ROPE SET FOR BOOST FROM ISO 4309

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While details are still being finalized, specific recommendations for magnetic testing of wire rope look set to be included for the first time in the next issue of ISO 4309 (Cranes – Wire ropes – Care and maintenance, inspection and discard). As a result, the lifting industry is almost certain to witness a significant increase in the range of applications for which this well-established technique is employed.

At the November meeting of LEEA's technical committee, which coincided with another successful LiftEx exhibition, Barrie Mordue of Tensology, a UK-based company that offers specialist services relating to steel wire ropes, gave a detailed presentation on magnetic rope testing. For readers new to the subject, here's a review of some of the key points.

As the name suggests, magnetic testing involves applying a powerful magnetic force to the wire rope. In areas where there is corrosion or missing metal, the magnetic flux either reduces or 'leaks'. Digital sensors detect and measure this reduction or leakage, indicating and locating faults such as broken wires or strands not visible to the naked eye. Properly applied, it can therefore offer significant advantages over widely used techniques such as basic visual examination, the measurement of the rope's diameter at specific points along its length, or physically 'opening up' the wire to look for defects.

The magnetic head will incorporate either an LF (Local Fault) sensor to identify issues such as broken wires and strands, an LMA (Loss of Metallic Area) sensor to detect internal corrosion, or a combination of the two. Significantly, this approach enables internal, non-destructive inspection of a complete length of rope, not just a handful of points selected by the examiner. Consequently, the process produces a comprehensive set of results on the internal condition of the wire rope. Over a series of inspections, this provides a reliable means of comparing results to identify the rate of deterioration. The point at which the rope needs to be taken out of service can therefore be predicted with a far greater degree of accuracy. It is also possible to test new wire rope to establish a reference point against which future results can be assessed.

Magnetic testing is clearly far less subjective than techniques that rely exclusively on visual examination. It

provides employers with the peace of mind that comes with written test records based on scientific methodologies. As well as helping meet legal obligations, it also assists the identification of problems before they pose a risk to safety. Equally, the results may prevent premature discard of perfectly sound wire rope.

However, it is always important to remember that magnetic testing represents an additional tool at the disposal of an examiner. It can complement and support existing techniques, not replace them. Furthermore, magnetic testing does not eliminate the need for properly qualified examiners. Using the equipment and interpreting the results still requires the combination of skills and experience that constitute competence in a lifting equipment examiner. Whatever the future holds in terms of ISO 4309, those who employ magnetic testing are still well advised to look carefully not just at the equipment, but also the capabilities of the personnel who will be using it. ■



Courtesy of Tensology Limited.

More details on the work of LEEA (Lifting Equipment Engineers Association) can be found at www.leeaint.com