



# State-of-the-art device for continual testing of wire ropes

A remotely operated inspection device to monitor steel rope is the result of collaboration between AMC and other colleagues in Lifting Solutions. Rope Watcher is the first device of its kind in the magnetic rope-testing market.

The companies within Lifting Solutions business group supply wire rope, hoists, overhead cranes and other lifting products to customers in the energy, manufacturing and construction sectors. A great focus for the entire Lifting Solutions group is providing safe applications for their customers. Turin-based company AMC (Advanced Magnetic Control) develops specialised devices for the magnetic control of

ferromagnetic ropes used in industrial applications such as cableways, elevators, cranes, and bridges. AMC's technique is also used by other companies in Lifting Solutions to control condition of steel wire ropes in running applications at customer sites to improve safety and optimise the lifetime of the ropes.

» The reception internally and externally has been extremely positive, and large-scale distribution will continue through 2022.

Bruno Vusini

### **Detecting invisible damage**

Magneto-inductive systems have been around since the first part of the 20th century. By passing a section of wire rope through a set of permanent magnets to measure the flux density, a tester can record two sets of data – the extent of occurrence of localised fault, such as broken wires, and the amount of steel loss due to corrosion or wear and tear – without damaging the rope. For years, visual inspection was the only way to evaluate the condition of wire rope used in such high-stress load-bearing applications.

“The problem is that wear and tear often begin on the inside, around the core where the naked eye cannot see it,” says Bruno. “Sometimes the cable itself is not visible because of design or environmental factors.”

AMC provides devices using MRT technology for testing of cableways, steel ropes on cranes and bridges as well as elevators. Periodic magnetic rope testing of wire ropes and cables in such high-risk applications is required by law, with frequency varying by country, industry, and specific situation.



### **Easy-to-use alarm**

As Internet of Things becomes more of a reality, today's requirements for periodic testing of industrial ropes and cables are giving way to continual testing. As early as 2014, AMC developed an MRT device that could be used remotely, but the costs were high and the process cumbersome.

Bruno and his team faced several challenges to bring down costs and make the device accessible to a larger market. They needed to build in a level of machine intelligence that could sort the data into three easy-to-understand categories: from green (system all right) to red (imminent danger, replace rope immediately) to warn about abrasion, corrosion or other damage. "It was in development for more than a year and is an alarm more than a monitoring system. The signals are triggers for further inspection and analysis," notes Bruno. "An expert could categorise the data, but we had to make it easy for non-experts."

AMC had to adapt their product to a range of different-sized ropes for different applications in various industries. They designed a system that would be easy for the installer to set up. An installer might be knowledgeable about steel rope but not

necessarily about MRT.



### **New commercial strategy**

Danny van Deuzen, Central European Director for Lifting Solutions and Director at Mennens Dongen, and Michel de Vos, Marketing Manager for the Mennens Group, began working with Bruno to refine AMC's remote testing device already in 2019. These efforts have now converged into Rope Watcher, a permanently installed device that enables an operator to inspect ropes remotely.

"The technology is ours, but we developed our commercial strategy together. Danny, Michel and the group have helped us improve our knowledge of the final user, and they provided feedback and marketing direction," Bruno explains. "The way to connect to the network, how the data results are expressed and the use of the cloud – these were all improved because of our work with our colleagues in Lifting Solutions."

AMC began distributing Rope Watcher in May 2021 through several sister companies within Lifting Solutions. In September 2021, the business group held an MRT Forum in Turin, Italy, to introduce Rope Watcher to all its members, and in November 2021 AMC

presented it at a trade fair in Abu Dhabi. “The reception internally and externally has been extremely positive, and large-scale distribution will continue through 2022,” Bruno says.



## A single point of contact for the global wind market

Lifting Solutions has established **Certex Renewables**, a centralised division that provides a single point of contact for clients operating globally.

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# Growing globally

**Lifting Solutions** is a global player operating as a group of companies that supply wire rope, hoists, overhead cranes and other lifting products together with connected services. The companies serve local and global customers in ports as well as the energy, manufacturing and construction sectors.

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