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AMC Instruments Srl born on 2007 as spin-off from the Politecnico di Torino, team made of professors and researchers from 3 different depts with more than 20 years of experiences in the field of Non Destructive Testing on metallic bodies with magneto-inductive devices.

Setting of a proprietary innovative technology for the development of magneto-inductive devices dedicated to the wire ropes control

AMC Instruments

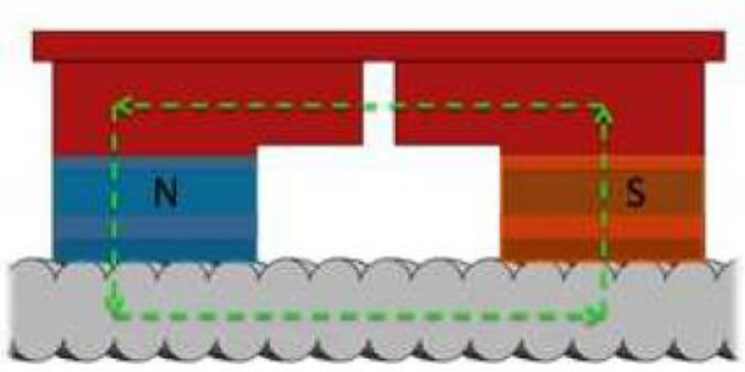
PRODUCTS:

- AMC Instruments **produces** and **sells** devices for NDT of wire ropes in the three markets of Industrial Lifting, Elevators, Ropeways;

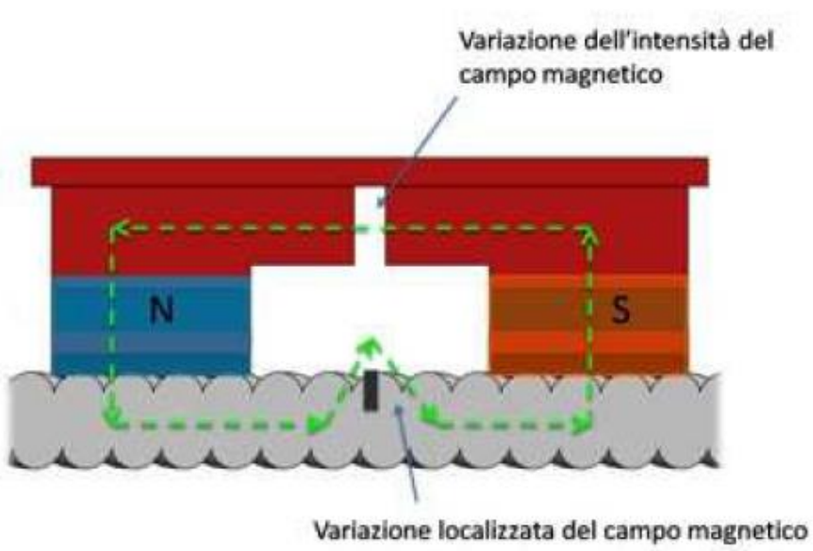
SERVICES (M-I field):

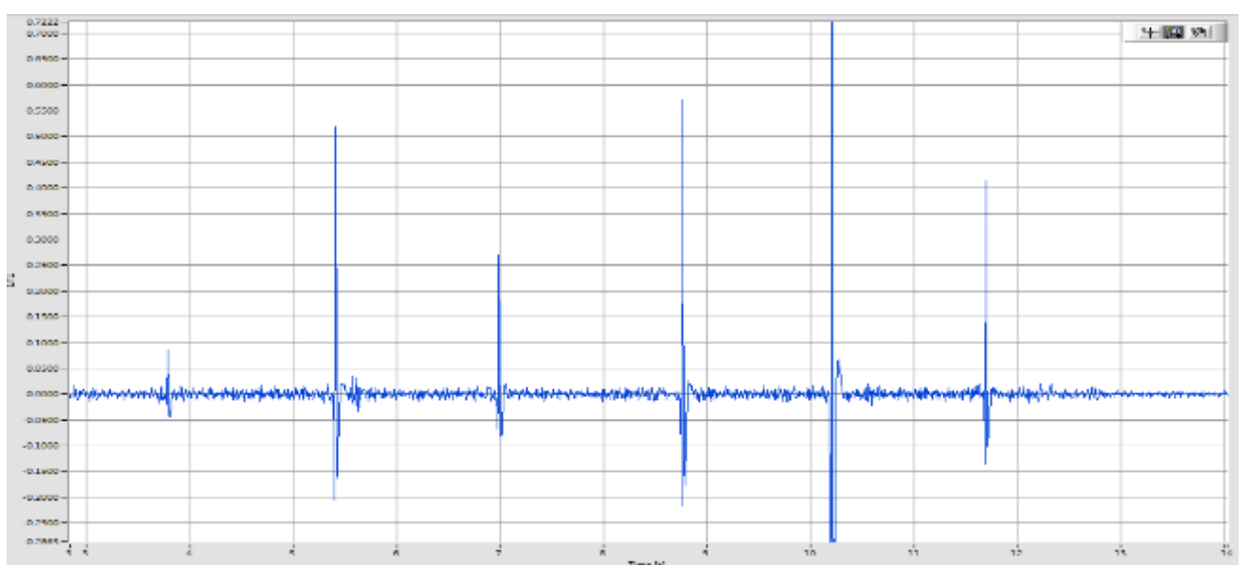
- AMC Instruments is a **service provider** for the analysis of wire ropes;

MAGNETO-INDUCTIVE PRINCIPLE



When broken wires or defects occur, a modification of the magnetic flux lines appears.
This change, in value and direction, is detected by some sensors that transform the physical phenomena in a readable signal

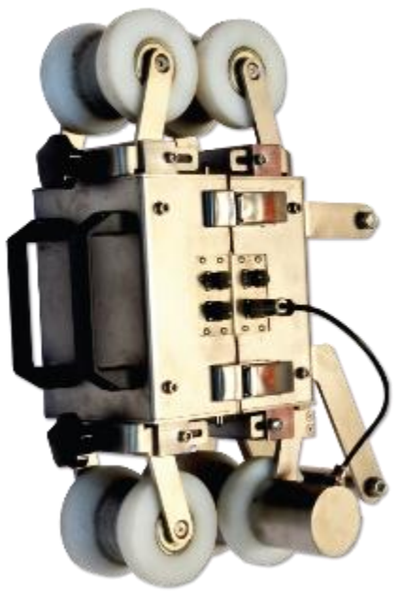




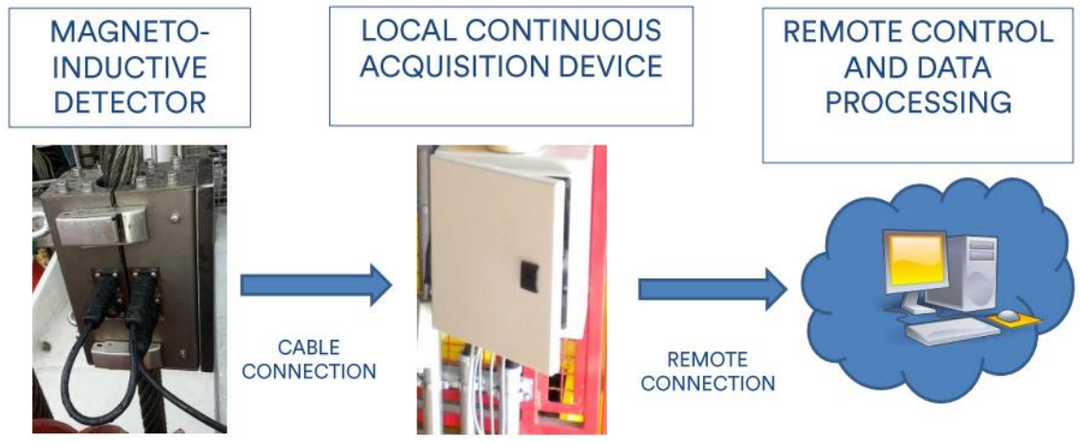
Architecture

- Portable Devices

+



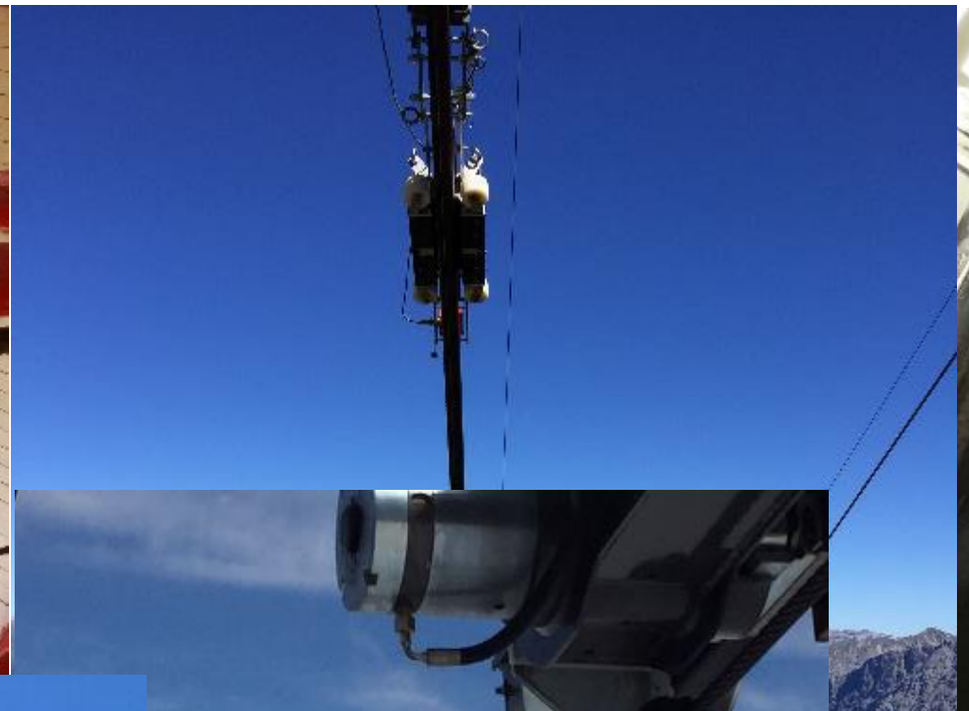
- Permanent Installed Devices

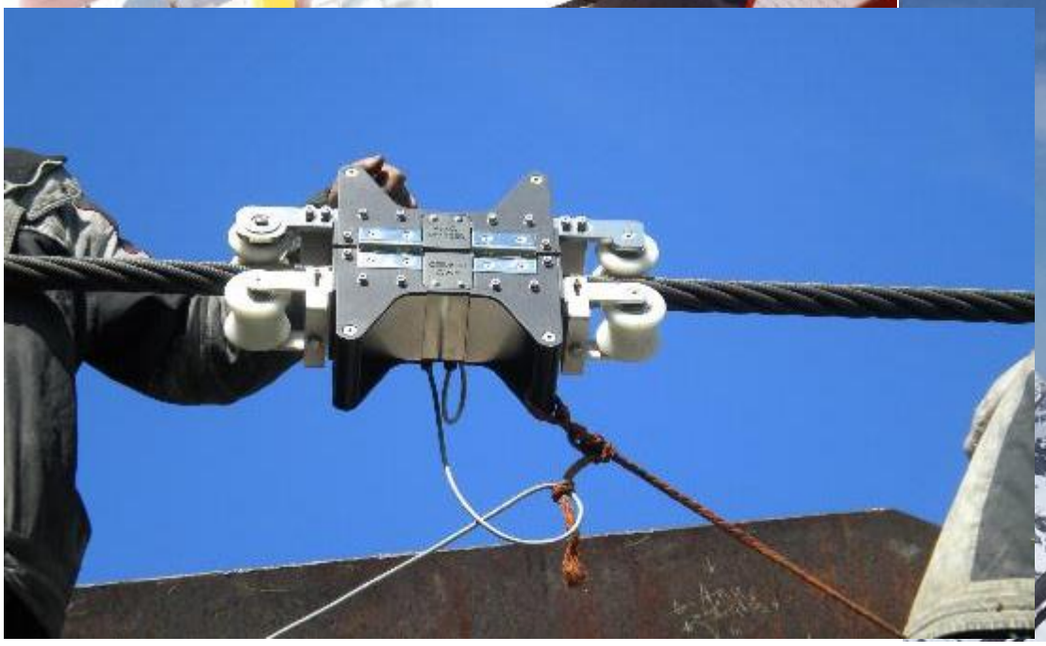


Main Markets

- Ropeways
- Industrial Lifting
- Elevators
- Special Devices

ROPEWAYS





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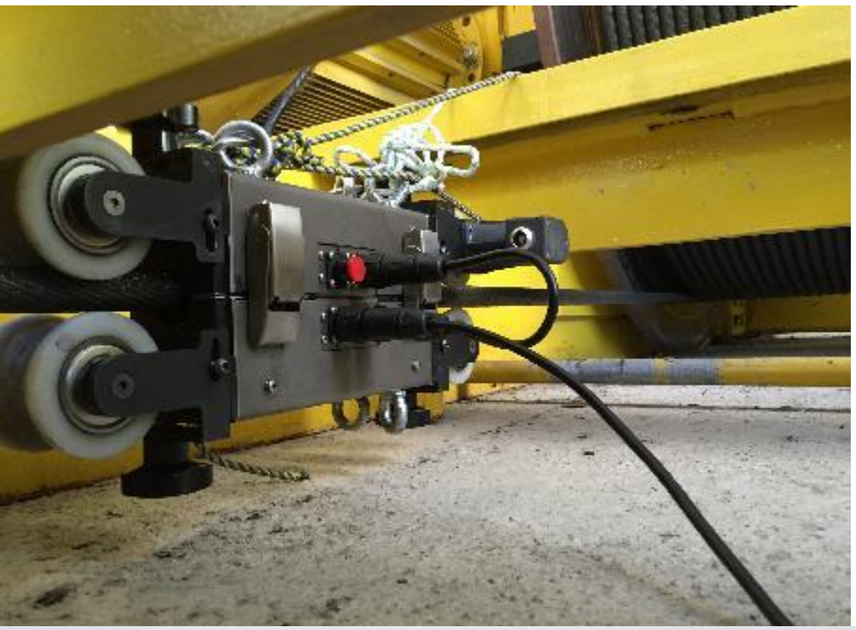
INDUSTRIAL LIFTING/SHIPS



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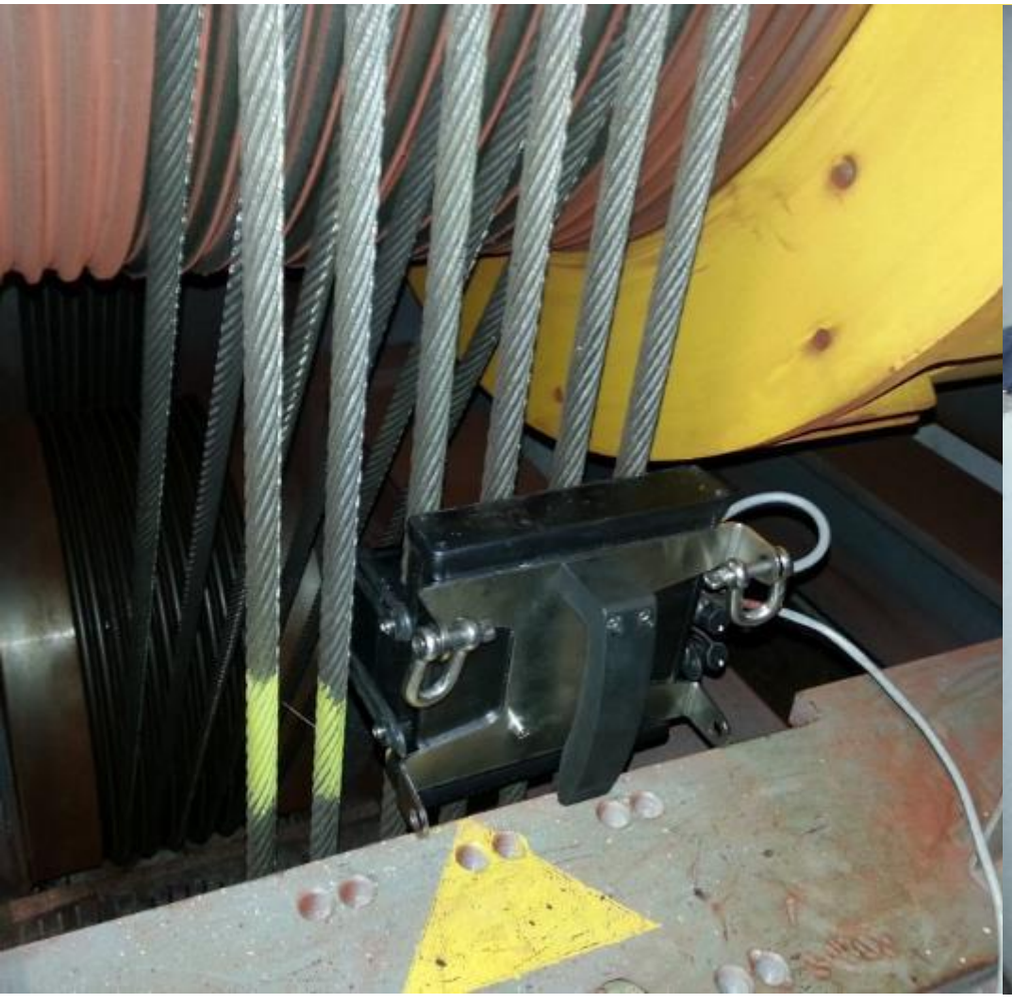
ELEVATORS



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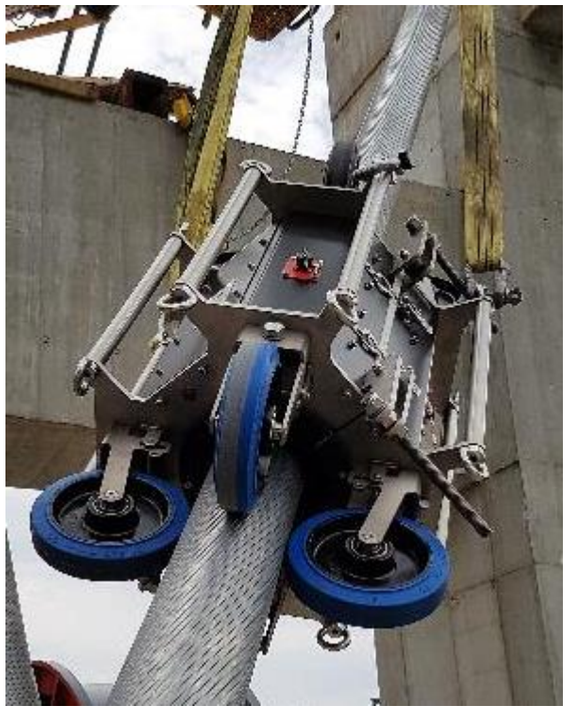
AMC Monitors and Sensors for Mobile Installation



More than 10 years of experience in NDT of wire ropes

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AMC Monitors and Sensors for Mobile Installation

AMC Rope22: allows to measure ropes up to 22mm
AMC Rope40: allows to measure ropes from 20mm to 40mm
AMC Rope65: from 40mm to 65mm
AMC Rope90: from 60mm to 90mm
AMC Rope130: from 90mm to 130mm
AMC Rope170: from 130mm to 170mm
AMC OPEN 60: up to 60mm (carrying cables)
AMC OPEN 80: up to 80mm (carrying cables)

Special sizes on request

More than 10 years of experience in NDT of wire ropes

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The visual control of wire ropes

The visual control of a wire rope, used without any advanced technology, is very difficult to perform, due some specific reasons:

1. The rope is normally covered of grease and many broken wires (also external) are often impossibile to identify

2. The internal corrosion (that appears expecially when the rope is exposed to marine environment) starts normally from the core of the rope. In particular on anti-rotational ropes this kind of damage is impossibile to ‘see’ by using only a visual inspection. In these cases, the rope is externally ‘perfect’.

The visual control of wire ropes

Roland Verreet: visual control=20% safety + 80% hope

SOLUTION

MAGNETO-INDUCTIVE CONTROL

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The Magneto-Inductive control of wire ropes

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The Magneto-Inductive control of wire ropes

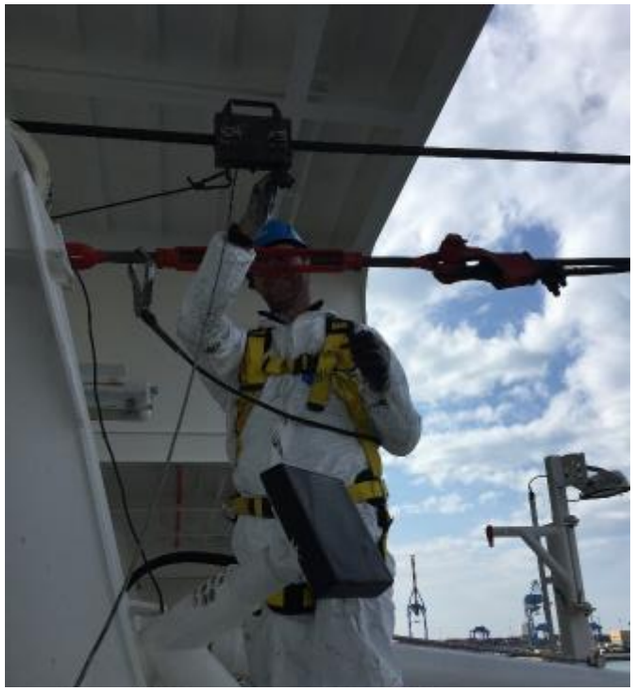
Advantages:

1. It is repeatable
2. It allows to identify external and internal wear and broken wires
3. It is not affected by grease
4. It is quick to perform
5. It is possibile to print the diagrams in order to demonstrate that the control has been performed
6. It is possibile to compare two tests performed on the same rope in different moments, in order to understand how the damages evolve
7. It is possibile to perform a predictive analysis

The Magneto-Inductive control of wire ropes

In order to perform a good analysis:

1. The device should be certified under the EN12927
2. The personnel should be certified under the ISO9712



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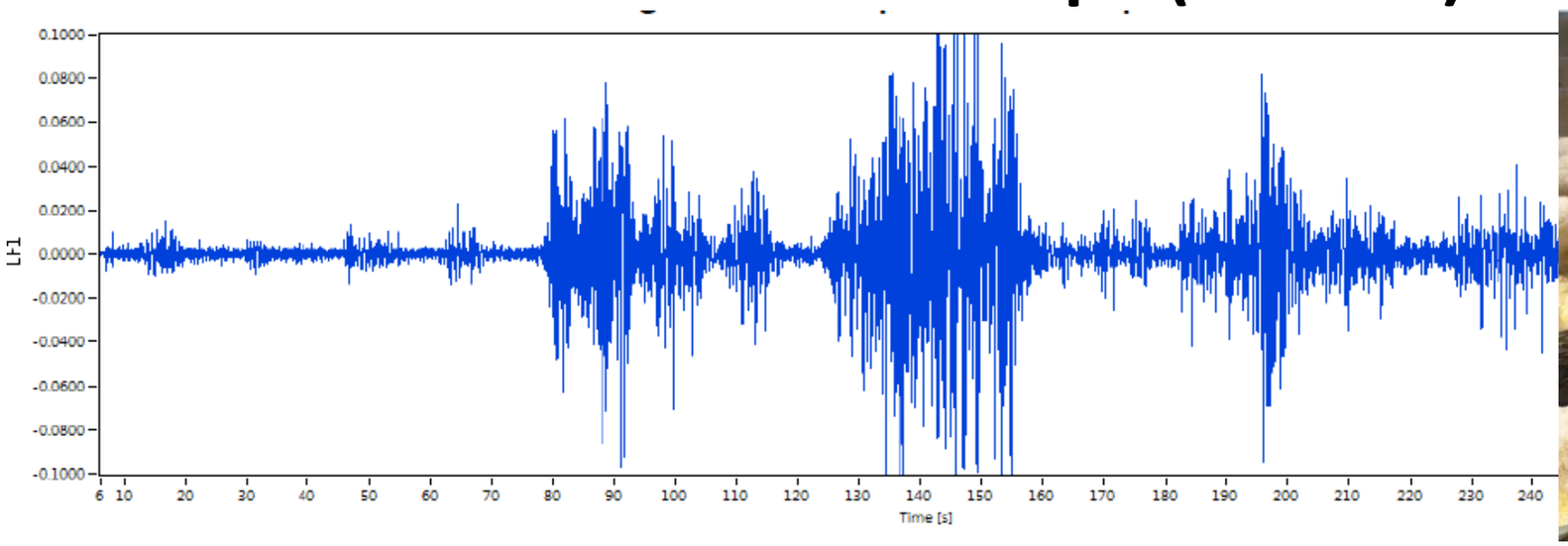
The Magneto-Inductive control of wire ropes: test case on a lifeboat rope (on field)

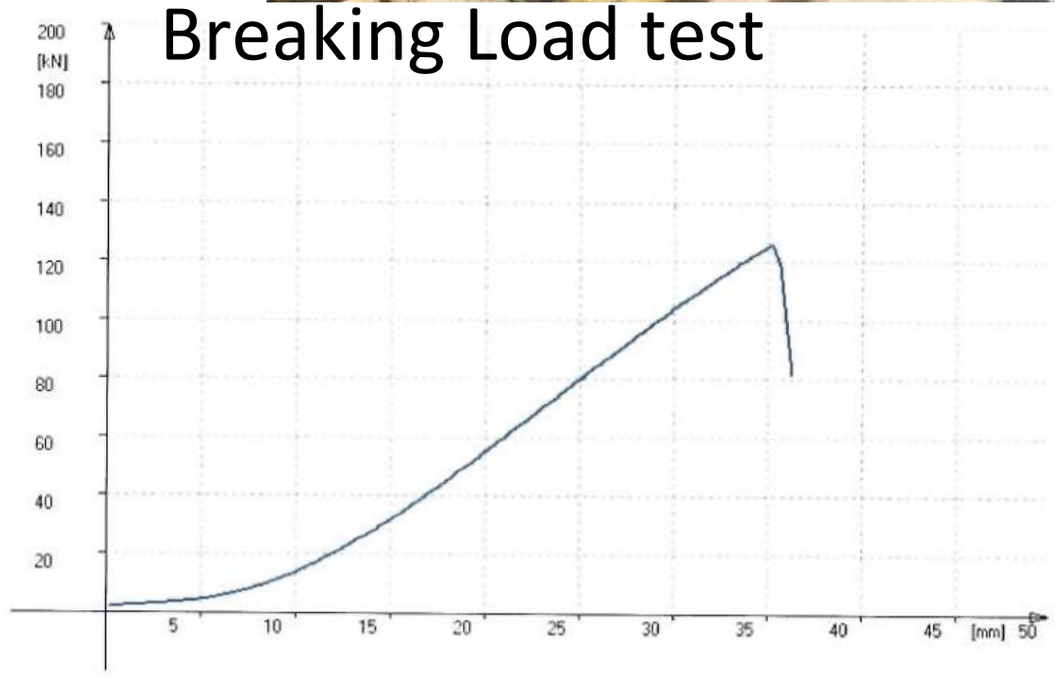


No external broken wires

Deep internal wearing (no visible)

Nominal Breaking Load: 400 kN

Real Breaking Load (tested): 125 kN



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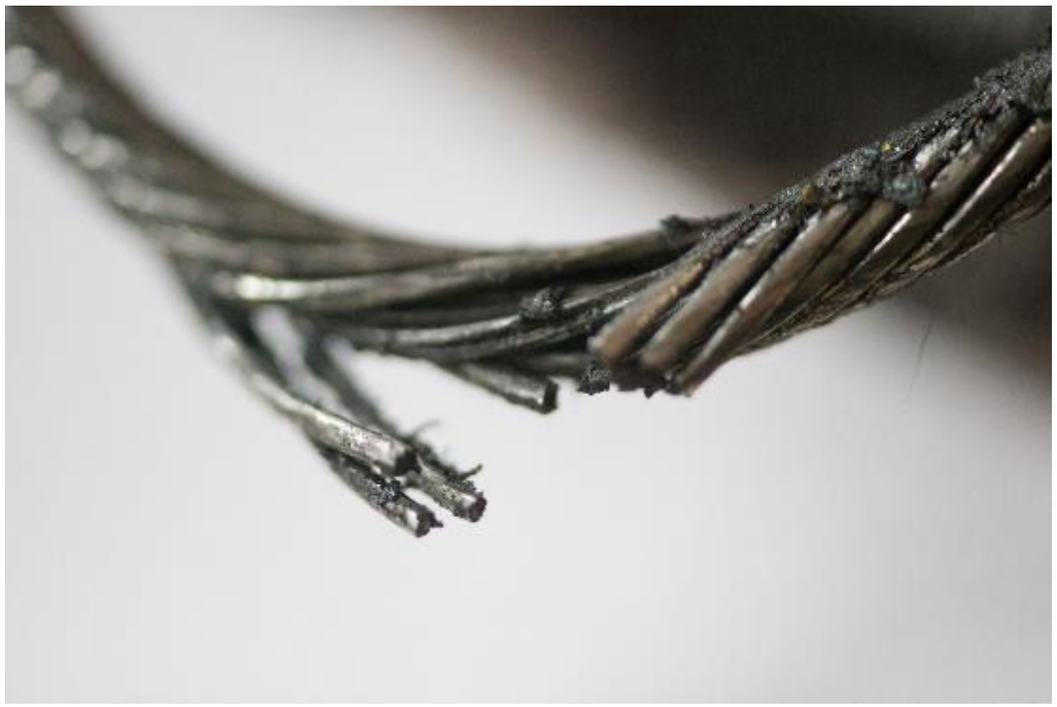
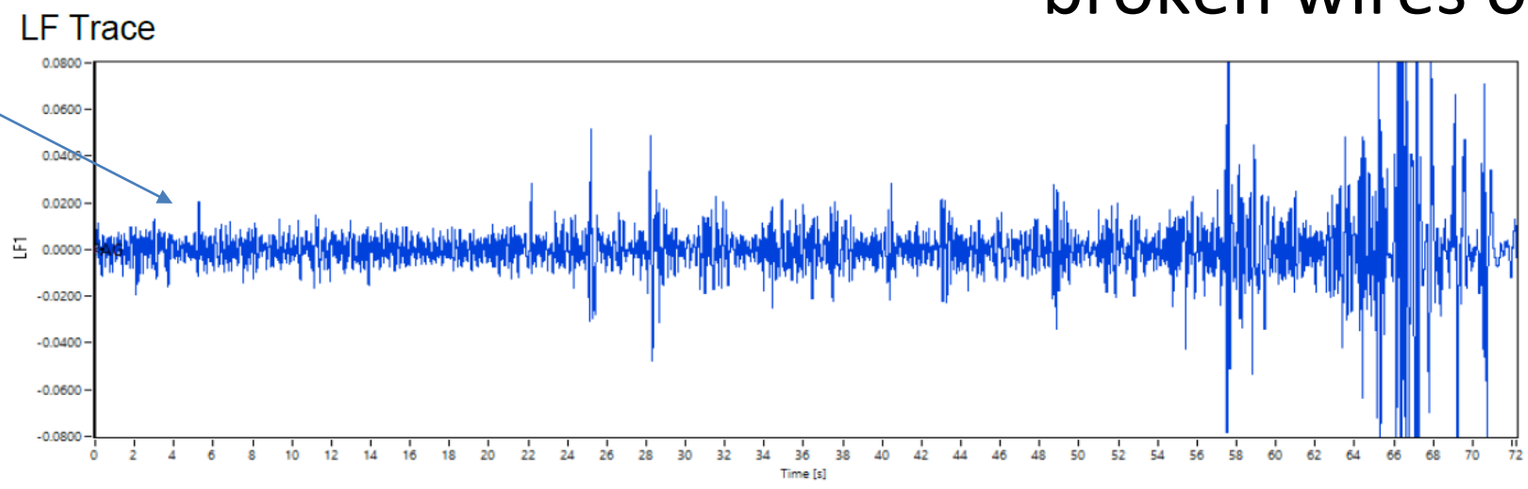
The Magneto-Inductive control of wire ropes: test case on a crane



1 external broken wire

8xK19S+IWRC discard criteria 5 broken wires over 6d



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The Magneto-Inductive control of wire ropes: Regulation

The new release of the ISO4309:2017, includes the Magneto-inductive technique in the assessment methods to be used in order to perform the inspection of the rope.
In particular it will be the preferred technique in order to investigate about internal damages and corrosion

ISO4309

PERMANENT SENSORS (24/7 monitoring)

Application for predictive/on-condition maintenance on PLANT

Installed on plants our device allows a constant monitoring of the wire rope, establishing in advance the plant downtime for extraordinary maintenance (e.g.: rope substitution). This allows to avoid any unplanned stops due to a sudden and unexpected maintenance activity, besides to execute the rope change only when necessary.

Application for product quality control at the END of PRODUCTION LINE

Installed downstream of the production line, our device detects product anomalies and non-conformity, reducing quality costs and delivery time for wire rope Manufacturers.

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PERMANENT SENSOR (continous monitoring, 24/7days):

MAGNETO-INDUCTIVE DETECTOR

CABLE CONNECTION

LOCAL CONTINUOUS ACQUISITION DEVICE

REMOTE CONNECTION

REMOTE CONTROL AND DATA PROCESSING

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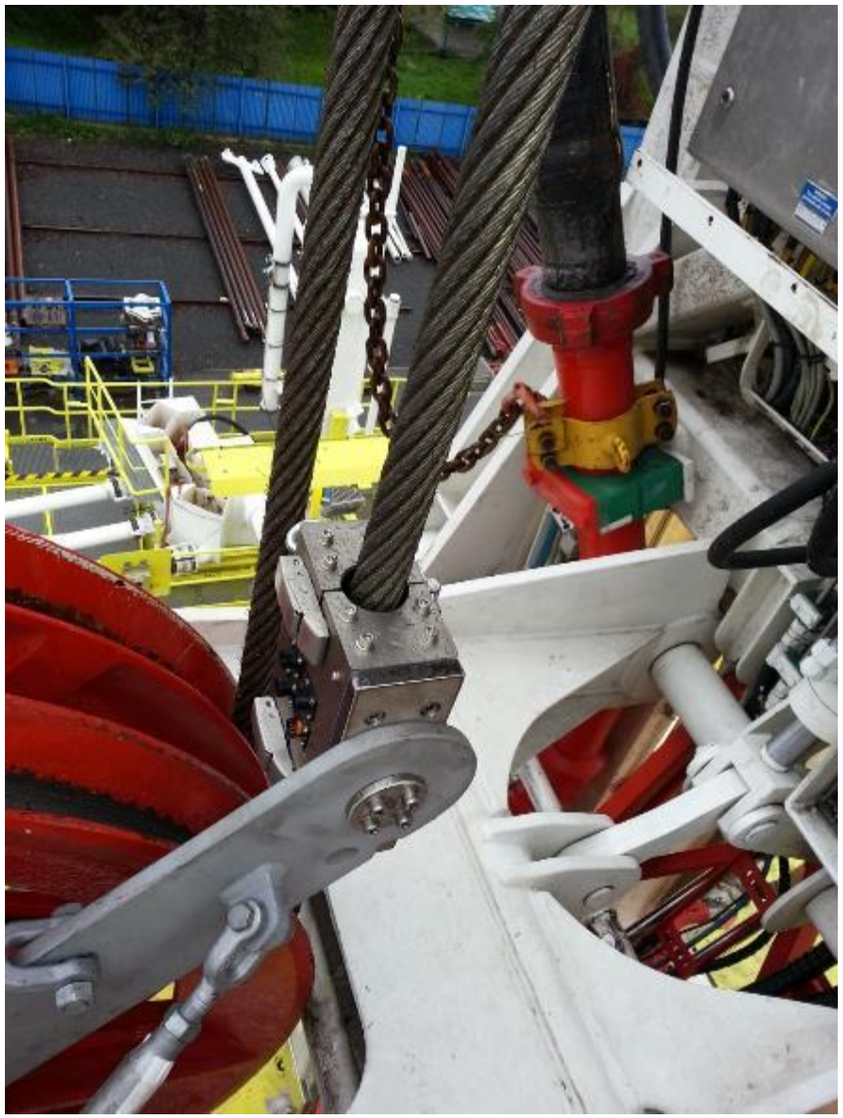
PERMANENT INSTALLATION: the first tests



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PERMANENT INSTALLATION – EXAMPLE 1

Continuous acquisition with Visualization
Treshold control

PERMANENT INSTALLATION – EXAMPLE 1

Continuous acquisition with Visualization
Treshold control

PERMANENT INSTALLATION – EXAMPLE 2

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PERMANENT INSTALLATION – EXAMPLE 3

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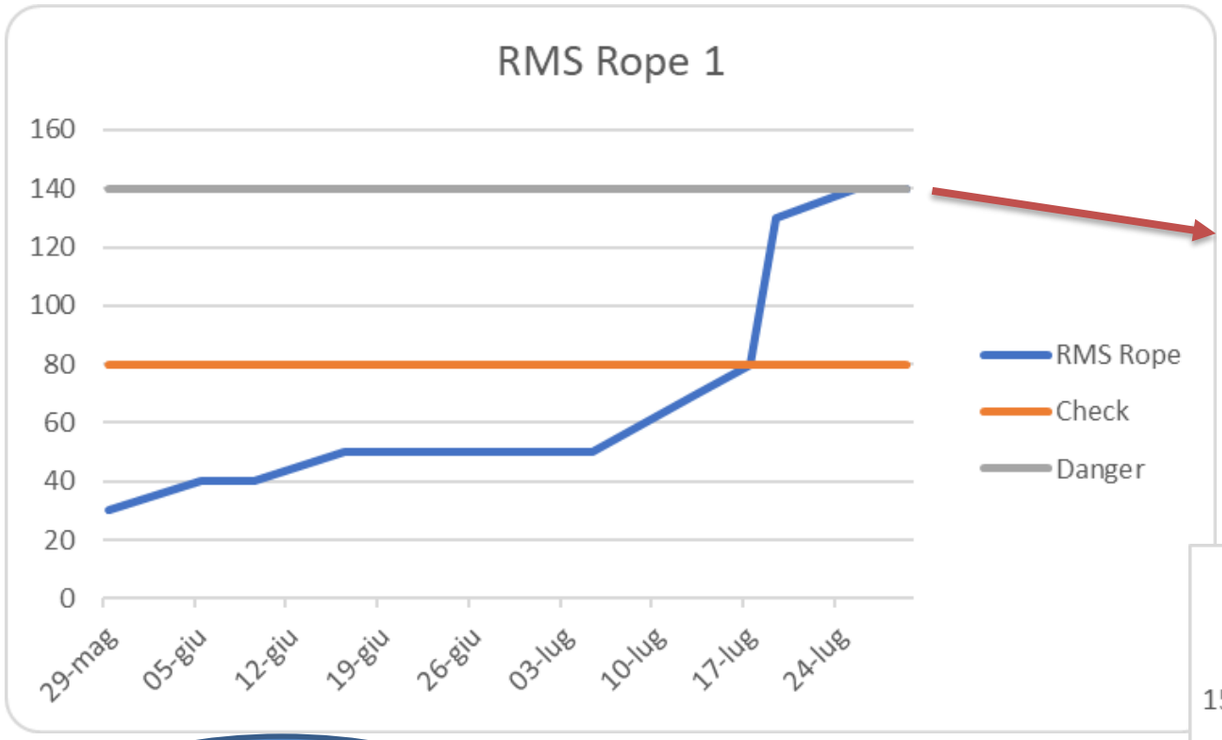
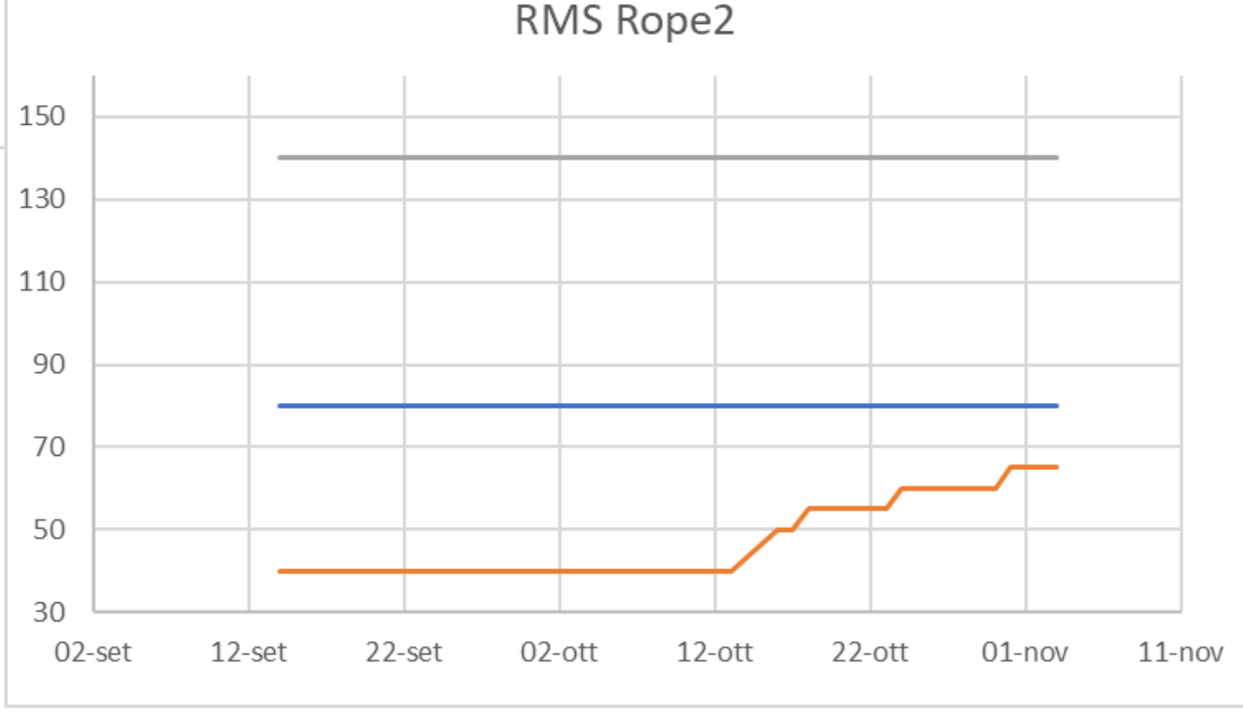
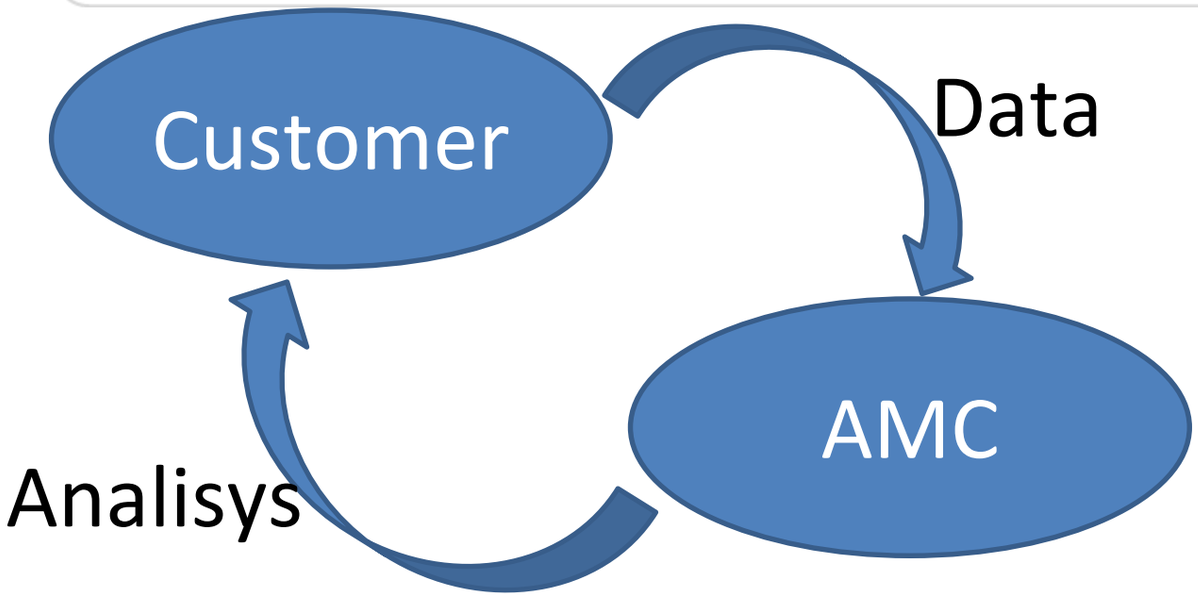
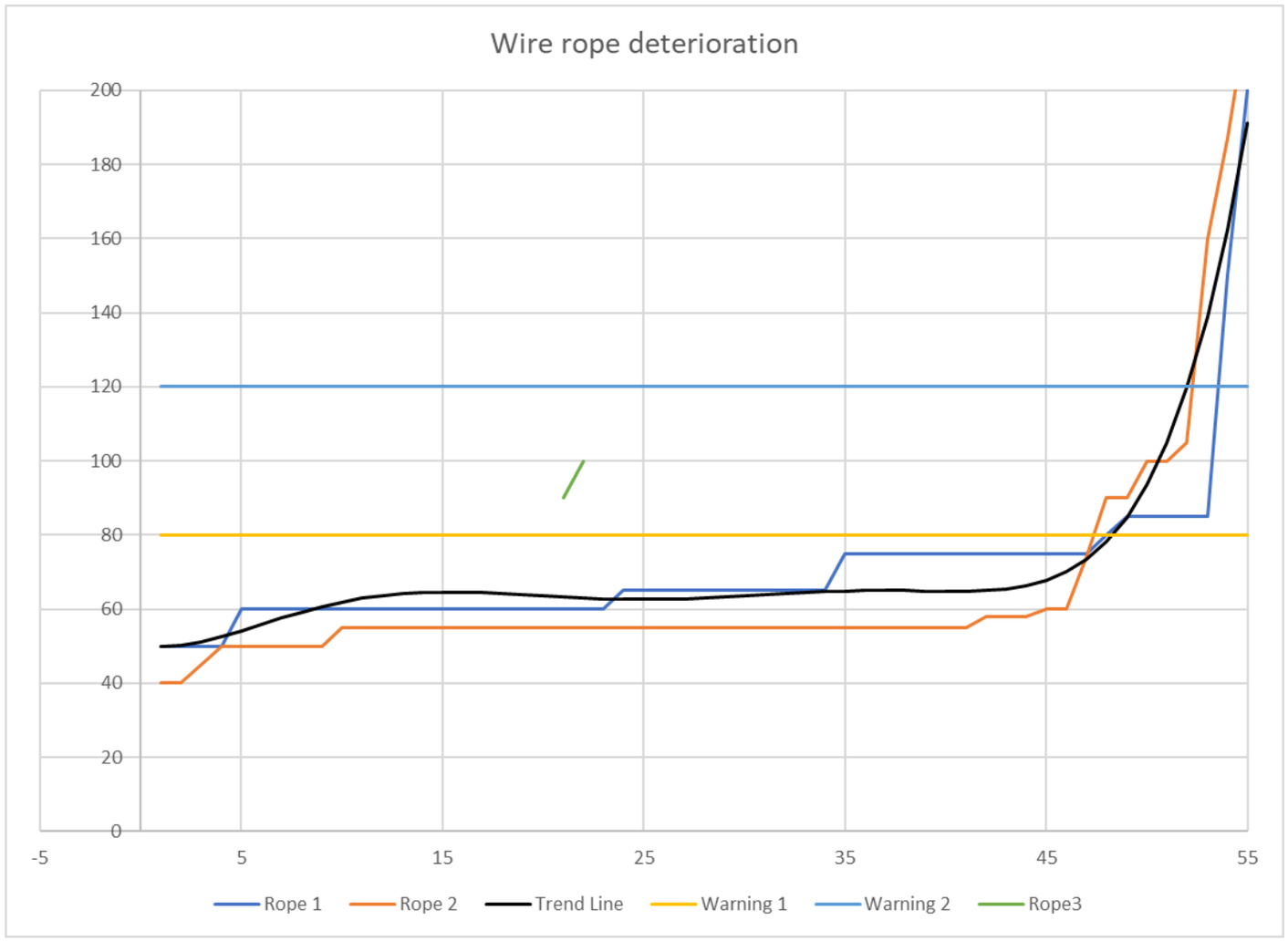
PERMANENT INSTALLATION – RESULTS







PERMANENT INSTALLATION – PREDICTION



TEST ON PLANTS

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FOR ANY QUESTION

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