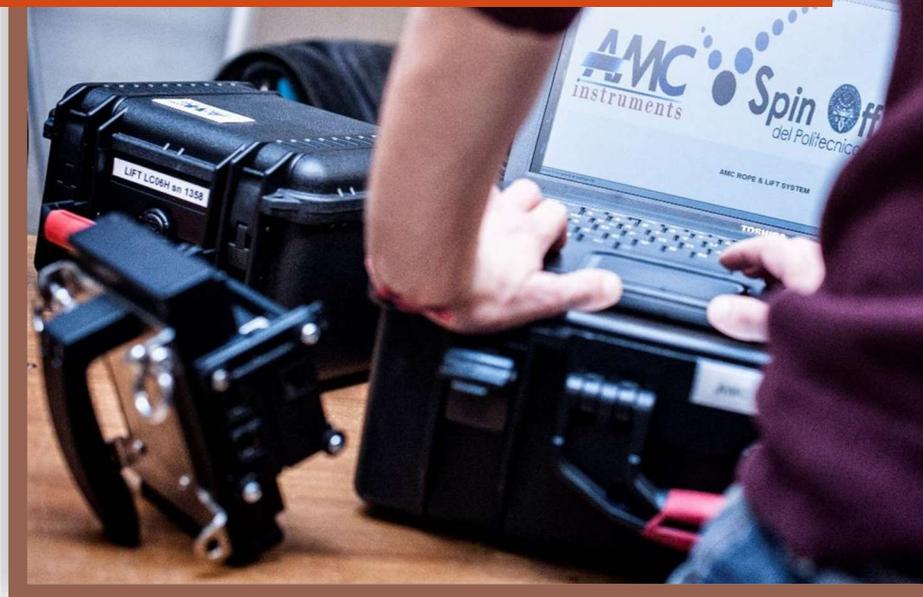


AMC Instruments srl



AMC Instruments was born in 2007 in Turin (Italy). Main business of the Company are the development of devices for NDT of wire ropes and the connected services. AMC operates in the three main areas:

- Industrial Lifting
- Cableways
- Elevators

AMC has been created due the interest of three departments of Turin Polytechnic with a lot of experience in wire ropes and new technology, with the aim to develop new systems for the non destructive control of wire ropes.

AMC is actually the most innovative company on the market in the field of NDT on wire ropes. Its technology and its devices are appreciated by an high number of customers around the world.

The technology that drives AMC devices is the magneto inductive technique. This well known method has been improved by our company in order to develop high sensitive systems, in according to the main regulations in various fields. All the systems have been developed by using FEM techniques, in order to correctly sizing the magnetic circuits.

AMC Instruments s.r.l.

Sede Legale: C.so Matteotti 36 – 10121 - Torino // Sede Operativa_ Via Pietro Nenni 79/E – 10036 Settimo Torinese (TO) Italy

Re. Imprese e C.F. 09612820010 – REA 1066557 – Capitale Sociale € 14.244,87

Tel: +39 0110378820 Fax: +39 011 19835584 info@aemmeci.com ■ www.aemmeci.com

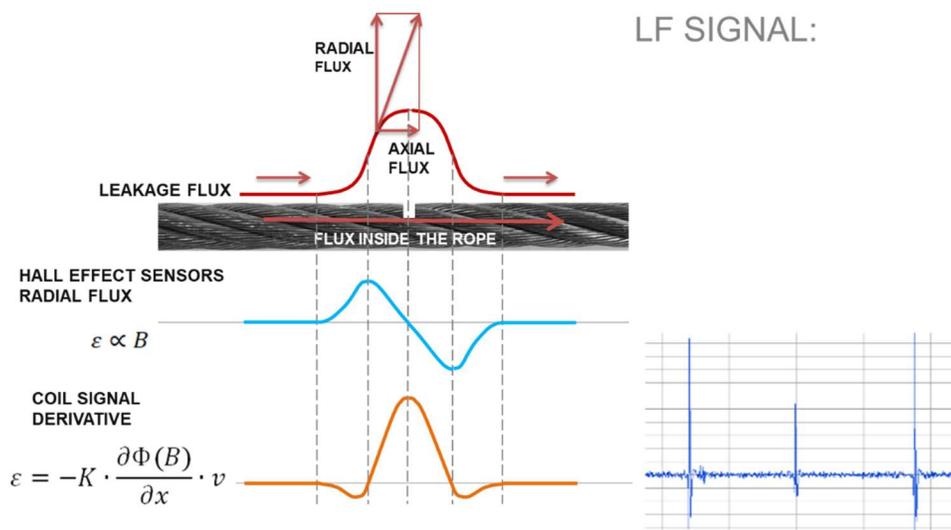
The technology

AMC devices are constituted by two different units. A **magnetizing head** and an **acquisition system**.

The magnetizing head is developed in order to force a magnetic field inside the metallic wire rope. When no defects are present, the magnetic flux flows inside the rope without appreciable variations.

When there is a defect on the rope, the path of the field is modified and a part of it passes from the rope to the surrounding air. This flux is detected by a dedicated sensor circuit, in order to supply a signal that is indicative of the damage.

This is the only signal acknowledged by the regulation EN12927



Also the LMA (Loss of Metallic Area) is available as optional.

The LMA is used in order to identify extended defects, such as wearing, corrosion and so on. At the moment the LMA signal is not included in the EN12927-8 regulation but AMC can integrate this sensors in every device (excluding the AMC Rope22)

AMC Instruments s.r.l.

Sede Legale: C.so Matteotti 36 – 10121 - Torino // Sede Operativa_ Via Pietro Nenni 79/E – 10036 Settimo Torinese (TO) Italy

Re. Imprese e C.F. 09612820010 – REA 1066557 – Capitale Sociale € 14.244,87

Tel: +39 0110378820 Fax: +39 011 19835584 info@aemmeci.com ▪ www.aemmeci.com

The devices

Due its multidisciplinary background and its high experience on the field, AMC Instruments has a lot of different systems, each of them developed for certain fields.

The classic units, available for the field of ropeways and heavy lifting (cranes, hoists...) can inspect ropes starting from 6mm up to 170mm. The magnetic head is connected to the acquisition system by using special cables, with a standard length of 25m. The maximum length that can be achieved is 40m. Up this value some signal amplifiers (optional) are needed.

In AMC there is a wide range of measuring heads. Each of them could cover a certain range of diameters. It is possible to reduce the minimum diameter of the system by using some special **reduction kits** that are composed by extra bushings and extra sensors.

Anyway, due our experience on the field, we decided to give to our customer the possibility to have compact devices for low diameter ropes, in order to make easy the transportation and the manageability of the device during the standard use of it.

The acquisition system is an high resolution device that can acquire up to 5 channels at the same time. The system is equipped with a proprietary software that allows to see the signal in **real time**, to store them and to export the diagrams for the final report.

In AMC we think that in the art of the magnetic analysis of wire ropes, the possibility to see the graph during the exam is really important. This gives to the user the possibility to stop and to visually search the defect, as prescribed by the various regulations. All the graphs are shown on a 15" laptop PC, so that any modification of the signal is clearly visible.

All the devices are supplied with a military bag, that gives to the system an extra protection in the hard environment in which they have been developed to operate.

AMC Instruments s.r.l.

Sede Legale: C.so Matteotti 36 – 10121 - Torino // Sede Operativa_ Via Pietro Nenni 79/E – 10036 Settimo Torinese (TO) Italy

Re. Imprese e C.F. 09612820010 – REA 1066557 – Capitale Sociale € 14.244,87

Tel: +39 0110378820 Fax: +39 011 19835584 info@aemmeci.com ▪ www.aemmeci.com

Magnetic heads for Industrial Lifting

The standard range of AMC devices is here described:

- AMC Rope22: rope diameter range from 12 up to 22mm
- AMC Rope40: rope diameter range from 20 up to 42mm
- AMC Rope65: rope diameter range from 40 up to 65mm

Here the non standard systems. A quote can be requested for these special devices

- AMC OPEN 60-90: for carrying ropes of cableways
- AMC Rope90: rope diameter range from 60 up to 92mm
- AMC Rope135: rope diameter range from 90 up to 135mm
- AMC Rope160: rope diameter range from 130 up to 160mm
- AMC Lift: rope diameter range from 6 up to 13mm, for elevator
- AMC Belt: for elevator belts

AMC ROPE 22



Magnets: NdFeB

Centering system + Encoder: optional

Sensors: LF + LMA (optional)

Weight: 7 kg (excluding centering system)

IP 68

Full compatibility with AMC IASH acquisition system

Developed in according to EN12927-8 (optional certificate)

AMC Instruments s.r.l.

Sede Legale: C.so Matteotti 36 – 10121 - Torino // Sede Operativa_ Via Pietro Nenni 79/E – 10036 Settimo Torinese (TO) Italy

Re. Imprese e C.F. 09612820010 – REA 1066557 – Capitale Sociale € 14.244,87

Tel: +39 0110378820 Fax: +39 011 19835584 info@aemmeci.com ▪ www.aemmeci.com

AMC ROPE 40



Magnets: NdFeB

Centering system + Encoder: included

Sensors: LF + LMA (optional)

Weight: 17 kg (including centering system)

IP 68

Full compatibility with AMC IASH acquisition system

Developed in according to EN12927-8 (optional certificate)

AMC ROPE 65



Magnets: NdFeB

Centering system + Encoder: optional

Sensors: LF + LMA (optional)

Weight: 25 kg (excluding centering system)

IP 68

Full compatibility with AMC IASH acquisition system

Developed in according to EN12927-8 (optional certificate)

NOTE: All AMC devices can be supplied with special reduction kits, that allow to reduce the minimum diameter measured by the sensor

AMC Instruments s.r.l.

Sede Legale: C.so Matteotti 36 – 10121 - Torino // Sede Operativa_ Via Pietro Nenni 79/E – 10036 Settimo Torinese (TO) Italy

Re. Imprese e C.F. 09612820010 – REA 1066557 – Capitale Sociale € 14.244,87

Tel: +39 0110378820 Fax: +39 011 19835584 info@aemmeci.com ▪ www.aemmeci.com

Acquisition Systems

The **AMC IASH** is the standard AMC acquisition system, that is compatible with all the measuring head supplied by the company. This device allows to acquire the signal, view the diagrams in real time, store the data and elaborate the results.

The PC, running the software AMC Rope-Lift Monitor[®], is included in the kit



A different kind of system is available: the **AMC IASX-R**.

This is a little box that can be connected to the customer PC through USB connection. In this case the PC is not included. A full version of AMC Rope-Lift Monitor[®] can be downloaded and installed on the customer PC. The license for one machine is included.



AMC Instruments s.r.l.

Sede Legale: C.so Matteotti 36 – 10121 - Torino // Sede Operativa_ Via Pietro Nenni 79/E – 10036 Settimo Torinese (TO) Italy

Re. Imprese e C.F. 09612820010 – REA 1066557 – Capitale Sociale € 14.244,87

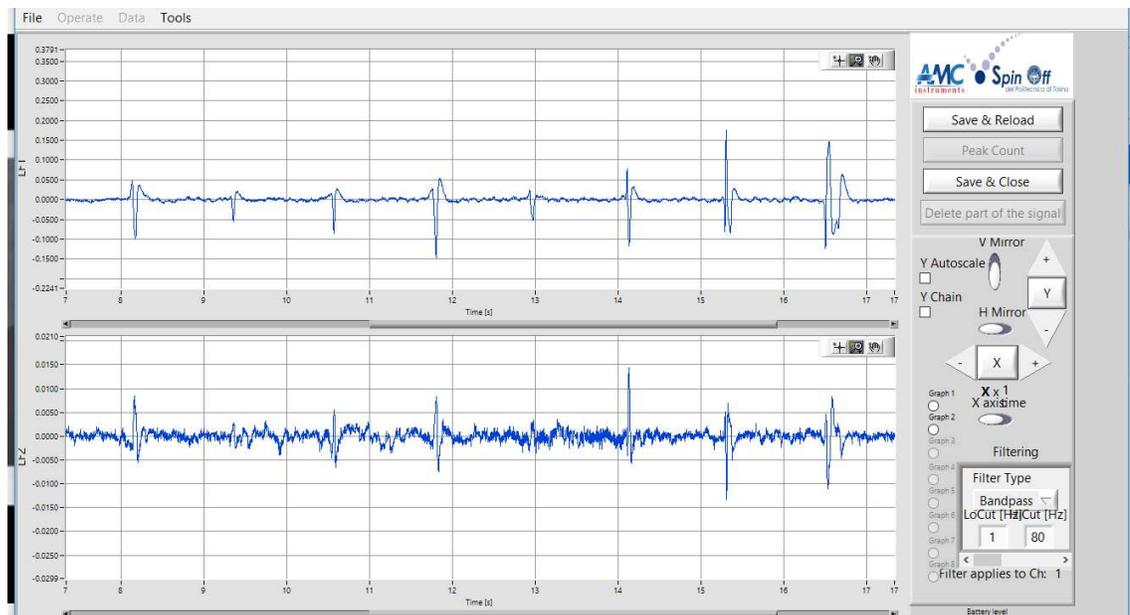
Tel: +39 0110378820 Fax: +39 011 19835584 info@aemmeci.com ■ www.aemmeci.com

Acquisition-Post processing Software

AMC Rope-Lift Monitor[®] is a tool that allows to acquire the data from all the measuring heads developed by AMC Instruments.

It has 2 different macro-environments:

- The acquisition tool: here the customer can acquire the signals, regulate the filters (low/band pass), choose the correct measuring head, set the encoder characteristics and so on. The trace(s) is (are) shown in real time on the PC screen and the inspector can immediately see the defects on the rope. **All the acquisitions are performed in time.** This means that the clock is not given directly by the encoder, but it is internally generated. The encoder signal is acquired and connected to the time, so that the diagrams can be shown both in time and in meters. After years of development on the field, AMC decided to choose this method in order to avoid problems if the encoder slips during the acquisition (due grease, for example). **In this way it is also possible to perform the acquisition without the encoder.**
- The post processing tool: here the inspector can modify the windows sizes, change the filters, cut some portions of diagrams, flip the traces and so on. From this menu it is also possible to print the diagrams on the final report.



AMC Instruments s.r.l.

Sede Legale: C.so Matteotti 36 – 10121 - Torino // Sede Operativa_ Via Pietro Nenni 79/E – 10036 Settimo Torinese (TO) Italy

Re. Imprese e C.F. 09612820010 – REA 1066557 – Capitale Sociale € 14.244,87

Tel: +39 0110378820 Fax: +39 011 19835584 info@aemmeci.com ■ www.aemmeci.com