

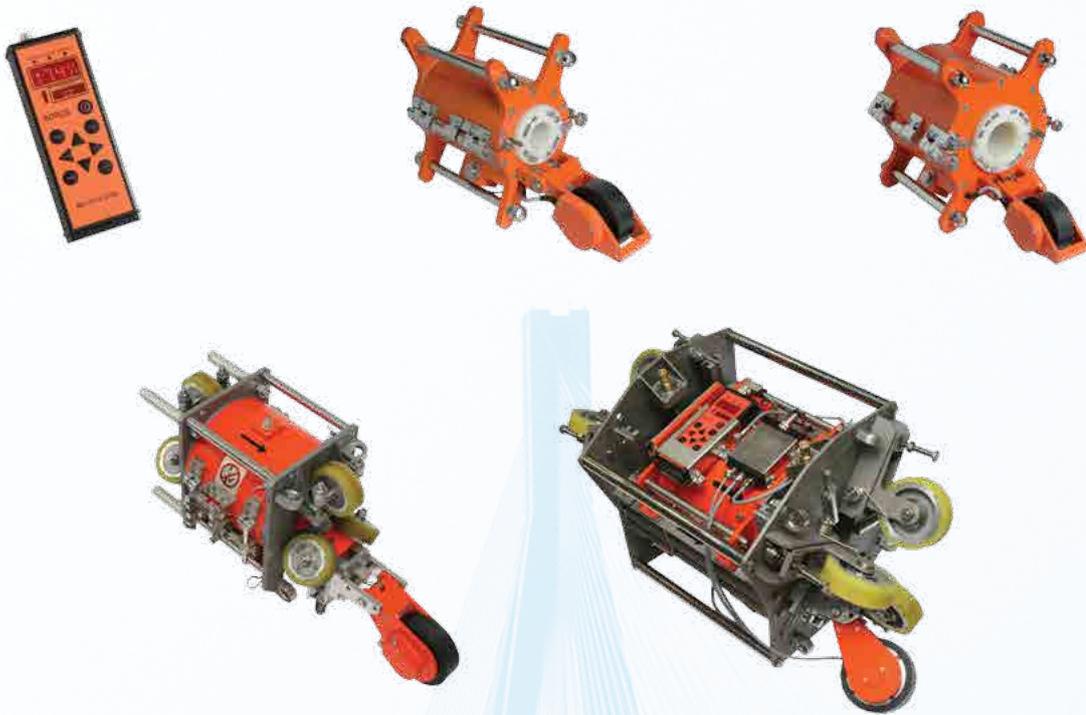
Non-Destructive Inspection of Bridge Cables

- Inspection even under protecting coating
- Inspection of large diameter cables
- Assessment of residual strength

Number of suspension and cable stayed bridges are in service in different parts of the world. Steel cables are important elements of such bridges, as they hold the main structures. They are subject of vibration due to wind and traffic, and corrosion even been well protected from aggressive environment, such as rain and air pollution. Cables deteriorate over time, and need inspection to prevent accident. They may be inspected in different ways, and inspection with non-destructive methods is effective mean to obtain considerable information from cable. Magnetic flux leakage (MFL) is well recognized method to inspect steel wire ropes, including cables installed on bridges. MFL instruments enable to measure loss of metallic cross section area appeared due to corrosion, and reveal outer and inner broken wires hidden for visual examination.

EQUIPMENT

MFL instrument INTROS® comprises battery powered basic unit and magnetic heads of different size, and software Wintros® and Wintros RTV®. Wintros® enables processing data after inspection, and Wintros RTV® makes data charts available on-line.



LTR: Basic unit, magnetic heads MH 20-40, MH 24-64, MH 60-85, MH 80-120/100-150

For inspection magnetic head is installed on cable, basic unit is fixed on magnetic head and magnetic head moves along whole length of cable collecting data into basic unit. Magnetic head smoothly moves along cable by means of electrical winch. For inspection of cables less than 64 mm in diameter magnetic head can move with climber, operated from the bridge deck. INTROS® is capable to inspect ropes, which diameter is within range from 6 to 150 mm. Protecting coating on the cable does not affect reading, until it is made from ferrous steel. The instrument moves on the cable smoothly and does not damage cable or protecting coating. Basic unit may operate telemetric system, and remote laptop can receive data and show it on-line with software Wintros RTV®.

For inspection of cables with parallel strands we have developed electromagnetic head EMH-300. This head is intended for inspection cables of diameter up to 300 mm. It can detect each individual broken strand in the cable comprising up to 100 strands in total.



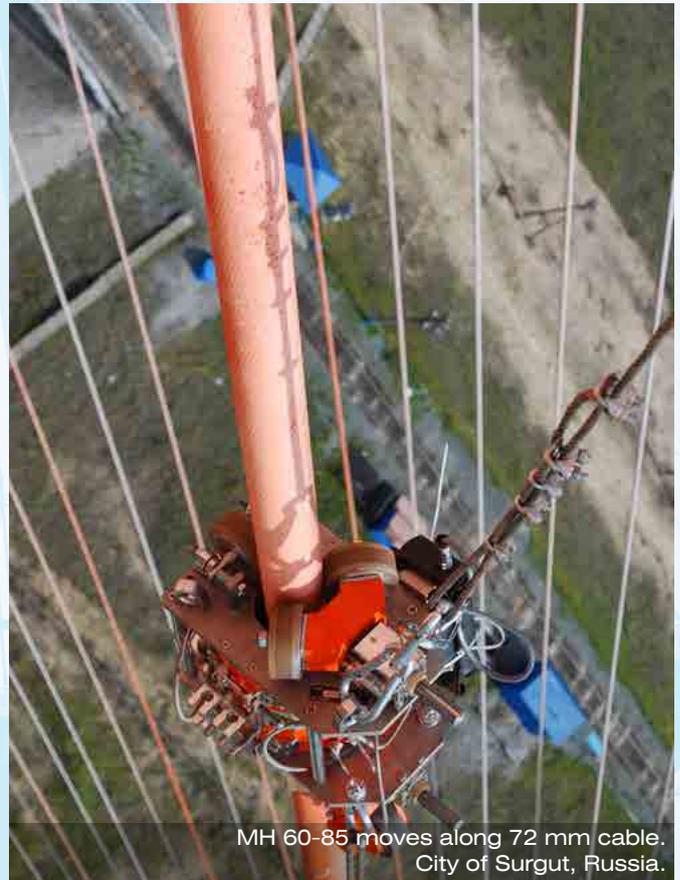
EMH-300 inspects 280 mm cable at bridge in St. Petersburg, Russia.

INSPECTION

Apart from delivery equipment, INTRON PLUS carries inspection of bridge cables. Skilled EN 473 certified technicians of our NDT laboratory have experience of inspection of stay cables and suspension cables. Inspection report includes information about each inspected cables and recommendation for its further service. In addition assessment of cable residual strength can be made in terms of inspection data with use of in-house developed software Rope Strength®.



Yeongjong bridge, South Korea. inspection of suspension cable with MH 60-85.



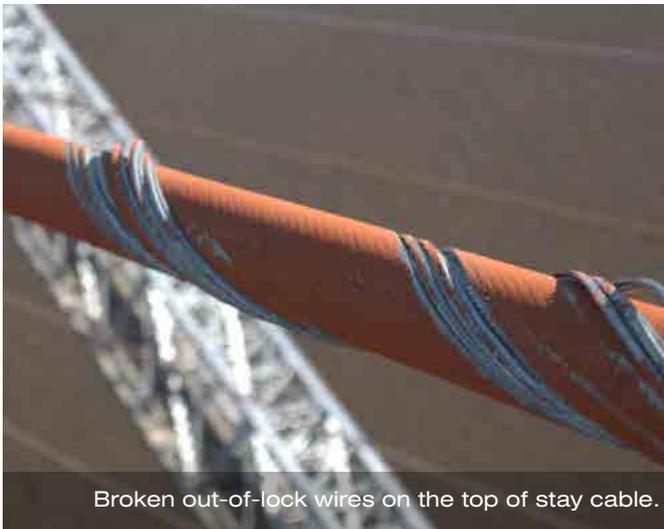
MH 60-85 moves along 72 mm cable. City of Surgut, Russia.



Investigation of traces on-site



110 mm cable was inspected with MH 100-150. Guangzhou, China.



Broken out-of-lock wires on the top of stay cable.



Mounting of MH 80-120 on 95 mm cable at Fakel bridge in Salekhard, Russia

Besides inspection of bridge cables INTRON PLUS can non-destructively inspect wire ropes of different application onshore and offshore. Our services also include inspection of above storage tank floor and steel cord conveyor belts.



INTRON PLUS LTD
 Tel.: +7 (495) 229-3747, Fax: +7 (495) 510-1769
 info@intron-plus.com www.intron-plus.com
 Elektrodnyaya Str., 11, Moscow, 111524, Russia