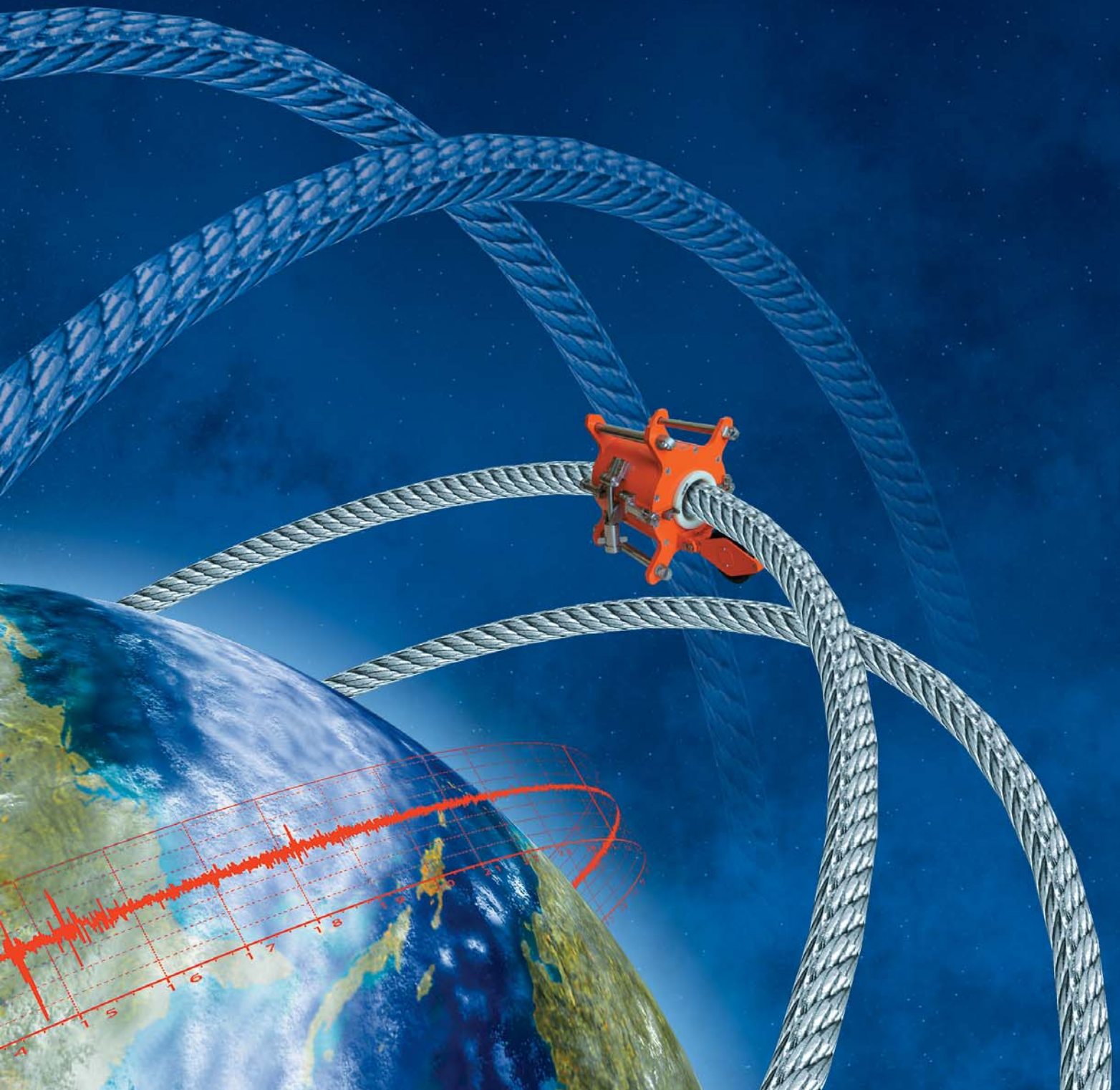


# Non-Destructive Inspection of Steel Wire Ropes

Instruments & Services



## General Information

Safe and reliable use of industrial objects often depends on the technical condition of wire cables, referred to commonly as "wire ropes". Such ropes typically deteriorate during their lifetime for various reasons, such as external and internal corrosion and abrasion, static and dynamic mechanical stresses, etc. Deterioration results in the loss of metallic cross-sectional area (LMA) and local faults (LF), such as broken individual wires and strands. Information concerning the technical condition of rope allows timely remedial actions that increase rope life and ensure their continued safe use. This information can only be obtained with special instruments.



## Wire Rope Tester INTROS

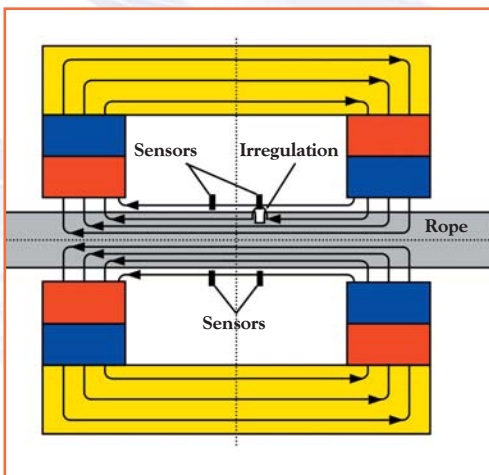
INTROS is a specially designed instrument developed for non-destructive inspection of wire ropes in the most reliable way. The design of the instrument allows the customer to use INTROS in difficult operating conditions, wherever the rope is installed. The INTROS meets the requirements of ASNT standard E 1571.

The instrument simultaneously measures LMA and detects LF. Its rugged design meets explosion-proof and IP65 requirements. Its applications cover a wide range of different sized ferrous metallic ropes used in mining industry, for aerial ropeways, cranes, elevators, shipyards, offshore platforms, etc.

The INTROS system includes a portable data logger and magnetic head. The data logger, connected to magnetic head, is battery powered with internal memory storage for later downloading, and has illuminated displays to indicate current measuring information.

Data logger dimensions are 85x35x217 mm (3,4" x 1,4" x 8,5") with a weight of only 620 g (22 ozs.) including batteries. The data logger may also be connected to a chart recorder or computer for recording LMA and LF charts on-line.

The INTROS magnetic head is manufactured from strong permanent magnets, with yokes, sensors and distance counter. Magnetic head sizes are listed on page 4 of this booklet.



## Principle of Operation

INTROS utilizes the MFL principle of operation. The magnetic head is installed on a rope and travels along the rope during the test.

The magnet's field saturates rope section in longitudinal direction. Irregularities in the rope such as LMA and LF cause redistribution of the magnetic flux surrounding the rope, that are detected by sensors\*. Signals from the sensors contain critical information concerning LMA and LF, and other important conditions.

\* US Pat. 6,492,808

## Software WINTROS

WINTROS software is specially developed for on-line recording of stored data to a computer. The program has a user friendly interface and can be used with all versions of WINDOWS. WINTROS allows inspection information to be downloaded from the data logger to a computer, detailed analysis of charts including zoom, filtering and cut-off options, chart comparisons, modification of INTROS settings and calibration. Additionally, WINTROS automatically generates the test report, including LMA and LF charts.



## Important Features of INTROS

- Designed for inspection of round, flat and rubber flat wire ropes
- Light weight with small magnetic heads and data logger dimensions
- Accurate readings and computer processing
- No special preparation of the rope is required for inspection
- Speed of rope under test does not affect readings
- Easy and fast installation on ropes
- Rugged construction
- Simple-to-use calibration modes

## Services

All instruments have a one (1) year warranty period and life time technical support. Additionally, Intron Plus provides free on-line applications consultation services to support its customers wherever they are located.

Effective non-destructive inspection of ropes does require special knowledge and experience. Intron Plus offers its expertise at rope testing through training courses organized either in our rope testing laboratory or at the customer's site. Operators are tested in the theory and practice of wire rope NDT and are required to demonstrate their ability to inspect ropes using the INTROS device in order to earn credit for the course.

More than 300 operators from different countries, including the USA, Germany, Malaysia, India, Singapore, Serbia, Lithuania and NIC have been trained by Intron Plus since 1997.

In addition to supplying customers with modern instruments, Intron Plus offers a wide range of services in the non-destructive testing of ropes. Numerous international companies contract for Intron's rope inspection services. Our experienced well-trained staff are prepared to perform on-site rope inspections, issue test report, and provide a technical analysis results.

## On-Site Photos

The photos below illustrate some typical applications of the INTROS.

①

Aerial tramway in Sochi, Russia. Inspection of carrying rope

②

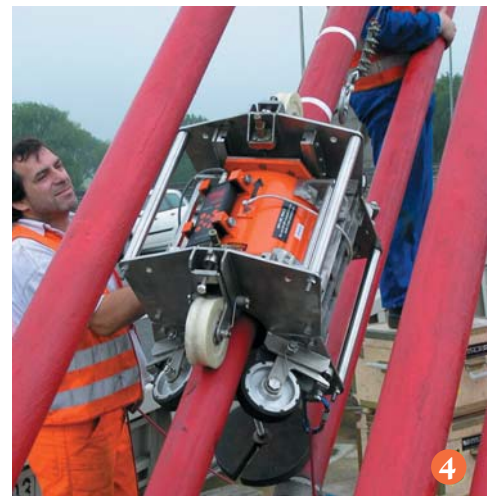
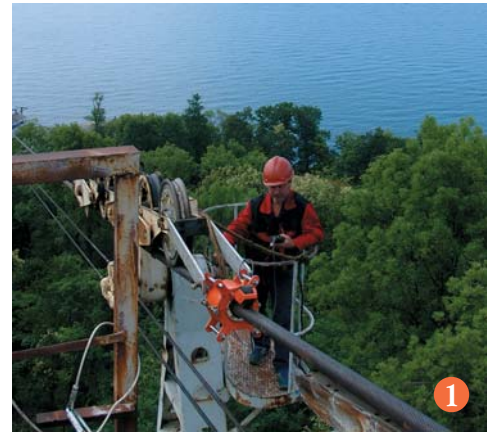
Inspection of crane rope in Vladivostok, Russia

③

JSC Norilsk Nickel, Russia. Testing of haulage rope in a mine

④

Inspection of bridge guy rope with MH-150. Germany, bridge over the Rhine river.



## List of magnetic heads INTROS

View	Type	Ropes	Dimensions Weight	Typical applications
	MB 8-24*	Round Ø 8...24 mm (0,3"...1")	220 x 160 x 90 mm (8,7" x 6,3" x 3,5")  2,8 kg (6,2 lbs)	Elevators, cranes, ropeways
	MH 6-24	Round Ø 6...24 mm (0,2"...1")	235 x 230 x 64 mm (9,3" x 9,1" x 2,5")  3 kg (6,6 lbs)	Elevators, cranes, ropeways
	MH 20-40	Round Ø 20...40 mm (0,8"...1,6")	330 x 205 x 190 mm (13" x 8,1" x 7,5")  8 kg (17,6 lbs)	Mining, cranes, ropeways, shipyards
	MH 40-64	Round Ø 40...64 mm (1,6"...2,5")	330 x 235 x 190 mm (13" x 9,3" x 7,5")  15 kg (33 lbs)	Mining, cranes, ropeways, shipyards
	MH 24-64	Round Ø 24...64 mm (1"...2,5")		
	MH 100-150	Round Ø 100-150 mm (4"...6")	436 x 410 x 368 mm (17,2" x 16,1" x 14,5")  250 kg (550 lbs)	Bridge guy ropes
	MH 124	Flat Width up to 124 mm (4,9")	285 x 220 x 225 mm (11,2" x 8,7" x 8,9") 9 kg (19,8 lbs)  325 x 300 x 268 mm (12,8" x 11,8" x 10,5") 23 kg (50,6 lbs)	Tail balance ropes in mining
	MH 233	Flat Width up to 233 mm (91,7")		
	MH 233R	Rubber flat Width up to 233 mm (9,2")	367 x 350 x 336 mm (14,4" x 13,8" x 13,2") 26 kg (57,3 lbs)  546 x 200 x 367 mm (21,5" x 7,9" x 14,4") 29 kg (63,8 lbs)	Tail balance ropes in mining
	MH 450R	Rubber flat Width up to 450 mm (17,7")		

\* Data logger installed into the frame of magnetic head



# Intron Plus, Ltd.

*Instruments for Non-Destructive Testing & Diagnostics*

Krasnokazarmennaya Str. 17, Moscow, 111250, Russia Tel./Fax: (+7 095) 362-5638, 362-7498

E-mail: [info@intron.ru](mailto:info@intron.ru) <http://www.intron.ru>