Dynamag – Magnetoelastic Dynamometer

Dynamag allows non-contact mechanical tension measurement in prestressed steel parts of concrete constructions, cable-stayed bridges and ground anchors.
Prestressed steel parts of concrete constructions are used as a sensor component of Dynamag system.

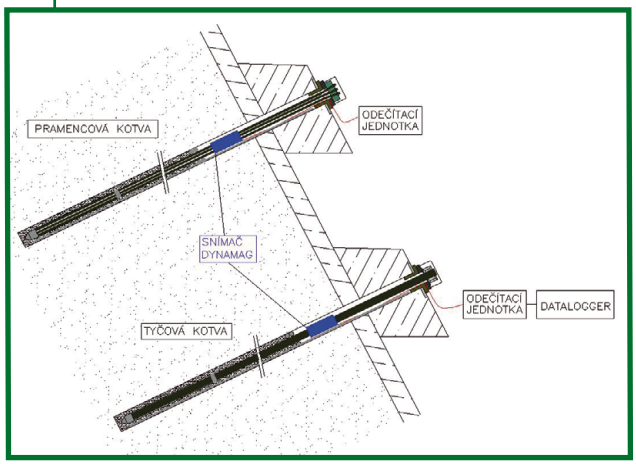
Areas of application

- Ground anchors
- Prestressed beams and plates
- Prestressed concrete constructions
- Cable-stayed and extradosed bridges
- Steel ropes

Dynamag allows

- checking of the quality and parameters of tension before and after installation
- checking of the quality of prestressing process
- checking of the quality of prestressed structures after natural disasters
- long term monitoring:
  - during the life span of structures
  - of critical parts of structures

Dynamag - Magnetoelastic Dynamometer

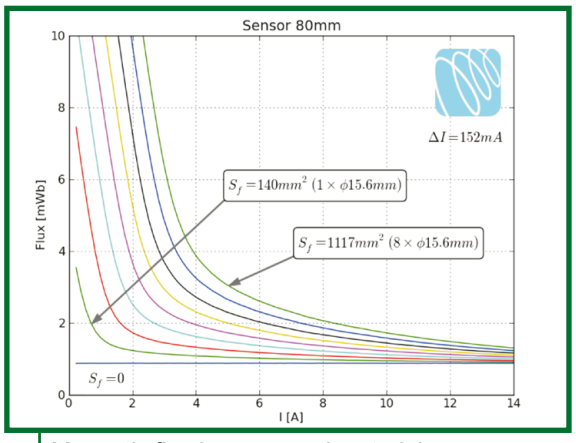


Sensors application on ground anchors

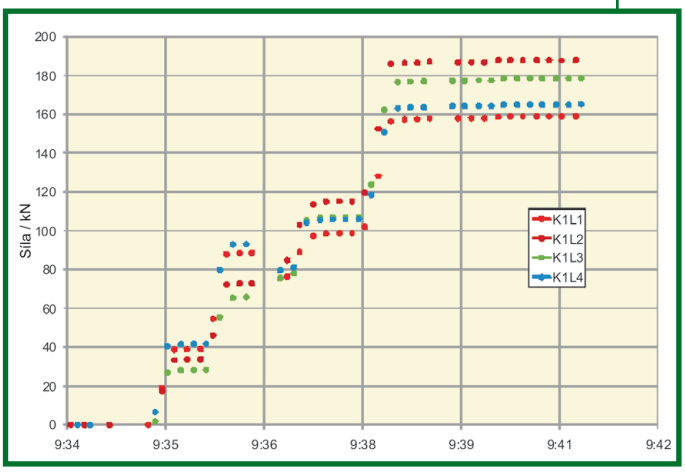
Sensor installation on ground anchor

Dynamag features

- simple and clear principle
  - It is a direct measuring method utilizing the changes of physical properties of ferromagnetic materials after their mechanic load.
  - Prestressed parts of constructions are a component of magnetoelastic circuit of the sensor.
- non-contact and non-destructive method
  - Direct physical contact between the sensor and the measured element is not required.
  - Allows measurement of mechanical stress through anti-corrosive protection of prestressed elements without damaging them.
  - The link between the measured element and the sensor is provided purely by means of magnetic field.
- high accuracy and long term reliability
  - Sensors include neither moving parts nor parts that are liable to material ageing and performance reduction.
- high durability of sensors
  - Sensors are resistant to dust, shocks, vibrations, water, salt water, water under pressure, chemicals and radioactive radiance.
- unlimited lifetime of sensors
  - The life span of sensors exceeds the life span of standard constructions.
- simple installation



Magnetic flux in measured material



Checking of the ground anchor tensioning process

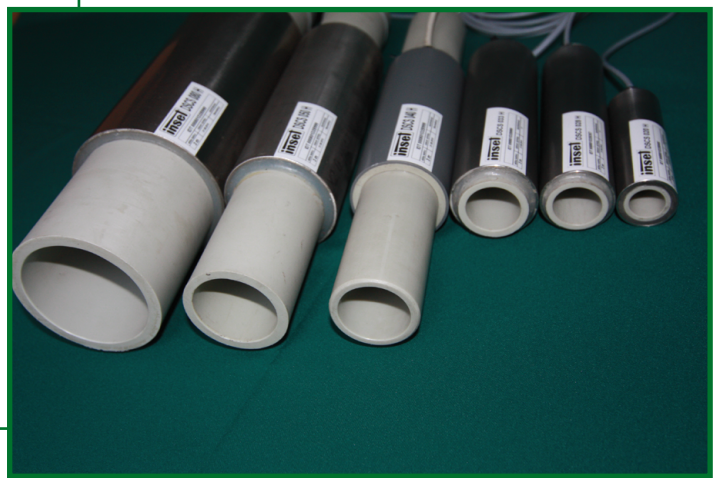
Dynamag - Magnetoelastic Dynamometer

Detail of the sensor

Sensor installation on ground anchor

Sensors

- are designed for measuring and monitoring of prestressed elements of structures such as wires, bars and cables
- have the shape of hollow cylinder with the measured element passing through
- can be placed on free parts of prestressed elements, can be sealed in concrete or can be a part of prestressed elements of anchor systems
- can measure overall mechanical stress in prestressed elements or stress in individual strands of prestressed cables
- are equipped with an electronic identifier and an accurate thermometer which measures the temperature of the structures in the sensors area
- enable measurement of mechanical stress in harsh industrial environment where usage of other methods is limited or impossible



DSCS sensor range

Dynamag - Magnetoelastic Dynamometer

Readout unit

- portable device intended for gathering measured data from sensors
- enables measuring of prestressed elements of diameter from 5 mm to 240 mm
- power is supplied by 24V accumulator or line adapter
- notebook connection for data collecting and evaluation
- integrated multiplexer enables parallel measuring on more channels
- integrated datalogger (in STANDARD version) enables to store measured data

Dynamag measuring system

Technical parameters of the Dynamag system

Type of construction	Feeding	Range of measurement	Resolution	Dimension	Weight	Output
BASIC	24V/2A DC	10mWb	1 μ Wb	350x300x250 mm	4 kg	RS232
STANDARD	24V/2A DC Built-in battery	10mWb	1 μ Wb	350x300x250 mm	4 kg	RS232 USB
INDUSTRIAL	24V/2A DC	10mWb	1 μ Wb	*)	*)	RS234 RS485
Note	*) stationary design according to the customer's needs					

We offer a complete service to our customers

Our aim is long term customer satisfaction. Therefore we approach each of them individually and strive to find the best solution for they needs. We offer a complete service including project proposal, sensors delivery and installation, required measurement and monitoring, data assessment, regular service and maintenance.

Contact us:

INSET s.r.o.,
Rudná 21, 700 30 OSTRAVA, Czech Republic
tel.: +420 596 123 565, fax: +420 596 115 832
e-mail: dynamag@inset.com, www.inset.com