

INSTRUMENTED REBAR AND SISTER BAR

Model IRHP and IRCL



APPLICATIONS

Instrumented rebars and sister bars are used to measure load in concrete reinforcing bars or strain in concrete structures. Typical applications include:

- Rock reinforcement and support
- Pile monitoring
- Dam engineering
- Surface and underground openings
- Mining safety
- Monitoring stress in tunnel linings

DESCRIPTION

An instrumented rebar or sister bar is a load sensing element consisting of a hollow reinforcing bar containing a coaxially-mounted vibrating wire strain gauge. Compressive or tensile loads induced into the bar are measured directly with the strain gauge. Instrumented rebars are individually calibrated, correlating strain to load.

Instrumented rebars can be supplied with plain ends for welding directly into a reinforcing cage, or with threaded ends into which threaded rebar is inserted. Adapters are available for most commercially available rebar connection systems.

Instrumented rebars and sister bars are supplied with an integral temperature sensor.

Model IRHP refers to the standard instrumented rebar size while model IRCL refers to the sister bar.

FEATURES

- Rugged, waterproof construction
- High stability and sensitivity
- Available for most rebar sizes
- Can be used as a sister bar, incorporated into a rebar reinforcement system, or grouted into a borehole for ground support
- Long-term stability
- Not affected by bending
- Integrated thermistor for temperature monitoring

SPECIFICATIONS

MODEL	Nominal diameter ¹	Calibration range	Maximum working load recommended	Maximum working load to yield
IRHP-2000	50 mm (2 in.)	360 kN	690 kN	1155 kN
IRHP-1375	34 mm (1 3/8 in.)	160 kN	275 kN	325 kN
IRHP-1250	31 mm (1 1/4 in.)	130 kN	215 kN	260 kN
IRHP-1125	28 mm (1 1/8 in.)	100 kN	160 kN	200 kN
IRHP-1000	25 mm (1 in.)	80 kN	135 kN	160 kN
IRHP-0750	19 mm (3/4 in.)	45 kN	75 kN	90 kN
IRCL-0500	13 mm (1/2 in.)	—	—	—

Range of gauge	3000 µε
Accuracy	±1.0% F.S.
Resolution	0.4 µε (min.)
Operating temperature	-20 to +80°C
Attachment configurations	Plain ends (standard), NC rolled threads at both ends (optional)
Cable connections	Potted cable Waterproof connector ²
Thermistor	3kΩ (see model TH-T)
Cable	IRC-41A, IRC-390
Nominal rebar length	1 m (standard)

¹ Other sizes available upon request

² Available only with certain models

ACCESSORIES

- Hexagonal nut and washer³
- Bearing plate³
- High strength coupling³
- Expansion shell³
- Readout instruments: MB-6T(L), SENSLOG

³ For threaded rebar only (borehole installation)

OPTIONS

- Attachment configuration required (standard plain ends or optional NC rolled threads, left hand or right hand threads)
- Integrated lightning protection

ORDERING INFORMATION

Please specify:

- Rebar diameter and length
- Rebar strength required
- Cable type and length
- Type of cable connection
- Accessories and options