



PRODUCT CATEGORY:
EXTENSOMETERS

Vibrating Wire Inline Extensometer

The Vibrating Wire Inline Extensometer is used to determine the stability and movement behavior of soil, rock, and concrete structures. The main advantage of the extensometer is that it has no electrical head protruding out of the borehole, contrary to conventional multi-point borehole extensometers (MPBX). The Inline Extensometer is installed flush with the borehole collar or ground surface and measures movement at different depths in the borehole.

By construction, all displacement transducers are located in the borehole in sealed head/anchor assemblies that are inserted in the borehole and separated by extension sections which can be of variable length depending on the required measurement depths. The extension sections consist of rigid 3/8 inch (9.5 mm) stainless steel rods protected by a telescopic outer 21/32 inch (16.8 mm) PVC pipe. The larger diameter of the rigid rod is an additional advantage as compared to the usual 1/4 inch (6.35 mm) of conventional MPBXs, as it provides more accuracy in the measured displacements, both in case of extension and compression movements.

As all displacement transducers are in series in the borehole, the total measurement range of the extensometer is the sum of the individual measurement ranges of each transducers. This allows to measure considerably larger movements than conventional MPBXs while using lower cost standard range transducers.

> APPLICATIONS

Ground movements around tunnels.	Deformation of concrete piles (tell-tales).
Deformations of dam abutments and foundations.	Ground movement behind retaining walls, sheet piling, slurry walls, etc.
Ground movements in the walls of open pit mines.	Fracturing in the roofs and walls of underground caverns.
Subsidence above tunnels and mine openings.	Settlement and heave of foundations in soft soil.

> FEATURES

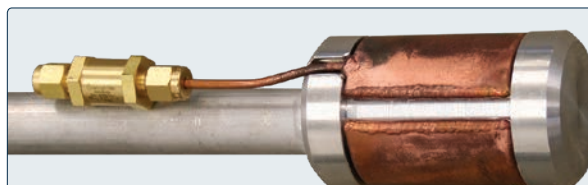
Flush with surface: no electrical head protruding out of borehole.	Suitable for extension and compression movements.
Suitable for remote reading and data logging.	Can be installed in 3" (76.2 mm) boreholes.

In-line construction: head/anchors assemblies and extension sections of variable length are inserted in series in the borehole.

Rigid 3/8 inch (9.5 mm) inner stainless steel rod provides more accurate displacement measurement.

> BENEFITS

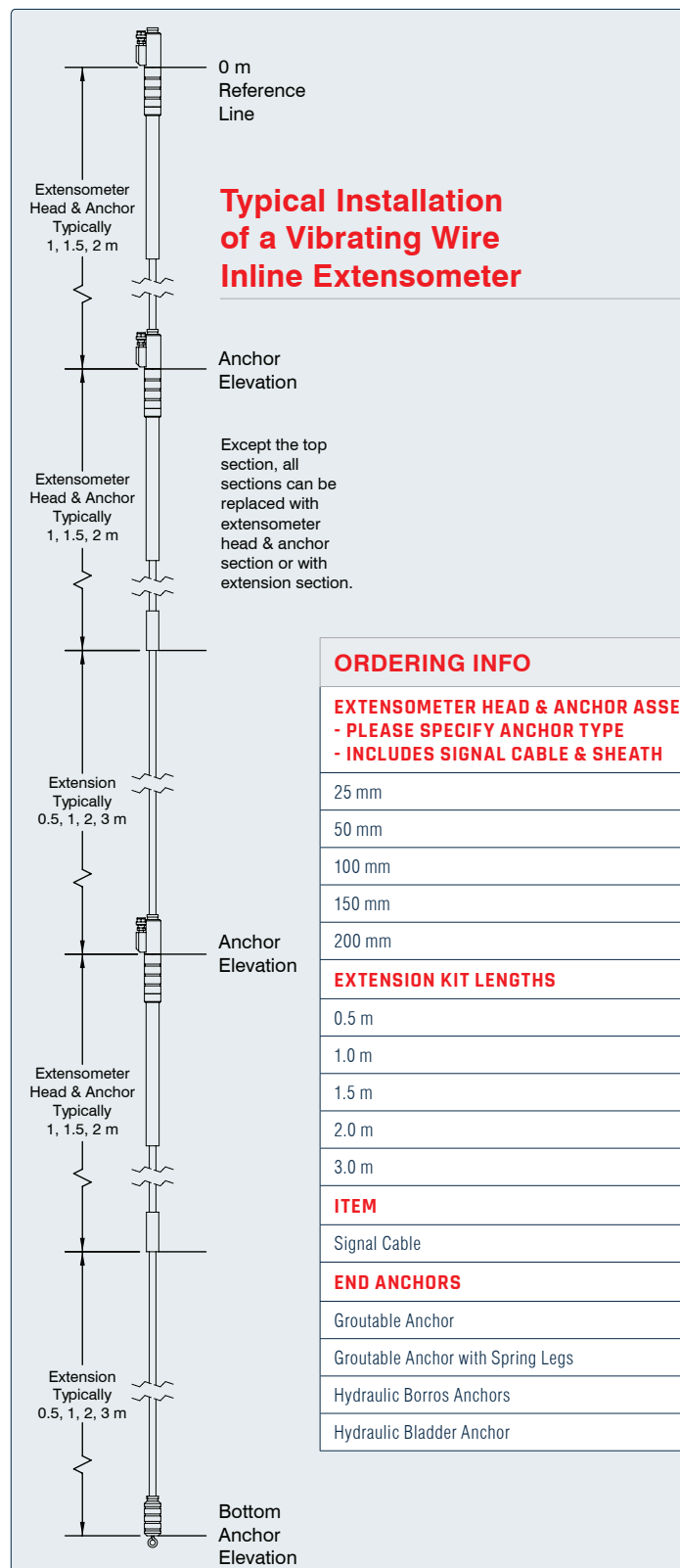
✓ Increase Safety	✓ High Accuracy
✓ Increase Productivity	✓ High Reliability



An optional Hydraulic Bladder Anchor is also available for ordering. Please contact RST for more details.

Vibrating Wire Inline Extensometer

SPECIFICATIONS + ORDERING



Typical Installation of a Vibrating Wire Inline Extensometer

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SPECIFICATIONS

ITEM	DESCRIPTION
Sensor Range	25, 50, 100, 150, 200 mm
Accuracy	+/- 0.25 % FSR
Resolution	0.02% FSR
Linearity	0.25% FSR
Thermal Zero Shift	<0.05% FSR/°C
Operating Temperature	-20°C to 80 °C
Extensometer Head max/min Diameter	63.5 mm / 42.5 mm
Signal Cable	Two twisted pair cable with polyurethane jacket (one cable per measurement point).

ORDERING INFO

EXTENSOMETER HEAD & ANCHOR ASSEMBLY - PLEASE SPECIFY ANCHOR TYPE - INCLUDES SIGNAL CABLE & SHEATH

	PART #	GAUGE LENGTH
25 mm	EXINLINE-1025	1 m
50 mm	EXINLINE-1050	1 m
100 mm	EXINLINE-1100	1 m
150 mm	EXINLINE-1150	1.5 m
200 mm	EXINLINE-1200	2 m

EXTENSION KIT LENGTHS

	PART #
0.5 m	EXIL-0500
1.0 m	EXIL-1000
1.5 m	EXIL-1500
2.0 m	EXIL-2000
3.0 m	EXIL-3000

ITEM

	PART #
Signal Cable	EL380004

END ANCHORS

	PART #
Groutable Anchor	EXIL11000
Groutable Anchor with Spring Legs	EXIL12000
Hydraulic Borros Anchors	EXIL13000
Hydraulic Bladder Anchor	EXIL14000

ORDERING INFO CONSIDERATIONS

Number of anchors, type and depths.
Specify sensor range.
Accessories required.
Cable length.
Borehole diameter.
Environmental considerations.
Extension or compression expectations.
Drilling method, soil and/or rock types.
Orientation of borehole.

ACCESSORIES & OPTIONAL EQUIPMENT

Grout and/or bleed tubes.
Portable readouts.
Hydraulic pump for anchors.
Terminal stations.
Dataloggers.