

GLÖTZL Baumeßtechnik

TUBE – ROD EXTENSOMETER

for temporary and stationary installation in constructions

Type: GRSE 86/60

Art.-No.: 60.50..



- Regainable system with mechanical clamp anchor, setting by means of measuring rods
- Compact execution, 1-6fold extensometer
- Measuring rods of stainless steel tube
- Short installation time, small construction impediment
- Corrosion resistant and high meas. accuracy
- Measuring head on the borehole or submersible
- Can be equipped or upgraded from manual measurement up to remote control
- Proved and successfully used system

Description

The tube rod extensometer can be used for measurement of relative movements between anchor point and measuring head. Transfer of measuring values is done by stainless steel tubes with different diameters sliding into each other.

By turning of single anchor rods, the anchors are wired or released when dismantled. A model for borehole diameter of 86 mm is available. The measuring heads can be equipped from 1 up to max. 6 measuring points.

Measurement of extensometer can by done:

Manually with dial gauge or with digital measuring unit or by remote control with electric displacement transducers of our multiplex delivery program.

Figure:

3fold extensometer, type GRSE 86/60, with clamp anchor for boring \varnothing 86 mm. Measuring head with assembly< plate inclusive 3 electric displacement transducers

Technical data, type GRSE 86/60

Boring diameter		\varnothing 86 mm
Extensometer rods of stainless steel tube	mat. 1.4571	
1st anchor	0.60 kg/m	\varnothing 14 mm
2nd anchor	0.90 kg/m	\varnothing 20 mm
3rd anchor	1.40 kg/m	\varnothing 30 mm
4th anchor	1.90 kg/m	\varnothing 40 mm
5th anchor	2.40 kg/m	\varnothing 50 mm
6th anchor	2.90 kg/m	\varnothing 60 mm
Thermal extension coefficient		5 x 10 ⁻⁶ / K
Measuring length up to max.		50 m
Anchor with clamping wedge 30° self-locking		\varnothing 82 mm
Anchor length		200 mm
Anchor with rods unit	length	500 mm

Measuring head – anchor plate of

stainless steel		\varnothing 240 x 10 mm
Leading pillars for displ. transducer length		700 mm
Measuring range		+/- 50 mm
Adjustment range standard		any
Transfer accuracy	0.5 up to	20 m approx. 0.05 mm
	up to	50 m approx. 0.10 mm
		bis 100 m ca. 0.30 mm

Application

Main application of the tube rod extensometer is the temporary use.

By system of regaining, the installation is done in non-concreted borings. By this, also a quick installation is secured.

Another important advantage besides the regaining is the immediate measuring availability after execution of boring and installation of the extensometer.

Supposition for the use of these extensometers and the regaining is a stable boring resp. surrounding/rocks.

Especially for the application in tunnel and cavern construction this extensometer has been modified for a quick availability of meas. values.

All construction elements are preconstructed in the factory so that a quick installation is secured.

In the standard range the measuring rods of stainless steel tube have a basis length of 3m.

In case of special conditions shorter tube length are available.

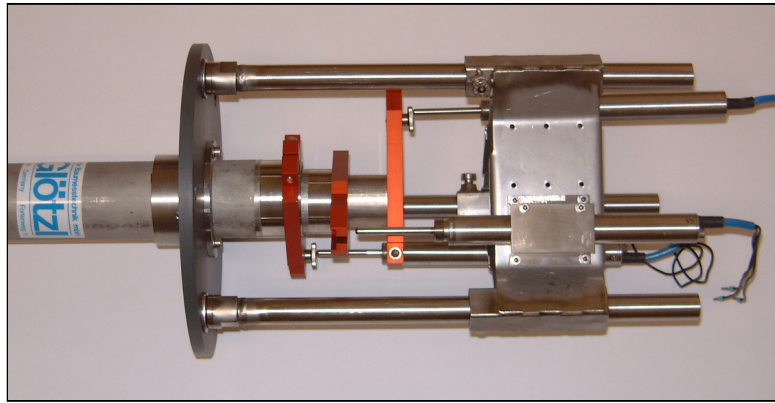
Measuring task:

Measurement of settlements, displacements and deformation in tunnel construction, mining, cavern construction, slope security, retaining dam and general control of constructions.

**Figures:**

Above: Clamp anchor with assembly reels

Right: Measuring head with anchor plate
3fold, measuring connections and
mounted electric displ. transducer



Displacement transducer

see single prospectus

Simple solution with resistance element 5 KOhm
65.15.11 Type GWD 22/25 25 mm meas. displ.
65.15.21 Type GWD 22/50 50 mm meas. displ.
65.15.31 Type GWD 22/100 100 mm meas. displ.

Below: Meas. head of an extensometer with
protection cap



Art. No.:	Type	Model	Tube length	Anchor tube
Complete model, anchor with measuring rods				
60.50.10.XX	GRSE86/60/1	single	XX = [m]	Ø 60 mm
60.50.20.XX	GRSE86/50/2	twofold	XX = [m]	Ø 50 mm
60.50.30.XX	GRSE86/40/3	threefold	XX = [m]	Ø 40 mm
60.50.40.XX	GRSE86/30/4	fourfold	XX = [m]	Ø 30 mm
60.50.50.XX	GRSE86/20/5	fivefold	XX = [m]	Ø 20 mm
60.50.60.XX	GRSE86/14/6	sixfold	XX = [m]	Ø 14 mm

Anchor tubes – Measuring rods and rods connections

.11.XX	GRSER6	Stainless steel tube single	0.5 up to 3 m	Ø 60 x 2 mm
.12	GRSEM6	Rods connection		Ø 60 mm
.21.XX	GRSER5	Stainless steel tube 2fold ditto		Ø 50 x 2 mm
.22	GRSEM5	Rods connection		Ø 50 mm
.31.XX	GRSER4	Stainless steel tube 3fold ditto		Ø 40 x 2 mm
.32	GRSEM4	Rods connection		Ø 40 mm
.41.XX	GRSER3	Stainless steel tube 4fold ditto		Ø 30 x 2 mm
.42	GRSEM3	Rods connection		Ø 30 mm
.51.XX	GRSER2	Stainless steel tube 5fold ditto		Ø 20 x 2 mm
.52	GRSEM2	Rods connection		Ø 20 mm
.61.XX	GRSER1	Stainless steel tube 6fold ditto		Ø 14 x 2 mm
.62	GRSEM1	Rods connection		Ø 14 mm

Head plate

.70	GRSEA6	Stainless steel plate up to 6fold	240x10 mm
.70.01	GRSEF2	Leading pillar	Ø 20 x 700 mm long, 3 pcs.
.70.02	GRSEW1	Holding device for displ. transd.	up to 6fold

Measuring stops

.81	GRSEA6	Meas. connection for anchor tube	Ø 60 mm
.82	GRSEA5	Meas. connection for anchor tube	Ø 50 mm
.83	GRSEA4	Meas. connection for anchor tube	Ø 40 mm
.84	GRSEA3	Meas. connection for anchor tube	Ø 30 mm
.85	GRSEA2	Meas. connection for anchor tube	Ø 20 mm
.86	GRSEA1	Meas. connection for anchor tube	Ø 14 mm

Protection tube

.90	GRSES1	PVC protection tube for measuring head	Ø 250 and 800 mm long
-----	--------	----------------------------------------	-----------------------

Fig. Automatic measuring device in mining for recording of displacement transducers for extensometer, electric and hydraulic stress cells, temperature cells and further sensors