GLÖTZL Baumeßtechnik

VIBRATING WIRE STRAIN TRANSDUCER for CONCRETE

System Maihak (corresponding to MDS 53 a)

Type: GFVM 250/0.6
Art. No.: 66.80

- High measuring accuracy under difficult conditions
- Long-term stability with high resolution
- Frequency meas. procedure, insensitive and robust
- Remote transmission with larger cable lengths
- Approved and successfully used system

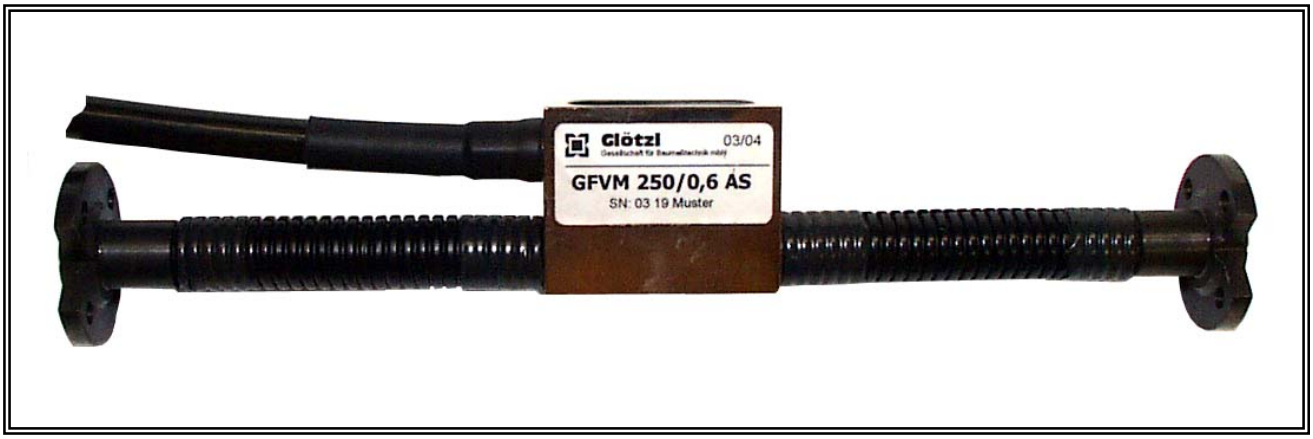


Figure: Strain transducer for concrete with anchor plates, standard, 250 mm long

Application

The transducer GFVM 250/0.5 is used at barrages, water buildings, high constructions, linings of tunnels, galleries and shafts, bridges, piles and power plants for measurement of dilatation and upsetting movements in the interior of concrete. By its high stability, overall length and big anchor plates it can also be used for measurements in concrete with coarse additives.

Description

The dilatation or upsetting movements, occuring in the concrete building, are absorbed by the strong anchor plates and transferred by the measuring body to the vibrating wire existing in the interior of the transducer.

For temperature measurement, the sensors are equipped with thermistors; *optional PT 100.*

The strain transducer is directly placed into the concrete during backfill or fixed at the reinforcement by means of wire via the drilled holes at the anchor plates.

The transducer is constructed bending-insensitive and robust.

The connection of the measuring cable is normally done in the factory with 2-components epoxy resin, pressure watertight with strain relief at the meas. cable. Additionally, the measuring wire is protected against water entry by a wire protection tube.

Furthermore, all interior spaces of the sensor are sealed with a plastic synthetic material.

Technical data, type GFVM 250/0.6

Meas. range standard	$2x10^{-3}$ (0.5 mm / 250 mm base)
Meas. range option	$3x10^{-3}$ (0.6 mm / 250 mm base)
Meas. range allocation	approx. 25% strain/75% pressure
Meas. length standard / *optional*	250 mm / *500 mm*
Modulus of elasticity	22.000 N/mm²
Operating frequency of meas. wire	approx. 700....1.000 Hz
Resolution of measuring value	< 0.02%
Accuracy under calibration conditions FSO	< ±1%
Linearity under calibration conditions FSO	< ± 0.5%
Thermal expansion figure of meas. wire	11.8 E 10^{-6}
Operating temperature range	-20...+70 °C
Weight	approx. 0.8 kg
Temperature sensor standard / *optional*	thermistor / *PT100*

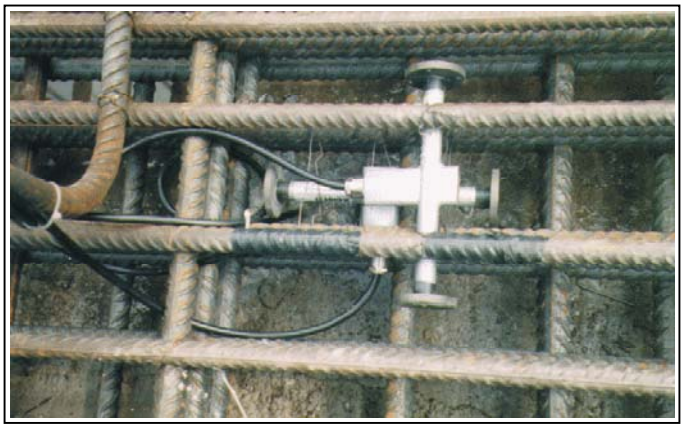


Figure: Installation example in the reinforcement of a lock construction

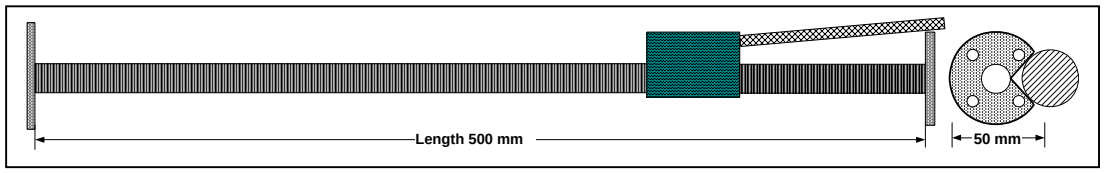


Figure: Model AS with anchor plates for installation in concrete and attachment to reinforcement iron
Example: In concrete piles for attachment at the reinforcement in probe length 500 mm, meas. range 0.6 mm

Art.. No.:	Type	Distance [mm]	Anchor Type
66.80.01.XX	GFVM250/0.6A	250	A
66.80.11.XX	GFVM500/0.6A	500	A
66.80.02.XX	GFVM250/0.6AS	250	AS
66.80.12.XX	GFVM500/0.6AS	500	AS
66.80.03.XX	GFVM250/0.6C	250	C
66.80.13.XX	GFVM500/0.6C	500	C
66.80.04.XX	GFVM250/0.6E	250	E

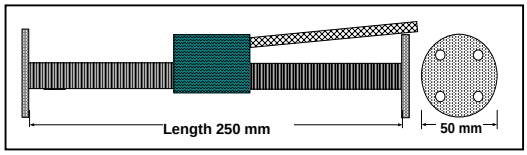


Figure: Model „AS“ with anchor plates for concrete

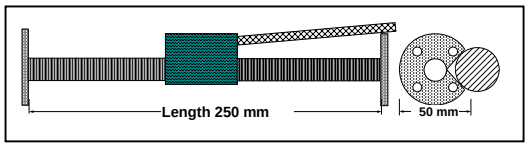


Figure: Model „AS“ with anchor plates for attachment at reinforcement iron

01 with thermistor, cable connection, cable PE with PVC inner sheath and copper screen, cable wires 4x0.5 mm², Ø 10 mm

02 with temperature sensor PT100 DIN B, cable connection, cable PE with PVC inner sheath and copper screen, cable wires 6x0.5 mm², Ø 10 mm

03 with thermistor, cable connection, cable PE without inner sheath, copper screen, cable wires 4x0.5 mm², Ø 7.5 mm

04 with thermistor, cable wall socket, Lemosa 4-pole, pressure watertight

05 with temperature sensor PT 100 DIN B, cable wall socket Lemosa 6-pole, pressure watertight

06 Option for plug-in connection Lemosa foreseen at the unit

0X Standard meas. range 0.6 mm / 250 mm (500 mm), approx. 25% dilatation and 75 % upsetting movement

XX Special models and measuring ranges on clients' specification

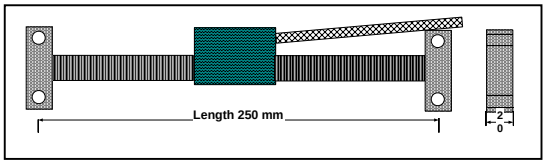


Figure: Model „C“ for attachment at concrete or steel construction part with cable connection

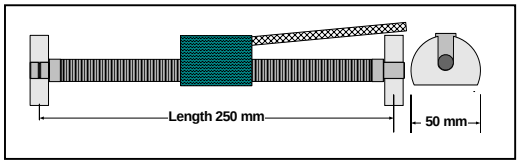
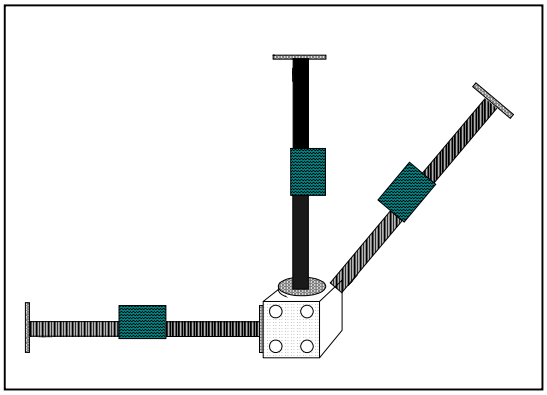


Figure: Model „E“ for attachment at steel construction part with welding lashes



Installation example with three-dimensional arrangement of sensors

On a basic body of PVC, art. No. 66.80.95, 3 and max. up to 6 pieces of sensors, art. No. 66.80.01.01, are screwed on directionally oriented.

Figure left: 2 strain transducers with a meas. base of 500 mm, connected to an integral element with 2x500 mm measuring base, max. displacement 2x0.6 mm

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