GLÖTZL Baumeßtechnik

HYDROSTATIC PROFILE GAUGE

Type: HPG
Art. No: 84.20

The hydrostatic profile gauge has been designed for measurement of the absolute height in horizontal resp. slightly horizontally inclined tubes.When passing the tubes with the measuring probe, the height difference between probe and a reference benchmark at tube beginning is determined at selected points.
By comparison of two measuring series at different times, you get the settlement of the tube.

Principle:

The system comprises a cable reel with internally mounted differential transducer and a measuring cable with probe.
The measuring cable contains a two-fold tube of polyamide sheathed in polythene and is marked each meter and labelled each 5 meters. One of these tubes is filled with water, the other one with compressed air of 1 – 1.5 bars. An interface of rubber diaphragm is installed in the probe at cable end connecting both systems. The change of the hydrostatic water pressure - as height difference between probe and reference benchmark – is registrated by the differential pressure transducer and is displayed directly in meters.

Application Ranges:

- Construction control of embankments
- Settlement determination under dams and buildings
- Control of vertical deformations in landfills
- Simple height control of tube and tunnel advance working machines
- Settlement determination under buildings
- Settlement control in drainage tubes
- Height measurements at buildings
- Simple levelling works

Working Range:

Measuring lengths of the cable up to 300 m
Special models according to functional specification on request
Height working range of probe referred to standard height of the cable reel

Height difference	Resolution
± 5 m (standard)	1 mm
± 10 m	1 cm
± 20 m	1 cm

Light-weight cable reel for max. 100 m measuring cable with probe and readout unit

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Light-Weight Cable Reel

For distances up to max. 100 m measuring length. The measuring cable consists of a two-fold instrument leads sheathed in polythene, cable marking each meter, labelled each 5 meters.

Art. No.:	Type	Meas. cable length (m)	Ø (mm) of reel	Weight (kgs)
84.20.10.01	HPG 2/30	30	390	9,0
84.20.10.02	HPG 2/50	50	390	11,0
84.20.10.03	HPG 2/75	75	500	13,6
84.20.10.04	HPG2/100	100	500	16,0

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Heavy-Weight Cable Reel

For long distances up to 300 m, we are offering heavy-weight cable reels with solid steel tube frames:

Art. No.:	Type	Distance (m)	Dimensions L/D/H (mm)	Weight (kga)
84.20.10.11	HPG4/150	150	540/500/500	32
84.20.10.12	HPG4/200	200	540/500/500	37
84.20.10.13	HPG4/250	250	540/500/500	43
84.20.10.14	HPG4/300	300	540/500/500	49

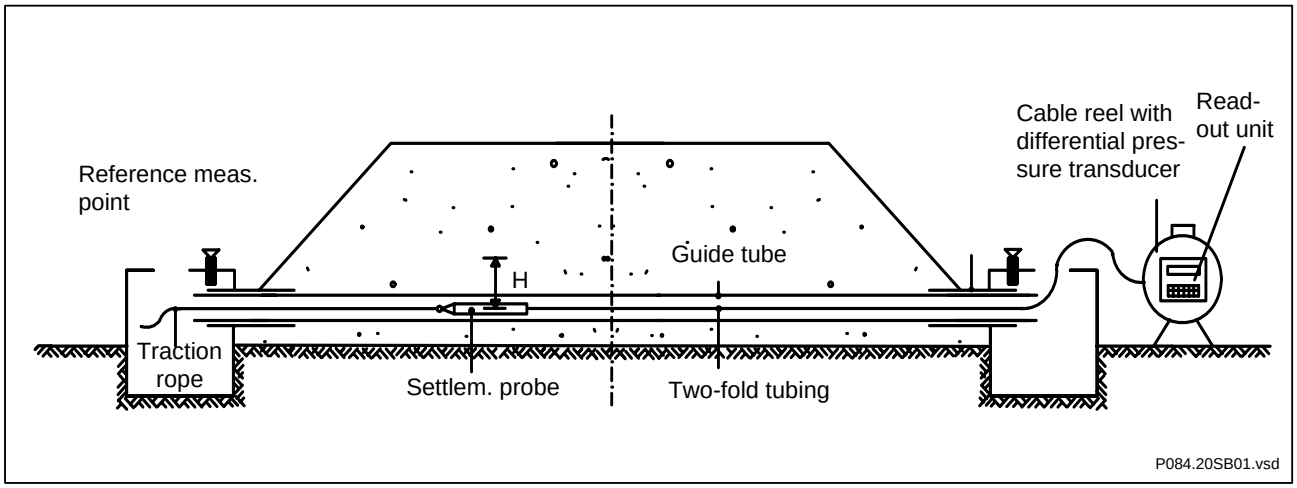
74.12.11

Digital Readout Unit, Type VMG 14.1

The multimeter is used for measurement of nearly all single sensors available on the market. Furthermore, it can also be applied for line-type measuring procedures (e.g. inclinometer).

The instrument contains a charger and reloadable, maintenance-free NiMH accumulators and thus is operatable nonsystem-connected so it can be recharged either by 230-V mains or by car battery (12 V). The unit is programmable by keyboard or by V24 interface. All measured data are stored and can be downloaded by serial interface.
For the line-type measuring procedure variable processing programs are available which can easily be operated and with which measuring step length, total measuring length and type of measurement can be defined. Additionally, the unit can be used as temporary collecting system for the measured values (datalogger). A time program is automatically recalling the data by the connected multiplexer and is storing them in an allocated file.

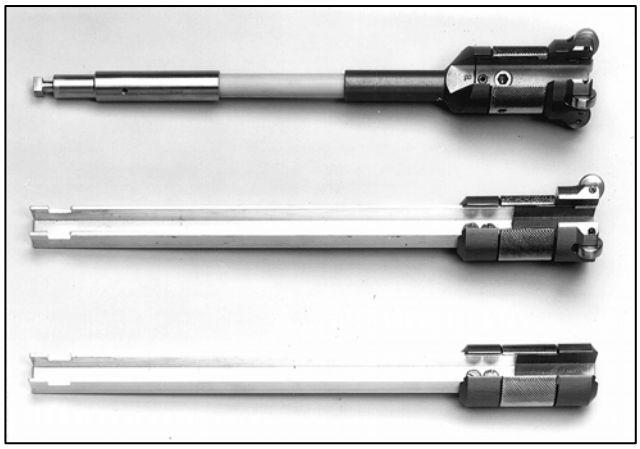
Power supply:	12 . . . 24 V DC, 230 V AC
Battery operation:	>8h in standard operation with acitve background lighting
Dimensions:	190/120/210 [mm]
Weight:	3.3 kgs



Installation example with double-sided access of measuring tube, measurement execution with traction rope

Measuring Tubes and Accessories

89.20.01 Meas. tube NW 6,3 Ø 63 x 7 mm of PVC, single length 2.5 m
89.20.03 Connecting piece, Ø 75 x 5.6 mm, length 400 mm as telescopic bushing with O-ring on both sides
89.20.11 End cap KV 63 for head point
89.20.12 End cap PV 49 for base
89.20.13 End cap PR 49 for base with return pulley for traction rope
89.20.19 Rivets Ø 3 x 18 mm



Traction Rope and Rods

Positioning of the probe in the measuring tube is either done by a traction rope (in case of double-sided access) or by guide rods. Dependent on application type and length of tube, the rods are manufactured of aluminium resp. can also be delivered as flexible glass fibre rods with friction-reducing wheels at the coupling part of the rods. The quick coupling enables an easy and quick connection of the single rods and is additionally acting as fastening element for the measuring cable.
For fixing of the probe at the guide rods, a connection piece for probe – rods can be delivered in which the probe is inserted.

75.25.31 Return pulley for steel rope

75.08.00.02 Steel rope Ø 3 mm with PVC sheath Ø 4 mm

75.25.32 Steel rope Ø 3 mm, rustproof

75.25.33 Cable reel for max. 150 m steel rope

84.20.30.10 Connector for probe - rods

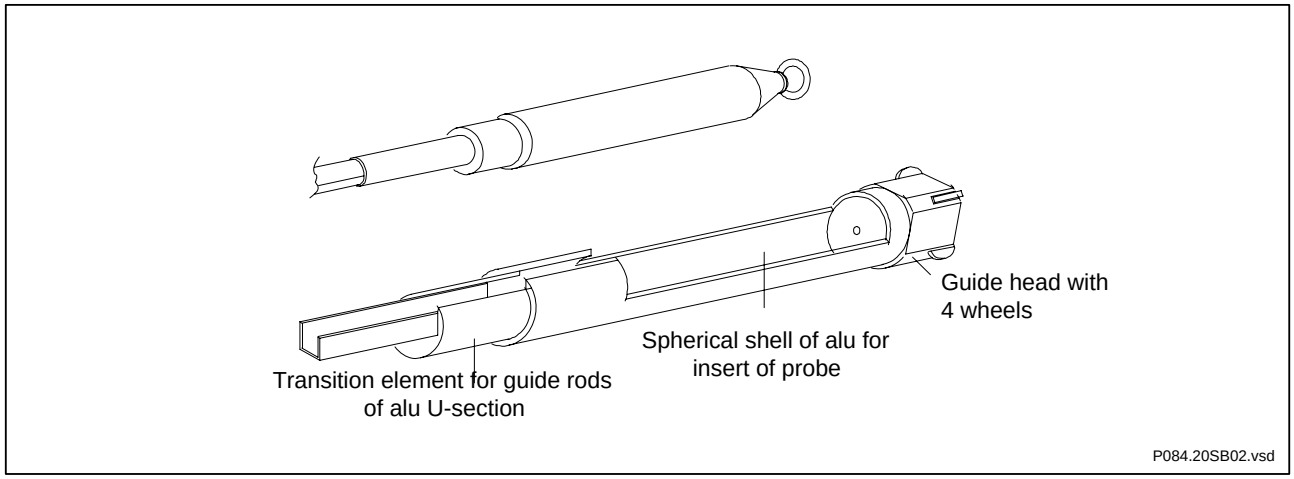
75.25.12 Jacked rods of aluminium U-section, length 1.5 m, with quick coupling, simple model for short and straight tube length

75.25.13 Jacked rods of aluminium U-section, length 2.0 m, with quick coupling, simple model for short and straight tube lengths

75.25.14 Jacked rods of aluminium U-section, length 1.5 m, with quick coupling and 3-fold roller for reduction of friction when passing the tube

75.25.15 Jacked rods of aluminium U-section, length 2.0 m, with quick coupling, simple model for short and straight tube lengths

75.25.16 Jacked rods of glass fibre rod, ϕ 11 mm, length 2 m, with quick coupling and 4-fold roller for reduction of friction when passing the tube, for big lengths and high direction changes of the measuring tube



Connection piece probe - rods

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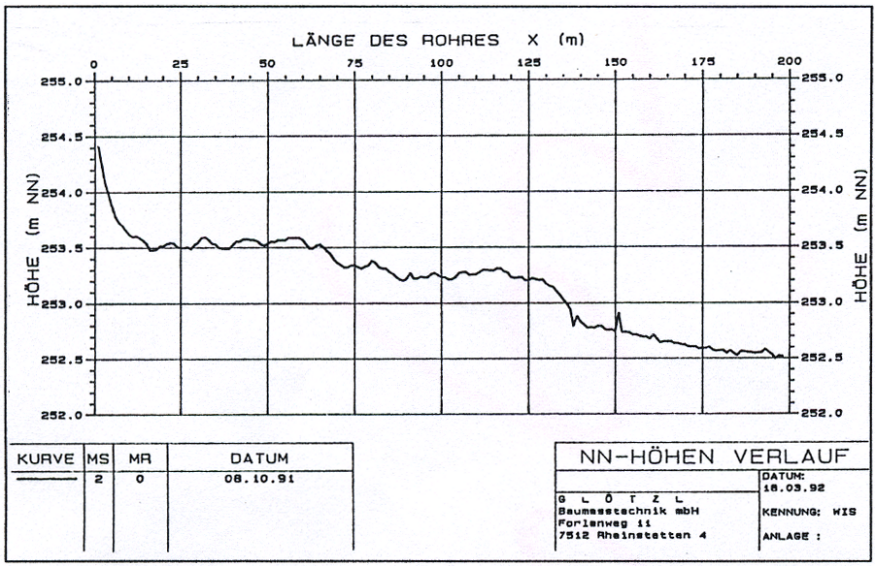
PC Evaluation Program GLNP 3.1 (Windows)

For data recording and evaluation of data of the horizontal inclinometer and of the hydrostatic profile gauge

Characteristics and Functions of Program:

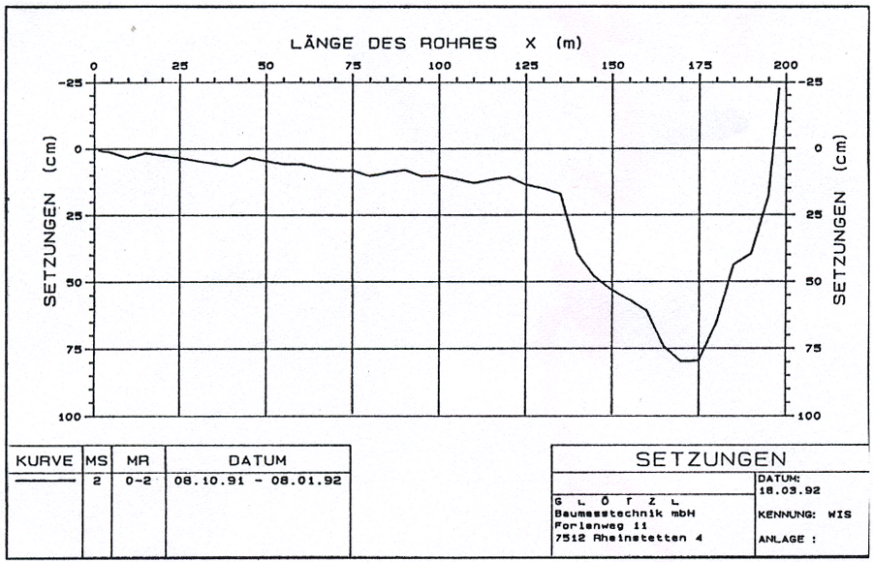
- Menu control, simple use without computer knowledges
- Manual data input and correction, max. 300 measuring steps for each measuring series
- Automatic downloading of measured values from readout unit VMG14 via V24-interface
- Data administration on floppy disk or hard disk
- Determination of the NN-altitude course of the tube, here integration of the measured data to the geodetic height of the reference benchmark at tube beginning
- Determination of settlement course by subtraction of any mesuring series
- Output of height and settlement courses in tables, as screen graphic or as diagrams via plotter or laser printer



Example for a measurement:

Profile measurement of a 200 m long PE tube with jacked rods of aluminium in a distance of 1 m (zero measurement)

NN altitude course



Settlement course after comparison of measuring series between first sequence measurement and zero measurement

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