

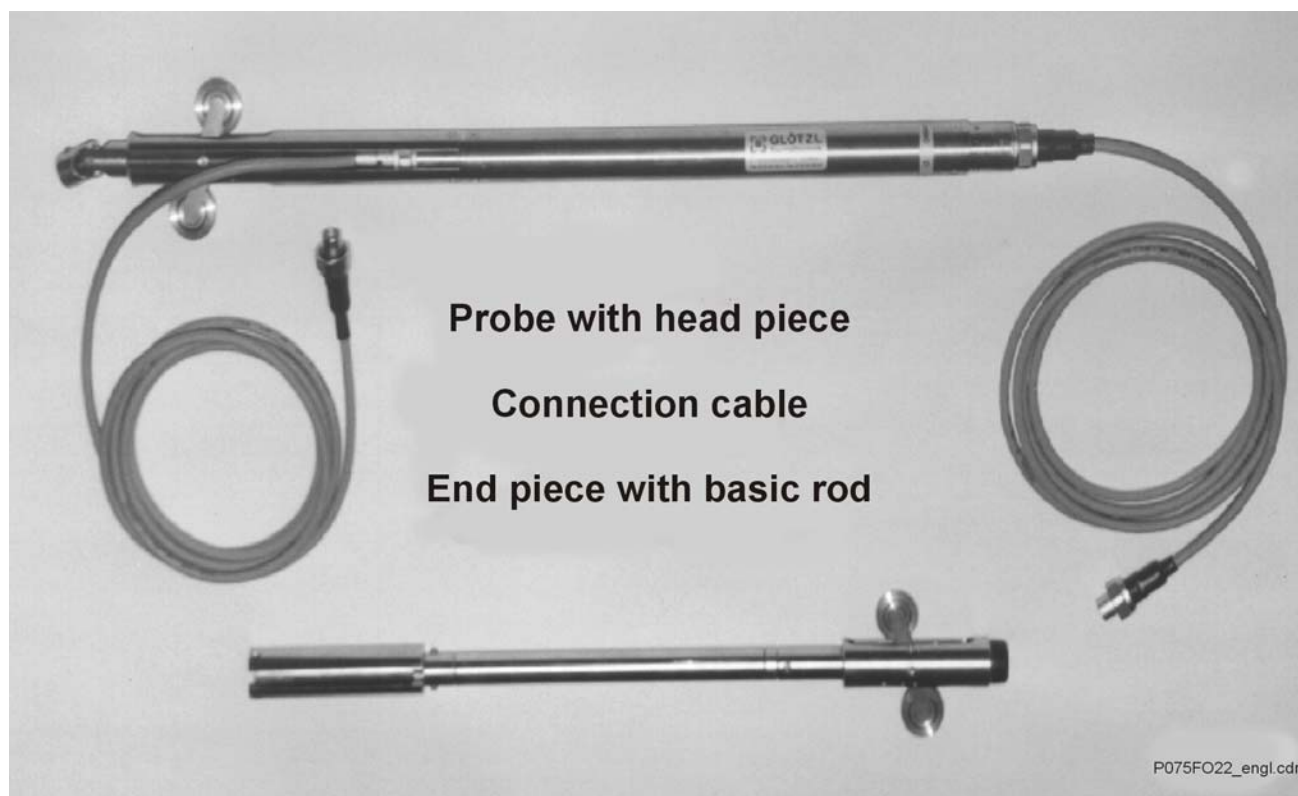
GLÖTZL Baumeßtechnik

INCLINOMETER CHAINS for vertical or horizontal DEFORMATION MEASUREMENTS

Type: SNMGD

Art. No: 75.50

The inclinometer chain measuring equipment is used in those cases where working with mobile units is too expensive or when measuring value changes must permanently be available for security reasons. Application ranges are deformation measurements of buildings and their surrounding area during construction period as well as monitoring and controlling of stability over a period of several years.



Measuring Equipment

The measuring equipment can consist of several chains of inclinometer probes (max. 128 probes) which are connected one to each other by universal joints in lengths of 1 up to 5 m.

The measured deviation referred to the measuring direction of the individual probes results – by addition of all sensors – in the total deformation in the measuring section related to a precedent first measurement.

Available for this purpose are vertically measuring probes with one or two measuring axes as well as horizontal probes with one measuring axis which is measuring vertically.

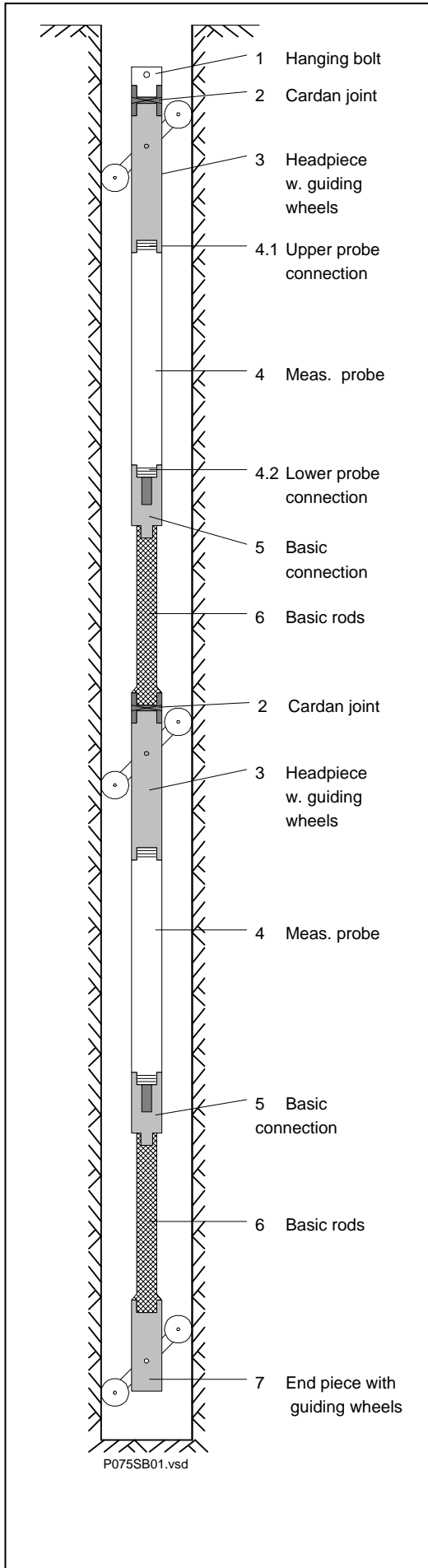
The probe is installed in a stainless steel housing which is impermeable to presswater. The probe is equipped with a connector on both ends for connection of the following probe or to a central data recording unit. The probes are connected one to each other by rods equipped with universal ball joints, whereby also the basic measuring length is determined. Using the standard type, the probes are led by guiding wheels in the inclinometer tube with grooves or in simple tubes with special self-centering three-point mechanism.

Measuring Value Recording



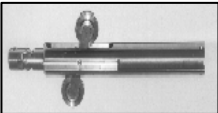

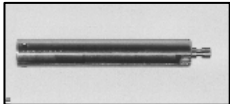
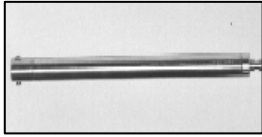
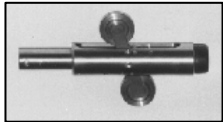
Connection of the probes is done by a 5-core cable. The measuring values are recorded by an internal 16-bit-AD-converter, calculated by a microcontroller and transferred to the recording station via a bus-capable RS485-interface.

Construction of the Inclinometer Chain Equipment

- Application in inclinometer tubes for horizontal and vertical deformation measurements



Article Nos. - Description

75.50.10.10	Hanging bolt	
75.50.10.20	Cardan joint	
75.50.10.30	Head piece with guiding wheels	
75.50.xx.	Measuring probe	
75.50.10.	Horizontal probe, 1 measuring axis, type SNMGD HP1/5, semiconductor sensor	
75.50.20.	Horizontal probe, 1 measuring axis, type SNMGD HQ1/30, accelerometer	
75.50.30.	Vertical probe, 1 measuring axis, type SNMGD VP1/5, semiconductor sensor	
75.50.31.	Vertical probe, 1 measuring axis, type SNMGD VP 1/10, semiconductor sensor	
75.50.40.	Vertical probe, 1 measuring axis, type SNMGD VQ1/30, accelerometer	
75.50.41.	Vertical probe, 2 measuring axes, type SNMGD VQ2/30, accelerometer	
75.50.10.50	Basic connection	
75.50.10.60	Basic rods	
75.50.10.61	1 m probe	
75.50.10.62	2 m probe	
75.50.10.63	3 m probe	
75.50.10.64	4 m probe) only for vertical	
75.50.10.65	5 m probe) measuring equipment	
75.50.10.70	End piece with guiding wheels	
75.50.10.80	Connection cable	
75.50.10.81	1 m probe	
75.50.10.82	2 m probe	
75.50.10.83	3 m probe	
75.50.10.84	4 m probe	
75.50.10.85	5 m probe	
75.50.10.90	Cable for probe – measuring station	
75.50.10.95	Suspension device for measuring equipment, specified according to client's request	

Application Ranges for Inclinometer Chain Equipment

Vertically measuring units

- Deformations in retaining dams
- Settlements in embankments
- Settlements in landfills
- Deflection of mains supply lines

Horizontally measuring units

- Stability control of embankments, slopes and street dams
- Construction-accompanying measurements in excavations, on diaphragm walls and in tunnel tubes

Article No.:	75.50.10	75.50.20	75.50.30	75.50.32	75.50.40	75.50.41
Technical data	75.50.11		75.50.31	75.50.33		
Type SNMGD.....	HP1/5 HP1/15 (HP1/10)	HQ1/30	VP1/5 VP1/15 (VP1/10)	VP2/5 VP2/15 (VP2/10)	VQ1/30	VQ2/30
Model	Horizontal		Vertical			
Measuring axes	1	1	1	2	1	2
Probe diameter [mm]	38	30	38	38	30	30
Basic rods Ø [mm]	20	20	20	20	20	20
Measuring lengths [m]	1-3	1-3	1-5	1-5	1-5	1-5
Measuring range ±°	5 15 (10)	30	5 15 (10)	5 15 (10)	30	30
Max. operating range ±°	5 15	90	5 15	5 15	90	90
Linearity ± ...% f.s.	0.2	0.005	0.2	0.2	0.005	0.005
TC in zero point ± ...% f.s./K	0.01 0.005	0.005	0.01 0.005	0.01 0.005	0.005	0.005
TC in measuring range ± ...% f.s./K	0.02 0.01	0.006	0.02 0.01	0.02 0.01	0.006	0.006
TC in operating range / °C	-40 up to 85	-5 up to 60	-40 up to 85	-40 up to 85	-5 up to 60	-5 up to 60
Lateral sensitivity ± ...g/g	< 0.3% *	0.002	< 0.3% *	< 0.3% *	0.002	0.002
Hysteresis ± ...% f.s.	0.002 0.005	0.0005	0.002 0.005	0.002 0.005	0.0005	0.0005
Diameter of guide tube (mm)	48 - 75	48 - 75	48 - 75	48 - 75	48 - 75	48 - 75
Special model	Three-point guiding mechanism for standard tubes, diameter 50 up to 150mm					

* = up to ±10 % lateral inclination

Data Recording Units:



Multimeter with data memory
and measuring point allocation,
type VMG 14.1
(see detailed single description)



Automatic measuring station
type MCC
(see detailed single description)



Subject to technical alternations