GLÖTZL Baumeßtechnik

METAL PLATE SETTLEMENT INDICATOR

Type: MSD 01

Art. No: 84.01

The metal plate settlement indicator, type MSD 01, is used for settlement measurement in borings or backfills. A measuring probe is conducted in a guide tube of plastics, by means of which the levels of settlement plates can be determined.

The settlement plates are installed with rising backfill, mounted around the tube. As soon as the probe has reached the level of the settlement plate, a measuring signal or tone is given which is indicating the position of the plate.

By repeated measurements, a mean value is yielded which can be read off at the graduated measuring tape.

Figure: Measuring equipment, consisting of:

- Indicator with accu operation
- Head receiver
- Measuring probe
- Transport case
- Cable reel with measuring tape
- Pulley guide

Settlement measurements can be done with this instrument without tuning of the measuring device. The measuring plate (measuring mark) is reached with the maximal possible pointer setting resp. with the highest sound of the accustic display. The accuracy is +/-2 mm.

The material of the measuring marks is steel, VA. However, also aluminium plates are available with a centrical boring for the guide tube. The measuring device must be adjusted to the corresponding material resp. must be calibrated.

The automatic operation of the indicator is ensuring the independence of the display from the size of measuring mark, but not from material.

Technical Data:

- Readout unit with accu operation, automatic charger 230 V , battery charging 12 V
- Probe Ø 30 mm, current consumption 4 - 20 mA, watertight up to 20 bars, plastic housing
- Measuring tape, plastic coated metal tape with cm-graduation and grouted electric lines, cable lengths 20, 50, 100 and 200 m
- Head receiver 30 Ohm
- Cable reel with slip ring contacts
- Pulley guide with nonius
- Transport case, weight complete 22 kgs
- Hole diameter of measuring plates: Steel 100 - 200 mm, aluminium 50 - 200 mm

Figure: Measuring equipment with guide tube

Measuring Principle of Probe, Type MSD - S 30
The probe contains a transformer. When approaching a measuring plate – which is a short-circuit coil -, energy is extracted from the transformer. The longer the coupling becomes, that means the nearer the probe comes to the plate, the more energy is extracted of the primary circuit of the transformer.

When reaching the measuring plate, the shortest distance is reached and thus the biggest coupling, that means the biggest extraction of energy from the primary circuit.

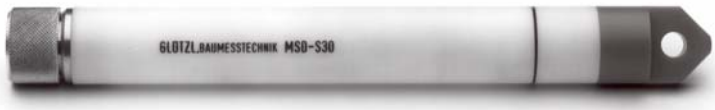

Figure: Measuring probe MSD-S 30

Technical Data:

Output: 4 - 20 mA
Lamp 280 mm, Ø 30 mm
Pressure watertight max. 20 bars
Weight 0.35 kg
Casing of plastic POM

Readout Unit, Type MSD 01
The readout unit is placed in a robust aluminium pressure measuring casing. Power supply is done by maintenance-free NI-Cd- sintered accus which can be recharged by the installed automatic charger.

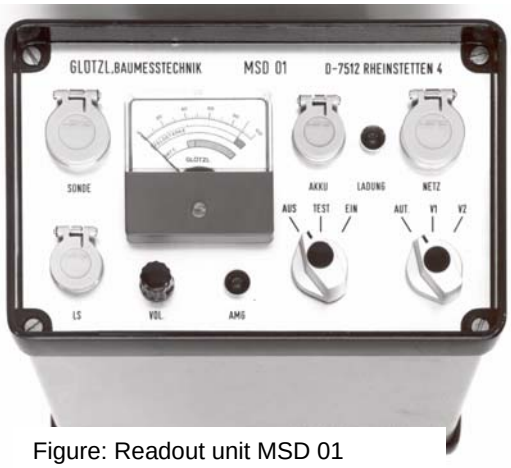

Figure: Readout unit MSD 01

Measured value and cell voltage can be controlled with the instrument.
In positions V1 and V2 the measuring size is indicated with two amplifications.
The full stroke is reached with 20 mA.

Technical Data:
Accu 8 V/4 Ah
Operating period 10 hrs./20 °C
Locating accuracy +/-2 mm
Weight 4 kgs

Functions: Connections and Circuits

PROBE	Connector
LS	Head receiver connection 30 Ohm
VOL	Sound volume regulator
ACCU	Socket for charge with battery 12 V
MAINS	Mains connection 230 V, 50 Hz
CHARGE	Charge control-automatic charger
Lamp ON	= Main charge,
OFF	= Recovery charge
OFF/TEST/ON	Main switch, TEST green operating range
AUT/V1/V2	Function switch, measuring type
ANG	Automatic function

AUT Function

When passing through a measuring plate, a definite display is reached, dependent on kind and material of plate and also on size of boring. However, in practice it is more simple to reach the same pointer setting resp. sound level at the location of the measuring mark. This is achieved with the automatic function which is always adapting the instrument amplification to the maximum measuring signal and is displaying it in a spreaded range.

Transport Case

A transport case of aluminium is available for the complete measuring equipment.
Dimensions: Length: 585 cm, height: 385 cm, depth: 240 cm
Weight complete with instrument 22 kgs

Figure: Measuring tape and cable reel with slip ring contact

Cable reel with Measuring Tape, Type MSD K (50)

The measuring tape consists of a plastic-coated metal tape with cm-graduation. Four cores are poured in the plastic coating for current supply.

The plug connector is watertight up to 20 bars.

Therefore it can be removed for transport.

The cable reel is equipped with slip ring contacts.

Models

- MSD K 20 measuring tape 20 m
- MSD K 50 measuring tape 50 m
- MSD K 100 measuring tape 100 m
- MSD K 200 measuring tape 200 m

Pulley Guide, Type MSD-F

The pulley guide MSD-F can be used for guide tubes of 50 up to 200 mm diameter with a maximum wall thickness of up to 10 mm.

The measuring tape is carefully led into the guide tube. The probe position can be read in mm accuracy.
By means of a level elongation tube the cable reel can be hinged.

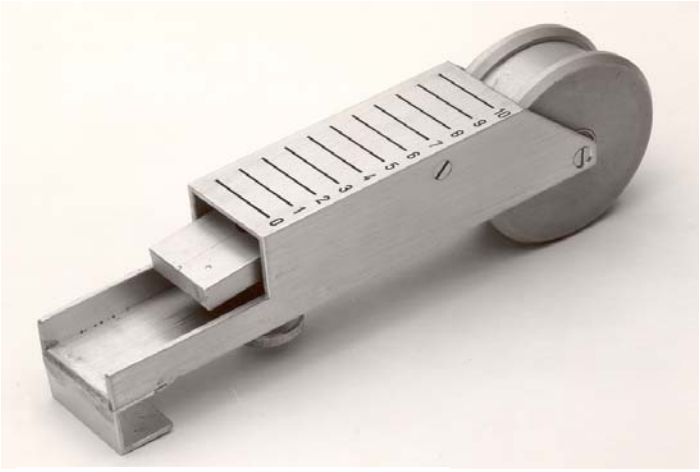

Figure: Pulley guide

Measuring Plates

The settlement plates are available of VA material and aluminium in different sizes. In case of own production of metal plates, it is important to know that the pointer stroke should not exceed the scale indication of 90.
Admissible hole diameters for measuring plates:
Steel Ø 100 - 200 mm, VA material Ø 100 - 200 mm, aluminium Ø 50 - 200 mm

Standard Plates for Embankments

MSD - A 300, alu Ø 60 x 300 x 300 x 4 mm
MSD - VA 300, VA Ø 100 x 300 x 300 x 3 mm
Further dimensions on request

Installation in Bore Holes

MSD - A 12, alu Ø 60 / 120 x 3 mm
MSD - VA 15, VA Ø 100 / 150 x 2 mm

Guide Tubes

As guide tube, plastic tubes with a clear diameter of 40 – 100 mm can be used.

Meas. tubes PVC, NG [outer Ø in cm]		**NG 4** Ø 40 x 3 mm	**NG 5** Ø 50 x 3.5 mm	**NG 6,3** Ø 63 x 7 mm
Meas. tube w. threaded sleeve	each 2.5 m long	89.01.01	89.10.01	89.20.01
Meas. tube w. telesc. bushing	each 2.5 m long	89.01.02	89.10.01	89.20.01
Seal cap of PVC for base		89.01.11	89.10.11	89.20.11
Screw/end cap of PVC for head point		89.01.12	89.10.12	89.20.12
Screw/adhesive sleeve for shortening		89.01.13	89.10.13	

Protection tubes, heavy model 6“ , length 1.5 m with seal cap 89.40.01

Figure.: Measurement with metal plate settlement indicator

GLÖTZL Gesellschaft für Baumeßtechnik mbH · Forlenweg 11 · 76287 Rheinstetten · Germany
☎ +49 (0)721 51 66 - 0 · 🖷 +49 (0)721 51 66 - 30 · http://www.gloetzl.com · info@gloetzl.com