## PENETROGRAPH

The penetration resistance of the ground can be determined in the field, using a penetrometer. One of the range of penetrometers is the mechanical recording penetrograph.

### The penetration resistance

The penetration resistance is a means of determining the ground load-bearing capacity, and the ease with which roots will grow through the ground.

Determining the load-bearing capacity is of the greatest importance in the design of foundations for civil engineering works (building work, laying runways, the design of dikes and roads, etc.). There is also a requirement for quantitative measurements of the ground profile, for agricultural and cultivation purposes, in connection with all aspects of land utilisation (ease of root penetration plays an important role in the provision of planted public areas).

#### Penetrograph

06.02

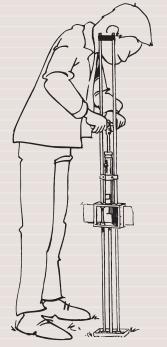
The penetrograph is a devise for determination of the penetration resistance of the ground. The standard set is equipped with various penetration cones, recorder pens, probe rods and recording charts. The entire set, including spare parts, instructions, cone check and the tool are packed in an aluminium carrying/transport case. Every penetrograph is supplied with a quality test report. The penetrograph measuring range is up to 5000 kN/m<sup>2</sup> (= 5 MPa) and is suitable for measurements at depths up to 0.80 m.

Continuous measurements can be made with the penetrograph, recording each layer of the ground profile up to 0.80 m on the chart.

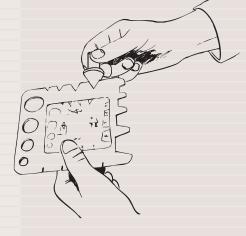
You will return to the contents of P1 SOIL by clicking the pictogram

P1.51

While measuring the penetration resistance of the soil, the probe-cone is pressed vertically into the ground.



The cone check is used to inspect the wear of the cones.



## 06.02 Penetrograph

- Writes obtained forces with depth on chart
- Will perfectly show disturbing layers
- Will proof compaction situation
- Weather proof charts
- One-push measurement
- For contractors and agronomists
- Weather proof (stainless steel) body



www.eijkelkamp.com



Penetrograph, standard set

Penetrograph





P1.51

with-drawn from the ground on the

the hand is held below the recorder

guide rods. When withdrawing it,

case.

The penetrograph may never be

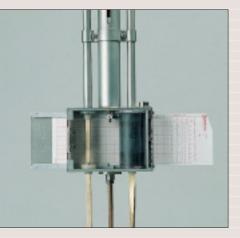
## PENETROGRAPH

In addition, the penetrograph is self-recording, i.e. during the measurement the resistance is immediately graphically recorded. This greatly reduces the amount of work to be done afterwards, the data can be immediately transferred and it is easy to store. The principle of the measurement is based on the compression of a calibrated spring, while at the same time the chart is moved in proportion to the depth by the drive pulley. To check if the penetration into the ground by the probe rod and cone is vertical, the penetrograph is fitted with a bascule spirit-level. The penetration should be as close as possible to the vertical, to keep the pressure and friction on the probe rod to the lowest possible levels.

### Applications

The penetrograph is used for:

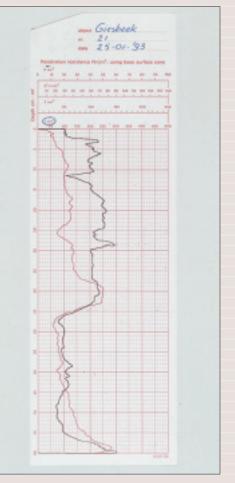
- general soil science examinations (e.g. for profile descriptions, obtaining data for evaluating the suitability of soils).
- checking the suitability of soils for carrying vehicles or pedestrians.
- checking artificially-made compactions (e.g. sand-filled trenches).
- checking load-bearing capacity for the installation of underground tanks.
- the detection of compacted (possibly impenetrable) sub-soil layers (e.g. layers compacted below ploughed depth).
- research into poor growing conditions, including those for trees in urban streets and parks.
- research into the connection between the intensity of rooting of specific crops and the resistance to penetration of the soil layers present.



**Recording instrument** 



Cones



Recording chart

# PARTS LIST

angle 60 deg.         **06.01.04.02       Cone, base area 2 cm <sup>2</sup> , 1 angle 60 deg.         **06.01.04.03       Cone, base area 3 tr3 cm <sup>2</sup> , 1 angle 60 deg.         **06.01.05.04       Cone, base area 5 cm <sup>2</sup> , 1 angle 60 deg         **06.02.02       Probing rod, 0 8 mm, 1 length 80 cm, (6 roc on 1 cm <sup>2</sup> )         **06.02.03       Probing rod, 0 10 mm, 1 length 80 cm, (6 roc on 2 cm <sup>2</sup> to cone 5 cm <sup>2</sup> )         **06.02.01       Penetrograph with 1 compression spring for measurements to 5000 KM <sup>2</sup> to cone 5 cm <sup>2</sup> )         **06.02.04       Registration cards for 1 penetrograph, pack of 250 pcs.         **06.02.05       Aluminium carying case, 1 dim. 1032265115 cm (outside)         **01110.201       Paelock         **05.02.05       Red pen 2         **95.004       Screw driver, 4 mm bit 1         **995.012       Spanner 12x13 mm 2         **995.012       Spanner 12x13 mm< 2         **995.012       Spaner 2x13 mm< 2         **95.012       Cone, base area 1 cm <sup>2</sup> , angle 30 deg.         06.0	Art.no.	Description	Qty. in set	Art.no.	Description	Qty. in set
delivered as a complete set for carrying case).       05.02     Penetrograph, standard set for measurements to angle 60 deg.       **06.01.02.01     Cone, base area 1 cm <sup>2</sup> , angle 60 deg.     1       **06.01.03.02     Cone, base area 2 cm <sup>2</sup> , angle 60 deg.     1       **06.01.03.02     Cone, base area 2 cm <sup>2</sup> , angle 60 deg.     1       **06.02.03     Probing rod, 0 8 mm, length 80 cm, (for cone 1 cm <sup>2</sup> )     1       **06.02.03     Probing rod, 0 8 mm, length 80 cm, (for cone 2 cm <sup>2</sup> )     1       **06.02.03     Penetrograph, kth deg     1       **06.02.04     Registration cards for measurements to 5000 kMm <sup>2</sup> 1       **06.02.05     Registration cards for some area in the second seco	P1.51	Penetrograph				
set for measurements to a depth of 80 cm.           **06.01.02.01         Cone, base area 1 cm <sup>2</sup> , angle 60 deg.           **06.01.03.02         Cone, base area 2 cm <sup>2</sup> , angle 60 deg.           **06.01.03.02         Cone, base area 2 1/3 cm <sup>2</sup> , 1           angle 60 deg.         angle 60 deg.           **06.01.03.02         Cone, base area 3 1/3 cm <sup>2</sup> , 1           angle 60 deg.         angle 60 deg.           **06.01.05.04         Cone, base area 5 cm <sup>2</sup> , angle 60 deg.           **06.01.05.04         Cone, base area 5 cm <sup>2</sup> , angle 60 deg.           **06.02.02         Probing rod, 0 8 mm, 1           length 80 cm, (for cone 1 cm <sup>2</sup> )         length 80 cm, (for cone 2 cm <sup>2</sup> )           **06.02.01         Penetrograph with 1         1           comperssion spring for measurements to 5000 kWm <sup>2</sup> (50 kg/fcm <sup>2</sup> ), incl. text report           **06.02.03         Red pserver, ind. black pen 1           **06.02.04         Red pserver, ind. black pen 1           **06.02.05         Red pserver, ind. black pen 1           **06.02.06         Spanner 12.01 3m 2           **95.0.01         Bag for tools         1           **06.02.02         Spanner 12.13 mm 2           **95.0.02         Spanner 12.13 mm 2           **95.0.01         Bag for tools 10.30.2,0           **0		delivered as a complete				
**06.01.03.02 Cone, base area 2 (cm <sup>2</sup> , 1 angle 60 deg. **06.01.05.04 Cone, base area 3 1/3 (cm <sup>2</sup> , 1 angle 60 deg. **06.01.05.04 Cone, base area 5 (cm <sup>2</sup> , 1 angle 60 deg. **06.02.02 Probing rod, 0 8 mm, 1 length 80 cm, (for cone 1 (cm <sup>2</sup> ) **06.02.03 Probing rod, 0 10 mm, 1 length 80 cm, (for cone 2 (cm <sup>2</sup> ) to cone 5 cm <sup>2</sup> ) **06.02.04 Penetrograph with 1 compression spring for measurements to 5000 kM/m <sup>2</sup> (S0 kgf(cm <sup>2</sup> ), incl. test report 1 Penetrograph with 250 pcs. **06.02.05 Aluminium carying case, 1 dim. 1032&&Cl.15 cm (outside) **01.10.2.01 Penetrograph, pack of 250 pcs. **06.02.05 Aluminium carying case, 1 dim. 1032&&Cl.15 cm (outside) **01.10.2.01 Penetrograph mith 1 **095.0.02 Screw drive, 4 mm bit 1 **995.0.07 Spanner 7x9 mm 1 **995.0.07 Spanner 7x9 mm 1 **995.0.07 Spanner 7x121 mm 2 **995.0.01 Bag for tools 1 **06.01.22.01 Gol.122.07 Cone, base area 1 (cm <sup>2</sup> , angle 30 deg. Gol.122.07 Cone, base area 2 cm <sup>2</sup> , angle 30 deg. Gol.122.10 Cone, base area 2 cm <sup>2</sup> , angle 30 deg. Gol.122.11 Cone, base area 2 cm <sup>2</sup> , angle 30 deg. Gol.122.10 Cone, base area 3 (cm <sup>2</sup> , angle 30 deg. Gol.122.11 Cone, base area 2 cm <sup>2</sup> , angle 30 deg. Gol.122.10 Cone, base area 5 cm <sup>2</sup> , angle 30 deg. Gol.122.11 Cone, base area 5 cm <sup>2</sup> , angle 30 deg. Gol.122.12 Cone, base area 5 cm <sup>2</sup> , angle 30 deg. Gol.122.12 Cone, base area 5 cm <sup>2</sup> , angle 30 deg. Gol.122.11 Cone, base area 5 cm <sup>2</sup> , angle 30 deg. Gol.122.12 Cone, base area 1 cm <sup>2</sup> , angle 30 deg. Gol.122.11 Cone, base area 5 cm <sup>2</sup> , angle 30 deg. Gol.122.12 Cone, base area 1 cm <sup>2</sup> , angle 30 deg. Gol.122.13 Cone, base area 5 cm <sup>2</sup> , angle 30 deg. Gol.122.14 Cone, base area 5 cm <sup>2</sup> , angle 30 deg. Gol.122.15 Pen bearer, incl. black pen Bag of tools and spare parts Spare	06.02	set for measurements to				
**06.01.03.02 Cone, base area 2 cm <sup>2</sup> , 1 angle 60 deg. **06.01.04.03 Cone, base area 5 cm <sup>2</sup> , 1 angle 60 deg. **06.02.02 Probing rod, 0 8 mm, 1 length 80 cm, (for cone 1 cm <sup>2</sup> ) **06.02.03 Probing rod, 0 10 mm, 1 length 80 cm, (for cone 2 cm <sup>2</sup> to cone 5 cm <sup>2</sup> ) **06.02.01 Penetrograph with 1 to cone 5 cm <sup>2</sup> ) **06.02.01 Penetrograph with 1 measurements to 5000 kN/m <sup>2</sup> (50 kgf/cm <sup>2</sup> ), ind. test report 1 **06.02.03 Red pen 2 **06.02.03 Red pen 2 **06.02.03 Red pen 2 **096.004 Screw driver, 4 mm bit 1 **05.02.01 Sapaner 7x9 mm 1 **995.012 Spanner 7x9 mm 1 **995.013 Spanner 7x9 mm 1 **995.012 Spanner 7x9 mm 1 **995.013 Spanner 7x9 mm 1 **995.014 Bag for tools 1 **06.01.20.01, 06.01.03.02, 06.01.20.01 Cone, base area 1 cm <sup>2</sup> , angle 30 deg. 06.01.22.01 Cone, base area 2 cm <sup>2</sup> , angle 30 deg. 06.01.22.02 Cone, base area 2 cm <sup>2</sup> , angle 30 deg. 06.01.22.03 Penetres Tax1 sm 2 **975.012 Spanner 7x9 mm 2 **96.01.22.01 Cone, base area 2 cm <sup>2</sup> , angle 30 deg. 06.01.22.02 Cone, base area 2 cm <sup>2</sup> , angle 30 deg. 06.01.22.03 Cone, base area 2 cm <sup>2</sup> , angle 30 deg. 06.01.22.01 Cone, base area 3 l/3 cm <sup>2</sup> , angle 30 deg. 06.01.22.02 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.03 Penetre, incl. black pen 06.02.01.53 Penetre treport and eventual a	**06.01.02.01		1			
**06.01.04.03 angle 60 deg. **06.01.05.04 Cone, base area 5 cm <sup>2</sup> , 1 angle 60 deg. **06.02.02 Probing rod, 0 8 mm, 1 length 80 cm, (for cone 1 cm <sup>2</sup> ) **06.02.03 Probing rod, 0 10 mm, 1 length 80 cm, (for cone 2 cm <sup>2</sup> to cone 5 cm <sup>2</sup> ) **06.02.01 Penetrograph with 1 compression spring for measurements to 5000 kMm <sup>2</sup> (50 kgf/cm <sup>2</sup> ), incl. test report **06.02.04 Registration cards for 1 penetrograph, pack of 250 pcs. **06.02.05 Red pen 2 **01.11.02.01 Padlock 1 **01.11.02.01 Padlock 1 **05.02.01.53 Pen bearer, incl. black pen 1 **99.50.01 Spanner 12x13 mm 2 **99.50.02 Spanner 12x13 mm 2 **99.50.01 Bag for tools 1 **06.02.05 Model 0.05.04 Screw driver, 4 mm bit 1 **99.50.07 Spanner 7.24 mm **06.01.22.07 Cone, base area 1 cm <sup>2</sup> , angle 30 deg. 66.01.22.07 Cone, base area 1 cm <sup>2</sup> , angle 30 deg. 66.01.22.07 Cone, base area 2 cm <sup>2</sup> , angle 30 deg. 66.01.22.07 Cone, base area 1 cm <sup>2</sup> , angle 30 deg. 66.01.22.01 Spanner 45.00 Optional items 06.01.22.11 Cone, base area 2 cm <sup>2</sup> , angle 30 deg. 66.01.22.05 Cone, base area 1 cm <sup>2</sup> , angle 30 deg. 66.01.22.07 Cone, base area 1 cm <sup>2</sup> , angle 30 deg. 66.01.22.08 Cone, base area 3 1/3 cm <sup>2</sup> , angle 30 deg. 66.01.22.01 Spare parts 06.02.01.53 Pen bearer, incl. black pen 66.02.01.53 Pen bearer, incl. black pen 96.02.01.53 Pen bearer, incl. black pen 95.02.01 Pad terpet terpet and eventual a	**06.01.03.02	Cone, base area 2 cm <sup>2</sup> ,	1			
**06.01.05.04 Cone, base area 5 cm², 1 angle 60 deg 1 **06.02.02 Probing rod, Ø 8 mm, 1 length 80 cm, (for cone 1 cm²) ** **06.02.01 Penetrograph with 1 to cone 5 cm²) ** **06.02.01 Penetrograph with 1 compression spring for measurements to 5000 kN/m² (50 kgf/cm²), ind. test report 4 **06.02.04 Registration cards for 1 penetrograph, pack of 250 pcs. ** **06.02.05 Paloet arr/m carying case, 1 dim. 103x26x11.5 cm (outside) ** **95.00.01 Samer 12x13 mm 2 **99.50.01 Spanner 12x13 mm 2 **99.50.01 Spanner 12x13 mm 2 **99.50.01 Spanner 12x13 mm 2 **99.50.01 Bag for tools 1 **06.01.22.01 Cone, base area 1 cm², angle 30 deg. 0 60.01.22.07 Cone, base area 1 cm², angle 30 deg. 0 60.01.22.01 Cone, base area 2 cm², angle 30 deg. 0 60.01.22.01 Cone, base area 1 cm², angle 30 deg. 0 60.01.22.01 Cone, base area 1 cm², angle 30 deg. 0 60.01.22.01 Cone, base area 2 cm², angle 30 deg. 0 60.01.22.01 Cone, base area 2 cm², angle 30 deg. 0 60.01.22.01 Cone, base area 2 cm², angle 30 deg. 0 60.01.22.01 Cone, base area 1 cm², angle 30 deg. 0 60.01.22.01 Cone, base area 2 cm², angle 30 deg. 0 60.01.22.01 Cone, base area 2 cm², angle 30 deg. 0 60.01.22.01 Cone, base area 1 cm², angle 30 deg. 0 60.01.22.01 Cone, base area 2 cm², angle 30 deg. 0 60.01.22.01 Cone, base area 1 cm², angle 30 deg. 0 60.01.22.02 Cone, base area 2 cm², angle 30 deg. 0 60.01.22.03 Pen baser, incl. black pen 0 60.02.01.53.00 Red pen 2 50.02.01 Salak pen 0 60.02.01.53.00 Red pen 1 50.02.01 Salak pen 0 60.02.01.53.00 Red pen 1 50.02.01 Salak pen 0 50.02.01 Salak	**06.01.04.03	Cone, base area 3 1/3 cm <sup>2</sup> ,	1			
**06.02.02       Probing rod, 0 8 mm, 1         length 80 cm, (for cone 1 cm <sup>2</sup> )         **06.02.03       Probing rod, 0 10 mm, 1         length 80 cm, (for cone 2 cm <sup>2</sup> )         **06.02.01       Penetrograph with 1         compression spring for measurements to 5000 kN/m <sup>2</sup> (50 kgf/cm <sup>2</sup> ), incl. test report         **06.02.01       Registration cards for 1         penetrograph, pack of 250 pcs.         **106.02.01.53       Pan bearer, incl. black pen 1         **06.02.01.53       Pan bearer, incl. black pen 1         **06.02.01       Spanner 7x9 mm 1         **995.01.02       Spanner 7x9 mm 1         ***995.01.7       Spanner 7x9 mm 1         ***995.01.2       Spanner 7x9 mm 2         ***995.01.2       Spanner 7x9 mm 1         ****06.01.26       Inspection ig for cones 1         06.01.02.01, 06.01.03.02, 06.01.03.02, 06.01.03.04, according to NEN 5740.         06.01.22.07       Cone, base area 1 cm <sup>2</sup> , angle 30 deg.         06.01.22.08       Cone, base area 3 1/2 cm <sup>2</sup> , angle 30 deg.         06.01.22.09       Cone, base area 3 1/2 cm <sup>2</sup> , angle 30 deg.         06.01.22.10       Cone, base area 1/2 cm <sup>2</sup> , angle 30 deg.         06.01.22.10       Cone, base area 1/2 cm <sup>2</sup> , angle 30 deg.         06.01.22.10       Cone, base area 1/	**06.01.05.04	Cone, base area 5 cm <sup>2</sup> ,	1			
**06.02.03       Probing rod, Ø 10 mm, 1       1         length 80 cm, (for cone 2 cm <sup>2</sup> to cone 5 cm <sup>2</sup> )         **06.02.01       Penetrograph with 1       1         compression spring for measurements to 5000 kV/m <sup>2</sup> 5000 kV/m <sup>2</sup> **06.02.04       Registration cards for 1         penetrograph, pack of 250 pcs.       ***         **106.02.05       Penbearer, incl. black pen 1         **06.02.01.53       Pen bearer, incl. black pen 1         **99.50.02       Spamer 7X mm 1         ***99.50.01       Spamer 7X mm 1         ***99.50.02       Spamer 7X mm 1         ***99.50.01       Spaner 7X mm 2         ***99.50.02       Spaner 7X mm 2         **99.50.03       Spaner 7X mm 2         **99.50.04       Screw driver, 4 mm bit 1         ***99.50.05       Spanner 7X mm 2         **99.50.01       Bag for tools 1         06.01.02.01, 06.01.03.02, angle 30 deg.       06.01.02.04         according to NEN 3680       angle 30 deg.         06.01.22.07       Cone, base area 1 cm <sup>2</sup> , angle 30 deg.         06.01.22.08       Cone, base area 1 /2 cm <sup>2</sup> , angle 30 deg.         06.01.22.10       Cone, base area 7,5 cm <sup>2</sup> , angle 30 deg.         06.01.22.11       Cone, base area 7,5 cm <sup>2</sup> , angle 30 deg. <td>**06.02.02</td> <td></td> <td>1</td> <td></td> <td></td> <td></td>	**06.02.02		1			
**06.02.01 Penetrograph with 1 compression spring for measurements to 5000 kV/m <sup>2</sup> (50 kqf/m), incl. test report **06.02.04 Registration cards for 1 penetrograph, pack of 250 pcs. **06.02.05 Aluminium carrying case, 1 dim. 103x26x11.5 cm (outside) **01.11.02.01 Padlock 1 **06.02.01.53 Pen bearer, incl. black pen 1 **06.02.01.53 Pen bearer, incl. black pen 1 **99.50.07 Spanner 7x9 mm 1 **99.50.07 Spanner 7x9 mm 2 **99.50.07 Spanner 7x9 mm 2 **99.50.01 Bag for tools 1 **06.01.26 Inspection jig for cones 1 06.01.02.01 Gol.01.05.01 Gol.01.05.04 according to NEN 3680 and KEN 5140. 0fc.01.22.08 Cone, base area 1 rm <sup>2</sup> , angle 30 deg. 06.01.22.09 Cone, base area 1 rm <sup>2</sup> , angle 30 deg. 06.01.22.10 Cone, base area 1 rm <sup>2</sup> , angle 30 deg. 06.01.22.11 Cone, base area 1 rG <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 1 rG <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 1 rG <sup>2</sup> , angle 30 deg. 06.01.22.10 Cone, base area 1 rG <sup>2</sup> , angle 30 deg. 06.01.22.11 Cone, base area 1 rG <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 1 rG <sup>2</sup> , angle 30 deg. 06.01.22.13 Cone, base area 1 rG <sup>2</sup> , angle 30 deg. 06.01.22.14 Cone, base area 1 rG <sup>2</sup> , angle 30 deg. 06.01.22.15 Pen bearer, ind. black pen 06.02.01.53.00 Bag of tools and spare parts 06.02.01.53.00 Red pen 06.02.01.53.00 Red pen 06.02.01.53.00 Red pen 06.02.01.53.00 Red pen 06.02.01.53.00 Red pen 06.02.01.53.00 Red pen 06.02.01.53.00 Red pen 06.02.215 Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a	**06.02.03	Probing rod, Ø 10 mm,	1			
compression spring for         measurements to 5000 kN/m²         (50 kg/fcm²), ind. test report         **06.02.04       Registration cards for         penetrograph, pack of 250 pcs.         **101.11.02.01       Padiock         **106.02.05       Aluminium carrying case,       1         **06.02.01.53       Pen bearer, incl. black pen       1         **06.02.01.53       Pen bearer, incl. black pen       2         **99.50.07       Spanner 7X9 mm       1         **99.50.07       Spanner 7X9 mm       1         **99.50.07       Spanner 7X9 mm       1         **99.50.08       Screw driver, 4 mm bit       1         ***99.50.01       Bag for tools       1         ***99.50.02       Spanner 7X9 mm       1         ***99.50.03       Spanner 7X9 mm       1         ***99.50.04       Screw driver, 4 mm bit       1         ***99.50.05       Spanner 7X9 mm       1         ***99.50.01       Bag for tools       1         ***06.01.26       Inspection igl for comes       1         06.01.22.05       Cone, base area 1 cm², angle 30 deg.       -         06.01.22.09       Cone, base area 2 cm², angle 30 deg.       -         06.01.22.10	**06 02 01	to cone 5 cm²)				
**06.02.04 Registration cards for 1 penetrograph, pack of 250 pcs. **06.02.05 Aluminium carrying case, 1 dim103x26x11.5 cm (outside) **01.11.02.01 Padlock 1 **06.02.01.53 Pen bearer, incl. black pen 1 **06.02.01.53 Pen bearer, incl. black pen 1 **99.60.04 Screw driver, 4 mm bit 1 **99.50.07 Spanner 7x9 mm 1 **99.50.07 Spanner 7x9 mm 1 **99.50.12 Bag for tools 1 **06.01.26 Inspection jig for cones 1 06.01.22.07 Cone, base area 1 cm², angle 30 deg. 06.01.22.08 Cone, base area 1 cm², angle 30 deg. 06.01.22.09 Cone, base area 2 cm², angle 30 deg. 06.01.22.10 Cone, base area 3 1/3 cm², angle 30 deg. 06.01.22.10 Cone, base area 5 cm², angle 30 deg. 06.01.22.11 Cone, base area 5 cm², angle 30 deg. 06.01.22.12 Cone, base area 7,5 cm², angle 30 deg. 06.01.22.12 Cone, base area 7,5 cm², angle 30 deg. 06.01.22.12 Cone, base area 10 cm³, angle 30 deg. 06.01.22.12 Cone, base area 10 cm³, angle 30 deg. 06.01.22.12 Red pen 06.02.01.53 Pen bearer, incl. black pen 06.02.21 Method penetrograph: placing a new calibrated spring, making of test report and eventual a	^ ^ 06.02.01	compression spring for	I			
**06.02.05 Aluminium carrying case, 1 dim. 103x26x11.5 cm (outside) **01.11.02.01 Padlock 1 **06.02.01.53 Pen bearer, incl. black pen 2 **05.02.01 Sapaner 7x9 mm 1 **99.50.07 Spanner 7x9 mm 1 **99.50.01 Bag for tools 1 **99.50.12 Spanner 12x13 mm 2 **99.50.13 Bag for tools 1 **06.01.26 Inspection jig for cones 1 06.01.02.01, 06.01.03.02, 06.01.04.03 and 06.01.05.04 according to NEN 3680 and NEN 5140. <b>Optional items</b> 06.01.22.07 Cone, base area 1 cm <sup>2</sup> , angle 30 deg. 06.01.22.08 Cone, base area 2 cm <sup>2</sup> , angle 30 deg. 06.01.22.10 Cone, base area 3 1/3 cm <sup>2</sup> , angle 30 deg. 06.01.22.11 Cone, base area 3 1/3 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 7,5 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 1 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 7,5 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.13 Pen bearer, incl. black pen 06.02.01.53 Pen bearer incl. black pen 10.02.01.53 Pen bearer incl.	**06.02.04	Registration cards for				
**01.11.02.01 **06.02.01.53 Pen bearer, incl. black pen 1 **06.02.01.53 Pen bearer, incl. black pen 1 **06.02.01.53 Pen bearer, incl. black pen 1 **99.60.04 Screw driver, 4 mm bit 1 **99.50.07 Spanner 7x9 mm 1 **99.50.07 Spanner 12x13 mm 2 **99.50.12 Spanner 12x13 mm 2 **99.70.01 Bag for tools 1 inspection jig for cones 1 06.01.02.01, 06.01.03.02, 06.01.04.03 and 06.01.05.04 according to NEN 3680 and NEN 5140. <b>Optional items</b> 06.01.22.07 Cone, base area 1 cm², angle 30 deg. 06.01.22.08 Cone, base area 2 cm³, angle 30 deg. 06.01.22.10 Cone, base area 3 1/3 cm², angle 30 deg. 06.01.22.10 Cone, base area 5 cm², angle 30 deg. 06.01.22.12 Cone, base area 7.5 cm², angle 30 deg. 06.01.22.12 Cone, base area 10 cm², angle 30 deg. 06.01.22.12 Cone, base area 10 cm², angle 30 deg. 06.01.22.12 Cone, base area 10 cm², angle 30 deg. 06.01.22.13 Den bearer, incl. black pen Black pen To be used optionally for repairs D6.02.05 Red pen To be used optionally for repairs D6.02.25 Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a	**06.02.05	Aluminium carrying case,	1			
*06.02.01.53.02       Red pen       2         **99.60.04       Screw driver, 4 mm bit       1         **99.50.12       Spanner 7x9 mm       1         **99.50.12       Spanner 12x13 mm       2         **99.70.01       Bag for tools       1         **99.50.12       Inspection jig for cones       1         06.01.20.1       06.01.03.02,       06.01.03.02,         06.01.02.01, 06.01.03.02,       06.01.05.04       according to NEN 3680         and NEN 5140.       Optional items       0         06.01.22.07       Cone, base area 1 cm², angle 30 deg.       angle 30 deg.         06.01.22.08       Cone, base area 2 cm², angle 30 deg.       angle 30 deg.         06.01.22.10       Cone, base area 5 cm², angle 30 deg.       angle 30 deg.         06.01.22.11       Cone, base area 1 cm², angle 30 deg.       angle 30 deg.         06.01.22.12       Cone, base area 10 cm², angle 30 deg.       angle 30 deg.         06.01.22.12       Cone, base area 10 cm², angle 30 deg.       angle 30 deg.         06.01.22.12       Cone, base area 10 cm², angle 30 deg.       angle 30 deg.         06.02.05       Pen bearer, incl. black pen       back pen         06.02.01.53.01       Black pen       backe pen         06.02.153.01       <	**01.11.02.01					
<ul> <li>**99.60.04</li> <li>Screw driver, 4 mm bit</li> <li>**99.50.07</li> <li>Spanner 7x9 mm</li> <li>**99.50.12</li> <li>Spanner 12x13 mm</li> <li>**99.70.01</li> <li>Bag for tools</li> <li>Inspection jig for cones</li> <li>06.01.201, 06.01.03.02, 06.01.04.03.02, 06.01.04.03 and 06.01.05.04</li> <li>according to NEN 3680</li> <li>and NEN 5140.</li> <li><b>Optional items</b></li> <li>06.01.22.07</li> <li>Cone, base area 1 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.09</li> <li>Cone, base area 2 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.10</li> <li>Cone, base area 3 1/3 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.11</li> <li>Cone, base area 5 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.12</li> <li>Cone, base area 5 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.11</li> <li>Cone, base area 7,5 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.12</li> <li>Cone, base area 10 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.13</li> <li>Cone, base area 10 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.14</li> <li>Cone, base area 10 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.15</li> <li>Pen bearer, incl. black pen</li> <li>06.02.01.53.01</li> <li>Black pen</li> <li>06.02.01.53.02</li> <li>Red pen</li> <li>To be used optionally for repairs</li> <li>06.02.25</li> <li>Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a</li> </ul>						
**99.50.07 Spanner 7x9 mm 1 **99.50.12 Spanner 12x13 mm 2 **99.70.01 Bag for tools 1 **06.01.26 Inspection jig for cores 1 06.01.02.01, 06.01.03.02, 06.01.02.01, 06.01.03.02, 06.01.02.01, 06.01.03.04 according to NEN 3680 and NEN 5140. <b>Optional items</b> 06.01.22.07 Cone, base area 1 cm², angle 30 deg. 06.01.22.09 Cone, base area 2 cm², angle 30 deg. 06.01.22.10 Cone, base area 3 1/3 cm², angle 30 deg. 06.01.22.11 Cone, base area 5 cm², angle 30 deg. 06.01.22.12 Cone, base area 1 0 cm², angle 30 deg. 06.01.22.12 Cone, base area 7.5 cm², angle 30 deg. 06.01.22.12 Cone, base area 10 cm², angle 30 deg. 06.01.22.12 Cone, base area 7.5 cm², angle 30 deg. 06.01.22.12 Cone, base area 10 cm², angle 30 deg. 06.01.22.12 Cone, base area 10 cm², angle 30 deg. 06.02.01.53 Pen bearer, incl. black pen 06.02.01.53.01 Black pen 06.02.01.53.02 Red pen To be used optionally for repairs 06.02.25 Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a		•				
<ul> <li>**99.50.12</li> <li><sup>5</sup>panner 12x13 mm 2</li> <li>**99.70.01</li> <li>Bag for tools 1</li> <li>Inspection jig for cones 1</li> <li>06.01.2.01, 06.01.03.02, 06.01.04.03 and 06.01.05.04 according to NEN 3680 and NEN 5140.</li> <li><b>Optional items</b></li> <li>06.01.22.07</li> <li>Cone, base area 1 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.08</li> <li>Cone, base area 2 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.10</li> <li>Cone, base area 3 1/3 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.11</li> <li>Cone, base area 5 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.12</li> <li>Cone, base area 10 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.11</li> <li>Cone, base area 10 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.12</li> <li>Cone, base area 10 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.13</li> <li>Cone, base area 10 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.14</li> <li>Cone, base area 10 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.15</li> <li>Cone, base area 10 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.12</li> <li>Cone, base area 10 cm<sup>2</sup>, angle 30 deg.</li> <li>06.02.01.53</li> <li>Pen bearer, incl. black pen</li> <li>06.02.01.53.01</li> <li>Black pen</li> <li>06.02.01.53.02</li> <li>Red pen</li> <li>To be used optionally for repairs</li> <li>06.02.25</li> <li>Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a</li> </ul>		-				
<ul> <li>**06.01.26</li> <li>Inspection jig for cones 1 06.01.02.01, 06.01.03.02, 06.01.04.03 and 06.01.05.04 according to NEN 3680 and NEN 5140.</li> <li>Optional items</li> <li>06.01.22.07</li> <li>Cone, base area 1 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.08</li> <li>Cone, base area 2 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.09</li> <li>Cone, base area 3 1/3 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.10</li> <li>Cone, base area 5 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.11</li> <li>Cone, base area 7,5 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.12</li> <li>Cone, base area 10 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.13</li> <li>Cone, base area 10 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.14</li> <li>Cone, base area 10 cm<sup>2</sup>, angle 30 deg.</li> <li>06.01.22.15</li> <li>Pen bearer, incl. black pen</li> <li>06.02.01.53</li> <li>Pen bearer, incl. black pen</li> <li>06.02.01.53</li> <li>Red pen</li> <li>To be used optionally for repairs</li> <li>06.02.25</li> <li>Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a</li> </ul>						
06.01.02.01, 06.01.03.02, 06.01.04.03 and 06.01.05.04 according to NEN 3680 and NEN 5140. Optional items 06.01.22.07 Cone, base area 1 cm <sup>2</sup> , angle 30 deg. 06.01.22.08 Cone, base area 2 cm <sup>2</sup> , angle 30 deg. 06.01.22.10 Cone, base area 3 1/3 cm <sup>2</sup> , angle 30 deg. 06.01.22.11 Cone, base area 5 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 7,5 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area mathematication of the second sec	**99.70.01	Bag for tools	1			
and NEN 5140. Optional items 06.01.22.07 Cone, base area 1 cm <sup>2</sup> , angle 30 deg. 06.01.22.08 Cone, base area 2 cm <sup>2</sup> , angle 30 deg. 06.01.22.10 Cone, base area 3 1/3 cm <sup>2</sup> , angle 30 deg. 06.01.22.11 Cone, base area 5 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Cone, base area 10 cm <sup>2</sup> , angle 30 deg. 06.01.22.12 Red pen 06.02.01.53 Pen bearer, incl. black pen 06.02.01.53.01 Black pen 06.02.01.53.02 Red pen 06.02.01.53.02 Red pen 06.02.25 Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a	**06.01.26	06.01.02.01, 06.01.03.02, 06.01.04.03 and 06.01.05.04	1			
angle 30 deg.06.01.22.08Cone, base area 2 cm², angle 30 deg.06.01.22.09Cone, base area 3 1/3 cm², angle 30 deg.06.01.22.10Cone, base area 5 cm², angle 30 deg.06.01.22.11Cone, base area 7,5 cm², angle 30 deg.06.01.22.12Cone, base area 10 cm², angle 30 deg.06.01.22.13Spare parts06.02.06Bag of tools and spare parts 06.02.01.53.0206.02.01Black pen06.02.25Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a		and NEN 5140.				
06.01.22.08Cone, base area 2 cm², angle 30 deg.06.01.22.09Cone, base area 3 1/3 cm², angle 30 deg.06.01.22.10Cone, base area 5 cm², angle 30 deg.06.01.22.11Cone, base area 7,5 cm², angle 30 deg.06.01.22.12Cone, base area 10 cm², angle 30 deg.06.01.22.12Cone, base area 10 cm², angle 30 deg.06.02.06Bag of tools and spare parts Pen bearer, incl. black pen 06.02.01.53.0106.02.01.53.02Red penTo be used optionally for repairs06.02.25Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a	06.01.22.07					
angle 30 deg.06.01.22.09Cone, base area 3 1/3 cm², angle 30 deg.06.01.22.10Cone, base area 5 cm², angle 30 deg.06.01.22.11Cone, base area 7,5 cm², angle 30 deg.06.01.22.12Cone, base area 10 cm², angle 30 deg.06.01.22.12Cone, base area 10 cm², angle 30 deg.06.02.06Bag of tools and spare parts 06.02.01.53.0106.02.01.53.01Black pen 06.02.01.53.0206.02.25Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a	06.01.22.08					
06.01.22.10Cone, base area 5 cm², angle 30 deg.06.01.22.11Cone, base area 7,5 cm², angle 30 deg.06.01.22.12Cone, base area 10 cm², angle 30 deg.06.02.06Bag of tools and spare parts06.02.01.53Pen bearer, incl. black pen 06.02.01.53.0106.02.01.53.02Red penTo be used optionally for repairs06.02.25Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a	06.01.22.09	angle 30 deg. Cone, base area 3 1/3 cm²,				
06.01.22.11Cone, base area 7,5 cm², angle 30 deg.06.01.22.12Cone, base area 10 cm², angle 30 deg.Spare parts06.02.06Bag of tools and spare parts 06.02.01.5306.02.01.53Pen bearer, incl. black pen 06.02.01.53.02Black pen 06.02.01.53.02To be used optionally for repairs06.02.25Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a	06.01.22.10	Cone, base area 5 cm <sup>2</sup> ,				
06.01.22.12       Cone, base area 10 cm², angle 30 deg.         Spare parts       Spare parts         06.02.06       Bag of tools and spare parts         06.02.01.53       Pen bearer, incl. black pen         06.02.01.53.01       Black pen         06.02.01.53.02       Red pen         To be used optionally for repairs         06.02.25       Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a	06.01.22.11	Cone, base area 7,5 cm <sup>2</sup> ,				
Spare parts         06.02.06       Bag of tools and spare parts         06.02.01.53       Pen bearer, incl. black pen         06.02.01.53.01       Black pen         06.02.01.53.02       Red pen         To be used optionally for repairs         06.02.25       Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a	06.01.22.12	Cone, base area 10 cm <sup>2</sup> ,				
06.02.01.53 Pen bearer, incl. black pen 06.02.01.53.01 Black pen 06.02.01.53.02 Red pen To be used optionally for repairs 06.02.25 Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a		Spare parts				
06.02.01.53 Pen bearer, incl. black pen 06.02.01.53.01 Black pen 06.02.01.53.02 Red pen To be used optionally for repairs 06.02.25 Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a	06.02.06	Bag of tools and spare parts				
06.02.01.53.01 Black pen 06.02.01.53.02 Black pen To be used optionally for repairs 06.02.25 Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a						
06.02.25       Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a	06.02.01.53.01	Black pen				
06.02.25 Adjustment of penetrograph: placing a new calibrated spring, making of test report and eventual a	06.02.01.53.02					
placing a new calibrated spring, making of test report and eventual a		To be used optionally for repart	airs			
	06.02.25	placing a new calibrated spring				
repair advice when deviations occur						
		repair advice when deviations of	occur			

