PENETROGRAPH

YENER ANALITIK CIHAZLAR SAN. VE TIC. LTD. STI



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).

06.02 Penetrograph

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/m² (= 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.



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

Penetrograph, standard set

Eijkelkamp reserves the right not to be responsible for the topicality, correctness, completeness or quality of the information provided. We reserve the right to alter equipment, procedures and specifications.



P1.51

The penetrograph may never be with-drawn from the ground on the guide rods. When withdrawing it, the hand is held below the recorder case.



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

www.yeneranalitik.com info@yeneranalitik.com Tel: 0216 3629935

PARTS LIST

Art.no.	Description	Qty. in set	Art.no.	Description	Qty. in set	
P1.51	Penetrograph					
	The penetrograph is delivered as a complete set (incl. carrying case).					
06.02	Penetrograph, standard set for measurements to a depth of 80 cm.					
**06.01.02.01	Cone, base area 1 cm ² ,	1				
**06.01.03.02	Cone, base area 2 cm ² ,	1				
**06.01.04.03	Cone, base area 3 1/3 cm ² ,	1				
**06.01.05.04	Cone, base area 5 cm ² ,	1				
**06.02.02	Probing rod, Ø 8 mm,	. 1				
**06.02.03	Probing rod, Ø 10 mm, length 80 cm, (for cone 2 cm ²) 1				
**06.02.01	to cone 5 cm ²) Penetrograph with compression spring for measurements to 5000 kN/m ² (50 kgf(m ²) incl_tast_roport	1				
**06.02.04	Registration cards for penetrograph, pack of 250 pc	1				
**06.02.05	Aluminium carrying case, dim. 103x26x11.5 cm (outside	23. 1 2)				
**01.11.02.01	Padlock	1				
**06.02.01.53	Pen bearer, incl. black pen	1				
*06.02.01.53.02	Red pen	2				
**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 cones 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	1				
06.01.22.07	Cone, base area 1 cm², angle 30 deg.					
06.01.22.08	Cone, base area 2 cm ² , angle 30 deg					
06.01.22.09	Cone, base area 3 1/3 cm ² , angle 30 deg.					
06.01.22.10	Cone, base area 5 cm ² , angle 30 deg.					
06.01.22.11	Cone, base area 7,5 cm ² , angle 30 deg.				VCNI	
06.01.22.12	Cone, base area 10 cm ² , angle 30 deg.				ICIN	
	Spare parts				anan	LIK
06.02.06	Bag of tools and spare parts			YENER ANALITI	K CIHAZLAR SAN. ve T	IC. LTD. ŞTI.
06.02.01.53	Pen bearer, incl. black pen			Bostanci Mah. Yalivo	olu Sokak No: 16 D: 3	Kadiköv Istanbul
06.02.01.53.01 06.02.01.53.02	Black pen Red pen			Tel : 0216 3629935	5 www.y 3 info@v	eneranalitik.com
	To be used optionally for rep	airs				
06.02.25	Adjustment of penetrograph: placing a new calibrated spring making of test report and ever repair advice when deviations of), ntual a occur			Eijkelkamp Agrisearch Equipment	

123