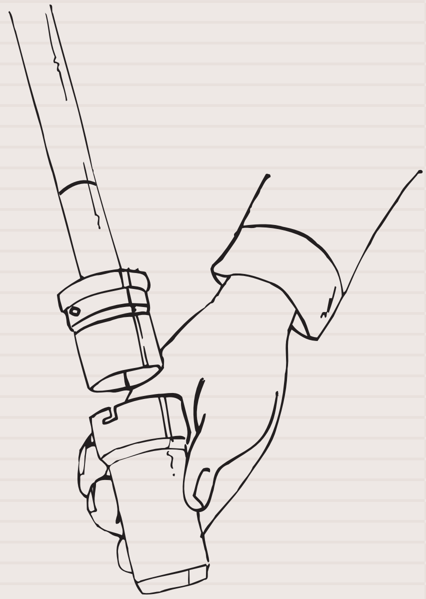
SOIL WATER PERMEABILITY TEST

YENER analitik

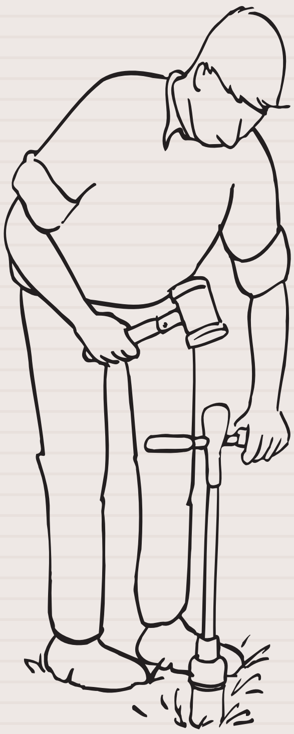
YENER ANALİTİK CİHAZLAR SAN. ve TİC. LTD. ŞTİ.

P1.87

For laboratory tests undisturbed samples in sample rings are necessary: before sampling the cutting shoe (with sample ring in it) is connected to the ringholder.



An undisturbed sample is taken with the ringholder, whereafter it will be analysed in the permeameter.



The planning and execution of hydrological- and soil technical projects (for instance drainage and irrigation) is almost always preceded by geo-hydrologic research. The water and air permeability of the soil to a large extend determines how efficient an irrigation- or drainage system functions.

Determining the saturated water permeability (horizontal as well as vertical) can be executed in the field (see P1.60) or in the laboratory with a soil water permeameter.

In case of the laboratory soil water permeameter use is made of undisturbed soil samples taken in soil sample rings with the soil sample ring kit (see also P1.31).

09.02 Soil water permeameters

In principle it is possible to design the soil water permeameters in any required size. The size is determined by the number of soil samples of which the saturated water permeability is to be determined simultaneously.

Designs for 5 up to 25 soil sample rings can be supplied.

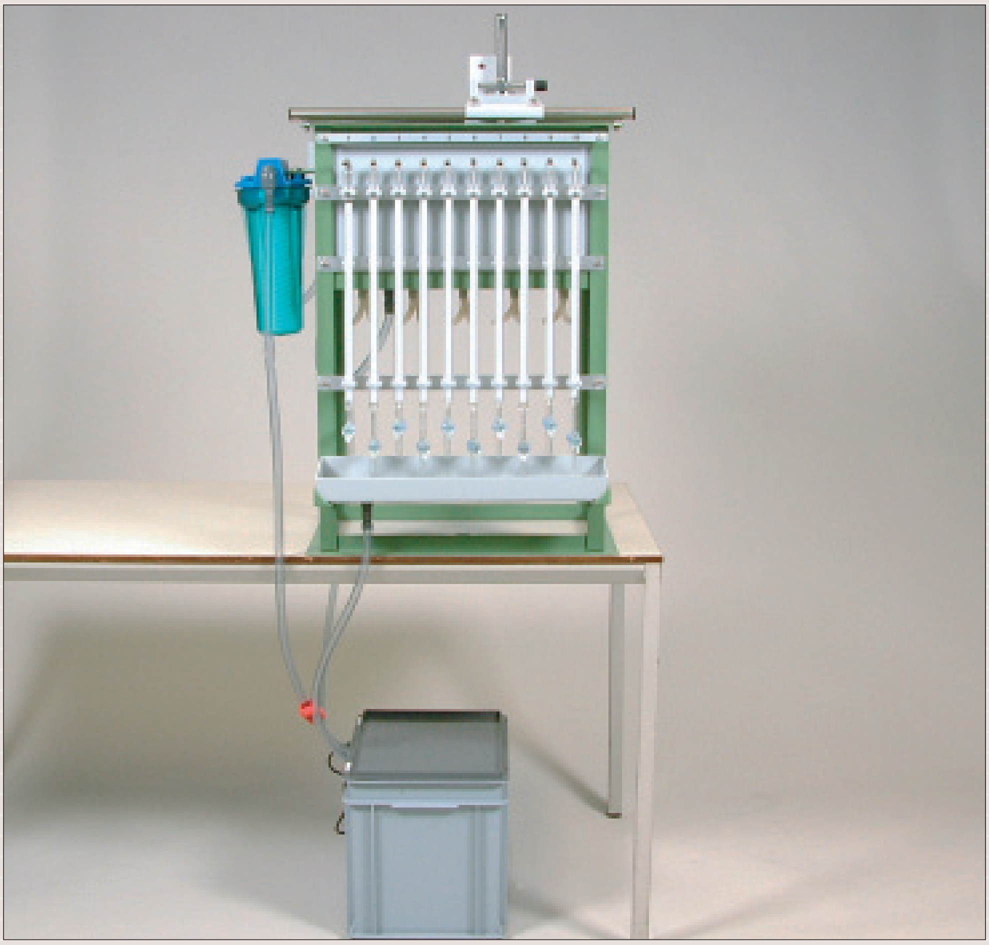
The permeameters are available for soil sample rings with an external diameter of 53 or 60 mm.

A closed or an open system can be applied. In case of a closed system a storage cistern, a circulation pump and a filter are provided.

If an open system is applied these attributes are not needed, as in this case the setup allows a connection to the main water supply and drainage to take place in a washing basin.

A closed system offers the facility to measure other fluids than water from the main water supply.

In case of samples from a salty environment, for instance, salt needs to be added to the water.



Soil water permeameter for 10 samples, closed system

SOIL WATER PERMEABILITY TEST

P1.87

Advantages

The advantages of a closed permeameter compared to an open system are:

- Location independence as no drainage is needed.
- Constant water temperature, equal to the temperature in the laboratory, guarantees constant viscosity.
- Always the same water quality.
- Saves water.

Applications

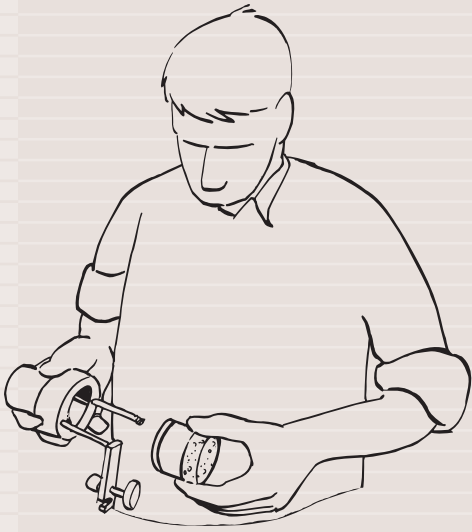
The soil water permeameter is used for measuring the saturated permeability of undisturbed soil samples in sample rings.
The permeability factor (K-factor) gives accurate information about:

- The presence of disturbing soil layers which prevent a speedy outflow of precipitation.
- The correlation between permeability and other soil properties such as porosity, granular composition, etc.
- The vertical and horizontal permeability.

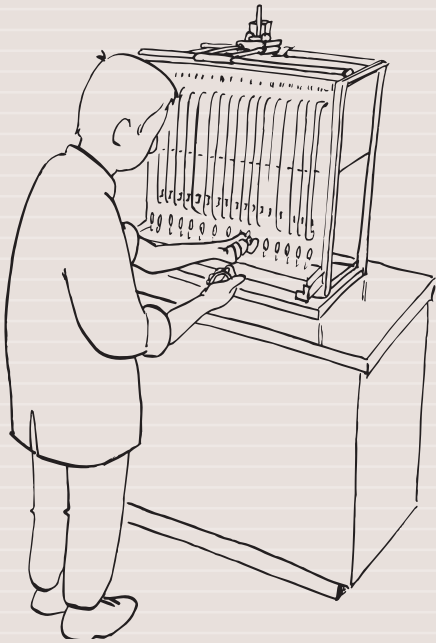
With these data one can derive further conclusions for the benefit of:

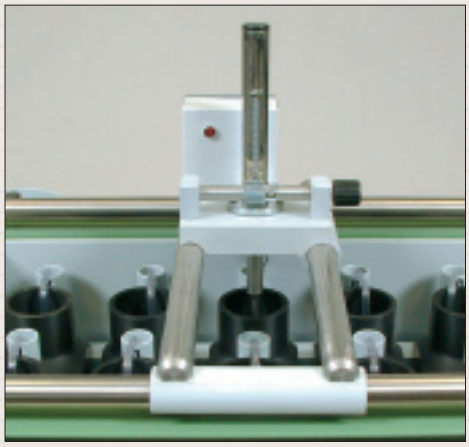
- Irrigation and drainage systems.
- Well pumping.
- Subsidence phenomena.
- Predictions concerning the spread of polluting fluids resulting from calamities.
- Soil improvement- and maintenance advice.

The soil sample ring fitted with a sieve disc and filter gauze is placed in the sample ring cartridge of the permeameter.



By catching the drained water in a burette during a fixed period of time (cm³/min) and applying a certain formula, the K-factor (=permeability factor) of the soil sample involved, can be determined.





Measuring bridge of permeameter

Soil sample ring kit, complete set

Sample ring cartridge

Eijkelkamp
Agrisearch Equipment

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PARTS LIST

Art.no.	Description	Qty. in set
Soil water permeability test (P1.87)		
	The water permeability on undisturbed soil samples can be measured in the laboratory.	
09.02	**Soil water permeameters**	
	These permeameters are supplied in various designs: **- an open or closed system** **- suitable for 5, 10 or 25 soil samples** **- suitable for soil sample rings Ø 53 and 60 mm.**	
	Permeameters, open system for soil sample rings Ø 53 and 60 mm.	
09.02.01.05	Permeameter, open system, one-point measuring bridge, with 5 ring holders for soil sample ring Ø 53 as well as 60 mm	
09.02.01.10	Permeameter, open system, one-point measuring bridge, with 10 ring holders for soil sample ring Ø 53 as well as 60 mm	
09.02.01.25	Permeameter, open system, one-point measuring bridge, with 25 ring holders for soil sample ring Ø 53 as well as 60 mm	
	Permeameters, closed system for soil sample rings Ø 53 and 60 mm:	
09.02.02.05	Permeameter, closed system, one-point measuring bridge, with 5 ring holders for soil ample ring Ø 53 as well as 60 mm	
09.02.02.10	Permeameter, closed system, one-point measuring bridge, with 10 ring holders for soil sample ring Ø 53 as well as 60 mm	
09.02.02.25	Permeameter, closed system, one-point measuring bridge, with 25 ring holders for soil sample ring Ø 53 as well as 60 mm	
	Spare parts for permeameters:	
09.02.11.01	Filter cartridge for closed system	
09.02.11.02	Glass burette with stop cock, graduation 0-40 ml, length 49 cm	
09.02.11.03	Glass burette with stop cock, graduation 0-40 ml, length 51.5 cm	
09.02.11.04	Plastic syphon	
09.02.12.01	Permeameter ring holder for soil sample rings with Ø 53 and 60 mm	
09.02.12.02	Double sieve disc for soil sample rings with Ø 53 and 60 mm	
08.01.10	Filter cloth, 140 – 150 micron, dim. 90x135 cm	
	The permeameters are supplied without soil sample rings (to be ordered separately). **We supply two types of soil sample rings for the permeameters:** **- Ø 53x50 mm** **- Ø 60x56 mm**	
07.01.53.NN	Aluminium case with 24 soil sample rings, Ø 53x50 mm height 51 mm, contents 100 cc max. deviation less than 0.5 %, incl. 48 plastic covers Ø 53 mm (rings numbered 1 to 24)	
07.01.60.NN	Aluminium case with 24 soil sample rings, Ø 60x56 mm, height 40.5 mm, contents 100 cc, max. volume deviation 0.5 %, incl. 48 plastic covers Ø 60 mm (rings numbered 1 to 24)	
07.53.SC	Sample ring kit model C, standard set to a depth of 2 m. For soil sample rings Ø 53 mm	
07.60.SC	Sample ring kit model C, standard set to a depth of 2 m For soil sample rings Ø 60 mm	
	On special demand the permeameters can be used for soil sample rings with Ø 84x80 mm. The following accessories are needed:	
09.02.12.05	Permeameter ring holder for soil sample rings with Ø 84 mm	
09.02.12.06	Double sieve disc for soil sample rings with Ø 84 mm	
07.01.84.NN	Aluminium case with 10 soil sample rings, Ø 84x80 mm, height 50 mm, contents 250 cc, max. volume deviation 3 %, incl. 20 plastic covers Ø 84 mm (rings numbered 1 to 10)	
07.84.SC	Sample ring kit model C, standard set to a depth of 2 m. For soil sample rings Ø 84 mm	