



14.10 POCKET VANE TESTER

OPERATING INSTRUCTIONS

Description

A scientifically designed soil testing instrument for the rapid determination of shear strength of cohesive soils, either in the field or in the laboratory.

It permits the determination of a large number of strength values with different orientation of failure planes. The tester is simple to use and sample trimming is eliminated. All that is required is a reasonably flat surface 25 mm in diameter.

Field applications

Suggested applications for evaluations of shear strength are:

- Samples in shelly tubes
- Standard penetration samples
- Split spoon samples

Accuracy

The shear strength of a cohesive soil is dependent upon many factors, including rate of loading, progressive failure, orientation of the failure plane and pore water migration during testing.

The vane shear tester does not eliminate the effects of any of these variables. However, it does give repeatable values in a homogeneous clay and extensive laboratory testing indicates excellent agreement between the unconfined compression test and the shear tester.

The smallest division on the dial is 0.05 kg/cm², permitting visual interpretation to the nearest 0.01 kg/m².

Measuring range (in kg/cm²) of the 3 vanes:

CL101: 0 - 0.2 kg/cm²

CL100: 0 - 1 kg/cm²

CL102: 0 - 2.5 kg/cm²

Conversion charts giving shear strength in kg/cm² depending on the adapter used are printed on the backside of this leaflet. Total measuring range 0 - 250 kPa.



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All it takes for environmental research

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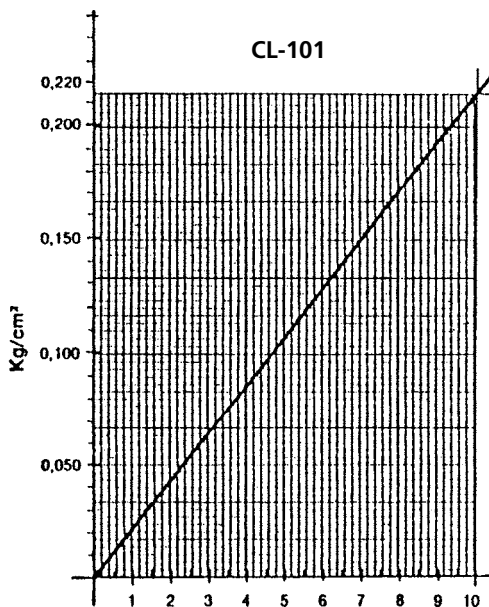
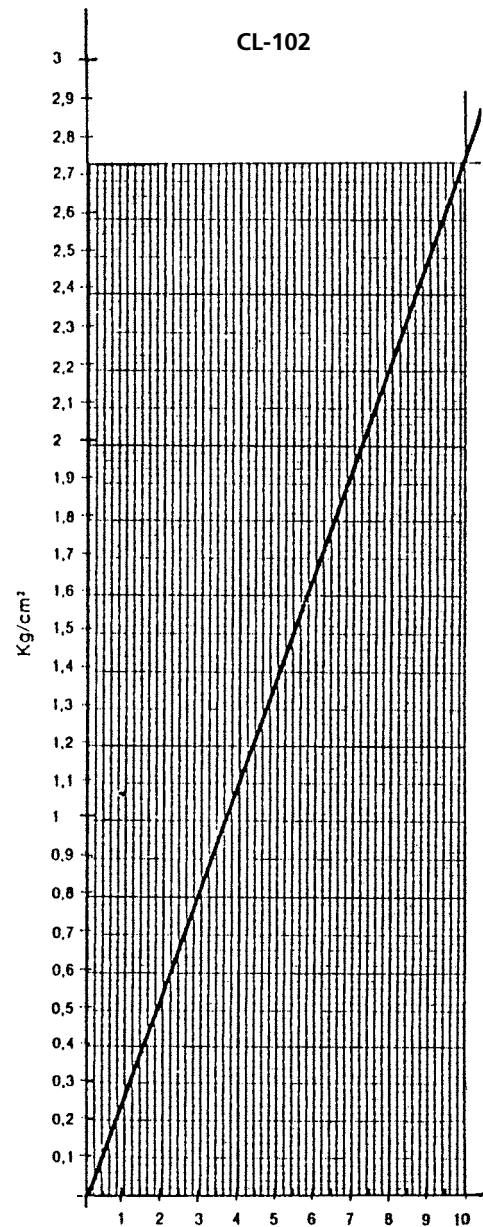
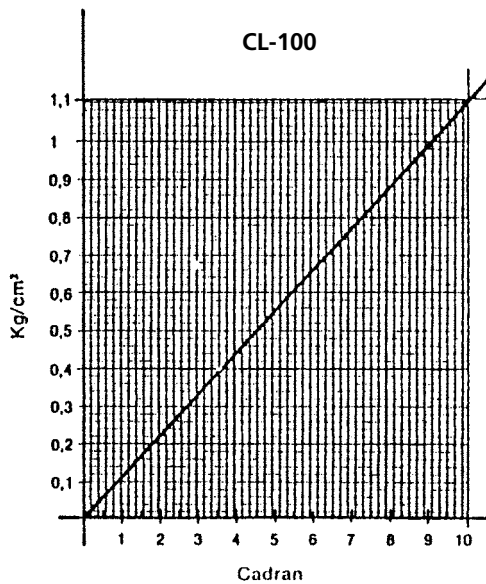
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Resistance in kg/cm^2 according to the adaptor used



Interpretation of conversion graphs

1 complete revolution:

$$\text{CL102} = 2.734 \text{ kg}/\text{cm}^2$$

$$\text{CL100} = 1.0936 \text{ kg}/\text{cm}^2$$

$$\text{CL101} = 0.2186 \text{ kg}/\text{cm}^2$$

Reading and calculating with the pocket vane tester

Movement per reading unit is 1/10 part of the complete revolution

For example CL102:

$$\text{Value of complete revolution} = 2.734 \text{ kg}/\text{cm}^2$$

$$1/10 \text{ part of value of complete revolution} = 0.2734 \text{ kg}/\text{cm}^2$$

$$\text{Reading value} = 3$$

$$\text{Calculation of shear strength: } 0.2734 \text{ kg}/\text{cm}^2 \times 3 = 0.8202 \text{ kg}/\text{cm}^2 = 82.02 \text{ kPa}$$

$$\text{Conversion of the values: } 1 \text{ kg}/\text{cm}^2 = 10000 \text{ kg}/\text{m}^2 = 100 \text{ kPa} (= 100 \text{ kN}/\text{m}^2)$$