



HUMBOLDT

H-4212MH Pocket Shear Vane

The Humboldt H-4212MH Pocket Shear Vane Tester provides a quick and efficient method for determining shear strength values of cohesionless soils. The Pocket Shear Vane is widely used for taking on-site measurements of excavations, including trenches and test pits. It is also used for taking readings from thin-wall or split core soil samples. It can also be used in the laboratory for evaluations. The device is widely used by Safety and OSHA Inspectors, Back Hoe Operators, Field Testing Technicians, Consulting Engineers, etc. Typical applications for this test include:

- Determining wall integrity of test pits and trenches;
- Readings from Shelby tube and other thin-wall and split core sampling methods;
- Readings of chunk samples pits, trenches and excavations.

The Pocket Shear Vane can be used to gather a large number of readings including those from different failure planes without the need to prepare and trim samples. The device can be used on any reasonably flat surface that is slightly larger than the vane surface being used.

The Pocket Shear Vane can be used with fully-saturated, fine-grained soils with an undrained strength independent of normal pressure, including a wide range of clays from soft to stiff consistency.

Readings can be made from 0 to 1.0 TSF (1 Kg/cm²). The dial on the unit reads in 0.05 TSF (0.05 Kg/cm²) increments. While the Pocket Shear Vane does provide a good indication of shear values and has a very good correlation between its readings and those of an unconfined compression test, readings are dependent on many factors, including operator methods, rate of load, progressive failure, plane orientation, varying moisture levels, etc. Care and consistency of method should be considered when performing the test. And, where precise measurements are required additional lab tests should be conducted.



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The Humboldt H-4212MH Pocket Shear Vane Tester comes with 3 vanes and an L-wrench to attach them to the unit. The small vane is pre-attached to the unit and the standard and large vanes are attached by sliding them over the small vane, aligning the set screw with the indent on the small vane and securing them with the set screw.

To Use:

- 1) Mount the desired vane to the unit and make sure it is secure.
- 2) Align the "0" on the inner dial on top of the unit with the mark on the outer ring using a counter-clockwise rotation while holding the outer ring.
- 3) The test surface should be at least two inches in diameter and relatively flat.
- 4) Press the unit into the soil sample until the blades are covered.
- 5) While maintaining a constant pressure, rotate the outer ring of the unit. Turn the outer ring until failure occurs. (The speed of rotation should be a speed that accomplishes failure within 5 to 10 seconds.)
- 6) Release the outer ring, slowly, once failure has occurred. The mark on the outer ring will remain in place indicating the shear value at failure.
- 7) Multiply readings by 0.2 when using large vane and 2.5 when using small vane.



Vane	Stress Range	Usage
Standard	0 to 1 kg/cm ²	Fully saturated cohesive soils with undrained strength independent of normal pressure
Large	0.2 kg/cm ²	Remolded samples
Small	2.5 kg/cm ²	Stiffer clays



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