

# GREGG DRILLING LLC

## iVANE - VANE SHEAR TESTING

### Overview

Gregg Drilling operates a digital iVane from A.P. van den Berg to measure undrained shear strengths in soft clays. It can be used in soft clays as well as other fine grained soils such as silts, organic soils, fine-grained tailings and other soft fine-grained materials where a prediction of the peak and remolded undrained shear strength is required. The iVane is digital and has a torque motor and measuring torque load cell down-hole for improved accuracy. The digital readout displays undrained shear strength versus rotation to provide a detailed record of the test. The iVane can measure undrained shear strength values up to 14,000 psf (700 kPa) using a 1.2" (30mm) diameter vane or 900 psf (45 kPa) using a 3" (75mm) vane. The iVane has an accuracy of 0.5% of full scale reading. The rate of rotation of the vane can be varied from a slow 0.1 degrees/s up to 12 degrees/s.

### Methodology

The iVane consists of four rectangular blades fixed at 90° angles that are pushed into the ground to the desired depth. Once this depth is reached, the blades are rotated at a constant speed.

The resistance of the soil, and consequently the required torque, will increase until the soil shears. From the point the soil is sheared, the torque value will generally decrease. The highest measured value to shear the soil is a measure of the undrained shear strength. After the first test to measure the peak undrained shear strength, the soil is remolded by rotating the vane at a higher speed 20 times. Then the test is repeated to measure the remolded shear strength.

The test fully complies with ASTM D2573.



### Features

- Torque sensor and drive motor located close to the vane for most accurate measurements.
- Entire rod string does not have to be rotated to rotate the vane.
- Motor is electronically limited at 100 Nm (74 lb-ft) to protect against damage.
- Blade sizes available: 40, 50, 55 75mm diameter (2H:1D ratio)
- Accuracy of 0.5% full scale output.

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