

Electrical Vane Tester

FFL 100



Existing vane testers tend to have a low accuracy on torque and rotational speed measurement, basic control functions only and thus operational limitations.

The FFL 100 overcomes these limitations: It is a sophisticated PLC controlled device with a high precision torque sensor. Furthermore, testing process and data acquisition are fully software controlled.

With a nominal torque of 100 Nm all standard but also customised vanes can be applied, allowing for the determination of the undrained shear strength of cohesive soils.

The rotational speed can be adjusted from 0.1° per second up to 15° per second, while the sampling rate can be user defined. The logging and control software is based on a Visual Basic module, communicating with the PLC and interacting with the user by an Excel spread sheet. According to the chosen vane dimension the software monitors the actual torque and limits the applied force when the shear strength reaches 100kN/m².

The measured values are graphically visualised in real-time and plotted against the rotational angle. Simultaneously all measured values, sample number and time are logged in a separate spread sheet.

Upon completion of the un-drained shear test, the user can easily start a remould test. On a key-stroke the PLC will turn the vane 5 revolutions at max. speed. To prevent vane damages the max. torque is then limited to 50%. After the remould the system will log the residual shear strength at the preset turning speed. The results of both, un-drained and residual shear strength, are presented in a common graph.

The GeoMil FFL 100 comes with three standard rectangular vane types (70mm x 35mm, 100mm x 50mm and 150mm x 75mm), the respective vane constants being default values in the logging spread sheet.

Any other vane dimension can be used as well and the corresponding vane constants can be added.

The FFL 100 is optimised for CPT tubes as turning rods (with or without casing tubes as outer casing).

