

# Electrical CPT(U)

Electrical CPT(U) probes, whether in compression or subtraction design, make up the most advanced measuring method for Cone Penetration Testing. High quality load cells and high precision calibration at Geomil make all electrical cones complying to EN ISO 22476-1 class 1 standards.

The electric cones can measure the cone resistance ( $q_c$ ) and local sleeve friction ( $f_s$ ) by means of strain gauged measuring bodies, the generated and effective pore pressure ( $u$ ) by means of a piezoelement and the inclination ( $i$ ) by means of accelerometers (Geomil uses double inclination sensors for x- and y- deviation). The cones can also be provided with a temperature (T) sensor and environmental or seismic adapters.

Standard measuring ranges are 100 or 50 MPa for  $q_c$  and 1 or 0.5 MPa for  $f_s$ . Other ranges or combinations can be realised within the physical limitations of the desired cone type and size.

The load cell signals are amplified and transmitted up-hole as a voltage signal via cable and converted to a 16 bit digital signal in the GME 500 data acquisition system.

A typical and complete Geomil electrical CPT system comprises:

- Electrical compression or subtraction cone with 10 cm<sup>2</sup> or 15 cm<sup>2</sup> cross-sectional area, supplied in portable protection case, calibration data printed and on a USB memory stick.
- Electric CPT cable, purpose made and coming in standard lengths of 2, 10, 30 and 50 m (from stock) or customised length on request. The unisex waterproof Lemo connectors (gold-plated) allow for extending the cable and fit the cone and data acquisition system.
- Push-/pull clamp (twin ram pusher mounted) with built-in proximity switch for triggering the depth recording.
- Optical string pod or touch wheel depth encoder providing incremental digital pulses.
- Data acquisition system GME 500 (portable or built-in) for A/D conversion and data synchronisation.
- Sounding tubes and cross-over adapter.
- Windows computer (Notebook or industrial PC) for automatic recording of the CPT data.
- Windows based CPTest acquisition and CPTask presentation and interpretation software.
- Sine-wave inverter converting the 12 or 24 Vdc into 230 Vac to feed the computer (option if required).

Contact the Geomil experts and ask for a matching compilation, suiting your needs!

