

### Coastline Surveys Ltd C-Pen<sup>20</sup>

The Coastline Seabed 20kN CPT system is compact system able to acquire PCPT data to a depth of 3m into the seabed in up to 100m water depth using a Geomarine supplied hydraulic rod driving unit.

The system is ideal for shallow push CPT's for cable routes and pipelines. A key benefit is that it is easily deployed from our dedicated survey vessel Flat Holm. The vessel is also an ideal platform for vibrocoreing, geophysics, bathymetric surveying (including multi-beam) and environmental data gathering.

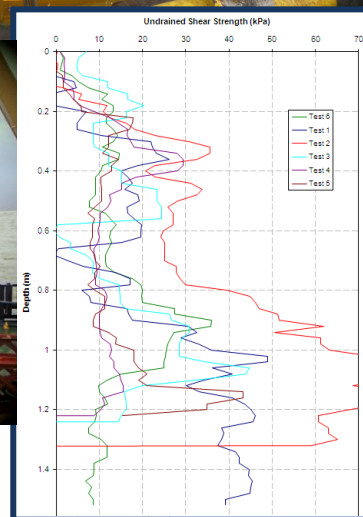
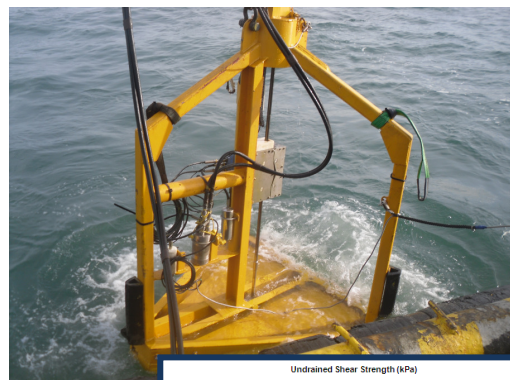
The unit can perform Piezocone CPT's using a standard A.P. van den

Berg 5cm<sup>2</sup>, T-bar or ball penetrometer tests, and dissipation tests all to depths of up to 3m below the seabed depending on ground conditions.

All testing is carried out in full accordance with the latest international specifications and standards for in situ testing.

The unit comes complete with either a surface or subsea hydraulic power pack with a constant tension winch and dedicated power/signal umbilical.

A CPT is based on pushing an instrumented cone into the ground at a constant speed of 2cm/sec, with continuous measurement of the cone end resistance, the friction along the sleeve of the cone, and the pore water pressure. These measurements make it possible to accurately determine the ground conditions and stratigraphy over the penetrated depth.



Cones	5 cm <sup>2</sup> Piezocone -Analogue subtraction
Rods	25mm diameter
Power	24V only
Communication	Single 3 wire RS232
Thrust Capacity	Maximum 20kN
Dimension	Triangular base 1.5 x 1.5 x 3.7m(h)
Weight (air)	Variable up to 2,500kg
Penetration	Currently max 3m
Water depth	Currently 50m upgradable to 100m