



a.p. van den berg  
*The CPT factory*

# WISON-APB-3000

wireline CPT system with 3,000 m depth rating



## features

- proven wire line CPT system with a pushing force of 100 kN
- water depth + drilling depth up to 3,000 m, CPT stroke up to 3 m
- suitable for 5, 10 & 15 cm<sup>2</sup> Icones and 10 cm<sup>2</sup> Deep Water Icone
- suitable for soil sampling with the Push or Piston Sampler
- high speed constant tensioning winch with automatic landing and recovery
- realtime control and data acquisition through optical fibre umbilical

creating tools that move your business

# WISON-APB-3000, wireline CPT system with 3,000 m depth rating



## introduction

The WISON-APB system is basically a double-acting cylinder with the soil-testing instrument attached to the end of the piston rod. An umbilical is released from a constant tensioning winch on deck of the geotechnical drilling vessel and provides for 2-way data transfer and electric power to the tool.

## designed for ultra-deep water

The WISON-APB-3000 wire line system comprises state-of-the-art technology and is well suited to perform CPTs and take soil samples in harsh offshore conditions at depths up to 3,000 m (water depth + drilling depth). It requires a drill string with an inner diameter of at least 4,25" (109 mm) and a drill tower clearance of 12 m.

The system consists of:

- An autonomous CPT tool, powered by its own battery pack and with an integrated intelligent hydraulic drive system that facilitates a flexible stroke.
- An electro-mechanical system in the tool for automatically locking and dislocking inside the Bottom Hole Assembly, the latter regardless of the actual stroke reached.
- A Kevlar-reinforced, high-strength umbilical cable that provides continuous charging of the battery module in the tool. The umbilical includes optical fibres for tool control and high speed communication of CPT data.
- A constant tensioning winch that is optimized for high travel speeds (max 5 m per sec) of the tool inside the drill pipe.

### Specifications tool

|                          |                |
|--------------------------|----------------|
| Pushing force            | 100 kN         |
| Stroke length            | 1 to 3 m       |
| Total length             | 11,2 m         |
| Largest overall diameter | 100 mm         |
| Minimum drill string ID  | 4,25" (109 mm) |

### Specifications self-tensioning winch

|                                                |                           |
|------------------------------------------------|---------------------------|
| Dimensions (l x w x h)<br>(incl. level winder) | 4,235 x 2,250 x 3,300 mm  |
| Power supply                                   | 380-440V, 50-60 Hz, 55 kW |
| Winch drum capacity                            | 3,200 m                   |
| Total weight                                   | 9,800 kg                  |
| Winch max speed                                | 5 m/sec                   |
| Umbilical Safe Working Load                    | 40 kN                     |

## digital Icone data acquisition system

The WISON-APB works in conjunction with our digital data acquisition system, consisting of the Icontrol and Icones. It enables measurement of cone resistance ( $q_c$ ), local friction ( $f_s$ ), pore water pressure ( $u$ ) and inclination ( $l_x/y$ ). The Icone is easily extendable with click-on modules to measure other than the four standard parameters. The Icone Vane is available for the WISON-APB-3000 and can be used at water depths up to 3,000 m. The modules Conductivity, Magneto and Seismic can be used at water depths up to 1,000 m.

## Deep Water Icone

For the WISON-APB-3000 a pressure compensated Icone is available. This Deep Water Icone allows pore water pressure measurements relative to the hydrostatic pressure at cone level, resulting in higher accuracy over the full range of water depths. The pressure compensated piezocone measures the four standard parameters and can also be combined with the Icone click-on modules.

## soil sampling with Push or Piston Sampler

Sampling with the Push Sampler is performed by pressing a sample tube into the soil and retrieving it. With the advanced Piston Sampler the sample is guided by a piston and secured by an optional core catcher contributing to a higher recovery ratio. Both samplers can also be used with a hardened cutting shoe for an improved recovery ratio.

### Specifications CPT and sampling

|                             |                                          |
|-----------------------------|------------------------------------------|
| Icone sizes / type          | 5, 10 & 15 cm <sup>2</sup> / CPT or CPTU |
| Icone modules               |                                          |
| - up to 3,000 m water depth | Vane                                     |
| - up to 1,000 m water depth | Seismic, Conductivity & Magneto          |
| Sample / tube length        | 895 mm / 995 mm                          |



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