



ap
van den
berg

COSON-ST

the fast & hands-free CPT machine for onshore soil investigations



features

- fully automatic push/pull cycle of a CPT (no manpower required)
- COSON double acting push system for a continuous push/pull movement
- total CPT cycle time reduced considerably
- patented technology
- several folder sizes for up to 70 m CPT string
- suitable for 5, 10 & 15 cm² Icones & all click-on modules
- suitable for all rigs with CPT cabins

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COSON-ST, the fast & hands-free CPT machine for onshore soil investigations

introduction



The COSON-ST builds on the unrivalled track record of the Icone technologies and large range of CPT rigs including the Track-Truck®, an A.P. van den Berg invention. Through the years each design is continuously improved, i.a. resulting in developments that enhance the operator's working conditions.

One example is the COSON double acting push system for continuous push/pull movement in combination with the automatic rod screwing device, that will fasten the rods automatically once the rod is placed in this device. This combination reduces handling requirements for the operator. Hence, less physical strain. The remaining challenges have been to create a fast CPT system that does not require any manpower at all, has a compact design to fit a CPT cabin and is compatible with all Icone click-on modules. The COSON-ST is the answer.

COSON double acting pushing system

In a single clamp system the downward movement is interrupted to move the clamp back to the upper position. However, the COSON is a CPT system with a continuous downward movement of the CPT rods, hence shorter cycle times. The pushing system consists of two sets of cylinders, both fitted with a hydraulic clamp. When the upper clamp has finished its downward stroke, the lower clamp takes over the movement at the same speed.

ST-Rods: the foldable CPT string

The COSON-ST includes the highly innovative and patented ST-Rods. They can be in one of just two states, twisted or untwisted, and it takes very little to transform them from one state to another. Untwisted, the ST-Rods behave a bit like a pearl necklace and can be easily folded onto a reel. Once twisted, the rods form a solid CPT string with a push/pull/buckle performance equal to a string of standard CPT rods. Because the rods have a self-seeking bayonet thread, they close effortlessly and require just a final, short, single twist to become firmly interlocked. All it takes to put together an automated CPT system, i.e. one that performs a full CPT and a subsequent complete reel-in of the string on a single operator command, is a folder, a twister and a sprocket, a wheel to connect the two.

fast & hands-free CPT machine

By integrating the patented SingleTwist™-system into a CPT cabin with the COSON pushing system, a fast CPT machine for

hands-free operations is created. Several folder sizes are available holding up to 70 m of CPT string. The COSON-ST does not require any manpower during the push/pull cycle of a CPT. The operator only has to provide the start/stop signals. The pushing process is continuous, generally resulting in 20% shorter pushing times, increased penetration depths and no dissipation effects associated with a single clamp's dis-continuous pushing process. The pulling process with the COSON-ST is more than 15% faster than with a single clamp system, so the total CPT cycle time is reduced considerably.

digital Icone data acquisition system

The COSON-ST works in conjunction with the digital Icone data acquisition system, consisting of the Icontrol, Icones and the Ifield software for realtime data presentation. It enables measurement of cone resistance (q_c), local friction (f_c), pore water pressure (u) and inclination (I_x/I_y). The system is fully compatible with the complete range of 5, 10 and 15 cm² CPT cones that are easily extendable with click-on modules to measure other than the four standard parameters, i.e. Seismic, Vane, Conductivity and Magneto.

Specifications	
Pushing capacity	200 to 250 kN
Pulling capacity	260 to 290 kN
Continuous pushing speed	35 mm/sec
Continuous pulling speed	100 mm/sec max (avg. 70 mm)
Diameter ST-rod	40 mm
Icone sizes/type	5, 10 & 15 cm ² / CPT or CPTU
Time comparison 50 m CPT	
COSON-ST 48 min	AUTOCOSON 1.0 49 min
COSON 2.0 50 min	COSON 1.0 51 min
AUTOCOSON 2.0 55 min	HYSON 58 min



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We reserve the right to change specifications without prior notice. COSON and Icone are trademarks of A.P. van den Berg, Heerenveen. Patents apply for the ST-Rod with bayonet thread and the full ST-system which can be mounted on virtually any A.P. van den Berg pusher.