

build on reliable data...



...a.p. van den berg equipment provides them

Large infrastructure and civil works set high demands to the reliability and accuracy of the information about the subsoil. This information is fundamental for a successful project.



You can build on the data that CPT equipment from A.P. van den Berg gives you. The static cone penetration test (CPT) is a scientifically proven soil testing method (conform the NEN 5140 class 2 standard) that provides accurate soil data. Our equipment operates safely and fast and therefore saves you money.

A.P. van den Berg has over 40 years of experience in building reliable CPT equipment for onshore and offshore. With our continuous product development you are assured of the latest technology, while our service and support guarantee an optimal use of your equipment.

CPT TRACK-TRUCK

The ideal versatile high-performance CPT unit. The Track-Truck with retracted tracks runs as an ordinary truck on the highway. After lowering the tracks, the Track-Truck becomes unstoppable on soft and hilly terrain where other heavy vehicles get stuck. Even ditches are easily conquered. The track system reduces the wheel load by 60 to 70% and is suitable for 4x4, 6x4 or 6x6 driven trucks. It is controlled from the driver's cabin or with remote control. Other applications for the Track-Truck comprise mobile drilling rigs.

(Ref. Brochure S08)

AUTOCOSON - A TRUE CPT ROBOT

A fully automatic CPT robot does all the work, while the operator monitors. The unit sets a new standard in design, control and operation. Features include:

- Fully automatic placement and removal of CPT rods
- Fully continuous CPT progress, no stopping to add rods
- Compact design, eliminating the raised position hatch on the roof
- Control by means of a touchscreen man-machine interface
- Wireless data transmission
- Remote-controlled service

The COSON itself is engineered to the latest standards, resulting in low flow cooler hydraulic operation, lower weight, robust parts, less maintenance and a longer lifetime. Moreover the working conditions of the operator are greatly improved, and he/she can spend more time on other tasks such as planning and preliminary soil data interpretation.

(Ref. Brochure S38)

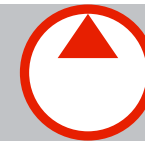
CPT TRUCK

The classic CPT truck that will provide you with accurate soil data at a high production rate for years on end. All 3 types of static cone penetrometers can be installed:

- HYSON, the classic twin-cylinder unit
- COSON, for continuous CPT
- AUTOCOSON, entirely automated continuous CPT unit

They all consist of an H-shaped twin hydraulic cylinder set with ergonomic design and convenient working height. They ensure high production rates and a long lifetime with minimum maintenance. The penetrometers can push & pull with up to 300 kN (30 t) of force, and are controlled with a touchscreen Human-Machine Interface (HMI). Optional is a fully automatic hydraulic push/pull clamp suitable for CPT rods ranging from 36 to 60 mm diameter.

(Ref. Brochures S09, S36 and S38)



CPT CRAWLER

The CPT crawler provides the same high production and reliability as the CPT truck with the advantage of tracks for better manoeuvrability in rough or soft terrain. The crawler may be preferable to a CPT truck in the following cases:

- Sites where the maximum allowed height is limited
- Sites where manoeuvrability in rough or soft terrain is important

The crawler is designed for low-bed semi-trailer transport or truck transport.

(Ref. Brochure S07)

CPT SKID

The CPT skid includes a high-performance, low maintenance, reliable HYSON 200 kN twin-cylinder unit with control console. Reliable performance is achieved in all weather conditions. Supplied with or without a hydraulic power pack or engine, the skid is a versatile and easy-to-transport package that can be mounted on a frame, vehicle or a jack-up platform for nearshore soil investigations. It is available in fully automatic, manual and/or as a stand-alone version.

(Ref. Brochure S37)

MINI/MIDI CPT CRAWLER

The CPT mini/midi crawler is a rugged lightweight crawler, without cabin, fitted with a HYSON 100 or 200 kN. Its low weight and compact design make it suitable for areas which are difficult to access and may even allow passage through doorways (depending on the model). Three or four levelling jacks are mounted to jack up and level the unit. To reach its maximum capacity, 4 or 8 anchors 450 mm are available. The HYGAND hydraulic anchor setting device is a convenient tool. Even more convenient is the automatic hydraulic anchor setting, controlled from the penetrometer's control console.

(Ref. Brochure S39)

LIGHTWEIGHT CPT UNIT

The HYSON 100 kN-LW lightweight static cone penetrometer is designed to perform in-situ geotechnical soil investigations in locations inaccessible to other equipment, such as basements, back yards, swampy and overgrown land. Main features include: low weight, small dimensions, versatility and reliability. This results in an easy-to-move, easy-to-operate CPT unit.

(Ref. Brochure S05)



MECHANICAL AND ELECTRICAL CONES

A.P. van den Berg mechanical and electrical cones provide important data for geotechnical soil investigations onshore, nearshore and offshore. All the electrical cones (except Icone) are compatible with our Golog and touchscreen data acquisition systems, and our cone memory module. Available tip areas range from 2 to 25 cm². Up to 7 cone parameters can be measured simultaneously. Available parameters include: cone tip resistance (qc), local friction (fs), pore water pressure (at locations u1, u2 & u3) biaxial inclination, conductance, and seismic response.

(Ref. Brochures S23, S24, S26, S28)

ICONE, THE DIGITAL CONE

The digital Icone has a number of advantages compared with the analog cones:

- Mechanically stronger
 - High tip loads (150 Mpa)
 - Inclinator in the tip of the cone
- Main features:

- Cost-effective CPT operation
- High quality data acquisition
- Digital data transfer
- Used both onshore and offshore
- “Plug & play” operation

The unique concept of Icone combines strength, reliability, accuracy and economy. Its clever design simplifies maintenance on location. No need for calibration disks or memory sticks because calibration data is stored in the cone.

Specifications:

- Resolution: 24 bits
- Cone tip area: 10 or 15 cm²
- Default parameters: qc, fs & biaxial inclination
- Optional parameters: pore water pressure u2, seismic response, conductance
- Calibration: class I

(Ref. Brochure S28)

ICONE-SEISMIC

A seismic module connects directly to the Icone for measuring the standard CPT parameters and the seismic signals in one test. The Icontrol and GOnsite! software will recognize the seismic module automatically after connection (“plug & play”). To increase the accuracy of seismic wave velocities in specific soil layers multiple seismic modules can be used simultaneously.

Specifications:

- Seismic parameters: left & right shear waves, compression wave
- Gain: max. 200x (programmable in software)
- Stacking of seismic signals: max. 10 times per test

Other features:

- Adjustable trigger input level and pre-trigger recording
- Multiple triggers are supported

(Ref. Brochure S29)

OPTOCONE

The Optocone provides wireless data transmission by means of light conduction. This simplifies rod handling and results in higher production rates.

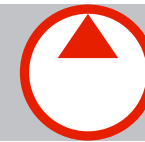
Main features include:

- Optical modem and camera for electrical/optical signal interfacing
- Memory inside cone for data backup and retrieval
- Repeater units for signal amplification

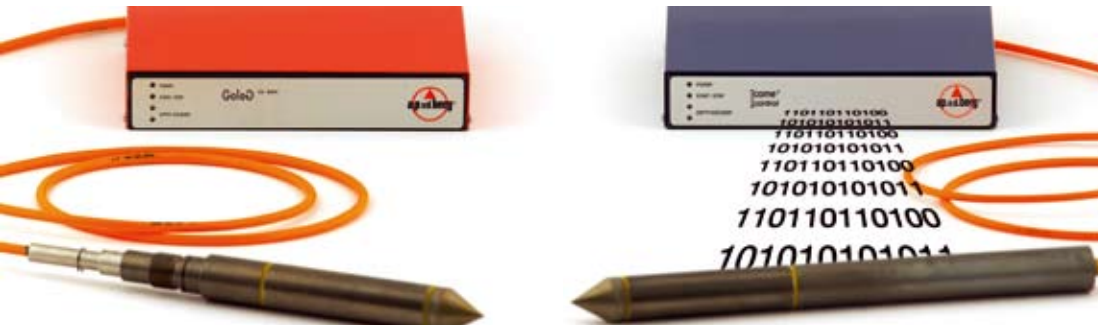
(Ref. Brochure S27)

- Automated rod handling with AUTOCOSON system

(Ref. Brochure S38)



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GOLOG DATA LOGGER

A simple, small but robust, accurate data logger, designed for electrical cones with analog data transmission and with input channels: qc, fs, u2 and biaxial inclination. The data logger is connected to a PC or laptop with a RS232/USB connection. The GOnsite! software is installed on the PC or laptop for on-line presentation on the screen of the test data and for recording the CPT data. By means of a printer the tests can be printed directly on location.

(Ref. Brochure S32)

ICONTROL DATA LOGGER

The Icontrol data logger is used exclusively with the digital Icone. Icontrol combines the depth information with the obtained CPT data and provides power to the Icone. The data logger is connected to a PC or laptop with a USB connection. The GOnsite! software package is installed on the PC or laptop for on-line presentation on screen and recording of the CPT data. Icone and Icontrol work in conjunction with the usual equipment for depth registration and pushing. With a minimal investment, this high quality data acquisition system is easily integrated in existing CPT rigs. Input channels are qc, fs, u2 and Inclination. With a seismic module connected above the Icone, Icontrol and the GOnsite! software will recognize the seismic module automatically and record the seismic signals. The standard geotechnical parameters and the seismic signals can be acquired in one single test.

(Ref. Brochures S28 and S29)

CPT SOFTWARE GONTSITE!

The GOnsite! software package is pre-installed on the A.P. van den Berg data acquisition systems. Soil data are recorded, shown real time on screen and stored in GORILLA! or ACI files. A preliminary standard print out can be made if a printer is available on site.

GO4!

GO4! is a software package for further processing of the CPT measuring results in the office.

The test data can be stored in GORILLA!, GEF or Excel files.

Main functionalities are: downloading, presenting, processing, exporting, storing and printing of the measuring results. Custom graphics presentations are designed with a layout editor.

Parameters include cone tip resistance qc, local friction fs, pore-water pressure u1, u2 and u23, biaxial inclination, seismic signals (shear wave left/right & compression wave) and vane testing.



WISON-APB WIRELINE CPT EQUIPMENT

The WISON-APB “down-the-hole” wireline CPT equipment is designed for seabed soil testing through a 4½ API standard drill pipe of a survey-drilling vessel. The system is suitable for up to 600 m water depth. It is available in three versions:

- WISON-APB 50 kN with 3 m pushing tool
- WISON-APB 100 kN with 1 m pushing tool
- WISON-APB 150 kN with 1.6 m pushing tool

The WISON-APB is basically a double-acting cylinder with the soil-testing instrument attached to the end of the piston rod. An umbilical, deployed from a remote-controlled electrically driven frequency controlled constant tension winch on the deck of the vessel, provides data transport and power. The data are transferred from the umbilical to the Golog data acquisition system.

Available soil testing tools are:

- Electrical cones (qc, fs, u2, seismic, and inclination)
- 2” and 3” sample tubes: the WIPISAP
- Offshore vane tester: the WIVATAP

A HISTORY OF CAREFREE HANDLING

The WISON-APB is lowered into a drill string by paying out the umbilical on the winch. At the end of the drill string, a latching ring is mounted which is suitable for all WISON-APB types. The WISON-APB pushes against this ring during the CPT test by means of four latching jaws. At the end of the stroke (the end of the CPT test) the latching mechanism comes loose and the self-tensioning system on the winch will lift the WISON-APB back to starting position by means of a water pump on the winch frame. After that, the WISON-APB is ready for the next test.

DRILLING VESSEL REQUIREMENTS

For testing with the WISON-APB system, the following requirements are valid for the vessel and drilling equipment:

- Stabilizer to keep the vessel stationary
- Drill rig with heave compensator
- Seabed clamp
- Bit guide

The drill rig must run drill rods of minimum 100 mm inner diameter, for instance 4½” API. The pulling capacity of the drill rig depends on the test depth and drill rod size. For tests of up to 100 metres, a minimum capacity of 150 kN is advised. For tests of up to 500 metres, a minimum capacity of 750 kN is advised. Directly above the bit, heavy weights (drill collars) are used in the drill string. During drilling, a heave compensator compensates the weight to the required bit load.

The seabed frame clamp provides the dead weight during the CPT test. The seabed clamp also functions as re-entry frame if the hole needs to be emptied during the drilling process. The bit guide ensures that the bit will re-enter the borehole.

(Ref. Brochure S19)



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ROSON UMBILICAL OPERATED

The ROSON 40 or 100 kN seabed unit is deployed using a 5 core Kevlar reinforced umbilical cable. The system is supplied with:

- Subsea junction box mounted on the seabed frame
- Surface control unit
- 5 core Kevlar reinforced umbilical cable
- An electrically operated self-tensioning winch

The electronics inside the subsea junction box collects all the signals, digitizes them and modulates the signals to be sent to the control function of the surface control unit. Wires are used for transmission and power supply. The surface control unit provides the controls and power supply of the ROSON drive units. It also contains the data acquisition system. A winch stores max. 2.100 m of umbilical. The cable provides the electrical power and signal transport. The winch feeds the cable in or out automatically according to the ROSON's movement, as well as vessel heave with the ROSON on the seabed.

(Ref. Brochure S18)

DEEP WATER SAMPLER

Soft clay layers of the seabed have for a long time been difficult to investigate. They are easily disturbed and it is difficult to bring samples to the surface. Increasing activity on the seabed has, however, led to an ever-growing need for an accurate and reliable determination of the soil properties especially in those layers.

Features:

- Accurate and reliable determination of seabed soil properties, especially of soft clay layers of the deep seabed
- Easily combined with other soil testing methods
- Recovery ratio 95%
- Sample length 10 to 25 m
- Sample diameter 110 mm
- Water depth: up to 3.000 m
- Handling with ROSON 100 kN seabed frame

(Ref. Brochure S13)

MOSTAP 35 & 65 SOIL SAMPLERS

The MOSTAP soil samplers obtain almost undisturbed soil samples using a nylon liner that minimizes friction during sampling. The thin-wall liner acts as a guide for the piston during sampling and distributes the liner uniformly around the soil sample. The liner also serves to transport and store the sample. Sample diameters: 35 or 65 mm, lengths: 1.000, 1.500 or 2.000 mm.

(Ref. Brochure S10)

MOSTAP 35 & 65 PS SAMPLERS FOR CONTAMINATED SOIL

The world is increasingly confronted with soil pollution. For remediation, special measuring and sampling equipment is required. The MOSTAP PS soil sampler is an efficient, reliable and safe tool for sampling polluted soils with the CPT pushing apparatus or drill rigs. The sampler is entirely made of stainless steel to prevent chemical interaction with the soil. The soil sample can be stored temporarily in the tube. Sample diameters: 35 or 65 mm, length: 500 mm.

(Ref. Brochure S11)



ROSON SEABED CPT UNITS

The ROSON seabed CPT units perform continuous CPT's on the seabed with a down thrust capacity of 40 or 100 kN. They are deployed from a vessel with moon pool or A-frame. The CPT string is pushed into the soil using two friction wheels, driven by electrical motors. A hydraulic cylinder presses the friction wheels against each other, thus holding the CPT string fixed between them. This allows for continuous CPT progress. The equipment is suitable for water depth up to 2.000 m. Available soil testing tools: electrical cones for qc, fs, u2 and seismic signals, vane tester and Deep Water Sampler. Two control and data acquisition options for the ROSON include: a Kevlar reinforced umbilical cable, or a battery-powered system. The choice of the system depends, among other things, on preferences as to handling, water depth and type of vessel.

(Ref. Brochure S14)

ROSON 40 kN

This easy-to-operate and cost-effective seabed CPT system is designed for cable and pipeline route survey. The seabed unit penetrates from 3 up to 8 m into the seabed and has a seabed pressure of 5.7 KPa. With special adaptations, test depths can be achieved of up to 30 m. A water depth of 2.000 m is achievable and the frame is deployed by a heave compensated lifting winch.

Specifications:

- Push/pull capacity: 40 kN
- Cone/rod area: 10, 5 or 2 cm²
- Base plate dimensions: 2000x2000 mm

(Ref. Brochure S15)

ROSON 100 kN

The ROSON 100 kN works in water depths of up to 2.000 metres. Seabed penetration of up to 35 m has been achieved. The system is supplied with base frame inclinometers and total load measurement. The frame is deployed by a heave compensated lifting winch.

Specifications:

- Push/pull capacity: 100 kN
- Cone/rod area: 5 or 10 cm²
- Base plate dimensions: 2190x2690 mm

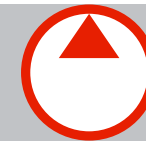
(Ref. Brochure S16)

ROSON BATTERY OPERATED

The ROSON 40 or 100 kN seabed CPT system is deployed using a single steel cable. Batteries contain enough energy for 10 tests of up to 5 m. An acoustic data modem transmits signals between the surface and the seabed unit. In effect the seabed unit performs CPT's on its own: the operator sets the CPT parameters, sends them to the seabed unit, places the unit onto the seabed and the unit performs the tests automatically. With the right acoustic conditions, the test can be followed real-time on screen.

(Ref. Brochure S17)

In all cases the cone data memory can transmit the data when the seabed unit contacts the surface unit.

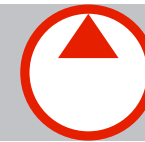


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ADDITIONAL INFORMATION

For more information see contacts on the back page.
All A.P. van den Berg equipment complies with the ASTM, ISSMGE, DIN and NEN standards. We reserve the right to change specifications without prior notice. Track-Truck, HYSON, COSON, AUTOCOSON, GO4!, Gonsitel, HYGAND, Icone, Golog, Optocone, WISON-APB, WIVATAP, WIPISAP, ROSON and MOSTAP are trademarks of A.P. van den Berg, Heerenveen, The Netherlands.



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