High Frequency Vibrocorer

The high power electric vibrocorer of MSH is a high-frequency (28 Hz) vibrocoring system. The high power (30kN) swinging force allows the vibrocorer to penetrate fast into unconsolidated sediment types. Even stiff clays, gravels and compact sands can be sampled with this corer. The relatively light weight and compact design make the high power vibrocorer well suited for deployment from smaller vessels.

Specifications

A typical equipment spread includes a base frame with vibrating unit, an umbilical reel with cable, a service container and a portable computer. Several base frames and several barrel lengths and diameters are available. Some system specifications are given below.

Dimensions

Height (transport):	1.80 m
Height (operational):	7.5 m (6 m barrel)
Width:	3.6m / 2.5 m

Weight in air: 1000 - 1800kg
(depends on set-up and deadweights)

Barrel (od/id, mm)	Liner (od/idm mm
76/72 108/103	70/67 100/96.4

Operational depth:	150 m
Barrel handling:	Pivoting system

Vessel requirements

Electric power:	380V AC, 50Hz
Startup power:	16A
Hoisting Height:	8.0m mimimum
SWL:	5T mimimum
Required deck-space:	12 m

Application

The vibrocorer is used for taking high quality samples in shallow-medium waterdepth. The corer can be used in site investigations for e.g. route-surveys, dredging works, sand extraction, etc.

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Electric Vibrocorer

Soil sampling equipment designed for the use in shallow water for small vessels.

Type
- Electric vibrocorer

Weight
- 1,100kg (above water)

Dimensions
- L x W x H =
  5,000 x 1,500 x 6,200 mm

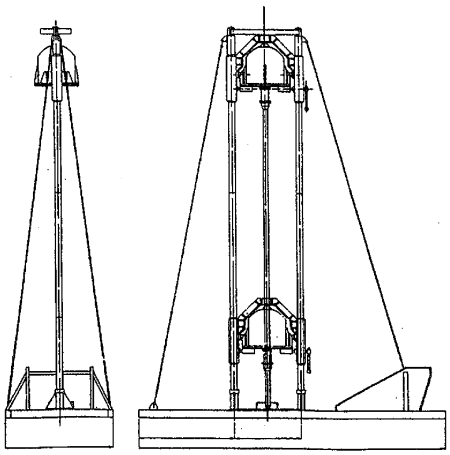
Core barrel handling
- Pivoting system
- Corebarrel diameter 70 or 100mm
- Corebarrel lenght max. 6m

Penetration
- 3 to 5 m

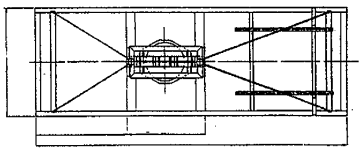
Operational limits
- 3,000kg (hoisting capacity when penetrated into the sea bed)
- Electrical powercable lenght 100m

Vibration unit
- Capacity: 1.9 - 2kW
- Voltage: 3 phase 380V 50Hz

Transportation
Frame guides can be folded together into a transport container. Total transport weight including reel and controlpanel ±1,100 kg. This equipment has been designed for the use in shallow water (<100m) for small vessels.



1500 mm 5000 mm



5000 mm

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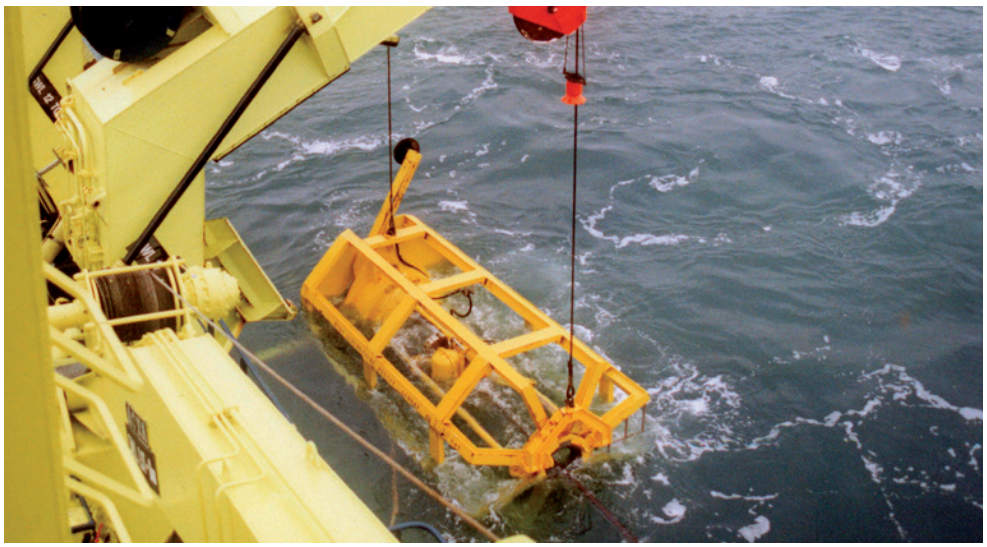
Geodoff MKII Drilling System

Drilling system has been designed for controlled sampling of the upper 12 m of the sea bed at water depths till 60 m.



The Geodoff MK II consists of the following main components:
- Control panel in a 10 ft container
- Umbilical reel
- Electrical power pack reel with power cable
- Engine housing including monitoring camera and three extendable legs
- Guiding pillars with 2 vibrators and hydraulic rams
- Hydraulic head clamp and a hydraulic help clamp

The Geodoff MKII can be used as a vibro-corer with a penetration of c. 6 m and for drilling with an airlift/ counterflush system with a penetration of c. 12 m.

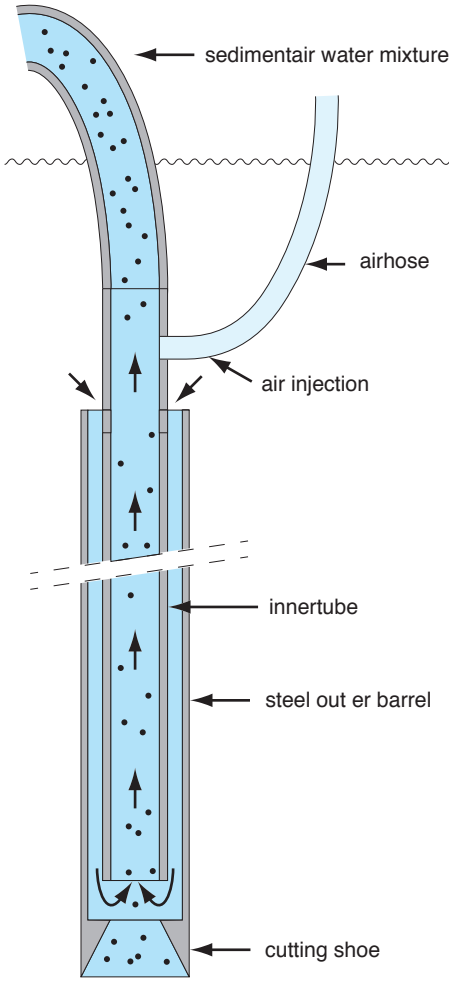
Technical specifications:

Dimensions Geodoff MK II:
- H = 5,700 mm
- W = 2,400 mm
- W = with extended legs 6,360 mm

Weight:
- Above water 10,000 kg
- Under water c. 5,000 kg

Dimensions electrical power pack reel:
- L x W x H = 2,500 x 1,400 x 2,600 mm
- Diameter outer barrel 122 mm, diameter inner tube 75 mm.

Sediment transport takes place through a flexible hose, which is connected with the inner tube, to the sample collector on deck.



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Gravity Corer

This corer has been designed for collecting undisturbed samples in unconsolidated silty or clayey sediments. The corer can be used to collect samples in the bottom of for instance harbours, lakes and rivers.

The advantage of this system is that it operates in any water depth. The maximum length is limited to the mounting length of the vessel. A PVC liner with a diameter of 98 mm is mounted inside to retrieve undisturbed samples.

Dimensions:
Corer type: gravity corer/fall weight
Weight appr. 750 kg
Lead weights loads of 20 kg
(space for one additional weight)

Core barrel length:
Generally between 3 and 6 m, outer diameter 98 mm

Undisturbed cores in any water depth from small vessels

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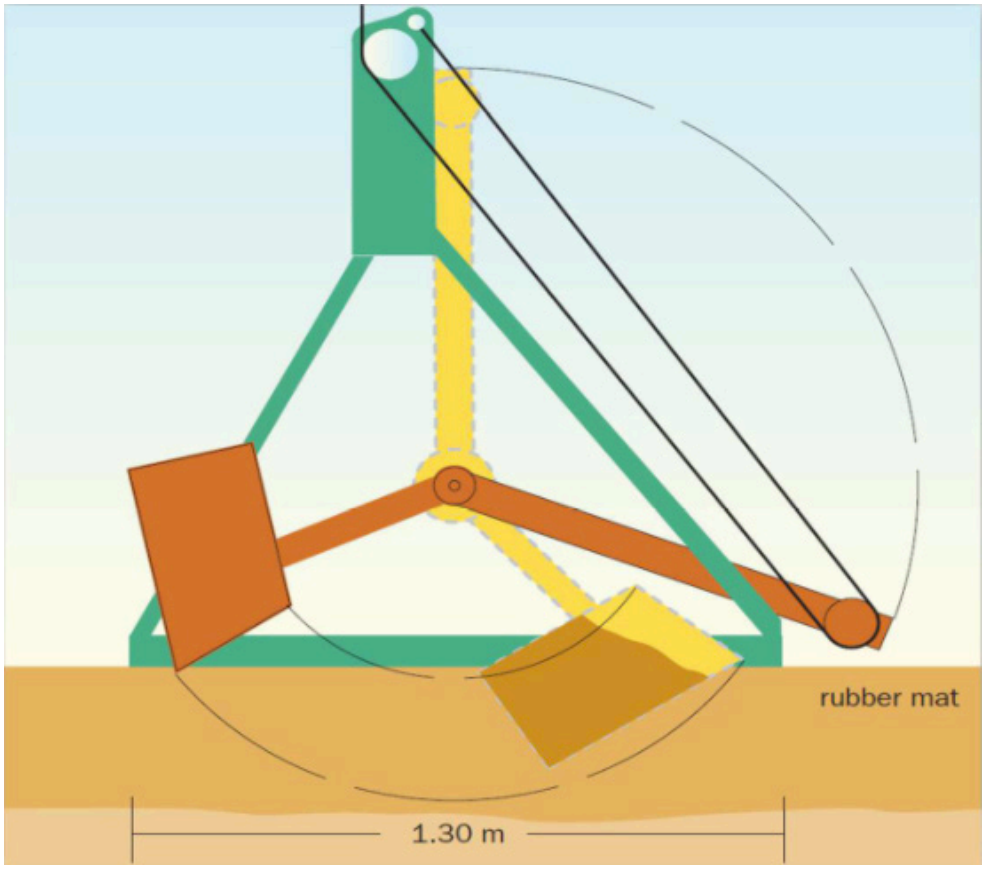
Hamon Grab

The hamon grab has been developed for sampling the upper ca. 25 cm of sand gravel deposits at the sea bed. To prevent washing out of the sample during hoisting to the surface, the sample bucket is firmly sealed by a rubber mat.

The handling is very simple and the system is able to take sea bed samples at any waterdepth.

Dimensions:
- Total weight 500kg
- Hamon grab L x W x H = 1,450 x 1,450 x 2,150 mm
- Bucket sample surface 370 x 280 mm
- Frame L x W x H = 1,700 x 1,700 x 870 mm



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Hydraulic Vibrocorer

Marine coring equipment

Type
Hydraulic vibrocorer Weight
In air: 3,000 kg
In water: 2,500 kg

Dimensions
Height: dependant on lenght core barrel between 3,000 and 10,000 mm.

Base frame
Lenght: 2,000 mm (extended 3,400 mm)
Width: 1,500 mm (extended 2,900 mm)

Vibration unit
Twin vibrator
Installed power 11 kW

Electrical power
380 V (3 ph.) 50 Hz, min. 100 KVA

Core barrel
Barrel lenght 3,000 - 8,000 mm

Barrel (od/id, mm)	Liner (od/idm mm
76/72 108/103	70/67 100/96.4

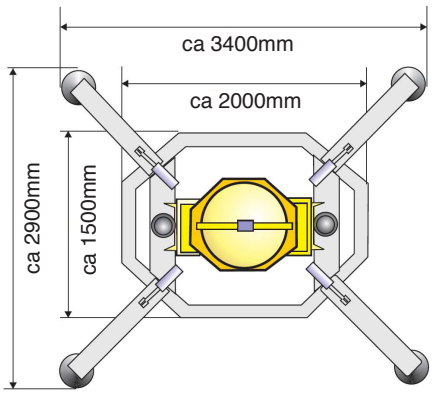
Handling core barrel
Pivoting system

Penetration
Max. 8,000 mm

Operational limits
Max. 650 m waterdepth

Hoisting power
Min. 12,000 kg (when penetrated in stiff clay in the seabed) and 6,000 kg, when penetrated in sandy soil.

Deck space 12m
The core quality is very high. A special 50 ton hydraulic winch is available for coring in hard or stiff soil types up to 650m waterdepth.



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Mini-gravity corer
A lightweight sampler

This corer has been designed for collecting undisturbed samples in unconsolidated silty or clayey sediments. The corer can be used as gravity corer to collect samples in the bottom of for instance harbours, lakes and rivers.

The advantage of this system is that it operates in any water depth. The maximum lenght of the core barrel is 3 m, and a PVC liner with a diameter of 70 mm is mounted inside.

The principle is based on a free fall of appr. 1m which is reached by the use of a winch free fall capacity. The penetration depth can be regulated by removable total weight loads.

Dimensions:
Corer type: Model 2172
Weight appr. 150 kg
Five lead weights loads of 20 kg
(space for one additional weight)

Core barrel length:
Variable between 1 and 3 m, outer diameter 70 mm
PVC liner inner diameter 67 mm.
Removable cutting shoe with core catcher.

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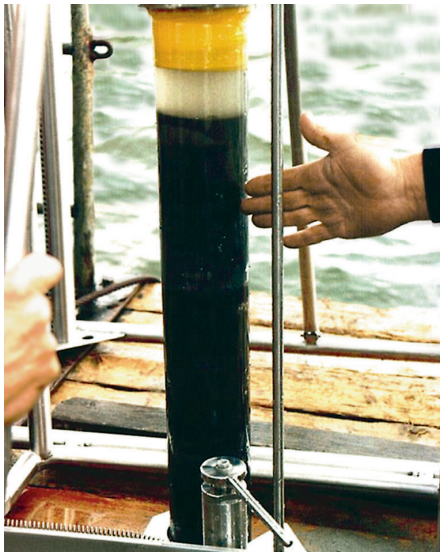
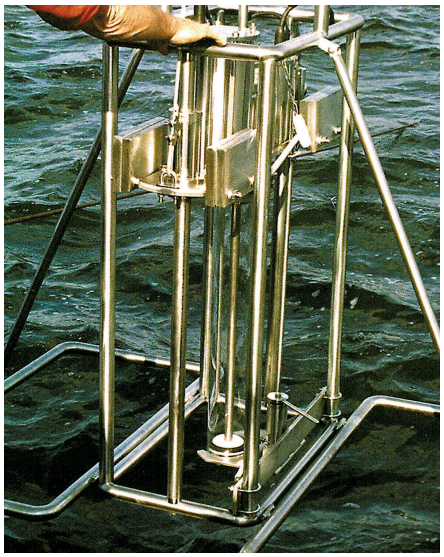
OSCOR

Sampling undisturbed sediment cores

OSCOR is an acronym for oscillating corer. It is constructed of lightweight material and can be handled by one operator from small vessels. The sampler is especially designed for sampling of sandy sediments for amongst others environmental studies.

- The corer is based on a tubular aluminium frame
- The power unit and core barrel are fixed between two guide posts.
- A spring loaded ‘guillotine’-type core catcher is mounted on the base plate.
- The drive engine is powered by a 12 Volt battery.
- Approved for a water depth of 250 meters.
- Core barrel consists of thick walled methyl-acrylate, Plexiglas tube.
- Diameter core tube 100 mm and 660 mm length.
- Weight 125 kg.





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Piston Corer

The piston corer has been designed for taking undisturbed cores in normally consolidated silty or clayey sediments. The advantage of this system is that it operates in any water depth. The length of the cores is limited by the deck space of the survey vessel only. In the Atlantic Ocean for instance cores have been obtained with a recovery of 22 m.

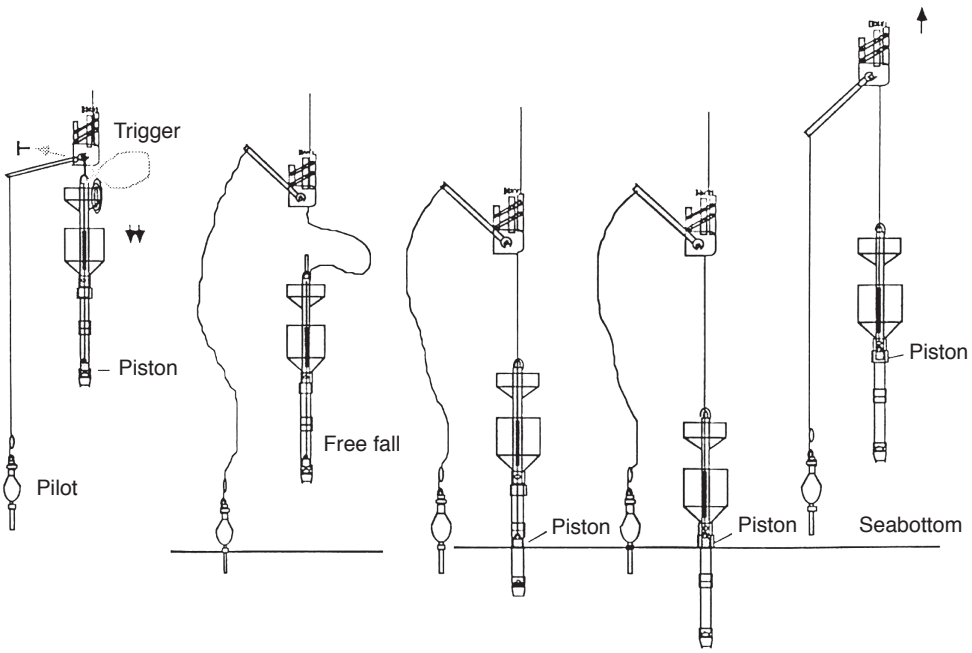
The operating principle of the piston corer is based on a free fall of appr. 3 metres which is triggered by a tripper weight which is releasing the piston corer as soon as the tripper weight hits the sea bed (see scheme). At the bottom of the core barrel a piston with a leather seal is mounted. The piston is connected to the releaser by a stainless steel wire. The wire which has a slack of about 3 metres, allows the piston corer to fall free until the piston inside the core barrel is activated just before the barrel penetrates the sediment. The penetration depth can be regulated by the total weight load.

Dimensions:

Coring head:
- Weight appr. 750 kg

Core barrel length:
- 3 and 6 metres 98 mm wich can be connected by a connector
- PVC liner outer diameter 90 mm and inner diameter 87.3 mm

Core barrel tripper weight:
- Appr. 90 kg



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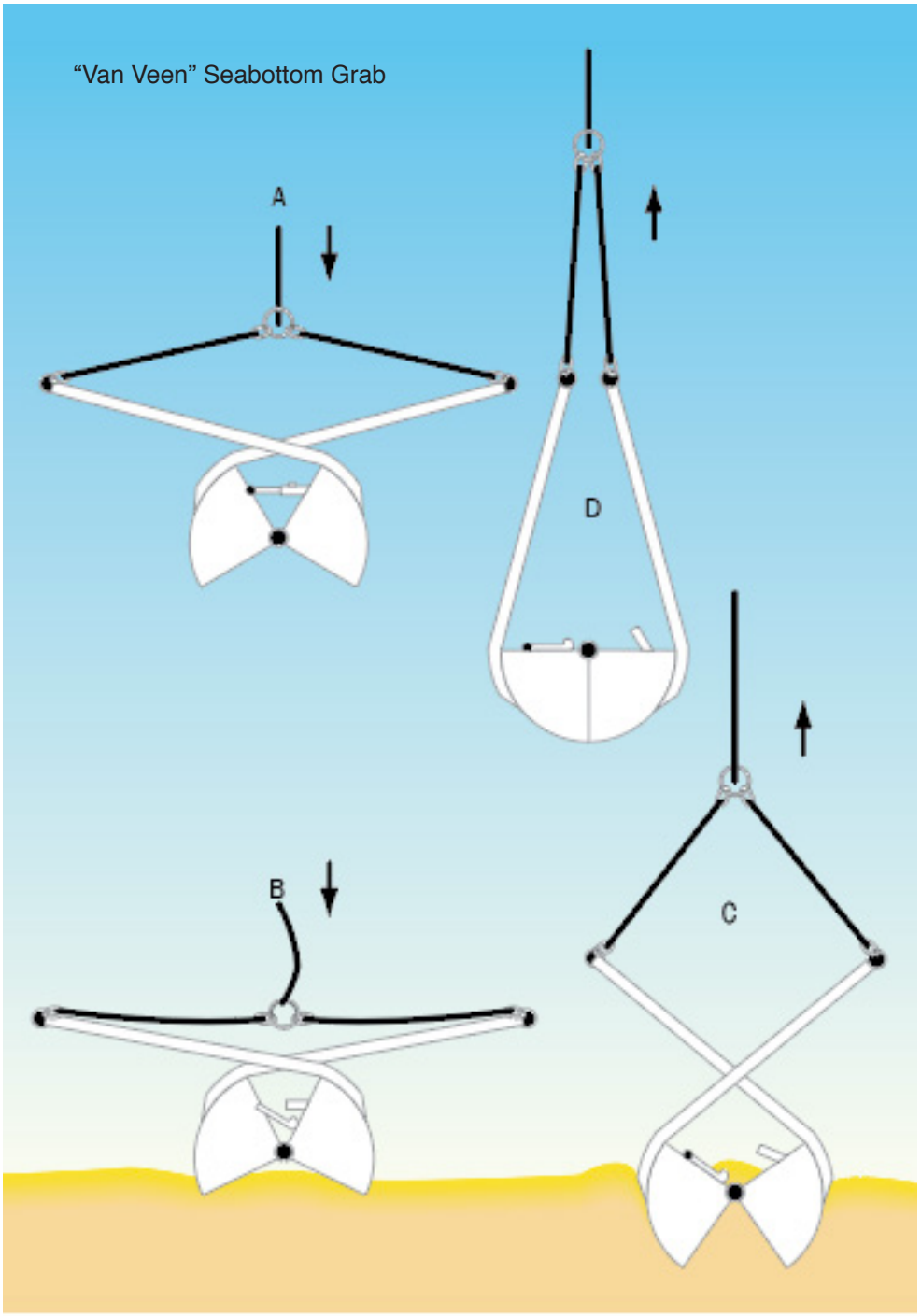
Van Veen Grab

This grab has been designed for sampling the sea bed surface at any water depth. The grab is easy to handle and can be used even from small survey vessels without a crane.



Technical specifications
- L x W x H = 800 x 280 x 140 mm

Weight:
- Appr. 35 kg

Sample content:
- Appr. 10 liters

Effective sampled surface:
- Appr. 800 cm^2

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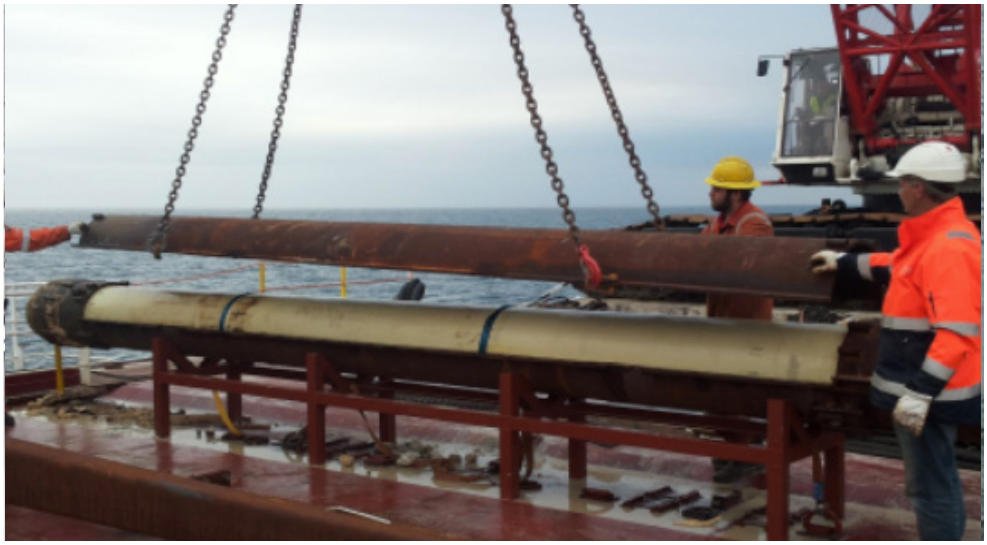
Vibrocorer - XL

For 30 cm to 50 cm diameter cores



Large Diameter Vibrocorer System

With the vibrocorer - XL, a large diameter steel barrel can be vibrated into seabed. The system is typically used to penetrate into material that is otherwise hard to sample (e.g. soft chalk, gravel, boulder clay, etc.) and allows retrieval of large volume undisturbed samples. Use is made of a high capacity vibro-hammer, normally used in pile driving. The vibrohammer excerts a centrifugal force of 898 kN at a frequency of 30 Hz. Alternative hammer types are possible. To monitor progress into seabed, use is made of a 50kHz echosounder. verticallity is monitored with inclinometers.

Specifications

A typical equipment spread includes a base frame, a vibrating unit, a hydraulic powerpack, a reel with hydraulic leads, an umbilical reel with cable (for monitoring functions), a service container and a portable computer. Several barrel lengths and diameters are available. barrels are splitable.To contain core material, full-face core catchers are available. to handle cores, a core handling table is needed. Some system specifications are given below.

Dimensions (depending on setup):

Height:	11.5m (6m barrel)
Width:	5 m (inc. Base frame)
Length:	5 m (inc. Base frame)
Weight in air:	8 - 15 ton
Core barrel length:	6 m, other l. optional

Barrel (od/id, mm)	Liner (od/idm mm
559/510 360/320	500/470 315/290

Vessel requirements

Electric power:	380V AC, 50 Hz
Hoisting Height:	13.0m minimum
SWL:	30T minimum
Required deck-space:	150m² minimum

Application

Typical application areas are taking high quality undisturbed samples in geotechnical field investigations for route surveys, dredging works and foundation design or taking large volume bulk samples in alluvial mining.

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