

FUGRO SEAFLOOR DRILLS

Fugro's Seafloor Drills (SFD) combine proven drilling technology with ROV telemetry for offshore geotechnical and geohazard site investigations with the systems.

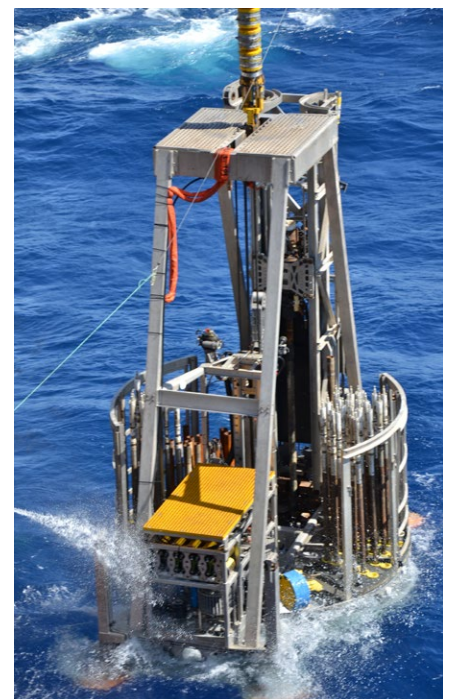
Rated up to 4,000 m water depth, Fugro's deepwater seafloor drilling systems were designed by geotechnical engineers and drilling professionals. The systems are rated to obtain high quality soil samples in a variety of different materials (from soft clays to hard rock) to depths up to 150 metres below the seafloor. They utilise wireline coring (N through P sized tooling) and can collect standard geotechnical samples of 73 mm in diameter.

Real-time in situ testing can be conducted with the SFDs in conjunction with drilling operations. It is carried out in downhole mode and can be used to collect continuous in situ test data or discrete in situ test data in combination with soil sampling. In situ tests offered with the SFD

system include: piezocone penetration testing (PCPT), seismic piezocone penetration testing, vane shear testing (VST), surface T-bar testing, ball probe testing (BPT) and piezoprobe testing. The SFD can also be fitted with a SideWinder coiled seabed PCPT system capable to penetrate up to 30 m into the seabed.

Fugro's SFDs are equipped with four separate jacking legs and are capable of working on slopes up to 25 degrees. They can be deployed with different footing options, depending upon the seafloor conditions.

The entire unit is controlled remotely from the surface and incorporates proven work class ROV telemetry and control systems.



Seafloor Drill 1 being launched.

SEAFLOOR DRILLS

Technical Specifications

Specifications

Operating depth	4000 msw
Dimensions WxLxH (SFD 1)	3.8 m x 5.4 m x 6.6 m
Dimensions WxLxH (SFD 2)	4.3 m x 5.4 m x 7.0 m

Drilling

Wireline sampling, N through P sized tooling in 2 m lengths
 Rated for drilling/sampling/in situ testing to depths up to 150 m below seafloor
 Dual direction rotary (forward and reverse) at speeds 0-660 rpm
 Lightweight core barrels handled and stored by robotic manipulator arm

Seabed cone penetration testing

30 m penetration and 1.5 tons (15 kN) pushing force

Cone penetration testing

10 cm² cones (downhole mode) and 5 cm² cones (seabed mode)
 Real-time data collection

Tools offered include: piezocone penetration testing (PCPT), seismic piezocone penetration testing, vane shear testing (VST), surface T-bar testing, ball probe testing (BPT), and piezoprobe testing.

Electrical

The electrical system utilizes a standard work-class ROV architecture, components and controls

Vessel requirements

Ship's power is required to meet the following specification:
 Voltage: 480 Volts AC
 Current: 500 Amps
 Frequency: 60 Hz
 Connectors: Standard sea-going ship/shore power cables and connectors

Launch and Recovery System (LARS) specification:

Dynacon model 521XL general purpose ROV winch
 SWL 12 tons
 DNV certified No 2.22 lifting appliances
 Dynacon telescoping
 A-frame with Linksyn compatible docking head

Vessel space requirements

Approximately 500 m² of clear deck space for SFD equipment (including LARS) and support containers



View from the control van.



Underwater operation at 1600 m