Geotechnical Drilling Rig GMR300 Series

Introduction

Geoquip has designed and built a fully heave compensated, offshore geotechnical drilling system based around the GMR series. Key considerations in the design were to increase safety of all personnel and to offer above industry standard reliability during all operations.

The GMR300 series is ideally suited to performing largescale geotechnical site investigations typically required as part of offshore wind farm developments whilst also being a prime solution to complete high priority single boreholes or low volume scopes of work, typically required at short notice and to strict schedule constraints.

Capabilities

The GMR300 drill rig series is suitable to conduct operations in water depths up to 300m (water depth plus borehole depth), the GMR302 up to 360m using steel API drill pipe. The GMR300 series drill rig has the capability to recover high quality samples and record accurate *in situ* data in all soil types.

Sampling and Downhole Testing

The GMR300 series is compatible for operations with a wide range of downhole tools including wireline sampling and wireline cone penetration testing (PCPT). Each of the downhole tools are fully interchangeable within the drill string set up and can therefore be alternated in turn to suit changing soil conditions / type. This gives Geoquip geotechnical engineers the increased flexibility to meet and exceed the requirements of a Client.

- Push / Piston sampler (1m length thin, medium and thick walled Shelby tubes
- Triple tube lined coring system (80mm diameter core and maximum 2.8m length)
- Hammer sampler (2” and 3” diameter split spoon)
- PS wireline logging

‘Real-time’ Data and Reporting

The technical capability of the GMR300 series drill rig in the field, is further enhanced through the provision of a dedicated soil and rock testing laboratory. This facility allows the ‘real-time’ classification and testing of high-quality samples and the QA / QC of recording *in situ* data.

The offshore classification and testing of selective samples allows Geoquip geotechnical engineers to schedule further advance testing onshore in a timely manner. The processed field *in situ* data can be provided to a Client onboard.

Drilling Rig GMR300 Series	
Power Swivel	Dando 500 with dual speed setting for high torque/high rotation dependent on soil/rock type
Drill String	5½” or 6⅝” API drill string
Seabed Frame	12t (GMR300) and 18t (GMR302) with hydraulic clamps
Heave Compensation	Drill string compensation with an effective stroke from 0.0m to 4.0m. Seabed frame & seabed CPT unit heave compensation with an effective stroke from 0.0m to 5.0m (GMR302 only)
Mud	4,000l mix tank, 8,000l storage tank guar gum seawater miscible
Downhole Sampling	Wireline piston/push sampler, percussion/hammer sampler
Downhole *in situ* Testing Tools	WISON-APB PCPT cone penetration testing with pore water pressure and seismic velocity measurements PS wireline logging (GMR302 only)
Downhole Coring	Traditional and leading shoe core barrel
HPU	Electro-hydraulic, 3 x 125hp
HP Air	2,000l HP air with associated compressors, filters and driers
Drill Control Cabin	Lever controlled operations, fully HVAC
Drill Rig Workshop	ISO 20ft container sized fully equipped workshop c/w suitable tools and equipment. 220v supply
Equipment Winches	Braden draw-works winch, seabed frame umbilical winch, 2 x piston sample winch (electro mechanical), 2 x headline tugger winch, tail line tugger winch.
Seabed CPT Unit	20t deep push seabed CPT system. Straight rod push thrust mechanism allows recording of *in situ* data to 40m below mudline, or greater, depending on soil conditions (GMR302 only).