

## Poseidon 1



### Introduction

The Poseidon 1 is a 2015 Japanese built, dynamically positioned geotechnical site investigation vessel. The vessel was designed to high specifications specifically for operations in this harsh region. The vessel is 78m in length with the twin tower GMTR150 heave compensated drill rig installation over a centrally located moonpool. This vessel can perform PCPT, sampling and pressure coring tasks in water depths in excess of 1,000m whilst also being ideally suited to shallower water locations typically associated with offshore wind farm scopes of work.

### Positioning

The Poseidon 1 has a very powerful dynamic positioning system which enables the vessel to be suitable for varied offshore works in challenging marine environments. The DP system provides a direct interface to the azimuth propellers, and bow thrusters, and includes the necessary interfaces to power plants, position-reference systems and sensors. This provides accurate and precise station-keeping during all borehole and seabed testing operations.

### Key Features:

- Class 2 Dynamic Positioning
- Remotely operated pipe handling system
- Reliable offshore wind farm sample recovery and data acquisition
- Heave compensated offshore geotechnical deep water drilling rig
- Comprehensive on board soil and rock testing laboratory
- Combined water and borehole depth of 3,500m

### Drilling Monitoring and Downhole Tools

The GMTR150 drill rig has mechanized remotely operated pipe handling, ram hoist system with twin wire balanced beam suspension for safe and controlled operation. There is a 6m passive stroke, nitrogen charged compensation system for safe operations and improved high quality sample recovery. All downhole tools (coring, sampling, PS logging, etc.) are fully compatible with the 5½" API drill string. A range of drag and specialised coring bits are provided.

Drilling Rig GMTR150	
<b>Power Swivel</b>	Top drive / power swivel Ocean Hydraulics design 35,600N.m <sup>-1</sup> @ 50rpm 9,900N.m <sup>-1</sup> @ 250rpm 150t load capacity Dando 1000 twin motor with dual speed setting for high torque / high rotation
<b>Drill String</b>	5½" or 6¾" API drill string
<b>Seabed Frame</b>	22t, with hydraulic clamps
<b>Heave Compensation</b>	Effective drill string compensation 0m to 6m. Seabed frame and seabed CPT unit heave compensation with an effective stroke from 0m to 7m
<b>Mud</b>	Project specific modular mud systems installed as required
<b>Downhole Sampling</b>	Wireline piston / push sampler, percussion / hammer sampler
<b>Downhole <i>in situ</i> Testing Tools</b>	WISON-APB PCPT cone penetration testing with pore water pressure and seismic velocity measurements PS wireline logging
<b>Downhole Coring</b>	Traditional and leading shoe core barrel
<b>Drill Control Cabin</b>	Control cabin for remote control via hydraulic / electric interface of all drilling and sampling operations. Allows driller, assistant driller and PCPT operator coordinated control of all drilling / sampling operations. Rig specific DMS recording
<b>Drill Rig Workshop</b>	ISO 20ft container sized fully equipped workshop, tools and equipment. 220v supply
<b>Equipment Winches</b>	Seabed Frame: 3,500m, 36mm wire rope; SWL 32t / Head Line: SWL 3t, Tail Line: SWL 3t / Sampling: 3,000m, 10mm wire rope; SWL 1.5t
<b>Seabed CPT Unit</b>	20t deep push seabed CPT system. Straight rod push thrust mechanism allows recording of <i>in situ</i> data to 40m below mudline, or greater, depending on soil conditions.

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<b>Flag, IMO, Call Sign</b>	Japan, IMO 9748356, Call Sign: 7JUF
<b>Class</b>	DP Class II ABS + A1(E) + AMS, SPS, CRC, CPS, Offshore Support Vessel (ROV)
<b>Built</b>	2015
<b>Tonnage</b>	GRT 4,015 NRT 2,715
<b>Principal Dimensions</b>	LOA 78.0m Breadth 20.4m Draft 7.0m
<b>Tank Capacity</b>	Fuel Oil 850m <sup>3</sup> Fresh Water 950m <sup>3</sup>
<b>Speed / Consumption</b>	Standby 3m <sup>3</sup> /24h On DP 11m <sup>3</sup> /24h Economic (transit) 22m <sup>3</sup> /24h at 10 knots
<b>Endurance</b>	>28days
<b>Machinery</b>	Main Engine NIIGATA Diesel Engine Type 6L28AHX (3,000ps) / 2 x 750rpm Propellers 2 x NIIGATA Z-peller (CPP) (ZP-41CP) Bow Thrusters 2 x 4-Blade CPP (970kW) Generator: Main Engine 2 x AC450v 60Hz, 1,000kW Main Generator 2 x AC450v 60Hz, 800kW
<b>DP System</b>	Kongsberg K-POS DP-21
<b>Moonpool</b>	Main Deck 5.4m x 5.4m
<b>Cargo Deck</b>	650m <sup>2</sup>
<b>Accommodation</b>	23 x Single berth cabins 19 x Double berth cabins 4 x 4 man cabins