The DSV “DYNAMIC INSTALLER” is a multipurpose worldwide offshore construction, maintenance and diving support vessel, equipped with passive stabilizing system, fully redundant dynamic positioning system, saturation and surface supplied diving systems, Triton WROV and Viper ROV, heavy lifting equipment and helideck.


The DI was designed and built by ULSTEIN HATLO in 1984. The diving system was designed and installed by SUBSEA OFFSHORE Ltd. The DP system was designed by A/S KONGSBERG. The Lifting equipment includes a LIEBHERR high capacity deck crane with a boom length of 37.5m and a maximum lift of 125Te.
**Dimensions**
- Length overall: 84.00 m
- Moulded breadth: 18.80 m
- Moulded depth: 7.10 m
- Summer draught: 4.65 m
- Gross Tonnage: 3204 T

**Performance and General Facilities**
- Vessel speed, approx: 11 kts
- Deadweight: 1803 T
- Workdeck area: 500 m²
- Deck loading: 5 T/m²
- Hold capacity: 500 m³
- Helideck: 19 m diameter (Super Puma)

**Machinery**
- Main engines: 2 x 2640 hp
- Main propellers: 2 x 1800 hp (controllable pitch)
- Generators: 440 V-60 Hz
- Shaft driven: 2 x 1570 kVA
- Diesel driven: 3 x 625 kVA

**Cranes and Winches**
- Main crane:
  - Main hoist: 125 T at 8.9 m
  - Whip hoist: 18 T at 10.5 m
- Service crane: 10 T at 8 m
- Main winch: 120 T double drum

**Dynamic Positioning**
- Fully redundant KONGSBERG DP system type SDP 521 - DP Class II
- Reference systems:
  - 2 x taut wire
  - Sonardyne USBL
  - Fanbeam 4.2
  - 2 x DGPS
- DP control system governs three forward and two aft transverse thrusters, the two main propellers and two rudders.
**Mooring Systems**

Conventional:
- Main anchors: 2 x 7 T
- Chain length: 2 x 412 m

4-point mooring system:
- Stern Anchors: 2 x 6 T
- Wire length - aft winch: 2 x 1200 m
- Wire diameter: 38 mm

**Diving**

Saturation diving system of max 14 men to 230 m (SW)
- Moonpool-launched 3-man diving bell
- Side-launched air surface dive system
- 16-man hyperbaric rescue capsule

**Accommodation**

Total including crew: 73
- Marine crew: 28
- Project team: 45

**Classification**

DNV + 1A1-DYNPOS-EO-HELDK-DSV I-DSV III with register notations:
- dk (+), autr (99/99/98)
- US Coastguard for non-USA vessel

**ROV**

- 1x Work class ROV TZX Triton 100 hp rated 3000m with set of tools
- 1x light Work ROV Viper 25 hp

**Communications section**

Call Sign: C6LO4
- Telephone: +47 236 760 98
- Telephone: +377 9205 8811
- Telephone: +870 330 838 210
- Facsimile: +870 330 838 215
- Telex: +870 330 838 217 DYIN
- Telex: +63175 C6LO4
- Client: +47 23676097
- Client: +870 330 838 213

**Marine Office:**

- Telephone: +377 9205 8812
- Telephone: +870 330 838 211

**Conference Room:**

- Telephone: +377 9205 8813
- Telephone: +870 330 838 212
Machinery, propulsion and power stations

Twin BERGEN main engines develop 2640HP each and drive the main propellers and shaft generators. Maximum power available to each propeller is 2000HP. Three MAN auxiliary engines each drive an auxiliary generator and one smaller CUMMINS engine drives an emergency generator.

The 2 shaft generators develop 1570kVA each, the three auxiliary generators each develop 625kVA and the emergency generator develops 136kVA.

All the ship’s systems, including transverse thrusters, are driven with full redundancy by these generators, and a full independent emergency generator is installed uniquely for the dive system.

Two main propellers, plus three forward and two aft transverse thrusters are all controllable pitch designed.

Under full power, the vessel attains a maximum speed of 11 knots with a fuel consumption of about 12Te/day. When steaming at economical speed, fuel consumption is about 10 Te/day. In DP mode, the fuel consumption is around 10 Te/day depending on the weather conditions.

Cranes and winches

Main deck crane is a LIEBHERR self-supported diesel hydraulic crane with main, whip and auxiliary hoists. The boom length is 37.5m, with a central section of 13m that can be removed if required.

Main hoist capacity ranges from 125Te at 8.9m radius to 19Te at 35m radius.

Whip hoist capacity is 18Te for working radius from 10.5m to 38.5m.

Auxiliary hoist capacity is 4.6Te and it is driven by an independent constant tension tugger winch which is reeved either over a separate sheave located part-way along the boom or over boom extremity sheave. Tugger winch can also be de-reeved and used directly for horizontal pull (control of 125Te hoist).

One service crane is on ship portside and has a capacity of 10 T at 8m.

An IMECA service winch is permanently installed on main deck. The 120Te double drum winch is designed to store 400m of 64mm wire on each drum and together with cross tensioning equipment can achieve specific lifting or pulling operations.

Three 5Te air tugger winches are permanently installed on deck, providing assistance all around deck area through snatch blocks and D-rings.
Dynamic positioning system
Vessel DP system is a fully redundant KONGSBERG Type SDP 521 MK II system, with two master computers and one supervisory and diagnostic computer.

Sensors
- 2 vertical reference units (pitch and roll)
- 2 wind sensors
- 3 gyro compasses

Reference Systems
- 2 lightweight vertical taut wires of 500m wire each, with remote operation from bridge
- 1 Simrad hydro-acoustic system with operator panel and display unit
- 1 Fan Beam 4.2
- 2 x DGPS

The vessel is also fitted with her own EIVA NAVI PACK type navigation, data logging and dynamic positioning system, which is interfaced with Gyros, DGPS and Sonardyne HPR 309.

The DP control system governs the three forward and two aft transverse thrusters, the two main propellers and the two rudders. All propellers and thrusters are controllable pitch.

The DP system fully meets the requirements of the guidelines for specification and operation of dynamically positioned diving support vessels issued by the UK Department of Energy and the Norwegian Petroleum Directorate on 1st February 1983.

Mooring systems
The conventional mooring system comprises two 7Te anchors on 412m of 63mm K3 chain for each.

In addition, two aft winches carry 1200m of wire. Winches can be remotely controlled (simultaneously if required) from aft DP bridge with assistance of a full TV monitoring system, load indicators and line-out monitors.

Survey
The HPR is a Sonardyne Type No. 7707 single transducer system, compatible with HPR 309 Standard Protocol. The transceiver (Transducer Head and Assembly) is omni directional to +/- 80 degrees fixed. The beam is fixed for optimum performance. The system operates with 300 and 400 series frequency Simrad transponders and Sonardyne Standard, Compatt and PGT transponders.
Diving equipment

The diving system was designed and supplied by SUBSEA OFFSHORE Ltd, a company with many years’ experience in offshore diving and onboard dive systems.

The saturation diving system is a 750ft (230m) depth rated DNV classified system with a maximum capacity of 14 men in 3 habitat chambers. The chambers are configured to give 24 hour diving at split levels in addition to decompression capability in three separated chambers.

A 16-man Hyperbaric Evacuation Capsule (HEC) is on main deck starboard side, and is launched by an A-frame which is self powered from a hydraulic accumulator system.

The 3-man diving bell is launched through a centrally positioned moonpool. The hydraulically powered handling system includes a traversing trolley, main bell winch, powered umbilical winch, guide wire and clump weight system. To aid bell launch and recovery operations, moonpool is fitted with especially designed baffles to dampen water motion. Timber faced guides are fitted to control bell axial motion, and a compressed air driven aeration system reduces water density at the launch interface.

The vessel has a gas storage capacity of approximately 450,000ft³ (12,750m³) under main deck. Gas supply and management systems will provide for gas transfer, mixing and supply to the saturation control centre and dive control room.

Oxygen storage is on upper deck in an open well ventilated area with drenching system, and is separated from the rest of gas storage. Oxygen supply to control rooms is at reduced pressure.

Chamber gas reclaim system includes a Helipure membrane gas separator which allows to safely reuse reclaimed gas within the dive complex, thus keeping gas consumption to a minimum.

The control of diving complex is separated in two : the central dive control room and the saturation control centre.

The central dive control room allows observation of deck area, crane operations and air diving via CCTV. All controls and monitors for bell launching and recovering operations and for the dive in progress are located in this one area which has direct communications links with all other key locations within the ship.

The size of the dive control is such that ample room is provided for dive controllers, inspection engineers and Client’s personnel.

A separate air dive control station controls all operations and communications for surface supplied diving. Instrument layout is sophisticated and compact, leaving room for inspection engineers or Client personnel.
The saturation control centre contains all controls, monitors and communications systems for the complete chamber complex. A direct phone link to dive control room and a closed circuit TV system ensure a full coordination during bell lock on/off operations.

A skid-mounted air diving system is installed for working down to 165ft (50m). It comprises a dual basket COMANEX air dive skid, which is electro-hydraulic operated, and according to IMCA D023 and DNV standards. An air decompression chamber is adjacent for surface decompression and therapeutic use.

**WROV and ROV system**

**The vessel is permanently equipped with two ROV systems located on portside above the Imeca winch area on a mezzanine.**

The ROV spread consists of one VIPER and one TRITON vehicles, each equipped with their own Tether Management System, A-frame and control room. Spare parts and consumables are stored in one container and in vessel hold. A dedicated ROV workshop is also located in a container on the mezzanine.

The VIPER is a 25hp hydraulic ROV system designed by PERRY TRITECH to provide a high powered, small sized vehicle for subsea construction, inspection and maintenance tasks.

The VIPER spread is equipped for operating up to 600m water depth, and achieves speeds up to 2.5kts forward and up to 1.8kts in lateral.

The hydraulic system provides power to operate a manipulator arm and, optionally as required, any grinders, cutters, etc.

The VIPER is permanently equipped with one SIT and one Osprey colour camera, one Tritech ST 325 sonar, and a three function Grabber.

The Triton ZX is a 100hp hydraulic Working ROV, designed by Perry Slingsby Systems to achieve forward and lateral speeds up to 3kts, for a bollard pull of 0.5Te (in all directions).

The WROV is permanently equipped with two functional arms: one Perry TA40 seven function, and one Wittaker M5 five function, and a complete range of instrumentation, cameras, Tritech sonar, etc.

A large panel of hydraulic tools is also available onboard for the WROV: grinder, wire cutter, pipe cutter, wire gripper, etc.
Umbilical laying equipment

The vessel can be equipped with its own 300Te Reel Drive System to install flexible pipe or umbilical which is stored in the EG Luba yard. This RDS is designed to accommodate “standard” reels (NKT / Coflexip / Wellstream and Bridon with an adaptor) up to 9.2m diameter.

The two separate drive units each consist of a side frame, drive hub and sub base. Driving units mount on top of two support stools, which can be adapted in height to accommodate various diameter reels. By moving the support stools on deck, in / out different reel widths can also be accommodated.

Both drive hubs incorporate a drive chuck which plugs into the “standard reels”. The drive hubs are raised and lowered to jack up the reels clear of their saddles.

A panel of laying chute is also available to accommodate different radius and loads, as well as turning points.

Radio and communication equipment

The Radio Room is fitted with Furuno GMDSS Station consisting of Sat-C, NBDP, MH/HF DSC, Navtex, Sailor VHF and Sat-B telecommunications and fax machine. Remote GMDSS Stations are also installed on Fwd and Aft Bridge.

Additional VHF sets are installed on Fwd Bridge, DP Bridge, Conference Room, Client’s Office, Survey Desk, Air Dive Station, Sat Dive Station, Crane and Engine Control Room. Further portable handsets with private channel are also available on project to conduct safe communications without external infield interference from marine channels.

A latest V-Sat telecommunications system is installed comprising 6 simultaneous telephone lines and Internet facility. There is a dedicated client line to ensure availability of external line at all times. For crew & contractor personnel, a dedicated telephone line is also available connected into the ship’s automatic telephone exchange (from all cabins).

Client and key personnel offices are all networked with modern computers for direct email and internet facility. This includes Client’s Office, Conference Room, Ships Office, Fwd & Aft Bridge positions, Safety, Master, Radio Room, Chief Engineer’s Office and Recreation Room. Additional networked work stations are installed with email facility in Recreation Room, Engine Room, Saturation Dive Control and Saturation Decompression Control.
Helideck
A helideck is located above the bridge superstructure. It measures 20m in diameter and has a designated approach and a take-off angle of 210°. The landing area is covered by a 15m x 15m rope net made from 20mm diameter sisal, with a 200mm mesh size. The deck is certified to take helicopters up to and including SUPER PUMA AS332L / BELL 214ST for normal operation and in emergencies a SIKORSKY S61N.

Accommodation
Accommodation is provided for a total of 73 persons (including Marine crew) in fully air-conditioned, modern and well equipped cabins: TVs, DVD players, etc.

The bridge is a forward navigation area for use while steaming, and a separate aft DP bridge for use while working on station. In the central section, with all-round windows, there is a large conference room and a separate Client’s office, fitted with SAILOR VHF.

Health, Safety, Security and Environment
SBM Offshore is committed to supporting and implementing Health, Safety, Security and Environmental (HSSE) requirements designed to comply with applicable legislation and continues to improve the Dynamic Installer’s operation performance.

As an integral part of its commitment to the protection of personal occupational safety and health and the protection of the environment the Company readily complies with all applicable marine legislation and all applicable local area legislation requirements.

For the HSSE management and operation of the Dynamic Installer, SBM Offshore has developed an HSSE Management System in compliance with the ISM and ISPS Codes specified by the International Maritime Organisation and incorporates the requirements of the following standards:


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The sole intention of this brochure is to share general information.

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