
REFERENCE SHEET

# Grand Canyon

Grand Canyon represents a new generation of high technology, purpose built offshore construction vessels. The top modern ship sees an increasing demand for flexible and cost effective subsea maintenance and construction work, and is specially designed for operations in harsh weather conditions when high manoeuvrability and station keeping capabilities are required.

The dynamically positioned vessel (DP 3 system) is built with two indoor ROV hangars, prepared for easy mobilization of client supplied WROV systems. In addition an AHC offshore crane with capacity of lifting 250 ton SWL down to water depths of 3 000 meters is installed.

The vessel is prepared for a wide range of advanced marine subsea activities, such as jet trenching operations from the forward port side and heavy soils trenching (iTrencher) over the stern. Grand Canyon, design ST-259 CD, has an accommodation for 104 people, with all modern facilities for the crew's comfort and safety while on board the ship.

Grand Canyon was delivered from Bergen Group Fosen to ship owner Volstad Construction AS in October 2012.

**ELPRO PROVIDED**

- Tailor-made switchboard solutions in close cooperation with Norwegian Electric Systems (NES)
- Consoles for bridge and engine control room
- Customer involvement during specification process
- Experience based engineering
- Fast and reliable delivery time
- Single point of contact

## TECHNICAL DATA

| **Main engines** | |
|---|---|
| Wärtsilä | 6 off – 6L32 |
| Power | 6 x 2880 kVA at 720 rpm |
| Total | 17280 KW / 23172HP |
| | |
| **Generators** | |
| Power | 6 off – NES NEGR710 LB10<br>6 x 3450 kVA |

| **Main propulsion** | |
|---|---|
| Power | 6 off – NES NEGR710 LB10<br>6 x 3450 kVA |
| | |
| **Diesel electric plant** | |
| Norwegian Electric Systems (NES) | 690V, 450V, 230V Switchboards<br>Frequency converters<br>generators<br>Transformers propulsion motors<br>Thruster motors<br>Power management system |
| Emergency generator | 1 off – Wärtsilä 9L20 |
| Power | 1665 kW at 900 rpm |
| | |
| Harbour generator | 1 off – Mitsubishi S6R-MTPA |
| Power | 595 kW at 900 rpm |

## ELPRO SWITCHBOARD SOLUTIONS

- Closed ring system that satisfies the highest DP requirements.
- Directional protection and zone selectivity, which allows minimum loss of bus bar sections even for a worst case single fault on a vessel with ERN 4 x 99, running with closed bus ties.
- Power Management System (PMS) can be included in the switchboard (which saves yard for a lot of cabling and potential fault finding in the future).
- Load Sharing (LS) can be included in the switchboard without taking any extra space on each generator cubicle (symmetric, fixed power, asymmetric).
- AVR's can be mounted in each generator cubicle for easier fault finding and commissioning.
- Ultra Rapid breaker (UR breaker) can be mounted into our switchboard to allow higher installed power running in parallel @690V, and to limit the short circuit level to 100 kA/220 kA peak.
- Calculations, production and commissioning.

## ELPRO CONSOLE SOLUTIONS

- Elpro engineers use advanced 3D design software and forms the consoles to client requirements.
- All cut outs and predrilled holes are made before painting, and all surfaces are protected against corrosion.
- Construction and manufacturing: Produced in 2 mm cold-rolled steel and in accordance with IEC 61439-2 and IEC 60092.
- Flexible solutions are possible due to in-house construction of all steel parts.
- Surface treatment: All parts are treated and enamelled with epoxy/polyester powder, coated at our paint department.
- Resilience at our core in design and engineering work.
- Engineering and design for marine purposes in accordance with the requirements of the classification societies.
- Wide selection of RAL colours available for customer unique design.
- Documentation is produced with state of the art design software, and customer prior to production approves the plot plan.

## ABOUT ELPRO

The Elpro Group consists of three well-integrated business units; Solutions, Electro and Installation. Elpro has over 30 years of experience within the electro technical and electro mechanical sector. A wide spread of clients across our project portfolio has accumulated a lot of problem solving skills and industry knowledge. Talk to an experienced partner for your next project.
Talk to Elpro!

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