



Havilla Phoenix Upgrade Project



Extensive electrical power systems upgrade for DeepOcean's multi-role offshore construction vessel Havilla Phoenix

Cost effective delivery of complex subsea construction projects requires the most flexible, powerful and sophisticated vessels and equipment available. To meet this challenge DeepOcean, one of MJR's largest and most valued Clients have invested heavily in upgrading Havilla Phoenix with some of the most advanced and powerful back deck equipment ever to be delivered.

In order to accommodate the extensive equipment spread, the vessel was lengthened by 17.5m in Havyard Ship Technology's Ship Yard in Leirvik, Norway and underwent a major power systems upgrade to accommodate the following equipment (shown to the right).

- 2000Te 280kW Carousel
- T1000 750kW Trenching Tractor
- T3200 2.4MW Trenching Tractor, the world's most powerful Trenching Vehicle at the time of writing
- New 690V 2 x 2500A Heavy Consumer Deck Equipment Switchboard

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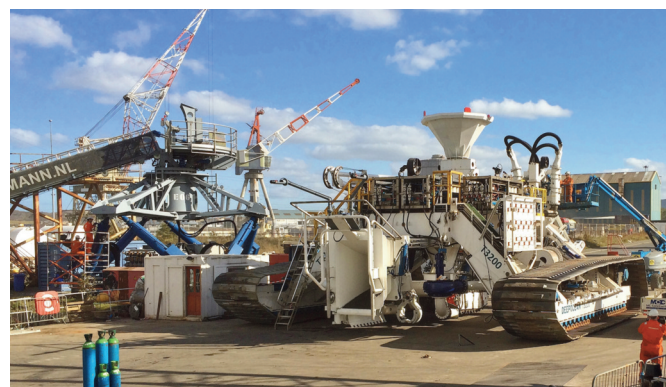
MJR provided turnkey design and project management services with MJR Electrical Engineers spending five months working between DeepOcean's Darlington office and Leirvik assisting DeepOcean's engineering team and overseeing the ship yard in carrying out the electrical conversion work.

SCOPE OF SUPPLY COVERED:

- Power Distribution System Design for 3.3kV, 1kV, 690V, 440V, 230V & 110V Networks
- Load Analysis
- Short Circuit Calculations
- Protection Studies including Selectivity and Co-ordination Analysis
- Design of Clear-Coms, Data, CCTV, Lighting & Fire Detection Systems
- Design and specification of Power Management Systems Interface to Deck Equipment Heavy Consumers
- Design of Cable Management Systems, Cable Penetrations Cable Schedules
- DNV.GL approval and certification of all modifications.

After the vessel was re-delivered following the conversion, MJR supplied a multi-disciplined Riding Squad to sail with the vessel back to the UK to install HV cabling from Container Garage to equipment junction boxes in preparation for the mobilisation of the T3200 spread.

Once back in the UK, MJR carried out the full mobilisation with a total of 1040 zero incident man hours delivered to this final phase of the project.



Paul Cairns, Managing Director of MJR Power & Automation says

"Electrical power systems upgrades on sophisticated diesel electric, dynamically positioned vessels on this scale require extensive experience. Taking large amounts of power from the vessel to power back deck and subsea equipment can affect operability of the vessel and unless designed and planned carefully can adversely affect vessel performance. Also gaining class approval for such modifications is not a trivial matter and requires an in depth knowledge of vessel power generation, networks and power management systems. The successful delivery of the project further demonstrates MJR's extensive capabilities in the marine electrical power engineering field"

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