ODI deepwater connectivity: subsea network solutions for Kizomba B

Known as the world leader in subsea electrical and fiber-optic interconnect technology, ODI deploys connection systems worldwide for oil and gas, defense, homeland security, oceanographic and research applications.

Florida–based Ocean Design, Inc.'s (ODI) wet-mateable connector line includes signal and high-power electrical, fiber-optic and electro-optical products. These products are based on patented oil-filled, pressure-balanced technology that has been used at full ocean depths and in the harshest environments.

More than 900 of ODI's field-proven Nautilus electrical connectors and 200 harnesses were used in the Kizomba B Project. Indeed, since 1988, some 47,000 Nautilus connectors have been installed worldwide in a variety of applications.

An engineer reviews ODI's subsea electrical-distribution optimization for Kizomba B.

A typical subsea electrical-distribution unit

Nautilus 28-way flow-sensor wet-mate connector

Building on success at Kizomba A, Cameron Controls returned to ODI for help with the Kizomba B project. It contracted ODI to supply not only the subsea electrical-distribution hardware but also to provide design support for system engineering to optimize the distribution network for functionality, flexibility and cost.

Cameron's subsea control system can accommodate eight electro-hydraulic subsea distribution units that control up to 20 production and 16 water-injection trees, plus four production and eight water-injection manifolds with capacities for future expansion.

From ODI connectors and cable terminations within the umbilical termination heads, pressure-balanced, dielectric oil-filled electrical flying leads (EFLs) deployed by the ROV are run to the subsea electrical distribution units (EDUs). These compact pressure-balanced, oil-filled EDUs are easily reconfigurable to support multiple modes of operation and can accommodate up to 23 wells.

For Kizomba B, dual EFLs were extended from the EDUs to the tree-mounted subsea control modules. In order to prevent a module failure from shutting down a distribution network, ODI developed ROV-retrievable fuses to isolate each of the EDUs' output channels. These fuse ports also provided ROV access to the distribution network for fault diagnostics both upstream and downstream of the EDU.

High-pressure Nautilus penetrators connected the tree-mounted instruments via oil-filled harnesses to stab connectors within the subsea control-module mounting bases. ODI integrated more than 100 instruments into harness assemblies at its Ellon facility in Scotland.

This project also marked the first application of a 28-way Nautilus wet-mate connector developed and qualified for use on flow meters supplied by Roxar AS.

ODI dispatched field service technicians from the United States and the United Kingdom to Norway and Angola for the installation of the infield and main umbilical electrical terminations. The technicians also supported the subsea integration-assembly and testing programs.

ODI is pleased to have continued its participation in the Kizomba field development, providing more high-reliability and innovative products, along with engineering design and field-support services. ODI thanks ExxonMobil and Cameron Controls for the opportunity to be a part of this successful project.

ODI advanced technology systems

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