

A Focus on Safety in Hybrid Connectors

Background

The Egina field, operated by Total, is located in Block OML 130 offshore Nigeria, is one of the largest subsea projects to date in West Africa. FMC Technologies, who was awarded a \$1.2b contract for subsea equipment, chose Teledyne Oil & Gas to deliver the electrical & optical interconnect hardware.

What were the project challenges?

Although the majority of the optical/hybrid content comprises standard Teledyne Oil & Gas designs, (8-way Rolling Seal connectors, Nautilus Rolling Seal Hybrid connectors and dry-mate connectors), a safety concern was raised by FMC about potentially having live pins on an NRH flying lead lying about during site integration testing (SIT).

What were the innovative technical solutions available for the project team?

With HSE being the primary business policy, Teledyne weighed the compliance options. Since the standard Nautilus product allows the pins or sockets to be on either the flying or bulkhead connector, one solution was to abandon the NRH and split the optical and electrical connections. This would have increased costs significantly and would have represented a massive design change for the customer.

Teledyne Oil & Gas

Interconnect

Product:
Nautilus Rolling Seal Hybrid (NRH)

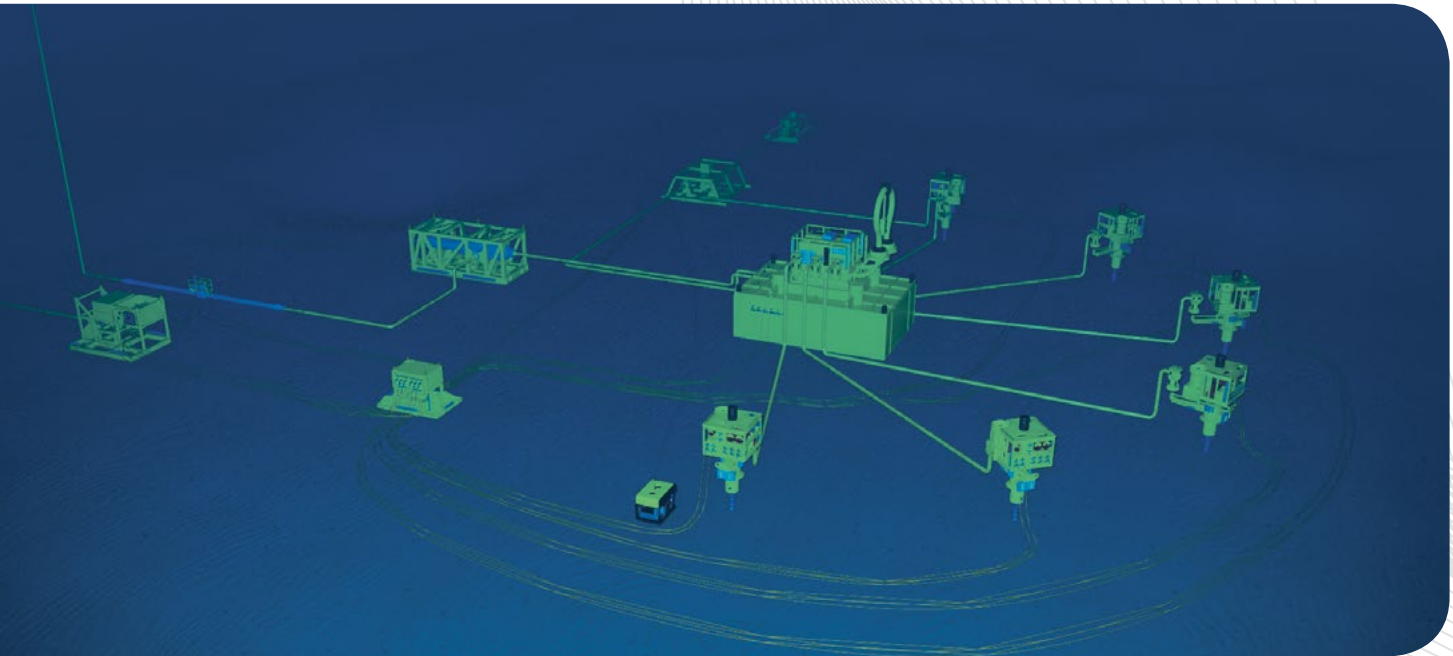
Project:
Egina

Client:
FMC Norway



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What was the final engineered technical solution?

The broadband group within TOG New Product Development responded with the design of an NRH connector containing pins on the bulkhead side and sockets on the flying side, eliminating the possibility of live pins on the flying lead, which could potentially cause a hazardous situation. The customer could then choose the version of the NRH connector that suited their particular needs.

What were the benefits of selecting this particular approach/solution compared with the others proposed?

The use of a truly hybrid connector, one able to power a device and transmit the retrieved data optically, allowed the customer to maintain their original design and reduce overall the number of jumpers. With onshore safety risks minimized, the customer could be assured that the product was the optimal solution for the field. In addition, with the Mk III improvements of the NRH product, the Gross Alignment Funnel (GAF) and Enhanced Latching Indicator (ELI), the risk of damage during ROV intervention and the overall intervention time are both greatly reduced.

Highlight:

Teledyne Oil & Gas developed a new configuration of hybrid connector to mitigate potentially hazardous situations during Site Integration Testing (SIT).

Contact Oil & Gas
for product information:



TELEDYNE OIL & GAS

1026 North Williamson Blvd
Daytona Beach, FL 32114 USA
Tel: +1 386 236 0780
oilandgas@teledyne.com

www.teledyneoilandgas.com

Member of:



TELEDYNE MARINE
Everywhereyoulook™

www.teledynemarine.com