Final checks being undertaken on Amarinth vertical in-line pumps before packaging and shipping to COSCO for installation on the Tortue FPSO

Amarinth delivers multiple orders of centrifugal pumps to COSCO for the Tortue FPSO

Amarinth · 2 weeks ago

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Amarinth, a world-leading, net-zero designer and manufacturer of low lifecycle cost centrifugal pumps and associated equipment, primarily for the offshore and onshore oil & gas industries; nuclear and renewable energy generation; defence; desalination; process and industrial markets, has just delivered multiple orders for over 30 centrifugal pumps, including an innovative double entry impeller design, all destined for the Tortue FPSO being built by COSCO at its Qidong boatyard in China.

The Tortue FPSO (Floating Production Storage and Offloading vessel) is being constructed for the Greater Tortue Ahmeyim field development project. Located off the coast of Mauritania and Senegal, this field is thought to contain a potential 420 billion cubic meters of natural gas and is the deepest offshore project in Africa to date. The vessel will have the capacity to process 2.5 million tonnes of LNG per year.

Four orders were placed with the Amarinth Malaysia office totalling over 30 pumps. The company was selected for its proven expertise designing vertical, horizontal and vertical in-line centrifugal pumps for the restricted headroom, low NPSH requirements and general space constraints aboard FPSO vessels, and for continuity of supply, spares commonality, and single source commissioning.

The mix of horizontal, vertical, and vertical in-line pumpsets cover a broad range of duties on the vessel's topsides and hull applications. Many of the pumps were designed to API 610 specifications and a large quantity were manufactured in nickel aluminium bronze.

This hard-wearing material is frequently specified in marine applications for its durability to resist cavitation damage in low NPSH environments, low corrosion and oxidation when exposed to sea water and its non-magnetic and non-sparking properties. Amarinth has extensive experience designing and manufacturing nickel aluminium bronze pumps for both naval and commercial marine projects. The pump duties include:

Sea water ballast pumps to maintain the vessel's stability and equilibrium as the amount of processed liquified natural gas in the vessel's internal hull tanks changes. After careful consideration of the available space within the hull for the ballast pumps, Amarinth designed bespoke compact vertical inline pumps which minimised both the weight and footprint of the pumps and ensured that their height still allowed them to be lifted out for maintenance within the restricted headroom of the decks.

Even so, to deliver the high flow rate required, the completed pumps were 4 meters high weighing 5 tonnes each and to deliver the required volume were supplied with a unique bespoke double-entry impeller with a diameter of 510mm.

The pumps were also fitted with high voltage variable speed drives to efficiently move the right amount of seawater at any time and compensate for both slow and rapid changes of volumes in the process tanks and for tidal conditions. The tight space constraints of the vessel also required Amarinth to design complex pipework that would fit within the shape and restrictions of the hull.

Vital topside process pumps such as for produced water treatment and MEG reclamation. In these cases, the pumps handle highly corrosive fluids and so required total containment Plan 53B seal support systems with double mechanical seals.

Seal support systems for vertical pumps are usually located some distance from the pump, but with space being so restricted Amarinth designed bespoke baseplates for the vertical pumps that could accommodate both the pump and its seal support system, minimising the footprint of the whole unit to fit the available space.

Seawater lift duties using self-priming pumps which required substantial MV motors and Plan 53B seal support systems. Amarinth provided its compact vacuum primer units for the pumps and designed a bespoke support frame for the very heavy motor with a footprint to fit the confined space within the hull.

The order delivery had to be aligned to the vessel build programme with supply of pumps between 37 and 43 weeks. Amarinth put in place a turn-key arrangement with a dedicated project team for the design and manufacture in the UK, shipping to Malaysia and then onto China, along with commissioning engineers from Amarinth at the boatyard in China.

All of this was undertaken at the height of the Covid-19 pandemic in Asia but using safe working practices and remote video conferencing multiple times a week with close cooperation between all parties over the 8-hour time difference, the pumps have been delivered to schedule ensuring the vessel build continues to plan.

Oliver Brigginshaw, Managing Director of Amarinth, commented: *"We are delighted to have undertaken this project for COSCO which further underlines our ability to deliver large scale pump projects for demanding applications anywhere in the world. Our team have excelled despite the Covid-19 pandemic and through our Covid secure working practices we put in place from the beginning of the outbreak we have kept our staff and supply chain safe whilst continuing to deliver bespoke pumping solutions on schedule to our customers."*www.amarinth.com

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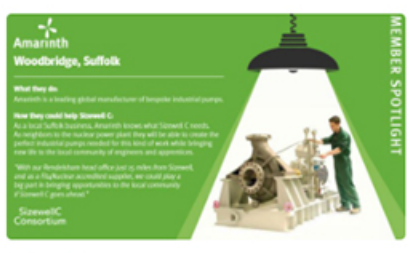

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