

Wärtsilä Steerable Thruster

Retractable Underwater Mountable (WST-RU)



The Wärtsilä Retractable Underwater Mountable Thruster is yet another development based upon the company's strong in-house know-how in product and system design. It is designed specifically to meet the demanding offshore requirements for serviceability, dynamic positioning and flexibility.

The Wärtsilä Retractable Underwater Mountable Thruster has been designed to meet the needs of large offshore vessels, such as offshore construction vessels (OCVs) as well as semi-submersible rigs and drill ships. On these vessels, the WST-RU offers excellent dynamic positioning (DP) performance even in the most challenging deep sea conditions. The introductory size of the first model in this series is 5500 kW. The high power output of 5500 kW, makes it favorable for use on large offshore vessels. Typically, these vessels require thrusters that can be retracted during transit or while entering shallow waters. For maintenance, there is a need for retractable thrusters that can be mounted or de-mounted while the vessel is afloat.

Retractable

As the thrusters can be retracted during transit, the vessel resistance is reduced and the overall vessel efficiency increases. A sophisticated thruster retraction system is used to retract the steerable thruster into the hull, which also allows the vessel to sail safely in shallow waters. Two rack and pinion system drives enable the thruster to fully retract within 10 minutes. For offshore construction vessels (OCVs), the ability to retract and deploy the thruster enables an increased level of operational flexibility.

Underwater Mountable

The outboard part of these retractable thrusters is exchangeable while afloat through the use of established

underwater mounting methods. The thruster outboard part is identical to the outboard part of an underwater mountable thruster of the same size. It is possible to use the same thruster outboard part for both the retractable and the main thrusters on the vessel. It is not necessary to make use of a habitat as for conventional retractable thrusters in this power range.

Effective DP Operations

The thruster features an 8 degree tilted propeller shaft. The tilting of the propeller shaft and the nozzle has several advantages, the chief of which is that the propeller jet is directed away from the hull and other thrusters in the vicinity. In addition to reducing hull interaction losses and Coanda effects, this also greatly reduces the interaction between the thrusters, thus making the so-called 'forbidden zones' considerably smaller. For Dynamic Positioning (DP) operations these thrusters with 8 degree tilted propeller shaft are about 15% more effective when compared to conventional thrusters with non-tilted shafts.

High Efficiency

The retractable underwater mountable thruster features the Wärtsilä thruster nozzle to provide excellent bollard pull performance. The propeller, nozzle, gearbox housing, and the nozzle connection are all designed to achieve high hydrodynamic efficiency. Thanks to an optimal alignment of the propeller shaft and the thrusters nozzle, a higher





propulsion efficiency and more overall thrust is provided when compared to solutions with non-tilted shafts.

Superior Performance

The combination of more effective DP operations and high overall efficiency results in higher performance given the same fuel consumption, thereby lowering operating costs.

Maintenance without Dry-Docking

Inspection of the gears and maintenance on seals or anodes on the outboard part can be done by using the trunk as maintenance space with the thruster in retracted position. For overhauls, the outboard part can be removed through underwater mounting. Inboard components of the Wärtsilä Retractable Underwater Mountable Thruster are easily accessible for maintenance and service.

Robust & Reliable

Since operational reliability is of the upmost importance, Wärtsilä places high priority on the robustness of all components used in its products and solutions. The reliability of the thrusters is the result of robust drive line components, including the gears and bearings, and the steering system. The concept of the 8 degree tilted driveline of the WST-65RU has been proven in operation by the Wärtsilä LMT3510 underwater mountable thruster of which more than 100 units have been ordered. At the same time, the thrusters come with an advanced sealing system that includes the option for seal monitoring. In combination with Wärtsilä PCMS (Propulsion Condition Monitoring Service) downtime and maintenance costs can be minimised.



The new semi-submersible crane vessel named Sleipnir being built for Heerema Offshore Services will feature four Wärtsilä WST-Us and four WST-RUs.

Key Benefits

- Optimised thrust enabling effective DP operations.
- Retractable thruster.
- Thruster outboard part can be exchanged without dry docking the vessel: mounting and de-mounting while afloat.
- A telescopic shaft allows a static mounting of the E-motor and ease of installation of the shafting.
- Integrated solution provides smallest possible area footprint and overall lighter construction.
- Based on proven recognisable technology and in-house propeller design know-how.

Key Dimensions

Width (W)	6 metres
Depth (D)	5.5 metres
Height (H)	20 metres (incl E-motor)
Weight	133,000kg

