

Excellent thrust performance for efficient operations



The Wärtsilä Transverse Thruster (WTT) series addresses the need to provide efficient and reliable hydrodynamic performance with less maintenance and simplified installation.

The WTTs are tailor designed for the customers' needs. They feature high thrust values creating rapid response required for efficient mooring and manoeuvring, their compact dimensions and light weight simplify integration with the vessel design. The Wärtsilä Dynamic Positioning (DP) solution ensures excellent station keeping, especially important in offshore operations and for cruise ships in locations where anchoring is not possible or prohibited.

Wärtsilä has delivered over 3200 transverse thrusters globally. When choosing a Wärtsilä Transverse Thruster you are getting inbuilt experience and reliability to maximise the efficiency of your operations.

The WTT can be provided with either a Controllable Pitch (CP) or Fixed Pitch (FP) propeller. In the standard configuration, the E-motor foundation is built on the tunnel, as are the integrated hydraulics. Separately mounted E-motors, hydraulics, as well as redundant pump sets and filters are

optional. Special configurations, such as horizontal drive, low noise, and vertical or inboard demountable versions are also available.

Wärtsilä's commitment to creating added value for its customers begins with discussions during the early stage of every project to precisely evaluate the operational needs of the vessel. We have the experience and in-house expertise to design and engineer the thruster arrangement that will provide optimal efficiency and lower operating costs.



Royal Caribbean's 'Oasis of the Seas' has Wärtsilä 5500kW transverse thrusters (4x)

- Transverse Thrusters covering the range from 500KW- 5500KW
- Wide range of applications: merchant, offshore, cruise and ferry as well as other vessel types
- Supporting manoeuvring, mooring operations, station keeping and dynamic positioning
- Reliable and durable
- Low noise and vibration
- Maintenance friendly design
- Easy to install
- Available with CP or FP propeller
- Compliant with EPA VGP 2013 regulations



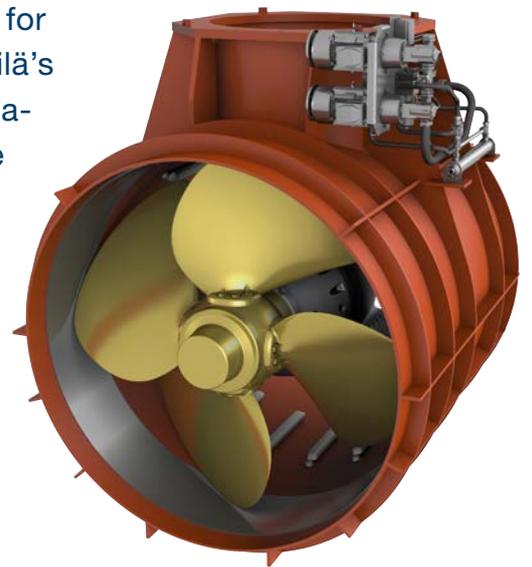
Viking Grace

Multiple sizes and configurations to suit all vessel applications

The WTT is available in 14 power sizes, from 500 to 5500 kW, for both bow and stern applications in vessels of all types. Wärtsilä's extensive experience with propeller design and tunnel optimisations using computational fluid dynamics (CFD) analysis is the key to providing the most appropriate solution with regard to propulsion performance, efficiency, and the minimisation of noise and vibration.

OWNER/OPERATOR BENEFITS

- **Reliability:** The WTT is robust and compactly designed with fewer components and integrated hydraulics to minimise the risk of failure during its service life. It is built to the highest quality standards, with full electrical insulation, load optimised gears, quality bearings, and fine lubrication oil filtering.
- **User friendly:** Easy access for maintenance is achieved through the WTT's compact and clever design. All components requiring periodic maintenance are in a single location. The space requirement for panels and cabinets can be as much as 50% less than for conventional thrusters.
- **Propulsion Control Systems: The Wärtsilä Propulsion Control system (PCS) with Pro-touch**
This award winning system comprises a comprehensive set of levers, touch-screen interfaces, displays, indicators and modules and can be configured to suit any propulsion. For each propulsor the rpm and, with CP propellers, the pitch are controlled using the ProTouch lever, while the vital functions of auxiliary systems can be monitored and controlled via the touch screen side panel. The interface language can be selected, as can special functions such as a pitch to zero system. External interfaces, for example to the voy-



age data recorder (VDR) or dynamic positioning (DP) system, are available. The Wärtsilä PCS with ProTouch provides the operator with an intuitive, safe, and easy-to-use control system that requires significantly less space for the bridge control stations.

Standard Control Systems

The analogue LIPSTRONIC® 7000-TTb remote control system can be customised to specific vessel needs, and consists of a



Normand Installer



El Coquí and Taino

thruster control cabinet (TCU), levers, and tailored control panels to interface with the thruster. A pitch to zero system or interfaces to external systems can also be configured within the LIPSTRONIC®.

- **Environmentally friendly:** The WTT is compliant with the US Environmental Protection Agency's (EPA) Vessel General Permit (VGP) 2013 regulation pertaining to discharges to the sea. This is achieved through the use of Environmentally Acceptable Lubricants (EALs).
- **Integrated hydraulics:** Wärtsilä Transverse Thrusters have an integrated hydraulics system for lubrication and pitch setting. This integrated system provides greater reliability and simpler maintainability. It can be configured to match requirements for pump redundancy, duplex filters, and resilient mounting.

SHIPYARD BENEFITS

- **Simplified installation & commissioning:** Each WTT is supplied with an extensive installation and planning instruction document (IPI), which aids the shipyard in the installation of the thruster with data, diagrams, and clear instructions with graphical views. The WTT requires a minimal number of welds to the hull structure, and has fewer pipes to be flushed and installed. No HPU foundation needs to be designed, and only in the case of a DP application for thruster sizes WTT-28 and up, there is a cooler to be connected. The connection to the propulsion control system and panels is via CAN-bus (PCS/ProTouch). The overall compact-

ness and lighter weight compared to conventional thrusters mean that less space is needed. The installation is, therefore, faster and less costly.

- **Easier Integration:** The integrated hydraulics arrangement saves not only space, but also installation and commissioning time. The hydraulics are integrated onto the E-motor foundation, with the thruster gearbox functioning as the oil tank, thereby eliminating the conventional stand-alone hydraulic power unit (HPU). Being pre-installed, the yard's involvement in engineering and installation is minimised, as is the testing and adjusting during commissioning.

SPECIALISTS IN PROPULSION MACHINERY

Wärtsilä has the broadest and most complete offering of products, systems and integrated solutions in the global marine industry. We continue to lead the way in innovations that create greater efficiencies, improved safety, and more environmental sustainability.

We offer single-source supplies for all propulsion applications, including motors, gearboxes, propellers, seals and bearings, and of course, a complete range of thrusters. We realise that the industry is not standing still and that as needs change, so too must the products that drive the vessels. Ships are getting bigger, most notably with container ships and in the cruise industry, but also in other sectors as well. This is why the WTT series has been developed as a next generation solution to provide greater power and better efficiency for ships of all types.

WÄRTSILÄ SERVICES

The Wärtsilä WTT is supplied with a detailed maintenance information document which clearly defines each maintenance task in easy steps so that even personnel with very basic skills can manage.

Wärtsilä can provide spare part packages that are pre-defined according to the desired redundancy levels by the owner/operator, along with the required technical support and field services.

Wärtsilä can also offer customers convenient long term concepts to optimise the maintenance and operations of their installations. This allows the customer to focus on generating the maximum revenue from their core operations, while leaving the equipment worries to us.

We offer a worldwide service network that ensures reliable and efficient support, and the quickest possible solution to any problem, during the full operational lifetime of your equipment.

Our Services organization currently features more than 11,000 dedicated professionals in 70 countries. Wärtsilä adds value to your business at every stage in the lifecycle of your installation. With us as your service partner you receive many measurable benefits, such as availability and performance, productivity gains, and cost benefits. Above all, you have peace of mind in the knowledge that your installation is being serviced by the most experienced partner you could have – Wärtsilä.

WÄRTSILÄ TRANSVERSE THRUSTERS DIMENSIONS

Thruster type	Maximum Power ¹ Manoeuvring AUX (kW)	Dynamic Positioning DP (kW)	Propeller Diameter (D) (mm)	Length (L) (mm)	Weight ² (kg)
CT/FT 125 H	614	603	1250	1550	2820
CT/FT 150 H	880	789	1500	1800	4200
WTT-11	1100	1000	1750	1970	5672
WTT-14	1450	1300	2000	2195	8050
WTT-16	1650	1475	2200	2115	11300
WTT-18	1850	1825	2200	2275	12250
WTT-21	2100	1825	2400	2275	12975
WTT-24	2400	2150	2600	2390	13775
WTT-28	2800	2400	2800	2970	20029
WTT-32	3200	2800	3000	3150	25142
WTT-36	3600	3200	3200	3350	29530
WTT-40	4000	3600	3400	3520	30500
WTT-45 ³	4500	4050	3600	3950 ⁴	35350 ⁴
WTT-55 ³	5500	4900	4000	4300 ⁴	47650 ⁴

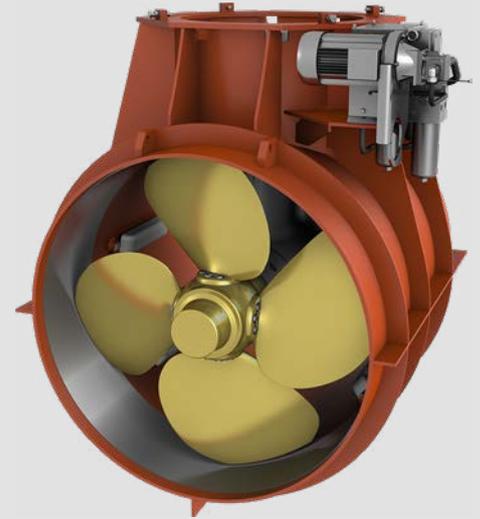
¹ Maximum power level is valid for uni-directional rotation (CPP).

Depending on propeller type, net frequency and class society, different power levels may apply.

² Version with CP propeller including a standard tunnel with E-motor support, excluding E-motor.

³ Available on request.

⁴ Preliminary values.



STANDARD PRODUCT CONFIGURATION:

- Controllable pitch (CP) or Fixed pitch (FP) propeller
- Remote control system consisting of a propulsion control cabinet (thruster room) and a lever with side display for mounting on the bridge; (the remote control system is standard for thrusters with CP propellers or for DP application; available on request for AUX thrusters with FP propellers)
- Mild steel tunnel with foundation suitable for vertical mounting of the E-motor (L-drive configuration)
- Electrically insulated coupling with flange suitable for keyless shrink fit mounting on the E-motor shaft
- Integrated hydraulics mounted on the tunnel (versions with CP propeller and/or DP application) and separate pump starter
- Gravity header tank
- Standard length tunnel with 3 circular stiffeners and a stainless steel ring at the location of the propeller
- Aluminium anodes for 5 year protection

OTHER PRODUCT CONFIGURATIONS:

- L-drive with intermediate shaft and vertical E-motor mounted on a separate motor foundation
- Configurations such as horizontal drive, low noise, and vertical or inboard demountable versions are available on request

OPTIONAL

- Remote control system with multiple control stations (e.g. engine control room, bridge wings), control transfer functionality, multifunctional display, and/or interfaces with other vessel automation systems
- Compatible with environmentally acceptable lubricant (EAL) to comply with US EPA VGP 2013 or other environmental regulations
- Redundant pitch/lubrication pump set
- Redundant oil filter
- Standalone hydraulic system
- Pressurised header tank
- Header tank with integrated EnduraPac water separator (available for pressurized and non-pressurized systems)
- Tunnel with a mild steel ring instead of a stainless steel ring at the location of the propeller
- Additional circular or longitudinal stiffeners
- Lengthened tunnel and/or tunnel ends cut according to hull form
- Aluminium anodes for 2 year protection
- Shaft holding brake.