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 to meet vessel needs now and in the future. 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 4250 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.

- Transverse Thrusters covering the range from 500 kW – 5500 kW
- 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


Normand Installer


Viking Glory

El Coquí

MULTIPLE SIZES AND CONFIGURATIONS
TO SUIT ALL VESSEL APPLICATIONS

The WTT is available in 15 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.

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) or using a compliant propeller shaft seal solution (FP types).

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 compactness 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.

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

MERCHANT SPECIFIC BENEFITS

Cost per kW: 15% reduced cost (CAPEX) per kW*

Environmental compliance: Compatibility with environmentally acceptable lubricants (EAL) - Ensures compliance with environmental regulations such as US EPA VGP2013 and DNV CLEAN DESIGN

Smaller footprint: Integrated hydraulics and fine filtration ensures longer lifetime for gear, bearings and other rotating components

User centric interface: ProTouch control system - bus connections for simplified installation and integration with other equipment control, monitoring and alarm systems

Global support: Service and delivery available when and where you need it

Reliability: Robust design for reliable operations in demanding environments and low operational cost

Experience: over 1,250 Wärtsilä Transverse Thrusters delivered or on order in the Merchant segment, of a total of 3,250 units

*Compared to a standard Wärtsilä Transverse Thruster with the same propeller diameter. The improvement may vary depending on configuration, fuel, vessel and currency.

WÄRTSILÄ SERVICES

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 organisation 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.

THE WÄRTSILÄ PROPULSION CONTROL SYSTEM (PCS)

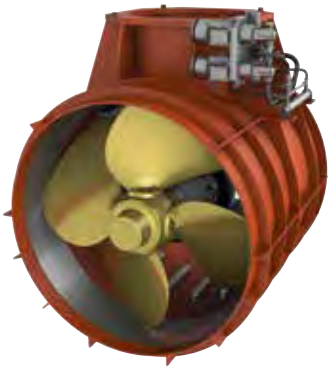
The Wärtsilä ProTouch Propulsion Control System covers a wide range of solutions ranging from a single lever with a side panel for a single propulsor to elaborate remote control stations integrating multiple propulsors with additional centralisation and handover functionality.

The award winning system has a user centric design with levers, touch-screen or push-button interfaces, displays, indicators and modules that can be configured to suit any propulsion layout. 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 side panels of which the interface language can be selected.

Special functions such as a pitch to zero system and interfaces to other systems, for example, the power management system (PMS), the voyage data recorder (VDR) or dynamic positioning (DP) system, are available. For vessels with multiple thrusters in the bow or the stern, there is the possibility to control a set of thrusters with one lever.

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.

	Maximum Power [1]			Propeller		
	Manoeuvring		Dynamic Positiong	Diameter (D)	Length (L)	Weight [3]
Type	Merchant [2] (kW)	AUX (kW)	DP (kW)	(mm)	(mm)	(kg)
CT/FT125 H	610	610	600	1250	1550	2800
CT/FT150 H	880	880	780	1500	1800	4150
WTT-11	1200	1100	1000	1750	1970	5750
WTT-14	1550	1450	1300	2000	2195	8000
WTT-16	1850	1650	1490	2200	2115	10100
WTT-21		1850	1825	2200	2275	11300
	2200	2100	1825	2400	2275	12000
WTT-24	2600	2400	2150	2600	2390	13900
WTT-28	3000	3000	2400	2800	2970	20200
WTT-32		3300	2800	3000	3285	25400
WTT-36		3600	3200	3200/3300	3350	29400/29700
WTT-40		4000	3600	3400	3520	32800
WTT-45		4800	4050	3600	3800	40400
CT3500		5500	5000	4000	4300	63680



1 Maximum power level is valid for uni-directional rotation. Depending on propeller type and class society, lower power levels may apply
2 Power level valid for transverse thrusters on Merchant vessels, such as Container Vessels, Bulk Carriers, Tankers or General Cargo Vessels
3 Version with CP propeller including a standard tunnel with E-motor support; weight excluding E-motor, pumpset and oil

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, depending on size, 3 or 4 circular stiffeners, zero to 4 longitudinal 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
- Oil cooler for WTT-21 and smaller size for AUX or DP application
- Pressurised header tank
- EnduraPac water separator (available for pressurised and non-pressurised systems, can be integrated with the header tank depending on thruster configuration)
- Tunnel with a mild 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
- Pitch-to-Zero functionality for CP or shaft holding brake for FP.

wartsila.com

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