

WÄRTSILÄ STEERABLE RETRACTABLE THRUSTERS



The Wärtsilä Steerable Retractable Thrusters (WST-R) are a series of powerful thrusters designed to provide manoeuvring capability in dynamic positioning (DP) and station keeping operations. They range in power from 2000kW to 4500kW with an 8° tilted shaft configuration, making the series the ideal choice for shuttle tankers, offshore support and construction vessels.

BETTER PERFORMANCE & EASIER INSTALLATION

The WST-R series features an 8° tilted propeller shaft configuration. Combined with the hydrodynamically optimised performance, this significantly increases the effective thrust to create excellent performance in even the most challenging sea conditions.

The tilt significantly reduces loss in thrust caused by thruster interaction with the hull which can provide up to 20 percent more effective thrust than conventional non-tilted thrusters, depending on vessel configuration and application.

High propulsion efficiency is achieved by the optimal streamlining of the housing, low propeller power density levels, and the dedicated Wärtsilä Thruster Nozzle (WTN) – a combination that delivers high performance DP. When not in use, the thrusters can be retracted, which reduces resistance, increasing efficiency and enabling the vessel to safely access depth restricted areas.

The WST-24R and WST-32R are available in a plug and play pre-aligned package that eases the installation work. The pre-assembly means that the thruster needs only to be positioned and levelled during installation. The compact design also minimises space requirements and makes it easier to integrate into the vessel. These features all save time and, importantly installation costs.

RELIABLE & MAINTENANCE FRIENDLY

The WST-24R and WST-32R feature a combined electric steering and retraction system. The new patented retraction mechanism offers high lifting capacity with lightweight spindles. This self-lubricating and self-locking solution contributes to the unit's reliability and operational safety. The number of components is also kept to a minimum, which reduces maintenance, spare parts requirement, and lifecycle costs. In addition to this, servicing is simplified and can be carried out inboard or under water, which removes the need for dry docking – this ensures the vessel is not out of service for extended periods of time.

The WST-R underwater guiding system is robust, with two vertical channels and bronze guiding blocks, providing a stable retraction and deployment system. The combined steering and retraction seal can be exchanged from inboard whilst the vessel is afloat. There is also no oil to sea interface in the steering and retraction seal, which removes the risk of environmental contamination that oil leaks can cause.

**“UP TO 20
PERCENT
MORE
EFFECTIVE
THRUST”**

Retraction and deployment of the WST-45R is delivered by two self-locking spindles, driven by the combined steering and retraction hydraulic power unit (HPU), the E-motor is also mounted in a fixed position, reducing the load during retraction and deployment. This proven system configuration contributes to reliable and safe operation.





A STATE-OF-THE-ART SOLUTION FROM A TECHNOLOGY LEADER

Wärtsilä is an acknowledged marine technology leader with the broadest offering of products, systems and integrated solutions in the industry. With a vast depth of experience and enormous in-house expertise, the company is consistently setting efficiency benchmarks that create real value for its customers around the world.

The WST-R series is yet another state-of-the-art development and is one that optimises DP and station keeping capabilities simply through better performance and greater reliability. Wärtsilä's 8° tilted propeller shaft configuration is one example of how better design delivers improved performance.

Backed by the maritime sector's most extensive global network of repair facilities and service personnel, all Wärtsilä products have support close-at-hand regardless of where the vessel is located.

KEY BENEFITS

- The tilted thruster concept significantly improves vessel's dynamic positioning (DP) capability by reducing thruster-hull interaction losses
- Excellent hydrodynamic efficiency for better DP capability
- Less power needed for first-class performance thus lowering operational costs (OPEX)
- Combined electric driven steering and retraction system reduces thruster room space requirement (WST-24/32R)
- Wärtsilä can include electric drive system and full electric package integration
- Plug and play pre-aligned package for simple and fast installation (WST-24/32R)
- Compact design allows larger propeller within the same vessel envelope space
- Optional compliance with CLEAN notations and US EPA VGP2013 requirements
- All thruster operations, including retraction/deployment, are fully automated and controlled from the bridge stations
- Critical components, such as the retraction/steering seals, can be maintained from inside the vessel (WST-24/32R)

TECHNICAL SPECIFICATIONS

| Type | Layout | Power [kW] | Input speed [rpm] | Propeller type | Propeller diameter (A) [mm] | Depth (B) [mm] | Width (C) [mm] | Retraction (F) [mm] | Overall height ¹ (H1) [mm] | Height without E-motor (H2) [mm] | Weight ² [kg] |
|---------|---------|------------|-------------------|----------------|-----------------------------|----------------|----------------|---------------------|---------------------------------------|----------------------------------|--------------------------|
| WST-24R | L-drive | 2400 | 720 / 900 | FP | 2600 | 4090 | 4410 | 3455 | 11439 | 9496 | 47000 |
| | | | 720 | | 2800 | 4090 | 4410 | 3580 | 11689 | 9746 | 48500 |
| | Z-drive | 2400 | 1200 | | 2600 | 4090 | 4410 | 3455 | 9504 | -- | 51000 |
| | | | | | 2800 | 4090 | 4410 | 3580 | 9754 | -- | 52500 |
| WST-32R | L-drive | 3200 | 900 | FP | 2800 | 4090 | 4410 | 3580 | 12570 | 10092 | 57000 |
| | | 3300/3500 | 720 / 600 | | 3100 | 4450 | 4900 | 4235 | 13504 | 11026 | 68000 |
| | Z-drive | 3300/3500 | 1200 | | 3300 | 4450 | 4900 | 4235 | 13504 | 11026 | 70000 |
| | | | | | 3100 | 4450 | 4900 | 4235 | 11421 | -- | 73000 |
| WST-45R | L-drive | 4500 | 600 / 720 | FP | 3600 | 5200 | 5700 | 4615 | 17922 | 14722 | 118000 |
| | Z-drive | 4500 | 900 | | 3600 | 5200 | 5700 | 4615 | 14722 | -- | 118000 |

¹ Minimum overall height in retracted position; L-drive includes generic E-motor; Z-drive includes upper gear box (UGB)

² Weight for L-drive excludes E-motor weight

Values in **bold** are preliminary



THE WST THRUSTER SERIES IS VERSATILE AND CAN BE TAILORED TO COMPLY WITH SPECIFIC VESSEL REQUIREMENTS, WITHOUT COMPROMISING ON SAFETY, PERFORMANCE, COST, SIMPLICITY, RELIABILITY OR EFFICIENCY.

WÄRTSILÄ CORPORATION

Wärtsilä is a global leader in smart technologies and complete lifecycle solutions for the marine and energy markets. By emphasising sustainable innovation, total efficiency and data analytics, wärtsilä maximises the environmental and economic performance of the vessels and power plants of its customers.

PHOTO

Cover: Harald M. Valderhaug

Page 4: Prysmian Group



© 2020 Wärtsilä Corporation – All rights reserved.

No part of this publication may be reproduced or copied in any form or by any means (electronic, mechanical, graphic, photocopying, recording, taping or other information retrieval systems) without the prior written permission of the copyright holder. Neither Wärtsilä Finland Oy, nor any other Wärtsilä Group Company, makes any representation or warranty (express or implied) in this publication and neither Wärtsilä Finland Oy, nor any other Wärtsilä Group Company, assumes any responsibility for the correctness, errors or omissions of information contained herein. Information in this publication is subject to change without notice. No liability, whether direct, indirect, special, incidental or consequential, is assumed with respect to the information contained herein. This publication is intended for information purposes only.