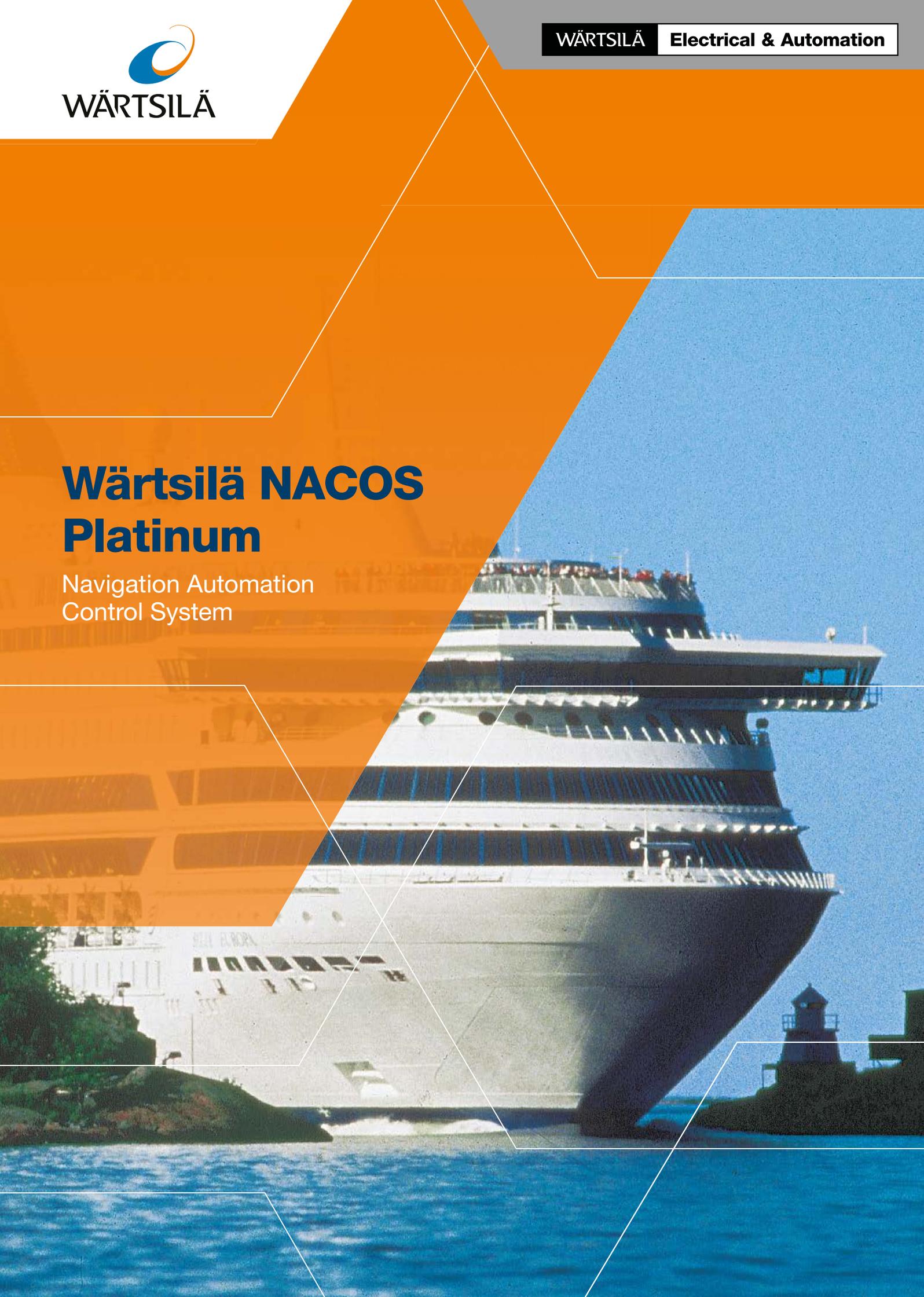


Wärtsilä NACOS Platinum

Navigation Automation
Control System



Wärtsilä NACOS Platinum at a Glance

Cost Effective

Wärtsilä NACOS Platinum is a cost-effective suite of electronic systems covering almost any area within ship automation, propulsion, navigation, power management, dynamic positioning and general alarm and control.

Proven in Use

Wärtsilä NACOS Platinum is applicable to any ship, irrespective of size or type. Since its market introduction in 2010, more than 400 systems have been delivered and are in global service.

Integrated and Flexible

Wärtsilä NACOS Platinum is by design fully integrated and its applications are engineered to operate in unison, utilizing shared resources and a common infrastructure. The modular concept enables it to cater to particular requirements, while the system can also be installed as a stand-alone application to fully deliver the required functionality within specific areas.

Full Compliance

Wärtsilä NACOS Platinum complies with all relevant international rules and with the regulations of all major classification societies, including DNVGL, ABS and Lloyds Register. The system is constantly updated in accordance with new and anticipated legislation, and existing onboard installations can also be upgraded as needed.

Global Support

Wärtsilä NACOS Platinum installations are easy to maintain, and Wärtsilä service agents around the world have the necessary tools to manage the system. Wärtsilä NACOS Platinum has a high level of built-in diagnosis capability, and includes a Remote Maintenance option to support ships at sea. To ensure and maintain the integrity of the Wärtsilä NACOS Platinum systems, key electronic components are self-configuring and can be changed on the fly, without downtime and without specialist knowledge.



Proven in Use

Since the delivery of the first Wärtsilä NACOS Platinum systems in 2010, more than 400 systems are currently in global operation. They are installed in vessels of all kinds and sizes, including container ships up to 20,000 TEU, the world's largest and most prestigious cruise ships, naval vessels, offshore supply ships, mega-yachts, bulk carriers, product tankers and special ships, such as those used for wind farm maintenance. These ships are all equipped with Wärtsilä NACOS Platinum navigation systems, automation systems, DP systems or in many cases, large, complex Wärtsilä NACOS Platinum integrated systems.

Full Feature Set – and Full Compliance

Wärtsilä NACOS Platinum offers what is probably the richest array of features and functions available from any integrated system currently on the market. These include:

- X-band and S-band Radar, ECDIS, WECDIS, Autopilot and Track Control, Conning & Docking display, VDR, and a full navigation sensor package;
- Joystick system and Dynamic Positioning (DP 0, DP 1, DP 2);
- Alarm, monitoring and control system, Power Management System (PMS), Propulsion Control System (PCS), main engine safety system, 2-stroke engine governor system, HVAC and cargo monitoring and control;
- Ship-to-shore data link, remote monitoring and remote maintenance solutions.

All Wärtsilä NACOS Platinum systems and components are approved and comply with the latest relevant international rules and regulations. They also meet the requirements of all major classification societies worldwide. Wärtsilä constantly develops its systems to provide the functions and features required by customers and to meet current and anticipated legislation.



True Multi-function Workstations

Users interact with Wärtsilä NACOS Platinum via Multi-function Displays (MFDs). Each of these, as a baseline, provides access to all applications installed on the ship, for example Radar, ECDIS, Conning Displays and machinery automation. Saving physical space and cost, thanks to the multi-function capability of Wärtsilä NACOS Platinum MFDs, each work station provides the user with direct access to all the information required for any particular task, and switching between applications is as simple as two mouse-clicks. Catering for operational policies, needs and potential restrictions, each MFD can however be configured to provide a more limited access, but can just as easily be re-configured at a later stage, should the needs or operational requirements change, even without a need for rewiring.

Dedicated to User Centered Design

The design of the Wärtsilä NACOS Platinum human-machine interface (HMI) is in accordance with the ideals of the ISO standard for 'Human-Centered Design', so as to provide optimal interaction quality and easy, effective and efficient use.

Across the entire suite of applications, Wärtsilä NACOS Platinum provides consistent operation, and follows operating principles similar to modern browsers and major software packages. Dialogues, controls, alarm handling and alarm symbols are identical throughout the system, and even novel users will find the Wärtsilä NACOS Platinum HMI immediately familiar, thus being able to focus on the real tasks right from the beginning.

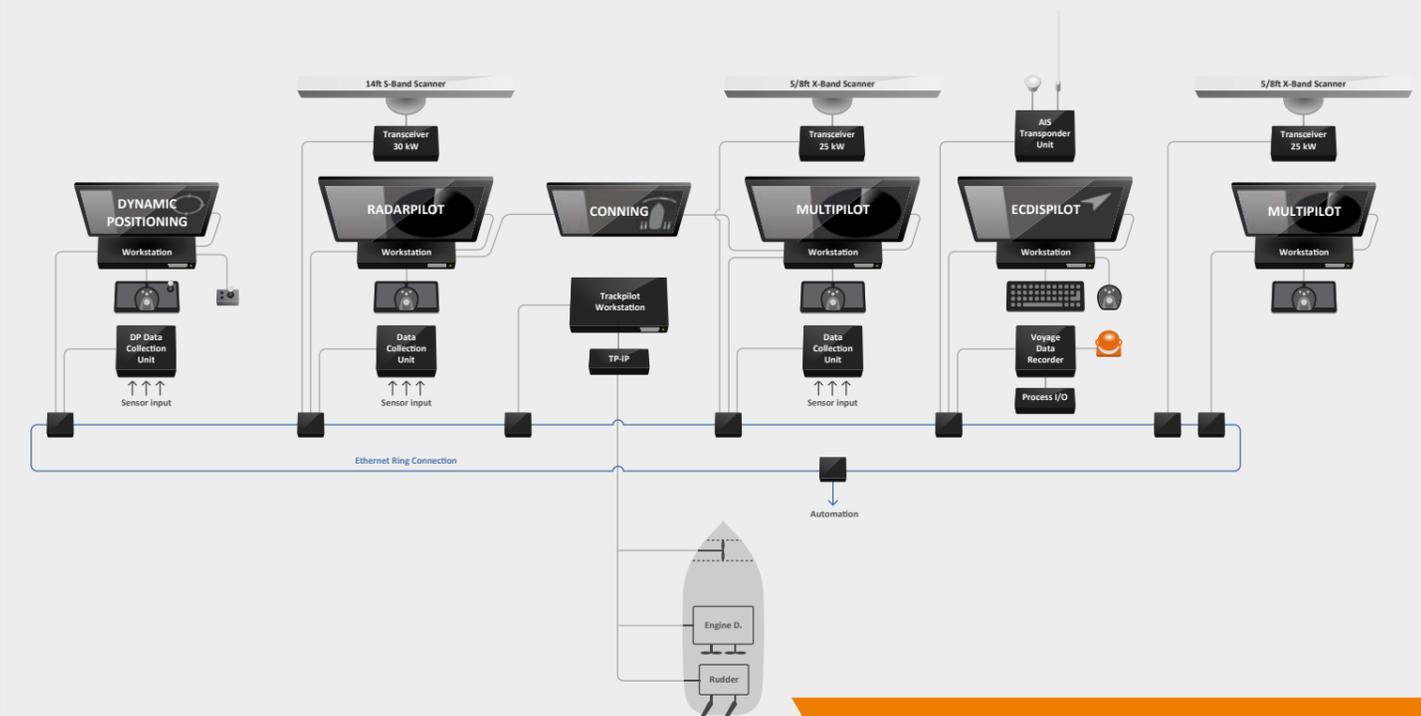
Wärtsilä combines almost 40 years of in-house experience with ongoing consultation with international human factor experts to refine and update the system's HMI. This ensures that usability and intuitiveness are at the highest possible level. It also means that the fundamental principle of keeping the user and the user needs as the pivotal point for development remains a core strategy with the Wärtsilä NACOS Platinum.

Common Tools and Components

The Wärtsilä NACOS Platinum system uses a common tool to perform the overwhelming majority of definition and individualization tasks for any particular installation. The system also uses a high number of common components, all of which are shared across the application areas, be it navigation or automation. The benefit of this philosophy is significant from a service perspective, considering that the careful utilization of common components results in a greatly reduced spare-part count. Additionally, the use of a common software configuration tool also means that an entire installation – across application areas – can be easily managed in a consistent manner. Since this principle applies to any service intervention, in any location, throughout the lifecycle of the ship, quality issues are minimized and the continued system integrity and reliability is ensured.

Scalable and Extensible

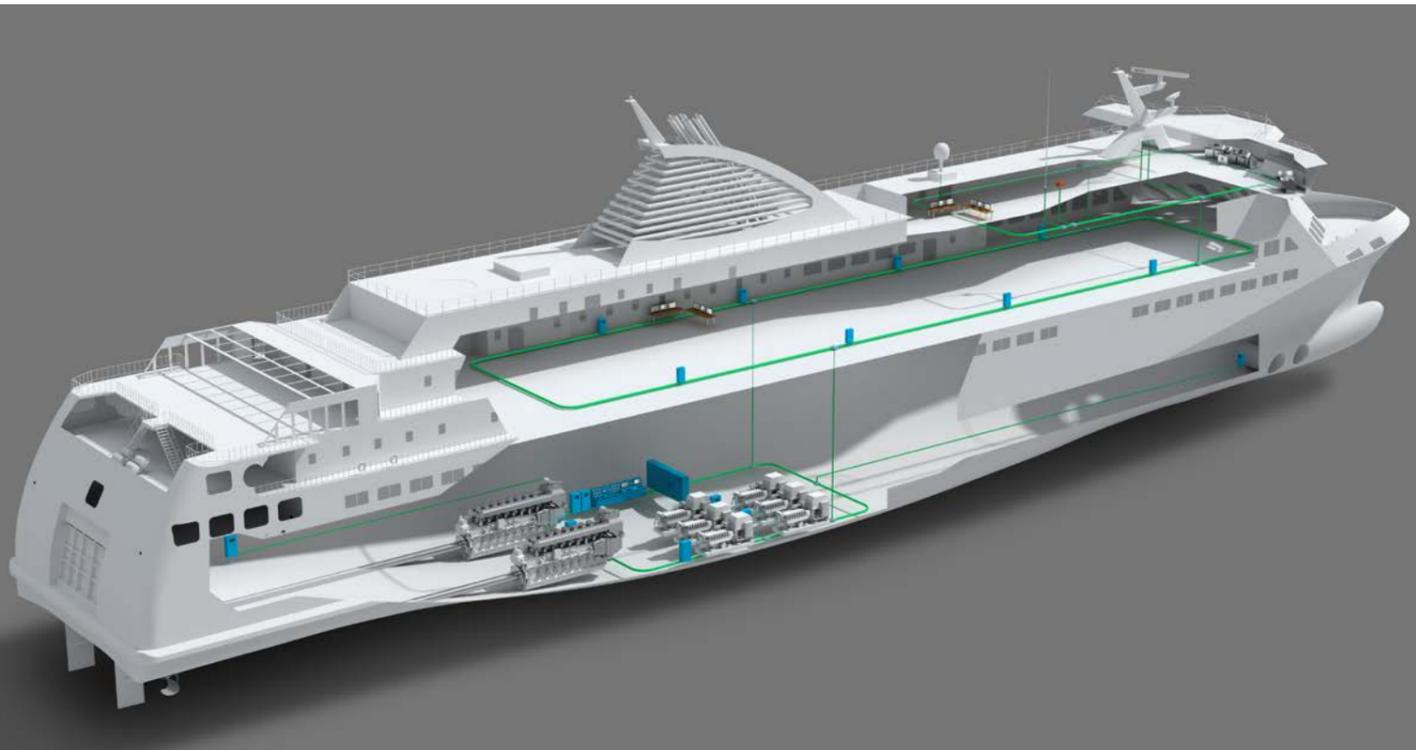
A governing philosophy of the Wärtsilä NACOS Platinum design is that of adding computing resources whenever adding functions or increasing requirements. Combining this with a fully distributed architecture, inherent resilience becomes a defining feature of the system: There is no potential vulnerability associated with central



Example of an extended Wärtsilä NACOS Platinum system

components, and additional measurement points or control logic impose no strain on the system's computing power. Instead, Wärtsilä NACOS Platinum consists of interconnected but self-sustaining and both physically and logically distributed process computers. Each of these process computers carries a relatively low count of inputs and outputs, and typically they independently execute the functions associated with those interfaces,

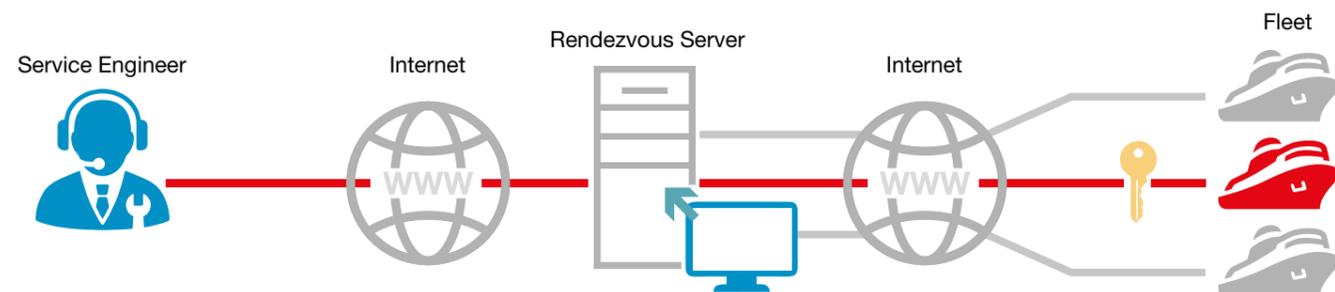
a solution which provides a high level of autonomy. Under adverse conditions, such units will continue to perform the functions assigned, resulting in system dependability and robustness.



Networked Marine Solutions

Covering the areas of ship automation, navigation, dynamic positioning and alarm and control applications, the Wärtsilä NACOS Platinum system capably and cost-effectively meets the evolving needs of the competitive marine market. By design, the Wärtsilä NACOS Platinum provides top-level scalability, flexibility and extensibility, permitting the exact tailoring of the system, already during the design stage, to meet diverse and individual requirements. Similarly, the system can evolve to meet changing needs as market requirements change. Equally important, the engineering and built-in quality of Wärtsilä NACOS Platinum provides the year-in, year-out dependability, durability and availability demanded by operational considerations, while the system's design solutions include levels of redundancy that permit uninterrupted operations, even under adverse conditions.

The Wärtsilä NACOS Platinum system is based on the philosophy of distributed, networked computing. Common hardware and software components are used throughout any Wärtsilä NACOS Platinum system, irrespective of size and application, and the architecture of Wärtsilä NACOS Platinum offers full access to information anywhere in the system, across all functions and application areas. Once a component is added to the network, the data it provides becomes available throughout the system. This kind of transparent access to data is the foundation for increasingly aware and intelligent functions that utilize multi-domain data to improve performance, whether supporting users on board or fuelling business analytics ashore. The integrated nature of Wärtsilä NACOS Platinum makes it a cornerstone in gaining access to the insights, data, knowledge and intelligence needed for continuously optimized operations.

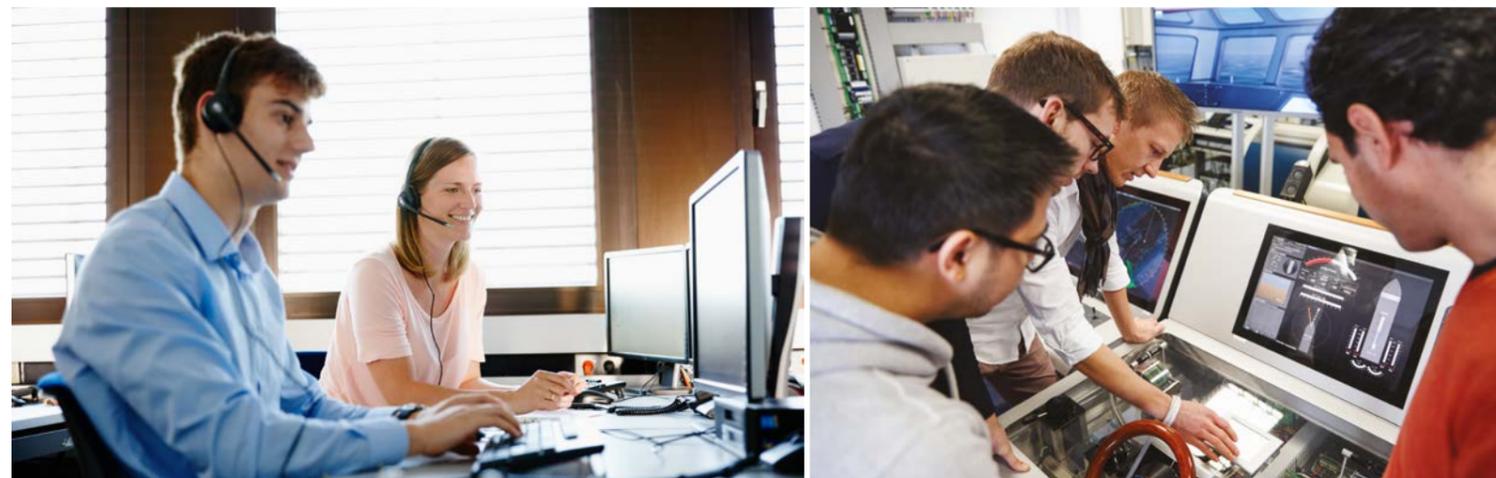


Service and Maintenance

Shipping runs 24 hours a day, 365 days a year – and the Wärtsilä NACOS Platinum is fully supported at all times. Round-the-clock attendance and service is available globally via Wärtsilä service pools. The company's worldwide service network can provide technical support at short notice, on-site or via remote connection. Acknowledging the ever-present cyber security threat, the Wärtsilä NACOS Platinum remote service solution operates on secured networks, and the connection availability is managed from the ship for maximum safety. Periodic maintenance is available through Wärtsilä BASECARE for GMDSS equipment, and for bridge navigation and communications systems through Wärtsilä MAINCARE.

Training Center

Navigational safety results from having reliable systems, professional maintenance and proficient users. An integral part of the Wärtsilä NACOS Platinum system is provided by the Training Center, which offers training according to the requirements of the IMO model courses and the rules and regulations of the IMO STCW95 I/7. The Training Center is equipped with state-of-the-art technology, and is constantly being adapted to meet rules and regulations in order to provide the highest quality. We offer courses in Wärtsilä NACOS Platinum navigation equipment, Wärtsilä NACOS Platinum main engine remote control and Wärtsilä NACOS Platinum ship automation in a simulated environment.





SCC ship control center

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

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