

ENERGY
ENVIRONMENT
ECONOMY



Wärtsilä offers a wide range of control and monitoring equipment for vessels, including both individual products and integrated solutions. The aim is total vessel optimisation with reduced emissions, improved efficiency and significant fuel savings.

VESSEL AUTOMATION

Wärtsilä offers scalable systems, from small alarm and monitoring controls to advanced integrated automation systems.

WÄRTSILÄ CONTROL & COMMUNICATION CENTRE (3C)

The Wärtsilä Control & Communication Centre (3C) represents a new way of thinking about ship controls and communications. It is the first system to fully integrate all significant data into a single platform to support decision making, and is aimed at achieving comprehensive reductions in both fuel consumption and harmful emissions.

Designed in co-operation with experienced maritime professionals, the Wärtsilä 3C ensures fluent control of the vessel with priority given to situational awareness, safety, ergonomics, and efficiency. It acts as a key enabler for the leveraging of energy management and integrated navigational solutions into a single powerful tool.

As a result, advanced route planning becomes easier with online data processing between the various systems, including the ECDIS, optimiser, econometer, power management, automation, weather chart, Navtex, and the dynamic hull data.

Furthermore, the new panel and console design provides a convenient working environment with a simplified and harmonised lay-out.

Wärtsilä 3C provides the gateway to ultimate integration.

WÄRTSILÄ INTEGRATED AUTOMATION SYSTEM (IAS)

IAS comprises all the functionality needed from a modern vessel automation system.

Whether the vessel is an icebreaker working in arctic conditions, a freighter working in tropical seas, or a supply vessel operating in the rough winter storms of the North Sea, the crew must be able to trust the onboard power and automation installations.

Wärtsilä provides a broad assortment of alarm and control systems, ranging from small alarm and monitoring systems (AMS) to advanced integrated automation systems (IAS) with integrated state-of-the-art power management systems (PMS).



The tight integration and standardised interfaces linking WIAS with the other Wärtsilä systems facilitate easy and problem-free commissioning and operation.

WÄRTSILÄ POWER MANAGEMENT SYSTEM (PMS) – WHEN BLACKOUTS ARE NOT AN OPTION
The Wärtsilä Power Management System (PMS) contains all the standard functions, such as load dependant start/stop, load sharing, synchronising, and load shedding, plus much more as well.

With a complete Wärtsilä package (engines, generators, PMS/power distribution, VSD, gears, and propeller/thrusters), the system can be optimally tuned to significantly reduce the risk of bad performance and blackouts.

The Wärtsilä PMS has several advanced options, including control of the patented Low Loss Concept (LLC) designed to reduce distribution losses, enhance redundancy, increase energy efficiency and save space and installations costs.

To enable use in the offshore market, Wärtsilä PMS has passed stringent examination, including the Hardware-in-Loop (HIL) tests, from third party verification authorities.

Wärtsilä IAS and PMS, together with Wärtsilä's leading products, ensure optimal vessel operations.

ECOMETER – MINIMIZING FUEL WASTE

The Ecometer function in IAS estimates fuel consumption and assists the crew in operating the vessel with maximum efficiency in order to save fuel. The Ecometer is developed from Wärtsilä's expert knowledge of diesel electric propulsion systems, and propeller and hull design. Using the information supplied by PMS and data from ECDIS, it is possible to plan the route according to minimum fuel consumption considerations.

Fuel consumption reports are generated for the various operating profiles (steaming, DP and in-port).

Lowered fuel consumption not only reduces operating costs, but also helps to save the environment.

WÄRTSILÄ ALARM AND MONITORING SYSTEM

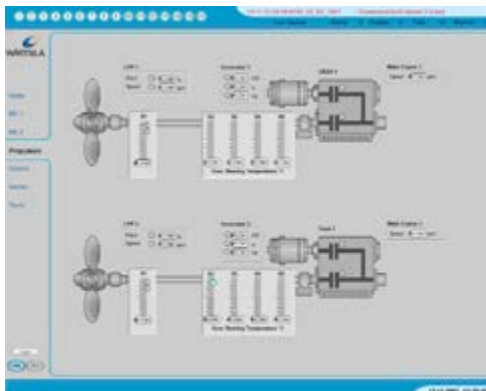
The Wärtsilä alarm and monitoring system is part of the company's comprehensive range of automation products.



New innovative harmonised panels and console design.



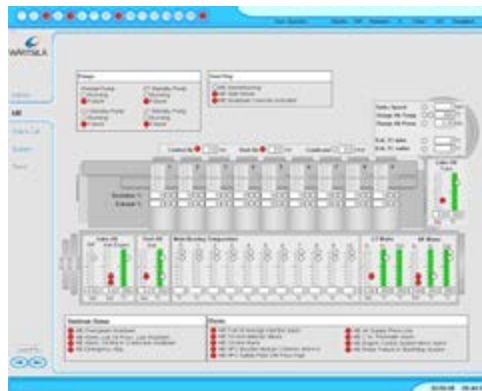
Improved ergonomics and simplified looks for easy and safe operation.



PROPULSION MONITORING

The operator stations are designed for optimal, user-friendly operation and functionality, which enable our customers to run their vessels more efficiently and safely. The system is integrated with Wärtsilä engines and propulsion products to achieve the best possible lifetime efficiency and reliability.

The alarm and monitoring system monitors machinery and activates an alarm for the operator under predefined circumstances. It opens the possibility for remote analysis of the systems, using satellite connections, the network on-board, and an interface to the Wärtsilä Condition Based Maintenance system (CBM).



ENGINE MONITORING

BENEFITS FOR SHIPOWNERS

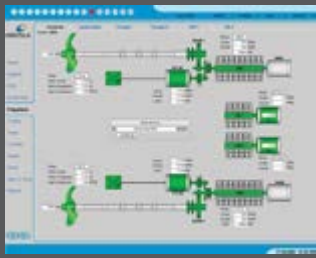
- Reduced lifecycle costs thanks to optimum monitoring and alarm activation of Wärtsilä products
- Reliability - redundant system
- Spare parts available worldwide
- Galvanic isolated I/O channels
- Performance monitoring
- User-friendly operation
- Interface available to Condition Based Maintenance System
- Long experience in the market
- Single point of contact
- 24/7 Global Services.



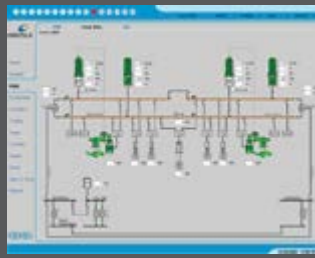
ALARM SYSTEM

BENEFITS FOR SHIPYARDS

- Reduced interfaces since Wärtsilä products have standard interfaces
- Save cabling with plugged communication interfaces
- Easy cable termination due to spring terminations
- Long experience in the market
- Single point of contact.



PROPULSION OPTIMISATION



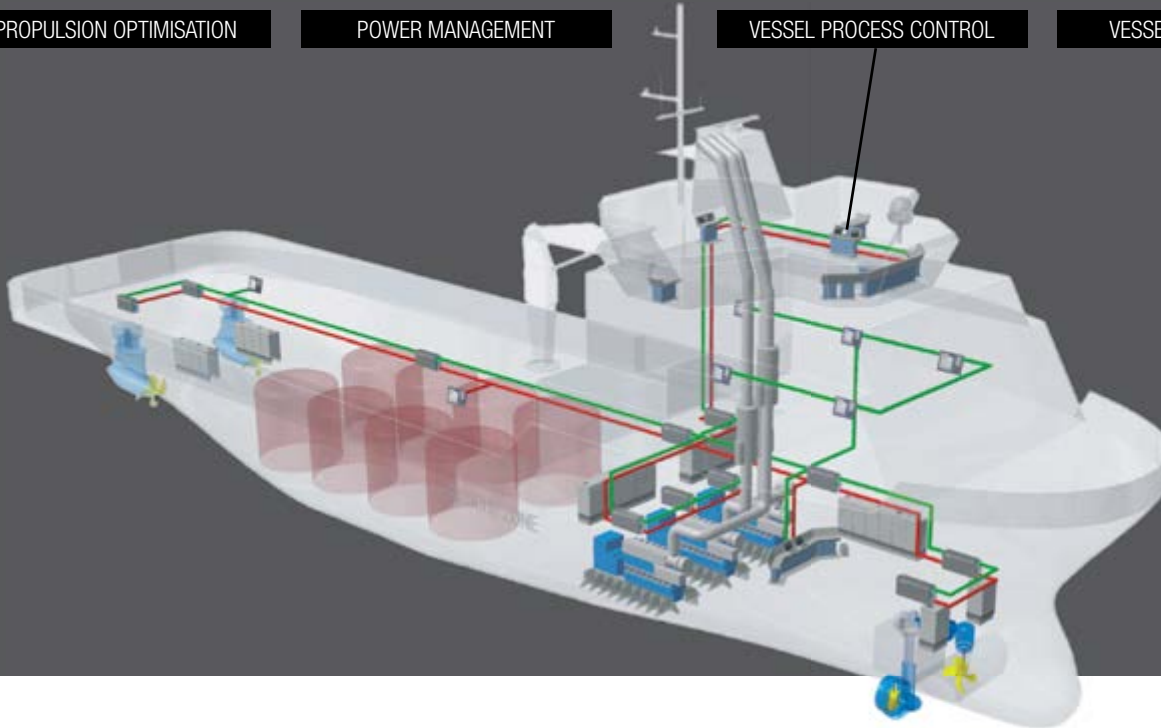
POWER MANAGEMENT



VESSEL PROCESS CONTROL



VESSEL PERFORMANCE



WÄRTSILÄ PROPULSION CONTROLS

The Wärtsilä Propulsion Controls are computer based, tailored to the individual application, and are designed to monitor and control with great accuracy all the components within a modern propulsion system.

REMOTE CONTROL FOR CONTROLLABLE PITCH PROPELLERS

The Wärtsilä Propulsion Controls are designed to optimise the control of all propulsion machinery. The system exists in two versions, basic and advanced.

The basic system is a cost effective standardised system that meets the majority of propulsion control needs. This system is applicable for single engine configurations (including twin screw).

The advanced system introduces a modular designed system with communication via a two-wire field bus. This gives high flexibility and multi-functionality. This system is equally suitable for single and twin-engine configurations.

The system controls the propeller pitch

position and engine speed, either combined or in split modes. Included is an advanced propeller and engine load control system that has been developed from years of research and experience. A number of special functions to optimise ship operations are available.

A user-friendly operator panel is supplied. This provides information from the propulsion plant and is used for calibrating the system.

SPECIAL FUNCTIONS INCLUDE:

- Pitch reduction zone – reduces propeller wear
- Windmilling prevention
- PTI/PTO functions
- Multiple combinator modes
- Frequency variation mode
- Cruise control
- Fine-tuning pitch
- Electric shaft levers.

REMOTE CONTROL FOR JETS

These systems are similar to that used for controllable pitch propellers, except for the integrated joystick system, which is an option for catamarans and mono-hulls. For mono-hulls

with joystick control, a bow thruster is also required.

The joystick is a single lever system for enhancing manoeuvring.

REMOTE CONTROL FOR AZIMUTHING THRUSTERS

For vessels such as harbour tugs, an integrated control concept similar to that for jets is available.

For large offshore platforms, individual controls for propulsion and steering are available. These include standardised interfaces with third party DP-systems.

WÄRTSILÄ JOYSTICK CO-ORDINATING CONTROL SYSTEM

The Wärtsilä Joystick concept is a co-ordinating control system for offshore supply vessels, cable-layers and other ships that require manoeuvring enhancing systems.

For vessels equipped with podded propulsors, a dedicated Wärtsilä Joystick is available. This includes features such as a simplex DP-mode and anchoring mode.



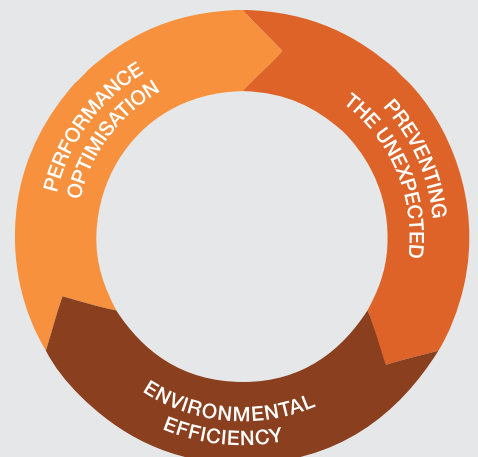
WÄRTSILÄ SERVICES: LIFECYCLE EFFICIENCY SOLUTIONS

Wärtsilä Services supports its customers by offering the most comprehensive portfolio of services in the industry, thereby optimising their operations and the lifecycle performance of their installations. Our services network is the broadest in the industry, consisting of more than 11,000 service professionals in over 160 locations in more than 70 countries. We offer expertise, local availability, responsiveness, and environmentally sound actions for all customers, regardless of the make of their equipment.

WE OFFER LIFECYCLE EFFICIENCY SOLUTIONS IN THE FOLLOWING AREAS OF EXPERTISE:

- Engine services
- Propulsion services
- Electrical & automation services
- Boiler services
- Environmental services
- Service agreements
- Service projects
- Training services

Our services cover everything from basic support, with parts, field service and technical support to service agreements and condition based maintenance; from installation and commissioning, performance optimisation, including upgrades and conversions, to environmental solutions, technical information and online support. The choice available to you extends from parts and maintenance services to a variety of comprehensive, customised long-term service agreements, including performance and operations & management agreements. Optimising your operations and preventing the unexpected is our shared passion. "We serve you whenever, wherever".



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. Wärtsilä is listed on the NASDAQ OMX Helsinki, Finland.

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