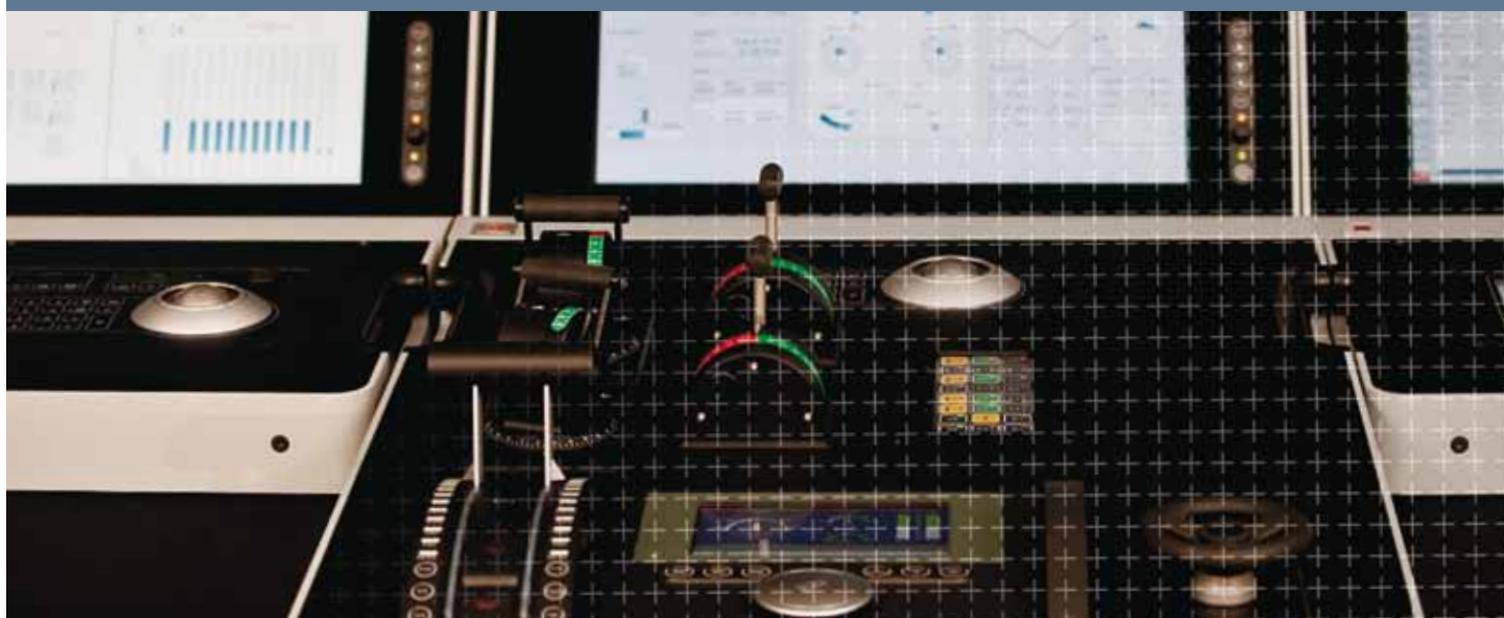




KONGSBERG

Marine automation – merchant transportation

Bringing marine automation one step further



With decades of experience delivering automation systems for merchant marine vessels, Kongsberg provides solutions that contribute to efficient and safe operations. The latest enhanced human machine interfaces (HMI) and open system architecture provide the highest standard in quality and functionality, making them the first choice for quality ship owners and operators.



Increased productivity

With our well designed KONGSBERG HMI, the operator can run the machinery with the utmost ease and productivity, saving time, effort and mistakes which translate into saving money.



Intuitive user interface

The combination of touch screen, function buttons and tracker ball, provides the operators with an operator's panel that eases the operation and reduces the likelihood of operational errors.



Complete control

The AutoChief propulsion control system provides complete control of the propulsion plant. Advanced control strategies ensure optimal operation at minimum fuel consumption, while constant fuel mode reduces wear and tear.

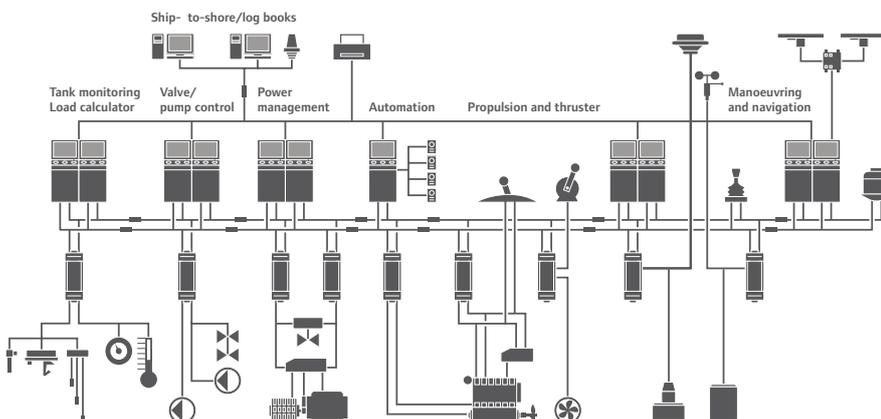
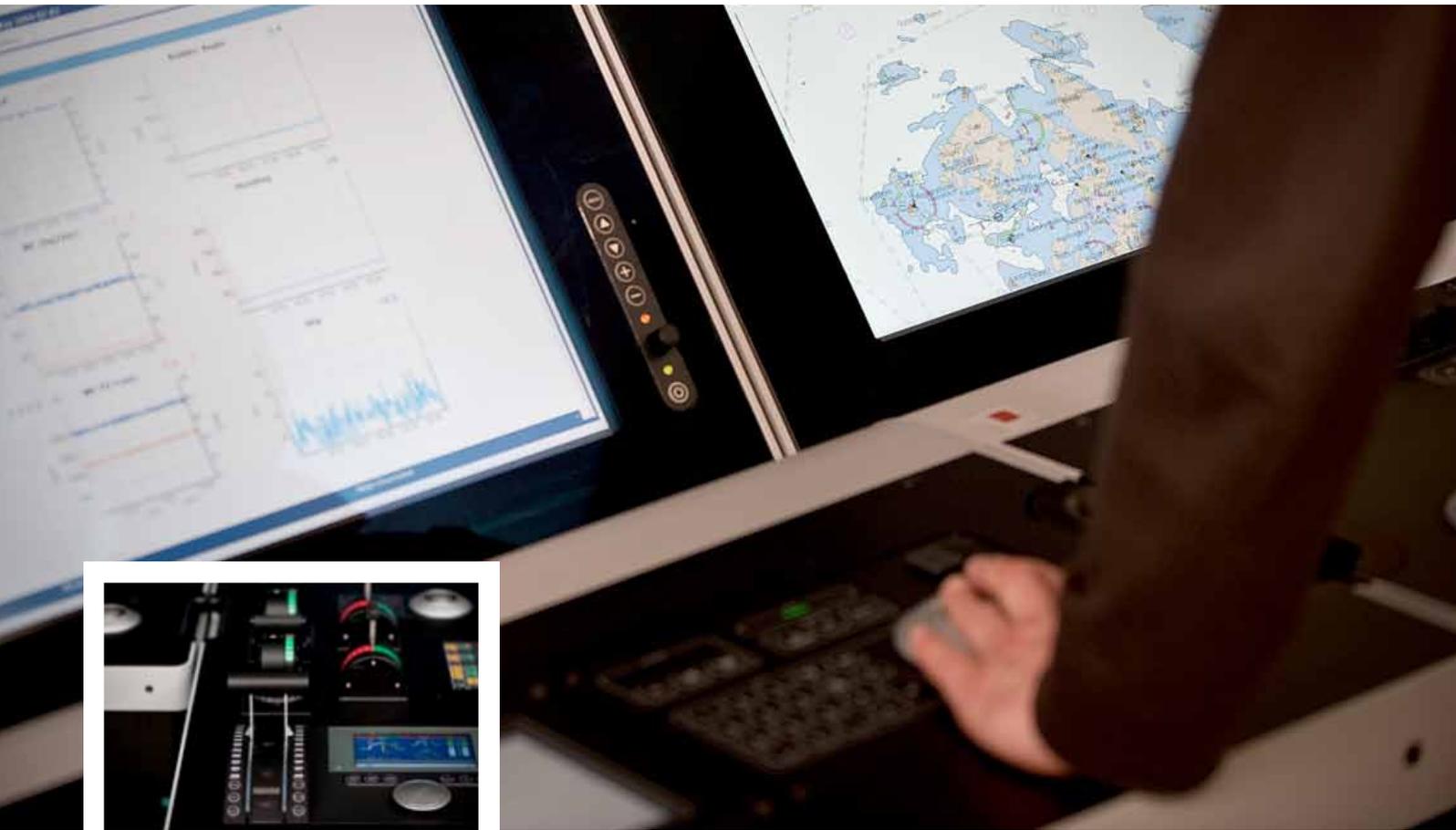
Building confidence in operation

As a supplier of integrated ship systems, plays an increasingly important role in operation of vessels. Extensive investments in research and development have resulted in a system concept, which will reduce costs, improve the operation of the machineries and reduce the likelihood of human errors and thus accidents.

With our latest KONGSBERG common human computer interface (HMI) applied to K-Chief 600, marine automation has been brought one step further. Ease of use and with increased

inherent learnability, K-Chief has become even more versatile for all types of merchant vessels - from low complexity alarm systems to highly integrated control and monitoring systems by including:

- Alarm and monitoring system
- Auxiliary control system
- Power management system
- Propulsion control
- Ballast system
- Cargo monitoring and control
- HVAC (air conditioning)



Modern, scalable and powerful

The system philosophy relies on a distributed and open system design that employs a system-wide standardized communication network. The heart of the system is our family of distributed processing units (DPU), powerful real time processing units.

With the same base technology applied for several sub-systems, significant cost savings can be realized - both investment and life cycle costs.

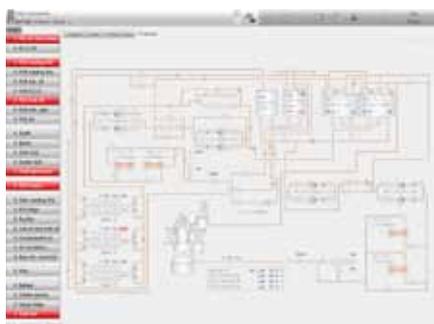
Understanding the user

The common KONGSBERG HMI is used throughout our portfolio of control, automation and navigation solutions providing benefits across the board from training and safety through to operational efficiency – qualities that have been proven to save time, effort and mistakes which translate into saving money.

Professional user input has been a vital aspect in the development of the new HMI and its implementation to

K-Chief 600. Close cooperation with professional mariners has ensured user-friendly and unambiguous presentation of alarms and process information.

Operation dialogues for process elements, for example pumps or diesel-generators, present information on alarm states and operational procedures, assisting the operator in making decisions based on accurate data and instructions. The K-Chief 600 fully supports context-sensitive online help, an application that will further the usability and increase operators' proficiency.



Qualities that save money

The enhanced Kongsberg graphical user interface assists the operator in establishing a mental model of the system and controls - important qualities for safe operations. Information is presented on wide screen displays, with split screen functionality for increased operational awareness.

Economical and ecological benefits

The vessel performance concept provides a set of tools that enables ship owners and operators to manage their vessels in ways that are more economical and ecologically beneficial, without violating safety regulations.

Engine performance and optimization

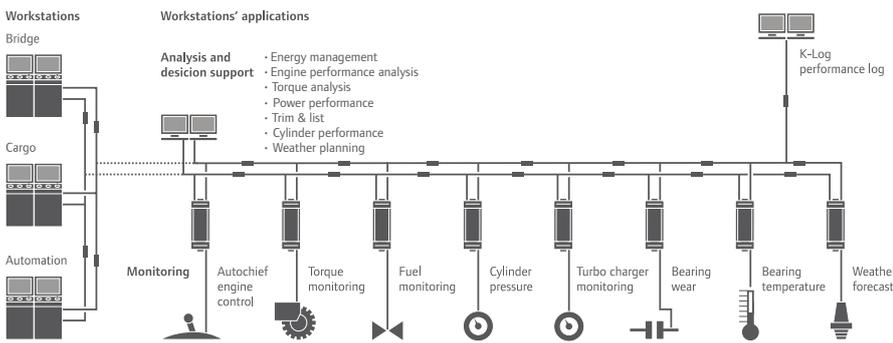
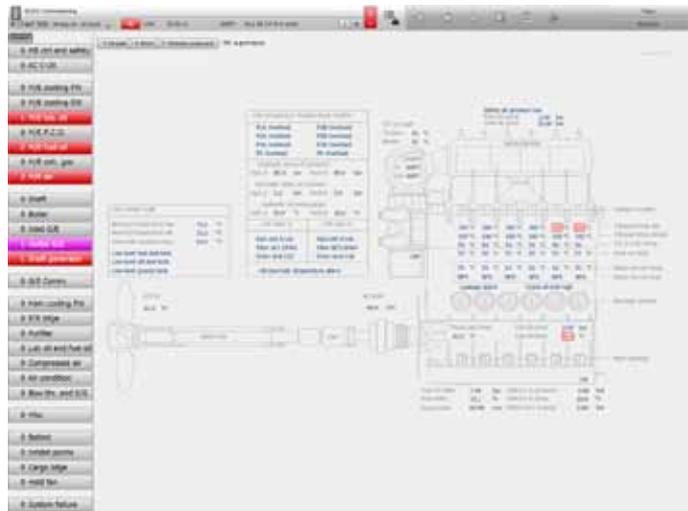
The application is an extension of AutoChief® propulsion control system, integrating the AVL engine performance and optimization system (AVL EPOST™) and other performance monitoring sensors, providing a practical tool for engine monitoring and tuning.

Energy management

K-Chief 600 integrates the comprehensive Maren energy management application by Marorka – including energy system monitoring, simulation based decision support and energy analysis tool. The application provides real-time information, compares fuel consumption with the energy output and provides recommendations for e.g. RPM, speed and trim to reduce the total consumptions.

Vessel performance

The vessel performance application assists in finding the optimal vessel speed, draft and trim, route and engine modes. It also enables weather planning to avoid unfavourable sailing conditions and minimize fuel consumption.



Optimum operation

The vessel performance concept takes a holistic approach by combining improvements within separate process areas. These parts of the whole include hull diagnostics and performance, engine diagnostics and performance, power performance, as well as route planning and speed profile optimisation.

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