



KONGSBERG

Offshore support vessels
A new dimension in vessel control



Offshore support vessels

Platform supply vessels

Anchor handling and tug vessels

Multipurpose offshore vessels

Standby and rescue vessels

ROV support vessels

Diving support vessels



Well proven solutions for marine operations

A new dimension in vessel control

The unique combination of navigation, manoeuvring, dynamic positioning and automation opens a new dimension in vessel operation. We provide stand-alone and integrated solutions that are tailored to offshore support vessels, for retrofit and new building projects. Both products and integrated solutions are designed to meet individual vessel requirements, with dedicated functionalities that will further the operational efficiency.

We design our systems and operator workstations with people in mind. Armed with the full picture of how operators interact with their environment, we have developed the best possible design for maximum safe and efficient operation. Our ergonomic design blends the best abilities of the operators and the computer user interface for optimum performance, including well proven solutions that focus on marine operations, operational consistency and intuitiveness, and common technology.

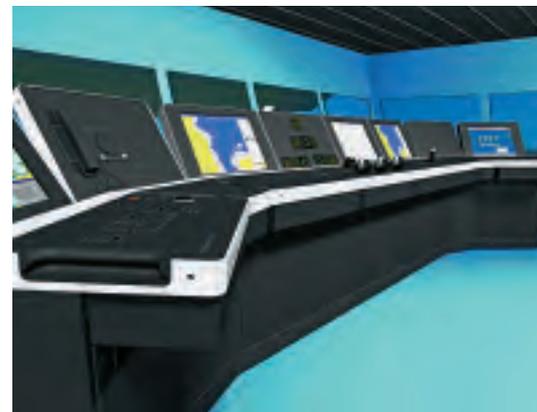
Navigation and ship handling

Our integrated navigation bridge is not only embodied in form and colour co-ordinated consoles, but offers a truly integrated and class compliant system with integrated navigation and manoeuvring capabilities.

The bridge is designed for one-man operation, with functionality that allows maximum time for observation and decision making.

The navigation bridge equipment can be scaled to requirements and extended with bridge wing consoles, and a planning and survey centre.

- Route planning and automatic route keeping
- ECDIS/Radar shared video and track presentation
- Joystick and DP control
- Radio and inter-communication
- Manual steering, propulsion and thrusters control



Work bridge

The aft bridge work station combines all functionality and provides the operator with full control of the operation. The vessel can be controlled in several different operational modes. Such modes have been developed for and in close co-operation with our customers. To support operations like platform supply, anchor handling, ROV operation and subsea construction, a tailored repertoire of functions are provided within reach of the operator.

- Thrusters and propulsion control
- Dynamic track keeping
- Radar surveillance
- Monitoring of machinery and power plant
- Ballast and cargo control
- Control of vessel mission equipment like anchor handling winches
- Joystick control
- Station keeping
- Communication

The aft bridge work station can be scaled to suit individual requirements.

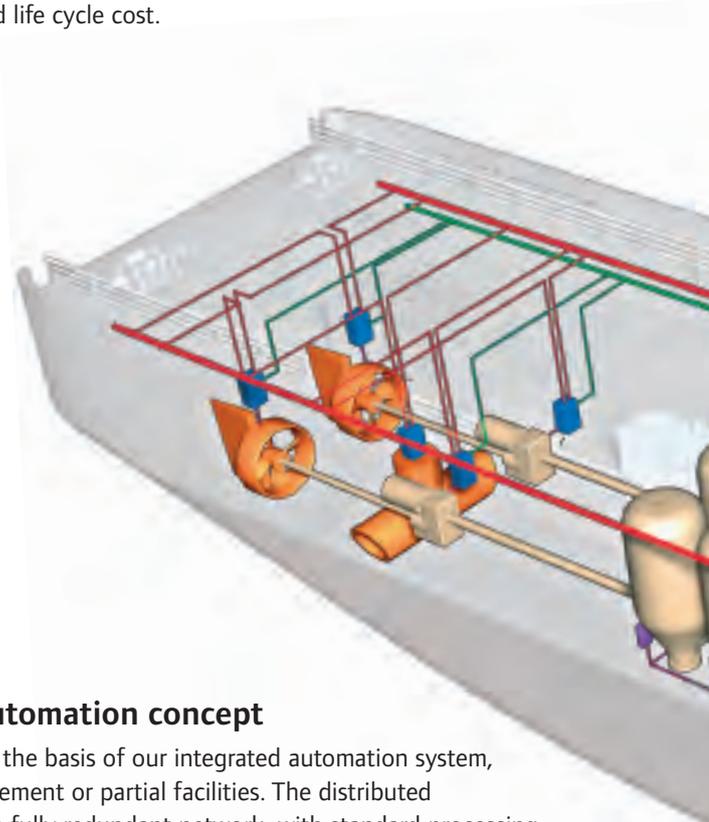


Everything is connected

Our technology forms the basis of our products and system solutions. Well proven standard hardware and software modules, common user interface philosophy, and an integrated network solution results in products and system solutions that fulfil our standards for:

- High reliability
- Ease of operation
- Easy maintenance

With our technology base our customers benefit from the sophisticated architecture of the system, as well as reduced life cycle cost.



The fully distributed automation concept

A modular and flexible design is the basis of our integrated automation system, offering either full vessel management or partial facilities. The distributed control system is based around a fully redundant network, with standard processing and I/O units close to the equipment and systems controlled.

Our integrated automation system meets the most stringent safety and reliability requirements. Redundancy is supported at all levels, including communication, processing, distributed process controllers and power supplies. Built-in self-diagnostics monitor the entire system, including field circuits and earth fail detection.

The Windows based graphical user interface is intuitive and provides flexibility in the presentation of information. The automation system can be integrated seamlessly with the bridge workstations, enabling full vessel control from the bridge. Typical functionality covers:

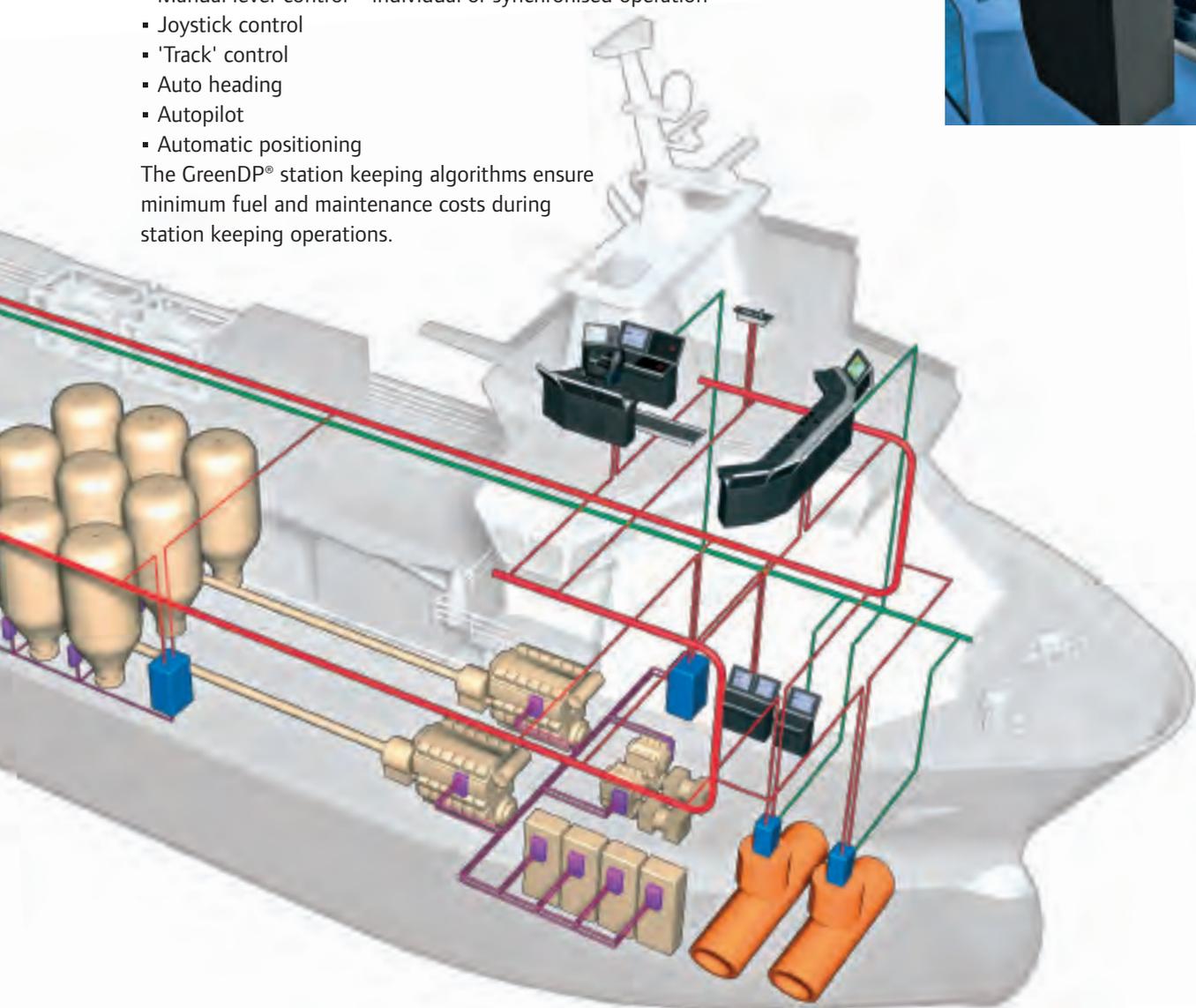
- Alarm system and management, including control of vessel auxiliaries
- Power management over a broad power range
- Cargo handling, including tank monitoring, ballast control and load and stability calculation
- Performance monitoring for combustion engines
- Integrated safety management, integrating all safety functions and safety shutdowns
- Data and event logging
- Report and trend facilities
- Information system, including ship to shore communication and remote monitoring and diagnostics

Manoeuvring and dynamic positioning

The remote control systems for propulsion and thrusters are made up of autonomous systems for each propellers; however, operation is integrated with the dynamic positioning system. The system is highly modular and can be configured for mechanical and electric propulsion as well as all types of thrusters. Operational modes and command locations are selected globally for the entire manoeuvring system, avoiding any 'hard' switches;

- Manual lever control – individual or synchronised operation
- Joystick control
- 'Track' control
- Auto heading
- Autopilot
- Automatic positioning

The GreenDP® station keeping algorithms ensure minimum fuel and maintenance costs during station keeping operations.



Dynamic positioning
Navigation
Thruster and propulsion control
Power management
Alarm management
Cargo and ballast control

We add value to your vessel

With 30 years of experience and with more than 1200 systems in operation, we have the competence and products to deliver the quality needed for your present and future operational requirements. Our systems fulfil the requirements for all vessel operations, from basic joystick system to the most advanced redundant dynamic positioning system. Whether you choose a complete system or individual products, you will always have the advantage of our engineering excellence and advanced technology. Design of functionalities and equipment is developed in close co-operation with the end-user, to ensure the best possible solution for the designated operation. New operational requirements and functionalities can be developed in co-operation with our team of experienced engineers. Fast response, multiple operational capabilities, lower operating costs and smarter systems are some of the challenges of tomorrow's market. We respond to the challenge by providing products and systems that continuously set the industry standard. New and existing customers will all be supported with solutions that keep your vessels well ahead of the competition.



**Every day we have to think a little differently,
because every client is unique**

We are always there, wherever you need us

KONGSBERG customer services organisation is designed to provide high-quality, global support, whenever and wherever it is needed. We are committed to providing easy access to support and service, and to responding promptly to your needs. Support and service activities are supervised from our headquarters in Norway, with service and support centres at strategic locations around the globe – where you are and the action is.

As part of our commitment to total customer satisfaction, we offer a wide variety of services to meet individual customers' operational needs. KONGSBERG support 24 is a solution designed to give round-the-clock support. For mission-critical operations, KONGSBERG support 24 can be extended to include remote monitoring. We can adapt the level of support needs by offering service agreements, on-site spare part stocks and quick on-site response arrangements.

Global and local support

We provide global support from local service and support facilities at strategic locations world wide. Service and support work is carried out under the supervision of your personal account manager, who will ensure that you receive high-quality service and support where and when you need it. Your account manager will ensure continuity and work closely with your personnel to improve and optimise system availability and performance. Under the direction of your account manager, and with a local inventory of spare parts, our well-qualified field service engineers will be able to help you quickly and effectively.



Solid competence reduces cost

We have always recognised the importance of supporting our products and systems with professional training.

A wide range of courses are therefore offered to ensure that you achieve the goal of full system utilisation with safe and efficient operation.

Upgrading that pays

Product and system upgrades can improve your vessel's operations and reduce your overall maintenance costs. We will ensure that existing products and systems can be extended or upgraded based on standard upgrade kits.



Support 24

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