

Complete Marine Expertise

Any Ship. Any Task. Anywhere.



Drive efficiency on board

Your vessel – supported

To maintain a profitable and competitive business over the long term, your vessel must be operating with maximum capacity at all times. As such, you need absolute confidence that the technology you invest in is fully compatible with your vessel today, whatever its size, type or cargo, and offers the flexibility to deliver dependable performance as your requirements evolve. At Emerson, we've combined decades of marine experience with technological innovation to develop systems that support every type of ship and offshore unit, helping you make the most of every commercial opportunity.

Your challenge – solved

We've been in the business long enough to know the challenges you face on a daily basis and the most effective ways to overcome them. As a result we can match our technology to your specific requirements

with one-stop-shop efficiency. Whatever issues you need solved our systems are designed to ensure that your vessel performs at its optimal capability and that your crew is working under the safest and most reliable conditions.

Your location – covered

Operating a commercial vessel is certainly unpredictable; not only must you remain flexible to new market opportunities wherever they arise, but the realities of your business also include that the need for technical assistance can happen anywhere and at any time. That's why our global service network has grown to become the best in the business and extends to every major port and shipyard on your route. No matter where you are or what assistance you require, you can be sure that our experienced teams will be ready with the expertise and resources necessary for service, maintenance and upgrades.

Our mission is to provide innovative solutions to operate safely, efficiently and with peace-of-mind.



Your system - managed

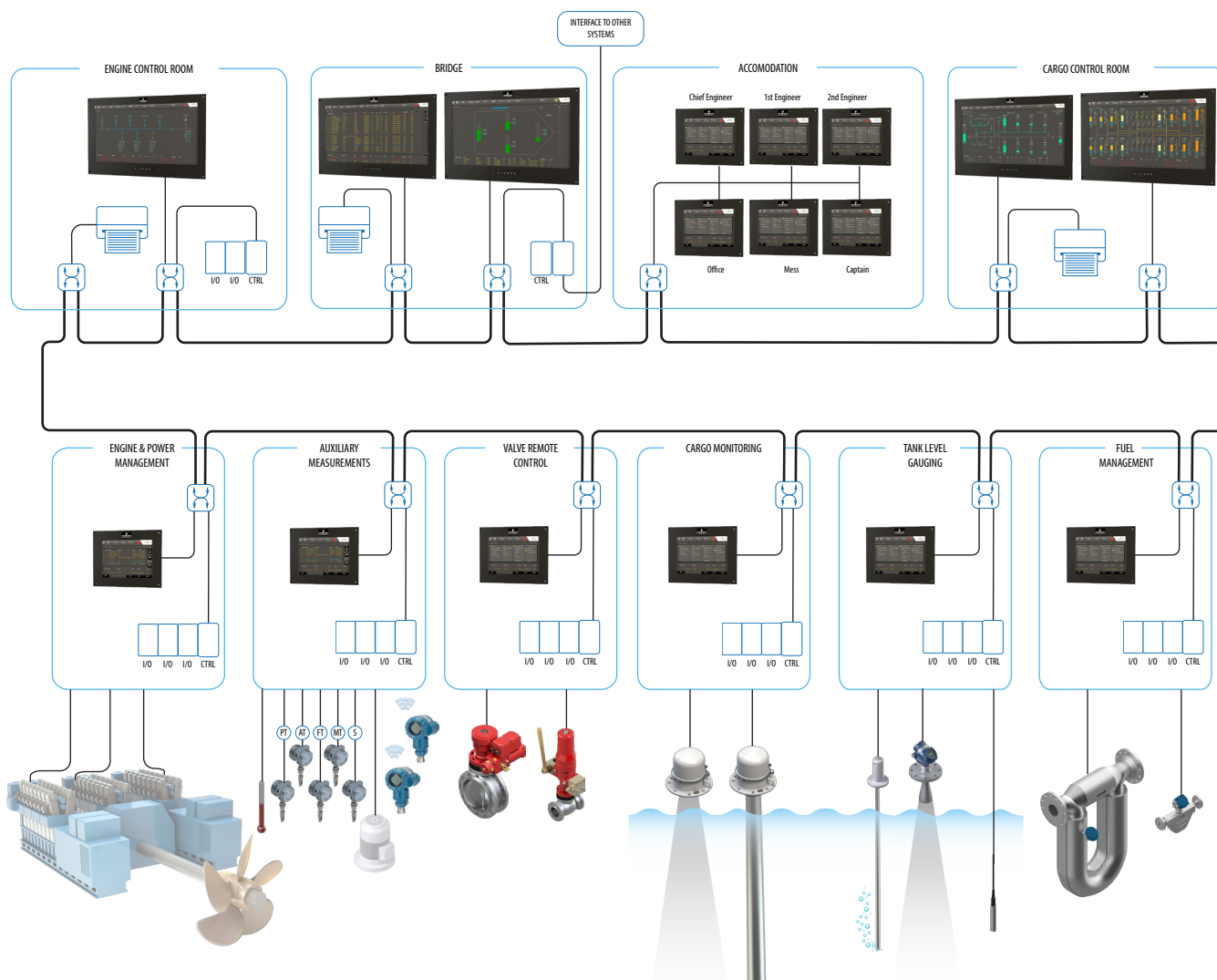
For your vessel to operate at maximum capacity, it's complex network of systems, processes and technologies must be carefully – and constantly – managed. Any disruption can cause damages and a drop in efficiency, resulting in costly setbacks and increased risk to your crew. That's why an Integrated Control and Monitoring System plays a crucial role in daily operations.

Control – by consolidating a vast array of information, the system significantly reduces complexity and enables you to confidently make better decisions and planning based on accurate, real-time data.

Monitor – the flexible user-friendly interface enables you to monitor everything from engines, generators, to switchboards and other service systems giving you fast access to information anywhere on the vessel. This gives you a deeper insight and confidence in daily operations.

Alarm – with the advanced alarm functions you are empowered to detect and defer abnormal situations, allowing you to solve issues before they become problems and further enhancing both efficiency and safety.

The solution is an advanced Integrated Control and Monitoring System.



Stem to stern solutions

Integrated Control and Monitoring System

- **Dynamic Modules**
Customized for your vessel
 - **Enhanced Safety**
With advanced alarm functions
 - **Simplicity**
Easy overview with flexible user interface
-

Aperio is our fully Integrated Control and Monitoring System that grants you complete overview of different tasks on board via an intuitive, simple and flexible user interface. The system can be customized and made scalable to your specific needs and is quick to install, easy to upgrade and designed to meet all marine application requirements. With advanced alarm functions you quickly receive alerts of any abnormality throughout the vessel, allowing you to call



for action. The outcomes are better decisions based on reliable and timely information with improved operational continuity and a more streamlined efficient business.

Valve Remote Control System

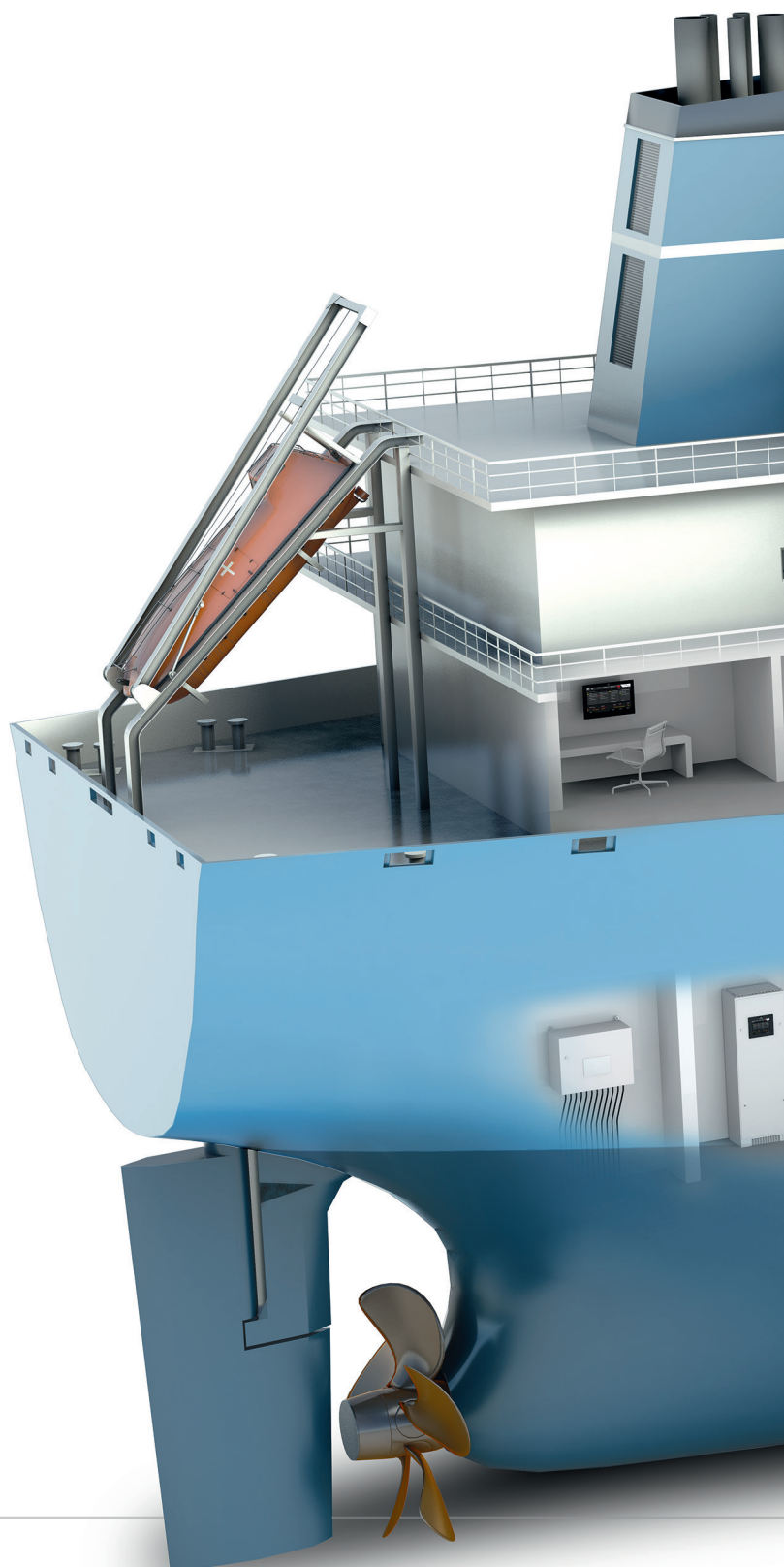
- **High Performance**
Long lifetime at sea, tried-and-tested in world fleet
 - **Cost Efficiency**
Quick installation and low maintenance
 - **Flexibility**
Scalable for your needs and with compact design
-

Our Valve Remote Control System can be installed on all types of vessels and offshore applications and has for more than 50 years set the benchmark for marine industry valve operation and control. Our high quality, robust and compact Damcos actuators with the helical spline technique deliver high torque without radial impact on the valve spindle. The system enables you to enhance operational continuity on board and save operational costs with minimal maintenance and in compliance with environmental regulations.

Featuring state-of-the-art Valve Control Technology,



we provide custom-made solutions of hydraulic, electro-hydraulic (Damcos LPU), electric and pneumatic actuators scalable to your specific needs and with one-stop-shop efficiency.

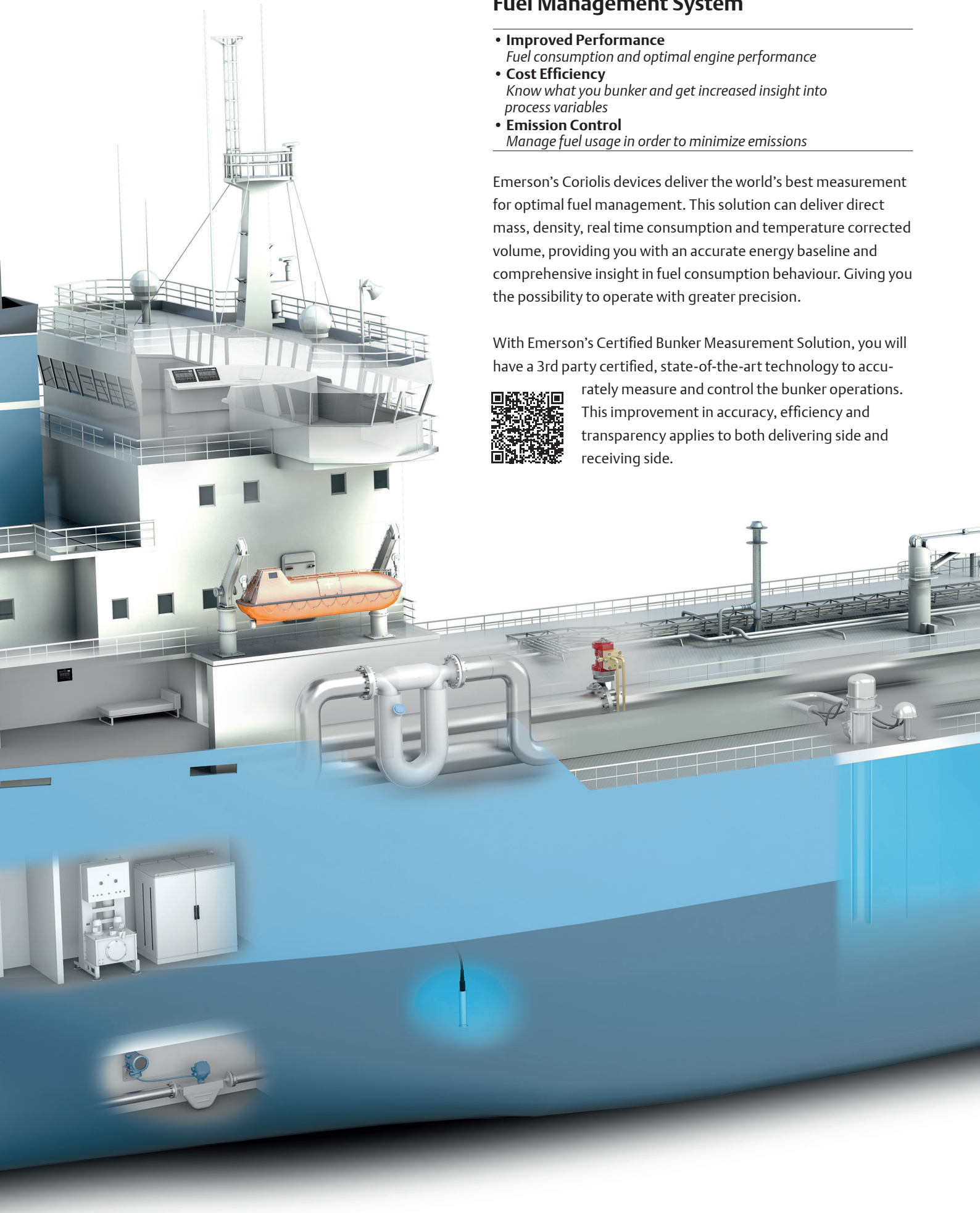


Fuel Management System

- **Improved Performance**
Fuel consumption and optimal engine performance
- **Cost Efficiency**
Know what you bunker and get increased insight into process variables
- **Emission Control**
Manage fuel usage in order to minimize emissions

Emerson's Coriolis devices deliver the world's best measurement for optimal fuel management. This solution can deliver direct mass, density, real time consumption and temperature corrected volume, providing you with an accurate energy baseline and comprehensive insight in fuel consumption behaviour. Giving you the possibility to operate with greater precision.

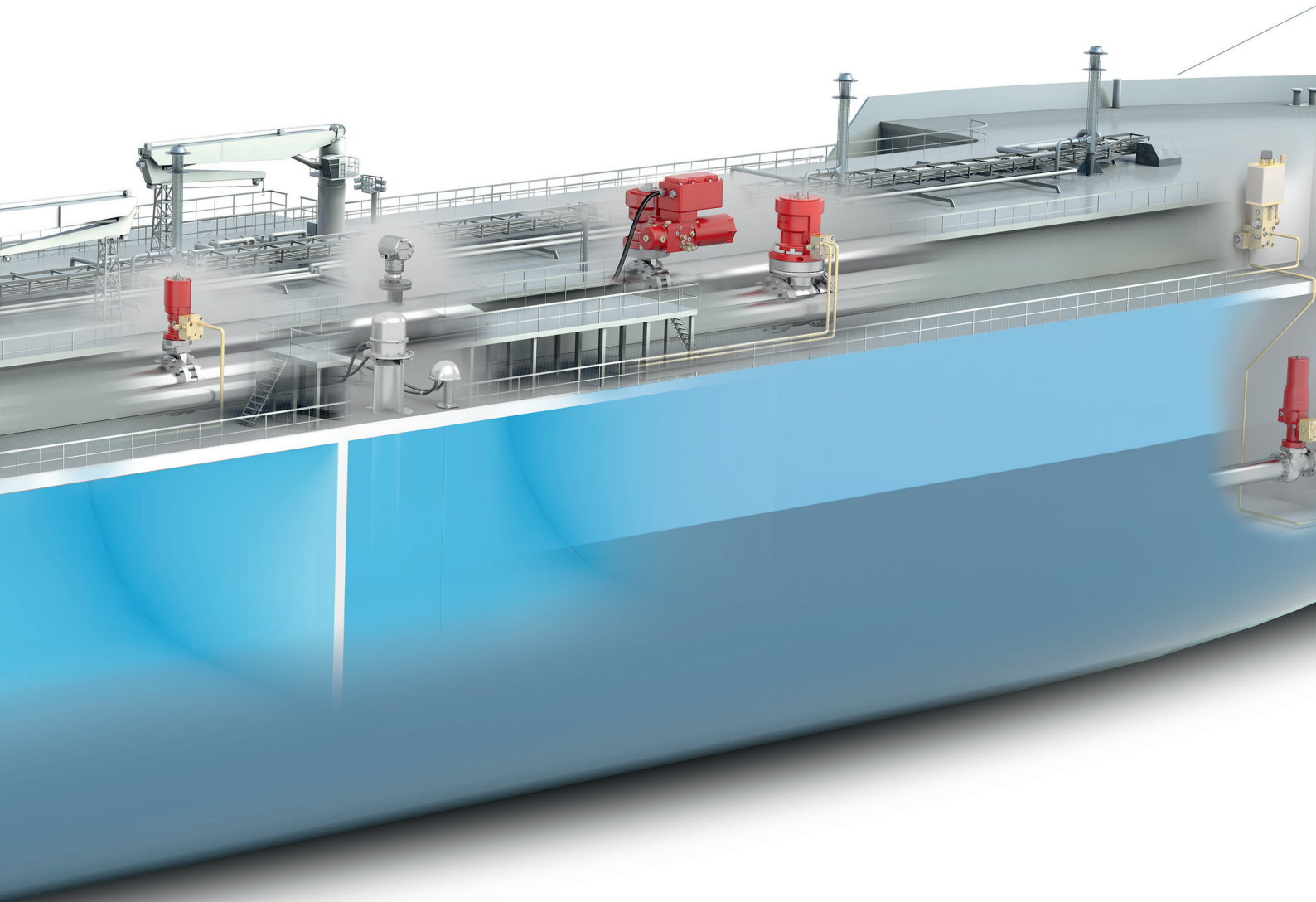
With Emerson's Certified Bunker Measurement Solution, you will have a 3rd party certified, state-of-the-art technology to accurately measure and control the bunker operations. This improvement in accuracy, efficiency and transparency applies to both delivering side and receiving side.



Tank Level Gauging System

- **Flexibility**
Wide range of installation methods
 - **Cost Efficiency**
Low need for maintenance
 - **Easy Access**
Remote maintenance and troubleshooting
-

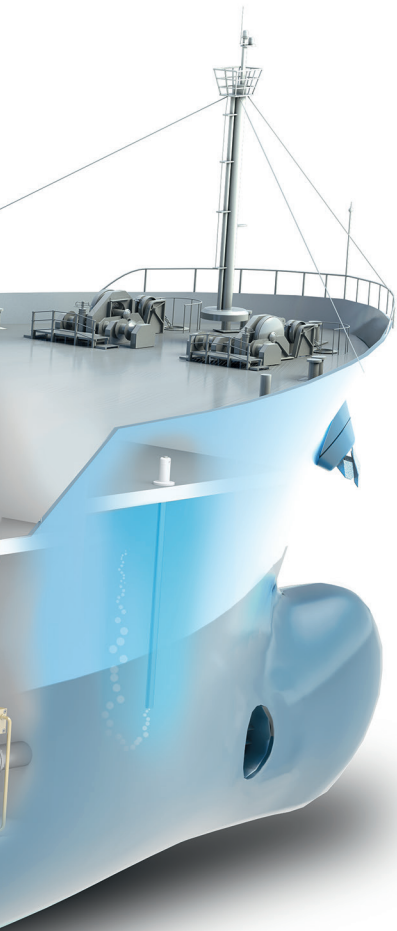
We offer two technologies suitable for virtually all marine tank applications. The Electro-Pneumatic System is a robust system with a single pipe connection and all electronics located in easy accessible safe areas, ensuring easy repair and low maintenance costs. The pressure based Level Transmitter with HART® capabilities enables flexible installation methods and is compatible with all commonly used liquids. This system has low need for maintenance and is used to measure the level in ballast and service tanks as well as for draft measurements and void space monitoring.



Cargo Monitoring System

- **Reliability**
High level of accuracy
 - **Maximized Uptime**
Accurate measurements under all conditions
 - **Easy Access**
Quick installation and low maintenance
-

The Cargo Monitoring System from Rosemount is a powerful radar solution with compact design. The system ensures safe, profitable and efficient cargo operation. In conjunction with the High Level and Overfill Alarm System you can confidently fill up to the maximum capacity in your tanks (95 and 98 %) without compromising on safety. With no moving parts inside the tank, the Cargo Monitoring System is easily accessible on deck and has a long operational lifetime and exceptionally low maintenance costs. The system is easy to install and integrate, designed to be flexible and scalable for the demands and requirements of all types of tankers with no compromise on reliability.



Auxiliary Measurements

- **Flexibility**
With multiple measure solutions
 - **Cost Efficiency**
Quick installation and low maintenance
-

In order to meet your requirements we are able to customize our system solutions and can include Emerson's Wireless sensors as well as Rosemount pressure, temperature and ever-increasing range of other compatible transmitters. The utilized, marine approved, Wireless HART® technology support flexible and secure deployment for a broad variety of applications.



Specific for LNG Carriers:

Custody Transfer System & Overfill Alarm System

- **Efficiency**
With our 2in1 solution
 - **Accuracy**
With advanced Radar Technology
 - **Flexibility**
Tailored to meet individual requirements
-

The Custody Transfer System from Rosemount for LNG carriers is the only dual measurement system using a single still pipe for both primary and secondary CTS. The advanced processing tool provides precise, redundant and reliable data for exceptional efficiency and control. The system is tailored to



meet individual requirements and ensuring reliable measurements when loading and offloading.

Our High Level and Overfill Alarm System for LNG is also based on dual radar technology and replaces outdated float level systems. The system enables you to maximize capacity



without compromising safety. With no moving parts inside the tank, the system is virtually maintenance-free.

Complete Expertise within Marine

Emerson Process Management (emersonprocess.com), an Emerson business, is a leader in helping businesses automate their production, processing and distribution in the chemical, oil and gas, refining, pulp and paper, power, water and wastewater treatment, mining and metals, food and beverage, life sciences and other industries. The company combines superior products and technology with industry-specific engineering, consulting, project management and maintenance services.

Emerson's Marine business unit is part of Emerson Process Management. Our expertise covers: marine automation systems developed to integrate control and monitoring functions of any type of application; alarm management systems; valve remote control systems; cargo monitoring systems; tank level gauging and draft measurement for all types of ships and offshore units.

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