▶ Services for the marine industry

Solution and product related services

KROHNE Marine offers a comprehensive service portfolio. Our full service concept guarantees smooth and continuous operation of our instruments in the field. We can tailor each solution for a specific vessel type and operational challenge, integrating separate systems into a unified solution to ease day-to-day performance and long-term asset management.

- Complete **engineering and project management**
- On-site **commissioning and training**
- **Maintainance License Agreements (MLAs)** consisting of spare parts management, predictable service, remote support, priority SLA and easily accesible support hours
- Dedicated **in-house research** and **development** department
- Service and support with **quality system** and **product training**
- **Service stations worldwide** for support, spare parts and aftermarket support
- **Service attendance on-site or online** for easy troubleshooting and diagnostic support
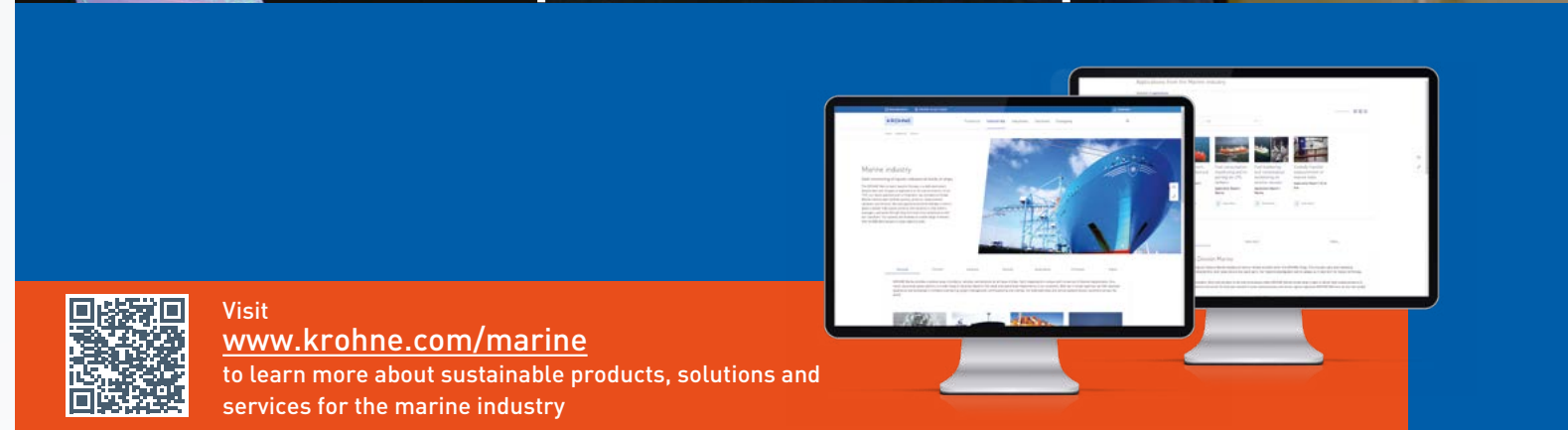- **Upgrades, surveying and retrofitting**

Training

- **In-house trainings or free KROHNE Academy seminars**
  - Automation topics such as **monitoring solutions** in the marine industry, compliancy **requirements**, **dimensioning** of devices and many more
- **KROHNE Academy online – free online eLearning platform**
  - **Full audio** courses, explaining measuring technology without relating it to specific manufacturers
  - Live **online seminars**
  Visit **academy-online.krohne.com**

KROHNE Marine

Sustainable Products, Solutions and Services for the marine industry

Visit
www.krohne.com/marine
to learn more about sustainable products, solutions and services for the marine industry

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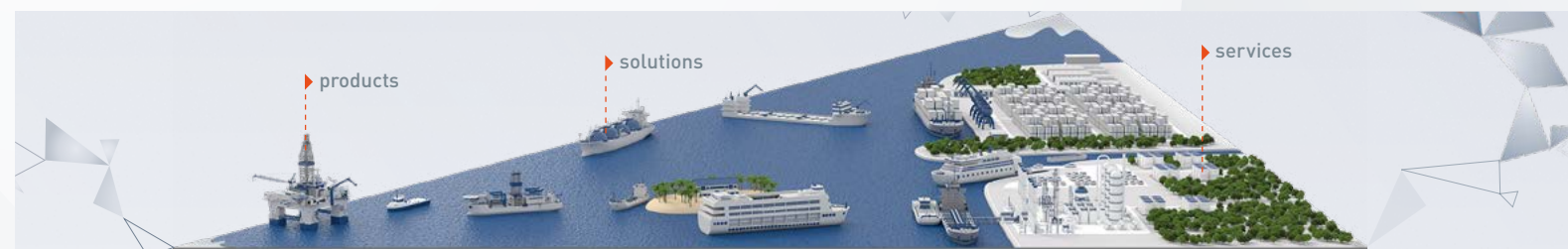www.krohne.com

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www.krohne.com

▶ KROHNE Marine –
The Marine centre of excellence within KROHNE

The KROHNE Marine team, based in Norway, is a dedicated expert division with over 60 years of experience in the marine industry. Since 1957, our highly qualified team of engineers has provided the Global Marine Industry with certified systems, products, measurement solutions, and services. Our systems are installed on a wide range of vessels, from small inland vessels to large seagoing ships. We offer our extensive in-house expertise by providing complete turn-key solutions with engineering, R&D, project management, commissioning and training.

Marine customers worldwide benefit from our dedicated sales and service network. By being ISO 9001 and ISO 14001 Marine certified, KROHNE Marine is prepared to meet environmental commitments and policy requirements, as well as contributing to sustainable developments through our products and solutions.

▸ products   ▸ solutions   ▸ services

▶ Solutions for the marine industry

EcoMATE™ – Complete vessel performance monitoring system with fleet operation optimisation software

EcoMATE™ is designed to be a complete solution for **real-time monitoring** of **fuel consumption, emissions and bunkering**. Regardless of the vessel type, EcoMATE™, provides the complete picture you need to **improve performance while lowering costs**. As a result, EcoMATE™ has become the **preferred solution for many major shipping companies**.
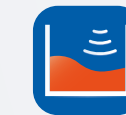
- Full control of **fuel consumption, emissions and bunkering**
- **Monitor all types of vessel** within the fleet with a single integrated tool
- Compliant and certified with **MRV** (EU regulation 2015/147) and **IMO DCS**
- **Remote cloud solution**, enabling on-shore vessel and fleet analysis
- Online system **diagnosis and remote device support**

CARGOMASTER® – Tank monitoring for seagoing vessels

CARGOMASTER® is a complete monitoring system **for multiple tanks**. This system includes **software and instrumentation** that is adapted to the customer's individual vessel applications, as well as engineering, drawings, documentation and commissioning.

The CARGOMASTER® system provides readings from all tanks onboard in a **user-friendly graphical interface**. In addition to tank monitoring, the system enables the monitoring of pumps and cargo lines as well as an integration into other systems onboard.

- **Installable in all kinds of vessel**, from the smallest product tankers to the most complex chemical tankers and large VLCCs
- Complete solution with **application specific software on standard marine computers**
- **Multiple configurations** possible for redundancy and distribution of information
- **Online diagnostic support** through system status and analysis

Flow

OPTIMASS – Coriolis mass flowmeters

For all process and custody transfer (CT) applications

- Mass, volume flow, density and concentration measurement of liquids and gases
- Maintains operation even with entrained gas of up to 100% (EGM™)
- Meter sizes up to DN400, temperatures down to -200°C / -328°F

OPTIMASS 2400
OPTIMASS 7000
OPTIMASS 1400
OPTIMASS 6400

EGM™ Entrained Gas Management

H250 M40 – Variable area flowmeters

For liquids and gases

- Modular design: from mechanical indicator to 4...20 mA/HART®7, FF, Profibus-PA and totaliser
- Any installation position: vertical, horizontal or in fall pipes
- -196...+400°C / -320...+752°F; max. 1000 barg / 14500 psig

H250 M40

OPTIFLUX – Electromagnetic flowmeters

From basic applications to demanding flow and custody transfer (CT) measurements

- Designs and liner materials for various applications – from potable water to extremely adhesive, abrasive or aggressive fluids
- All KROHNE electromagnetic flowmeters are wet-calibrated in direct comparison of volumes
- Large choice of nominal sizes up to DN3000 / 120"

OPTIFLUX 2300
OPTIFLUX 2100
OPTIFLUX 5100
OPTIFLUX 4100
OPTIFLUX 2050
OPTIFLUX 1000

ceramic durability

Level

OPTIWAVE – FMCW radar level transmitters

For demanding liquid applications

- Continuous, non-contact cargo level measurement of liquids
- 24 and 80 GHz FMCW radar level transmitters for liquids and solids
- Different antenna options, e.g. for corrosive or abrasive media, high pressure or temperature and applications with agitators, starting from ¾ process connections
- Marine approvals: DNV, GL, BV, RINA, ABS, LR, NK
- Rugged stainless steel (1.4404 / 316L) housing and display protection

TBM Tank Bottom Management
80 GHz radar level measurement

OPTIWAVE-M 7500
OPTIWAVE-M 7400

Pressure

P-130 / P-140 – Pressure transmitters

For cargo lines, manifolds, tank monitoring and pump pressure on ships

- Precise absolute pressure measurement for liquids and gases
- Designed to withstand demanding environments onboard ships
- Semi flush diaphragm for easy maintenance

P-140
P-130

OPTIBAR PM 5060
ceramic durability
OPTIBAR PC 5060

OPTIBAR – Pressure transmitters

For process pressure and level applications

- Various housing materials available: plastic, aluminium, stainless steel (precision casting or electro-polished)
- Various threads, flanges; hygienic and other connections
- 2-wire, 4...20 mA, HART®, FF, Profibus-PA, Bluetooth®

System

CARGOMASTER® System

For advanced tank gauging and cargo manifold

- Proven system that is compliant with relevant marine regulations
- System software and instrumentation adapted to individual vessel applications
- Flexible integration with other systems and online remote service

CARGOMASTER® System

EcoMATE™ System

Complete vessel performance monitoring

- EcoMATE™ Fuel Consumption (continuous measurement and monitoring of fuel consumption and carbon emissions)
- EcoMATE™ Bunkering (verification of bunker quantities recieved)
- EcoMATE™ MRV & IMO DCS (carbon emission monitoring and reporting)
- EcoMATE™ Cloud (Automated remote data transfer to onshore stations)

EcoMATE™ System

KROHNE Marine provides full in-house expertise

We offer advisory on a variety of solutions based on the customers needs and operational requirements worldwide.

Full Scope Supplier

We produce instruments ensuring high quality delivery, tailored to fit all types of vessels, retro-fit or new builds.

Marine System Engineering

Our skilled engineers are involved in the entire solution development process and provide input at every stage, from consultation, design and maintenance to service. No off-hire is required for installation.

Marine Software Development

Our developers handle integration of various systems. We are aware our clients have individual requirements. We stay up-to-date by constantly evolving our technology.

Global Marine Service

To support you and your operations, our network of service stations worldwide is ready to provide you with high quality support at any time.

- Wide range of intelligent solutions and high quality instrumentation produced by KROHNE
- Sustainable and future-oriented operations & technologies for our clients
- 60 YEARS — 60 years of experience in the marine industry
- Commitment to quality and environmental policy requirements, certified ISO 9001 & 14001

1957 Skarpenord AS established

2014 Acquired 100% by KROHNE, renamed KROHNE Marine

2017 Signed fleet agreement for turnkey EcoMATE™ installation to one of the worlds largest container owner

2021 Released EcoMATE™ with extended functionality for vessel performance

1979 World's first computerized & fully digital level gauging system CARGOMASTER®

2016 Introduced EcoMATE™ advanced fuel saving and reporting system with Coriolis flowmeters

2020 Signed fleet agreement with MSC for EcoMATE™ fleet turnkey deliveries including bunkering systems

With over 700 EcoMATE™ installations and 1000 CARGOMASTER® installations succesfully executed. Join our journey with more achievments to come!