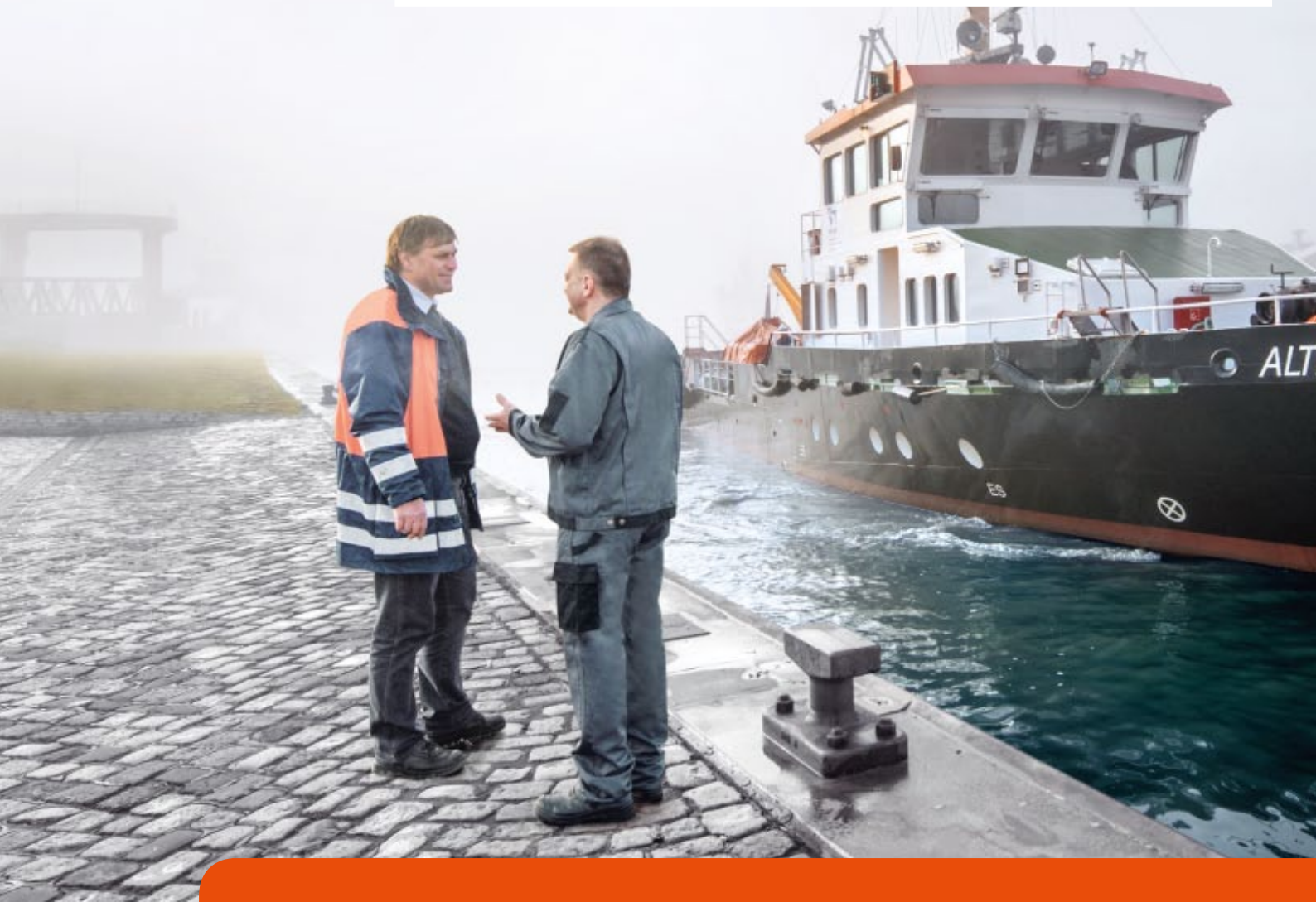


**AVENTICS** 

**MARINE**  
WITH SYSTEM SOLUTIONS  
ON A SAFE COURSE

**Rexroth**  
Pneumatics







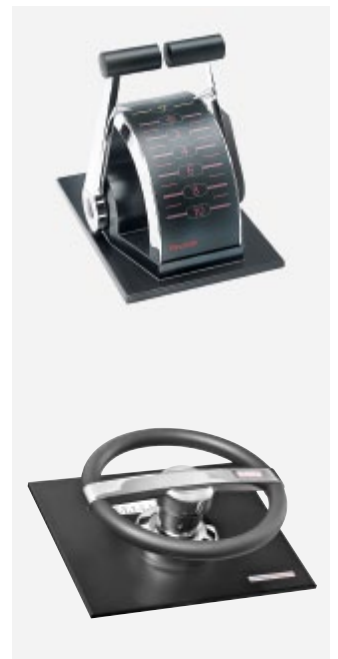
# Ship Control – free run for your ideas

Times are changing when it comes to shipbuilding. Even though safety is still the highest priority, energy usage, cost effectiveness, and environmental aspects are becoming increasingly important considerations. Let our classified system solutions steer you safely through all waters.

AVENTICS components can be found on all types of ships around the world. Why? Simply because our systems and components for pneumatic and electronic controls for ship propulsions have an excellent reputation. Engineering expertise Made in Germany, highest production standards, and longevity are only a part of the reason for our success. By cooperating with engine, gear and propeller manufacturers, we can guarantee top performance – proven on a daily basis and backed by a global service network.

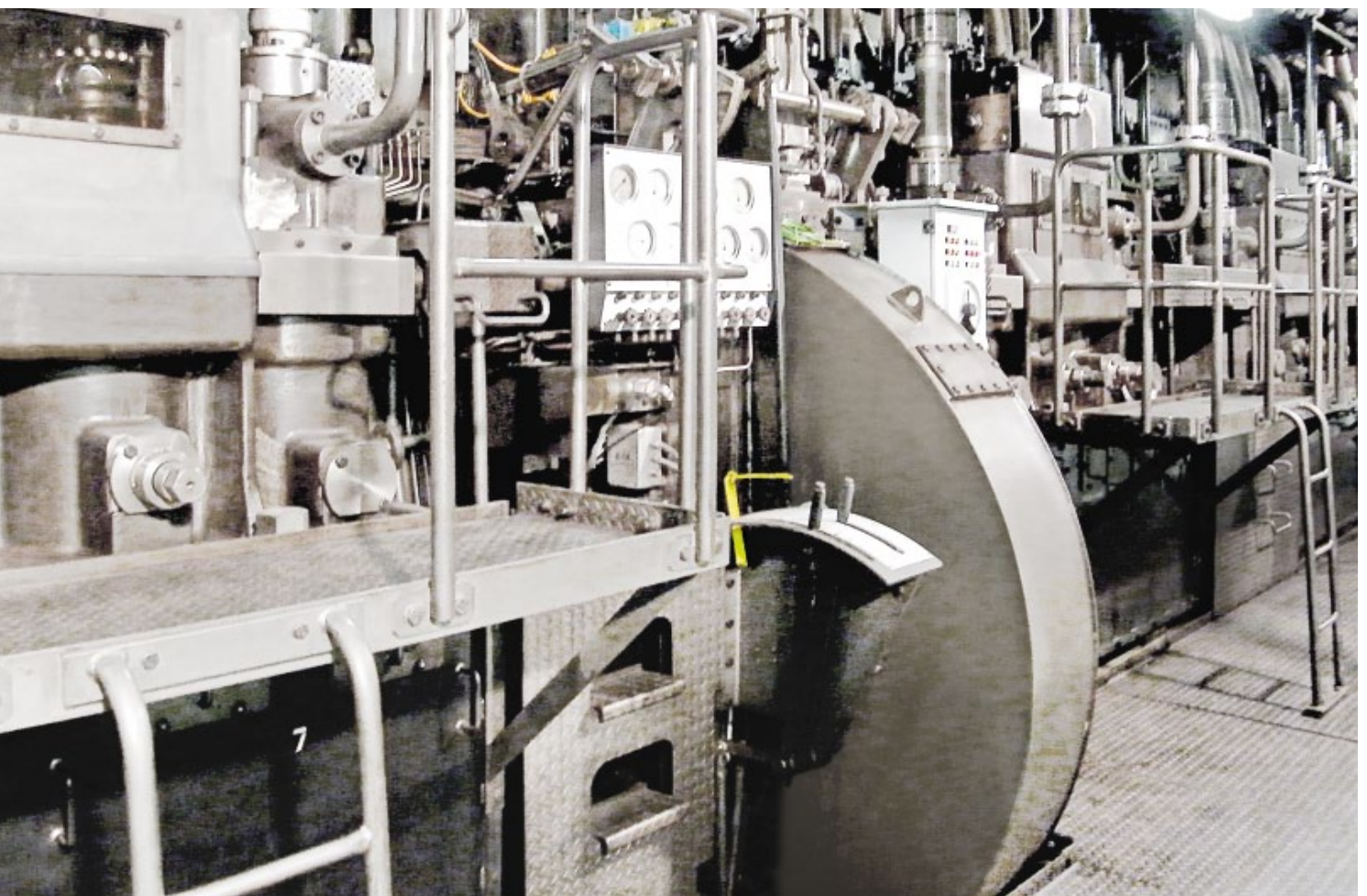
## Less time to market, more time to run

Ship Control includes solutions and products such as remote control systems, alarm and monitoring systems, and joysticks. These decentralized automation systems work according to a convincing principle: standard and modular concepts application engineering and setup; open interfaces simplify communication. You benefit from fast product launches, complete certifications, commissioning assistance, and accompanying training based on real-life situations.



# Pneumatics – cool under pressure

They are the first choice for large engines: our pneumatic components, undaunted by the rough conditions of the open sea, prove their reliability day by day and allow operation in unattended machinery space.



# Sensitive controls with the power to move. AVENTICS provides automation for large engines and clutches

## Solutions for two- and four-stroke engines

### Air preparation

The day-to-day life of a sailor: in the middle of operations, the filter in the air conditioning unit needs to be serviced. No problem if you use one of our redundant systems. We create complete mounting units for compressed air with a pressure of up to 30 bar and we can offer the components with type approval.

### Optional components

- Pressure reducers
- Filters with integrated drain valve
- Air dryers operating according to the "cold regenerated adsorption" method
- Safety valves
- Antifreezers

### Starting air valves

Good start for large engines. Our compact units with large nominal diameters reliably control the starting air supply and can be operated by hand or electropneumatically.

### Start/Stop unit

Reliable control directly on the engine: the control heads for common rail engines, or the start/stop valves for the manual operation of conventional engines, use robust technology for fail-proof operation.



▲ Components for large engines



▲ Starting valves for four-stroke engines



▲ Pneumatic switching units

# Traditional pneumatics have a firm place in ship history, and their story continues

## Solutions for two-stroke engines

### Fuel injection timing

To ensure that the fuel rack on the cylinder moves smoothly, we offer complete monitoring units for compact installation directly on the cylinder.

Our servo positioners align themselves accurately based on the control pressure, and the electronic control valves reliably convert electric control signals into pneumatic pressure and mechanical movements.

### Cylinder cutoff

Thanks to a logic control valve, this mounting unit will allow you to turn off the cylinders, for instance for maintenance purposes.

### Reversing logic

For the reversing of large engines, we also offer complete working logic assemblies or monitoring units that can be installed directly at the engine. Using our logic valves and cylinders, the resulting units work accurately and move the camshaft with precision.



▲ Fuel injection timing



▲ Reversing logic



▲ Cylinder cutoff

*“The Marex VCS tank ballast system is reliable and cost effective. Not only when it comes to controlling the valves outside of the tanks, but also within them.”*

Frederik Dijkstra,  
Damen Shipyards Bergum





# Marex VCS – safety and cost effectiveness in perfect balance

Undeclared in TCO analysis thanks to cost effective procurement, reliable continuous operation, and low operation expenses: our pneumatic valve control systems feature a proven concept, ongoing personal support through to commissioning, and a global service network.

The system's advantage lies in its simple structure, requiring only one control cabinet and – in the best-case scenario – one closed-loop pipeline. Fully pneumatic, our entire control system does not need any electrical connections or power supplies for the basic system. Even the position feedback of the individual valves is given pneumatically.

- More cost effective than hydraulic solutions
- Low operating pressures from 5 to 7 bar
- Valves with active position indicator for installation inside and outside of the tank
- Single- or double-acting actuators ensure fail-proof operations

## System solutions tailored to each individual project

The system has a modular architecture, making it easier to realize your desired application in very little time. Through our questionnaires, we can rapidly determine the required functions and adapt our system to the specific requirements for your type of vessel. Both, basic components as well as operating and control modules are quickly coordinated and programmed. Our system solution has proven itself in real-life situations thanks to its fail-proof operation. However, should the need arise, our service organization is within easy reach anywhere in the world.

## Advantages

- Manual emergency control, feedback indication
- Touchscreen control with mimic display
- Optionally integrated tank monitoring
- Standardized communication of data to all systems on board
- Interface to Marex AMC



# Ship control that steers you safely into the future

Sometimes, the smartest way to get around on board is taking a bus. Microprocessor-controlled CAN bus technology opens up the way for new electronic concepts in shipbuilding. The most important keyword: modularity.

Individually configurable and tailored to your propulsion and ship type, our components and systems can be used universally. As an experienced OEM, we offer remote control systems for engines, clutches, gears, waterjets, and controllable pitch propellers. Their powerful capabilities enable data transmission via the CAN bus. Thanks to numerous parameters, which can be set comfortably within the software, any type of ship, propulsion and application can be combined with any type of propulsion system together for any type of application. Taking the short path. In a plug-and-play housing.



## **An open professional system**

### **Marex OS III**

Work vessels with classification, passenger liners, coastal cargo ships and even yachts can all rely on one of our most proven products. The Marex OS III hardware consists of only a few modular units, made extremely powerful by the bus connection. For controllable pitch propellers, jet drives, or reversing gear units, we can offer systems that are easily integrated and provide efficient, secure control.

## **Advantages**

- Easy installation thanks to pre-assembly
- System reliability thanks to one self-monitoring CAN bus per drive train
- Bridge components can also be used in the external area
- Approval of drawing and FAT upon request
- Open for any engine, gearbox and propeller maker



# Marex OS 3D – a new dimension of operating comfort



▲ Marex OS 3D  
A new dimension of electronic remote control

## Intuitively precise

### Marex OS 3D

Harbor docking and undocking is becoming easier and safer than ever before. The 3-axis joystick of this intuitive maneuvering aid means the drive elements no longer need to be coordinated individually. Based on the specific situation, the captain can decide whether to use the 3D mode that centralizes the main drives and bow and stern thruster – or whether he would rather control all propulsion elements in thruster mode. This allows water jets, propellers, or gear systems to be comfortably controlled with a considerably higher degree of safety and pleasure. Being suitable for retrofitting and new builds, the system also provides greater flexibility.

### Advantages

- Single-hand control available
- Can also be used in already installed systems
- Precise realization of navigation commands
- Superposition of movements/navigation commands

## Tuned to the same wave of safety Marex OS VBR



▲ Marex OS VBR – The result of years of outstanding teamwork

OS stands for “open system”. Thanks to the high degree of modularity, the remote control can be adapted to the specific requirements of the propulsion system and the ship's operation. 1:1 redundancy in busmanagement and hardware ensures operational reliability. The major advantage is that the same operational element can be used to keep moving in case a system fails. You have the choice: depending on your requirements, you can use a joystick, azimuth controller or control head with a steering wheel.

### Advantages

- Safety thanks to guaranteed availability
- Redundancy concept from the input element to the output node
- Adjustable resource-economizing navigation profiles
- Less wear by attuning the powertrain

# More protection thanks to Marex AMC alarm and monitoring systems

Oil pressure loss? Failed propulsion unit? Coolant overheating? Cargo loaded correctly? Captains and responsible ship engineers can now immediately answer these questions at just one glance. With Marex AMC.

More than a panorama view: Anyone who has ever been in the control room and experienced what an alarm and monitoring system can do – especially one that can be operated via touch function – will be excited. There is almost no limit to the possible applications: From simple alarm systems to ship automation with door monitoring and fire alarm visualization, a wide range of customer requirements can be realized.



## **Alarm and safety systems**

Many ship engine manufacturers already use our configurable systems, for instance in order to be able to react to overspeed or oil pressure loss.

## **Monitoring systems**

In addition to the power units, there are also other systems on every ship which must have their condition monitored. Marex AMC enables secure, decentralized data acquisition and bundling. The CAN bus lines transmit the data to all control rooms and can be individually grouped as needed.

## **Automation systems**

System remote control and automation can be easily realized with an add-on to the monitoring system. Output units are available as relay modules or bus couplers; pump controls are available as compact units. The systems can be depicted as a flow chart and as a functional diagram.

### Components and applications

Technology with a signal feature: Marex AMC collects and groups data from different systems on board to display safety-relevant operation data. At the same time, operation statuses can be monitored and systems can be operated remotely or activated automatically.

The monitoring system is available in two versions – Marex AMC Compact or Marex AMC Modular: both versions are classified and can thus be used in professional navigation and in the offshore sector.

#### Marex AMC Compact

Picking up and displaying of binary signals including watch cabin unit with engineer call function.

#### Marex AMC Modular

Picking up, displaying and controlling of up to 1.000 signals of any kind. The integration of bus signals is possible.

#### Advantages

- Clear and structured display
- Flexible, customizable user interface
- Easy to operate by touch function

#### Fields of application

- Safety systems for main engines and generators
- Monitoring systems for engines and ship functions
- Exhaust gas deviation temperature monitoring
- Cargo monitoring
- Tank ballast monitoring systems
- Watch cabin unit with engineer call function
- Secondary display of fire alarm systems
- Automation systems
- Pump control
- Video surveillance (CCTV)



▲ Modular Display 8.8" – individual design options

*"I am convinced of the turn-key systems and the additional support from the service team - even after commissioning!"*



Dipl.-Ing. Karsten Krebs,  
WSA Bremerhaven



# Trust is good; service is even better

For more than 60 years, the quality of our products has been undisputed in the market. The services we offer alongside our products are the decisive step toward earning your satisfaction.



Malfunction alert on board in the Tasmanian Sea. Depending on the ship's cargo and condition, the situation can be an absolute nightmare – or a service dream comes true. Our help desk is ready to receive messages around the clock, organizes on-site assistance, and is able to provide expert responses over the phone. Or it can direct you to a service point, such as in Sydney, Australia.

#### **On-site – even without an emergency call**

There does not have to be an emergency. Our field service team is also available for ongoing maintenance and troubleshooting. Including events that are not related to our electronics or components.

#### **We offer support for**

- Commissioning
- Propulsion Plant optimization
- Maintenance
- Fault detection and clearance
- Application issues
- Repairs
- New planning

#### **Retrofit – always on the cutting edge**

Increased efficiency, fuel savings, or improved operability: the benefits from updating technical equipment quickly become obvious. Whether the control system needs to be refurbished or a transition is to be made from pneumatic to electrical technology: Our retrofit team will be on your side from planning and delivery through to commissioning.

#### **We would be happy to present you a proposal and to support you with**

- On site analysis
- Consulting
- Commissioning
- Operator instruction and training

#### **Repairs with warranty and original parts**

What is true for our systems and components is also true for our repairs. Highest quality standards, consistent specifications, and 100 % final inspection.

While we strictly adhere to these requirements, we always respond to your issues quickly and unbureaucratically – and for Marex systems even directly online.

#### **We offer the following services**

- Equipment updating, including as part of a repair
- Manufacturer warranty for repairs
- Fast repairs in 1–2 business days
- Alternatively, reconditioned replacement equipment

## Help desk and hotline

Simply call us at **+49 511 2136-670**.

A list of our service stations can be found online at [www.marex-shipcontrols.com](http://www.marex-shipcontrols.com).

# Practice makes perfect

Powerful equipment offers an ocean of possibilities. At the same time, a simple question can easily take the wind out of the sails for running operations. In any case, help can be found at the Marex Academy, the training center for pneumatic and electronic applications.

How do I connect and adjust a DC servomotor? How do I address a controllable pitch propeller? How do I define an alarm point? Equipment operation, product expertise, and background knowledge are the focus of numerous training sessions that we offer to you as well as to the technicians from our service network. For you as a customer, the training sessions always address recurrent questions from real-life situations. The content is structured into modules which build on each other and are based on the latest training methods. The modules are available in several languages upon request. Catalog and training registration forms available online at [www.marex-shipcontrols.com](http://www.marex-shipcontrols.com).

## We offer

- Individual training courses, tailored to fit your needs
- An overview of product functions
- Original components training
- Optional on-site training at your premises
- Commissioning support, including test runs
- Participant certification in after-sales expertise

We design and manufacture in collaboration with



**ClassNK**  
NIPPON KAIJI KYOKAI



**Lloyd's Register**





## Advantages

- ✓ Prioritized safety
- ✓ Relied on global service
- ✓ Used classified solutions
- ✓ Adapted complete systems



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Your Contact:

Two sets of L-shaped corner brackets, one at the top and one at the bottom, defining a rectangular area for contact information.

Further contacts:

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