As an internationally-renowned systems company, we are a leading partner of shipping companies, navies and shipyards worldwide. Our capability is based on more than 100 years’ experience with the establishment of widely recognised product names such as AEG, ATLAS and DEBEG.

Operating from headquarters in Hamburg and supported by a worldwide network of subsidiaries, associate companies and agents, we provide innovative state-of-the-art system solutions and products designed to meet the most exacting requirements for ships of all types and sizes.

These range from coastal and inland shipping vessels, ocean-going container carriers and gas tankers to specialist offshore, environmental and research ships as well as ferries, cruiseliners and yachts.

We offer specialised capabilities in the design and development of specific maritime equipment technologies. These include advanced diesel-electric propulsion systems, shaft alternators for economic power generation, shipborne automated monitoring and control systems, navigation and communication technologies, integrated vessel control systems, entertainment as well as safety and security systems.

Our scope ranges from highly sophisticated and proven system installations to standardised systems and individual products for retrofit applications.

Growing demands for complex vessel types set higher standards for technical know-how and project management competency. Realising complete turnkey solutions for vessels of all types and sizes confirms our role as a capable partner for the shipbuilding industry.
The quality, performance and reliability of our products and services are assured in accordance with customer requirements and all relevant marine industry standards. To meet this target we have established a Quality Management System, which is compliant with the international DIN EN ISO 9001:2008 and certified by Germanischer Lloyd Certification GmbH.

The Quality Management principles and measures are part of the description of our Integrated Management System, which also includes Environmental, Health and Safety (EHS) rules and guidelines.

A vessel requires logistical support over its entire lifetime. This especially includes particular the technical documentation, spare part concepts, training of crews and service specialists as well as worldwide service.

In cooperation with our subsidiaries, representative offices, agents and dedicated service stations we are able to provide an efficient and reliable service, maintenance and repair network to shipping companies and yards across the globe. We are continually adapting our after-sales service to meet growing customer demands. Our dedicated Customer Support Centre is available around the clock throughout the year.

Our scope of services includes a range of specific customer contracts such as those for Full Maintenance, Shore-Based Maintenance, Periodic Inspection, and Equipment Rental. There is also provision for checks of equipment by our authorised inspectors on behalf of official authorities and classification societies.

Technical advances are crucial for the competitiveness of the world shipping industry. Our success is based on our ability to come up with new concepts, solutions and products. We do not settle for adjusting our systems to future development – we create them.

Welcome to Wärtsilä SAM Electronics – Your Partner for Competence and Innovation
Our company is one of the leading system houses for the supply of complete electrical and electronic system packages on vessels – the turnkey solutions.

Turnkey is no product but a system performance, typically in close partnership with building yards. Starting at the preliminary design stage of projects, our company is responsible for the integration of all kinds of electric and electronic systems to an uniform turnkey solution - under the motto „from bridge to propeller“. With competent project management in combination with professional cross-system capabilities for all electric and electronic systems onboard most diverse building specifications will be implemented to the satisfaction of our customers.

We provide
- Project management and complete electrical system integration for new building and ship conversions
- Planning of technical and commercial issues for design and construction period
- Engineering, design and development
- Interface optimisation between shipyard and subcontractors based on computer aided tools
- Testing and approval with owner and classification
- Turnkey solutions
- Training
- Logistic support
- Service worldwide

We take care of the project management, planning, owner’s and class approvals, mechanical coordination, installation, design and development as well as the interface optimization between shipyards and subcontractors.

The range of system integration level varies from a package delivery of products including product-related engineering up to complete system integration (the turnkey solution) where we are the electrical department of the shipyard.

Dealing with a single partner helps to minimise costs and ensure optimal functionality of all components within the „system ship“. This proven expertise is based on intensive involvement in many different projects for both naval and commercial applications and is second-to-none right up to the most complex shipbuildings and retrofits.
Electrical propulsion systems provide numerous advantages. They are particularly economic, environmentally-friendly and reliable. They are also simple to operate and control while facilitating good positioning properties as well as low noise and vibration levels.

Moreover, their reduced size or volume enables the best possible utilisation of space. Increasing numbers of electrical propulsion systems are also supplied for ships with special requirements. We already meet this growing demand, having so far equipped more than 95 vessels.

Depending on the required grade of redundancy and depending on the operational profile of the vessel LCI-converter or PWM converter systems with synchronous or induction motors are well proven and reliable solutions for propulsion systems.

**We provide**
- Low voltage and medium voltage propulsion and drive systems including power generation and distribution
- Drives for cutter and hopper dredgers
- Thruster drive systems
- Winch drive systems
- System simulation
- System integration

Propulsion motor 11 MW, 720 rpm on double ended ferries for BC Ferries

Azimuth thruster and converter room on jack-up vessel “Vidar”

Propulsion motor 18 MW, 133-142 rpm on cruise liner “Royal Princess”

Jack-up vessel “Innovation”

Cruise liner “Royal Princess”

Research vessel “Sonne”
Shaft generators offer an economic and environmentally-friendly solution for electrical power aboard ships. Proven advantages have led to them becoming part of standard equipment. With more than 430 systems already supplied, we are the market leader in this field.

Demand for electrical power aboard container vessels has risen significantly as a result of the increased capacity of refrigerated containers. Based on a new generation of medium voltage shaft generators, our range of systems has been extended to meet these growing requirements. Using a PWM converter in modern IGBT technology we are able to design a controlled shaft generator system without synchronous compensator. Modern technology and reduced components result in a significant cost reduction.

Our combined shaft generator / shaft motor systems supply electrical power during normal seagoing operation or can be operated as a booster or redundant take-home propulsion system.

Increasing pressures on ship operators and port authorities to minimise the impact of air pollution and noise emissions by way of meeting strict environmental regulations are now a worldwide concern.

One particular solution for reducing emissions during port docking is the use of high voltage onshore power supply systems (HVSC). As such, shore power covers provision of shore-side electrical power to a vessel while its main and auxiliary engines are turned off. As a result this solution will enable the vessel to meet upcoming strict clean air regulations (for example, California, USA) when berthed at terminals.

Since 2004, we have been engaged in developing a series of modular high voltage shore connection systems (HVSC), called SAMCon. System design is based on ICE/ISO/IEEE 80005-1 requirements. A complete assembly can either be installed separately aboard a vessel or containerised for siting at a specific onboard location.
The uninterrupted power supply to systems and consumers onboard modern ships is a matter of course nowadays. This is, however, only possible if reliable power distribution system adapted to the needs of the customer is installed. Be it automation or propulsion system, navigation or communication system: the different consumers are all dependent on a network and the controlled flow of power is essential for smooth operation.

Our systems onboard thousands of vessels have been proven successful for many decades and meet the most stringent requirements for naval and commercial applications. Due to the growing demand for more available power, medium voltage instead of low voltage distribution systems are provided. We are also a leading company in this field and have equipped more than 100 ships from cruise vessels and ferries to dredgers and container vessels with medium voltage switchboards.

For protection and control of power supply systems SAM integrates its own developed protection system GPM 500. The microprocessor based protection system covers all necessary protection functions for low and high voltage power supply systems, generator protection and consumer protection. On request a power management function for control of the power supply system is available.

The GPM 500 can be operated as stand alone or in combination with other GPM 500s via data bus. Interfaces to automation systems and other control systems can be provided.
Ships are larger, traffic denser and time for important decision making even less. Information aboard ships have increases dramatically as a result of stringent regulations concerning safety and other operational requirements. Thus, information management is the No.1 issue for 21st century.

Our navigation, automation and communication product range comprises a wide spread portfolio of systems applicable to all types and sizes of vessels. This ranges from highly sophisticated and proven system installations through to standardised systems and individual products for retrofit applications.

NACOS Platinum, the new integrated vessel control system, represents a complete series of next-generation navigation, automation and control systems including dynamic positioning. The series offers unprecedented features in terms of usability, scalability and network by means of one common hardware and software platform.

NACOS Platinum series offer the entire palette of navigation and automation products from one supplier. Consistency and tight integration between products secures a smooth installation and efficient life-time support from one of the largest global suppliers in the market.
With our latest generation of Ship Control Centers (SCC’s) we provide a total bridge concept characterised by a high level of integration with particular emphasis on interlinking data from navigation, automation and communication functions. Nearly 240 SCC’s have already been installed worldwide.

Safety and security systems are more important these days than ever before. A ship itself and its load has to be controlled and protected. Entertainment and internal communication solutions enhance the comfort as well as safety levels on board. Our product range includes telephone and paging systems, general and fire alarm systems as well as those for onboard monitoring and safety. The equipment can be delivered a single stand-alone system up to a fully integrated system.

Introduction of GMDSS necessitates rapid and efficient aid to ships in distress, for which our range of communication products provide all means of communication.

**We provide**
- Propulsion control and electronic governor
- Alarm, monitoring and control
- Power management
- Radar/ECDIS/Autopilot/Track control
- GMDSS and Inmarsat equipment
- Navigation automation control systems (NACOS Platinum)
- Digital communication
- Entertainment systems

*Ship Control Center (SCC): Bridge concept with high level intergration*

*Container vessel “Andromeda”*  
*Chemical tanker “Bow Sun”*  
*Cruiseferry “Viking Grace”*
Dredging vessels are designed for excavation activities usually carried out at least partly underwater, in shallow water or fresh water areas with the purpose of gathering up bottom sediments and disposing of them at a different location, mostly to keep waterways navigable. To perform these tasks dredgers are equipped with different specific dredging devices.

Maximum efficiency and minimum personnel expenditure are essential for the successful operation of dredgers. Designed to match this requirement our products for dredging applications are based on industrial state-of-the-art hardware components.

SAM dredger control technology permits control of the entire dredging process from one central station (one man operation). All relevant data for production and cost optimized control of the dredging operations are displayed to the dredge master. SAM dredger control and monitoring is designed in partnership with Vosta LMG.

**Instrumentation and Automation**
- Dredger control and visualization
- Automatic systems for cutter head and cutter wheel dredgers
- Loading computers
- Pipe position indicators
- Density controls
- Data loggers
- DGPS
- Survey systems

**Drive Systems**
- Dredger pump drives as „electrical shaft“
- Converter-type pump drives
- Cutter wheel/head drives
- Top tumbler drives
- Winch drives for sideline, ladder hoist and stern winches, suction pipe winches
- Winch drives for anchor and mooring winches
- Propulsion systems
Consideration of mines and mine countermeasures requires particular attention regarding signature management of naval vessels.

Our expertise and know-how covers the full range of magnetic silencing. For all types of naval vessels our state-of-the-art degaussing systems provide a significant contribution for magnetic protection against the hazard from magnetic sea mines. More than 220 systems have been contracted for the German Navy and for various navies abroad.

Our multi-influence ranging systems for acquisition of underwater signatures of naval vessels including but not limited to magnetic-, acoustic-, electric- and pressure-signatures for mobile and stationary employment enables navies to adjust and validate degaussing settings of their vessels. Sophisticated software for modelling and analysis of the ranging results forms an integral part of our supplies.

In addition we are a reliable partner in special system projects like ship to ship supply and exhaust cooling system.

We provide
- Shipborne degaussing systems
- Non-magnetic and low stray field design of equipment
- Systems for magnetic ranging
- Systems for demagnetization treatment of naval vessels and equipment
- Electrical platform systems

Mobile ranging system

Degaussing control unit DEG COMP MOD2

Magnetic contour plot

Corvette class 130  Submarine class 212  Frigate class 125
Investment in the German North and Baltic Seas is taking shape. Anyone who values quality, minimal susceptibility to failure, and a greater focus on failsafe equipment will find themselves in safe hands with us.

Wärtsilä SAM Electronics boast many years of experience in the maritime sector. Access to an array of reliable products from within the company group, coupled with the know-how of highly qualified engineers from a wide range of areas, creates an overall concept focused on technology, design and solutions.

Together we have developed a comprehensive technology package and offer solutions for platforms for HVAC and HVDC technology and wind turbines.

We are therefore helping to deliver a reliable, green power supply for industry not only in Germany and are committed to its ongoing development.

We provide
- Basic & detailed design
- Navigation/communication
- Bird scare technology
- CCTV systems
- Fire protection and firefighting
- Door access control
- Public address/general alarm technology
- Monitoring and control
- Condition monitoring systems
- Low and medium voltage switchboards
- UPS and battery systems
- Resistors
- Sonar transponders
- Lighting
- Sea markings
- Cable network
- Integrated system solutions
- O&M
- Service

Reference projects North Sea and Baltic Sea

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