



# API MARINE

## GENERAL COMPANY & PRODUCT PRESENTATION

SENSORS & AUTOMATION SYSTEM · POWER GENERATION · DIGITAL SOLUTIONS

# Company Highlights

- Established 2004 in Aalborg, Denmark
- A leading manufacturer of Sensors and Alarm & Monitoring Systems
- Systems and solutions supplied to more than 650 newbuildings in past 15 years
- In-house manufacturing of all sensors
- API Marine is ISO9001:2015 certified and PQAN for manufacturing according to ATEX and IECEx standards
- Sensors and systems approved by all major Marine Classification Societies
- Patented technologies

## API Marine





## Strengthening Market Position and Global Reach

- API Marine JV / merges with with MT POWER GROUP 2025
- MT Power a leading provider of Integrated Automation Systems, Power Generation Solutions and Digital Solutions
  - Increase and broadening of API Marine product and solution offerings
  - Strengthening of API Marine presence within the newbuilding segment
  - Further development and increase of global presence for After Sales Support and Sales related activities
- 2024 orders for Systems and solutions for +100 newbuildings

**Globally Certified Quality:** With in-house R&D, our products are certified by all major classification societies (CCS, ABS, DNV, etc.) and our factories are ISO 9001 approved.

**Proven Experience & Vision:** We have successfully delivered thousands of systems to over 100 global clients. Our mission is to lead the industry through continuous optimization.

**Integrated Modern Facility:** Our intelligent factory, launched in 2021, integrates R&D, manufacturing, testing, and warehousing.



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## Core Capabilities

- **Site Area:** 17,900 m<sup>2</sup> covering R&D, production, testing, and warehousing
- **Annual Capacity:** 800 marine generator sets
- **Cumulative Deliveries:** Over 10,000 units, serving global shipowners, shipyards, and offshore clients
- **Testing Capacity:** Six independent test platforms with total power up to 15,000 kW
- **Warehousing Area:** 2,900 m<sup>2</sup> ensuring efficient supply chain and delivery capability

## Specialized Workshops

- Power System Assembly Workshop
- Valve Control & Automation Workshop
- New Energy R&D Laboratory

## Product Scope

**The factory is responsible for the manufacturing and testing of MT Power's core products, including:**

- Marine Generator Sets (Main Gen, Emergency Gen, and Electric Propulsion)
- Valve Remote Control & Tank Level Gauging Systems
- Diesel-Electric / Hybrid / All-Electric Propulsion Systems
- Shaft Generator Frequency Conversion Systems
- Distribution Panels & Power Control Systems



# API Marine Group Companies

WWW.API-MARINE.COM





# API Marine Group Companies

WWW.API-MARINE.COM



## API Marine (Denmark)

### Global Experts in Tank Gauging & Valve Control

API Marine specializes in high-end solutions for ship tank level systems and valve control, widely applied on oil tankers, LNG carriers, bulk carriers, and container ships. With proprietary sensor technology and automation systems, API Marine provides accurate and reliable tank management for global clients.

#### Main Products:

- Level / temperature / pressure sensors
- Hydraulic / electric / electro-hydraulic actuators
- Loading computers
- Valve remote control systems
- Tank level telemetry systems
- Anti-heel systems
- Hull deflection measurement systems



## SANGO MARINE AI TECHNOLOGY PTE. LTD.

### Smart Navigation · Leading a New Era of Intelligent Shipping

Sango AI focuses on developing ship intelligence systems, improving automation and smart operation, and building a central brain for future maritime transport.

#### Main Products:

- Cyber Security (E26)
- Digital ship system
- Shore-based command center system
- Ship intelligent system
- Unmanned engine room system



## MT POWER LIMITED

### The Heart of Propulsion: Reliable Power at Sea

As the headquarters of the MT group, we specialize in the R&D and manufacturing of marine propulsion systems. We deliver stable, efficient, and eco-friendly power solutions for a wide variety of vessel types.

#### Main Products:

- Diesel engines
- Gearboxes
- Main engine remote control systems
- Generator sets
- Offshore wind turbine yaw power supplies
- Explosion-proof generator sets (FPSO)



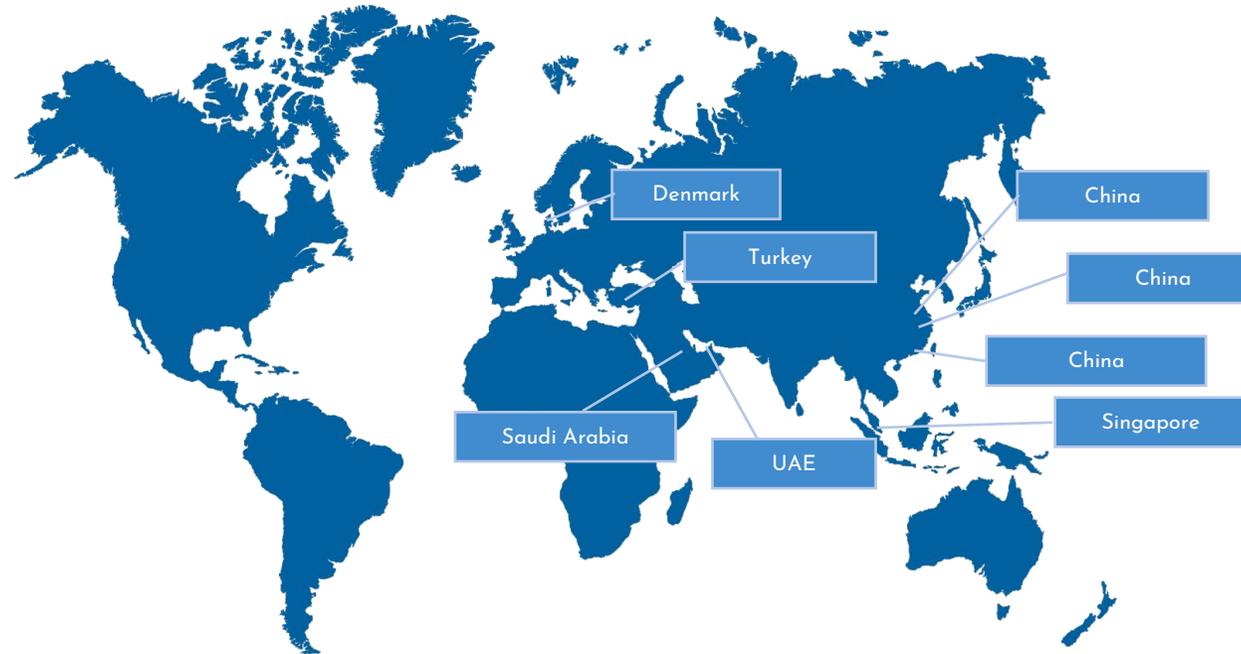
## TURRIDO LIMITED

### Smarter Propulsion: Driving Efficiency and Sustainability

Turrido Systems specializes in intelligent marine power, providing complete solutions from new energy applications to retrofitting traditional vessels for higher efficiency, reliability, and environmental performance.

#### Main Products:

- Marine Electric Propulsion Systems
- Hybrid propulsion systems
- Pure electric propulsion systems
- Shaft generator frequency conversion systems
- Thruster control systems
- Smart energy management systems (PEMS/EMS)
- Marine frequency converter control systems



## Europe:

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Manufacturing  
After Sales Support  
Research & Development

## API MARINE TÜRKIYE LTD.

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After Sales Support  
Research & Development

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Shenzhewn, Shanghai,  
HongKong  
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Manufacturing  
After Sales Support  
Research & Development

# Our Product and Solutions Portfolio

## Tank & Automation Solutions



## Power Generation



## Digital Solutions



# Our Product and Solutions Portfolio

## Tank & Automation Solutions

- Tank Level Gauging Systems Cargo, Ballast & Service Tanks
- High Level and Overfill Alarm System
- Valve Remote Control System
- Valve Remote Control System
- Online Loading and Stability Computer System
- Dynamic Stability Computer System
- Water Ingress Alarm System
- Sensors, Actuators and other Components

## Power Generation

- Gensets
- Diesel Electric Propulsion
- Hybrid Propulsion
- Electric Propulsion

## Digital Solutions

- API Marine Trident Cyber Security System (E26)
- API Marine Trident Digital System
- API Marine Trident Smart System
- API Marine Central Monitoring System

# TANK & AUTOMATION SOLUTIONS



# Tank & Automation Solutions

## SCOPE OF SUPPLY

- Tank Level Gauging System for Cargo Tanks and Service Tanks
- High Level and Overfill Alarm System
- Tank Level Gauging System for Ballast and Service Tanks
- Valve and Remote Control System
- Online Loading and Stability Computer System
- Sensors
- Water Ingress System
- Sensors, Actuators and other Components



## Integrated Solutions for Tankers

Integrated Automation System (IAS) is a unified hardware and software solution for ship operation, providing centralized remote control, monitoring, and alarm functions to ensure the safe and efficient operation of a vessel. Its modular design allows for customized solutions for various types of tankers. The system is independently developed and manufactured by API Marine and supports the integration of third-party equipment.

### Main functions

- Cargo & ballast operations
- Cargo tank level, temperature, pressure monitoring
- Ballast/service tank sounding system
- Cargo tank high-level / overflow alarms
- Cargo and ballast pump control
- Tank monitoring
- Valve monitoring
- Online monitoring of load, stability, buoyancy
- Manifold pressure & temperature monitoring
- Service tank overflow detection
- Draft, trim, list monitoring

### Configuration

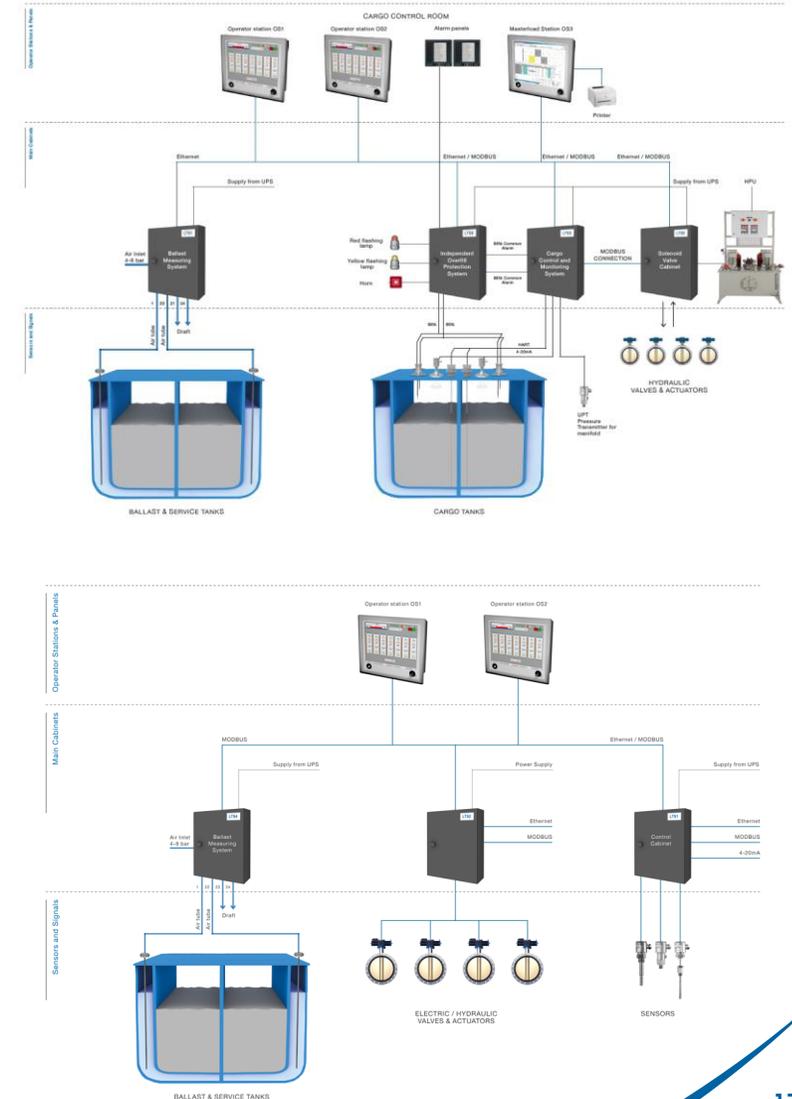
- Cargo tank level gauging system
- High-level & overflow alarms
- Ballast/service tank level gauging
- Valve & remote control system
- Loading computer
- Sensors & transmitters

## Integrated Solutions for Bulk Carriers & Container Vessels

The IAS provides comprehensive tank monitoring and control management for bulk carriers and other commercial vessels. Its modular design supports customized applications, allowing for the monitoring and control of ballast tanks, service tanks, and critical equipment such as valves, pumps, and actuators. The system offers real-time display of parameters like liquid levels, pressure, temperature, draft, and trim/list, as well as alarm monitoring. The modern, user-friendly interface features adjustable layouts, and both the hardware and software are 100% independently developed by API Marine.

### Main functions

- Valve & pump monitoring
- Engine room monitoring & alarms
- Ballast/service tank sounding systems
- High-level & overflow alarms
- Tank temperature alarms
- Draft, trim, list monitoring
- Ballast/service tank level gauging system
- Valve & remote control system
- Loading computer
- Sensors & transmitters



API  
MARINE

POWERED BY  
MT POWER

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# POWER GENERATION

# Marine Power System

## Cummins Marine Generator Sets

Power Range: 40KW-3000KW

Engine Models:

6B, 6C, 6L, QSB7, QSM11, K19, K38,

K50, QSK50, QSK60, QSK95



## Volvo Genset

Power Range: 119 KW-555 KW

Engine Model: D8, D13, D16



## Cummins Marine Engines

Power Range: 200 KW ~ 2000 KW

Engine Models:

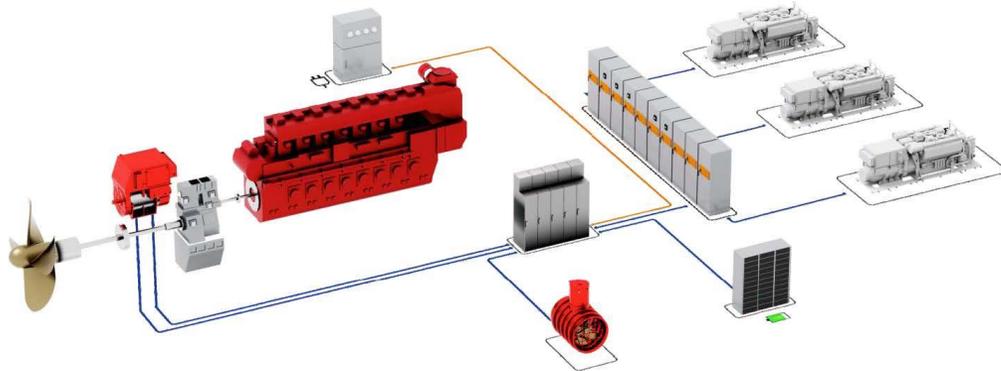
6B, 6C, 6L, QSB7, QSM11, K19, K38,

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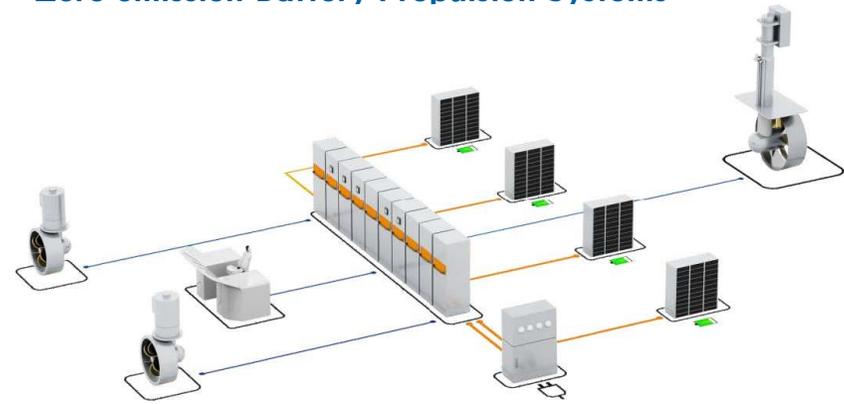


# Marine New Energy Propulsion Systems

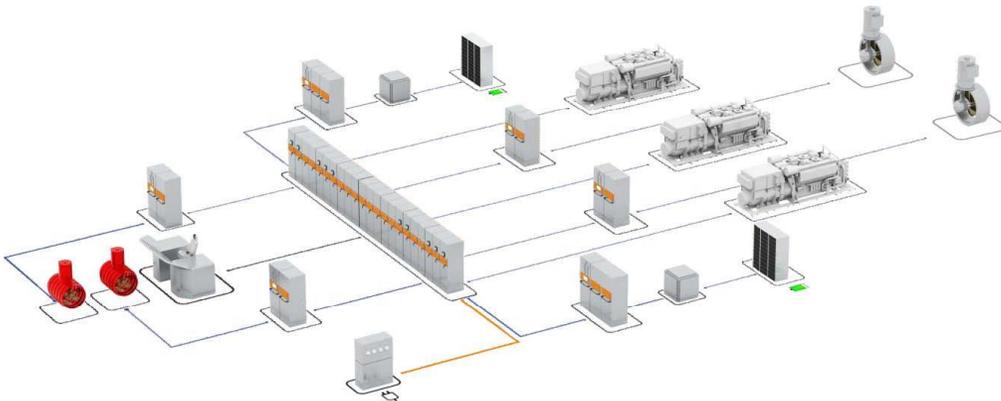
**Diesel-electric, PTO/PTI & Hybrid Systems**



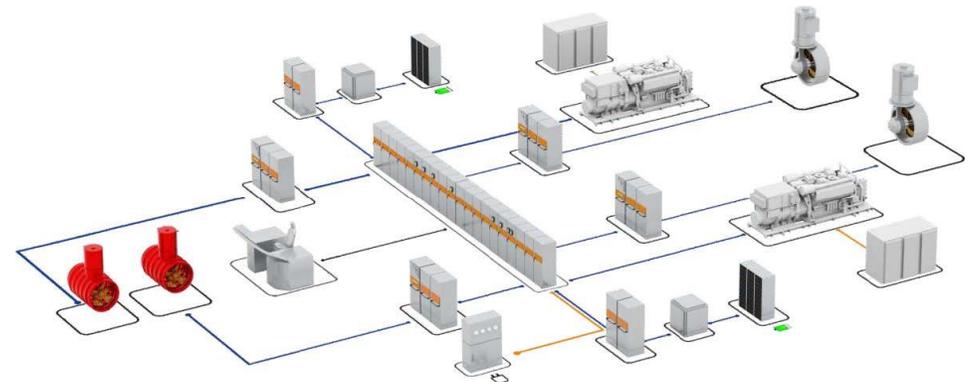
**Zero-emission Battery Propulsion Systems**



**AC Hybrid Systems**



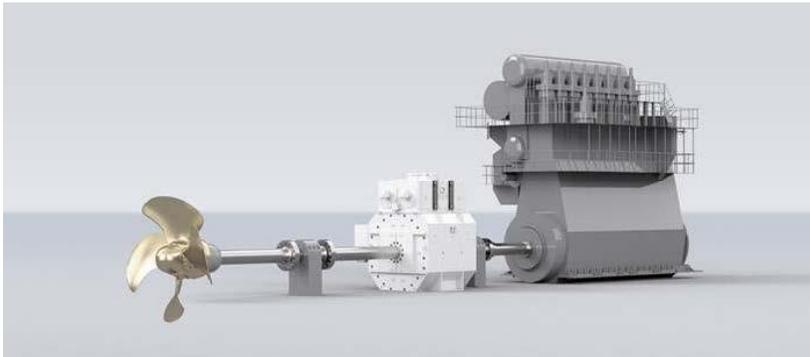
**DC Hybrid Power Systems**



## SHAFT GENERATOR VARIABLE FREQUENCY SYSTEM

Leveraging diesel engine power and variable frequency technology, the system delivers high-quality and stable power supply to cover the vessel's entire voyage. It features fuel saving, emission reduction, noise and energy consumption reduction and extended equipment lifespan. The system also supports synchronization with the main generators, enabling intelligent load and power station management.

### System Diagram



### Specifications

Voltage: 690V  
Power: 7MW  
Frequency: 50HZ-60HZ  
Classification: CCS/ABS/BV/  
DNV\*GL/LR/RINA

### Product



Shaft-driven AC Generator VFD (brands: Danfoss, ABB)

## ENERGY STORAGE SYSTEM ESS

1. Marine ESS Power Storage
2. Battery Voltage: DC 100-1000V
3. Rated Discharge: 0.5C
4. Capacity: 200-2000 kWh



## MAIN SWITCH BOARD

### ABB MNS 2.0 Distribution Switchboard Fully

#### Compliant with Global Standards:

- IEC (International Electrotechnical Commission)
- CSS (China Classification Society)
- VDE (German Institute for Electrical Technologies)
- And all other requirements from major classification societies

#### Key Specifications:

- System: For AC 50-60Hz power systems
- Rated Voltage: Up to 690V
- Horizontal Busbar: Up to 6300 A
- Vertical Busbar: Up to 2000 A
- Construction: Modular frame with component grid based on E=25mm



# Integrated Microgrid Solution



## Generator Sets

**Stable Core** - High-performance marine diesel gensets ensuring fundamental vessel power

**Precision Control** - Integrated control system optimizing fuel efficiency

**Safe & Reliable** - Built for harsh marine environments, ensuring long-term reliability

## Onboard PV Systems

**Green Power** - High-efficiency modular solar PV for marine applications

**Auxiliary Boost** - Reduces genset load, enhances fuel efficiency

## Energy Storage Systems

**Dynamic Balance** - High-safety batteries smoothing power fluctuations

**Energy Optimization** - Peak shaving, backup supply, enhanced efficiency

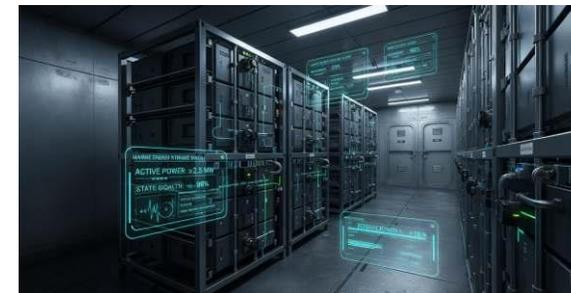
**Marine-grade Adaptability** - Ruggedized for complex conditions

## Smart Energy Management System (EMS)

**Intelligent Core** - Integrating generators, photovoltaics, energy storage, and onboard systems to enable unified scheduling.

**Enhanced Efficiency** - Real-time management and data analysis to boost energy utilization, enabling precise control.

**Green Shipping** - Supporting environmental compliance and promoting energy conservation, emission reduction, and sustainable operations.

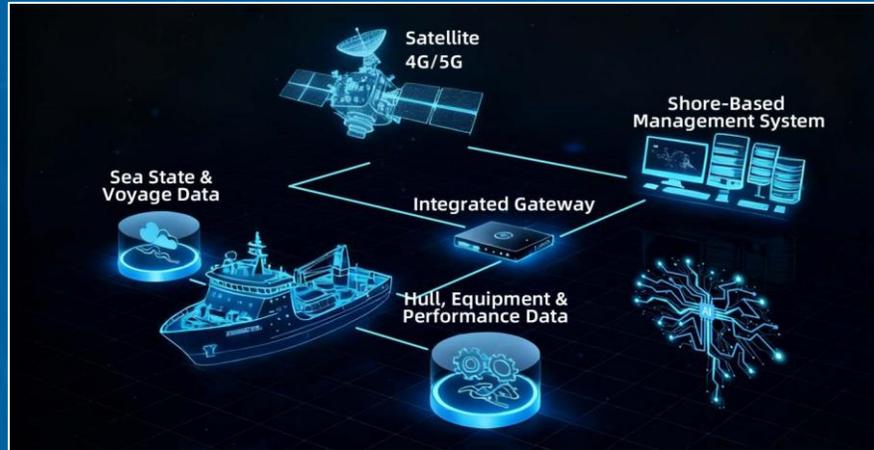




# DIGITAL SOLUTIONS

# Smart Vessel System

## SMART FLEET MANAGEMENT SYSTEM



### Technical Features

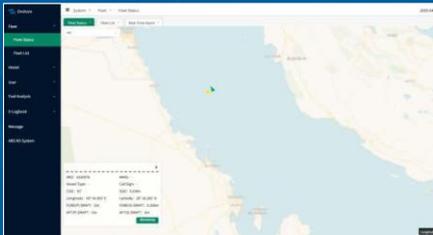
- Digital Twin: 3D & AR models for seamless ship-to-shore collaboration.
- IoT Fleet Monitoring: Real-time, automated equipment data for centralized fleet oversight.
- AI-Powered Diagnostics: Edge and cloud AI for high-precision equipment fault prediction.
- Digital Operations Management: Tools for route optimization, predictive maintenance, and fuel efficiency analysis.

### Main Functions

- Hull and engine room parameter monitoring
- Vessel performance analysis and evaluation
- Alarm system
- Remote support and fault diagnostics
- Intelligent navigation and autonomous collision avoidance
- Fuel efficiency monitoring and analysis
- Vessel asset management
- Shore-based management



## DIGITAL INTELLIGENT SYSTEM

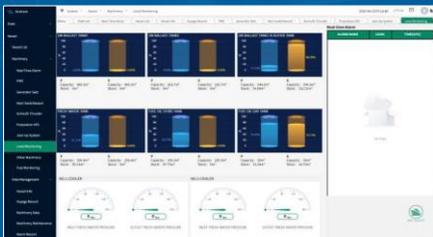


### 1. E-Chart

- Real-time fleet positioning and navigation status
- Speed, heading, latitude/longitude, draft data
- Sea state information and geofencing monitoring
- Overview of onboard equipment and status

### 2. Fuel Monitoring

- Track each unit's fuel flow meter rate
- Real-time monitoring of fuel temperature, density, and sloshing
- Air ingress and flow meter vibration detection
- Statistics of unit-level fuel consumption

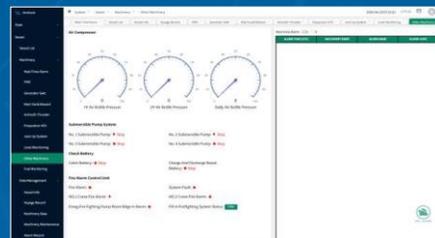


### 3. Tank Level Monitoring

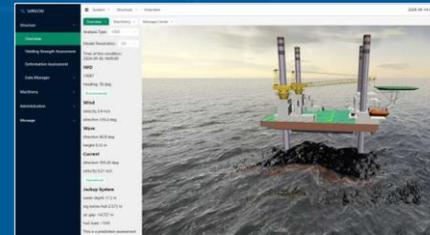
- Track all vessel tank levels and reserves
- Covers service tanks and fuel tanks
- Monitors auxiliary parameters such as cooling system pressure
- Provides real-time level alarms

### 4. Equipment Data

- Real-time data acquisition of onboard equipment
- Covers key machinery, navigation, and auxiliary equipment
- Provides operation and fault alarm
- Supports remote monitoring and analysis



## SMART TRIDENT SYSTEM

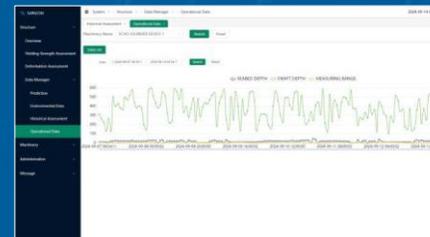


### 1. Structural Health Monitoring

- Real-time display of sea state and hull condition
- Intelligent evaluation of yield strength and deformation
- Stress assessment based on finite element analysis
- Provides visualized references for vessel safety

### 2. Machinery Health Monitoring

- AI-powered monitoring of machinery operations
- Early warnings on abnormal equipment with supporting data
- Fault visualization via 3D exploded diagrams
- Enables rapid problem localization and maintenance guidance



### 3. Data Management

- Collects diagnostic, predictive, and environmental data
- Records equipment operating status and key parameters
- Supports data queries and trend analysis
- Provides scientific basis for decision-making

### 4. Equipment Maintenance

- Provides standardized maintenance reminders and guidance
- Supports maintenance logs and tracking
- Improves efficiency and extends equipment lifespan
- Ensures safe and stable operation

Task Name	Status	Completion Date
Engine Oil Change	Completed	2023-10-25
Filter Replacement	Pending	2023-11-05
Water Pump Inspection	Completed	2023-10-20
Propeller Cleaning	Pending	2023-11-15
Electrical System Check	Completed	2023-10-15
Deck and Hull Damage Inspect	Pending	2023-11-20
Propeller Shaft Check	Completed	2023-10-10

## ALARM MONITORING SYSTEM



### 1. Engine Monitoring

- Real-time collection of engine data and key parameters
- Mimic diagram visualization of complete engine state
- Monitoring temperature, current, pressure, RPM, etc.
- Supports abnormal alarms and status tracking

### 2. Engine Data

- Centralized display of fuel, cooling, lubrication oil data
- Clear visualization of operations and alarms
- Supports trend analysis and comparisons
- Provides a complete system overview



### 4. PMS Power Management

- Manages ship's main power and generator status
- Monitors voltage, current, frequency, and load
- Supports remote start/stop and mode switching
- Visualized power system operations and alarms

### 3. Propulsion System Monitoring

- Tracks main propeller and steering gear status
- Displays VFD, shaft lock, rudder angle, and propulsion load
- Real-time monitoring of key components and cooling systems
- Supports precise operations and fault prevention



## CENTRAL MONITORING SYSTEM



### 2. Fuel Management & Analysis

- Records daily fuel consumption and speed correlation
- Analyzes efficiency with sea and operating conditions
- Real-time bunkering and residual fuel records
- Trend analysis for operational optimization



### 1. Fleet Operations Dashboard

- Displays overall fleet operational status
- Integrates single-vessel monitoring, fuel data, and CCTV
- Provides KPI comparisons, alarms, and asset utilization rates
- Centralized maintenance data for decisionmaking



### 3. Alarm Monitoring & Statistics

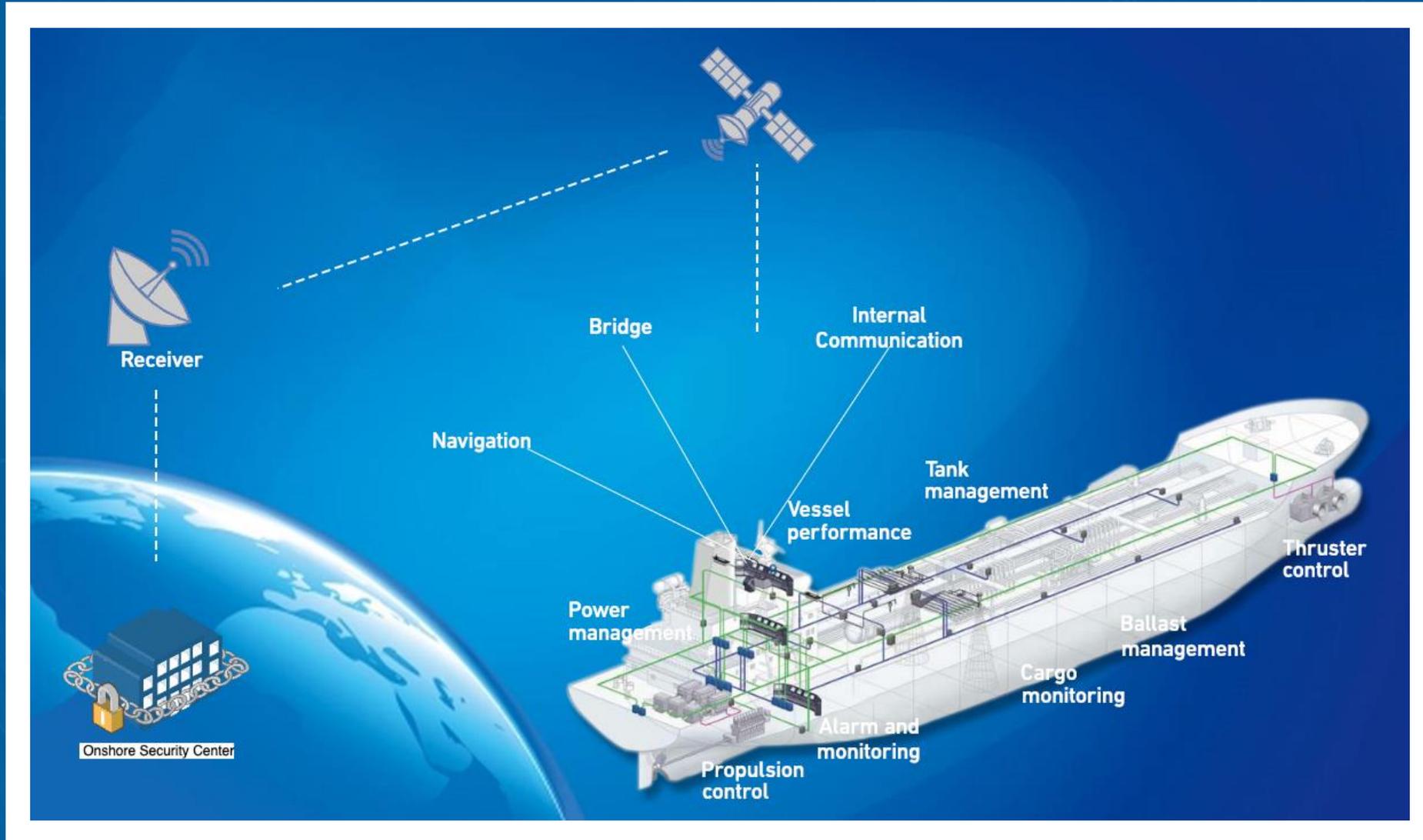
- Aggregates alarms from key subsystems
- Provides daily/weekly reports and ratio analysis
- Displays detailed logs and historical records
- Enables quick fault identification and response

### 4. Crew Health Monitoring

- Tracks crew health indicators and provides alerts
- Real-time positioning and health data analysis
- Monitors anomalies and health trends
- Supports crew management and safety assurance



# API Marine Cyber Security

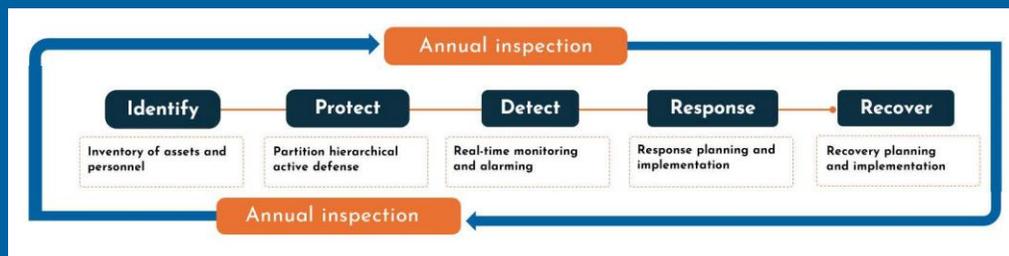


## ONE-STOP SOLUTION FOR CYBER SECURITY

API MARINE CYBER SECURITY SYSTEM delivers a comprehensive solution for industrial cyber protection. It combines advanced technology with simplicity, offering full visibility and fast threat response - all in one scalable platform.

The system complies with international standards and continuously monitors global and local trends to provide the best possible protection against current and emerging cyber threats.

## PRIMARY FUNCTIONS FOR UR 26



What types of vessels are covered by the regulations?

- Applies to vessels with a contract after 1 July 2024;
- Over 500GT for Passenger ships, cargo ships, offshore platforms - involved in international travels
- Any size of self-propelled platform involved in marine construction (e.g. offshore wind farm)
- Coastal/domestic vessels do not have to meet the requirement

IACS UR E26 Cyber Security Regulations

- The rule requires that the ship **detects** the threat to cybersecurity, protects against it and the systems **recover** in the event of a cyber attack - during the design phase to the operational phase
- E26 considers the ship as a large cyber space configured by different networks
- E26 requires the shipowner and shipyard to prove that the ship definitely addresses (secures) the cyber attack risk

## KEY BENEFITS OF API MARINE TRIDENT CYBER SECURITY INCLUDES



### Shipyard

- Support to Shipyard in preparing inventory list and documentation
- System design and preparing documents for class
- Test procedures & test with Class
- Integration test and implementation



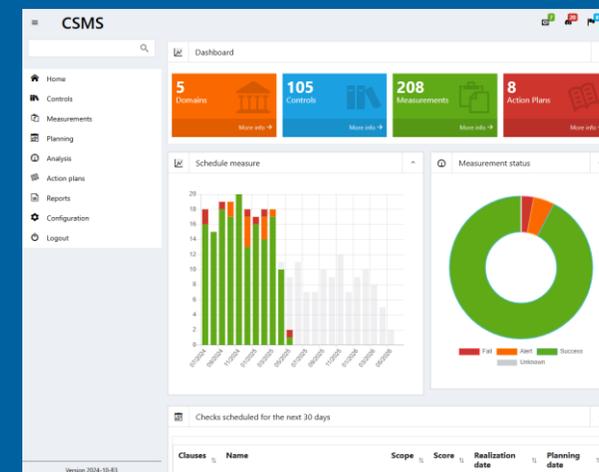
### Shipyard

- Cyber Security Management System (CSMS)
- Preparing all relevant documentation and procedures for annual Class inspection
- Preparation for 5 year inspection

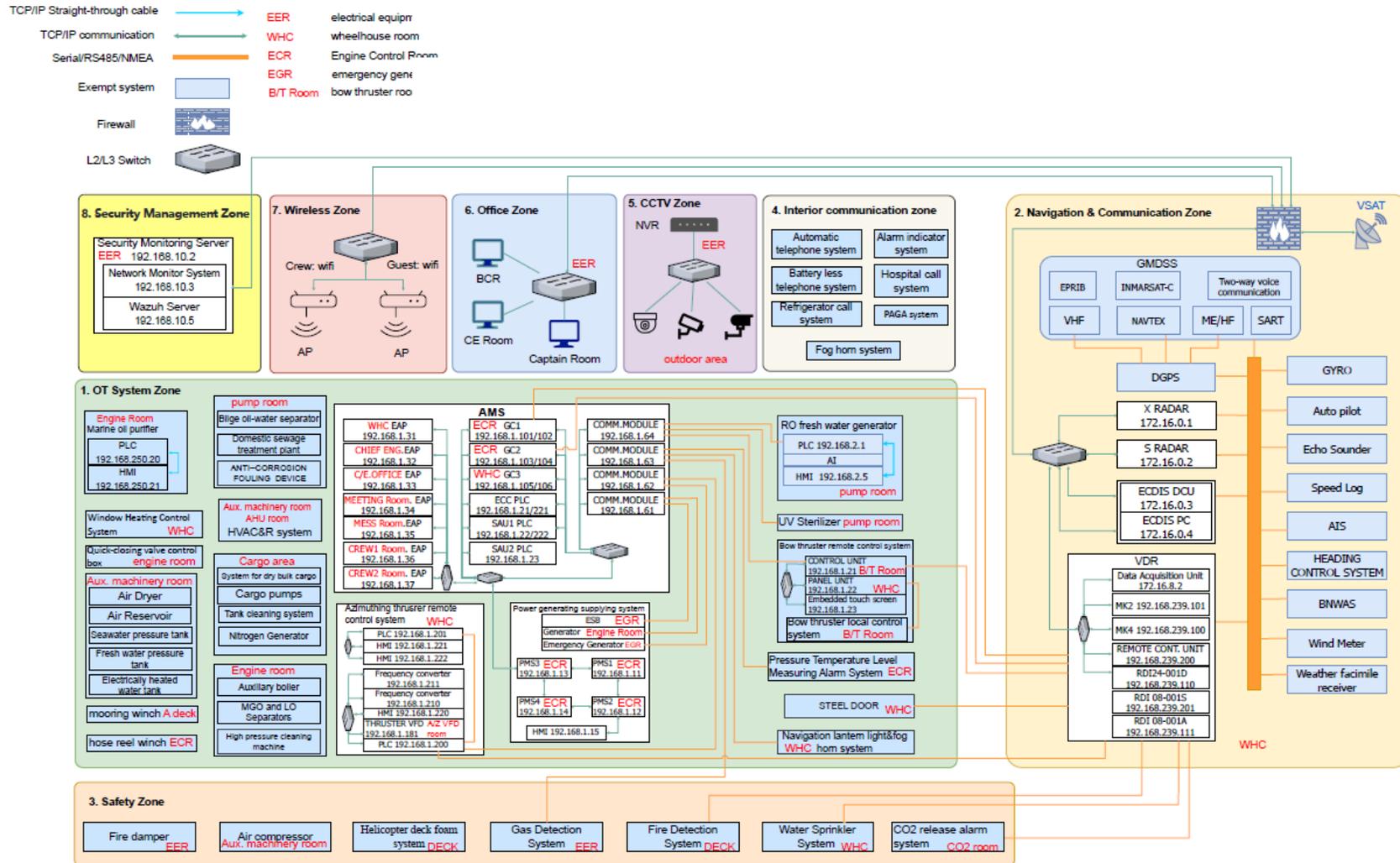
## CYBER SECURITY MANAGEMENT (CSMS)

Basic Functionalities:

- Security Control Dashboard
- Event Monitoring
- Security Update Management
- Alarms & Reporting
- Malware Protection Management
- Network Isolation
- Backup & Recovery Management
- Remote Access Management
- Application Allowlisting



## CYBER SECURITY ZONES AND TOPOLOGY DIAGRAM



# APPLICATION CASES

# Smart Marine Power System Integrator

## 1,000-passenger Ferry

**Shipyard:**

Sunbird Shipyard

**Main Genset:**

4 x 830 ekW

**Hybrid Propulsion:**

4 x 500 ekW PM Motors

4 x 830 ekW PM Generators

**Battery:** 300 kWh

**Class:** BV

**Delivery:** 2 sets



## 5,000 HP Hybrid Tugboat

**Shipyard:**

Mawei Shipyard

**Hybrid Propulsion:**

3 x QSK50-DM 1400 ekW

**Battery:** 2000 kWh

**Class:** CCS

**Delivery:** 1 set



## FPSO

**Shipyard:**

COSCO Shipyard

**Main Genset:**

3xQSK95-DM 2700ekw

**Emergency Genset:**

1xQSK60-DM 1800ekw

**Class:** DNV

**Delivery:** 1 set



## JANA LIFTBOAT

**Shipyard:**

WMMP Shipyard

**Main Genset:**

2xQSK60-DM 1800ekw

4xK38-DM 825ekw

**Emergency Genset:**

1xKTA19-DM 350ekw

**Class:** ABS

**Delivery:** 2 sets



## Pure Electric Yacht

**Shipyard:**

Mazarin Shipyard

**Battery:** 200 kWh

**Solar:** 10 kW

**Electric System:**

2 x 50 ekW motors + drives

**Delivery:** 3 sets



## 64m AHTS

**Main Genset:**

4xK50-DM 1350ekw

**Emergency Genset:**

1x6CT8.3-DM 99ekw

**Class:** ABS

**Delivery:** 10 sets



# Smart Marine Power System Integrator

## 63500 DWT Bulk Carrier

**Shipyard:** Nantong Xiangyu  
**Class:** BV/LR/ABS  
**Delivery:** 45 shipsets  
**Scope of Supply:** Valve Remote Control & Tank Level Gauging Systems



## 3500m3 Dredger

**Owner:** Jan De Nul  
**Shipyard:** Keppel Singmarine  
**Delivery:** 3 sets

**Scope of Supply:** Generator sets, VFD, MSB, AMS/PMS, frequency converters

## 79900 DWT Bulk Carrier

**Shipyard:** Nantong Xiangyu  
**Class:** CCS  
**Delivery:** 16 shipsets  
**Scope of Supply:** Valve Remote Control & Tank Level Gauging Systems



## 1200T Wind Turbine Installation Vessel

**Shipowner:** Zhen Da  
**Shipyard:** WMMP  
**Delivery:** 2 sets  
**Scope of supply:** Genset

## 33000 DWT Chemical Tanker

**Shipyard:** Nantong Xiangyu  
**Class:** BV  
**Delivery:** 4 shipsets  
**Scope of Supply:** Valve Remote Control & Tank Level Gauging Systems



## 97.8M DSV

**Shipowner:** Jana Marine  
**Shipyard:** Guangzhou Salvage Bureau  
**Delivery:** 1 set

**Scope of supply:** Genset, AC Hybrid System, DIGITALIZATION (Aramco Spec), SMART, CYBER SECURITY, Crew Behavior

# References - Shipowners & Clients



BW OFFSHORE



Carl Büttner



# References - Shipyards



DSIC SHANHAIGUAN SHIPBUILDING INDUSTRY CO. LTD



CIMC RAFFLES



YARDIMCI



KARSTENSENS SKIBSVÆRFT A/S



Qingdao Beihai Shipbuilding Heavy Industry Co., Ltd.



# API MARINE

PRECISE, ECO-FRIENDLY AND SECURE  
SOLUTIONS AT SEA

SENSORS & AUTOMATION SYSTEM · POWER GENERATION · DIGITAL SOLUTIONS

A. P. I.  
MARINE