royal
van der leun

# BUSINESS BROCHURE

# The Power of Reliability









100 years van der leun

• SINCE 1920 •

**Royal Van der Leun**

Royal Van der Leun provides complete electrical and automation solutions within the industrial and marine industry. More than 100 years ago the company was founded in Sliedrecht, The Netherlands. Nowadays, the company has 10 locations in the world:
The Netherlands, Romania, Spain, Dubai, USA, Canada, Brazil, Singapore, Vietnam and China.

**Royal Van der Leun China**

Our presence in China has been developing since 2004 with numerous projects organized through a representative office in Tianjin. In 2010 we opened our production and engineering facility in Suzhou, China.

In China we are able to serve our customers with high level electrical system integration, electrical engineering, commissioning and state of the art production of electrical switchboards, cabinets and control / navigation desks.

All the products and systems manufactured or integrated by us meet the technical standards established by different classification societies as BV, LR, DNV·GL, CCS, ABS, NK, KR, SA, PC, IMO etc.

Royal Van der Leun China is your electrical engineering specialist for marine and industrial projects. With our capabilities in design, engineering and installation, we offer you the most reliable and efficient electrical systems.

DREDGING VESSELS

OFFSHORE VESSELS

## MAIN SEGMENTS

WORKBOATS


PONTOONS & BARGES

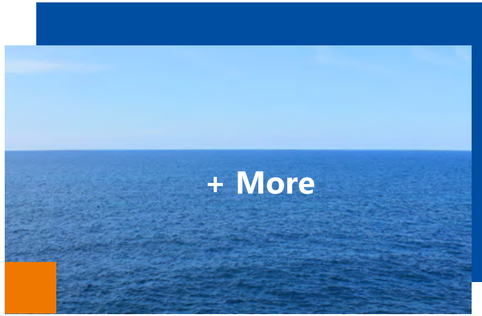


MERCHANT VESSELS

YACHTS

## MAIN SEGMENTS

FERRIES




OTHER VESSELS

# SERVICES

## Engineering

### Total solutions

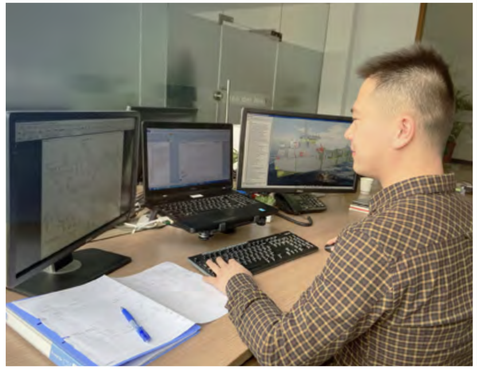
As a provider of total solutions, our principles are based on reliability, brand independence and operational simplicity—the combination of simplicity, ease of use, and results.

### Complete electrical engineering

Electrical system design, power systems, automation, switchboard design, electrical calculations, and much more. We all do it in-house by our engineering departments worldwide. Our team uses advanced 3D software, SEE Electrical, E-plan, Auto CAD and E-Tap software. Our systems and products meet the requirements of the major classification societies.

### Cable routing: maximum result with minimum cable length

We at royal Van der Leun are proud of our cable routing: a specialty in which we use software we have developed to calculate the exact amount of cable required for your project. That way we achieve maximum results with minimum cable lengths.






### System integration

With our expertise in system integration, we are able to offer the complete or partial system integration for your project. Communication through one single point of contact, minimizes your cost and optimizes your project management, project planning and your after-sales service.

### Key Benefits of a system integrator

- System reliability
- Conformity
- Efficiency of installation
- One trusted partner, one single point of contact
- Optimized supply chain & project management
- Strict & reliable planning

### Scope of Supply

**Navigation & Communication:**

- Navigation Equipment
- External Communication Equipment
- Public Address (PA)
- Telephone System
- Bridge Consoles

**Power systems:**

- AC/DC switchboards, cabinets & junction boxes
- Electrical/hybrid propulsion, VFD
- Control & navigation consoles
- Energy storage systems (batteries), transformers
- Shaft generator system, PTO/PTI/PHT control

**Automation system:**

- Alarm & Monitoring Systems (AMS)
- Power Management Systems (PMS)
- Energy Management Systems (EMS)
- Battery Management Systems (BMS)
- Control consoles (engine room / bridge)

**Others:**

- Lighting, sockets & switches
- General alarm system & alarm columns
- Fire detection systems
- CCTV systems
- Cable, MCT's & Installation materials

### Production

We are specialized in the construction of all kind of switchboards and cabinets for marine and industrial purposes.

- Low voltage switchboards
- Frequency drives panels (water and air cooled)
- Automation & alarm systems
- Control & navigation desks

Whether it is a simple starter box or a complex customized switchboard, we can design and build it according to your requirements.

### On-site installation

With our professional on-site team, we can support your projects in China.

- Checking ironwork
- Cable routing
- Cable pulling
- Connection of all cables
- Commissioning & Testing
- Sea-trials

### Service & maintenance

Our service department is always ready to support you. Please contact us any time.

- Spare parts & trading
- 24/7 Worldwide service
- Maintenance contracts
- Preventive maintenance

# SWITCHBOARDS & CABINETS

In our state-of-the-art production facility in China, we design and produce all sorts of switchboards and cabinets. Build according to your specified requirements and marine industry standards with the top regards for safety, reliability and user, and user-friendly operation.

## Scope of Supply

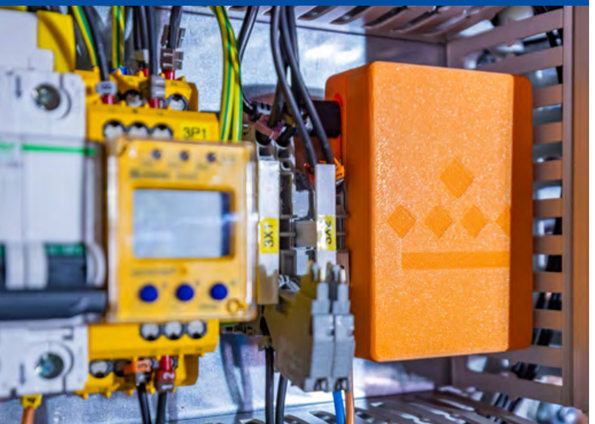
- Main switchboards
- Emergency switchboards
- Motor control centre's
- DC switchboards
- Frequency drive panels
- UPS panels
- Distribution panels
- PLC & control cabinets
- Shore supply cabinets
- Stainless steel cabinets
- Alarm relay box with alarm columns

## Key Benefits

- Modular design, according available space onboard of vessel
- Multiple Separation (Form 2a/2b, Form 3a/3b, Form 4a/4b)
- Customized colour available (Standard colour RAL7035)
- Maintenance-free busbar, with bare or tinned top-quality copper
- Selection of A-brand components according the latest technologies
- Parallel synchronizing among the generator panels
- Integrated Power Management
- System, with black-out prevention & power consumption optimization
- Maintenance access from the front and/or rear
- Fixed, withdrawable or plug-in feeders and starters

# scio

Scio, the new Royal Van der Leun app will help you to optimize maintenance on all switchboards on board, in the blink of an eye.



## Why Scio?

Scio enables you quickly and accurately to identify components, detect errors and process orders efficiently. Simplify your processes and increase productivity with Scio.

## What does Scio do?

Scan the present components in the switchboard and Scio directly delivers you all information about the components, such as: articles numbers, descriptions, and even complete technical drawings.

## How does Scio work?

- Install the Scio app on your mobile device.
- Open the app and log in with your personal credentials as received per mail.
- Click on the camera icon on your home screen to scan the components you wish.
- When Scio detects a component, it will automatically provide you with all information you need.

## Scio's 5 benefits

### 1 Fast and accurate component recognition

Scio uses advanced scanning technology to identify the components quickly and accurately in the control panel. No more guessing or manual sorting.

### 2 Display of article numbers

Once a component is scanned, the app instantly displays the corresponding article number on the screen. This allows you to have all the information about the component readily available to you quickly.

### 3 Access to technical drawings

The app displays article numbers, specifications and offers direct access to technical drawings for faster trouble shooting.

### 4 Simplified error detection and reordering

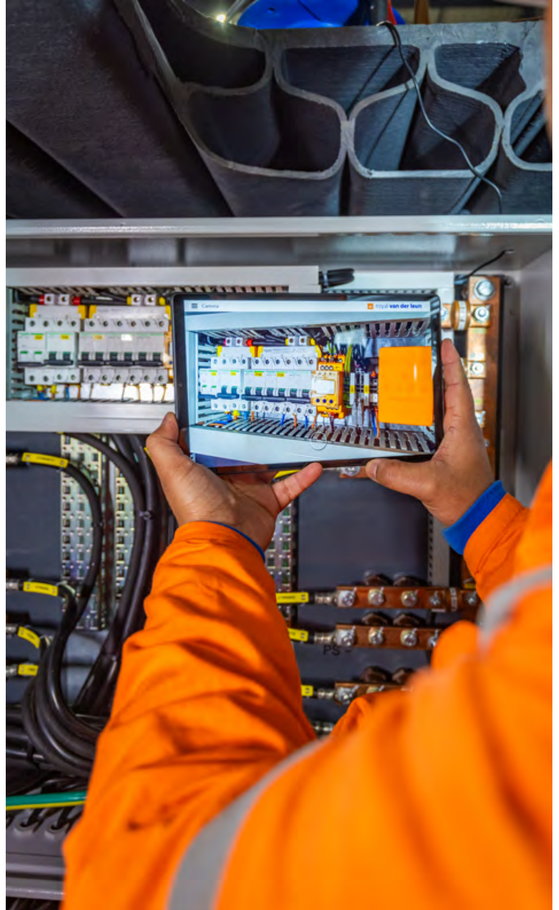
Scio's accurate component identification and display of article numbers simplify error detection. If a faulty component is found, you can quickly note the article number and start the ordering process for timely replacement.

### 5 Easy to use

Scio is designed with an intuitive and user-friendly interface, making it easy to navigate through its various functions. Even employees without technical expertise can quickly learn how to use the app and reap its benefits.

Download on the App Store

GET IT ON Google Play



# CONTROL & NAVIGATION CONSOLES

*We design, integrate and build control and navigation consoles according to the all related rules and regulations of marine classification societies and I.M.O conventions.*

## Scope of Supply

- Navigation consoles
- GMDSS console
- Safety console
- Engine control room consoles
- Bridge wing consoles

## Key Benefits

- Ergonomic design, according to available space onboard of vessel
- Compliant with IMO and SOLAS rules & regulations
- Designed with top quality non-reflecting aluminum top plates
- Customized colour available (Standard colour RAL7035)
- Fully integrated and customized to meeting to client requirements
- Cooling by different means
- Selection of A-brand components according the latest technologies
- Maintenance access from the front and/or rear

*Navigation consoles for a Damen RoPax ferry*




*Three detail pictures of the navigation consoles*

*Wing bridge consoles for a Damen RoPax ferry*


*Royal Van der Leun has developed many automation systems for marine and industrial applications.*

- *Alarm Monitoring Control Systems (AMS)*
- *Power & Energy Management System (PMS/EMS)*
- *Skidding (cantilever) Control System (SCS)*
- *Dredging Control System (DCS)*
- *Jacking Control System (JCS)*
- *Customized systems*



# AUTOMATION

## AMS System

### Key benefits

- Modular design
- HMI design
- Fast ethernet network based remote IO.
- Centrally stored configuration and event history
- Optimized user interface
- Multilingual
- User login (by engineer of customer) to accommodate for changes by customer
- Data bus connection integration
- Integration of hardware
- Additional custom options

## PMS/EMS System

### Key benefits

- Customized design
- Black-out prevention/ restoration
- Power consumption optimization
- Operation modes, custom design according to client requirements
- Generator standby start/ stop activation.
- Multilingual:
- Selection of A-brand components using the latest technologies.
- Integration of hardware:
- Communications/links possible to integrate systems of other suppliers

## SCS System

### Key benefits

- Customized system
- Skidding system functions
- Selection of A-brand components using the latest technologies
- HMI design
- Communications or IO link based possible to integrate other suppliers' equipment

## DCS System

### Key benefits

- Customized design or modular standard design:
- Hopper dredgers / Cutter dredgers / Backhoe dredgers
- HMI design / mimics and functions
- Multi lingual
- User login (by engineer of customer) to accommodate for changes by customer
- Communications or IO link based possible to integrate other suppliers' equipment

## JCS System

### Key benefits

- Customized system designs
- Jacking system control functions/designs
- Selection of A-brand components using the latest technologies
- Communications or IO link based possible to integrate other suppliers' equipment
- HMI design

20ft containerized power system

Power & control system intergrated in container

High voltage connection to containerized system

# CONTAINERIZED SOLUTIONS

*Over the years we have become a specialist in building customized container solutions.*

- *DNV 2.7-1 Offshore containers*
- *Service containers*
- *Storage containers*
- *Control containers*
- *Brake resistor containers*
- *Containers for power distribution*

## The Battery™

### Containerized Energy Storage System

Together with Alfen, royal Van der Leun uses their solutions of battery pack containers which offer a wide range of modular energy storage systems suitable for every application. The Battery™ is a proven concept onshore based for e-trading, creating an off-grid power supply or enabling peak shaving. With these applications royal Van der Leun will use the battery for hybrid functions, peak shaving in DP modes, fuel shaving, back-up power, shore supply and hotel functionality.

### Highlights of the Battery™

- Engineered based on 80 years' experience
- Fully integrated end-to-end storage solution
- Standardized production with flexibility to adapt to your needs
- Best in class battery package and components
- Continuous insights and remote management
- Built for all applications and all environments
- Load balancing
- Energy trading

# ELECTRICAL PROPULSION & HYBRID SOLUTIONS

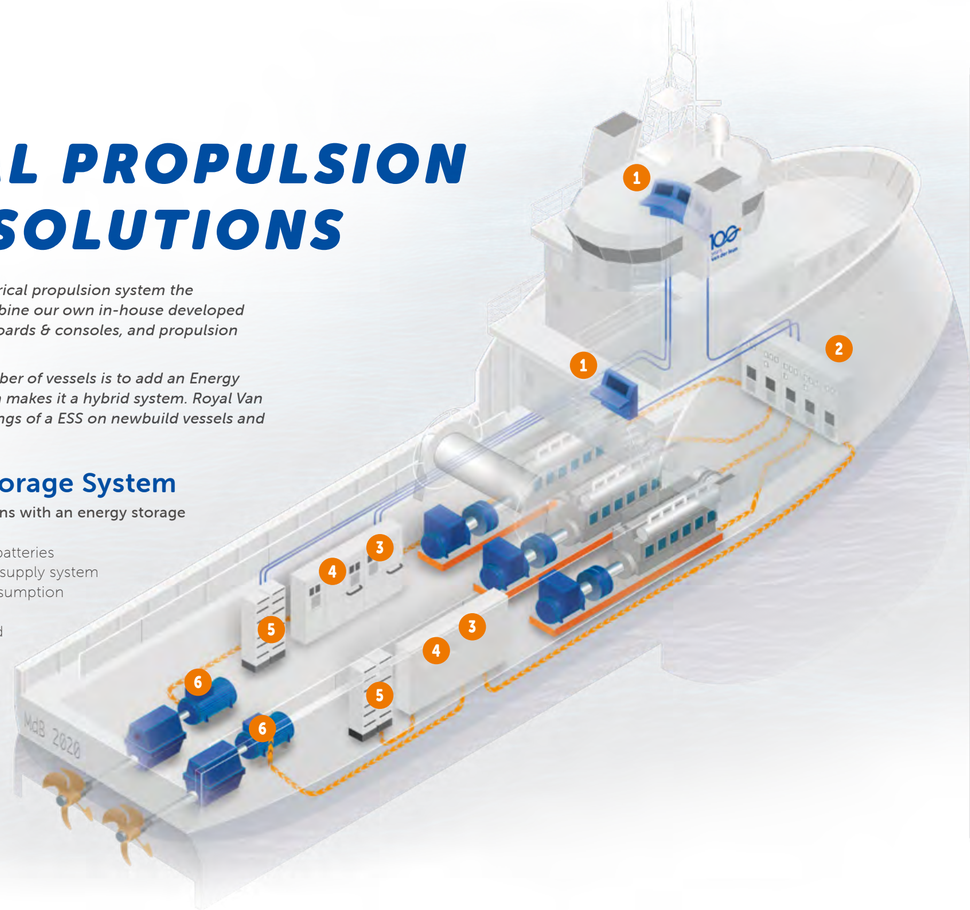
*Royal Van der Leun is a specialist for the electrical propulsion system the marine industry. As system integrator we combine our own in-house developed automation systems, state-of-the-art switchboards & consoles, and propulsion motors to provide the best solution.*

*The best solution for a rapidly improving number of vessels is to add an Energy Storage System (ESS) to the installation, which makes it a hybrid system. Royal Van der Leun can design and integrate battery strings of a ESS on newbuild vessels and retrofit installations.*

## Key benefits of Energy Storage System

There are numerous benefits of hybrid solutions with an energy storage system (ESS).

- Additional safety by spinning reserve on the batteries
- Improved long-term efficiency of the power supply system
- Lower operating costs due to lower fuel consumption
- Lower maintenance costs related to engines
- Reduced noise levels and vibrations on board
- Reducing noise in water
- Higher redundancy
- Improved vessel performance
- Reduced emissions





### Operator Stations

The operator stations can be integrated with the navigation and communication equipment onboard of a vessel.


### VFD/DC Switchboard

The VFD/DC switchboard with DC grid can convert AC power to DC and vice versa. It will allow the battery strings to provide power to the grid and it will allow the grid to charge the batteries. The VFD inside will control the propulsion motors.


### Energy Storage System (ESS)

The Energy Storage System consists of multiple battery units, which forms a battery string. This makes the modular system suitable for each type of vessel and requirement. Depending on your project's kWh requirements, we offer you the best suitable solution.


### Main Switchboard

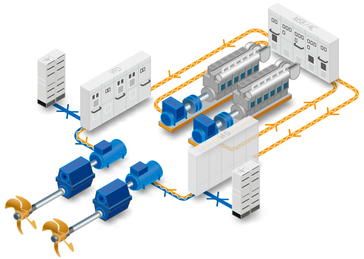
The 380-69VAC main switchboard is the main power distribution link between the generators and the DC common switchboard.


### Heat Exchange Unit

The royal Van der Leun HEX Unit is our in-house developed heat exchange to be integrated in our switchboards which require a water-cooling system.

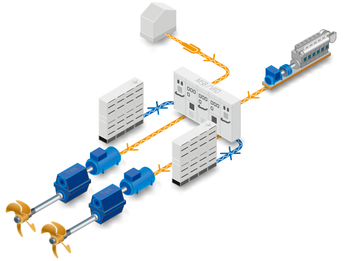

### Propulsion Motors

Developed for the Marine & Offshore industry and meet marine classification standards, from synchronous or asynchronous motors, AC of DC motors to induction or permanent magnetic motors.



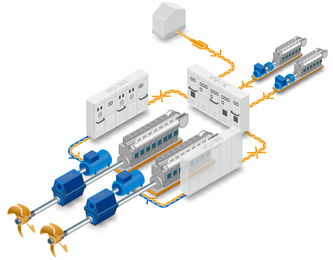
## Hybrid mode

The hybrid mode is the effective use of conventional energy sources such as generators with battery systems and electric propulsion. The presence of the electric powertrain is intended to achieve a more sustainable use of fuel of the generators. This optimized use is achieved because the generators run at a constant speed. This way, a variety of solutions in combination with the Energy Management System are available to achieve optimum and sustainable fuel consumption on any type of vessels.



## Full electric mode

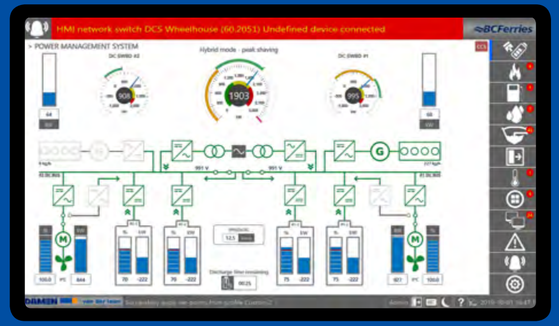
In this mode, zero-emission energy sources such as batteries and fuel cells are used. Often only a small conventional energy source is available in case of emergencies. Full electric functionality can also be installed on hybrid vessels, where we reduce idle emissions by preventing idling in conventional energy mode by shutting down the engine and switching entirely to battery power.



## PTI-PTO mode

With this setup we can convert even the most conventional ships into hybrid vessels and ensure low emissions. By replacing the power generators on board, they can be used either as a generator or as an engine. With the help of an advanced drive system and the application of zero-emission energy sources, in combination with EMS, we get the most out of your system.






## Energy Management Systems (EMS)

The royal Van der Leun Energy Management System is a system that can be deployed on every vessel and with new as well as existing installations. Installing the EMS allows you to achieve optimum efficiency with your drive system and to make a significant contribution to a cleaner environment and a better world.

The system is used to monitor, control and optimize the performance of installed energy sources such as batteries and generators. It also continuously monitors, and controls power sources based on load and battery charge status.

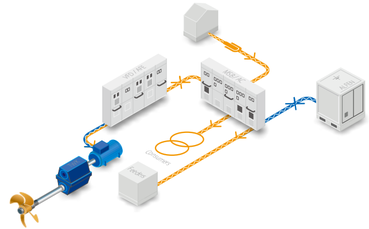
Before a battery runs low, the EMS initiates appropriate action. The operator does not have to worry about charging batteries and manually changing power sources.

The EMS is perfectly suitable for monitoring various strings of batteries, balancing the SOC between the sets when charging and discharging. Another important task of the system is collecting data from the battery systems and presenting these values in a clear and understandable way, such as differing voltages between cells. Also, temperatures of individual cells can be monitored. Each deviation in voltage or temperature can be compared to oil pressure and temperature deviations in a conventional combustion engine. Classification Societies also require these values to be available at the operating station.

The EMS also ensures that the battery system interfaces with the bus voltage via a power converter. This bus voltage, AC or DC, must be constantly maintained within a normal voltage range to ensure a stable voltage network on board. In situations where a battery system issues a power limit as a safety precaution, the EMS responds by taking action and informing the operator if necessary.

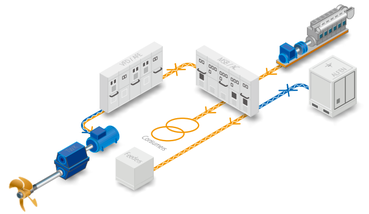
## Shore booster mode

This use of the EMS is a combination of various modes and is specifically used when the vessel is hooked up on a shore connection. By using a battery in combination with the EMS, larger power demands can still be met with a relatively small shore connection. Also, the vessel with a relatively small 'hotel load' in the harbour can lie completely emission-free alongside the shore. It is even possible to feed (back) any surplus energy to the main onshore grid.



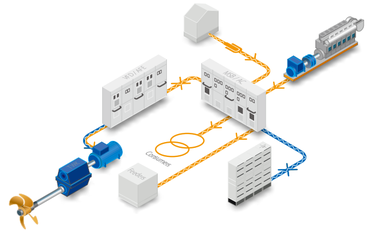
## Spinning reverse mode

Modern hybrid vessels make use of efficiency-improving technologies such as regenerative power which convert the kinetic energy to electric energy, which in turn is stored in a battery or supercapacitor as a spinning reserve. This way, no energy is lost and the reserve can also be used for peak shaving mode.



## Peak shaving mode

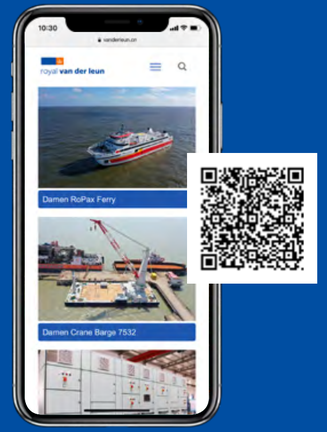
This mode is a mode of balancing the load steps on the power grid by adjusting or controlling the load. This can be achieved by direct intervention of the EMS and the use batteries or super capacitor. The EMS allows to reduce the demand for electricity during peak usage (peak shaving), which can, in turn, reduce costs by eliminating the need for peak steps on the power grid. It also reduces harmful emissions.



# REFERENCE PROJECTS

Royal Van der Leun has successfully executed over ***1600*** projects in the marine industry. This includes many types of dredging, offshore, merchant vessel and also small workboats, pontoons and barges.

Scan the QR code with your phone camera to find more details of the selected reference projects.






## Yachting Refitting

Name **Emerald**
Classification **Lloyd's Register**
Year **2023**
Yard **Balk Shipyard**
Owner **Balk Shipyard**







## Hybrid Ferries

Name **Damen Road Ferries 8117 E3**
Classification **Bureau Veritas**
Year **2018-2022**
Yard **Damen Shipyards Galati**
Owner **BC Ferries**





## Research Vessels

Name **ORSV 8316**
Classification **Bureau Veritas**
Year **2021**
Yard **Damen Shipyards**
Owner **Cotectmar**

## Crane Barge

Name **IDCBA 7532**
Classification **Bureau Veritas**
Year **2020-2021**
Yard **Damen Shipyard**
Owner **Non-disclosure as required**




## 4800T Oil Tanker

Name Tolga
Classification Bureau Veritas
Year 2019-2020
Yard Damen Yichang Shipyard
Owner Naftal Algeria






## OPV 1800

Name Offshore Patrol Vessel
Classification Lloyd's Register of Shipping
Year 2017-2022
Yard Damen Shipyards
Owner Maritim Malaysia

## Self-elevating Platform

Name JB-117
Classification A.B.S.
Year 2011
Yard Labroy Marine Limited, Singapore (2011)
Owner Jack Up Barge BV




## Reel Lay System

Name IHC 550T Reel Lay System
Classification DNV-GL
Year 2018-2020
Yard Royal IHC/PJOE Penglai/QWHI
Owner Shanghai Salvage Bureau




## Offloading Facility Pontoon

Name MOFTP 14040
Classification Llod's Register of Shipping
Year 2014
Yard Damen/Yahua Shipyard, Nantong
Owner ALE Heavy Lift






## 12000m³ TSHD

Name Chang Jiang Kou 1&2
Classification China Classification Society
Year 2010/2012
Yard Royal IHC/Daoda Shipyard, Qidong
Owner Chang Jiang Waterway Bureau

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