Offshore Support Vessels

Solutions designed to expand your operational envelope on all fronts

MACGREGOR

Passion for performance – united by the sea

MacGregor is a family of innovators. By engineering solutions that make the sea more accessible, safe and reliable, we support you whose livelihood depends on the changing conditions of the sea. To enable that we have a variety of strong product brands and committed experts with a passion for solving challenges – and the power of the sea is sure to provide those.

Our founders braved new frontiers in different times and places. Those origins merge at today's MacGregor, inspiring us to continue the stories, and create new ones. The spirit of our founders lives on in the pride we have for what we do, and our determination to find new solutions for the people we work with. Together with you we will write the next chapters.

We are a global team of professionals, who create value for you; the owners, operators, and ship builders in the offshore and marine industries. Understanding your business and way of life is key to our work. It is the foundation to addressing your needs with tailored solutions for load handling, cargo handling, mooring or essential auxiliary equipment. Your productivity, sustainability, and equipment lifetime benefit from our combination of expertise and technology. As innovators, we work together with you to set benchmarks in innovative solutions and value creation.

Our deep respect for and experience of the sea lays the foundation for adapting to its challenging conditions. Wherever we work around the world, we work together with a passion for performance and a love of challenges — united by the sea.

Cover photo: North Sea Giant

MACGREGOR

Our portfolio

- Offshore and shipboard cranes
- Module handling systems
- Launch and recovery systems for ROVs
- A-frames
- Rescue and work boat davits
- Deck machinery and auxiliary systems
- C-HOW - explore the possibilities
- Global lifecycle support

Photo: Scott Garriott

Make the most of your lifting operations

Operational profitability through pioneering technology, reliability and lifelong sustainable performance.

MacGregor is the world-leading provider of market-driven engineering solutions for installation on most advanced offshore vessels and rigs. It is our strategic aim to benefit our customers by driving innovation and taking the lead in further developing the industries we are in.

Optimising long-term safety and efficiency of your offshore operations is best attained when your specific operational requirements are the primary focus. We are commited to leveraging our expertise and in-depth understanding of your business processes to design comprehensive solutions for your type of vessel and its specific operational requirements.

We understand the offshore industry's ever growing demand for operational flexibility and increased equipment reliability. All our systems are designed, manufactured, tested and certified in accordance with classification requirements and applicable international standards and regulations.

All MacGregor products may be supplied with optional features, modes and tools that augment specialised equipment performance. MacGregor systems may be delivered with Winterization package, specifically designed for operations in extreme environments.

Our solutions are designed to expand your operational envelope on all fronts. That means longer hours, more days, in more demanding conditions, while maintaining safety, reliability and efficiency with top precision.

Your success is our mission

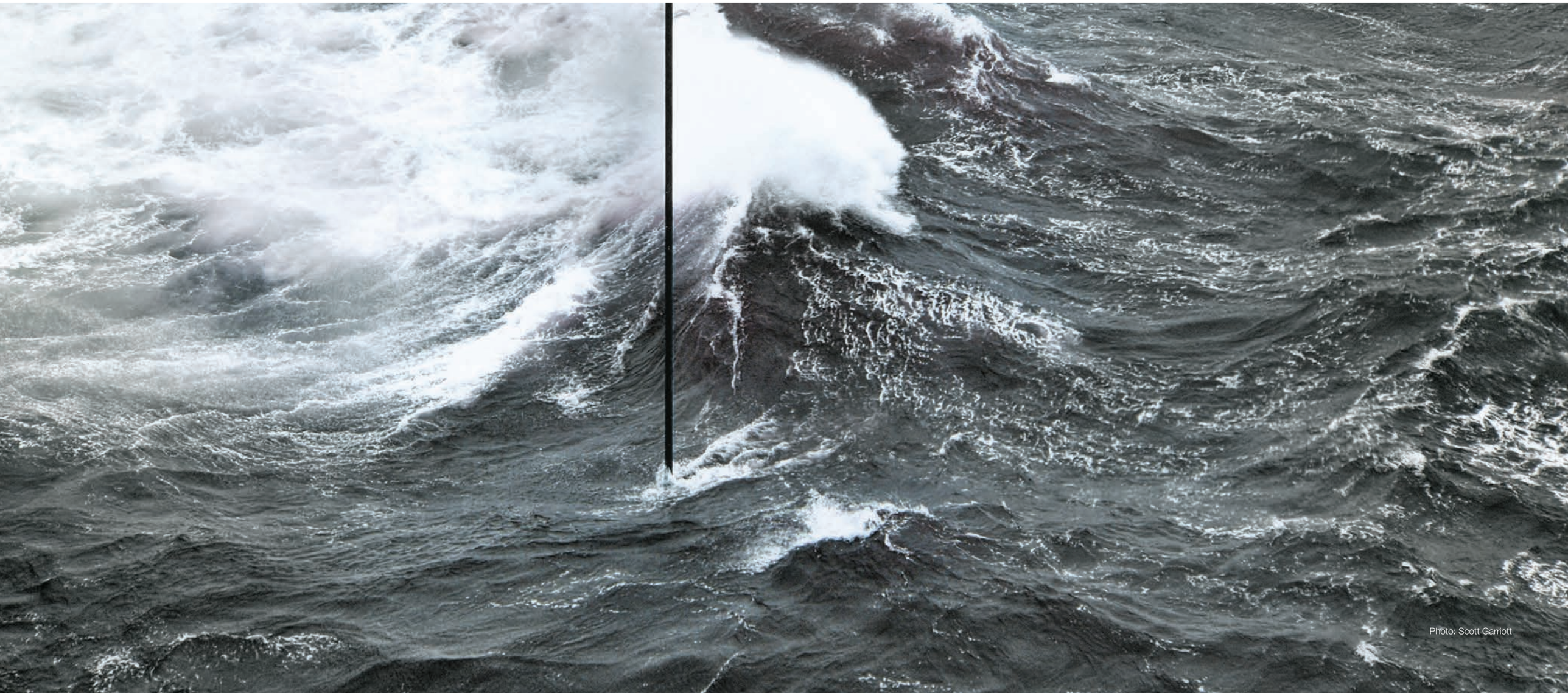


Photo: Scott Garriott

Offshore and shipboard cranes

Vessel: Southern Ocean

AHC subsea cranes

MacGregor active heave compensated subsea cranes of active boost or semi-active types are designed for accurate internal, offshore and subsea lifts under challenging conditions.

Active heave compensation, auto-tension and auxiliary winch and tugger winch functions are integrated within a powerful and intuitive in-house designed control system, assuring precision and safety of critical operations. The cranes range in safe working load single line capacity of up to 600t, depth 4000m +. (HPU and winch may be placed below deck).

All our knuckle-jib cranes are designed to lift high loads with an extended knuckle jib. This feature provides operators with great flexibility during the planning of lifting operations. Other features include ship-to-ship mode, personnel lift and numerous others.

Vessel: Siem Moxie

3-axis motion compensation cranes

MacGregor offshore three-axis motion compensation crane of telescopic or knuckle-jib type is designed for extremely accurate load positioning during offshore windmill and rig supply and maintenance operations.

MacGregor multi-dimensional compensation technology compensates for vessel's movements in the horizontal plane (pitch and roll) as well as in the vertical plane. Standard AHC technology is supplied though a crane's winch, compensating for vessel's vertical movements. The recently developed horizontal compensation technology ensures that the crane remains vertical in relation to the seabed, and therefore parallel to the windmill's structure and keeping the suspended load fixed in a selected position.

The crane may also be used for normal lifting operations without the heave compensating system, ship-to-ship operations, and can be specified for certification for personnel lifts.

MacGregor 3-axis motion compensation crane was recognized with a prestigious Offshore Support Journal's Innovation of the Year Award, 2014.

Semi-electric offshore cranes

MacGregor semi-electric active heave compensated cranes retain the superior operational performance of our traditional offshore cranes, while delivering great benefits in terms of improved environmental footprint, reduced power consumption, regeneration of power with integrated energy storage capability, and reduced installation and maintenance requirements.

These cranes are supplied with high-power, high precision water-cooled permanent magnet electrically-driven motors on the main and whip winches, and electro-hydraulically operated crane functions. Multi-electrical motor winch design offers higher redundancy and very high precision of control in all operating modes.

Shipboard cranes

Our MacGregor and Triplex shipboard cranes are designed for safe and accurate deck lifts onboard ships and offshore installations, and cargo handling within harbors.

The cranes may be delivered with safe working load of up to 20 tonnes and various slew bearing dimensions and height of pedestal to accommodate operational requirements and industry regulations.

Specially designed offshore cranes may be delivered with an operator cabin and various functions integrated within control system, such as Active Heave Compensation and auto tension.

Module handling systems

Module handling systems are customised to comply with vessel's layout and its specific operational requirements, and are supplied as hangar-integrated tower or as stand-alone aft deck systems of square lattice or gallows box structure. While free-standing towers offer more flexibility, the hangar-integrated alternative offers, safer and more comfortable working environment.

Our module handling systems are fully vessel integrated and are delivered with constant tension guidewire system, double guide cursors, multiple door moonpool system, heave compensated lift winch and personnel lift.

The integrated control system provides a powerful centre for control and monitoring of all aspects of the system. Such systems are ideally suited to enable extremely precise handling of modules of all designs and sizes.

MacGregor module handling systems may be delivered with electrical main, guide-/pod-line and other winches, including energy storage system.

Moonpool door systems can be delivered for ROV and work moonpools of all types and sizes. Single, double or multiple door designs are specifically adapted for the moonpool lift equipment and can be fully integrated with bottom moonpool doors, a deck skid system and virtical rail and cursor system. Door controls may be integrated with the lifting equipment control system and benefit from failsafe locks which ensure equipment and personnel safety.

Photo: Scott Garriott
Vessel: Rem Ocean

Deck-skid system with hydraulically driven tractor units, pallets and full deck rail arrangement enable safe, controlled shuttling of loads of up to 100 tonnes, across open deck, into multiple ship hangars and across moonpools even while underway.

These systems ensure complete load security and may be operated locally or via a remote control panel. Quick connections of the tractors to a ringline hydraulic system provide enhanced flexibility and mobility for any load.

Launch and Recovery systems

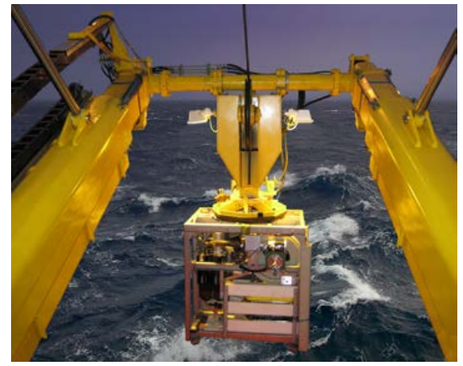
MacGregor LARS systems are exceptionally reliable and precise, and are designed to withstand extreme dynamic forces and are supplied with a dynamic factor of 3. These robust and accurate systems enable safe operation of heavy systems in adverse weather conditions of -20°C to +40°C and sea states up to Hs6.

Moonpool LARS is designed to accommodate safe handling of large TMS and work ROVs. The vertical LARS system is delivered with a vessel-integrated and rail-mounted guide cursor and highly accurate hydraulic or electric active heave compensated umbilical winch, large screen-based control panel and safeseal moonpool door system. Wheel locks, cursor locks and extension rams allow secure and convenient parking at heights ideally suited to maintenance or traffic around or under the ROV.

Overhead-mounted overside LARS utilizes extremely precise, electrically-driven heave compensated umbilical winch for safe launch and recovery of various types of TMS/ROVs. An extendible, telescoping snubber reduces pendulum motions and allows locking and rotating of the load. The compact telescoping design and overhead placement of the LARS ensure safety and allow for considerable free work space in the ROV hangar. Crew safet and comfort may be further enhanced by placing the side hangar door tops below the LARS. This allows the hangar doors to be closed even when the ROV is deployed.

Vessel: Fugro Symphony

Deck/skid-mounted overside LARS is a flexible and compact modular A-frame based system for precise ROV/T control during launch and recovery. An articulated and fully damped snubber allows increased security and full rotation of the load while additional snubber sheaves allow for offlead umbilical angles during surveys. A hydraulic shock absorber damps any snatch loads enhancing load and umbilical safety. The A-frame can be retracted to free the maintenance area around the ROV/T when parked.



Portable LARS
Portable LARS may be designed and delivered for handling of various types of unmanned underwater vehicles and subsea survey equipment such as WROV's, AUV's and seismic nodes. MacGregor portable LARS offers valuable benefits of easy transportation and mobilization, while maintaining uncompromised precision and performance.

Umbilical winches and sheave systems designed for ROV/Ts of all types utilize direct on-winch active heave compensation technology providing extremely precise position and speed control over an increased lifetime. Winches are supplied as compact, electrically- driven units with advanced full radius spooling systems. Sheave systems allow for flexible placement of the winch onboard while maintaining umbilical integrity.

ROV side-hangar doors are designed to function in adverse weather and heavy seas whilst ensuring continuity of ship operations. Design options are available to cater for a variety of operator needs. Door selection takes into consideration ship design, method of ROV launch and sea-state. Controls may be integrated into the control system of the Launch-and-recovery systems (LARS) for simplified operation

Flush deck hatches are available as hydraulic one-piece, two-piece or crane lift off with sizes available for loading general cargo or containers. Options exist for a 'plug and play' style modular unit complete with deck insert for ease of installation.

A-frames

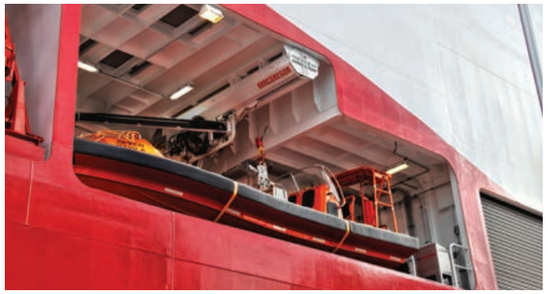
A-frames are designed to perform a broad range of operations, such as offshore load handling (plough deployment), subsea load handling (anchor handling) and launch and recovery of special tools and equipment.

MacGregor A-frames with lifting capacity ranging from 1 to 350 tonnes are available in electro-hydraulic and electrically–driven versions. These may be delivered as self-contained and self-erecting units for mounting at stern or side of the vessel. The A-frames are available in centre-rigged, side-rigged, knuckle-jib and telescopic versions and may include winches and pendulum dampening scissor frames.

A-frames are designed with a substantial structural and mechanical capacity margin for heavy subsea operations in corrosive offshore environment and for secure parking when not in use.

Rescue davits

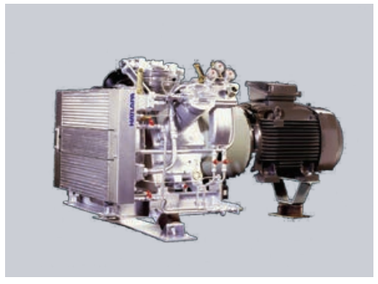
Rescue and work-boat davits including pivoting and telescoping types are available for handling small or large daughter craft including MOB and other rescue boats. SOLAS approved davits incorporate emergency backup power systems for guaranteed operation even during dead-ship conditions. Davits can make use of optional shock absorbers, heave compensation and/or constant tension features for safer handling in severe weather conditions and for heavy boats. An associated towing boom (slewing, luffing or telescoping) with optional jigger winch keeps the boat under control during launch and recovery.



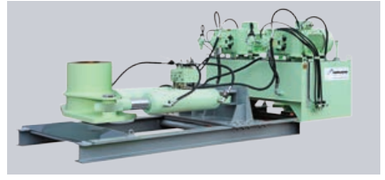
We can supply a robust **G-type** davit, especially suited for operations in rough conditions. Our **T-type** davit has a compact design which allows for installation in hangar with limited height and/or depth. The space-saving design of this telescoping davit leaves the vessel deck and bulkhead clear, supporting the davit only by the overhead ship's structure. MacGregor **A-type** davit is a cost-efficient alternative that offers proven performance and reliability.

Deck machinery and auxiliary systems

Winches, windlasses and capstans are generally supplied with power packs and control systems as a complete package. Hydraulic ringline connections, electric or air motors are also available. Our winches hold the ship safely in position berthed at pier and windlasses secure it while anchored at sea. Integrated winch, windlass and capstan systems are available to provide maximum flexibility for all types of line and chain handling. Our Hatlapa and Pusnes branded deck machinery serves the needs of any IMR/OCV.



Compressor (L90, L140, L160)
Our Hatlapa branded air compressor can be used for starting air, service air and control air. Every compressor is put through its paces on a modern test bench, and all well-known classification societies are present on a regular basis to carry out testing procedures.



Steering gear
The steering gear controls the rudder that turns the ship while in motion. Our Hatlapa and Porsgrunn branded rotary vane steering gear is compact and suitable for the smallest compartments.

The maximum torque can be applied at all angles, thus increasing safety, particularly when sailing in narrow straights. It also enhances maneuverability during berthing.

C-HOW Explore the possibilities

Simulation technologies are becoming standard in the offshore industry. At MacGregor, we rewrite the standards to take into account your needs and to offer a range of simulation packages that can optimise your equipment effectiveness, while enhancing safety and operational efficiency.

C-How is a simulation platform that allows users to run their equipment through various simulated conditions and operations. The tool provides relevant data for a wide range of conditions or design setups when physical systems cannot, giving you better information earlier in a project, along with the ability to explore numerous possibilities from any location and without risk.

Benefits at every stage in a project

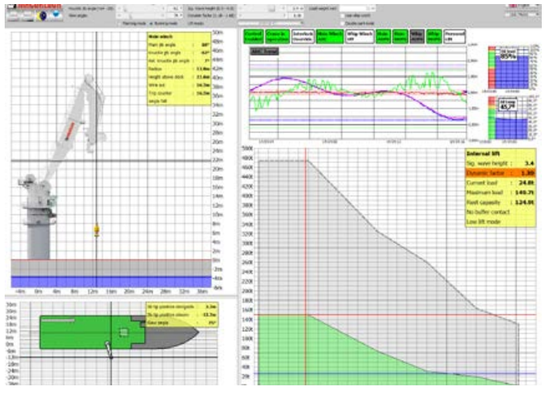
The software is extremely flexible and simulation detail can be varied and upgraded depending on the level of functionality required.

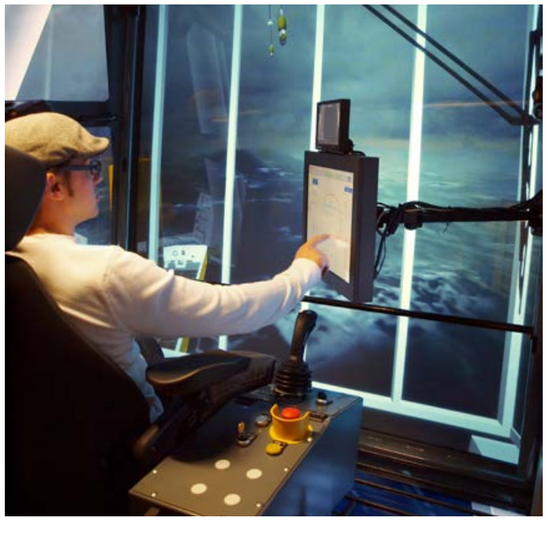
Its multi-purpose applications offer numerous benefits; from concept studies, design and operational planning to crew training, and for modifications and upgrades. C-How can be your presentation tool that will allows you to demonstrate your vessel's operational functionality and capabilities.

Scale your C-How simulator package to suit your needs

C-How can be tailored to specific customer requirements. This tool is modular and scalable, and all packages are configured for further vessel layout, additional equipment and new operational scenario development. It is not limited for use with MacGregor equipment and can be tailored for use with products from other manufacturers.

C-How can be installed to run on different hardware setups and is designed for easy upgrade packages that offer the user possibilities ranging from a basic planning and testing tool to a full-scale operational training experience.





Full service portfolio

MacGregor has the expertise and global resources to help you increase the earning potential of your fleet throughout its lifetime. We add value to your business by taking responsibility for your on board load handling systems and helping you achieve optimum operational availability.

Global presence, local service 24/7

MacGregor's load handling experts are on standby worldwide and around the clock to provide a rapid response to your needs. We operate in approximately 50 countries and we are constantly strengthening our local presence to meet changing market needs. MacGregor's service network consists of more than 60 service centres in major ports around the globe, staffed by specialists.

We supply original MacGregor spare parts and repair services on a planned schedule, on demand or on an emergency basis.

Full service portfolio

Our service portfolio covers the following areas: spare parts, planned and on-demand service, repairs, modernisations, conversions, inspections and certifications, installations, dry-docking, consultancy services, project support and 24/7 support services.

These services are designed to improve overall performance, enhance features, extend operational lifetimes and to give existing equipment a new life along with a new warranty and guaranteed reliability.

Training ensures your crew and equipment safety and efficiency of operations

We provide operator and maintainer full theory training courses; standard, refresher or customised programs, as well as full simulator training. Providing your crew with theory and practical training courses means you can rest assured that your equipment and systems are properly cared for and utilized to their full potential.

MacGregor OnWatch remote diagnostics will protect your business and your people. Over a secure satellite link, our team of world-leading crane specialists will analyse your system to troubleshoot problems – without sailing to port.

Direct costs of delays quickly add up; indirect costs of a damaged reputation can be even higher. Combining MacGregor OnWatch service with a strategic spare parts kit that covers your most likely repair needs will get you on time, on budget and on to the next job.

Calculate how much a delay could cost your business at **www.macgregoronwatch.com**

Prevent hazards and reduce risks

A MacGregor Onboard Care (MOC) contract offers you sustainable ship operations and revenue earning capabilities by ensuring the operative availability of equipment through planned maintenance solutions and our global service network. After identifying your unique needs, we can offer you a combination of services that best fits your requirements. MOC solutions are customised to your needs from the four main elements and the element modules:

AVAILABILITY SUPPORT assists the customer in maintaining optimum operation, while helping to reduce the administrative burden. All contracts are facilitated by the MOC coordinator, who acts as the single point of contact for technical, maintenance planning and budgeting support.

ONBOARD MAINTENANCE aims to keep the customer's equipment continuously available for its designed operation and to prolong its effective working life. This is achieved through condition monitoring along with preventative, corrective and condition-based maintenance.

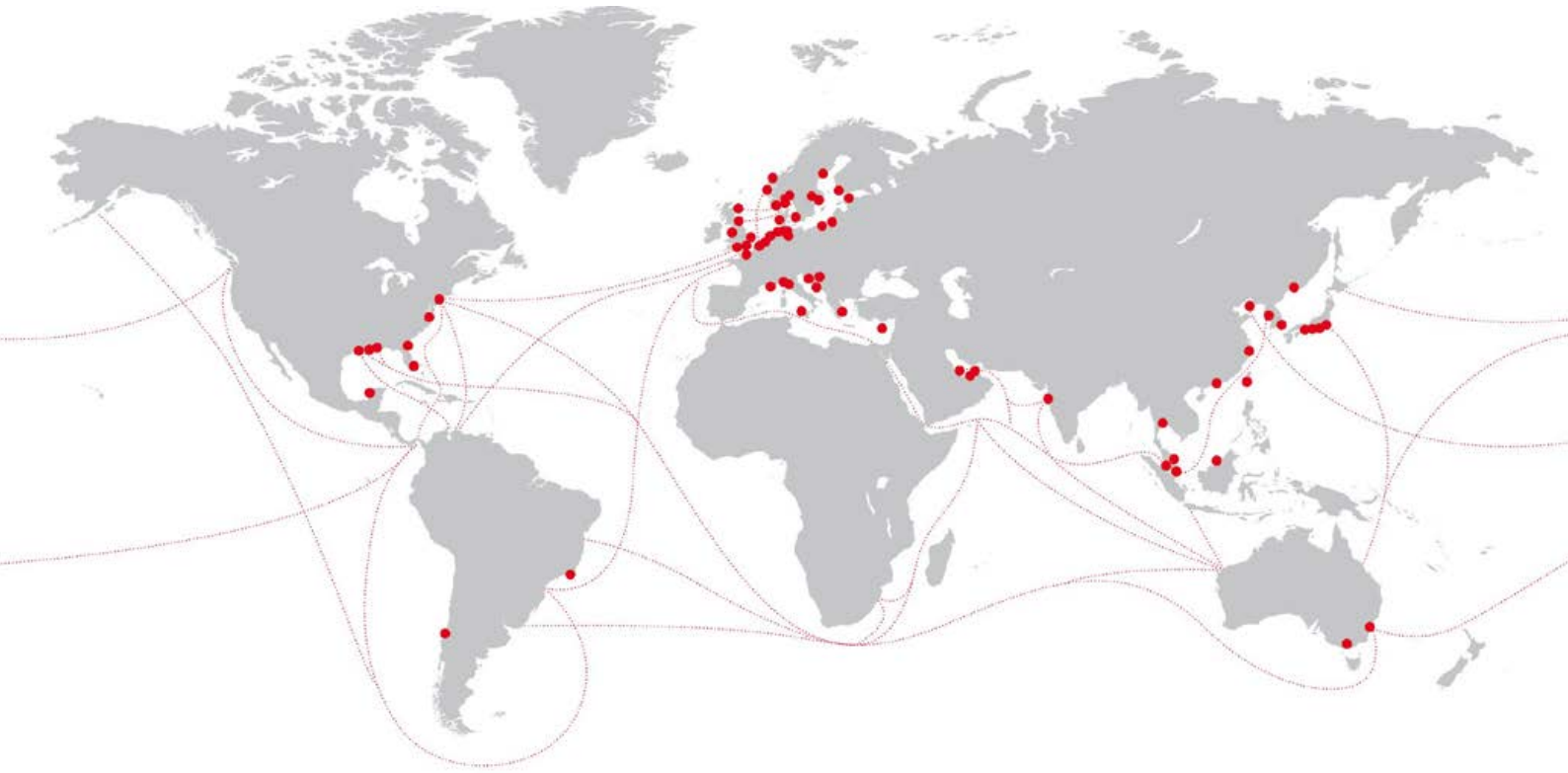
SPARE PART MANAGEMENT ensures guaranteed spare part availability. Spare part management can relieve the customer of the associated financial burden of asset management, releasing capital for other purposes.

CUSTOMER TRAINING provides personnel with the knowledge and skills to operate and maintain the equipment correctly, helping to improve safety and avoid unnecessary breakdowns. Training programmes can be delivered either on board or ashore and enable customers to utilise their investments to the maximum effect.

- Nominated coordinator
- 24/7 response
- Maintenance planning
- Updated bill of material
- Component substitution
- Agreed pricelists
- Remote access support
- Inspections
- Basic adjustments
- Greasing
- Planned maintenance
- Component replacement programme
- Component overhaul programme
- Spare part handling on board
- Spare part handling on shore
- Crew training
- Staff training

MACGREGOR

Wherever needed, you can rely on our support.



MacGregor offers world leading engineering solutions and services for handling marine cargoes and offshore loads. The scope of our integrated packages is growing and now also includes Hatlapa, Porsgrunn, Pusnes and Triplex products.

MacGregor serves the offshore, maritime transportation and naval logistics markets in ports and terminals as well as on board ships and rigs. MacGregor solutions combine load and cargo access, stowage, care and handling functions to optimise lifetime profitability, productivity and environmental sustainability.

MacGregor is part of Cargotec. Cargotec's class B shares are quoted on NASDAQ OMX Helsinki Ltd.

www.macgregor.com

Lloyd's Register Quality Assurance certifies that the Quality Management System for MacGregor is ISO 9001:2008 compliant.