Electrically-driven RoRo equipment — environmentally and cargo friendly
Eco-friendly ships with electric drive

Electrically-driven MacGregor RoRo cargo access equipment is a result of intensive R&D work, responding to customers requesting products that improve the performance and protect the environment. We are committed to operating in a responsible manner and taking environmental considerations into account.

Innovations for eco-friendly ships
As a pioneer in the field, we have continuously developed and improved the RoRo cargo handling concept since we delivered the first MacGregor RoRo stern quarter ramp in the late 1960s.

We work closely with shipyards and ship owners. A few years ago our shiptype experts identified the need in the market for environmentally-friendly solutions.

Our R&D experts focused on developing products that were environmentally-friendly, cargo safe, and energy efficient. We can offer electric drive solutions for most equipment, including stern quarter ramps, internal ramps, car decks and linkspans.

Environmental benefits
Electrically-driven MacGregor RoRo cargo access equipment reduces the amount of hydraulic oil carried onboard and minimises the environmental impact.

In the car-carrying market there is a demand for clean and green vessels. Car manufacturers are putting pressure on ship owners to reduce the risk of cargo damage by hydraulic oil.

Technical benefits
One technical reason is the availability of improved electric drives in form of electric actuators, to replace the direct-acting hydraulic cylinders used for operating smaller items or in cleating and locking devices.

Electric versus hydraulic drive
- Electric motors and gears replace the hydraulic motors
- Electric actuators replace the cleat cylinders
- Electric winches or actuators replace the operating cylinders, for car decks and ramps for example
- Electric actuators replace the operating cylinders, for ramp way doors and ramp covers
- Electric winches with power feedback system replace the hydraulic winches for the side and stern ramp

Electric control system
All the equipment is operated from panels placed on the deck, close to the ramps and car decks and controlled by PLC. The operation is activated by push-buttons or joysticks and switches. Lamps indicate the position of the cleat and if it is locked or unlocked.

Energy savings
Electrical operation saves energy: there is no continuous running, no energy losses in the piping system and power feedback when breaking (where it is applicable).

Electric drives are easy to service
Cargotec’s ambition is to ensure the operative availability of your cargo flow systems to keep your operation up and running.

- Electric drives are energy efficient, maintenance friendly and easily monitored. By using all electric components, it’s suitable for linking to remote diagnostic systems, to provide continual data input for analysis round the clock. The “health” of a piece of equipment can be predicted at any time. Automated speed up and slow down functions make them easy to operate and the inspections are simplified.

- MacGregor Onboard Care (MOC)
Our advanced service concept offers different levels of service. If required, condition monitoring can form an integral part of a MOC planned maintenance agreement.

- Our service network
Cargotec’s marine network consists of more than 60 Cargotec marine service stations in major ports worldwide, supplying original MacGregor spare parts and repair services.

Throughout your ship's life-cycle
Later in the ship’s life-cycle, we can modernise and convert the original solution to match new market needs.

Advantages of electric drives compared with hydraulic drives

For the shipowner:
- No oil pollution or damage to cargo by hydraulic oil
- Energy saving as no continuous running is needed
- No change in operating time in cold conditions
- Maintenance friendly
- Easy to monitor

For the shipbuilder:
- Cable wiring is easier than piping
- No flushing work required
- No need for high pressure hydraulic skills
- No pump unit needed

Committed to clean seas
We develop environmentally-advanced cargo handling systems such as our electric drive technology
Recent references

We have used electric drive for many years. The most recent references, delivered and secured orders to be delivered, include:

**Newbuildings**
- **Shin-Kurushima Toyohashi – two 6,400-unit PCC’s for MOL**: stern quarter ramp, side ramp and six movable ramps
- **Shin-Kurushima Toyohashi – two 6,400-unit PCC’s for Japanese owners**: stern quarter ramp, side ramp and six movable ramps
- **Shin-Kurushima Dockyard – one 4,000-unit PCC for MOL**: stern quarter ramp, side ramp and two movable ramps
- **Kyokuyo Shipyard – four 2,000-unit PCC’s for PD Gram & Co**: ten hoistable car deck panels, one access ramp, four movable ramps and two ramp covers
- **Jinling – six 10,500 dwt RoRo vessels for Finnnlines**: 2x2900 m² car decks 21+20 electric panels and two access ramps
- **HMD – three Deepsea ConRo’s for CMA-CGM**: 5000 m² car decks and 27 hoistable plywood car deck panels
- **HHI – two 8,000-unit LCTC’s for Wilhelmsen**: six movable ramps and one hoistable plywood car deck panel
- **DSME – two 6,700-unit PCTC’s and eleven 8,000-unit LCTC’s for Wallenius**: four car deck panels, five to seven internal ramps and one big flap
- **Shin-Kurushima Dockyard – two RoRo vessels for a Japanese owner**: two stern quarter ramps and one movable ramp
- **MHI – four 2,000-unit PCTC’s for Toyofuji**: bulkhead door
- **EISA – four tug barges for Norsul**: side ramps
- **Uljanic Shipyard – five rail ferries for MIR**: stern doors

**Conversion projects**
- **Finnnlines – for two RoRo vessels**: hoistable plywood car deck, 11 panels + 1 access ramp
- **Universal Innoshima – one 3,900-unit PCTC for MOL**: six car deck panels

MacGregor stern quarter ramps and side ramps with power feedback system can be electrically-driven.
Global presence and local service bring our solutions closer to our customers.

Cargotec improves the efficiency of cargo flows on land and at sea – wherever cargo is on the move. Cargotec’s daughter brands, Hiab, Kalmar and MacGregor are recognised leaders in cargo and load handling solutions around the world. Cargotec’s global network is positioned close to customers and offers extensive services that ensure the continuous, reliable and sustainable performance of equipment.

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