

RoRo

Side-swinging bow and stern doors for double-ended ferries



Photo: Mike Louagie, Shippax

COASTAL CLASS ROPAX FERRIES



MacGregor parallel swinging bow and stern doors on Coastal Renaissance and its sisterships forms a watertight part of the hull structure.



Photo: BC Ferries

The three Coastal-class ships shows a large increase in size compared to the previous C-Class, with a length of 160 metres.

The challenge

MacGregor, part of Cargotec, secured an order in 2006 to deliver two pairs of parallel side-swinging bow and stern doors on the main vehicle deck for each of BC Ferries' three new double-ended ferries, one at each end of the hull.

The Coastal class ferries, *Coastal Renaissance*, *Coastal Inspiration* and *Coastal Celebration*, were built by Flensburger Schiffbau-Gesellschaft (FSG), in Germany.

The design challenge for MacGregor was to come up with a bow and stern door that could operate within the limited space available.

The solution

MacGregor has pioneered the development of RoRo access and transfer equipment since this type of ship first appeared in the mid-1950s. So we have devised a lot of tailor-made RoRo access systems to suit a particular operational need.

The solution in this case was an innovative door design that seals against the deck and a shelf in the deckhead. The door forms a watertight part of the

ship's hull structure in the fore body and it is divided into two sections with an intermediate joint at the ship's centre line. Each section is attached to the hull by means of hinged swing arms together with guiding wheels which ensure a controlled motion when opening or closing.

The door is arranged to provide the required clear access for the shore-based ramps on two levels that enable the main and upper vehicle decks to be loaded or discharged simultaneously.

The quays used by the ferries have a U-shaped recess, and a fender list on board shaped like a tongue fits into this. The strength of a double-ended ferry is its ability to operate without having to turn in port, which saves time.

Each of the vessel's two vehicle decks offer a total of 2,020 lane metres. The lower one on deck 2 has a free height of 4.85m and can carry both commercial vehicles such as tractor-trailers (32), buses and up to 185 SUVs (5.34 x 2.6m). The upper vehicle deck on deck No 4 has a free height of 2.90m, allowing for the transport of smaller lorries and an additional 185 cars.

MacGregor's scope of supply

- Design, hardware, delivery, installation and commissioning.
- Two pairs of parallel swinging bow and stern doors on the main deck on each ferry, 4.75-m height x 8.0-m width, one at each end of the hull.
- Power packs



MAIN PARTICULARS

Passenger ferries: Coastal Renaissance (NB 733), Coastal Inspiration (NB 734), Coastal Celebration (NB 735)
Operator: British Columbia Ferry Services Inc (BC Ferries)
Builder: Flensburger Schiffbau-Gesellschaft (FSG)
Built: 2006-2008
Length, oa: 160m (525 ft)
Breadth, mld: 27.8m
Breadth, oa: 28.2m (92.5 ft)
Draught, design: 5.75m (18.86 ft)
Gross tonnage: 21,777gt
Deadweight (tonnes): 1,770 t
Depth to main deck: 8.09m
Decks: 7
Capacity: Max 1,650 passengers and approx. 370 cars including 32 semis.



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

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MacGregor is part of Cargotec. Cargotec's sales totalled EUR 3.3 billion in 2012 and it employs approximately 10,000 people. Cargotec's class B shares are quoted on NASDAQ OMX Helsinki under symbol CGCBV. www.cargotec.com

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