

Marine Selfunloaders

Watertight bulkhead doors

MacGregor watertight bulkhead doors are designed for installation on gravity-type self-unloading vessels to minimise the ingress of water between cargo holds during sea voyages



MacGregor watertight bulkhead door in closed position



A MacGregor watertight bulkhead door in its open position

MacGregor watertight bulkhead doors (WBD) are designed to meet the latest IMO regulations for maximum security and water integrity during sea voyages. The watertight bulkhead door is patented and has undergone full-scale testing. It has been approved in principle by Lloyd's Register of Shipping, Det Norske Veritas, American Bureau of Shipping, Germanischer Lloyd and Nippon Kaiji Kyokai.

The purpose of the watertight bulkhead door is to minimise the ingress of water - in an emergency - through the conveyor tunnels between the cargo holds. The watertight bulkhead door is built in above the tanktop at each bulkhead opening in the hold conveyor tunnels. All doors are closed and secured when the ship is at sea.

The watertight bulkhead door can be designed for remote-control operation from the ship's bridge.

The watertight bulkhead door has been installed on several vessels equipped with MacGregor gravity-type self-unloading systems, including: *Hai Wang Xing*, *Tian Long Xing*, *Stones*, *Rocknes*, *Gypsum Centennial* and *Gypsum Integrity*.

MacGregor watertight bulkhead doors

Description

The watertight bulkhead door consists of three main parts:

- The upper door (above the carrying belt part)
- The lower section (between the conveyor belt parts)
- The fixed base (underneath the return belt part and incorporated with the door frame)

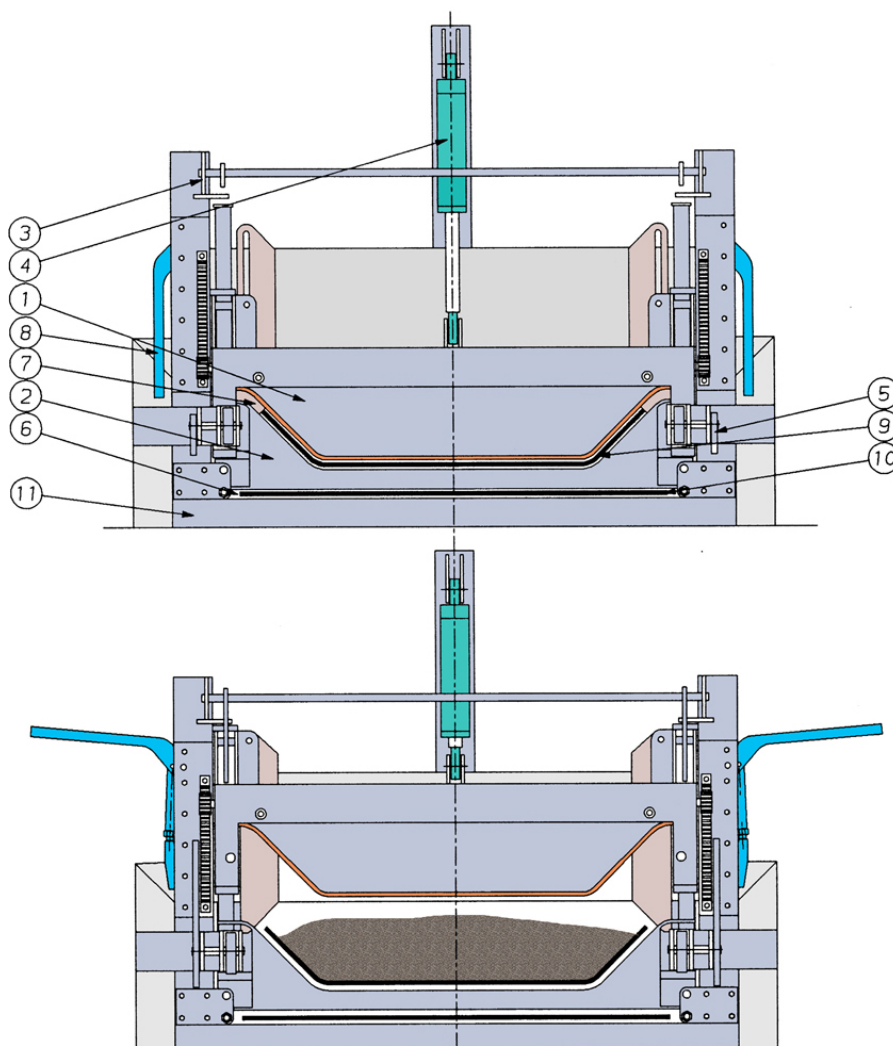
The three sections are all equipped with rubber seal strips for sealing the belt against the door frame when in the closed position. The door is opened and closed with the use of a hydraulic cylinder.

When in motion, the conveyor belt moves slightly sideways; therefore self-adjusting seal plates are arranged for sealing purposes against the belt edges.

When closed, the upper door part descends against the carrying belt part, which is pressed against the lower section. The movement continues until the return part of the belt is sealed against the base section.

The seal plates continue to close until they touch the belt edges. All movable parts are then manually tightened against the door frame.

Sensors are installed that indicate when the door is fully open and the conveyor can be started. Other sensors specify when the doors are closed after unloading is complete. This is also indicated by lights on the bridge control panel.



- 1 Upper door
- 2 Lower section
- 3 Locking device – upper position
- 4 Hydraulic cylinder
- 5 Tightening screw, side movement
- 6 Lower tightening plate
- 7 Upper tightening plate
- 8 Locking device, lower position
- 9 Conveyor belt, upper part
- 10 Conveyor belt, lower part
- 11 Fixed base



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

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MacGregor is the global market-leading brand in marine cargo handling and offshore load-handling solutions. Customer-driven MacGregor engineering and service solutions for the maritime transportation industry and the offshore load-handling and naval logistics markets are used onboard merchant ships, offshore support vessels, and in ports and terminals.

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