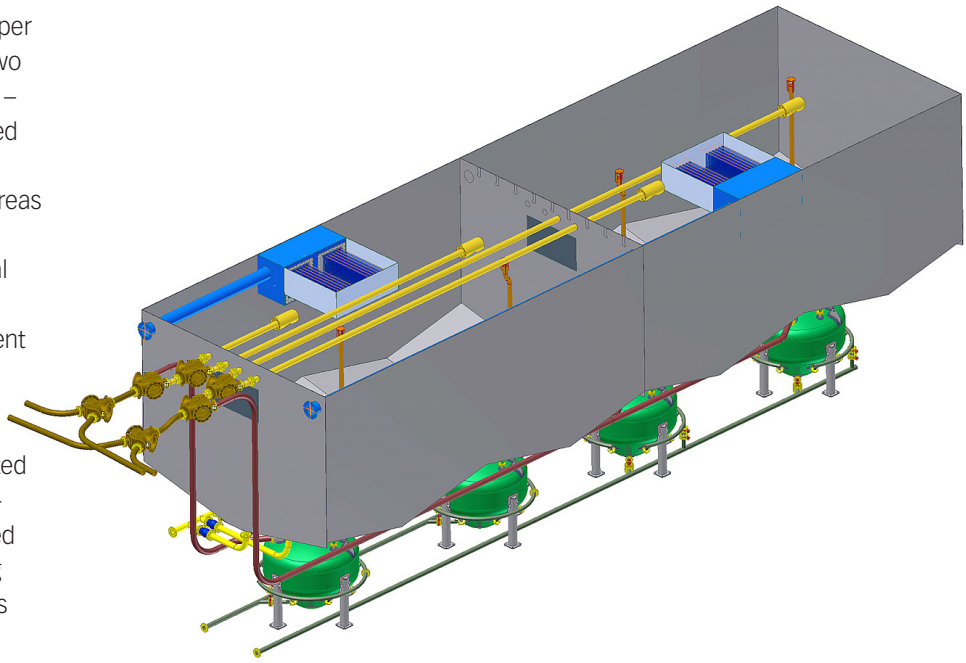
MACGREGOR

Marine Selfunloaders

Hopper and blow pump BHS

High volume and energy-efficient bulk handling system with high-handling rates and minimal environmental impact for offshore supply vessels

The fundamental principle of the hopper and blow pump concept is that the two main tasks of a bulk-handling system – storage and discharge – are performed by two separate units. The cargo is received and stored in a hopper, whereas discharge is performed by a blow pump using compressed air. Technical solutions based on this concept have been successfully employed on cement carriers for the past 20 years.



As the hopper is not used for discharge operations, it is not subjected to pressure and therefore can be rectangular in shape and easily integrated into the ship's hull. The ship's existing longitudinal and transverse bulkheads form the hopper's four walls and the main deck, its roof. Only the floor, situated approximately 2.2m to 2.6m above the tank top, needs to be fitted to complete the hopper.

Advantages

For the ship owner, the system's initial cost expressed in dollars per cubic metre capacity will be lower. Some of the underlying reasons for this are:

- much higher capacity achieved by the hopper system compared with the bulk tank system – could be in the range of 50 to 75 per cent
- reduced need for refrigerant air dryers as the cargo is not stored in huge tanks that are pressurised during discharge

For the shipbuilder, savings in the installation cost attributed to:

- simplified piping work due to two-way valves
- no internal coating required for the hopper
- elimination of dependence on the timely delivery of conventional pressurised bulk tanks
- elimination of the storage and installation work required for huge bulk tanks.

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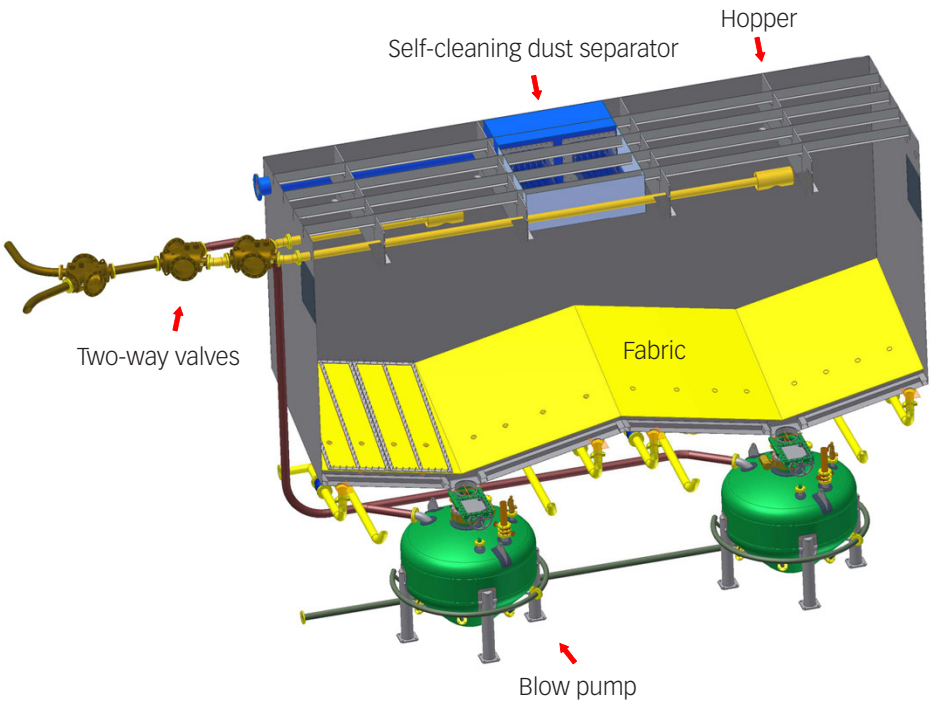
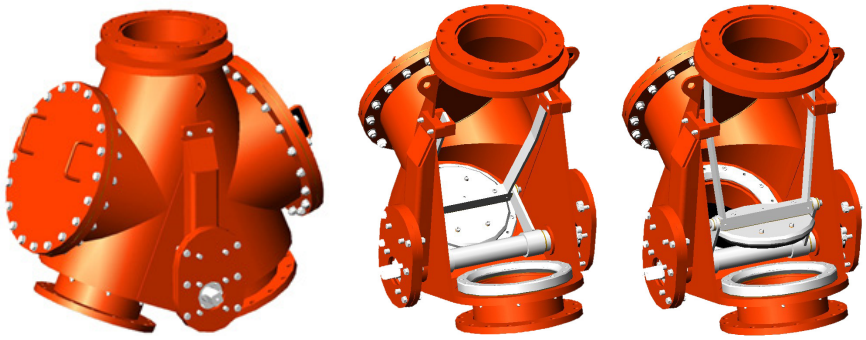
For the ship operator, savings in operation and maintenance costs attributed to:

- higher degree of automation and operational reliability, requiring minimum attention from the operator
- two-way valves eliminate branching pipes, where most wear and frequent clogging occurs
- inspection covers on two-way valves facilitate easy maintenance
- between each fill and discharge cycle of the blow pump, the whole discharge line is blown clean; this almost eliminates the risk of clogging in the hose, resulting in higher operational reliability.

Finally, *for the ship designer*, the hopper and blow pump system frees up valuable space on the tank top, which was previously taken up by the foundations of conventional pressurised tanks, and it fosters a simplified piping arrangement thanks to the two-way valves; more efficient space utilisation is thus possible.





Two-way valve

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.

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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