

# Dry bulk handling systems for offshore supply vessels



Marine Selfunloaders



## Bulk handling solutions for installation onboard AHTs and PSVs

Bulk handling systems are standard equipment for offshore support vessels, enabling them to perform their supply role. The main task of such a system is to receive cargo, store and discharge it. We can offer operators two main types of MacGregor bulk cargo handling systems: one uses a more conventional method where the storage and discharge of cargo is carried out using pressured tanks; and the other uses the hopper and blow pump concept.

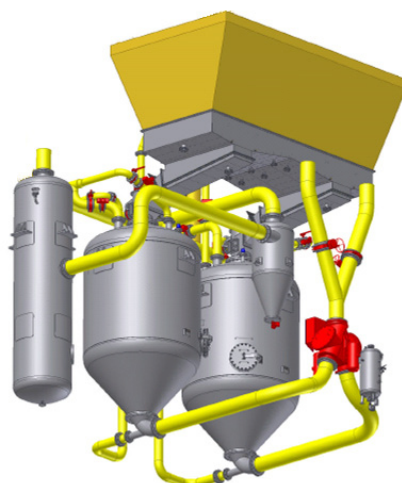
### MacGregor self-unloading systems

MacGregor is a leading worldwide brand for self-unloading/loading systems for installation in dry bulk carriers. These products have established an excellent reputation in the bulk material handling market and over 170 units have been selected by shipping companies and bulk operators throughout the world.

The brand MacGregor stands for reliability and innovation, especially in the field of pneumatic cement conveying. Since 1947, when the first totally-enclosed self-loading/unloading cement carrier with highly automated cargo handling gear was commissioned, we have been dedicated to developing energy-efficient pneumatic conveying systems with high pumping rates.

Over the past 60 years, MacGregor pneumatic conveying systems have

been installed on board more than 100 cement carriers sized between 1,000 and 40,000 dwt and at more than 15 marine cement terminals. Conveying rates in excess of 650 t/h of cement through a single line have been achieved.



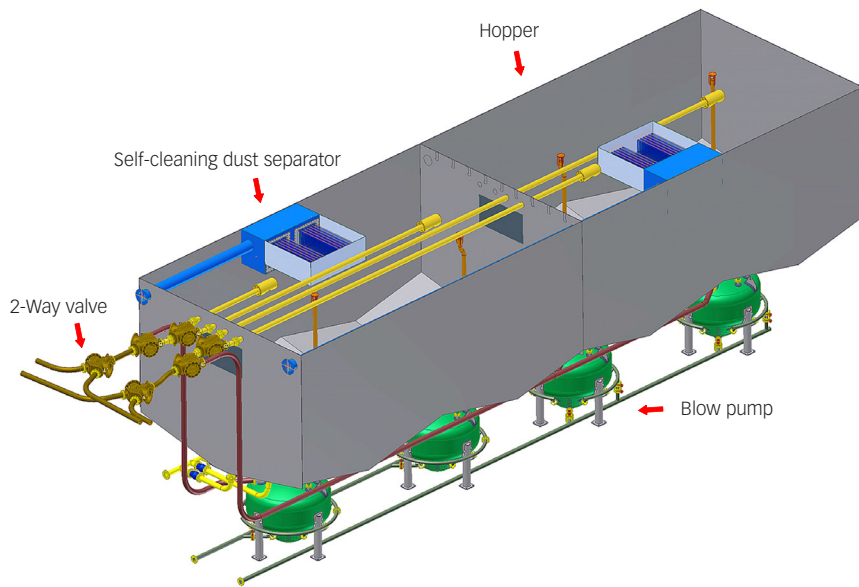
*Hopper and blow pump arrangement designed for self-unloading cement carriers*

### MacGregor dry bulk handling system for offshore supply vessels

In May 2005, we entered the dry bulk handling sector of the offshore supply vessel market and tailored its pneumatic conveying technology to meet the needs of this demanding environment. The first system was commissioned in 2007, since then the total number on order has grown to around 55.

Recently we introduced a new, innovative bulk handling solution, the hopper and blow pump system, which uses space much more efficiently. Hence we can offer two main MacGregor systems: one uses a more conventional method when the storage and discharge of cargo is carried out using pressurized tanks; and the other uses the hopper and blow pump concept.





## New hopper and blow pump system with increased bulk storage capacity

The fundamental principle of MacGregor new 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 and 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 2.1m to 2.6m above the tank top needs to be fitted to complete the hopper.

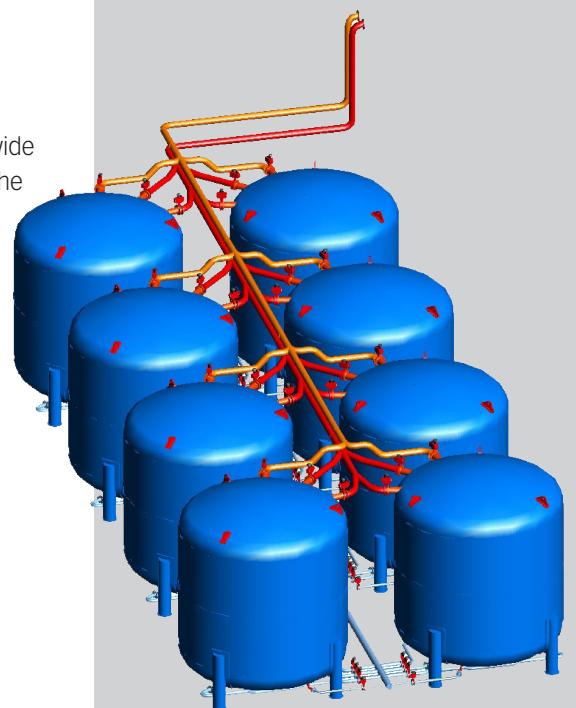
## Conventional pressure vessel BHS refined by our expertise

Our vast experience in bulk handling has helped us improve the well-known conventional concept for bulk handling on offshore supply vessels. We offer a wide range of solutions, and by using our great 'in house' know-how we can create the best design for your vessel. Main elements of this concept are:

- **cement tanks** - developed as a pressure vessel for a maximum design pressure of 7 bar
- **compressors** - water-cooled oil-injected compressors for transporting air
- **control system** - a programmable logic controller mounted in a cabinet for the control and supervision of loading/unloading processes
- **valves** - butterfly valves produced in carefully-selected materials for long service life. For conveying lines, MacGregor 2-Way valves are recommended.
- **optional equipment**
  - compressor for air control
  - dust-handling system

### Advantages of the new system

- **Increased bulk capacity**  
Dry bulk capacity is increased by 50 - 75% while using the same space occupied by conventional bulk tanks
- **Space efficiency**  
More space available for other types of cargo or equipment, without reducing the planned bulk storage capacity
- **Reduced risk of clogging**  
MacGregor 2-Way valves eliminate the branching pipes, where most of the wear and frequent clogging occurs
- **Low installation cost**  
Less material needed for constructing the BHS
- **Simplified piping**  
Through the use of MacGregor 2-Way valves, piping for the loading and discharge lines is simplified
- **Operator-friendly**  
Higher degree of automation and operational reliability requiring minimum attention from the operator



Global presence and local service bring  
our solutions closer to our customers.



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

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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