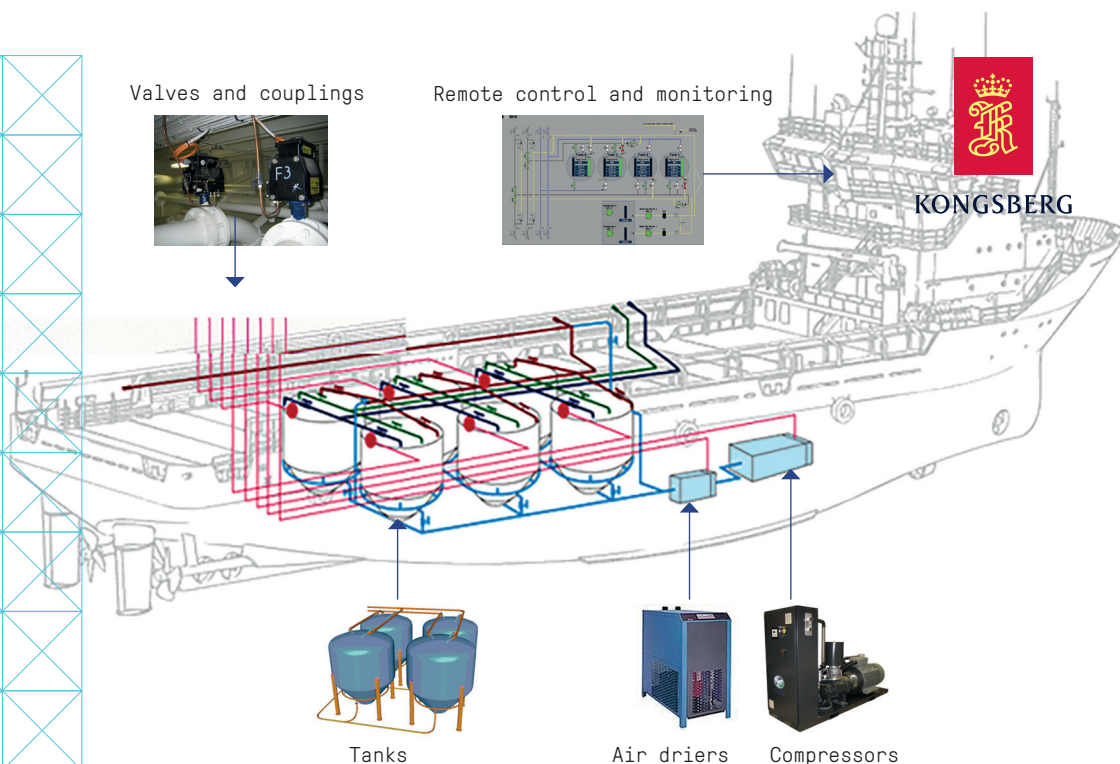


BULK HANDLING SYSTEM FOR CEMENT, BARITE AND BENTONITE



KONGSBERG DECK MACHINERY

Offshore supply and service Bulk handling system for cement, barite and bentonite

Kongsberg Maritime bulk handling system is developed to meet the most demanding requirements in the offshore industry.

Kongsberg Maritime offer complete integrated systems tailor-made to suit each individual installation, consisting of pneumatic tanks, compressors, valves and control systems as well as supervision of the installation and start-up commissioning.

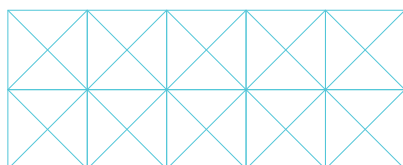
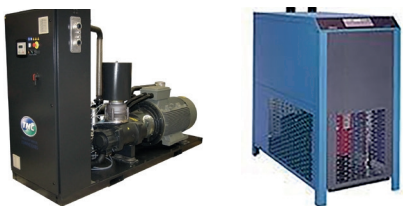
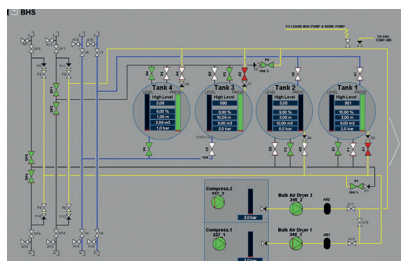
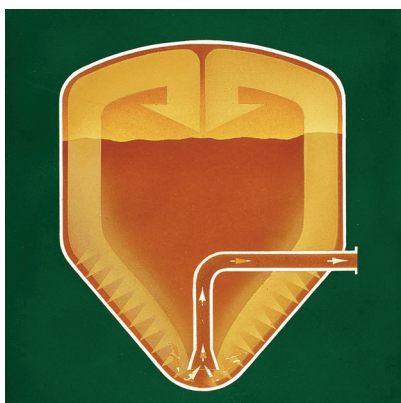
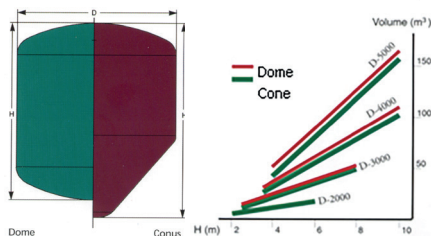
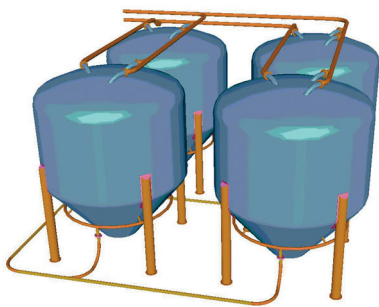
More than 900 bulk handling systems (4900 tanks) are delivered since the first bulk handling system in 1973 to supply vessels, drilling ships and rigs.

The system is designed for storage and transport of cement, barite (Ilmenite) and bentonite. It uses a system where the tanks are pressurized and the granular material is converted from solid-like state to a liquid-like state during discharge. This process occurs when air is passed up through the bulk material, e.g. cement, barite and bentonite.

The scope of supply from Kongsberg Maritime includes tanks, compressors, water separator, mucking ejector and valve package for filling and discharge of the system. Following components are optional, air receiver, air drier, dust cyclone and analogue mimic panel.

Kongsberg Maritime recommend to include air driers in the bulk handling system instead of water separator to ensure a trouble free operation.

Approx. 40-60 liters are put into the system without air driers pr. hour, depending on temperature conditions, with the result of clogged piping, stuck valves, low capacity, down time, high maintenance cost.



Kongsberg Maritime deck machinery bulk handling system for cement, barite and bentonite

Kongsberg Maritime offer tailor-made tanks of dome and cone shape to suit each individual installation. All tanks are supplied with certificates etc. In accordance with classification society rules.

To get optimum discharge capacity should the proportion between tank height and diameter be approx. min. 1,5. The tanks are delivered with necessary manometers, valves, filter clog, hatches and level indicator. Each tank can be designed individually with regards to shape type, diameter, height and valves and hatch locations.

Discharge capacities

Discharge and lifting capacities do not merely depend on the tank and compressor capacity itself. To obtain maximum discharge rate and minimum losses, the piping length and arrangement is of most importance, not only on the vessel but also on the rig.

Fluidising principle

The tanks are pressurised at 5,6Bar where the granular material is converted from solid-like state to a liquid-like state during discharge. This process occurs when air is passed up through the bulk material, e.g. cement, barite and bentonite.

Remote control

Valve and compressor operation are remote controlled, either from the bridge, the engine control room or from a station on deck. Remote control can be performed either from a separate analogue mimic panel or as shown from the vessel's computer based tank tender system. The remote control panel incorporates a mimic piping diagram with valve position indicators, air pressure gauges and tank level indicators. The analogue mimic panel will be supplied if the vessels monitoring system is not compatible.

Compressor

- Capacity range: 18 – 30 m³/min
- Working pressure: 5,6 bar
- Oil cooled single phased compressors
- designed for marine use.
- Fresh or sea water cooling.
- The unit includes control cabinet, air cooler, oil cooler, water separator etc.

Air drier

- Designed according to DIN ISO 7183 Option A with dew point of 3°C to ensure a trouble free system.
- Capacity range up to 30m³/min
- Fresh or sea water cooling.

Mucking ejector

The function of the mucking ejector is similar to a vacuum cleaner. It is used to clean the inside of the tanks. Two type of mucking ejectors are available: water driven or air driven

Dust cyclone w/collector

The cyclone separates the dust from the ventilation air during filling of the bulk tanks. The separated dust is collected in the dust collector tank. When the dust collector is full the powder can be discharged to the bulk tanks.

Valves package

The bulk handling system uses standard recognised valves, level indicators etc. The different valves can either be controlled pneumatically or electric.