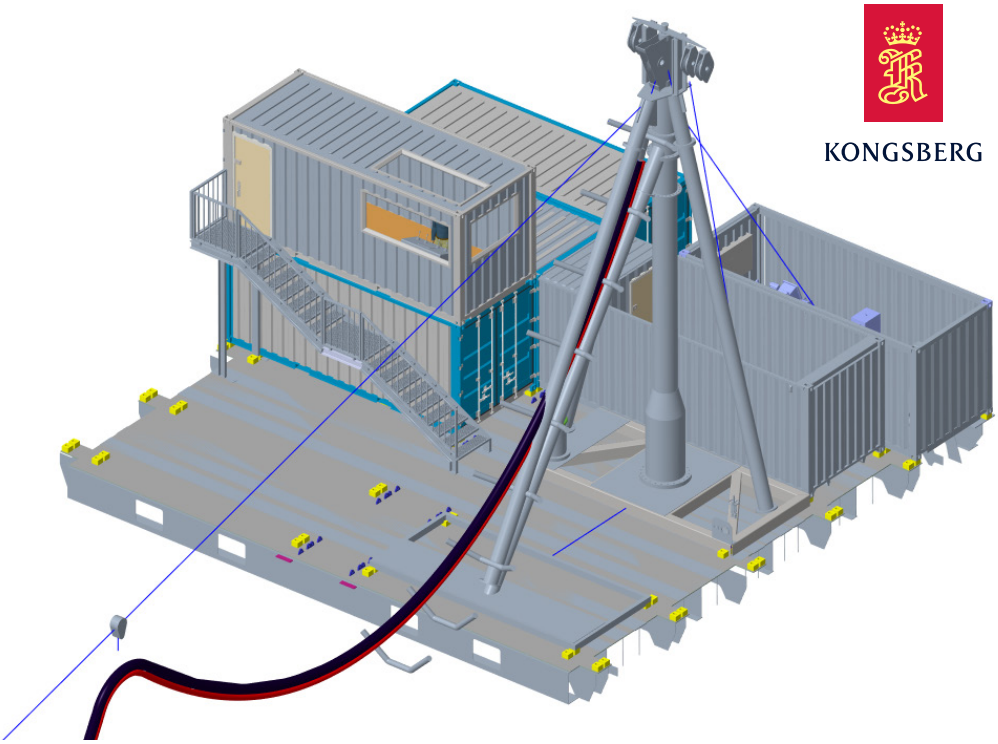
CONTAINERISED RAS/FAS

FEATURES AND BENEFITS OF AN ALL-ELECTRIC RAS SYSTEM

- Integration: Equipment Complexity - Equipment operation is simple and has a reduced parts count
- Integration: Cost of Installation & Commissioning On-board - Fully defined installation and commissioning procedures.
- Integration: Power Conversion - Efficient power conversion using latest power electronic technology.



KONGSBERG

TYPICAL KONGSBERG CONTAINERISED RAS

CONTAINERISED RAS/FAS

Kongsberg replenishment at sea (ras) equipment offers un-paralleled performance and system maturity to meet the demanding requirements of naval replenishment schedules around the world.

By installing the winches required to conduct all-electric Replenishment at Sea (RAS) into ISO shipping containers, the equipment can be installed on a Naval/commercial vessel in times of need and removed when not required. This allows modularity of the vessel depending on the mission objectives.

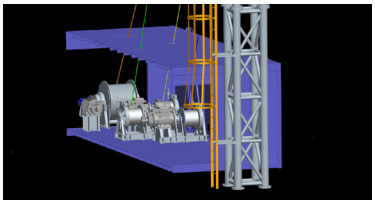
Some of the key benefits of this design are the way that the shipping containers are used not only to house the equipment, but also to give supporting structure and height where required.

We pride ourselves in providing the world's leading replenishment at sea equipment optimised to your requirements with the highest availability. We also have the same philosophy about supporting our equipment throughout the world through comprehensive field service and repair capability.

KONGSBERG's reach extends to 34 countries around the world and supports its products through a global Services Network. This means we can rapidly provide field service, training, ILS support and spare parts close to the region of operation.

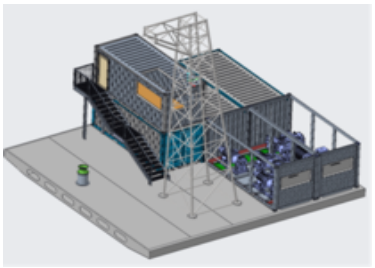
KONGSBERG has the right people with the right experience, product knowledge, customer knowledge, and expertise to be a trusted supplier to your business.

FUEL TRANSFER SYSTEM TECHNICAL DESCRIPTION



CONTAINERISED RAS/FAS

- Saddle Winch and Control Panel Container — 40′ Container
- Jackstay Winch Container — 20′ Container
- RASCO Container — 20′ Container
- Workshop Container — 20′ Container
- Cooling System Container (Optional) - 20′ Container
- Tower Base - 20′ Container footprint
- Forward Stay Base - 20′ Container footprint



RAS System Concept

RAS & FAS Transfer

Standard Abeam Liquids
RAS Masts

SYSTEM DESIGN APPROACH

The key to the concept of the system was the rapid deployment, along with the utilisation of current KM hardware, to ensure that minimum new design was required where possible. The layout has been modelled around the standard layout of the KM RAS system, whilst keeping within the dimensional constraints of the container footprints.

MODULAR CONSTRUCTION

By maintaining the dimensions from the use of ISO containers, the system is stackable and may be rapidly deployed onto prepared deck seatings

MAST

To facilitate rapid installation, the mast design minimises full bolted connections, seen only at the base of the mast itself, and the sheave housing fabrication. The sheave housing fab should not need to be broken in normal operation.

INTERFACES

All interfaces, be they electrical, hydraulic, or chilled water will, where possible, be designed to utilise suitable connectors that maybe made or broken with minimum work required.

MAINTAIN PROVEN DESIGN

Where possible, the system has been designed around current KM products to maintain a low count on new product integration (NPI).

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