

Kongsberg Maritime Cargo Handling Simulators

Floating Storage & Regas Unit (FSRU)

The use of FSRU's has increased a lot the last few years. With Kongsberg Maritime's new FSRU simulator it is now possible to train and practice on some of the main features that differentiate a FSRU tanker from a standard LNG carrier.

Model description

Our K-Sim Cargo-FSRU model is based on a real FSRU tanker. The model contains 3 regas trains with a capacity of 250mmscf /day each. Via a suction drum/recondenser unit the regas trains are fed with LNG, in each regas trains there are 2 booster pumps which brings the pressure on the LNG up to more than 120bar before the LNG is sent through a BOG Cooler and then the flow splits into two Vaporizers which are heated with Glycol.

The LNG is converted to Natural gas and sent through a heater and is then ready to be sent ashore. The control of the supply to the shore side can be done with either a Master Pressure Controller or a Master Flow Controller. Both these controllers are a part of the modelled IAS system.

In addition to the regas plant the simulator model contains the cargo tanks and the equipment to take care of the Natural Boil Off gas, which includes two Low Duty Compressors, Vaporizers, Mist Separator, Gas Heaters , Gas Combustion Unit and 4 Dual Fuel Generators. The switch-board and Power Distribution is included. The systems can be controlled from the IAS but the simulator also has an option for operating the system in a local mode

STCW requirements

The FSRU model meets the requirements of STCW section A-II/1, A-II/2, A-II/3, A-III/1, A-III/2, and A-V/1. These sections cover:

- planning and ensuring safe loading
- care during the voyage and unloading of cargoes
- trim, stability, and stress to maintain seaworthiness of the ship



KONGSBERG MARITIME CARGO HANDLING SIMULATORS

K-Sim liquid cargo-handling simulators provide quality training in complex load and discharge operations. Reality-based exercises can simulate various cargo system configurations and load conditions, providing improved competence in safe, sustainable, and competitive cargo operations.

Our model library is based on actual ship specifications and performance data. It includes product tanker, chemical tanker, LPG/ethylene tanker, LNG tankers, FSRU, Suezmax tanker, and very large crude carrier (VLCC).

K-Sim Cargo can be customized to exact requirements, upgraded and expanded at any time and integrated with our other ships simulators, enabling interdepartmental training.

Training Levels

The simulator solution can be provided both as a desktop system for classroom training and as a full mission system.

In addition it is available as an online training solution for self-studies, provided via our digital platform, K-Sim Connect.

The simulator is suited for the following training:

- Junior officers in basic cargo operations
- Senior officers in full-scale cargo operations (loading/discharging/ tank cleaning /venting)
- Senior officers and captains in advanced cargo-handling and regas operations

Training Objectives

The training objective of this model is to understand the total cargo-handling operation. Specific training objectives include the following:

System familiarization:

- Tank arrangement
- Pipeline arrangement
- Pipeline control valves
- LD compressors
- Pumps
- Instrumentation
- Controls
- Basic procedures

Special operations and procedures:

- Training on REGAS safety, system, and operation
- Tank atmosphere evaluation
- Cool down pipes and tanks.
- Draining and stripping

Operational problems:

- Normal working conditions
- Introduction of system faults, malfunctions and accidents
- Emergency procedures

Model Features and Details

Vessels main particulars:

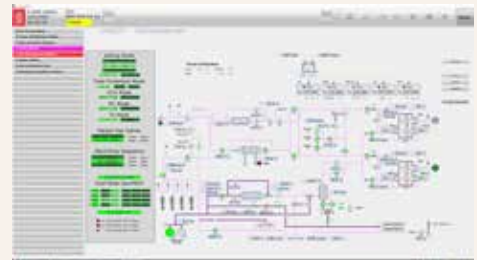
Tonnage	103746	grt
Dead-weight	89556	t
Length overall	295	m
Breadth moulded	43,42	m

Vessel details:

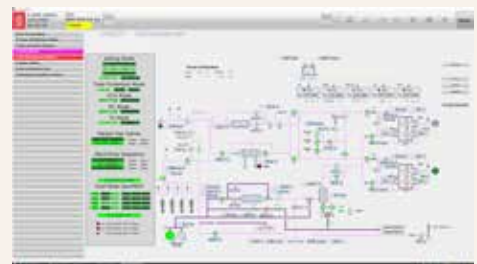
Cargo tanks	4 membrane tanks
Cargo capacity	162524 cbm

Max pressure	600 mbar FSRU mode
Min temp.	-163 °C
Max. specific grav.	500 kg/m ³
Regas capacity	750 MM scf/d

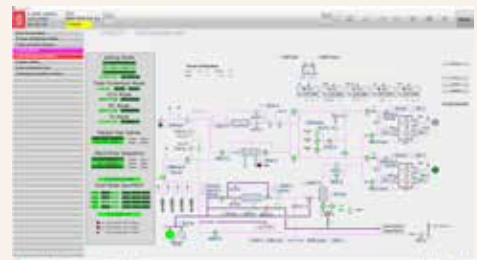
Note: Specifications subject to change without notice



Gas Management



Master Pressure Control



Regas Main