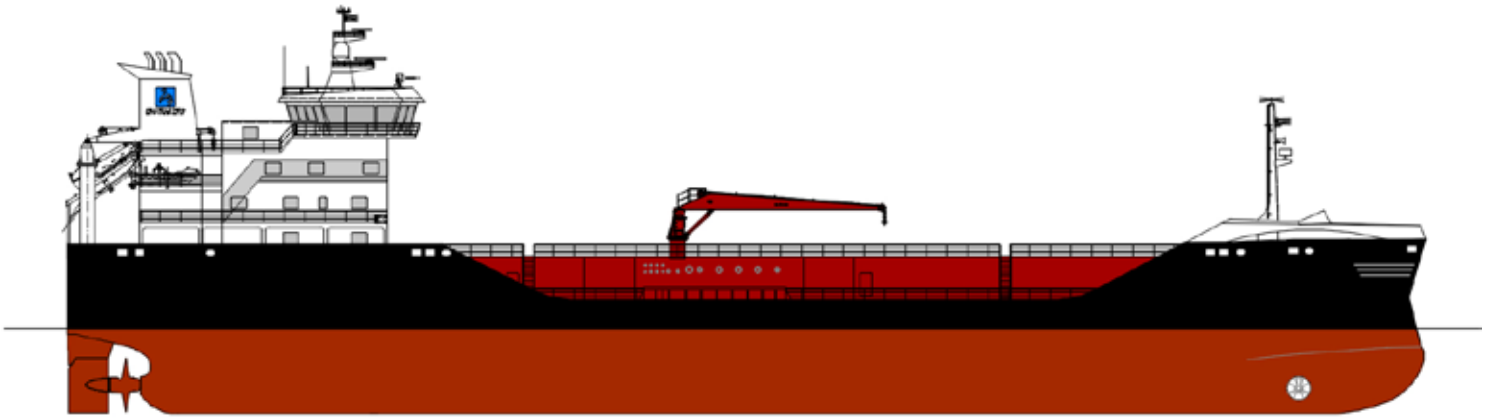


BRIEF DESCRIPTION

20180108



Bitumen 8 000 m³

GENERAL

The FKAB design is a bitumen, chemical and product oil tanker with independent cargo tanks for bitumen and asphalt with a temperature of up to 250°C. The vessel is designed with single bottom and double sides for ballast water.

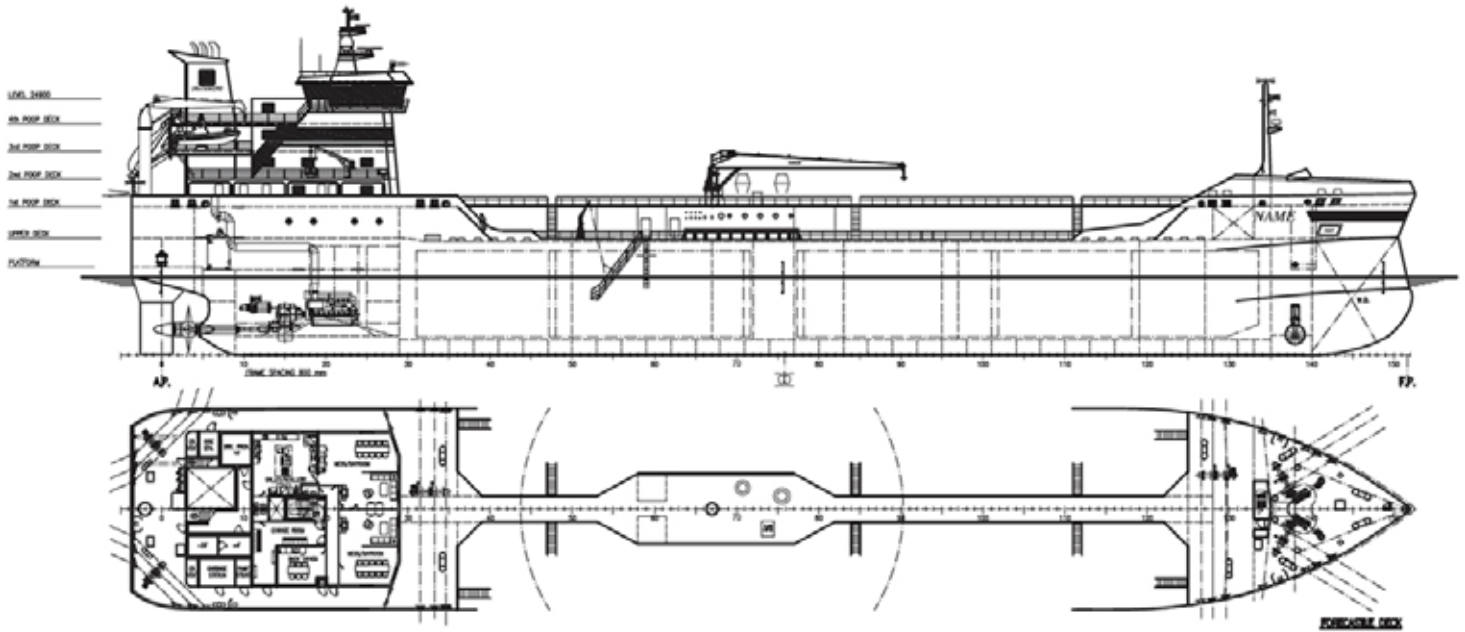
The high temperature variations requires special design considerations; mainly because of thermal expansion of tanks and pipes. The cargo tanks consist of two blocks, forward and aft of the pump-room, with five and four tanks respectively in each block. Each tank block is only fixed in the middle and therefore able to move longitudinally, depending on the temperature. There is no structure inside the cargo tanks.

Propulsion is provided by a medium speed diesel engine with a gear and shaft generator coupled to a CP-propeller. Take me home device through PTI from the auxiliaries.

In order to save fuel the shaft generator is connected via a frequency converter allowing optimum propeller rpm at various speed.

MAIN FIGURES

Cargo cubic capacity, incl sloptanks (100%)	8 000 m ³
Deadweight at design draught	8 500 tonnes
Max cargo temperature	250 °C



MAIN PARTICULARS

Length over all	125 m	Urea tank	30 m ³
Length between PP	121,3 m	Water ballast	2 800 m ³
Breadth mld	19,6 m	Main engine	4 000 kW at 750 rpm
Depth mld	11,1 m	Aux engines	3 x 500 kW
Draught design	7,6 m	Shaft generator	1 000 kW
Deadweight at design draught	8 500 tonnes	Bow thruster	800 kW
Cargo capacity	8 000 m ³	Cargo pumps	3 x 400 m ³ /h
HFO tanks	350 m ³	Ballast pumps	2 x 400 m ³ /h
DO tanks	100 m ³	Accommodation	17 pers
FW tanks	70 m ³	Service speed (7.6m) 85% MCR incl shaft generator and 15% sea margin	13,5 knots

CLASS

BUREAU VERITAS: I +HULL +MACH, Oil Tanker/Chemical tanker/Asphalt Carrier, Max cargo temp. 250°C-, IMO 2, ICE 1A, Unrestricted navigation, AVM-APS, AUT-IMS, SYS-NEQ, MON-SHAFT, In water survey, Clean Ship.

GENERAL:

The vessel intends to carry Bitumen, Coal tar, Black dirty petroleum products and Crude oil with a specific gravity of up to 1,35 ton/m³, with a max temperature of 250°C. Chemical class IMO 2.

CARGO:

The independent **cargo tanks** are to be constructed in **two blocks**, forward and aft of pump room. The pump room, which is located in between the two blocks, is to be protected by a double bottom, particular for easy maintenance and collecting of oil spill. The forward "block" is to include 5 tanks and aft block is to include 4 tanks. The tanks are divided by vertical corrugated bulkheads. Sides of the tanks also to be vertical corrugated and no structures inside the tanks. Cargo tanks to be insulated on the outside with mineral wool. The bottom of the cargo tanks is to be sloped towards the suction point.

The **cargo handling system** is designed based on three electric driven screw pumps, each with a capacity of 400 m³/h, located in the pump room midships, which can load/discharge any cargo tank.

The cargo handling system shall be capable of loading or discharging three (3) grades of cargo simultaneously, concurrently with de-ballasting or ballasting.

The cargo pumps shall be remotely speed-regulated by frequency converters and emergency stopped from the cargo control room.

LOADING CAPACITY:

1 000 m³/h on each crossover,
500 m³/h in each tank.

UNLOADING CAPACITY:

1 200 m³/h, totally.
800 m³/h on each crossover

All **cargo pipes**, cargo pumps, cargo ventilation lines and valves are to be heat traced by thermal oil pipes and insulated. Pipes on deck are to be covered with a protection type Løgstør. All pipes in cargo tanks are to be double walled with heating thermal oil in the space between.

The **heating system** consist of a thermal oil system with a primary circuit for the cargo system and a secondary circuit for HFO bunker tanks, auxiliary equipment, domestic use etc

Capacity of each HFO fired **thermal oil boiler** is to be able to maintain the loaded cargo temperature up to 250°C. The boilers together are to be able to heat up full cargo min. 2°C in 24 hrs at outside temperature 5°C.

An automatic **radar system measuring** system is to be fitted in all cargo tanks.

ARRANGEMENTS:

A **pipe tunnel** is to be arranged on main deck, extending from poop to forecastle.

All **tanks** containing oil to be protected by a **cofferdam towards hull**.

The **entrance to the pump** room is to be arranged in a deckhouse above the pumproom, where also the manifold and stores are arranged.

PROPULSION SYSTEM:

The propulsion system consists of a medium speed diesel engine with gear coupled to a controllable pitch propeller and a shaft generator.

The medium speed **main engine** is designed for 700 cSt/50° C with an output of about 4000 kW (MCR) at 750 rpm. Engine shall fulfill Tier III requirement. The engine is to be cooled by FW low/high temperature box cooling systems

One 4-blade highly skewed **CP propeller** in Ni-Al bronze, with propeller speed of about 115 rpm.

The **shaft generator** will also be used as “take me home” and will be connected to the electric net via a frequency converter allowing variable speed of the engine/propeller for both PTI and PTO. As an electric motor (PTI), in case of failure of the main engine (take me home), the shaft generator is to be able to run the vessel at 7 knots.

All larger consumers are to be **frequency controlled** by inverters connected to the DC-link switchboard.

CREW:

Single cabins for 7 officers, 6 crew, one owner, one pilot and one double spare cabin is to be provided.

OTHERS:

The complete underwater hull and propeller are to be protected by an impressed current system.

The **rudder** is to be double plated, all welded, streamlined and balanced of spade type. The rudder is to be of special high-effective type without flap, but the hub of the propeller is to be built into the rudder to achieve improved speed performance.

Winches and Windlasses are to be frequency controlled electrically driven.