



FURETANK VINGA VESSEL SERIES

– THE WORLD'S MOST ENVIRONMENTALLY FRIENDLY TANKERS



**"We not only want to follow the development
- we want to be part of creating it."**

OUR VISION:

NOT A GIANT BUT A LEADER

Furetank provides full technical and commercial management with focus on environment and efficiency. Since each vessel we build will be operated for the coming 20 years, we have made significant investments in the best possible technologies that can be adopted today.

Together with our partners, we have designed the VINGA vessel series for maximum efficiency, reduced fuel consumption and minimal environmental impact. Every system has been optimized. Each new-building being added to our fleet drastically reduces emissions to air and negative impact on climate change and human health.

The two sister vessels FURE VINGA and FURE VITEN are best in class globally in meeting the IMO climate goals for shipping. At their delivery, the average carbon dioxide emissions from Furetank's intermediate fleet were decreased by

50% compared to 2008. This means that already today the vessel series fulfills its part of the IMO's total emission target for the world fleet: to halve emissions up to year 2050.

To achieve all this, everyone within Furetank strives to cooperate closely within our organization. We learn from each other and we are constantly evolving. We not only want to follow the development - we want to be part of creating it.

This way we make sure to reach our goals, and that is why we are 'not a giant but a leader'.

Lars Höglund
Managing Director

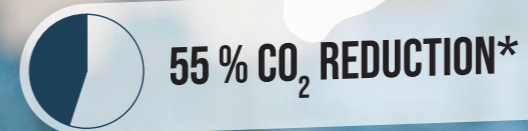


VINGA series emission reductions

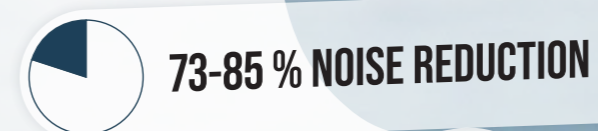
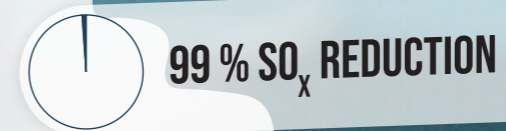
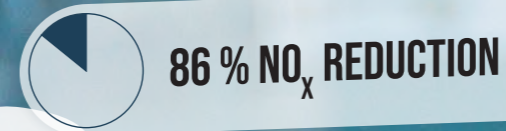
A report from the Swedish Environmental Research Institute IVL, has calculated that harmful emissions from the VINGA vessels have been drastically reduced thanks to LNG propulsion and energy-saving systems.

Many positive effects follow. While CO₂ is a greenhouse gas, NO_x causes eutrophication and SO_x acidifies lakes and forests. Particles severely affect human health, causing millions of premature deaths around the world yearly. Thus, these reductions have a great positive impact near and far; from the atmosphere to individuals living close to shipping fairways.

Calculations are based on the comparison with a same-size vessel built in 2006, running on conventional fuel.



*When running on LNG/LBG. With LBG, liquefied biogas, CO₂ emissions are eliminated.



EEDI SCORE:

4.64

Best in class globally. The UN International Maritime Organization IMO regulates emissions for new vessels through the EEDI energy efficiency design index, where a lower value means less emissions. For 2021, the requirement for intermediate tankers was to reach below 9.37 points. FURE VITEN and FURE VINGA received values as low as 4.65 and 4.64 points: the best results achieved in the size segment so far.

CUTTING EDGE TECHNOLOGY FOR ENVIRONMENT AND CLIMATE

These are the technical features that make the VINGA vessel series the most energy efficient, low-emission intermediate tankers in the world.

TIER III COMPLIANCE

International Maritime Organization (IMO) highest emission classification.

LNG/LBG AS FUEL AT SEA AND IN PORT

Main engine used for power production during discharge operations.

SCR ON AUXILIARY ENGINES

Selective Catalytic Reactors (SCR) are installed, reducing NO_x emissions.

INERT GAS POWERED BY LNG/LBG

Inert gas generator can be operated on LNG for lowered emissions.

FGSS

Fuel gas supply system are designed to eliminate methane slip as all vents from system are connected to tanks.

HIGH EFFICIENCY TWISTED LEAD RUDDER WITH PROPELLER BULB

High efficiency twisted lead flap rudder. A highly sophisticated rudder design for minimum drag and high steering efficiency.

FREQUENCY CONTROLLED STEERING GEAR

A more efficient way to operate the actuation of the rudder.

PROPELLER NOZZLE MINIMIZES REQUIRED ENGINE OUTPUT - ICE CLASS 1A

With a propeller nozzle fitted the propeller will deliver approximately 25% more pull.

PROPELLER NOZZLE REDUCES NOISE LEVEL

Propeller nozzle will also reduce the underwater noise emitted from the propeller.

CLASS NOTE AVM-APS ALTERNATIVE PROPULSION SYSTEM

AVM-APS is a classification notation for redundant propulsion.

ENERGY CLASS ELECTRICAL MOTORS

All electric motors on board are of the highest possible energy efficiency class.

ENERGY EFFICIENT VENTILATIONS

All ventilation systems are designed to consume a minimum amount of energy.

EAL OIL IN ALL EQUIPMENT ON OPEN DECK

Environmentally Acceptable Lubricants (EAL) are biodegradable.

VFD PRESSURE CONTROLLED ENGINE ROOM FANS

The engine room fans are automatically controlled in order to minimize energy consumption.

FLOATING FREQUENCY FOR PROPELLER EFFICIENCY

Technical solution enables running the propeller at variable speed, resulting in reduced energy consumption.

UPS BACKUP ON ALL PROPULSION AND NAVIGATION

The electrical system has a battery backup that minimizes the risk of a blackout, resulting in improved safety.

CHEMICAL FREE BALLAST WATER TREATMENT

Ballast water treatment using UV light instead of chemical additives.

ULTRASONIC ICAF

Anti fouling system uses ultrasonic sound waves to deter organisms from growing inside the box coolers.

VGP COMPLIANCE FOR ALL OIL TO WATER INTERFACES

All systems containing oil that could leak into the sea are filled with biodegradable oils.

LED LIGHTS FOR LOW ENERGY CONSUMPTION

All lights on board where possible are of LED type.

REMOTE ANCHORING FROM BRIDGE

Anchors can be released from the bridge for safe navigation.

ACTIVE LOAD CURVE AND PITCH ADJUSTMENT SAVES ENERGY

A way to optimize the propeller RPM and pitch depending on cargo condition.

ELECTRIC CARGO PUMPS

Lower power consumption and reduction of noise pollution at port.

PREPARED FOR ST LAWRENCE

Vessel is fully equipped and ready for trading at St Lawrence seaways.

LOW ENERGY COMPRESSORS

Variable RPM compressors run smoother and are more energy efficient.

HEAT RECOVERY

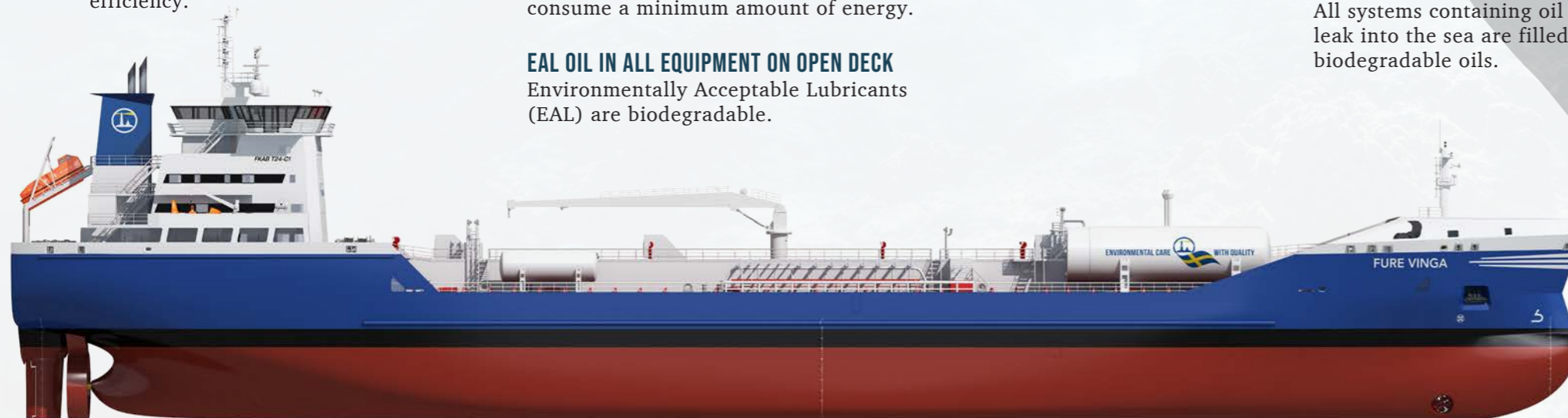
Steam boilers with exhaust heat recovery from ME and all AUX engines. Heat recovery from cooling water for heating of LNG Vaporizers, accommodation and stores, technical and domestic fresh water.

NEW LOW DRAG HULL DESIGN AND LOW FRICTION ANTI FOULING

Minimum water resistance.

STRONG FOCUS ON WORKING ENVIRONMENT

Spacious cabins and accommodation of highest standard, large fully equipped gymnasium with sauna, engine room separated into different spaces for noise reduction and fire integrity, covered working area on forecastle, all equipment on deck covered by pipe tunnel. Good environmental standard.



PROPELLER NOZZLE AND FLOATING FREQUENCY

A ducted propeller increases thrust and minimizes the required engine output. Fitted with a nozzle, the propeller delivers approximately 25% more pull than a conventional open propeller solution while maintaining the highest ice class. The less powerful main engine can be used to generate electric power running cargo pumps in port, bringing down emissions even further since it runs on LNG/LBG.

The main engine and shaft generator use variable frequency, making it possible to run the propeller at variable speed with the shaft generator connected. This enables achieving the optimal balance between propeller rotation and engine power at any given vessel speed. Propeller efficiency is optimized and fuel consumption reduced by 20% in all of the vessels.



FIRST IN EUROPE WITH FULL SHORE POWER

FURE VITEN and FURE VINGA are the very first tankers in Europe fully equipped to operate the energy-demanding cargo pumps with electricity supplied from shore at full rate - 6,6 kV and 1,850 kVA. This will reduce emissions substantially as soon as ports offer the opportunity.

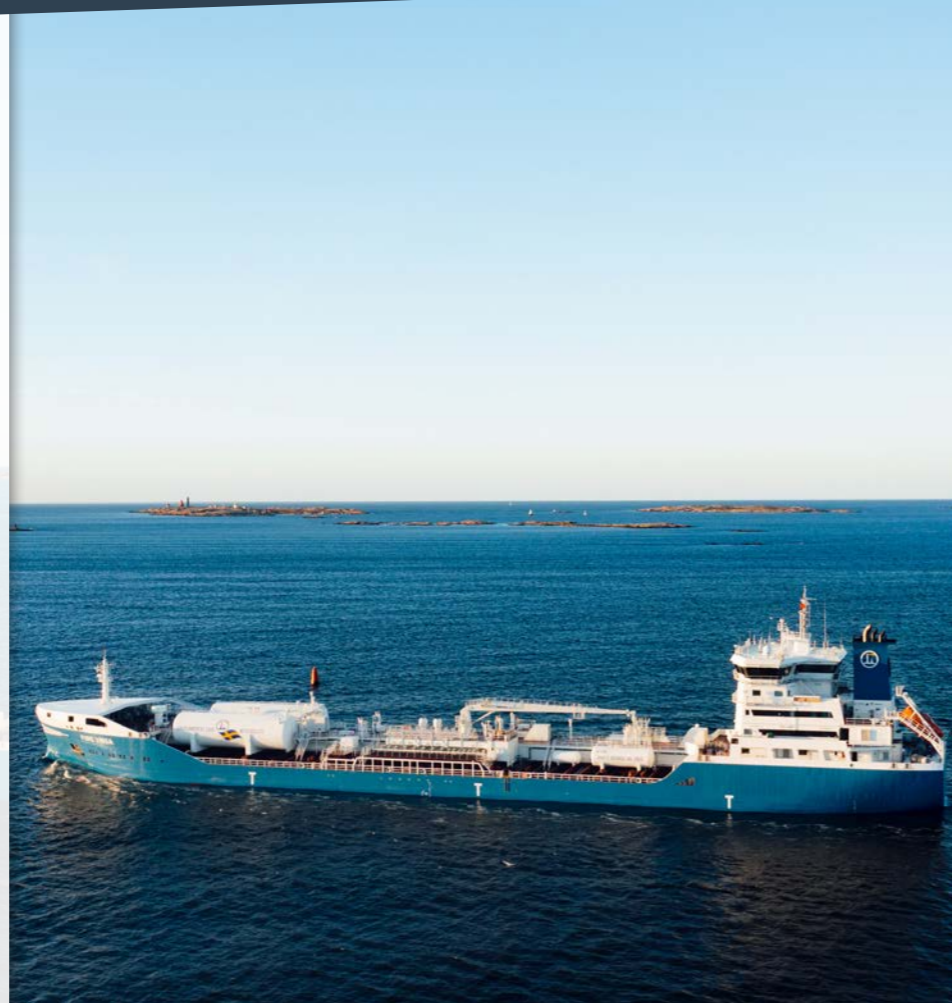
The solution is being developed in collaboration with the ports of Gothenburg and Rotterdam, currently in the process of developing the full capacity power connection required to operate the pumps. An important effort, as emissions in port can account for up to 20% of the total emissions from a tanker, in an environment that is often even more sensitive to pollution and noise than at sea.

SUSTAINABILITY HIGHLIGHTS OF THE VINGA SERIES

SECURING BIOGAS SUPPLY

Liquefied biogas is one of the keys to fossil-free shipping. Furetank aims to operate the VINGA fleet with zero CO₂ emissions and is in the process of securing the supply of larger quantities of biogas through exclusive agreements with suppliers.

A letter of intent has been signed with Eskilstuna Biogas AB, enabling the development of a new biogas plant producing around 5,000 tonnes of LBG annually. Furetank commits to buying at least 75% of the produced fuel for 10 years. The gas will be extracted from manure and food waste and upgraded to 100% waste-based, fossil-free and renewable biofuel.



OPTIMIZING TRADING PATTERNS

An often overlooked factor affecting emissions is how well we optimize the movements of the fleet. Furetank runs our own chartering department operating more than 20 intermediate tankers for Furetank and eight partner companies. This critical mass of vessels means we can always provide the right sized vessel in the right position at the requested time.

By combining different voyages and cargoes we reduce the time in ballast way below the average in our trade. Furetank's ratio laden vs ballast is 66/34, compared to the average of 47/50. This drastically reduces the emissions per transported ton and also brings economic efficiency; a prerequisite for Furetank's large investments in innovation, optimization and climate-efficient technology when developing new vessels.

Mean draft Bok	Salt water				Density 1.020 1.015 1.010 1.005	Fresh water		Mean draft Bok
	Displacement	MCT	TpCm	Deadweight		Deadweight	Displacement	
11		332	31.5	23000			29000	11
10.9		330	31.4					10.9
10.8	29000	328	31.3	22000			28000	10.8
10.7		326	31.2					10.7
10.6	28000	324	31.2	21000			27000	10.6
10.5		322	31.1					10.5
10.4	27000	320	31.1	20000			26000	10.4
10.3		318	31.0					10.3
10.2	26000	316	30.9	19000			25000	10.2
10.1		314	30.8					10.1
10	25000	312	30.7	18000			24000	10
9.9		310	30.6					9.9
9.8	24000	308	30.5	17000			23000	9.8
9.7		306	30.4					9.7
9.6	23000	304	30.3	16000			22000	9.6
9.5		302	30.2					9.5
9.4	22000	300	30.1	15000			21000	9.4
9.3		298	29.9					9.3
9.2	21000	296	29.8	14000			20000	9.2
9.1		294	29.7					9.1
9	20000	292	29.6	13000			19000	9
8.9		290	29.5					8.9
8.8	19000	288	29.4	12000			18000	8.8
8.7		286	29.3					8.7
8.6	18000	284	29.2	11000			17000	8.6
8.5		282	29.1					8.5
8.4	17000	280	29.0	10000			16000	8.4
8.3		278	28.9					8.3
8.2	16000	276	28.8	9000			15000	8.2
8.1		274	28.7					8.1
8	15000	272	28.6	8000			14000	8
7.9		270	28.5					7.9
7.8	14000	268	28.4					7.8
7.7		266	28.3					7.7
7.6	13000	264	28.2					7.6
7.5		262	28.1					7.5
7.4	12000	260	28.0					7.4
7.3		258	27.9					7.3
7.2	11000	256	27.8					7.2
7.1		254	27.7					7.1
7	10000	252	27.6					7
6.9		250	27.5					6.9
6.8	9000	248	27.4					6.8
6.7		246	27.3					6.7
6.6	8000	244	27.2					6.6
6.5		242						6.5
6.4	7000	240						6.4
6.3		238						6.3
6.2	6000	236						6.2
6.1		234						6.1
6	5000	232						6
5.9		230						5.9
5.8	4000	228						5.8
5.7		226						5.7

LAKE MÄLAREN (NEW SÖDERTÄLJE CANAL)	7,0 M	10500 TDW
ÖRESUND/DROGDEN	7,7 M	12900 TDW
MANCHESTER CANAL	7,9 M	13000 TDW
DESIGN	8,9 M	16300 TDW
SUMMER	9,4 M	17999 TDW

CARGO TANKS SPEC. GR. 1.5	VOLUME 100 %
Cargo (slop) tank 1 SB	663 m ³
Cargo tank 1 P	670 m ³
Cargo tank 2 SB	1 919 m ³
Cargo tank 2 P	1 911 m ³
Cargo tank 3 SB	1 757 m ³
Cargo tank 3 P	1 765 m ³
Cargo tank 4 SB	2 104 m ³
Cargo tank 4 P	2 094 m ³
Cargo tank 5 SB	2 094 m ³
Cargo tank 5 P	2 106 m ³
Cargo tank 6 SB	1 592 m ³
Cargo tank 6 P	1 594 m ³
CARGO TANKS TOTALLY	20 269 m³

TECHNICAL SPECIFICATIONS

CLASS

Bureau Veritas (BV), Dual Fuel (LNG), +Hull, +Mach, Oil Tanker, Chemical Tanker, ESP, Unrestricted Navigation, Ice Class 1A, AUT-IMS, SYS-IBS-1, MON-SHAFT, VCS, Inwater Survey, Clean Ship, EWCT, BWT, AVM-APS, IG

DESIGN

FKAB Marine Design, Low Drag Hull Design

SERVICE SPEED

12 Knots

FUEL CONSUMPTION

8,2 ton LM
With shaft generator connected

PARTICULARS

Overall length 149,9 M
Breadth 22,8 M
Depth 12,1 M
Draft design 8,9 M
Draft summer 9,4 M
Keel to top of mast 40,3M

TANK COATING

Sigma Phenguard 930/935 /940 EN
Hot Cured

TONNAGE

DWT design 16,300 T
DWT summer 17,999 T
GRT 12770 T
NRT 5838 T

TANK CAPACITY

Cargo 98 % 19,850 m³
Ballast 7500 m³
LM (Liquid Methane) 620 m³
HFO 520 m³
DO 150 m³
Fresh water 40/300 m³

CARGO HEATING

Heat exchanger
Steam boilers 9,5 Steam ton/h

CARGO PUMP

Electric deep well pumps
Cargo pumps 12x300 m³/h

Slop pumps

300 m³/h
Ballast pumps 2x500 m³/h
Discharge Cap @12BAR 1800 m³/h

MAIN ENGINE

Wärtsilä 9L34DF 4500 KW
Shaft generator 1500 KW

AUXILIARY ENGINES

Wärtsilä 688W4L20 685 KW
Wärtsilä 1600W9L20 1600 KW

AVM-APS

Alternative propulsion 1800 KW

BOW THRUSTER

Brunvoll/Kongsberg 850 KW

INERT GAS SYSTEM

Fuel LM/Diesel
Capacity 2250 m³/h

BALLAST WATER TREATMENT

Alfa Laval Pure Ballast

