GREEN SHIPS

NEWBUILDING

TT-Line

ENERGY-EFFICIENT HVAC

To ensure a perfect environment for our passengers, TT-Line installs a highly energy efficient **heating, ventilation and air conditioning** system with precise temperature, ultra-low noise and minimum energy consumption. This system re-uses energy available on board for heating and cooling purposes:

Cold Recovery re-uses the coolness of re-gasified LNG for the air-conditioning. Together with the Alaska-Cooler the system provides cool air without extra energy effort in almost every season.

Alaska-Cooler uses the coldness of the sea water to cool down the air in the air-conditioning. This saves energy by avoiding additional cooling during the warm period of the year.

Heat Recovery System absorbs the heat from the outgoing air to warm up fresh ingoing air without mixing both. This saves a lot of energy and provides warm and 100% fresh air.

E-CAR CHARGING STATION

TT-Line offers the possibility to charge electric cars during the crossing on the new ship to support this important future mobility technology.

20 charging stations

100% recharging of battery during voyage

CLEAN SHIPPING INDEX

The Clean Shipping Index is an independent reporting and labelling system for the environmental performance of ships and shipping companies. TT-Line equips the new Green Ship to reach the maximum score of 5 stars.

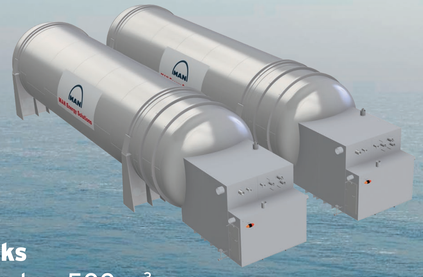
CABIN WITH ECO-MODE

Our new, cozy and modern cabins are equipped with an energy saving unit. It interrupts the power circuit for lights and switches the heating in eco-mode if the customer is not in the cabin. This avoids unnecessary power consumption.

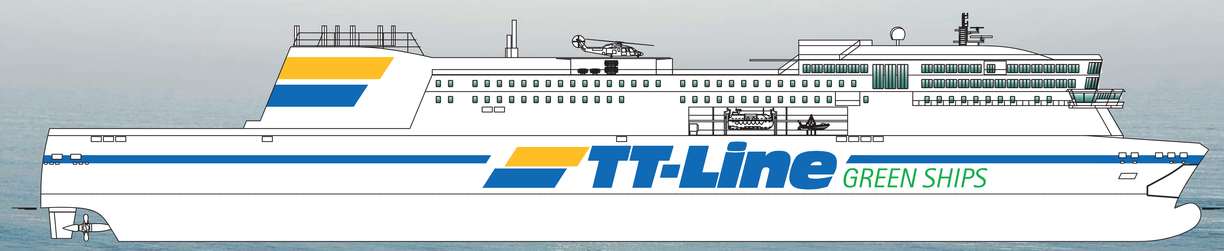
The new ship is fully equipped with LED lights reducing the power demand for lighting by **80%** and ensuring a **10** times longer lifetime of the light sources.

FURTHER GREEN INNOVATIVE DEVELOPMENTS

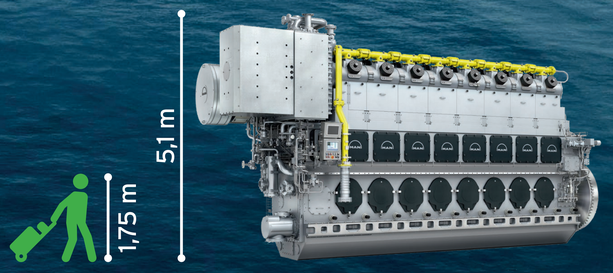
- Modern, Integrated Automation- and Power Management System to optimize energy demand.
- Fin stabilizer with eco-mode to save fuel.
- Optimized hull lines including a specially designed bulbous bow for low fuel consumption taking into account the speed profile of the vessel.
- Airspace Seal to prevent water pollution by lubricating oil.
- Separation of oil from waste water far below the legal limit value.
- Central heating system with harmless steam instead of thermal oil.
- Non-toxic cooling water treatment additives.
- Usage of environmentally compatible cleaning agents in the entire TT-Line fleet.
- Sustainable paint with lower water resistance for the underwater surface.
- Reduction of plastic usage to an absolute minimum.



MAN LNG Tanks
LNG is stored in two 500 m^3 tanks at a temperature below -161°C.



Length: 230 m | **Breadth:** 31 m | **Height:** 39 m | **Maximum Draught:** 6,7 m | **Passengers:** 800 + 66 Crew members



MAN Dual-Fuel Diesel-Mechanical Propulsion

With MAN Energy Solutions SE and many different German, Swedish and other European suppliers TT-Line ordered almost all LNG and further equipment from European manufacturers. The ship is designed by TT-Line's technical department and OSK-ShipTech A/S from Copenhagen and will be build in China by Jiangsu Jinling Shipyard. The interior design is done by OCEANARCHITECTS based in Waren an der Müritz, Germany - the lighting design by WEISER.LIGHTING based in Troisdorf, Germany.

LNG – LIQUEFIED NATURAL GAS **FUEL OF THE FUTURE**

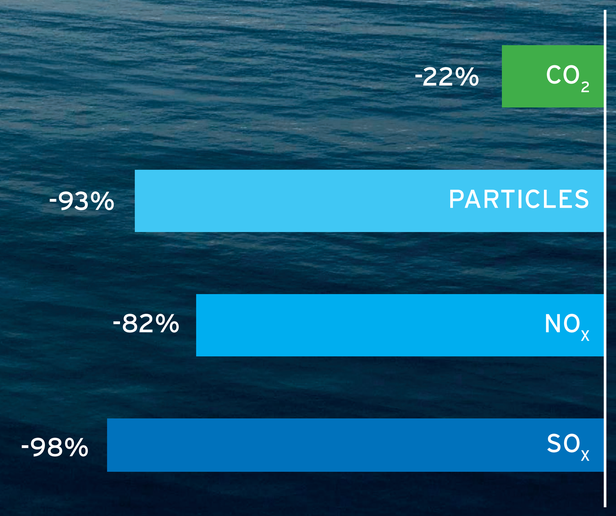
By using LNG as the first shipping company in the southern Baltic Sea, TT-Line is acting as a pioneer with its new GREEN SHIPS concept. LNG stands for Liquefied Natural Gas, which is currently considered to be the cleanest marine fuel available for medium range short sea shipping. It enables significant reduction of emissions.

Particles: Using LNG as fuel ensures virtually particle-free operation of diesel engines. Therefore, TT-Line saves **93%** of the particulate emissions annually. This has a big positive effect on air quality.

Carbon dioxide: Compared to MGO (Marine Gas Oil) as marine fuel, using LNG reduces CO_2 emissions from diesel engines by up to **22%** annually.

Sulfur and nitrogen oxides: By using sulphur-free LNG TT-Line reduces its emissions of sulphur oxides (SO_X) by **98%**. Nitrogen oxide emissions (NO_X) are also reduced by **82%**, even without complicated exhaust treatment.

EMISSION REDUCTION PER YEAR **LNG** (LIQUEFIED NATURAL GAS) VS. **MGO** (MARINE GAS OIL)



WITH THE NEW **GREEN SHIPS** NEWBUILDING CONCEPT
TT-LINE IS INVESTING IN A SUSTAINABLE FUTURE

LNG-Equipment supported by Federal Ministry of Transport and Digital Infrastructure

Supported by:
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on the basic of a decision by the German Bundestag