PORTFOLIO

WESTERN BALTIC ENGINEERING
BLRT GRUPP

LET'S DESIGN
FUTURE SHIPS TOGETHER!

SHIP DESIGN & ENGINEERING

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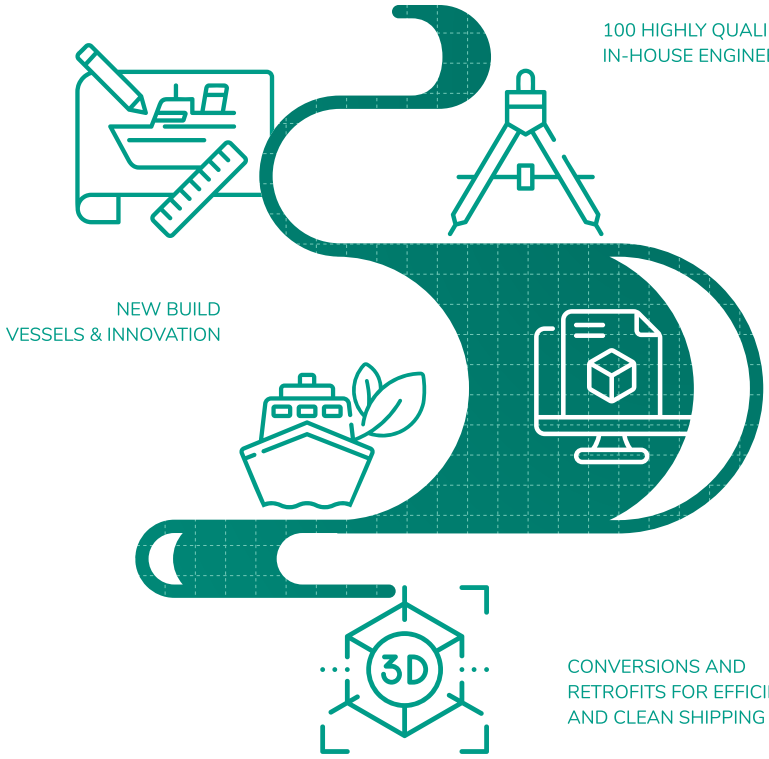


100 HIGHLY QUALIFIED
IN-HOUSE ENGINEERS

NEW BUILD
VESSELS & INNOVATION

CONVERSIONS AND
RETROFITS FOR EFFICIENCY
AND CLEAN SHIPPING

THE WESTERN SHIPYARD GROUP

Trusted partner and innovative ship designer – words that best describe Western Baltic Engineering, a ship design company with 100 passionate in-house engineers.

ABOUT THE COMPANY

Established in 2003, the company has grown into to a center of expertise for the maritime industry, focused on a wide range of vessel types and maritime structural design:

- **Newbuild projects** (fishing trawlers, passenger vessels, RO-PAX vessel, LNG Bunkering vessels, MPV vessel, Dredgers, Special purpose & offshore vessels, Workboats)
- **Retrofit projects** (3D laser scanning, BWTS, EGCS, and etc.)
- **Conversions** (change of vessel purpose, vessel lengthening or propulsion/fuel system)
- **On-site supervision and project management**

EMPLOYEES LIST

RETROFITS & CONVERSIONS

BWTS · Scrubber · LNG · Hull

PERFORMANCE ANALYSIS

CFD · FEM

DIGITALIZATION & SUPPORT

3D Laser Scan · Technical Assistance

NEWBUILD

Newbuilding

ELECTRICAL SYSTEM INTEGRATION

ESI

CERTIFICATES

LRQA CERTIFIED ISO 9001 • ISO 14001 ISO 45001 — UKAS MANAGEMENT SYSTEMS 0001

LRQA CERTIFIED AQAP 2110

TECHNOLOGICAL BASE

Licensed Software: we use latest CAD licensed software tools in order to be innovative & perform most efficiently.

AUTODESK. · Rhinoceros® · AVEVA · SOLIDWORKS · SSI · NISA · Bentley Sustaining Infrastructure · SIEMENS · CADMATIC · Ansys

SHIP DESIGN & ENGINEERING

AUTONOMOUS ELECTRIC PASSENGER FERRY

AUTONOMOUS ELECTRIC PASSENGER FERRY	
type	PASSENGER VESSEL
scope of work	CONCEPT DESIGN
length	35 m
breadth	11.9 m
depth	3.4 m
draft	1.7 m
ice class	IC
PAX	300
range	16 HOURS WITH FULL CHARGE
propulsion	ELECTRIC ENGINE, PROPELLER
energy system	BATTERIES, CONVERTER / INVENTER, SOLAR PANELS
DCMS	ELECTRIC ENGINE / SYSTEM DATA, BMS DATA, NAVIGATION DATA
VCS	NAVIGATION CONSOLE, CONTROL FROM SHORE SYSTEM
navigation system	RADAR, AIS, DISTANCE SENSORS, ECDIS, LIDAR

- Innovative hull form for electric passenger ferry development.
- Development and optimization of electric propulsion complex for electric ferry.
- Specially designed vessel for safe and cost-effective ferry service.
- Zero emmission vessel.
- Communication system.
- Cyber security system.
- Fully autonomous.

Project developed in cooperation with Klaipeda University and was partly funded by European Union funds investements in Lithuania.

FULLY ELECTRIC PASSENGER FERRY

FULLY ELECTRIC PASSENGER FERRY	
type	PASSENGER VESSEL
scope of work	CONCEPT DESIGN
length	35 m
breadth	11,9 m
depth	3.4 m
draft	1.7 m
speed	8 KNOTS
PAX	300 PASSENGERS AND UP TO 60 BICYCLES
range	16 HOURS OF OPERATION ON A SINGLE CHARGE
class	I HULL MC 5(Z) IN(1.2) Passenger vessel / Ferry / Fire/ ICE-40 AUT-UMS BATTERY SYSTEM
propulsion	ELECTRIC ENGINE, PROPELLER
energy system	LITHIUM BATTERY ENERGY STORAGE SYSTEMS (BESS), SOLLAR PANELS
bess quantity	2
total bess power	3382 kWh
DCMS	ELECTRIC ENGINE/SYSTEM DATA, BMS DATA, NAVIGATION DATA
VCS	NAVIGATION CONSOLE, CONTROL FROM SHORE SYSTEM
navigation system	RADAR, AIS, DISTANCE SENSORS, ECDIS, LIDAR

- Innovative hull form for electric passenger ferry development.
- Double ended ferry.
- Development and optimization of electric propulsion complex for electric ferry.
- Specially designed vessel for safe and cost-effective ferry service.
- Zero emmission vessel.
- Communication system.
- Cyber security system.

RO-PAX FERRY

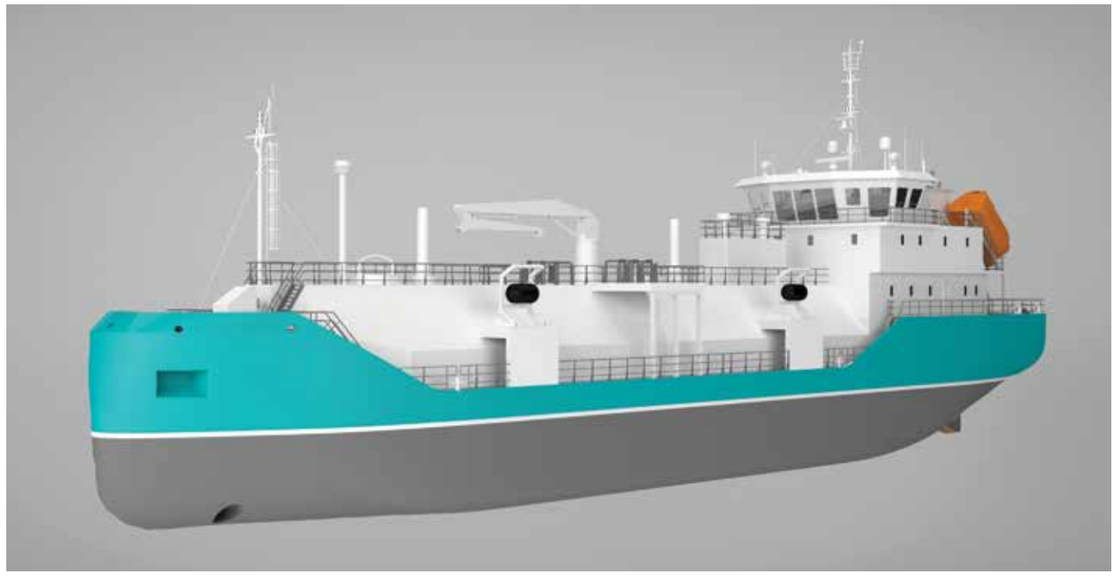
RO-PAX FERRY	
type	RO-PAX VESSEL
scope of work	CONCEPT & BASIC DESIGN, PRODUCTION DOCUMENTATION
length	59.9 m
breadth	14 m
depth	3.4 m
draft	1.75 m
speed	9.7 KNOTS
amount of passengers	1000 PASSENGERS
amount of passengers + cars	600 PASSENGERS + 40 CARS
ice class	Ice-40

- The ship is a single-hull structure, symmetrical in relation to the midship, Double-ended type.
- The hull structure and thrusters allow the ship to operate in forward and reverse motion without turning around, and can operate under the conditions where ice thickness is up to 30 cm.
- The ship's propulsion complex – diesel and the steering mechanisms are azimuthal, with a 360° steering angle, located at the front and rear of the ship.
- The superstructure of the vessel is formed on the right side of the ship. The car parking and passenger areas are located on the main deck.
- The passenger area is a heated passenger cabin.
- The crew accommodations are located on the second deck, while the wheelhouse – on the midship of the upper deck. The engine rooms and technical rooms are in the ship's hull.

LNG BUNKERING VESSEL

1000 m^3 LNG BUNKERING VESSEL	
type	BUNKERING VESSEL
scope of work	CONCEPT DESIGN
length	64.8 m
breadth	12.5 m
depth	5.5 m
draft	3.95 m
ice class	ICE-C
LNG cargo tank capacity	1000 m^3
ballast water	450 m^3
fresh water	30 m^3
MGO	10 m^3
LO	7.5 m^3
oily water	1 m^3
sludge	0.5 m^3
engine type	WARTSILA 6L20DF @ 1110 kW
thruster	TUNNEL BOW THRUSTER @ 300 kW

- Specially designed vessel for safe and cost-effective LNG Bunkering and Coastal Feeder Service servicing off-grid consumers and LNG powered ships.
- Small environmental footprint, Ship type 2G, low running costs and cost-effective solution.
- Lean Gas Main engine utilizing LNG cargo boil-off accommodation.
- Single screw propulsion plant.
- "Take me home" by shaft generator.
- Custody Transfer System with optograph laser technology for measuring energy content of LNG.
- Cargo handling by deep-well pumps.
- Double hull throughout the cargo area.



INLAND WATERWAYS ELECTRIC PUSHER

INLAND WATERWAYS ELECTRIC PUSHER		
scope of work	CONCEPT DESIGN	• Electric pusher for pushing a non-self-propelled barge in the inland waterways. • Shallow draft to be suitable for sailing in shallow inland waters. • The electricity used for the ship's propulsion comes only from the batteries, resulting in completely environmentally friendly solution. • Two deck mounted thrusters with retracting function for shallow waters. • Steering and all the necessary equipment will be installed in containers and located on deck. • Modular battery pack.
length	27.35 m	
breadth	9.2 m	
draft	1.2 m	
weight of pushed barge	2000 t	
upstream speed	10 km/h	
downstream speed	12 km/h	
range	300 km	
battery charge time	MODULAR DECK BATTERIES CAN BE SWAPPED WHILE UNDERDECK BATTERY NEEDS 12 HOURS TO CHARGE	

INLAND WATERWAYS BARGE

INLAND WATERWAYS BARGE		
scope of work	CONCEPT & BASIC DESIGN, PRODUCTION DOCUMENTATION	• The barge designed to transport containers by water across the river Nemunas and the Curonian Lagoon. Barge operating area - Lithuanian inland waterways. • Barge can be loaded with 90 units of 20' containers, the total weight of which must not exceed 1,800 t. • Unpropelled, steel, welded, single-deck barge-platform with tank. • The hull is divided by transverse watertight bulkheads into 5 compartments.
length	74.54 m	
breadth	15.85 m	
draft	2 m	
cargo hold	1800 T	
displacement	2100 T	

FISHING VESSEL

FISHING TRAWLER		
scope of work	CONCEPT & BASIC DESIGN, PRODUCTION DOCUMENTATION	• The vessel is intended for the harvest of bottom food fish species: walleye pollock, cod, flounder, squid, greenling, saffron cod. • Possibility for fishing several types of fishing gear. • Duration to change the fishing gear is from 10 to 30 minutes. • Bottom trawl. • Pelagic trawl. • Transportation of the caught catch, cleaned with the help of a cooling system (distribution of liquid ice among six fish holds, the total volume is 300 m3). • Single deck.
length	44.15 m	
breadth	12 m	
depth	5.15 m	
draft	4.1 m	
ice class	ICE 3	

CRAB CATCHER

CRAB CATCHER	
type	CRAB CATCHER
scope of work	CONCEPT DESIGN
length	75.2 m
breadth	14.5 m
draft	5.6 m
ice class	Ice2
accomodation	46 CREW
crab pot	9020
cargo hold	2715 m^3

- Crab fishing vessel with processing, boiling, freezing, and packing of the products, storage on board.
- The crab processing factory equipped with technological equipment for processing crabs for cooking and freezing crab legs.
- To freeze the crab legs, brine freezing, and air freezing will be used.
- The brine freeze line includes four pre-cooling baths, a frost bath, and a glaze bath. On the air-frost line, four quick-freezing units will be installed.
- The factory equipped with working tables, conveyors, and hoists to move the products along the monorail.
- Two deck cranes 4000 – 7500 kg.
- Total quantity of the conus crab pot – 1900 unit.
- Production: 1000 kg/h.

MULTI-PURPOSE CARGO VESSEL

DIESEL-ELECTRIC MPV	
type	MULTI PURPOSE 4600 dwt
class	100A1 GENERAL CARGO
scope of work	CONCEPT & BASIC DESIGN, PRODUCTION DOCUMENTATION
length	89.9 m
breadth	14.5 m
depth	7.5 m
draft	5.63 m
engine type	WARTSILA 8L20 @ 1600 kW
speed	10.3 KNOTS
permissable load on tanktop	15 TONS/SQM

- The vessel is design to carry bulk cargo, including Ferro Silizium, logs, timber, containers, paper reels, grain, steel coils and general cargo on world-wide service trade, as well as dangerous goods class 1-8 to IMO-Code, excluding explosive cargos and exclusive corrosive and radioactive cargo.
- Super-efficient hull shape for effective fuel consumption.
- The ship is designed with raked stem, bulbous bow, and transom stern.
- The vessel has two cargo holds.
- The continuous double bottom in the cargo holds and engine room.
- The ship is equipped by a medium speed, four-stroke diesel-generators and azimuth thruster.
- One bow thruster is designed for this vessel.
- Welding seams of cargo hold longitudinal and transverse bulkheads are ground, not grinded.

SEA-RIVER COASTAL CARGO VESSEL

SEA-RIVER COASTER	
type	GENERAL CARGO
classification society	BUREAU VERITAS
scope of work	CONCEPT
length	89.99 m
breadth	13 m
draft	4.3 m
cargo hold	5040 m^3
DWT	3500 MT
MGO	200 m^3
water ballast	200 m^3
fresh water	200 m^3
speed	10 KNOTS

- Designed to operate in sea as well as inland water
- Low draft as well as low air draft
- Modular diesel electric propulsion
- Efficient and environmentally friendly performance
- 5 Crew on-board
- Design with Venti foil wings
- Box-shaped design with movable bulkheads

MULTI-PURPOSE VESSEL

MULTIPURPOSE VESSEL	
type	MULTIPURPOSE 4600dwt
scope of work	CONCEPT DESIGN
length	89.9 m
breadth	16 m
draft	5.5 m
speed	11 knt
cargo hold	7500 m3
DWT	4600 t
Displacement	6400 t

- Short sea shipping
- Modular propulsion system
- Connectivity to Onshore Power Supply (OPS)
- Optimal vessel size
- Easy transition to other alternative fuels
- Significantly reduced emissions
- 9+1 Crew on board

Copcept design developed in cooperation with partners Western Baltija Shipbuilding

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