

# AERO SAIL – Scalable Wind Propulsion system for Carbon-Free Commercial and Pleasure Vessels – Refits and Recreate

Names: **Mides design d.o.o.**

This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101058756



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# Hook - Problem

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Aero sail

## WHAT WE ARE SOLVING

- 1 We bring new green propulsion system
- 2 Saving lots of low grade fuel and money & ETS coupons
- 3 Singnificantly reduced carbon footprint
- 4 Moving towards The end of fossil fuels
- 5 Making „Green deal“ happen
- 6 Creating huge market for new sustainable materials



# Customer segments and Market size: AN EXCEPTIONAL MARKET

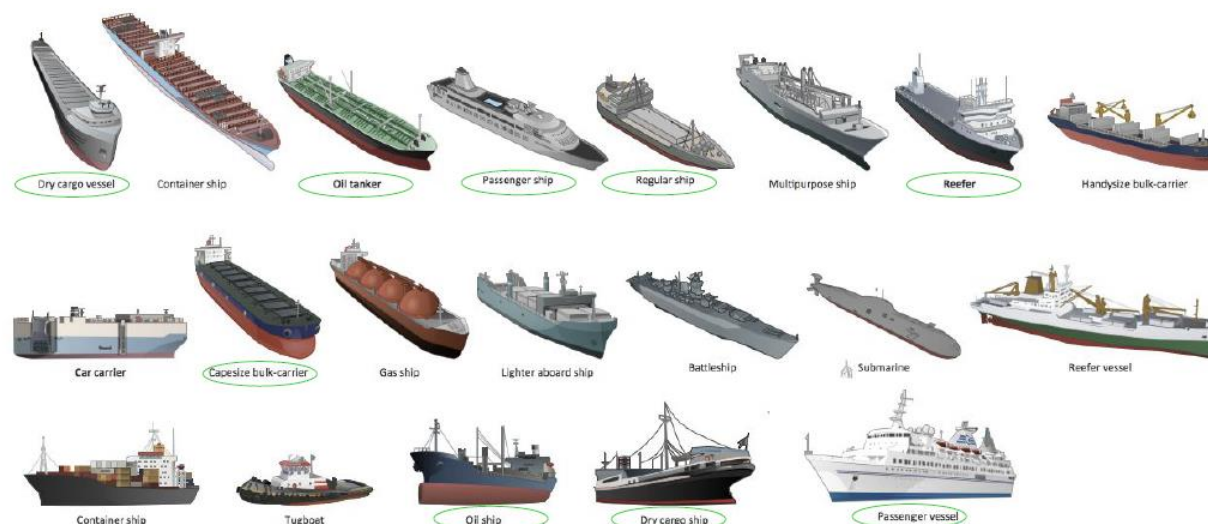
FOR ALL KIND MATERIALS: CARBON FIBER, STEEL AND ALUMINUM

## Possible application of Aero sail on current commercial sectors:

- Dry cargo vessel
- Oil tankers and ships
- Reefer
- Capsize bulk-carriers
- Passengers ships

Ship Type	Small <sup>(1)</sup>		Medium <sup>(2)</sup>		Large <sup>(3)</sup>		Very Large <sup>(4)</sup>		Total	
General Cargo Ships	4,374	13.1%	11,830	30.3%	229	2.0%			16,433	18.3%
Specialized Cargo Ships	8	0.0%	225	0.6%	64	0.6%	4	0.1%	301	0.3%
Container Ships	18	0.1%	2,253	5.8%	1,507	13.0%	1,329	22.9%	5,107	5.7%
Ro-Ro Cargo Ships	31	0.1%	641	1.6%	592	5.1%	223	3.8%	1,487	1.7%
Bulk Carriers	309	0.9%	3,792	9.7%	5,830	50.2%	1,683	28.9%	11,614	12.9%
Oil and Chemical Tankers	1,902	5.7%	6,912	17.7%	2,629	22.6%	1,779	30.6%	13,222	14.7%
Gas Tankers	38	0.1%	1,126	2.9%	337	2.9%	420	7.2%	1,921	2.1%
Other Tankers	364	1.1%	605	1.6%	9	0.1%			978	1.1%
Passenger Ships	3,894	11.7%	2,674	6.9%	272	2.3%	171	2.9%	7,011	7.8%
Offshore Vessels	2,685	8.0%	5,402	13.8%	120	1.0%	201	3.5%	8,408	9.4%
Service Ships	2,537	7.6%	2,554	6.5%	26	0.2%	6	0.1%	5,123	5.7%
Tugs	17,196	51.6%	1,003	2.6%					18,199	20.3%
<b>Total</b>	<b>33,356</b>	<b>100%</b>	<b>39,017</b>	<b>100%</b>	<b>11,615</b>	<b>100%</b>	<b>5,816</b>	<b>100%</b>	<b>89,804</b>	<b>100%</b>

In 2016 there were **52.660** existing ships that could be equipped with the Aero sail system and number is growing each year.



And there are aprox over 20 milion registered sail yacht in the world...

# USP & UVP

It is **lightweight**, **A-frame** mast system made of carbon, with a fully battened sail and **automated rigging** – no ropes, no winches, no manual handling. One **touch of a screen** and the system folds. It's silent, elegant, and efficient.

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## Our key innovations include:

- Self-tensioning, **inflatable** or battened sails
- **A folding mast** powered by pneumatic or hydraulic cylinders
- **Fully autonomous** control software
- Retrofit capability for over **50% of existing cargo ships**

## 🌱 The environmental and economic impact?

- Up to **60% fuel savings** on windy routes
- Up to **40% lighter structure** than conventional rigs
- **Reduced maintenance**, easier servicing, and improved safety
- **Estimated return on investment within 40 days of voyage on large commercial vessels**
- Compatible with zero-emission drone ships and hybrid concepts



# Solution

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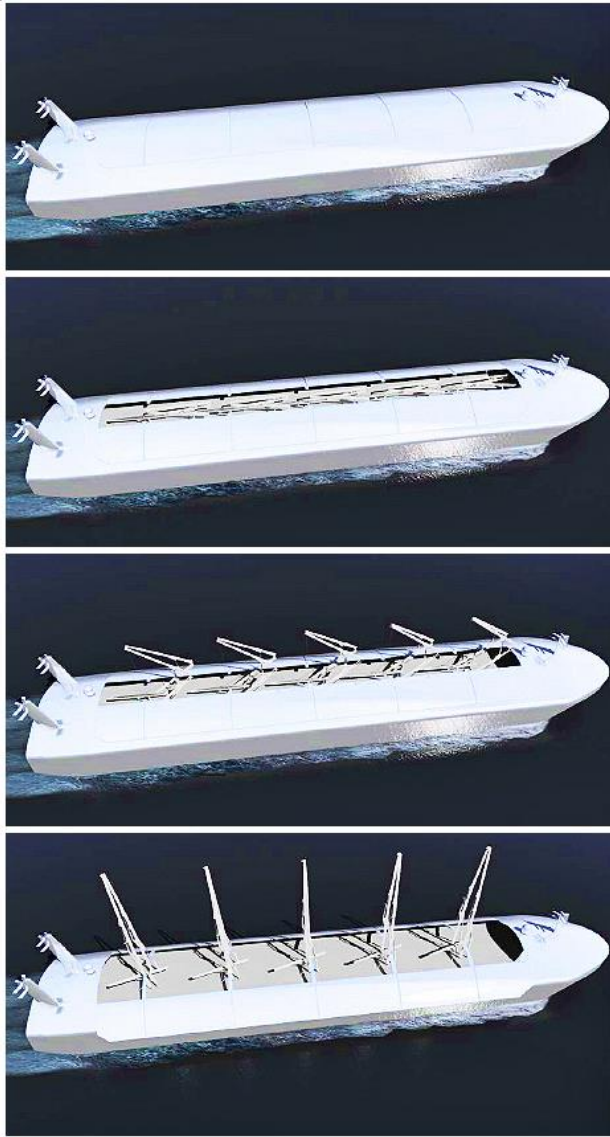
**Example: Future 300m commercial tanker with 5 Aero sail units**



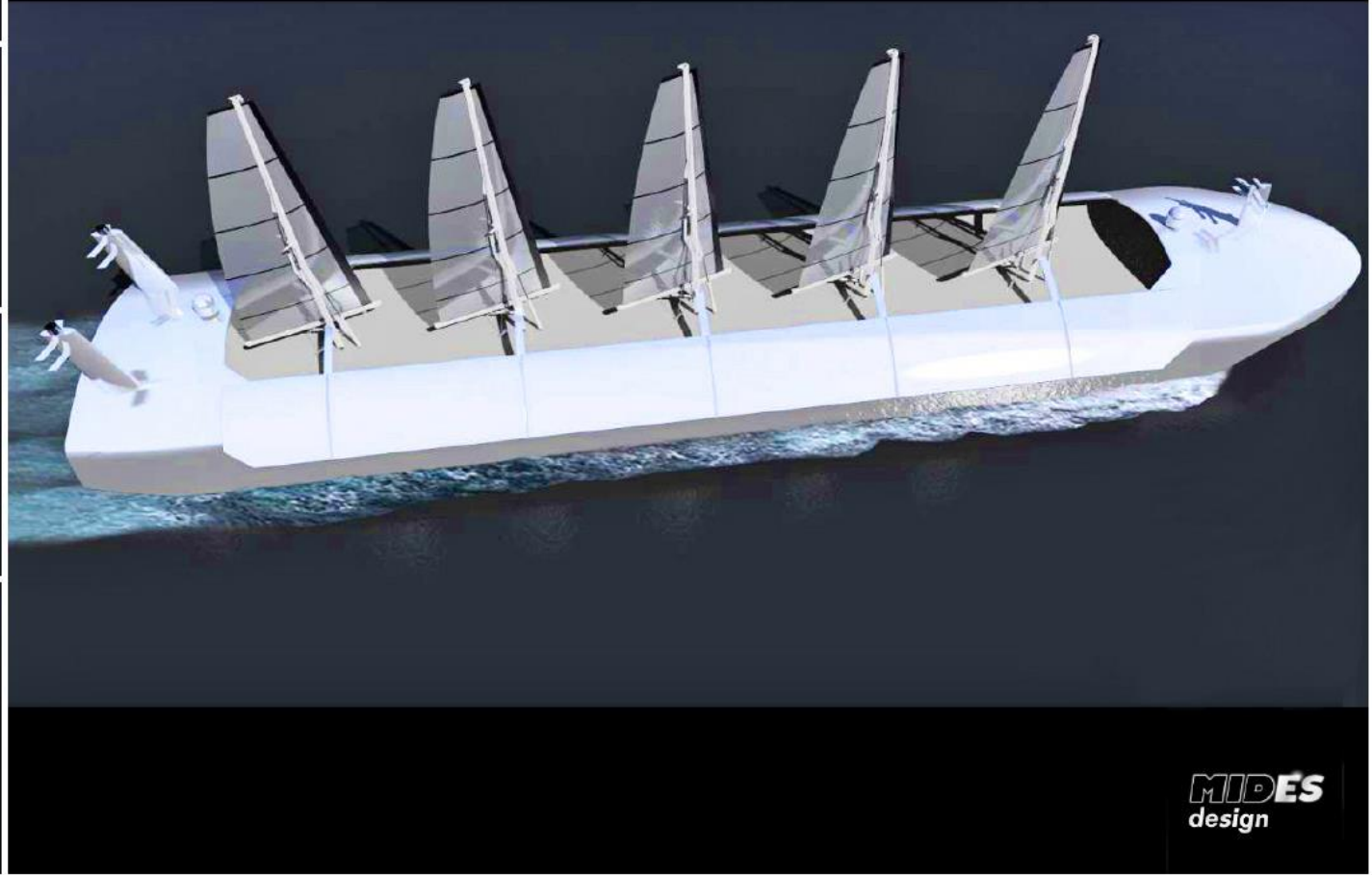
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# Solution



**Example: Sequence: Future 300m commercial drone tanker with 5 Aero sail units**



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Example: Retrofit of 300m commercial tanker with 5 Aero sail units



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Example: 70m navy ship for hunting submarines with 3 Aero sail units



# Solution

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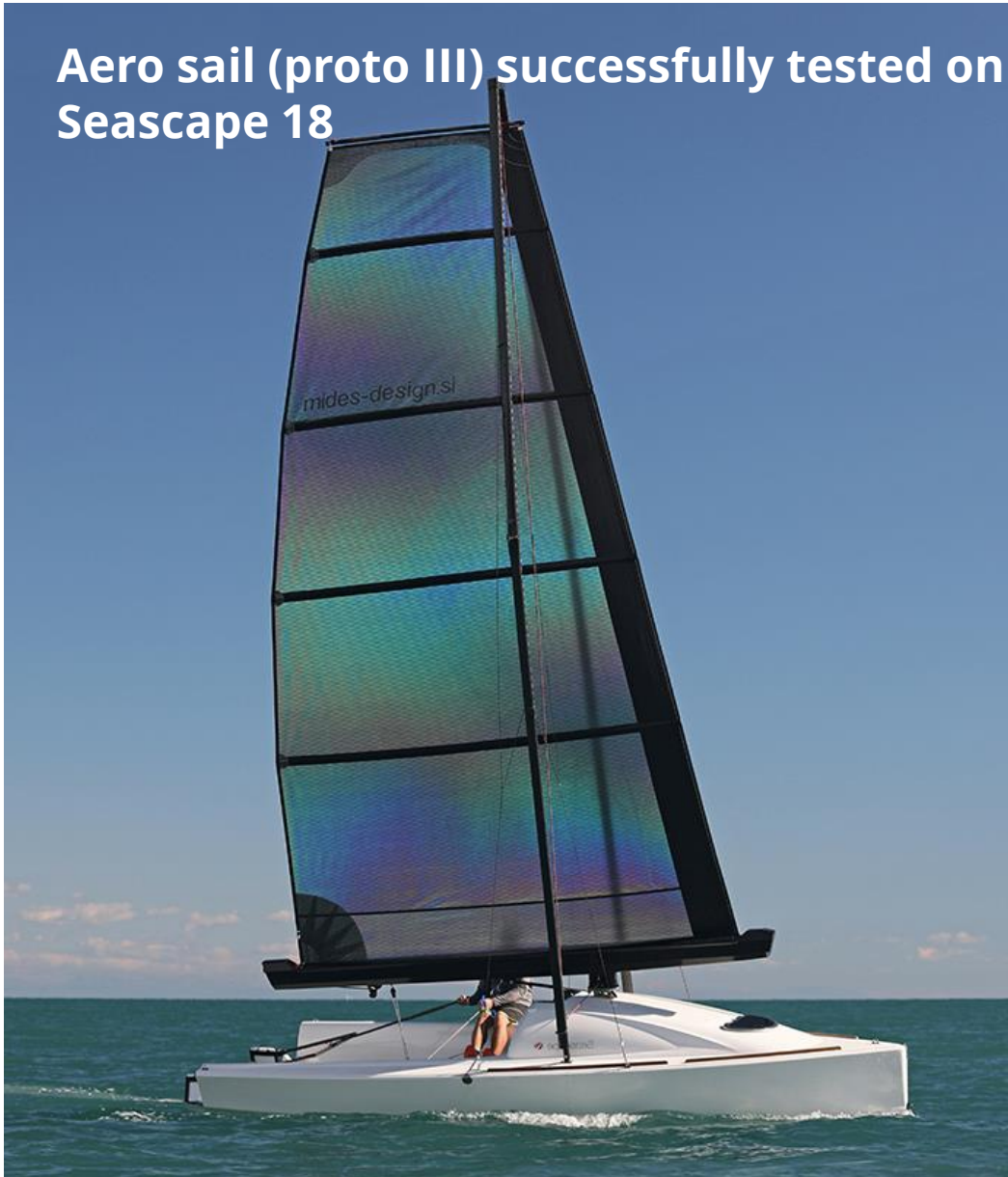
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Example: Retrofit of 20m catamaran  
with 1 Aero sail unit



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# Aero sail (proto III) successfully tested on Seascape 18



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# Solution



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**Current project: „RECREATE“: Sveti Mihovil**

**Retrofit of 24m patrol boat with 2 Aero sail units.**

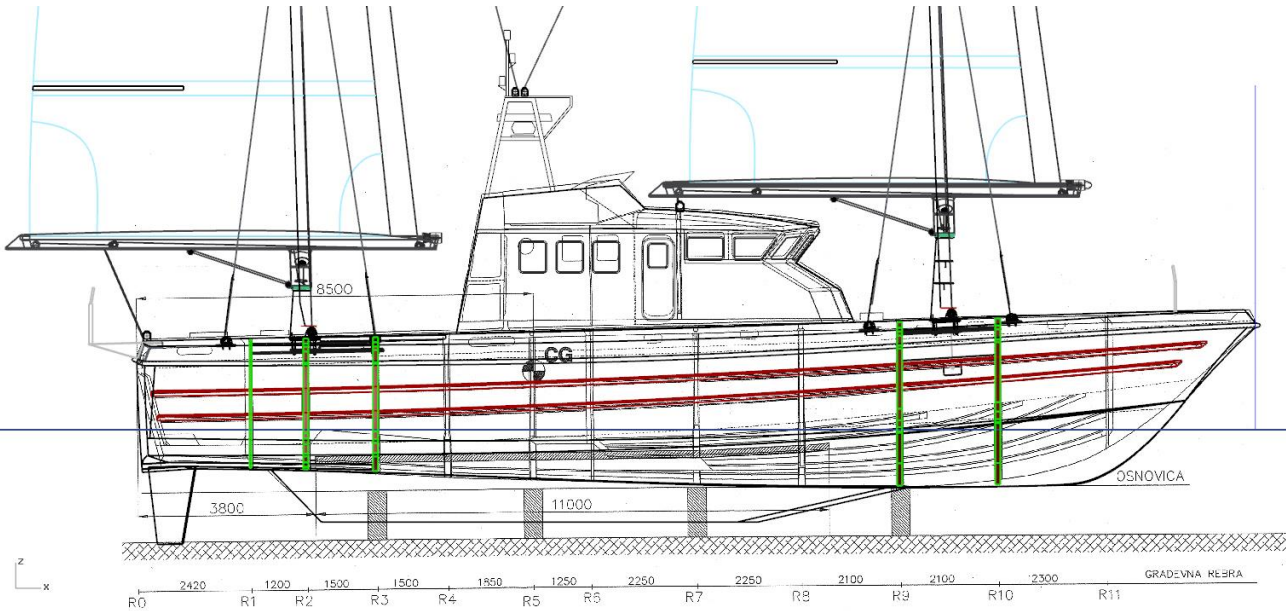
revitalization, new purpose, recycling of purpose



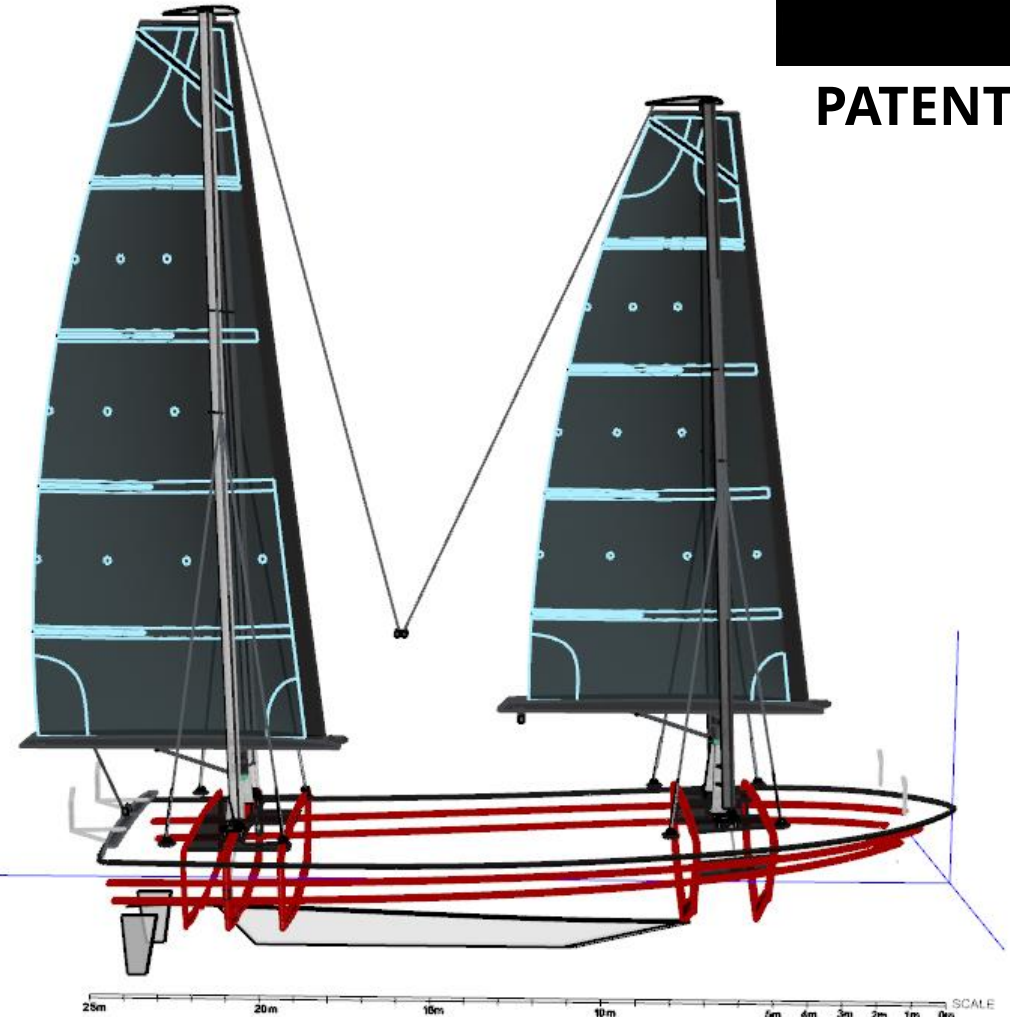
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Non-invasive instalation of the sistem: attched on the current deck and hull structure.





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# Team: Sveti MIHOVIL consortium

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*C. representatives:*

1. Mides design d.o.o.
2. Mediteranski inštitut za monitoring
3. Matjaž Laščak s.p
4. Ali.Ro d.o.o.
5. Intervela d.o.o.
6. Quaiat Officina navale





**Competitors:** there are currently 5 solutions in the World. **Aero sail** is one of only 2 patented. The market is so huge, that more competitors are very much needed.

# Intellectual property

AERO SAIL Main patent and 5 model protections at OHIM (still confidential):

**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
 (Chapter II of the Patent Cooperation Treaty)  
 (PCT Article 36 and Rule 70)

Applicant's or agent's file reference [REDACTED]	<b>FOR FURTHER ACTION</b> See Form [REDACTED]	
International application No. [REDACTED]	International filing date (day/month/year) 25.01.2018	Priority date (day/month/year) 08.06.2017
International Patent Classification (IPC) or national classification and IPC [REDACTED]		
Applicant Mides Design D.o.o.		

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

<b>Novelty (N)</b>	Yes: Claims 1-30	All 30 claims are 100% Novelty. ✓
	No: Claims	
<b>Inventive step (IS)</b>	Yes: Claims 1-30	All 30 claims are 100% Inventive. ✓
	No: Claims	
<b>Industrial applicability (IA)</b>	Yes: Claims 1-30	All 30 claims are 100% Industrial applicable. ✓
	No: Claims	



Mides design owns also 4 model (exterior appearance) protection at OHIM, The European Union Intellectual Property Office, European Union trade mark and the registered Community design.



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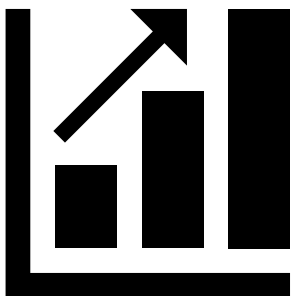


# Investment needs



**PATENT**

1. Patent for commercial ships is for sale
2. Licenses for pleasure sector are for sale
3. (Co)investors for refit of Sveti Mihovil yacht welcome
4. We are searching for potential customers in all the segments



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*„A patented solution for a zero-emission maritime future –  
from luxury yachts to unmanned cargo ships.“*

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# Questions?