Passion
Knowledge
Innovation

VABO COMPOSITES

VABO MARITIME

Maritime

Industry

Art in public space

VABO COMPOSITES

VABO MARITIME

Services and products:

- Pre-engineering (incl. weight calc.)
- Engineering (incl. FEA and calculation)
- Moulds
- Building the elements
- Installations of the elements

examples:

- Topmasts
- Antenna masts
- Superstructures

} including Mounting plates, Piping (cables) cable ducts, Prepared for installation of equipment

- Bulwark/life raft doors and hatches
- Doors and hatches
- Furniture incl. hatches

} including hardware (turn key)

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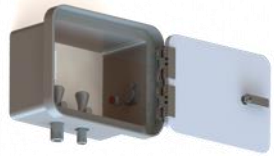
Standard configurable products

Products

- Industrial doors
- Escape hatches
- Multipurpose hatches
- Deckhatches
- Luxery doors









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Lloyd's Register

BUREAU VERITAS 1828

RINA 1861

CERTIFIED MARITIME SERVICE SUPPLIER
DNV·GL
DNVGL.COM/AF

VABO COMPOSITES

Composites:

- Light weight
- Freedom of shape
- Less maintenance
- Function-integration
- Less fairing

Can’t fly without composite

Trends

- Implementation new materials
- Saving fuel (costs)
- Less maintenance (total-cost-of-ownership)
- “cleaner” vessels
- Light weight unmanned vessels


Business case needed

Wood>

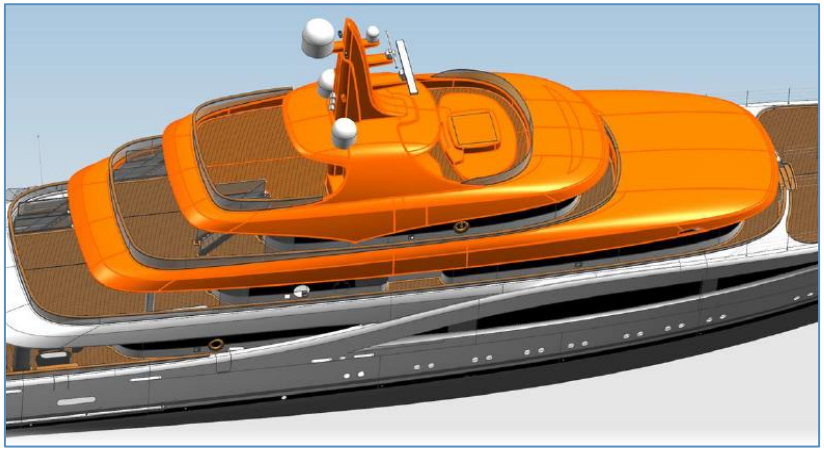
steel>

alloy>

composite

The project:

Saving 10ton of weight in the superstructure for 70m superyacht
Total of 830m2



Why composite?

Not possible to reach the requirement to save 10ton of weight with a alloy superstructure

Concerns (from yard and contractors of the yard)

- How to connect to the alloy construction
- What about fire resistance
- How to “deal” with class society
- How you are assured it will fit in the end

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Phases during the project

- Pre-engineering
- Detail engineering
- Moulds
- Building and assembly
- Shipping
- Installation

Concept Engineering
- Identify requirements
- Define materials
- Demarcation list
- Risk analysis
- List and define stakeholders
- Pre-engineering report

Detail Engineering
- Finalize 3D model
- Calculations (weight, FEA, strength)
- 3D measurements
- Review drawings for class and client
- Work preparation

Moulds and tools
- Mould build following 3D model (CNC)
- Critical parts checked by 3D measurement and templates on site

Production
- Project management (communication stakeholders)
- Built conform specs and 3D model
- Including
  - Mounting plates
  - Piping for cables or cable ducts

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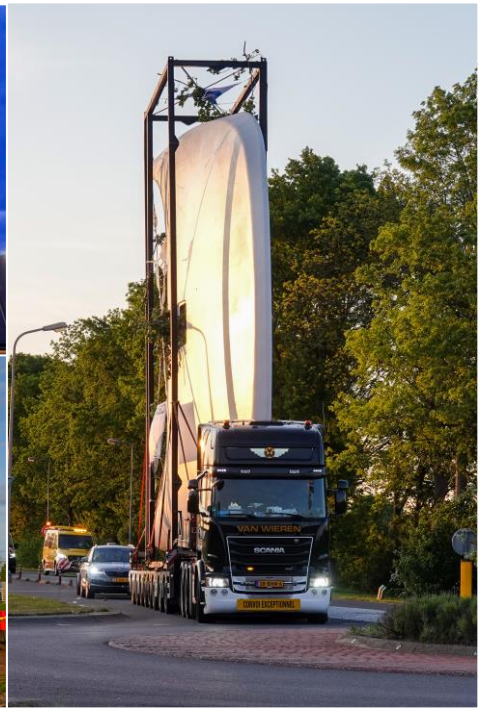
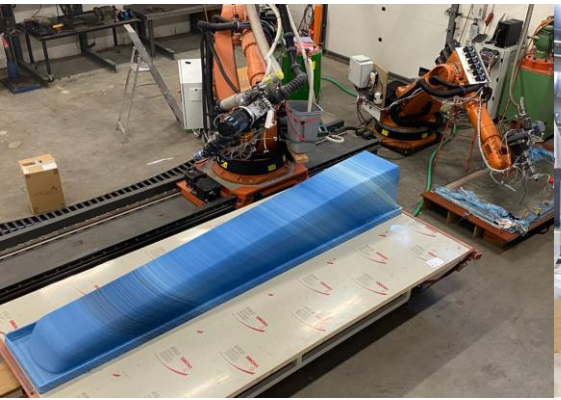
Production

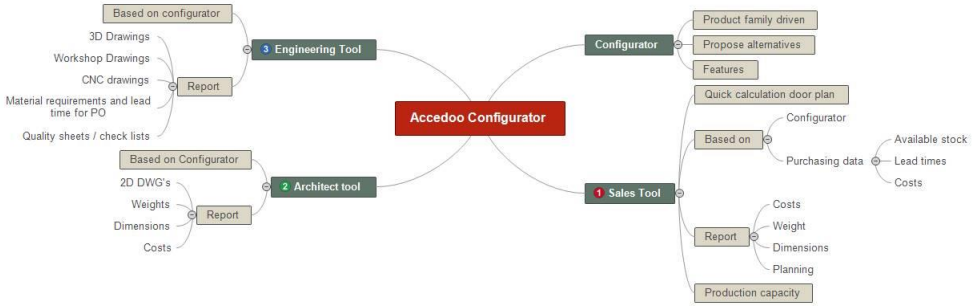
Shipping



Robotization

3D printed mould (recycled material)
Robot used for milling and drilling





Actual innovations:

Automatization of engineering

Fire resistance tests up to 60minutes

Composite grids

Experience from projects like this:

Quote of yard: “We are not desperate enough to use composite”

Important to find a way to convince yards to see composite as an option during design phase
Discussions must be done in an earlier stage

Show cases needed

Wood>

steel>

alloy>

composite

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