

D-LASS

Dutch network for lightweight  
applications at sea

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# A partnership born from shared goals



D-LASS

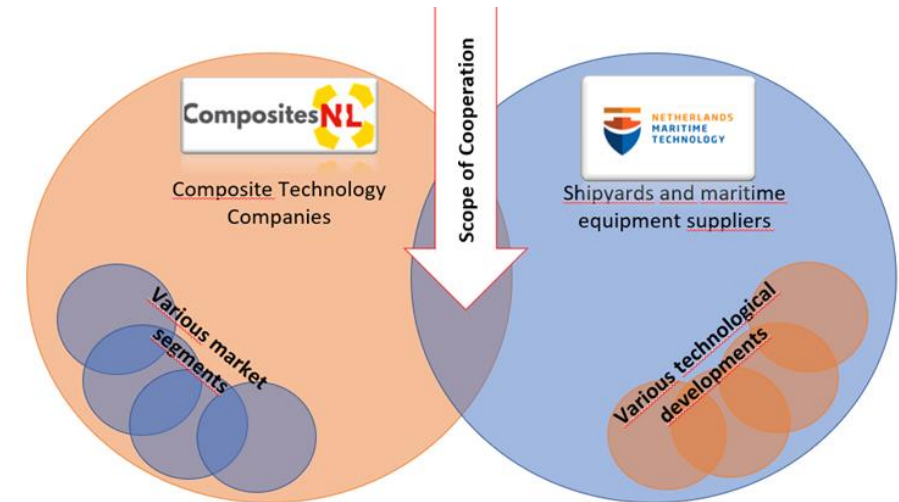
Dutch network for lightweight applications at sea



# A partnership born from shared goals

## Cooperation NMT & CNL

- 40 % of CNL members are active in maritime & offshore
- Dutch shipbuilding innovation is well-known
- Ambition: first SOLAS approved FRP ship
- Cooperation, Knowledge-sharing
- Pro-active advisory support to Rule-makers (e.g. Flag State)
- Lobby



# The Dutch Maritime Masterplan

## Doel Maritiem Masterplan:

30 emissieloze en digitale schepen (en technologie breed beschikbaar)  
op basis van R&D programma, Launching customership programma's KM & Rijksrederij en Call civiele schepen

### Zero Emission Shipping programma

1

Systeem  
transitie  
naar zero  
emission

2

Methanol  
energie en  
voorstuwings  
systemen

3

Waterstof  
energie en  
voorstuwings  
systemen

4

Aanvullende  
en  
toekomstige  
energie en  
voorstuwings  
systemen

5

Modulair  
scheeps  
ontwerp &  
productie



### Smart & Digital Shipping programma

6

Cybersecure  
Infrastructuur  
voor Digitale  
Operaties

7

Smart  
Monitoring  
en Ship  
Maintenance

8

Autonoom  
varen



# Showcase Dutch companies

Some highlights...

## Nedcam paving the way from thermoset to thermoplastics

- 3D Printing of models with **Thermoplastic** (reinforced) plastics
- 100% recyclable!
- Milling the surface CNC
- Plugs, Moulds & Parts
- Enviromental and economical benefits





Early adopters of automation for structural parts

Milestone: First mast built using robot platform delivered to customer

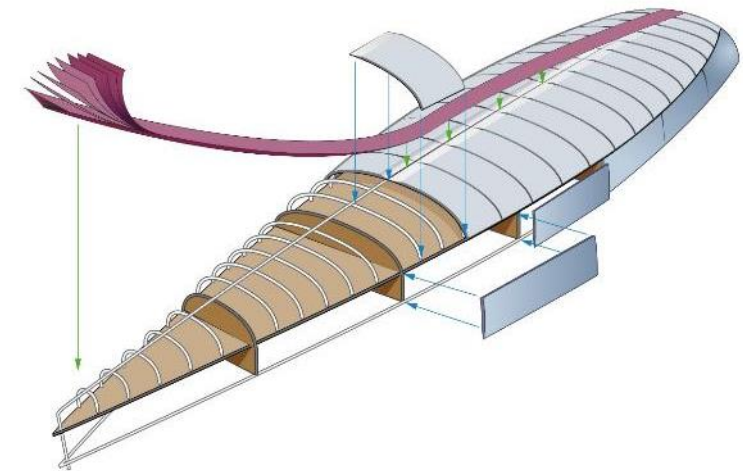
Moulds were 3D printed with recyclable material





| Curved Panels + Panel Assemblies

## Tool-less manufacturing of large structures





Manufacturing of high-end and highly loaded yacht structures:

Delivered the world's largest carbon composite rudder

Weight saving of 1750 kg compared to steel



InfraCore company



InfraCore<sup>®</sup>inside

becker marine systems



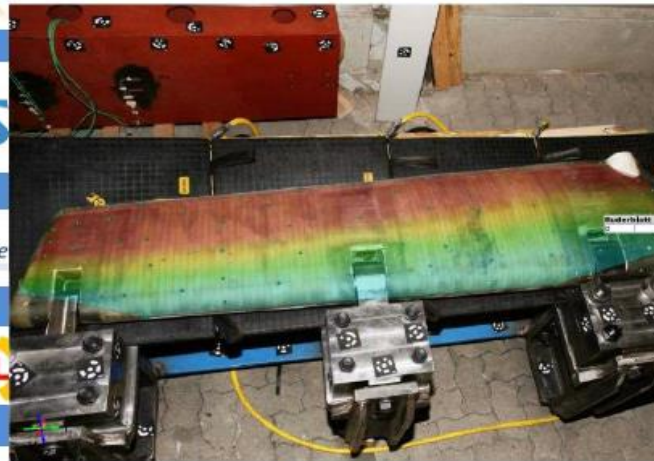
Ultimate testing  
scale 1:6 rudder flap  
approval in principle pending



E-LASS

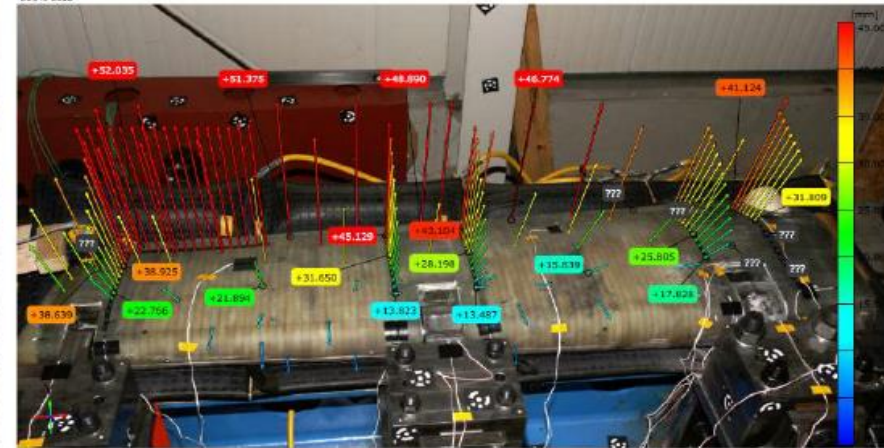
StrengthBond  
Offshore

CompositesNL



225% Load

225% Load



Next step: wet testing for CFD validation  
CFD loads are 20 % lower than Class design loads

# Thank you