#### **Constructing the first Faroese zeroemission aqua-culture workboat**

DAVKAEROS

Richard Mortensen, Head of Sales and Procurement, MEST Shipyard

**MEST** 

VONIN





# Mest – in brief

- More than 120 years of shipbuilding and shiprepair experience
- 500 skilled craftsmen
- 2 Yards and one Stainless Steel Workshop
- Net Sales: 420m DKK (2020)



# Facilities Tórshavn



# **Construction halls and workshops**



# Modern equipment

**MEST** 









# Drawing department

- State of the art equipment
- CAD Autodesk software
- FEM Ansys
- Stability Shipshape
- 13 employees
- Design, consultancy and project management













# **Our customers – sea- and landbased**









### Participating in innovative environmental solutions





# **Our perspective: We are in a maritime sweetspot**





# We are flexible and we adapt to challenges

- High standard of infrastructure
- Skilled workforce
- Collaboration between companies
- Quick service and short dwelling- or down time







# New Oceanic Research vessel delivered in 2020



MELCAL

JÁKUP SVERRI

XPZO

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# **Probably one of the most quiet vessels in the world**



# State of the art accomodation







#### 1507GW



## A catamaran workboat

#### Specifications

- Length 15,42m
- L1 14,95m
- Width 7,00m
- Depth 2,95m
- Energy onboard
- Hydraulics oil
- Water tank
- Recommended speed
- Est max speed
- Bollard pull
- Bollard pull at 8 knots

- ~1980kWt
- ~450L
- ~200L
- 8 knots
- ~10 knots
- ~9 tonnes
- ~7,5tonnes





Energysaving DESIGN – hull design and choice of equipment

The selected battery solution – available to use today

# The solution in short

Other energy solutions were investigated – but no one was ready for use in the near future

The working day becomes quieter, cleaner and easier

The solution can be implemented immediately when the boat is ready

All work is carried out in the Faroe Islands



# We opted out of biogas, hydrogen and other options

#### Hydrogen

- Missing class approval
- Lack of infrastructure in the Faroe Islands
- Hydrogen has a higher kWh price than battery
- The expected additional price in the operation would be DKK 300,000/ year compared to the battery solution

#### **Biogas**

 You need a big tank on board, engine to burn gas, noise pollution on board

#### Methanol and ammonia

- Still on test basis and not ready
- The supply is not in place





# **Energy-saving design of the hull**

#### Hull design/CFD

• Less resistance and 9% energy saving

#### **Propulsion engine**

- PM motor high power and less energy waste
- Propeller controllable pitch/energy optimization
- ~130kW to 8 nautical miles per hour







#### El/battery solution from Brunvoll in Norway

- We know this manufacturer, who provides solutions to Norwegian companies and i.a. to the Faroese ferry "Erla Kongsdóttir"
- Relatively light and compact solution
- Designed for long life and thereby an environmentally friendly solution







# An electrical solution that takes the environment seriously ...

- The supplier includes the environment <u>and recycling</u> in the solution and this is a significant part of their strategy (Corvus)
- The purpose is to maintain a sustainable life from "birth to death"
- When the batteries are worn out on the catamaran, about 70% of the energy from the batteries can be recycled e.g. at the smolt stations

Source: Brunvoll "...Policies for Health, Environment and Safety (HES), Corporate Social Responsibility and Business Ethics"







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KLAKSVI

## **Construction costs**

- Built in the Faroe Islands
- The price is the same for hull, equipment, etc. as on other catamans
- The costly factor is the battery solution
- Battery prices are expected to be reduced to a third over the next 5 years



# **Operating costs**

- Total 311,58 kr/hour
- Converted: 3,12 kr/kWhour
- Cheaper to operate than traditional workboats





# **All work undertaken in the Faroe Islands**

# Inside the finished workboat



## In summary: ..everyday life will be better

- Less noise
- Less pollution
- No smoke and gas on board
- Very little maintenance as many elements are static
- Charged once a day with cheap power at night with a plug and charging station just like with electric cars





# **Thank you!**



# **Contact info - MEST**

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