

# Blue INNOship

## **Project name:**

**CPSF Controllable Pre-Swirl Fins (CPSF)**

## **Project participants:**

Maersk Maritime Technology

Technical University of Denmark - DTU-MEK

MAN Diesel & Turbo

OSK-ShipTech

# Short project description

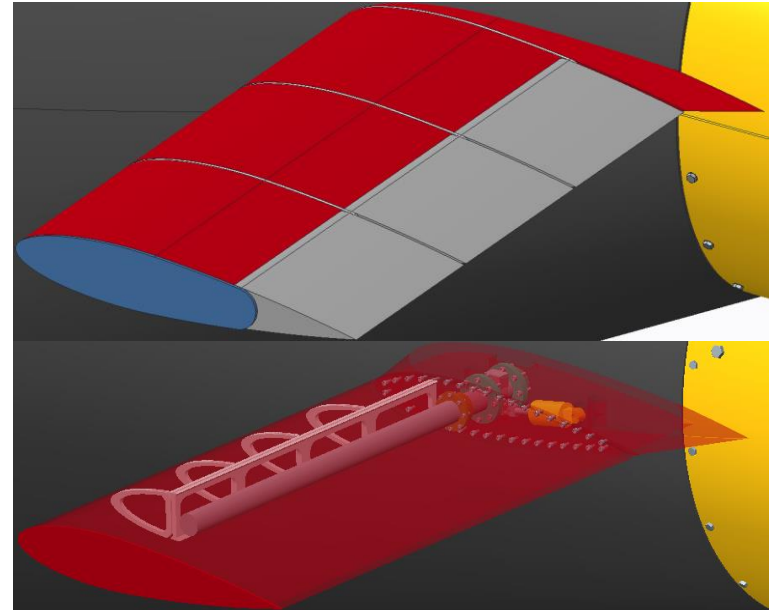
1. Pre-Swirl or Stator fins in front of the propeller have been known for some time and recently tried on a number of full body ship types like bulkers and tankers
2. The fins act as guide vanes that give a pre-swirl into the propeller and thereby an increase in efficiency

Vessel targets are

- a) Bulker and tanker due to their two distinctive operating conditions – ballast and design
- b) Container due to their high loaded propellers at design speed and low loaded propellers at slow steaming

The overall objective of the project

*Develop a new propulsion Efficiency Improving Device into a product*



## Technology Readiness Level

1	2	3	4	5	6	7	8	9
		x						

# Key features or key findings

*What key features or findings would you like to highlight from your project work until now?*

1. During the first project phase a number of ideas arose that added further benefit to its applications:
  - a) Used to cure/minimise the effect of not having the right light running (FPP)
  - b) Flap actuation instead of fin turning
  - c) Used as an active way for dynamic propeller/engine control

# Project challenges and solutions

*What challenges have the project team experienced and how has the team solved them?*

1. Finding suitable references
  - a) Container – well documented
  - b) Tanker or Bulker – now in place
2. Being attractive with the present low fuel oil price – mostly retrofit
3. Design a reliable solution that can get market acceptance
4. Lack of progress in-between project meetings
5. Tight follow-up on partners budget and milestones is crucial

# Why should you buy our solution?

*What makes your solution the preferable one compared to other available solutions?*

1. Existing Pre-swirl fins act as stators and can as such not adjust to different vessel conditions. Controllable fins has the potential to increase the overall efficiency by an additional 3-6% - the verification of these figures forms an important part of the project.
2. Well documented saving potential by using advanced dedicated tools (CFD routines, control algorithm) and proven results from model and full scale tests
3. The problem of insufficient light running with FPPs over time can be reduced if not eliminated