

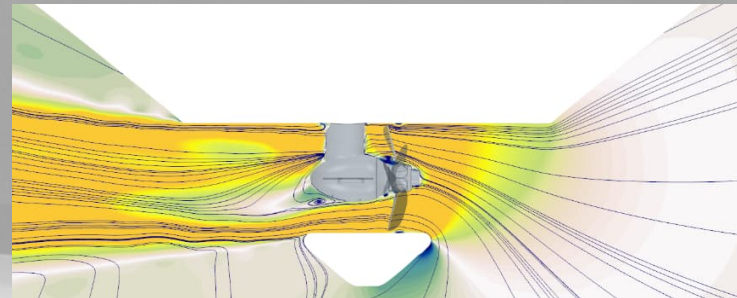
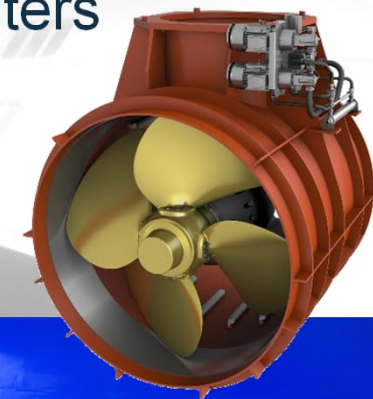
# Case Wärtsilä – Minimizing ship hull resistance due to tunnel thrusters

## Key facts:

- More than 90% of transport is going by sea or river
- Ships are by far the most energy efficient transport method
- Most ships have tunnel thrusters for port manoeuvring
- One tunnel increases ship hull resistance up to 2%, equally raising fuel consumption

## The Mission:

- **Explore** ideas how to eliminate/minimize extra hull resistance created by the tunnels
- **Find** technical and economical solution that is not jeopardizing the main functionality of the thruster
- **Become** a major **CO2 reduction hero** by potentially reducing CO2 emissions by +50 million tonnes annually comparable to more than 10 million cars' yearly emissions.



## We are looking for:

- Energetic team
- Skills in area of naval architecture, mechanical engineering, material technology, CFD and numerical analysis.