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MARINE ACCESSORIES

GuidiLAB

WATER INLET “GOCCIA” SERIES

ITEM 1262

PATENTED

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EUROPEAN UNION INTELLECTUAL PROPERTY OFFICE
CERTIFICATE OF REGISTRATION

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WATER INLET “GOCCIA” SERIES

ITEM 1262

inspired by nature

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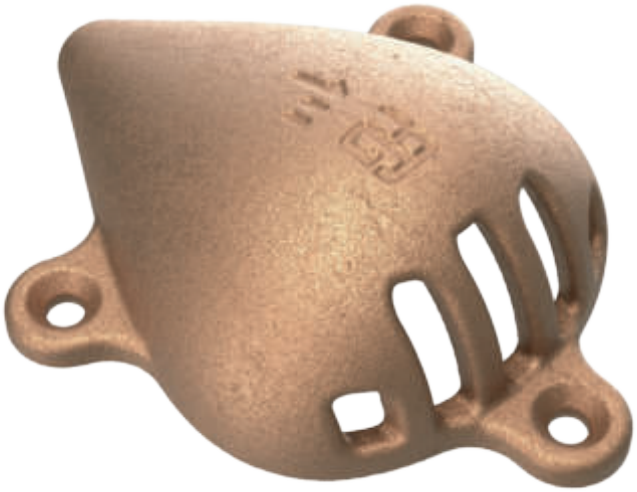
The drop profile, tuned by nature to **minimize drag**, has been adopted for the design of a new generation of water inlets.
The shape has a continuous curve, with a distinct point for a maximum curvature, which ensures the bonding of the water flow to both the outside and inside of the water inlet, practically **eliminating the formation of vortex and a reduction in turbulence**.

The use of a drop-profile water inlet brings **numerous advantages confirmed and validated by accurate CFD** (Computational Fluid Dynamics) analyses carried out in collaboration with the University of Genoa:

- **minimize drag:** turbulence minimization results in a significant reduction in drag induced by the water inlet, resulting in increased propulsive efficiency and reduced fuel consumption.
- **increases the water flow rate**: flow adhesion and geometry optimization allow to increase volumetric flow rate compared to the same size.
- **reduction in cavitation**: the reduction of turbulence exiting the water inlet helps to decrease the risk of cavitation in the propellers.
- **noise reduction**: the reduction in turbulence results in a lower hydrodynamic noise generated by the water inlet, thus improving environmental sustainability.

Note: the CFD analysis confirmed the **excellent performance of the drop-profile water inlet**, showing how the inspiration from nature and the application of numerical simulation tools can lead to innovative solutions in boating.

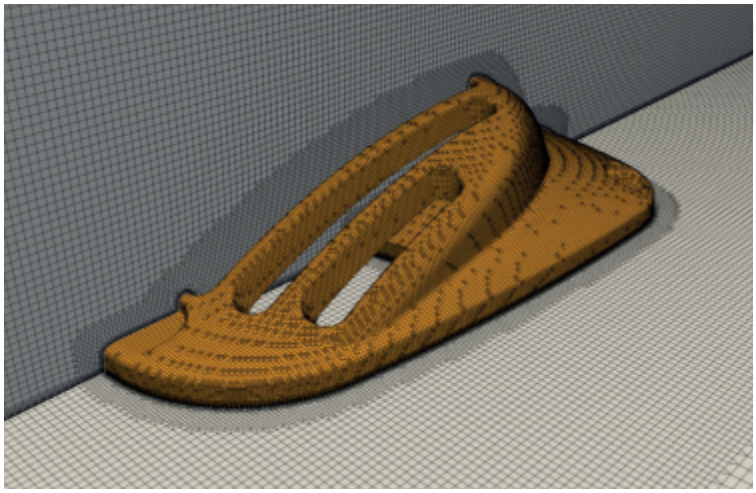
The adoption of this technology represents a significant step towards a more efficient, sustainable and comfortable boating experience.



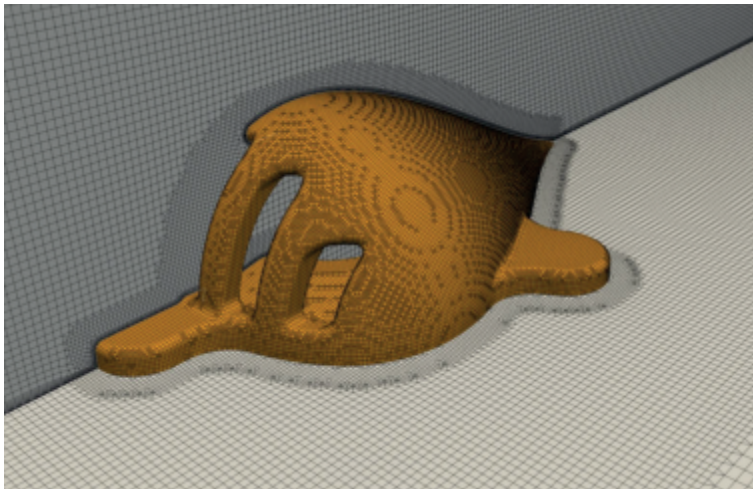
CFD analysis
(Computational Fluid Dynamics)

IN PARTNERSHIP WITH
Università di Genova

Hydrodynamic performance comparison



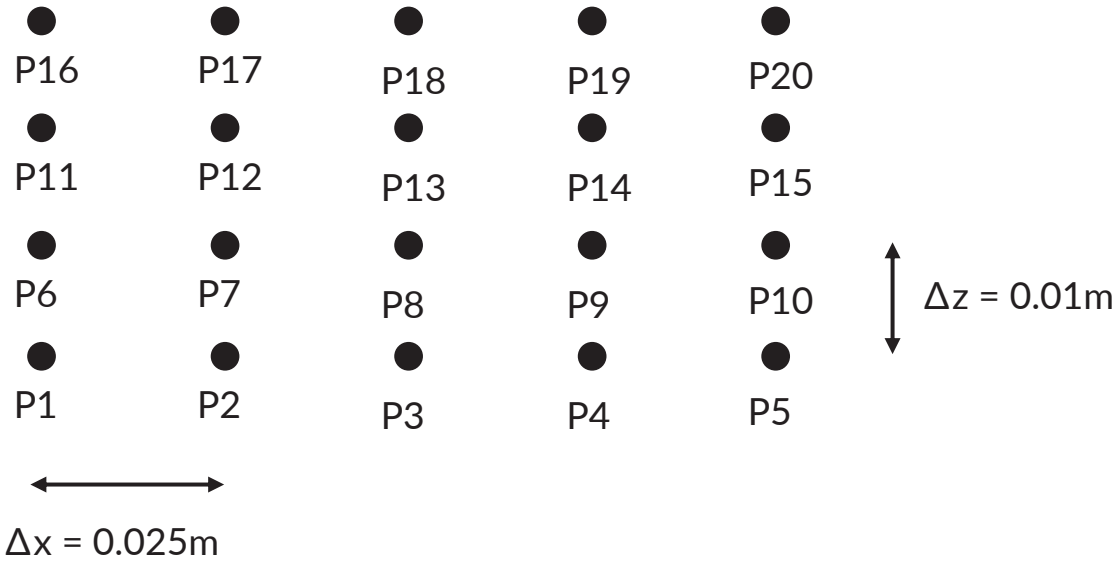
- CFD analysis (URANSE & DES);
- SST k-ω turbulence model;
- 5.8 Million cells;
- Simulation time step: 0.00025s (0.0001 for highest velocity);
- Speed range: 5 - 40 m/s;



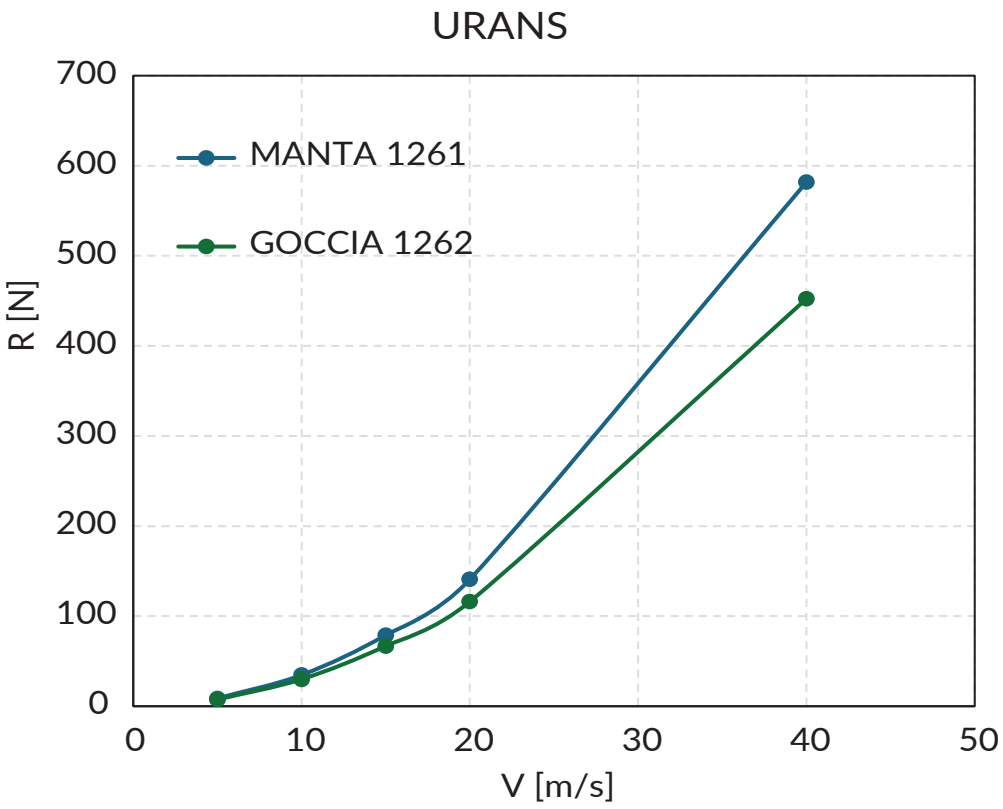
- CFD analysis (URANSE & DES);
- SST k-ω turbulence model;
- 5.6 Million cells;
- Simulation time step: 0.0001;
- Speed range: 5 - 40 m/s;

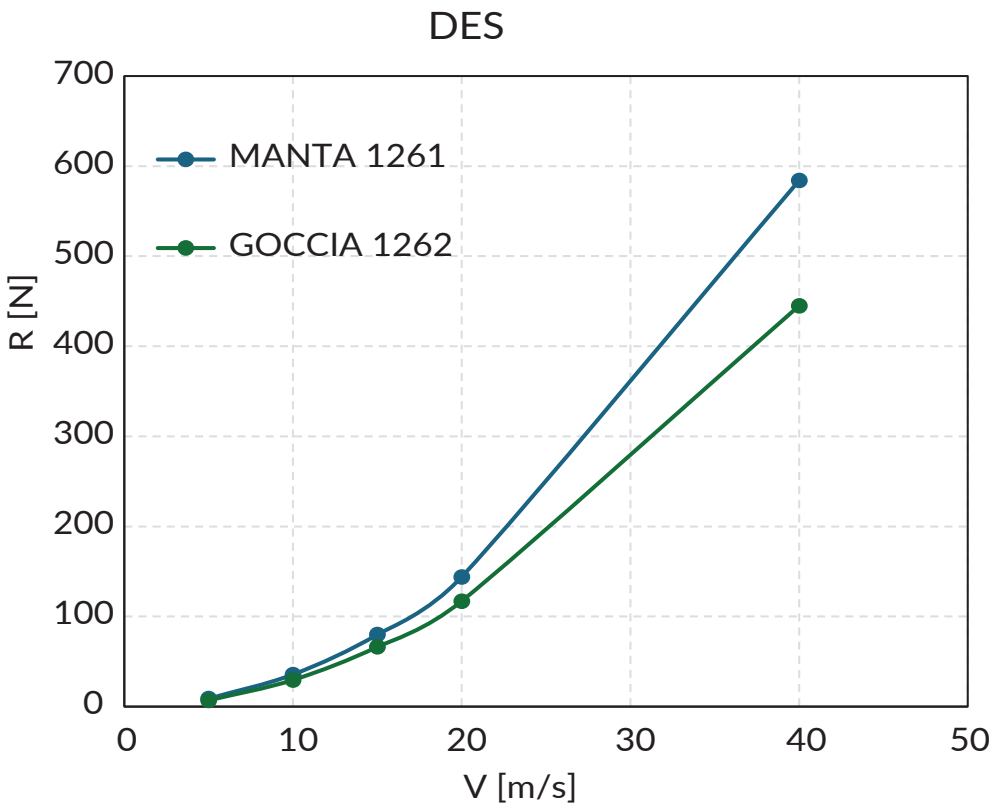
Pressure sampling points

0.05m

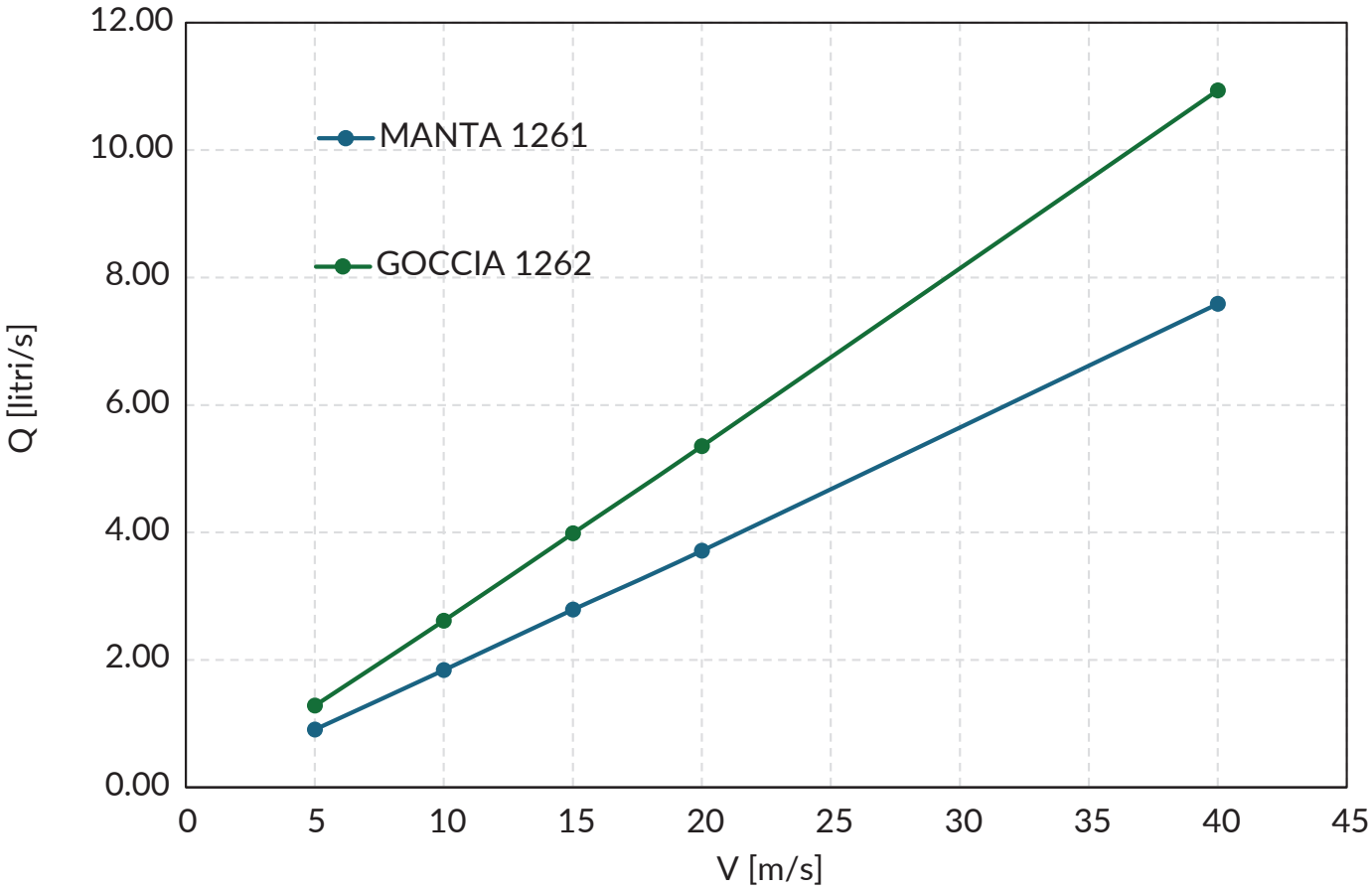


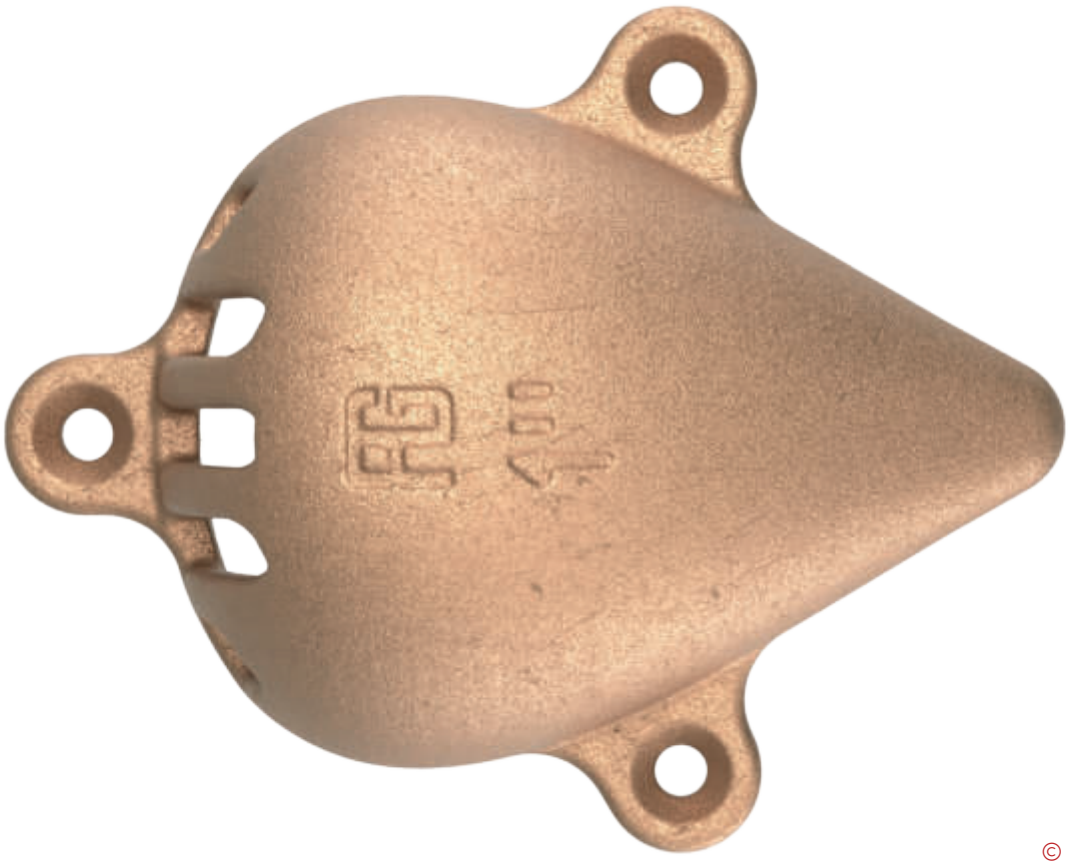
Drag force





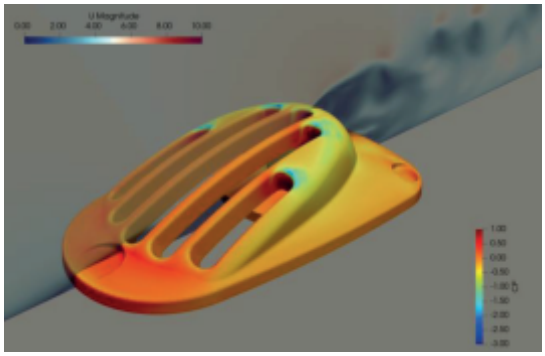
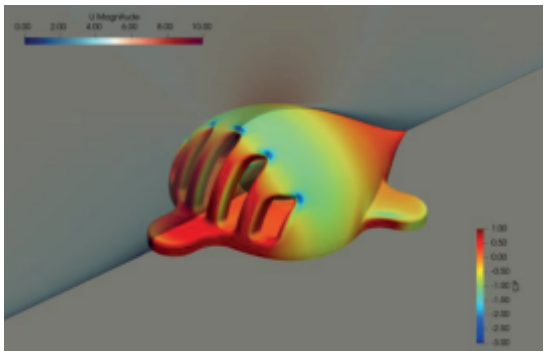
Flow



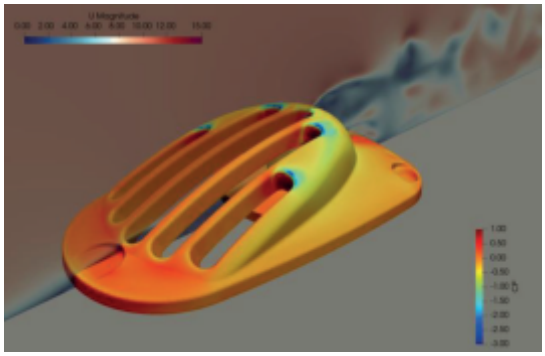
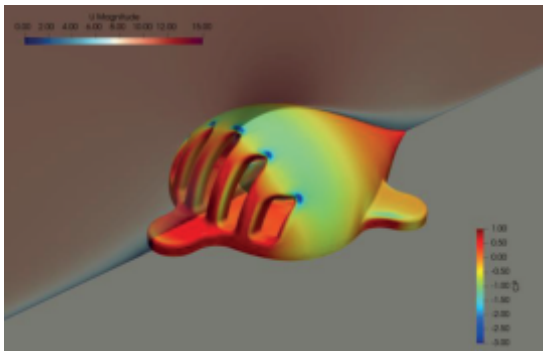


Local pressure

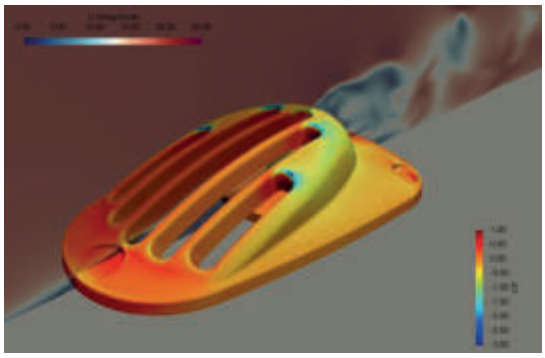
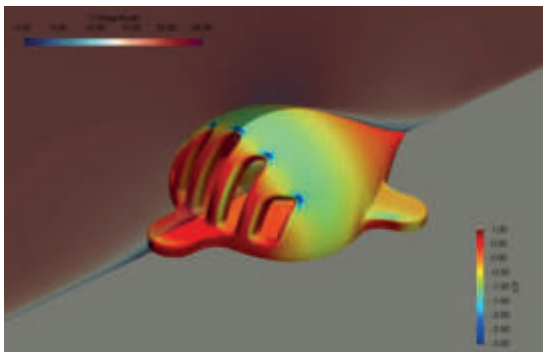
5 m/s

10 m/s

20 m/s

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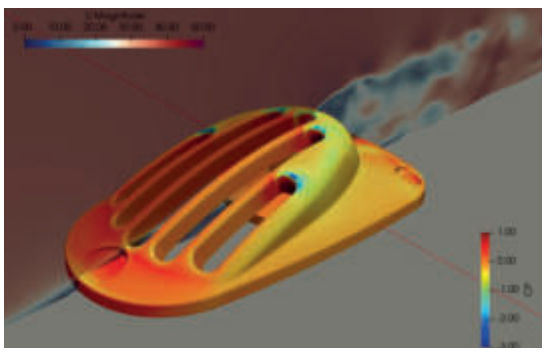
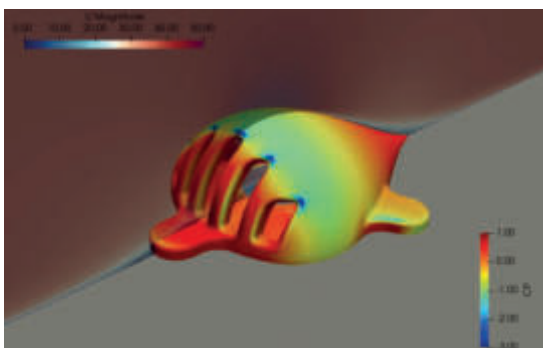
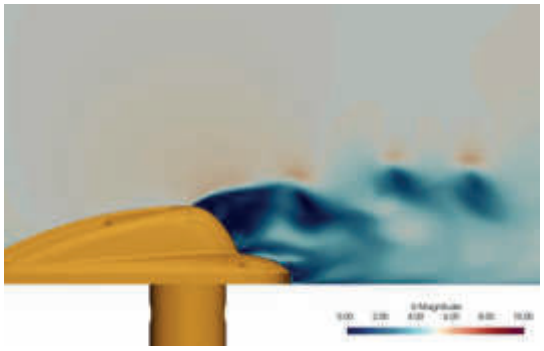
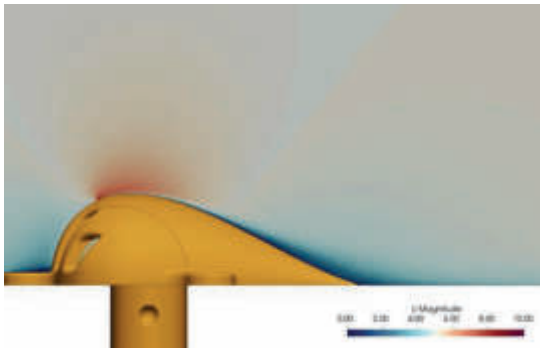



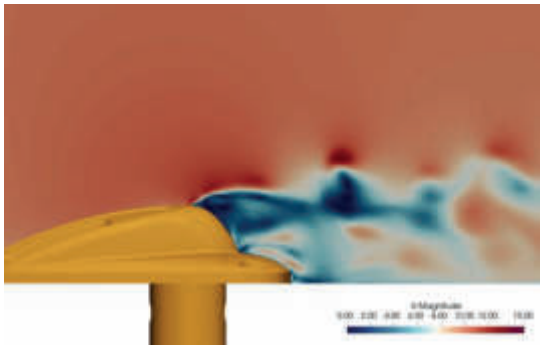
Turbolence VS speed

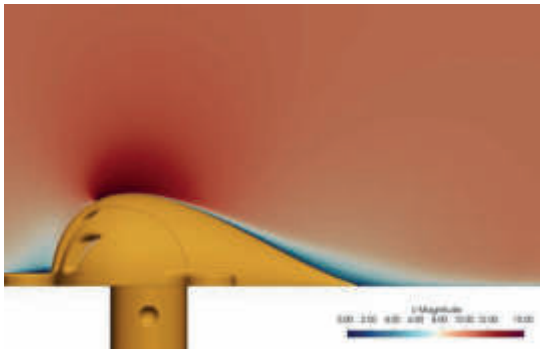
5 m/s



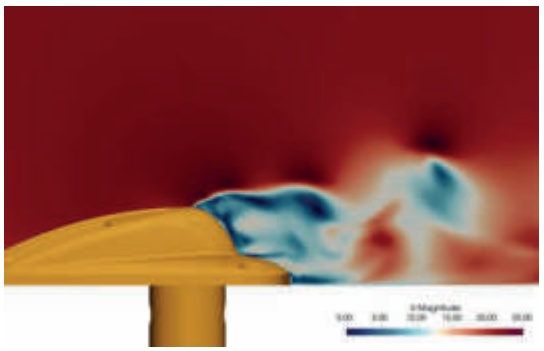


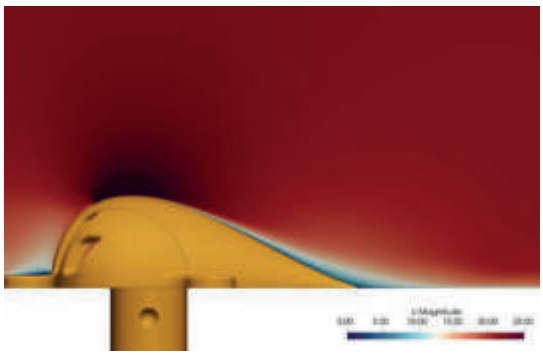
10 m/s





20 m/s





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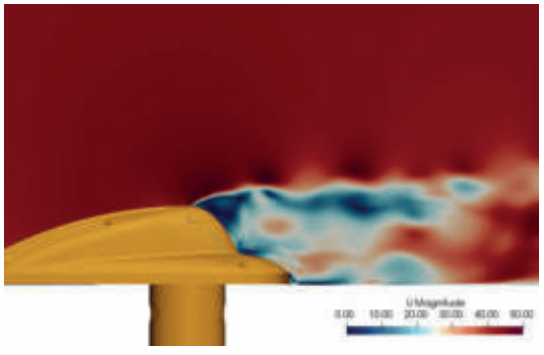
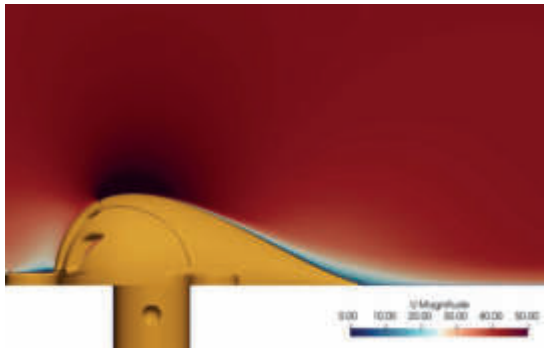
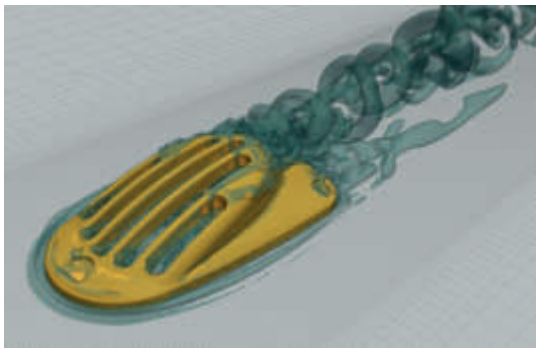
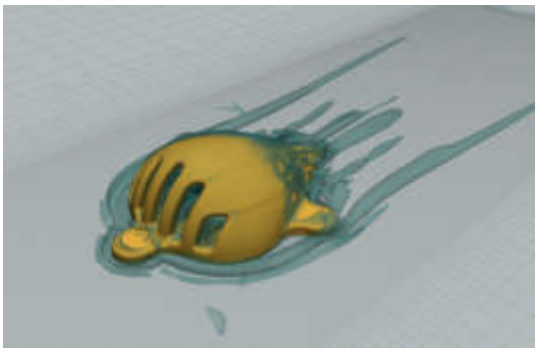


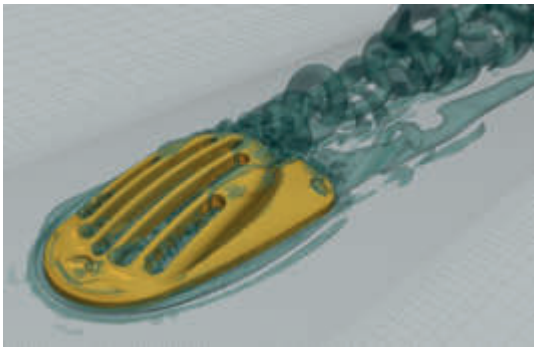
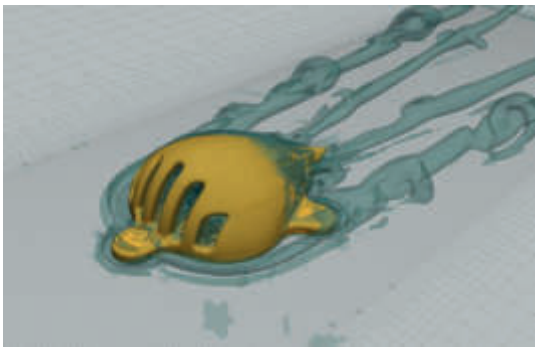


Vortex structures

5 m/s

10 m/s

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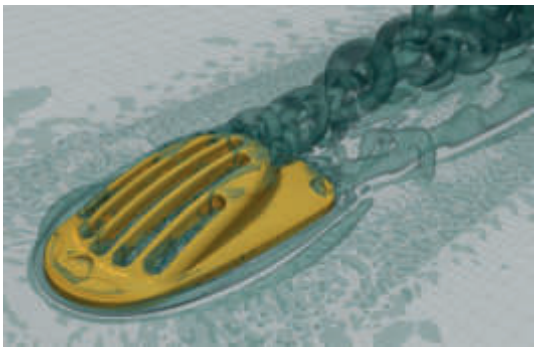
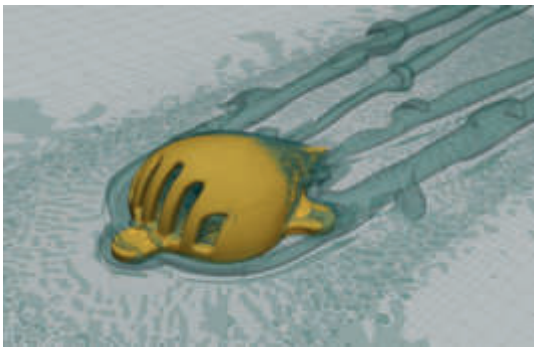

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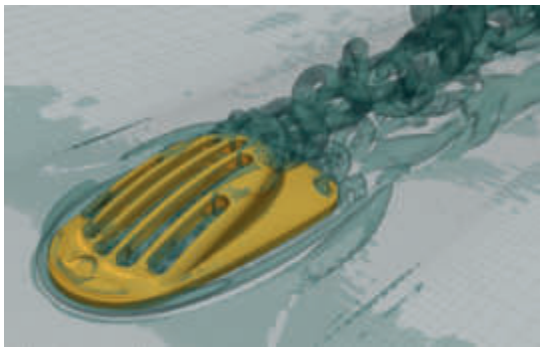
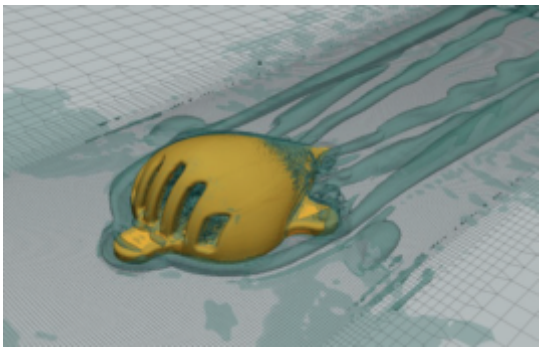
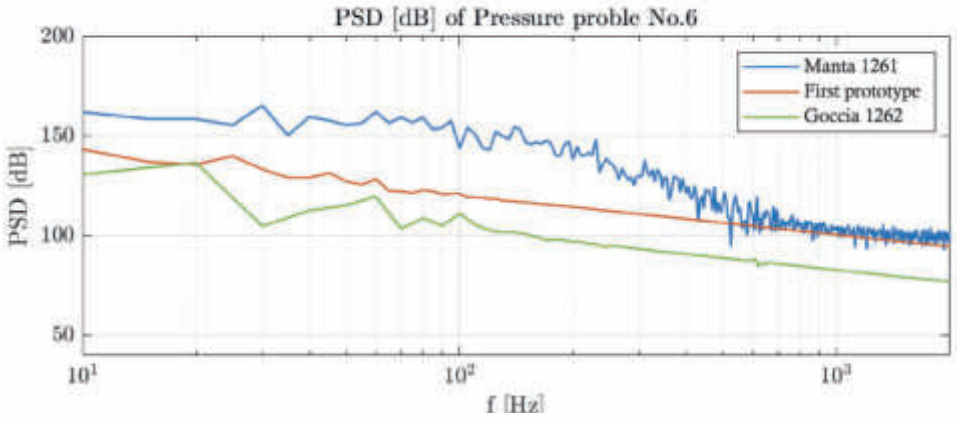
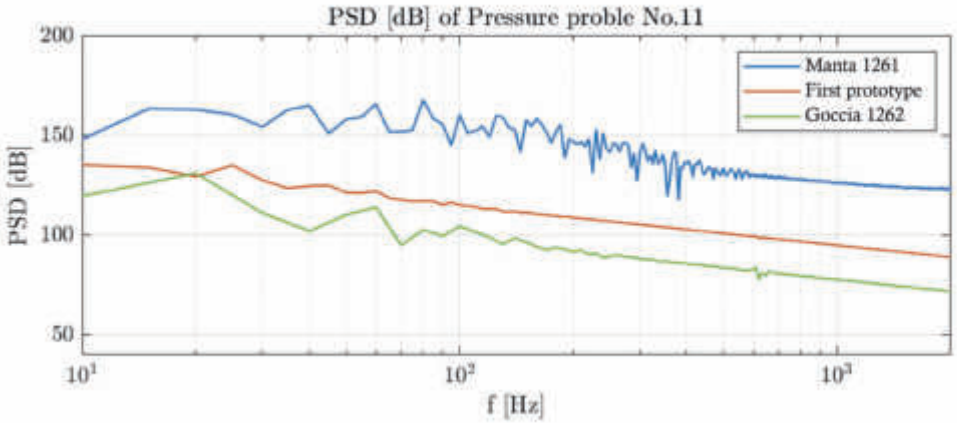



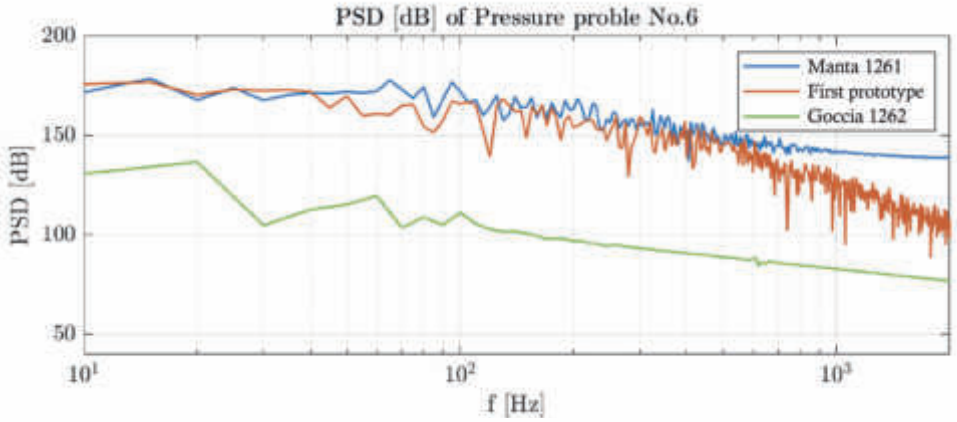
Noise comparison

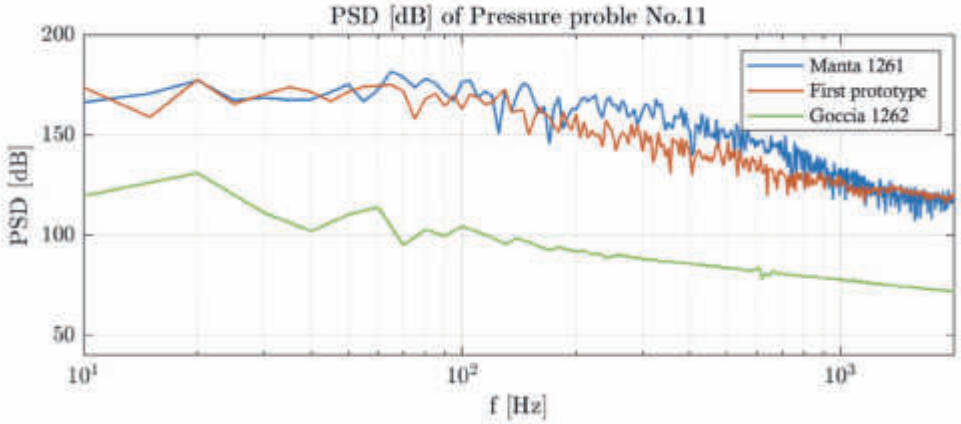
5 m/s





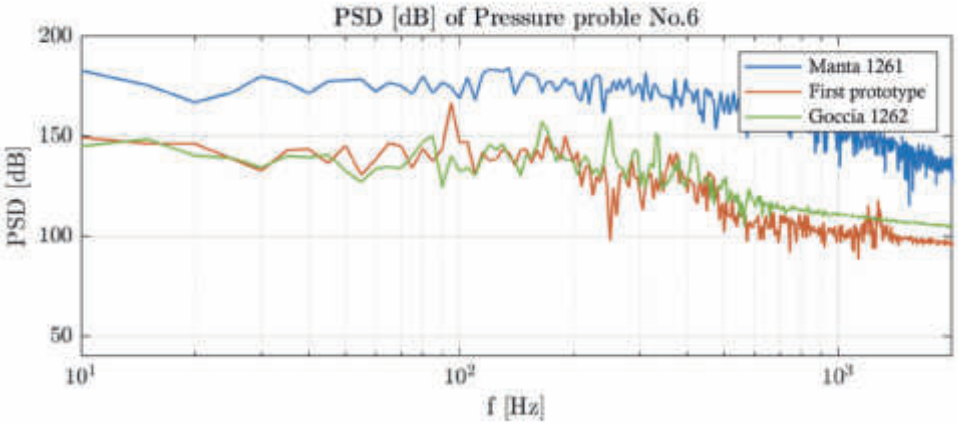
10 m/s

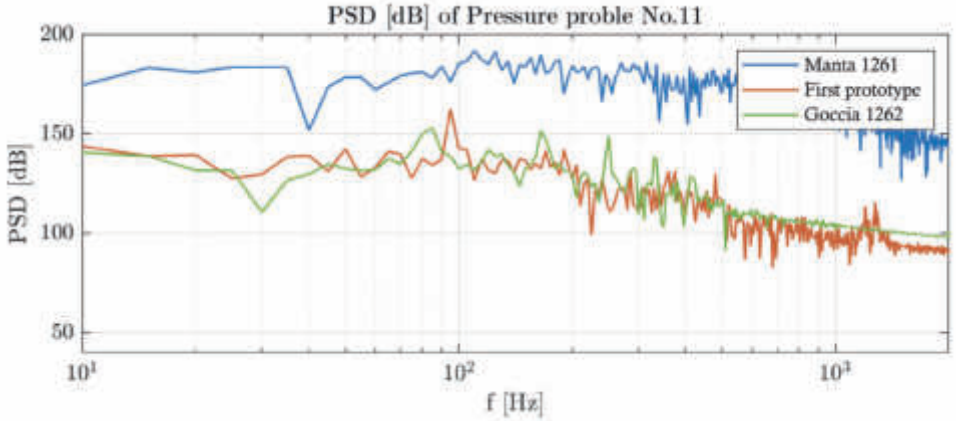




Noise comparison

20 m/s





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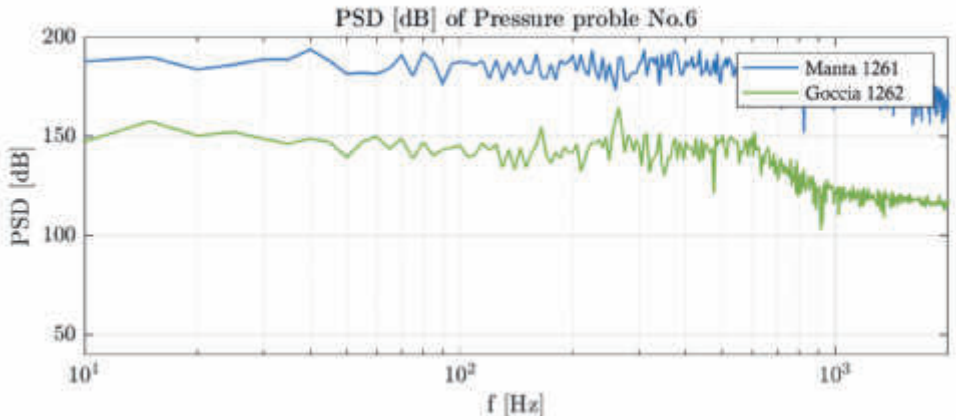

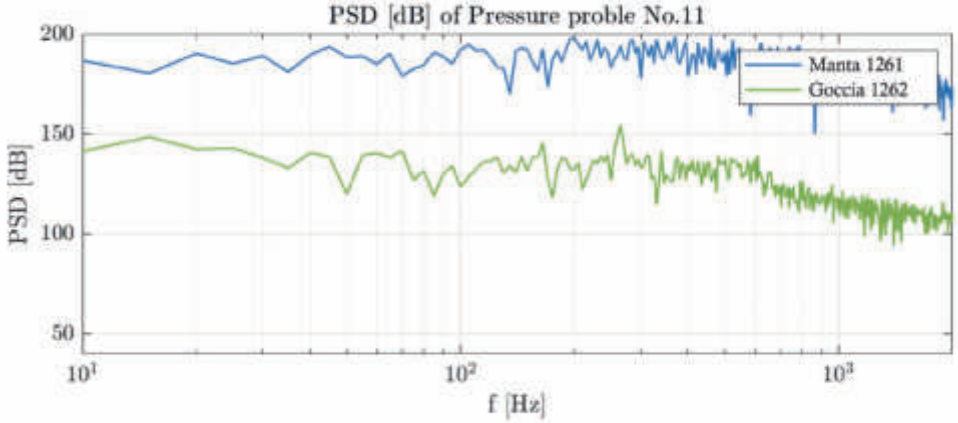

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Don’t forget to share your ideas with us!

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