

PERFORMANCE ANALYSIS

FORCES

The force generated on the object by the waterflow has three components:

- F_x - Drag force: Along the direction of the waterflow
- F_y - Lateral force: Perpendicular to the direction of the waterflow - horizontal
- F_z - Lift force: Perpendicular to the direction of the waterflow - vertical

There are two ways in which the waterflow generates force:

- Pressure force: arises from the pressure difference between two opposite sides of an object. It is the sum of all the local forces pushing or pulling perpendicular to the surface.
- Friction force: arises from the waterflow sliding across the surface of the object. It is the sum of all the local friction forces parallel to the surface.

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Note:

Negative values indicate a force acting in the direction opposite to the arrows shown below.

Original coordinate system: origin location & axis orientation as provided with the original 3D file

Waterflow tunnel coordinate system (shown on images): origin set to the center of the object and the axes aligned with the water vector

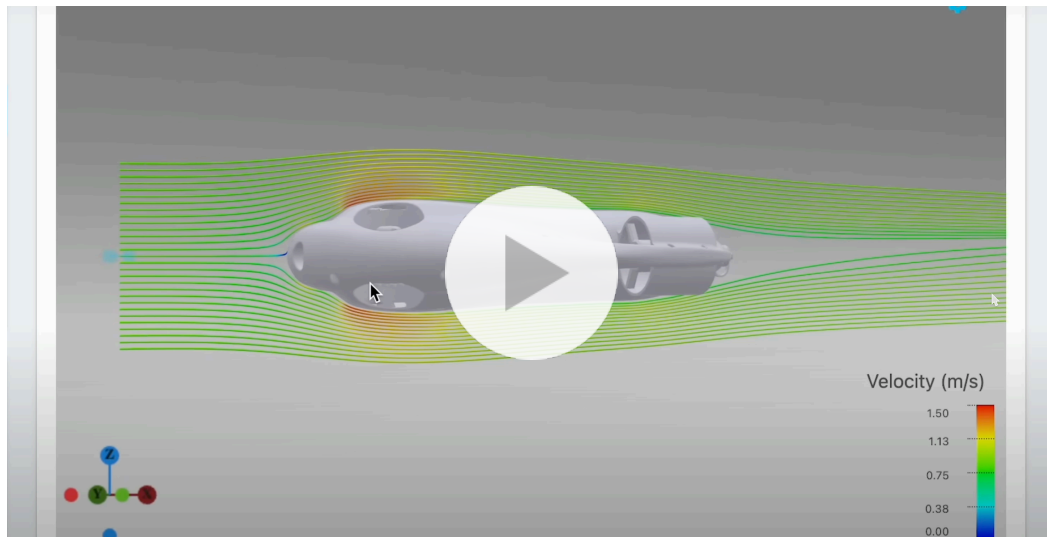


WATERFLOW TUNNEL COORDINATE SYSTEM

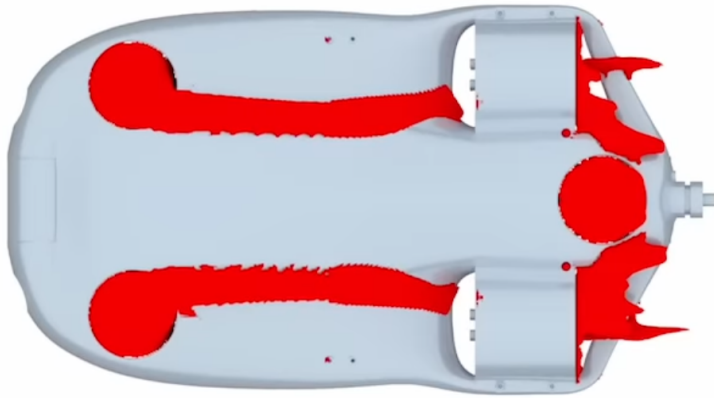
	F_x		F_z
Pressure	1.58 N (0.16 kg)	0.03 N (0.00 kg)	-0.17 N (-0.02 kg)
Friction	0.69 N (0.07 kg)	-0.00 N (-0.00 kg)	-0.01 N (-0.00 kg)
Total	2.27 N (0.23 kg)	0.02 N (0.00 kg)	-0.18 N (-0.02 kg)

ORIGINAL COORDINATE SYSTEM

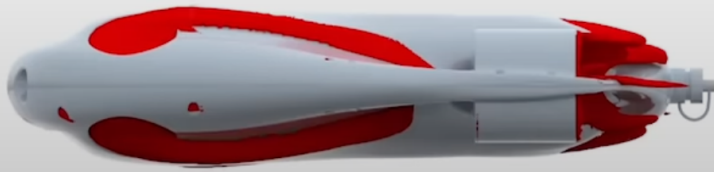
	Fx	F	
Pressure	1.58 N (0.16 kg)	0.03 N (0.00 kg)	-0.17 N (-0.02 kg)
Friction	0.69 N (0.07 kg)	-0.00 N (-0.00 kg)	-0.01 N (-0.00 kg)
Total	227N (0.23 kg)	0.02 N (0.00 kg)	-0.18 N (-0.02 kg)

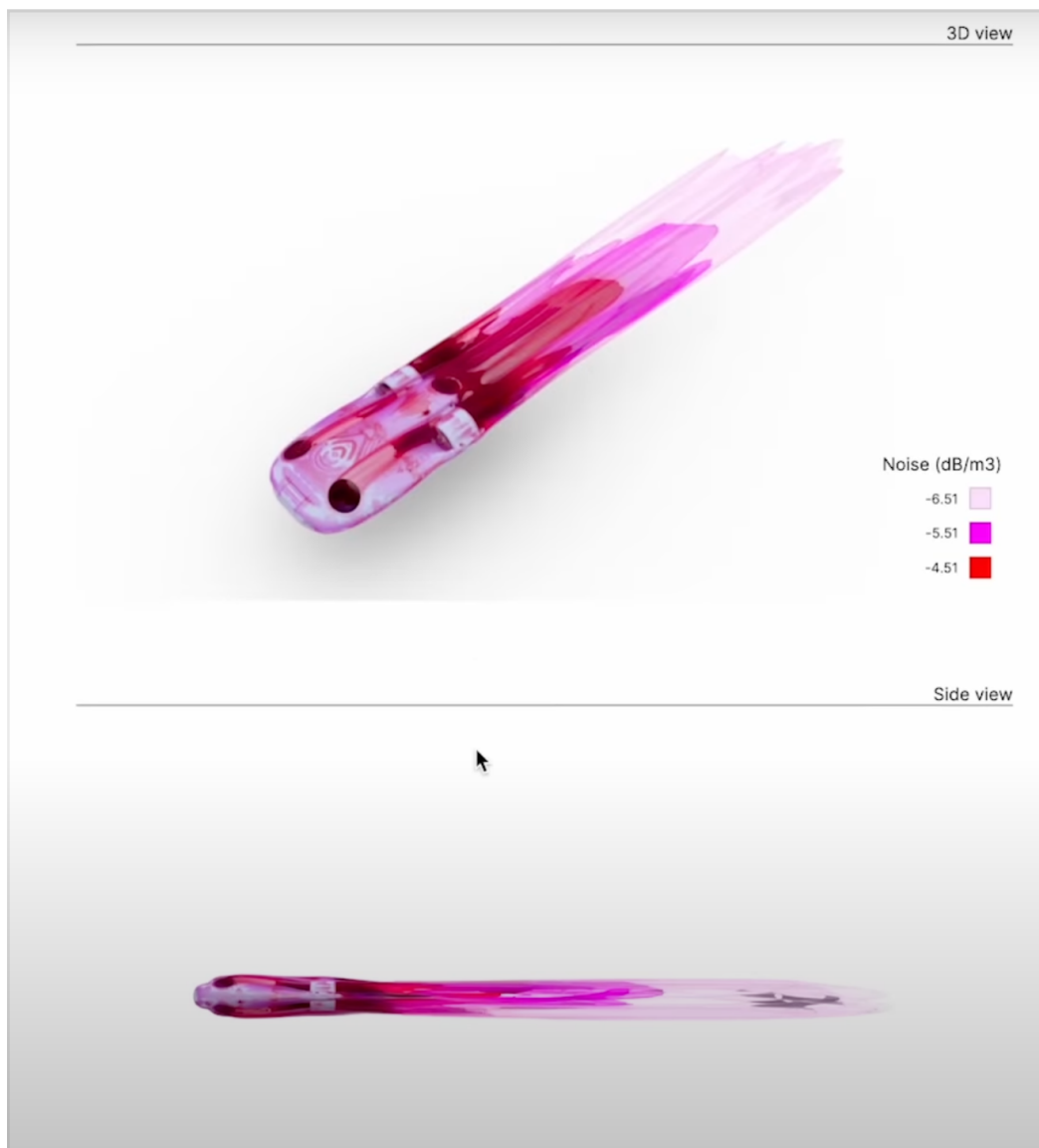


Top view



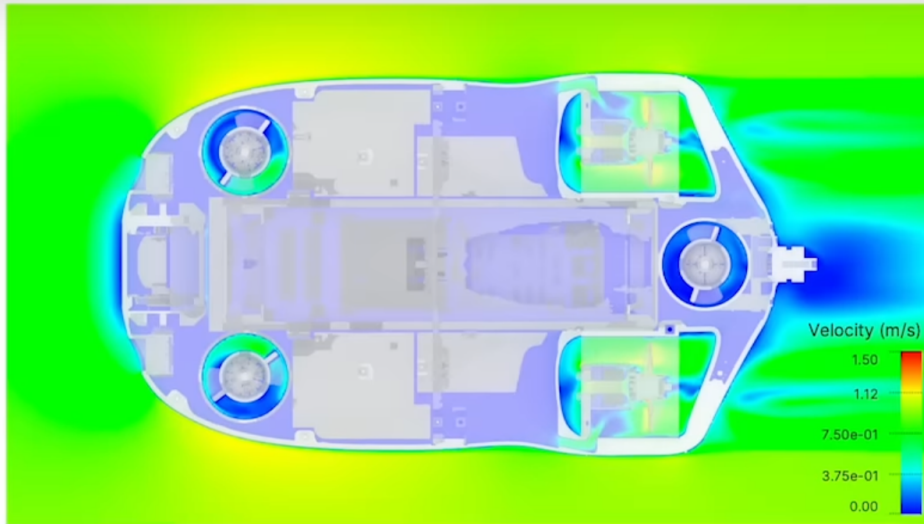
Side view





VELOCITY MAP

Top view



Side view

