

VERTICAL WIND TUNNEL SV4

Installation devoted to aerodynamic characterization in an extended domain (stall, spin)
Other application domains: free flight (drone, space probe...), wind resistance, stability

Wind tunnel tests on civil or military models, possibly motorized, submarines, parachutes, propellers...

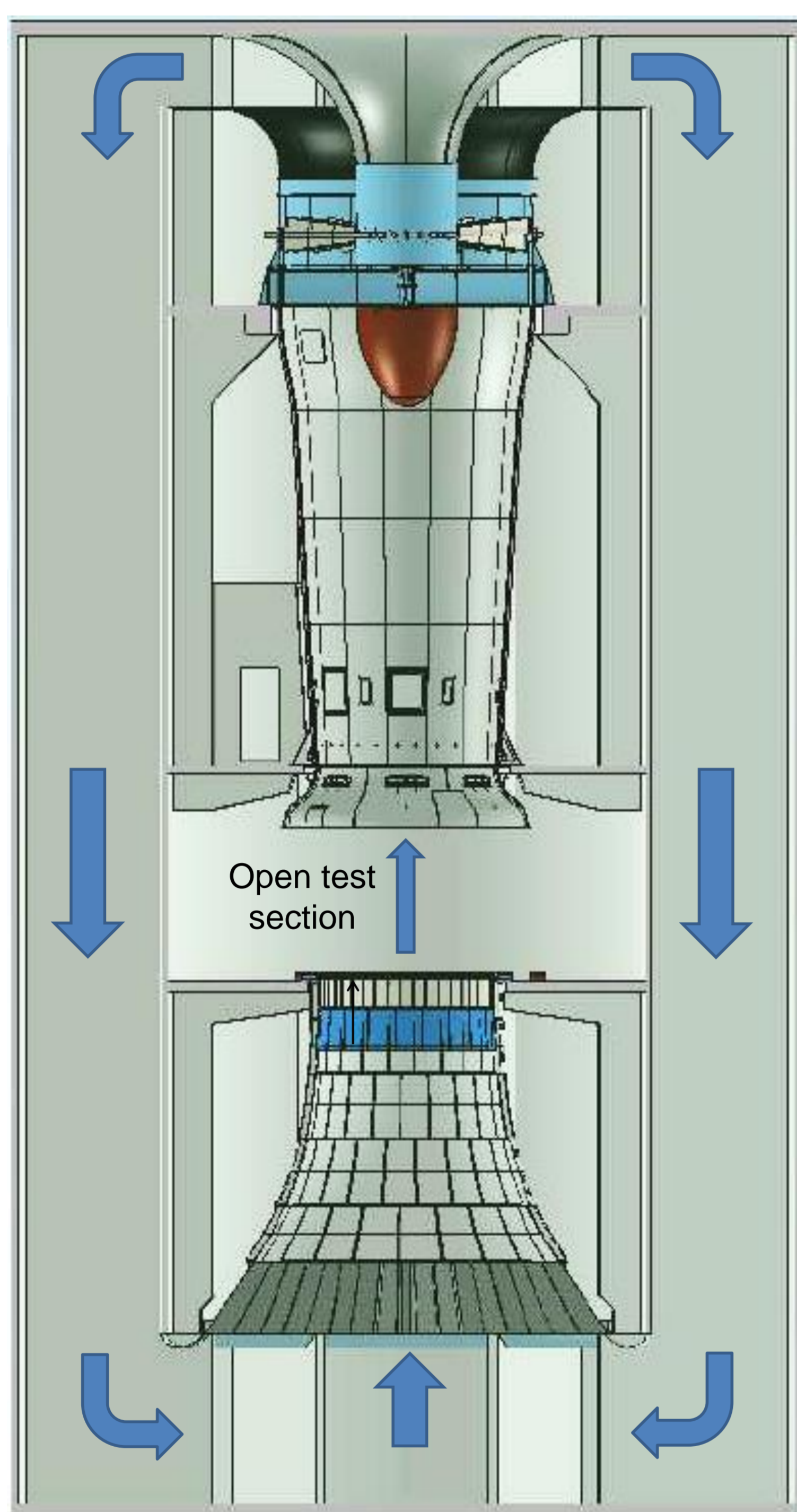
PRINCIPLE

Vertical wind tunnel, low speed, Eiffel-type with streamlined return corridor.

Continuously adjustable velocity from 0 to 50 m/s.

Open test section (diameter 3.9 m, height 3.25 m).

A fan propelled by a 800 kW engine imposes the ascending air movement



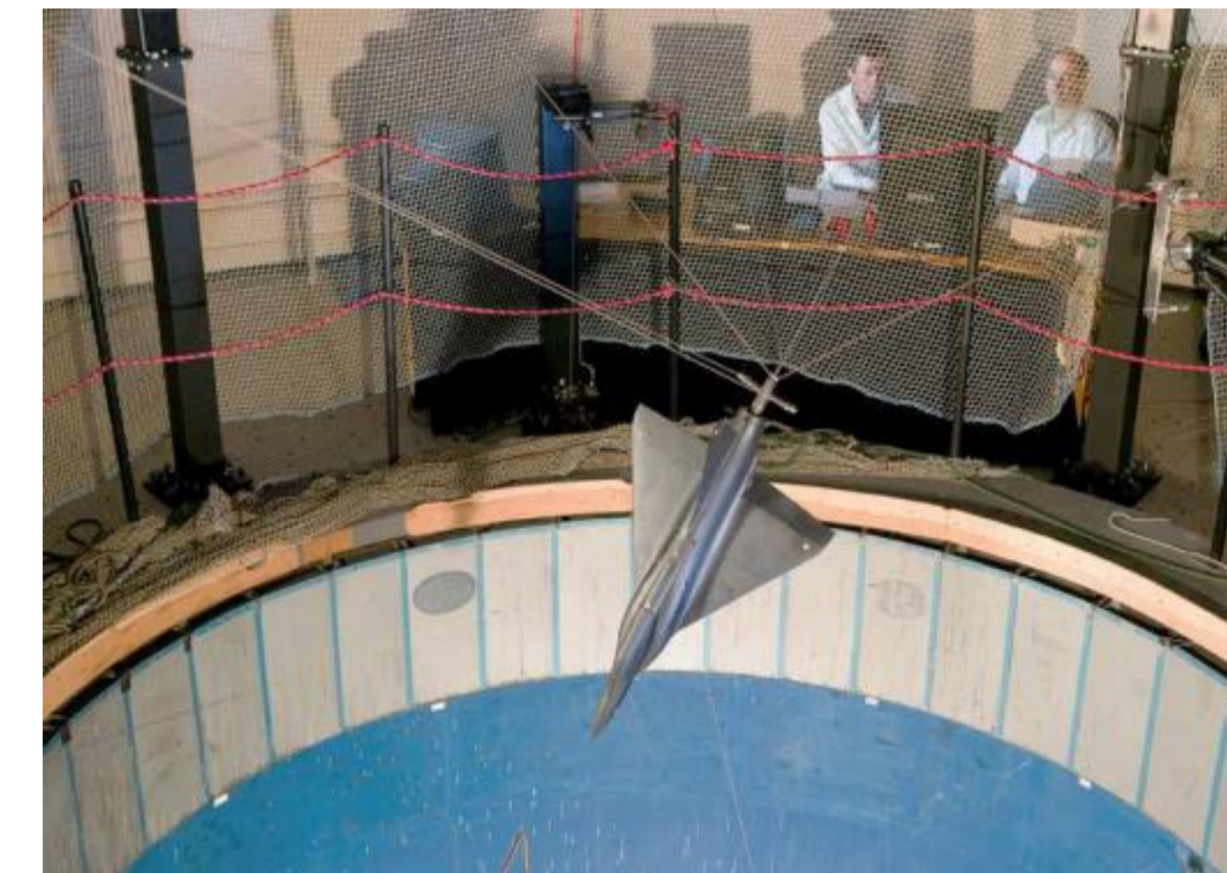
MAIN TEST DEVICES

Static and/or dynamic mountings on aircraft or other models.
Motorized model testing.

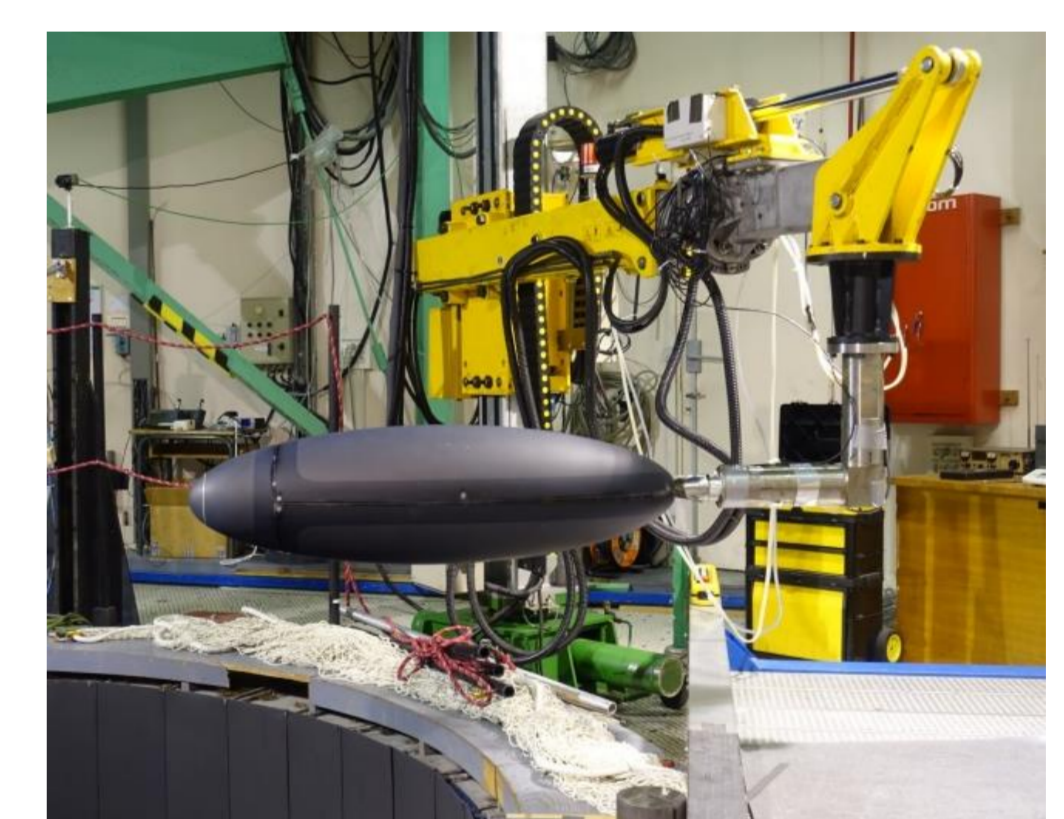
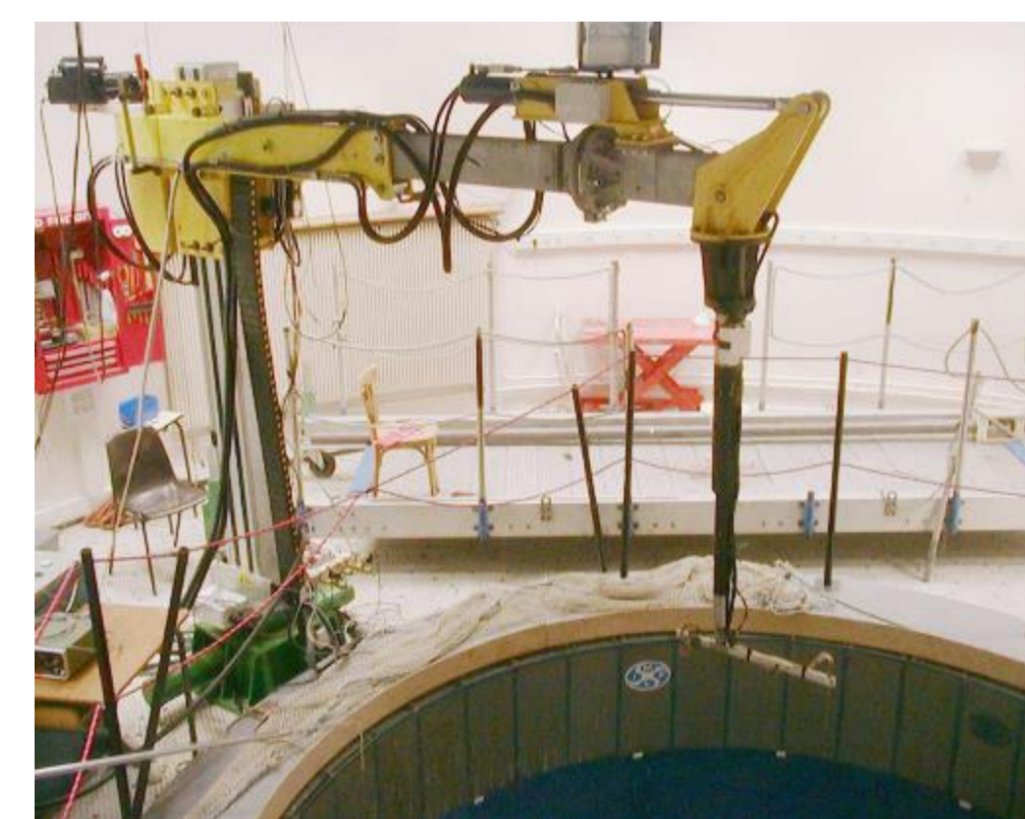
- **Rotary balance** for static and/or rotation tests about air-velocity
- 4 degrees of freedom - angular velocity up to +/- 700°/s, incidence domain from -90 to 90°, sideslip domain tested up to +/- 40° for static tests and +/- 20° for rotation tests.
Purposes : modelization, behavioral studies (spin, stall).



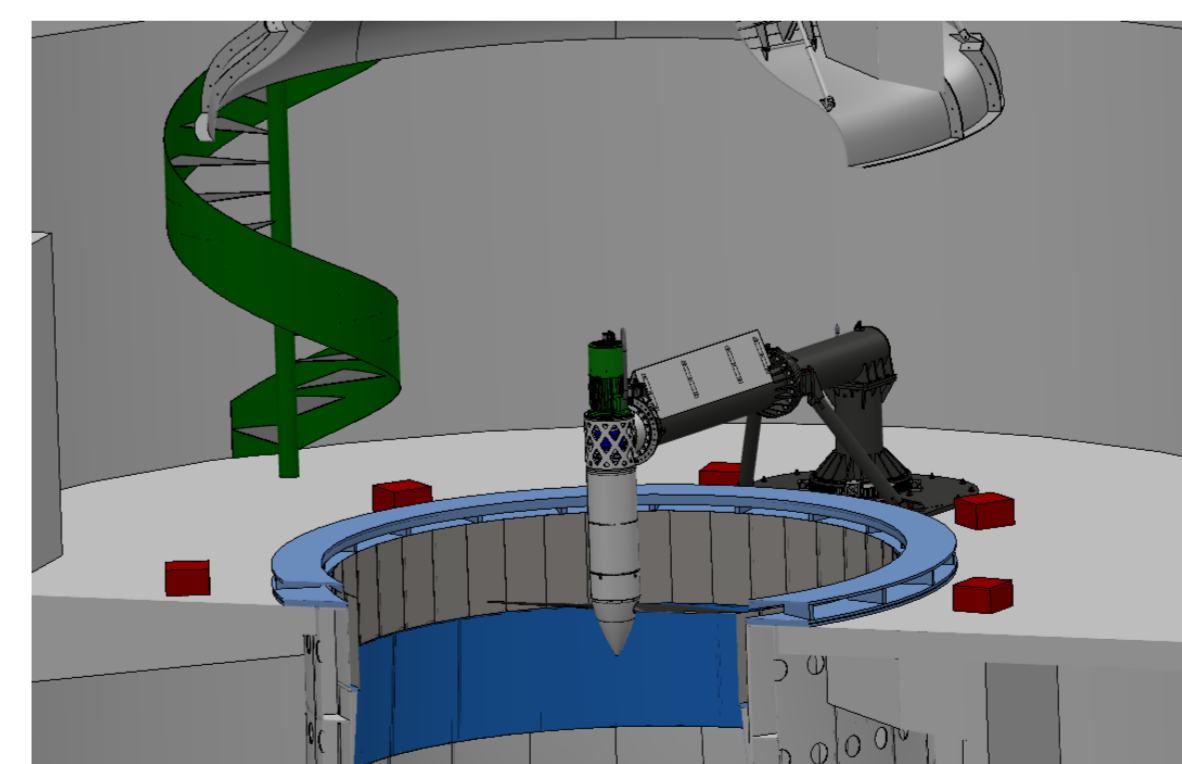
- **SACSO mounting** for static and dynamic tests : 9-cables robot with 6 degrees of freedom, controlled by an hybrid command in position and/or force. Incidence domain up to 25°, velocity up to 30 m/s. High aerodynamic discretion.



- **BMS support** for static tests : continuous variation in a range of 90° for incidence and sideslip angles.



Bench for characterization (aerodynamic and acoustic) of **Propeller** of large size : diameter up to 2 m, rotation up to 1500 rpm, torque 160 N.m associated with **Anechoic chamber**, compatible also with BMS support.



AVAILABLE MEASUREMENTS

- Aerodynamics characterization : global or local measurements of aerodynamic forces and moments (6-components balance, accelerometers, inclinometers)
- Wall pressure measurements, sounding in the flowfield
- Measurement of the velocity field by PIV
- Visualization by laser tomography
- Propeller characterization (Performances, Acoustics)
- Parachute traction
- Acoustics measurements
- Real time motion capture Optitrack



CONTACT

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PARTENAIRES ET FINANCEURS

