

# Helicopter and convertible

DS test facilities offer large capabilities for testing helicopter and convertible aircraft, with complete model or isolated rotor in the different flight phases (take of, cruise, landing, limit of the flight envelope conditions ...).

- ❖ Isolated rotor test
- ❖ Integrated rotor test

Model type	Model rigging	Wind tunnel	Typical test program	Test objective
Helicopter rotors. Maximum diameter: 4 m.	Specific rig. Tilt capability: -95°, +25°.	SIMA	Specific remote control blade setting.	<ul style="list-style-type: none"> <li>• Rotor performance.</li> <li>• Acoustic measurements.</li> <li>• Steady and unsteady pressure measurements.</li> </ul>
Helicopter blade profiles.	Two-dimensional test section. Wake survey.	S3MA	<ul style="list-style-type: none"> <li>• Pitch and pause.</li> </ul>	<ul style="list-style-type: none"> <li>• CFD validation.</li> <li>• Pressure distribution.</li> <li>• Drag measurement.</li> <li>• Unsteady measurements on pitch oscillating profile models.</li> </ul>
Full helicopter model (rotor diameter: 1.5 m).	Specific rig. - RPM: 1,270; - power: 4 kW; - shaft and side slip angle control; - maximum speed: 40 m/s.	F1	<ul style="list-style-type: none"> <li>• Reynolds effect.</li> <li>• Specific remote control blade setting.</li> </ul>	<ul style="list-style-type: none"> <li>• Loads.</li> <li>• Model pressure distribution.</li> </ul>



*Isolated rotor model test in SIMA*



*Full helicopter model test in F1*