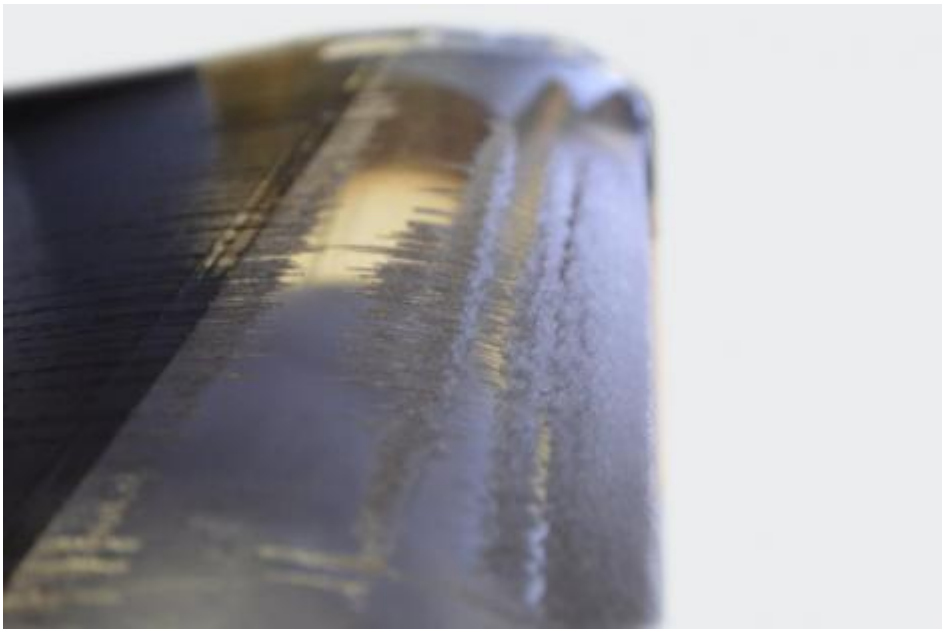
ICE PROTECTION SYSTEM



Our Ice Protection System allows aircraft, rotorcraft and drones to fly in even the most extreme weather conditions. It protects fixed parts of the aircraft, such as the wings, air intake and nacelle, and moveable parts, such as the tail rotor and propellers, against ice accretion.

Our Ice Protection Systems equip heavy helicopters and are appreciated by the oil and gas industry for their offshore activities in the North Sea as they improve safety and significantly increase rotorcraft availability.

Our system is used to remove ice from fixed wings on regional and other light aircraft to increase energy efficiency (all-electric aircraft, Horizon 2020: The EU Framework Programme for Research and Innovation - https://ec.europa.eu/programmes/horizon2020/)

- Products Family: **Electro-thermal ice protection products**

TECHNICAL FEATURES

- Electro-thermal technology prevents ice accretion, removes ice (rime ice and glaze ice), and controls runback ice.
- Icing simulation compliant with international standard requirements (FAA FAR 23, FAR 25, FAR 27, FAR 29 / EASA CS 23, CS 25, CS 27, CS29)
- Expertise in aerodynamics, calculating heat transfers in materials, setting electrical power and heating cycles and materials' thermal and electrical performances (insulation and conduction).
- RTCA and EUROCAE standards (SAE ARP4754/ED-79, DO-178/ED-12, DO-254/ED-80) to reach the "DAL A" safety level for avionics components (ex. Controller)
- Experience of integrated systems from early design phase and specifications to system validations through close-to-real qualification test.

BENEFITS

- Safety
- Energy Efficiency
- Sensor Integration

MARKET AND EXPERTISE

AEROSPACE

Vibration Control Systems

ALL PRODUCTS FAMILIES

Aerospace Vibration Control Systems

Engine Mounts

Our Engine Mounts are designed for jet engines (piston engines, turboprops and turbofans) and auxiliary power units. Thanks to their excellent vibration and acoustic insulation, they enhance passenger comfort and safety.

Elastomer Motion Control Products for Helicopters

We develop all types of elastomer/metal laminated bearings for main and tail helicopter rotorheads. Stiff in some directions while flexible in others, our solutions comply with stringent life and safety OEM requirements.

Lead-lag dampers for helicopters

We design, develop, and product both the visco-elastic and hydro-elastic models of our lead-lag dampers for helicopters. Our solutions ensure dynamic stability in all operating conditions for helicopters.

Avionic racking systems

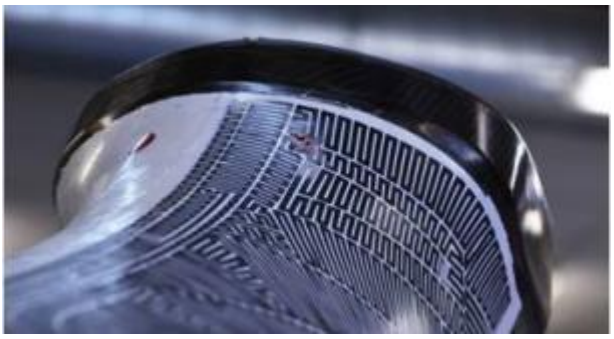
Our Avionic Racking Systems are containers that protect black boxes. They protect electronic components from very high temperatures, powerful vibrations and shocks. Compliant with standards (ARINC 404 and 600; MIL…)

Health & Usage Monitoring Systems

Sensing and health control systems are embedded into parts to allow key data measurement for the health assessment of components or systems. Maintenance operations based on actual operating conditions are optimized.

Active Noise & Vibration Control System for Helicopters.

Active noise & vibration control systems measure and analyze noise and vibrations and generate optimized dynamic forces in real time.They reduce vibrations by up to 30 dB and noise within helicopter cabins.



Electro-thermal ice protection products

Heating mats are made of heating elements (electrically resistive materials like metal or carbon) embedded in a thin electrical insulating multilayer composed of polymers.

Control & Display

In the cockpit, the need for information through control panels is essential, namely for communication, warning, advisory, flight and engine systems. CLAROPAN multidisciplinary team means a fully developed, cost effective, plug-and-play solution.