

## LEAD-LAG DAMPER WITH HEALTH & USAGE MONITORING SYSTEMS



With our Embedded Health and Usage Monitoring System, sensors mounted on frequency adaptors for helicopters monitor displacement, force, pressure and temperature. Data are analyzed and stored in flight, allowing the component's health to be assessed and data on real operating conditions to be saved.

It powers itself: an energy harvester system powers the sensors and ensures that data are transferred in real-time or at a later time. Our solution provides performance assessment capabilities. Our integrated electronic developments are compliant with DO-178, DO-254, DO-160 standards. Our solutions are tested on in-flight demonstrators.

These embedded electronic systems on our components offer enhanced safety, streamlined inspections and maintenance, operational availability, life-cycle optimization, and operational data specific to the aircraft.

- **Product Family: Lead-lag dampers for Helicopters + Health & Usage Monitoring Systems**

## TECHNICAL FEATURES

- Embedded systems and their various functions are tailored to specific operating conditions, information to be assessed and analyzed, and the system in which they're integrated.
- Several configurations are possible: sensors, energy harvesting systems, communication and data analysis.
- Integration of advanced functions is optimized within products.
- Assessment modules are designed thanks to our expertise in dynamic behavior of motion control products.

## BENEFITS

- Safety
- Durability
- Low Maintenance

## 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...)



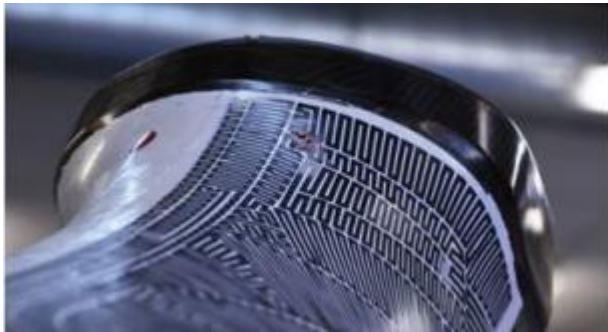
## **Health & Usage Monitoring Systems**

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.

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