Helicopter Actuation Systems

ENGINEERED TO MOVE

In helicopters, as in other aircraft, actuation is a safety critical system. Diakont's optimized electromechanical actuators (EMAs) are remarkably compact and lightweight, making them a uniquely ideal solution for helicopter motion control applications such as rotor blade trailing edge flaps, onboard beam control, and gear and access doors.







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Rotary Blade Active Flap Control

Diakont supplies a rotary EMA to control the trailing edge flaps of helicopter rotary blades. Large helicopter rotor blades can suffer from severe vibration. To counteract these vibratory air loads, some helicopters employ oscillating trailing edge flaps to reduce vibratory hub loads and increases flight range and work load. However, these benefits were offset by the increased weight of actuators based on older technology. Weighing less than one kilo, Diakont's rotary EMA is ultra-compact and allows helicopter designers to take full advantage of trailing edge flap technology. In addition to its successful track record in helicopter actuation applications, Diakont is able to apply its advanced rotary actuators towards other industries that seek advanced rotary motion control.

Onboard Beam Control

Diakont offers EMAs for onboard beam linear actuation while handling cargo operations.

- Weight of EMA 12.5 kg
- Force 3,100 N
- Stroke 635 mm
- Speed 24 mm/sec

Access Door Actuation

Diakont's landing gear and access doors actuation system is comprised of a dual-redundant, closed looped kinematic chain that utilizes roller screw gears. This configuration ensures the system is able to withstand single failures if the situation were ever to arise. Each roller screw gear is installed on a shaft connected to a dual-redundant motor. Multiple roller screws are used to evenly distribute motor torque throughout the physical system. Utilizing this fully electric design, aircraft dynamics are optimized due to decreased system weight, increased safety features, and minimal maintenance.



- Rated torque up to 18 Nm
- Weight of EMA 950 grams
- Vibration-proof more than 20 g
- Frequency up to 19 Hz
- Compact and vibration-proof control system



- Torque per reducer more than 1000 Nm
- Slim size, Ø 70 mm
- Absence of bearings (increasing lifetime and reliability)

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