Performances

Typical performances are given in the following table. This table is not exhaustive as many other actuators can be rapidly designed by CEDRAT TECHNOLOGIES using its design tools, lab facilities and technological know-how. The following MRF actuator (see here below) can be operated either as a self locking linear brake or as a semi active damper. Without power supply it offers a strong braking force Fmax holding at rest the out shaft all along the stroke. Increasing the DC current applied to the actuator reduces the force up to less than 5% of Fmax rendering the output shaft free to move. As the braking force can be electrically controlled, this MRF actuator can also be used as a semi active damper or a semi active shock absorber, requiring low power for managing large damping forces.

References	Unit	A-MRF
Notes		
Stroke	mm	30
Max blocking force @ 0 A	N	100
Max blocking force @ 1.6 A	N	5
Total weight	g	580
Diameter	mm	43
Height (without stoke)	mm	94
Max current	A	1,6
Electrical interface		1 coils = 2 wires
Winding resistance	ohm	1,5
Winding inductance	mH	4,3
Time response	ms	3 (tbc)
Dissipated power in blocking state (@0A)	W	0
Dissipated power in free state (@1.6A)	W	4

Applications

MRF Actuators find applications as semi active dampers, smart shock absorbers, clutches, and brakes…

They are used in automotive industry, civil engineering and are considered in a variety of applications in aircraft, space craft, machine tools, and even consumer goods.

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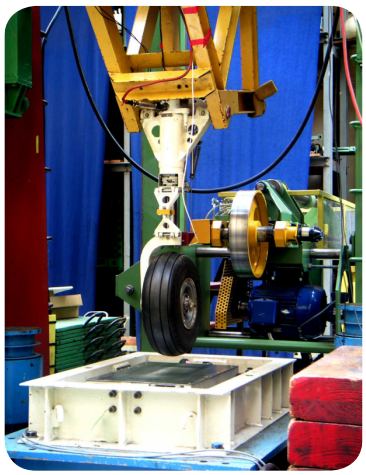
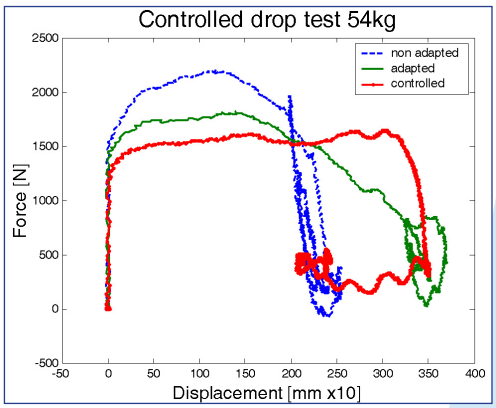
Collaborations, Supports

CEDRAT TECHNOLOGIES has been partner of the FP6 EC ADLAND (Adaptive Landing Gear) project with EADS, FhG-ISC, MESSIER DOWTY, IFTR, Institute of Aviation, USFD, PZL Mielec. CEDRAT TECHNOLOGIES is presently partner of the Eureka project HYDROSMART (Hydrostatic Bearings For Precision Machinery Lubricated With Ferrofluids And Active Valves) with DANOBAT, IDEKO, KRAFFT, MGEP, CNRS-LPMC.



ADLAND semi-active shock absorber under drop test(Courtesy of IFTR, IA & ADLAND project).



Test results without and with control(Courtesy of IFTR, IA & ADLAND project).

MRF actuator.