



## DEFENSE ACTUATORS

Pyroalliance designs and manufactures pyrotechnic actuators involved in the deployment or the retracting of a piston for military systems. A typical application is for missiles for which actuators are involved in the deployment of flight surfaces.

The overall dimensions as well as piston stroke are adjusted depending on the application. Different actuators are possibly triggered at various moments of the mission's sequence.

More generally, Pyroalliance delivers complete pyrotechnic chains adapted to its customers' needs. They are designed and manufactured under Pyroalliance design authority.

# ACTUATOR

## Operating mode

An actuator is a deployable or foldable mechanism that can be implemented on several missile actuation functions. The inner initiator is triggered upon reception of a secured electrical order and a cascade of pyrotechnic events will amplify the pressure inside the piston chamber until it reaches a threshold. Then the piston will either be deployed or retracted. The actuator is part of a succession of pyrotechnic sequences happening during a missile operational mission.

The electrical order consists of a drive current of at least 5A that activates the igniter located inside the cartridge. The generated deflagration ignites a secondary explosive, creating a gas pressure inside the chamber that will move the piston along the metallic housing of the actuator.

During operation, the device remains hermetic from pyrotechnic combustion gas.

The piston deployment can be controlled by a damping system if necessary.

## Benefits

- High speed of operation (from 10ms but can be adapted to load case though a damping system)
- High reliability level ( $\geq 0,9998$  @90% CL) and no required maintenance
- Hermeticity : contained effects, no fragments or flames
- High security level with locking system preventing from unexpected operation and structure margins designed to resist to extra loads

## Classification

- UN Number: 0323
- Transport classification: 1.4S
- Not subject to any ITAR constraint

## For more information

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## Typical performances and features

Operating time	From 10ms to other specified requirement
Size, Weight and Power (SWaP)	SWaP adapted to the mission
Temperatures	Adapted to typical airborne military climatic environment
Reliability	$\geq 0,9998$ @90% CL
Life Time	Adapted to the mission and life profile
Firing Current	5A - 10ms
Non Firing Current	1A / 1W / 5 min @100°C
Connector	TBD by customer
Current applications	According to MIL-C-38999 series 1

## Applications

- Missile fins or wings deployment
- Missile tube ejection
- Emergency door release

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