

WINDING ACTUATOR

Innovative winding actuator system made of shape memory material

Technological advantages

Reliable

Easy-to-use heating system, no risk of heater separation

Robust

No mechanical disturbances (vibrations, impact, etc.)

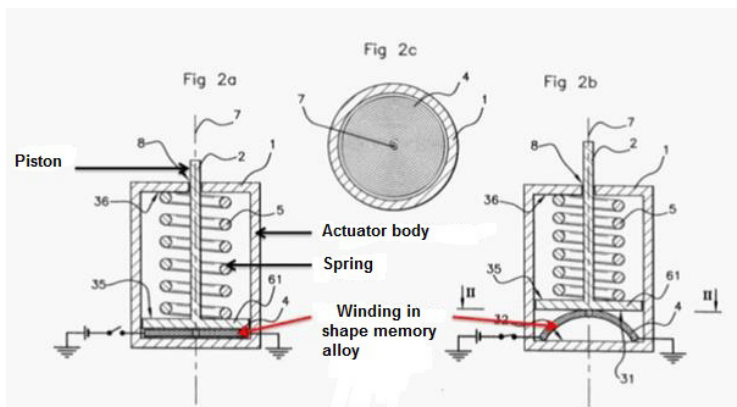


Fig 2a: Cold flat coils

Fig 2b: Heated bent coils

Fig 2c: Electric insulation wound in coils

Invention overview

CNES has invented a winding actuator made of shape memory material whose innovative design is covered by the patent. The principle is based on the use of SMA wire with electrical insulation wound in X coils which are flat when cold and bent when heated. This geometry allows the coils to be heated by Joule effect by injecting a current directly into the SMA wires. When the current injected in the SMA wires is cut, the coils cool and return to their flat form under the pressure of the spring.

Potential applications

Automotive industry

Air conditioner controller, radiator plug, fan disconnect, engine control

Chemical industry

Thermal valves

Latches and locks

Fire safety hatch actuator Thermal lock for ovens

Commercial advantages

Robust

Compact

Reliable

Silent

TRL : 3

Patented invention, available under license

Space technology applications and value-enhancement serving the industry

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