



THERMAL KNIFE RELAX SYSTEM

Thermal knife relax system for nanosatellites.

Technological benefits

Relax system/HDRM (Hold Down and Release Mechanism)

- Ball joint type isostatic locking mechanism
- Resettable system
- Low impact
- Low-cost and easy to implement: readily available cut connections (TyRap, tape or binding wire)
- Release by heating wire, without motor, without pyro-technical devices, non-magnetic (depending on choice of materials)
- Small, lightweight.

Invention overview

Resettable thermal knife relax system, light, low-shock and low-cost for nanosatellites.

Fixed section side, 2 clamps, installed on leaf springs, attached to each other using polymer connectors. The clamps hold a sphere fixed to the mobile section. The ball joint locking system allows the angular alignment of the fixed and mobile sections, prohibiting sideways movement.

Relaxation is assured by a thermal knife that melts the polymer connections. The clamps open completely releasing the mobile section.

Potential applications

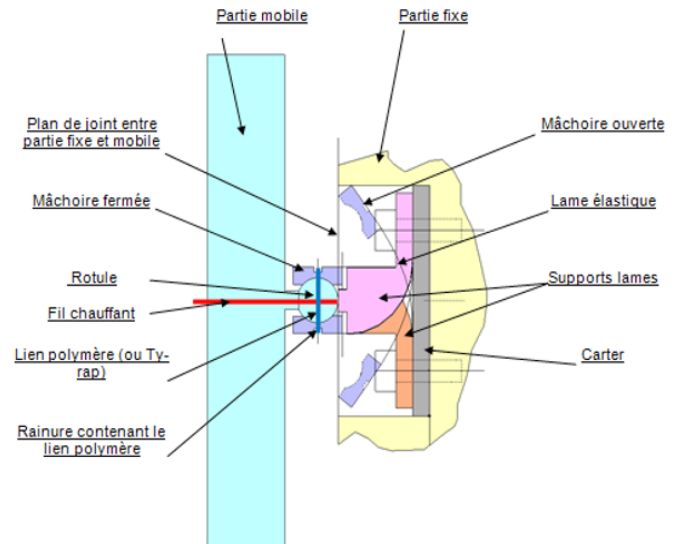
Space :

System for stacking GS and appendages deployable for the entire platform and in particular nanosatellites: opening of the blank, the deployable strut, the antenna reflector, the baffle, the nanosatellite deployer.

On land :

Stacking of all appendages or deployable structures.

Low-cost safety triggering systems (valve, gate), ejection, firing or projection systems.



Relax system scheme

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Commercial benefits

Facilitation and modularity

- Resettable system, easy to implement
- Size can be adapted to all holding forces
- Small and lightweight

Economic solution

Low-cost consumables and systems

TRL : 6

*Patented invention, available under license
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