



SPACE M10 HOLD AND RELEASE MECHANISM ME0032

Pyroalliance designs a wide range of separation nuts, used for the in orbit deployment of antenna reflectors and solar generators on satellites or used for the separation of satellites of a constellation, assembled on a dispenser.

With a recorded rate of in-flight success of 100% over more than 6000 separation nuts delivered until today to its customers, Pyroalliance provides with such separation nuts extremely reliable solutions of Hold down and release.

Hold and Release Mechanism

Operation mode

The Hold and Release Mechanism is a pyro-mechanism which performs two functions: maintaining a pre-loaded assembly of two sets and releasing the assembly upon an electrical order. The energy required to achieve the release is provided by gas pressure (pyrotechnic gas generated by the initiator).

Benefits

a) Reliability

High reliability of the product is granted by the implementation of redundant initiators and the systematic testing of the mechanical part which is 100% tested in-factory via cold gas actuation (instead of pyrotechnic gas) and reseted after test.

b) Actuation time and synchronicity

By nature pyrotechnic actuators are very responsive with a very low actuation time. In addition the standard deviation associated to this parameter is such that extreme synchronicity is granted for several nuts activated simultaneously, as it is the case for holding satellites on dispensers.

c) Structural link satellite/launcher mastering

Using a cup cone part, the HRM ME0032 provides a “ready to use” solution allowing a well mastering of linkage stiffness (traction and torsion). The bolt tension is applied in factory by ultrasonic measurement monitoring process.

Applications

- Satellite release from dispenser

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Pyroalliance's equipment on board satellite Globalstar - Arianespace

Key figures

Operation time (Typical values):	Few ms
Height without igniters:	95 mm
Depth:	91 mm
Bolt dimensions:	M10 x 1.5
Weight without initiators with bolt catcher:	740g
Weight without initiators and without bolt catcher:	490g
Operating temperature:	-50°C to +50°C
Operating bolt tension:	Up to 26.5kN
Initiators:	2 NSI*

*NASA Standard Initiators

Product Classification

- Number UN: UN0173
- Storage class: 1.4S
- Not restricted by ITAR regulations

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Produced by the Communication Department of Pyroalliance

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