NEReA

NEREA

NEReA is a low shock Non Explosive Release Actuator that provides a rapid response with low-power consumption over a range of temperatures compatible with the Space environment. NEReA is compatible with electrical systems for pyro activation.

NEReA products cater for a wide range of features required by this particular market niche. Several models share a very similar design, so by customizing just a few individual components, a large number of needs are catered for.

NEReA products are available with electrical terminals for actuation, although they may be supplied with connectors upon request.

CAPABILITIES

The extremely high vertical integration of work related to the design and manufacture of NEReA products has enabled SENER Aeroespacial to offer its customers very verastile products that meet their needs in a short space of time.

All design work is carried out by SENER Aeroespacial engineers with the help of the latest CAD/CAE tools on the market. SENER also integrates its products in one of its many ISO7 Clean Rooms, in keeping with the highest quality standards in the industry.

NEReA products are put through a series of rigorous functional and environmental tests to ensure that they operate correctly under the most extreme conditions in outer space throughout their service life.

NEReA products are employed in:

- Masts
- Solar panels
- Antennas
- Launchers (phase separation, satellites and/or payloads)

DESIGN

The design of NEReA products is based on a fusible element that releases a standard threaded screw inside our product. This fusible element is designed to be triggered by the same pulse that triggers a pyrotechnic element, with the added advantage of not producing any type of residue or volatile fragment.

Other noteworthy features are:

- Very short release time (less than 50 ms)
- Very low induced shock level
- Totally reliable redundant device

The fusible element is easily replaceable by using special equipment and tools supplied by SENER Aeroespacial, but without the need to dismantle the NEReA.

SENER AEROESPACIAL»S EXPERIENCE

With more than 50 years of experience in the space industry, SENER Aeroespacial has developed and flown over 275 electromechanical devices and systems. Many of these devices comprise one or more Hold-Down and Release Mechanisms (HDRM), based on non-explosive technology.

SENER's Aeroespacial wide experience in the design and specifications of such devices endorses the company's expertise in this field. The Non-Explosive Release Actuator (NEReA) product family is the outcome of this hard work and expertise.

Technical characteristics:

Features	NEReA 8	NEReA 10	NEReA 12	NEReA 18	NEReA 20	NEReA 22
Resistance	Less than 2 Ohm	Less than 2 Ohm	Less than 2 Ohm	Less than 2 Ohm	Less than 2 Ohm	Less than 2 Ohm
Input voltage	28 V	28 V	28 V	28 V	28 V	28 V
Actuation current	5 A	5 A	5 A	5 A	5 A	5 A
Actuation time	Less than 50 ms.	Less than 50 ms.	Less than 50 ms.	Less than 50 ms.	Less than 50 ms.	Less than 50 ms.
Bolt Dimension	M8	M10	M12	M18	M20	M22
Axial preload	15,000N	30,000 N	42,000N	120,000N	150,000N	175,000N
Mass	190 gr	190 gr	190 gr	< 500 gr	< 500 gr	< 500 gr
Envelope	70 mm diameter 40 mm height	70 mm diameter 40 mm height	70 mm diameter 40 mm height	90 mm diameter 50 mm height	90 mm diameter 50 mm height	90 mm diameter 50 mm height
TRL	TRL8	TRL8	TRL8	TRL8 (Q2 2021)	TRL8 (Q2 2021)	TRL8 (Q2 2021)