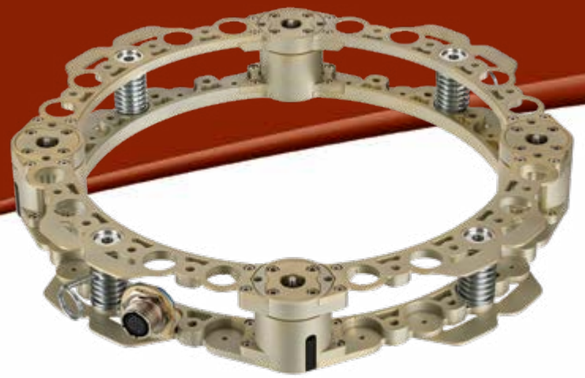
Ensign-Bickford Aerospace & Defense

Mission Success

Ensign-Bickford Aerospace & Defense Company (EBAD) is dedicated to supporting our customers in the aerospace and defense industry through on-time delivery of innovative products that exceed expectations and assure mission success.



NEA® 15" Payload Release Ring (PRR-15)

For nearly 60 years EBAD has supplied launch vehicles and the space market hardware to support initiation, separation, and flight destruct. The NEA® 15" Payload Release Ring (PRR-15) utilizes the flight-proven technology of the NEA® mechanism product line to release payloads from a launch vehicle.

Principle of Operation

The NEA® 15" Payload Release Ring consists of four NEA® release mechanisms, two ring halves, and separation springs with corresponding holders. The four NEA®'s are utilized to compress the separation springs and hold the two ring halves together. The PRR-15 is then attached to the payload. The PRR-15, and attached payload, are mounted to the launch vehicle utilizing 24 fasteners.

The NEA® 15" Payload Release Ring is electrically connected to the launch vehicle via redundant connectors. The connector will be connected to each of the NEA® release mechanisms. An additional connector is provided in order to provide communication between the launch vehicle and the payload.

The payload is released when the launch vehicle applies current to the PRR-15 connector. The NEA® 15" Payload Release Ring connector distributes the current to the four NEA® release mechanisms, which actuate and allow the separation springs to separate the payload from the launch vehicle.

Applications

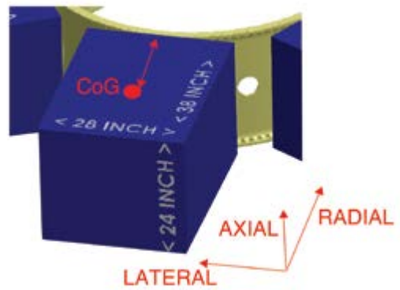
Typical applications include:

- Launch vehicle payload release
- Ø15" circular port with 1/4" fasteners
- Other port sizes can be developed

Key Features

- Low release shock
- Redundant actuation circuit
- Payloads up to 250 kg[1]
- Low mass (see Specifications Table)
- High stiffness (see Stiffness Table)
- Can be operated with standard launch vehicle circuitry
- Launch vehicle to payload connector interface
- No debris generation
- Meets standard tip off requirements
- Customizable separation velocity (4-20 push off springs)
- Qualified to standard launch environments
- Space-rated materials
- Factory refurbishment

[1] Maximum allowable payload mass is dependent on the Center of Gravity of the payload. A 250 kg mass is acceptable with a CoG of 15" from the launch vehicle or less.



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NEA® 15" Payload Release Ring (PRR-15)

NEA® 15" Payload Release Ring (PRR-15) Technical Specifications

Parameter	Capability
Payload Capability	250 kg[1]
Shock Output[2]	<300 g's
Release Time[3]	<40 ms
Total Mass	6.4 lb (2.9 kg)
Fly Away Mass	2.2 lb (1 kg)
Temperature Range	-40°C to +102°C
Spring Energy, J	3.57
Number of Springs	4 to 20

Notes:

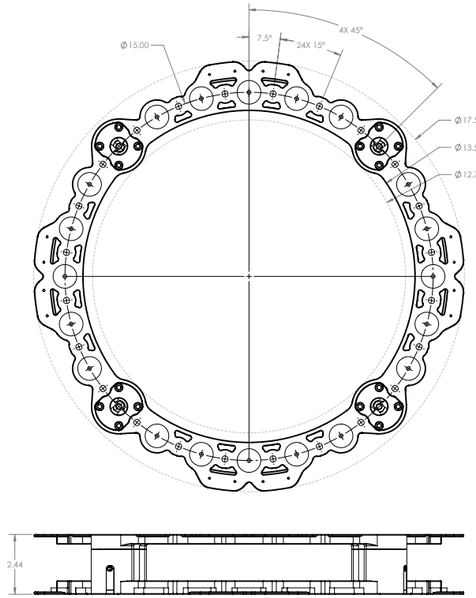
[1] Maximum allowable payload mass is dependent on the Center of Gravity of the payload. A 250 kg mass is acceptable with a CoG of 15" from the launch vehicle or less.

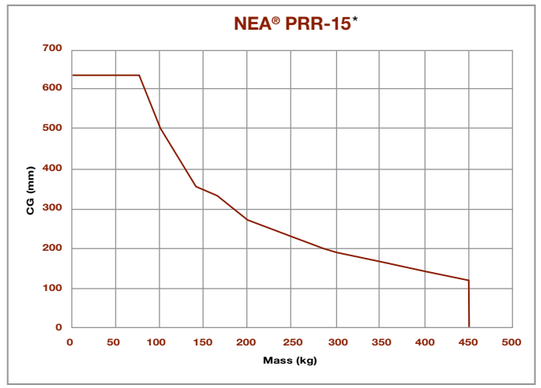
[2] Indicates payload side. Shock output was measured by mounting the ESPA ring launch vehicle interface to an aluminum 6061 0.75" x 24" x 24" test fixture, and to a secondary plate of the same characteristics on the payload interface.

[3] Release time is based on the current supplied, the stated time is based on the SpaceX electrical interface, capable of simultaneously applying 5A to 4 separate lines.

Contact EBAD for additional technical data

NEA® 15" Payload Release Ring (PRR-15) Mechanical Interface Drawing (for reference)





*this data does not include local movements or any factors of safety or margin.

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