

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® 8" Payload Release Ring (PRR-8)

For nearly 60 years EBAD has supplied launch vehicles and the space market hardware to support initiation, separation, and flight destruct. The NEA® 8" Payload Release Ring (PRR-8) utilizes the flight-proven technology of the NEA mechanism product line to release payloads from a launch vehicle.

### Principle of Operation

The NEA® 8" Payload Release Ring (PRR-8) 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-8) is then attached to the payload. The (PRR-8), and attached payload, are mounted to the launch vehicle utilizing twenty four fasteners.

The NEA® 8" Payload Release Ring (PRR-8) 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-8) connector. The NEA® 8" Payload Release Ring (PRR-8) 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
  - Ø8" circular port with 1/4" fasteners
  - (4) NEA® Mechanisms configured in a ring pattern – with very significant in-orbit heritage
  - Low mass, low shock release
- Other port sizes can be developed

### Key Features

- Low release shock
- Redundant actuation circuit
- Payloads up to 100 kg<sup>1</sup>
- Low mass (see Specifications 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 – 8 push off springs)
- Range safety friendly
- Space-rated materials

<sup>1</sup> Maximum allowable payload mass is dependent on the Center of Gravity of the payload. A 100 kg mass is acceptable with a CoG of 10" from the launch vehicle or less.

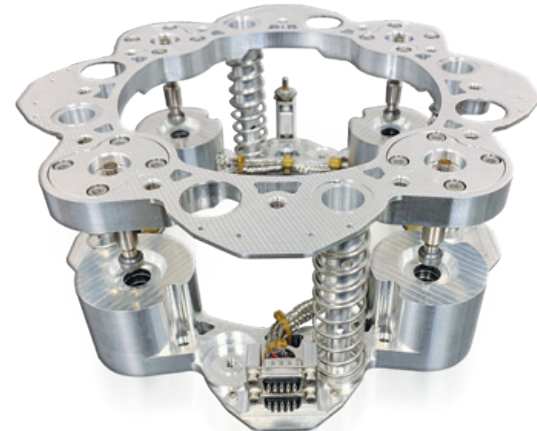
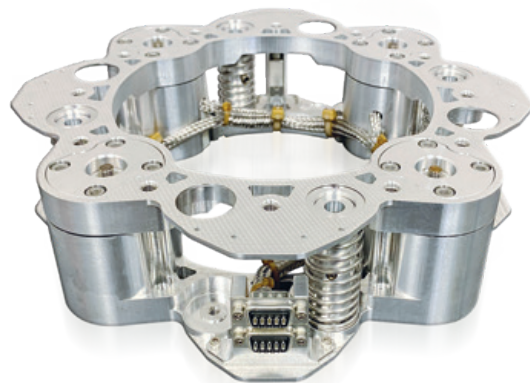
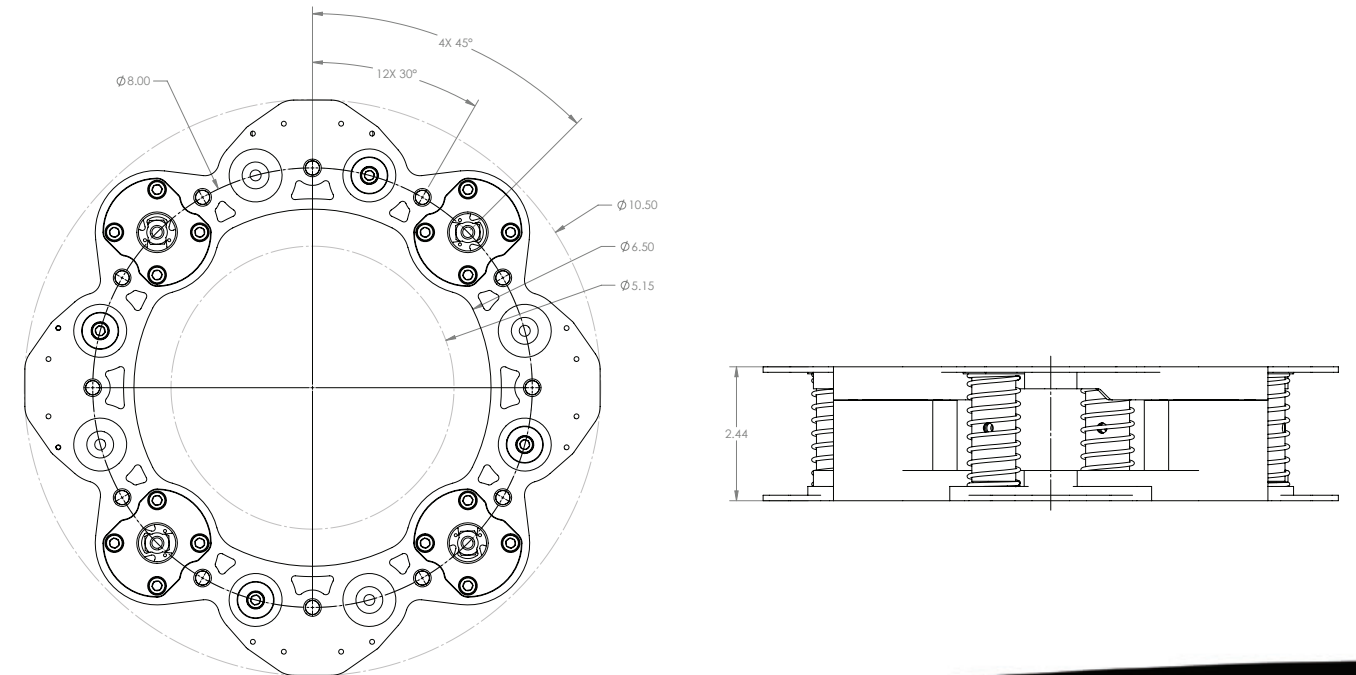
### NEA® 8" Payload Release Ring (PRR-8) Technical Specifications

Parameter	Capability
<b>Payload Capability</b>	100 kg <sup>1</sup>
<b>Shock Output<sup>2</sup></b>	<300 g's
<b>Release Time<sup>3</sup></b>	40 ms
<b>Total Mass</b>	4.7 lb (2.1 kg)
<b>Fly Away Mass</b>	1.6 lb (0.7 kg)
<b>Temperature Range</b>	-90°C to +135°C
<b>Maximum Tip off<sup>4</sup></b>	1° per sec
<b>Spring Energy, J</b>	3.57
<b>Number of Springs</b>	4 to 8
<b>Outer Diameter</b>	10.50 in (26.70 cm)
<b>Inner Diameter</b>	5.15 in (13.10 cm)
<b>Height</b>	2.44 in (6.2 cm)

#### Notes:

- <sup>1</sup> Maximum allowable payload mass is dependent on the Center of Gravity of the payload. A 100 kg mass is acceptable with a CoG of 10" from the launch vehicle or less
  - <sup>2</sup> Indicates payload side. Shock output was measured by mounting the ESPA ring launch vehicle interface to an aluminum 6,061 0.75" x 0.24" x 24" test fixture, and to a secondary plate of the same characteristics on the payload interface
  - <sup>3</sup> 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
  - <sup>4</sup> Tip off is dependent on the center of gravity, contact EBAD for details
- Contact EBAD for additional technical data

### NEA® 8" Payload Release Ring (PRR-8) Mechanical Interface Drawing (for reference)



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