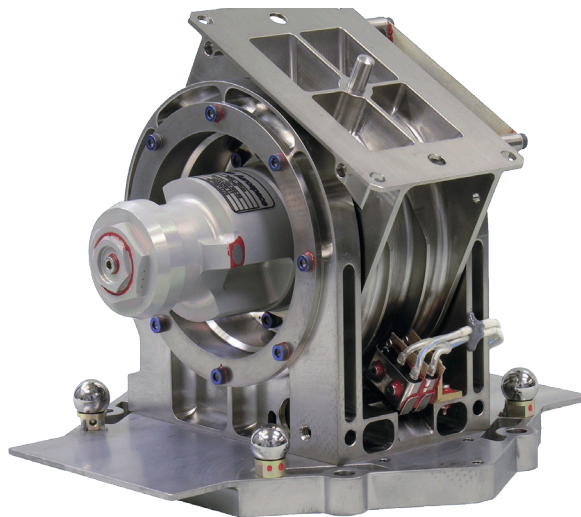


Deployment System for Large Appendages

Spring driven, non-reversible Deployment System intended for the deployment of large appendages such as large reflector antennas or solar arrays.



RUAG Space has developed and qualified a spring driven, non-reversible Deployment System for Large Appendages, which is focusing on high position accuracy and stiffness in the deployed configuration. In addition, it also provides an integrated deployment damper to eliminate the end position latching shock.

This Deployment System is intended for the deployment of large appendages such as large reflector antennas or solar arrays.

Features

The deployment hinge provides the following typical features, which can be modified according to customer specifications.

The technical data for one hinge without damper is:

- Locking mechanism to provide high position accuracy and stiffness in the deployed configuration
- Angular contact ball bearing in O-arrangement
- Dimensions: 122 mm x 110 mm x 70 mm
- Mass: 1500 g
- Deployment range: up to 180°

- Torque: 4 Nm - 10 Nm
- Stiffness:
 - axial stiffness 1.7×10^7 N/m
 - min. radial stiffness 2.7×10^7 N/m
 - axial rotation stiffness 2.3×10^4 Nm/Rad (up to 6.1×10^4 Nm/Rad)
- Positioning accuracy (fixed angle) after deployment in each direction (azimuth and elevation): 0.006 degree
- Resistive Torque: 0.2 Nm
- Temperature range survival: -150°C / +150°C
- Temperature range operation: -30°C / +50°C

Programs

This product has been developed in the frame of an ESA development program, is successfully flying on a German multi-satellite program and several flight models have been delivered to MacDonald Dettwiler and Associates Ltd. (MDA), Canada.

