

SH-9010 Torsion Spring Hinge System

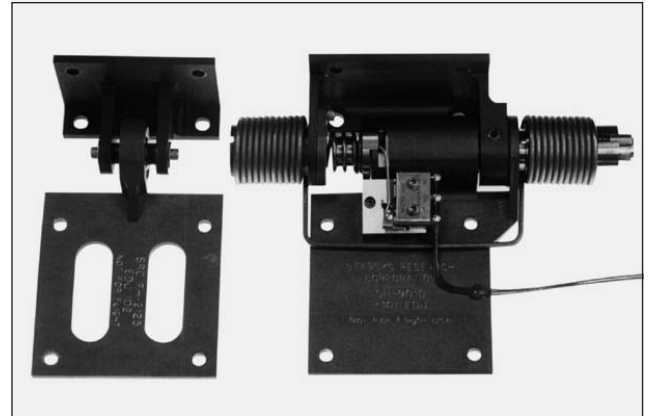
General Description

The Starsys SH-9010 Torsion Spring Hinge System provides an exceptional off-the-shelf solution to small satellite panel and antenna deployment requirements.

The SH-9010 hinge system comprises two hinges: a spring-powered drive hinge and a multiple degree-of-freedom floating hinge. This two-hinge approach provides exceptional stiffness for 1 G testing and vibration loads, without the need for high-tolerance alignment. Deployment energy is provided by a double coil torsion spring on the drive hinge. A torsion bar latch engages at the end of travel of the panel. Deployment energy is dissipated as the torsion bar winds and counterwinds around the deployed position. This torsion bar soft-stop also establishes the stiffness of the deployed hinge. The ability to customize the torsion bar diameter for each application allows the deployed panel stiffness to be "tuned," minimizing latching shock and providing adequate latched stiffness for spacecraft control.

Features

- Fully redundant, self-lubricating rotating surfaces
- Partially redundant deployment springs
- Tuneable torsion bar soft-stop latching
- Integral limit switch signals hinge deployment
- Non-binding "floating" hinge line



Exceptional off-the-shelf solution to small satellite panel & antenna deployment

Specifications

Mechanical	US	SI
Mass/Hinge unit	19.04 oz	540 grams
Deployment torque	10 to 18 in-lbf	1.1 to 2 N-m
Deployment angle	90° ±1°	
Latched hinge stiffness	5 to 65 in-lbf/°	.56 to 7.3 N-m/°
Latching accuracy	± 1°	
Allowable misalignment	± 3° between hinges	
Lifetime	>50 deployments	
Thermal		
Operating environment	-40 to +158°F	-40 to +70°C

Data for information only and subject to change. Contact Starsys for design data.