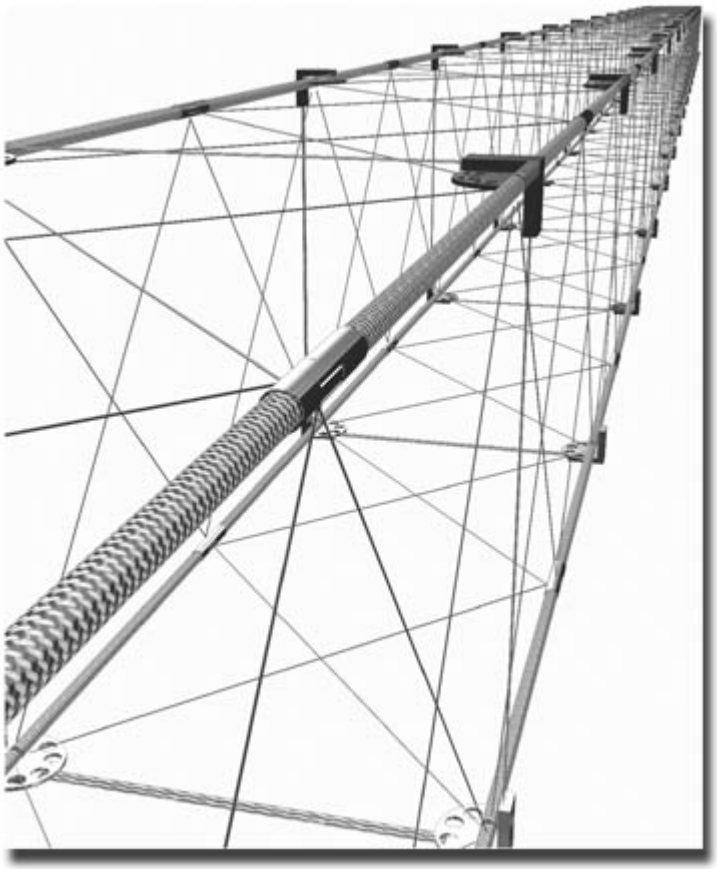
Starsys Structures

Starsys products position, move, and deploy critical components on spacecraft. We have spent 20 years developing a world-class team of more than 150 engineers, scientists, technicians, and support staff to deliver advanced spacecraft mechanical components.

The Structural Systems Group provides spacecraft subsystems that comprise substantial structural elements. We are engaged in the design, development and fabrication of large static and deployable structures including deployable antennas and integrated structural mechanical systems such as Optical Barrel Assemblies for telescopes.

Starsys components and mechanisms are known worldwide for their innovative use of technology, unequalled performance, and stellar heritage: More than 2,500 devices on more than 250 spacecraft with 100% success.

Large Deployable Structures:



Deployable structures expand from a compact stowed package of structural elements to become a large, high-integrity structure. Deployment energy can be provided by space-qualified motors or from the stored energy within the structure itself. Sizes range from several feet to over one hundred feet in length. Designs for deployable structures of 300 feet and greater are feasible.

The unique characteristics of our deployable structures include:

- High expansion ratios of deployed-to-stowed length. For specific applications, these can exceed 100 to 1.
- Excellent thermal stability: effectively “zero” coefficient of thermal expansion.
- Extension and retraction capability: Unlike traditional boom technologies, our structures have full mechanical integrity throughout the deployment process. A partially extended boom has an equivalent structural integrity of a fully deployed boom. For specific applications the boom can also be automatically retracted on orbit a well as to support ground testing.
- High length-to-mass ratios: our deployable booms do not require a deployment canister, translating to higher length-to-mass ratios as a result of lower mass “overhead.”
- Linear extension: In contrast to traditional coilable/retractable booms, our deployable booms do not rotate during extension or retraction.
- High structural integrity achieved throughout the deployment process allows payloads to be attached at multiple points along the length of the structure.

Deployable Antennas:

Incorporating antenna elements into a self-deploying structure provides an integrated, self-deploying antenna. Incorporating mechanical damping ensures that low shock levels and controlled deployment rates are achieved.

Optical Barrel Assemblies:

Optical instruments often are housed within an Optical Barrel Assembly (OBA), which often requires a cover that may operate once, or many thousands of open and close cycles during the life of the mission. We have a demonstrated capability to deliver turn-key structural OBA cover systems for optical instruments with diameters as small as several centimeters or as large as several meters.