SpaceTech’s light-weight deployment mechanisms feature smart, reliable, and highly cost-efficient designs.

SpaceTech has a wide experience in designing smart and robust mechanisms for space applications. We constantly innovate in order to provide the best solutions well adapted to your needs.

Our mechanisms are selected in a wide variety of missions: from highly demanding science missions to new space mega-constellations, at outstanding low cost per mechanism.

Each mission typically requires individual mechanism design adaptions or completely new developments to fit the specific application. Depending on the application the mechanisms are optimized with respect to mass, torque, low shock, accuracy, etc.

Extremely light, accurate, and almost friction-free designs become possible with the innovative CFRP integral slotted hinges.

**Portfolio**

Our deployment mechanisms are used in a wide range of applications. Key components of the solutions are:

- Hold-down and release mechanisms (HDRM)
- Deployment hinges
- Solar array panel stiffeners
- Deployment dampers
- End switches

**Heritage**

- Globalstar - booms
- Kompsat-3 - strut with hinges
- Goktürk-2 - no latching shock design
- GRACE FO - boom deployment mechanism
- Sentinel-5P - strut with hinges
- C-Sat - strut with hinges
- JUICE - RIME antenna

**Deployment Test for Solar Array Panel Stiffener**

Figure 1: Deployment test for solar array panel stiffener

**Solar Array Panel Stiffener in Stowed Configuration**

Figure 2: Solar array panel stiffener in stowed configuration (rendered image)
Project Examples

Göktürk-2
Robust deployment mechanism based on flight proven design for Kompasat-3, Globalstar, CHAMP
- Spring driven mechanism with rolling cams and high deployment torque margin, < 60 sec for end position
- Release mechanism: thermal knife [HDRM]
- Design characteristics: rattle-free, very low-friction, high torque margins and low latching shocks.

Sentinel-5 Precursor / C-Sat
Deployment mechanism including CFRP stiffener
- C-hinges made from CuBe [S5P] or all-CFRP hinge [C-Sat]
- Release mechanism: ST1 design w. NEA release nut
- Design characteristics: rattle-free, very low-friction, high torque margins and low latching shocks, no panel front side access needed, minimizes panel to S/C surface gap, low maintenance

JUICE
16 meter long RIME boom antenna for ESA’s JUICE mission; new technology in deployment hinge designs
- Release mechanism: non-explosive actuator
- Design characteristics: multiple folding, temperature resistant, exceptionally light-weight (less than 1.3 kg for 16 meter antenna)

Unique features of our Deployment Mechanisms at a glance:
- Low deployment shocks
- High torque margins
- Extremely light-weight all-CFRP designs with integrated hinges
- High deployment accuracy
- Contactless end-switches

Interested?
Existing product or new development – please do not hesitate to contact us at any time!
SpaceTech (STI) is a privately owned company and independent from large aerospace companies. Located in Immenstaad, Germany, on the shore of Lake Constance, we are ideally situated in the centre of a high tech area together with several other aerospace companies and have access to a strong network of experienced suppliers. Founded in 2004, STI has developed into an established and well recognized medium size enterprise in the space industry with currently close to 100 employees.

STI offers a wide spectrum of products and services focusing on science and earth observation space missions. Our main capability is the design, development and manufacturing of innovative, high quality space equipment. Our products in particular include:

- Small satellite system design, production, integration
- Solar arrays, satellite structures, deployment mechanisms, electronics, and cold gas propulsion systems
- Laser-optical instruments and components, ICARUS systems

STI’s success is mainly based on our profound knowledge of satellite system and subsystem design which allows us to find smart solutions for each customer and mission from a holistic point of view. We are known in the space industry for our straightforward and pragmatic approach, tailored processes and safe in-orbit function. The momentum as a young and dynamic space enterprise with innovative ideas is a perfect match for many of the new space challenges. This is why SpaceTech attracts highly qualified personnel, many with long standing and exceptional experience in the space business but also young and highly motivated engineers and scientists.

When can we launch your space vision?