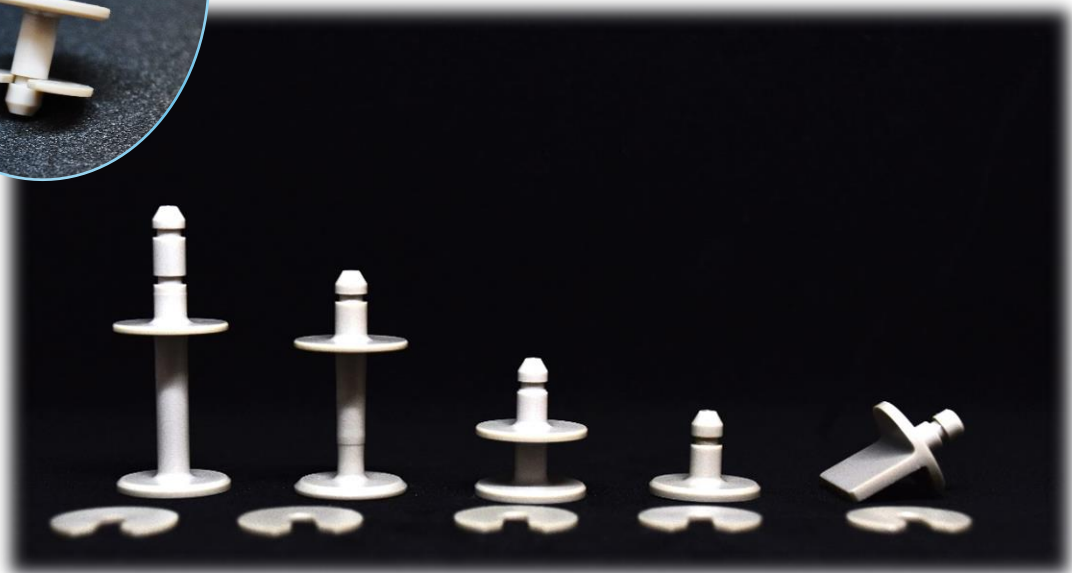


Standoff Catalogue



Standoffs are one kind of MLI (Multi-Layer Insulation) fixation solutions that attach the blanket to the structure or the blanket to blanket.



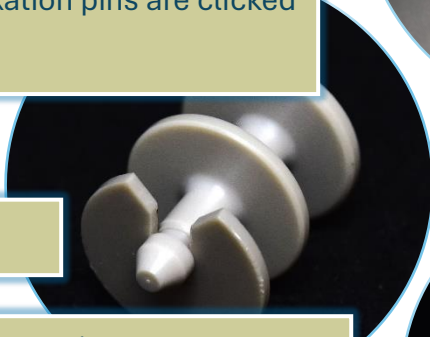
Blanket to structure attachment

The standoff (also called as pin) foot is fixed to the structure by paste adhesive or via a threaded interface hole while the blanket is led through the standoff by its interface holes. The clip washers (also called as collars) or fixation pins are clicked into the standoff groove/ hole.



Blanket to blanket attachment

Blanket attachment method is realized by floating standoffs (also called as buttons). Blankets are led through the standoff by their interface holes then the clip washers or the fixation pins are clicked/inserted into the standoff groove/hole. The standoff foot can be covered by a patch of adhesive tape to avoid moving of standoff and consequently the particle generation.



What we offer

- ✓ ESA qualified product selection (TRL-9)
- ✓ Design
- ✓ Integration
- ✓ Verification
- ✓ Engineering service
- ✓ Cleaning

Application

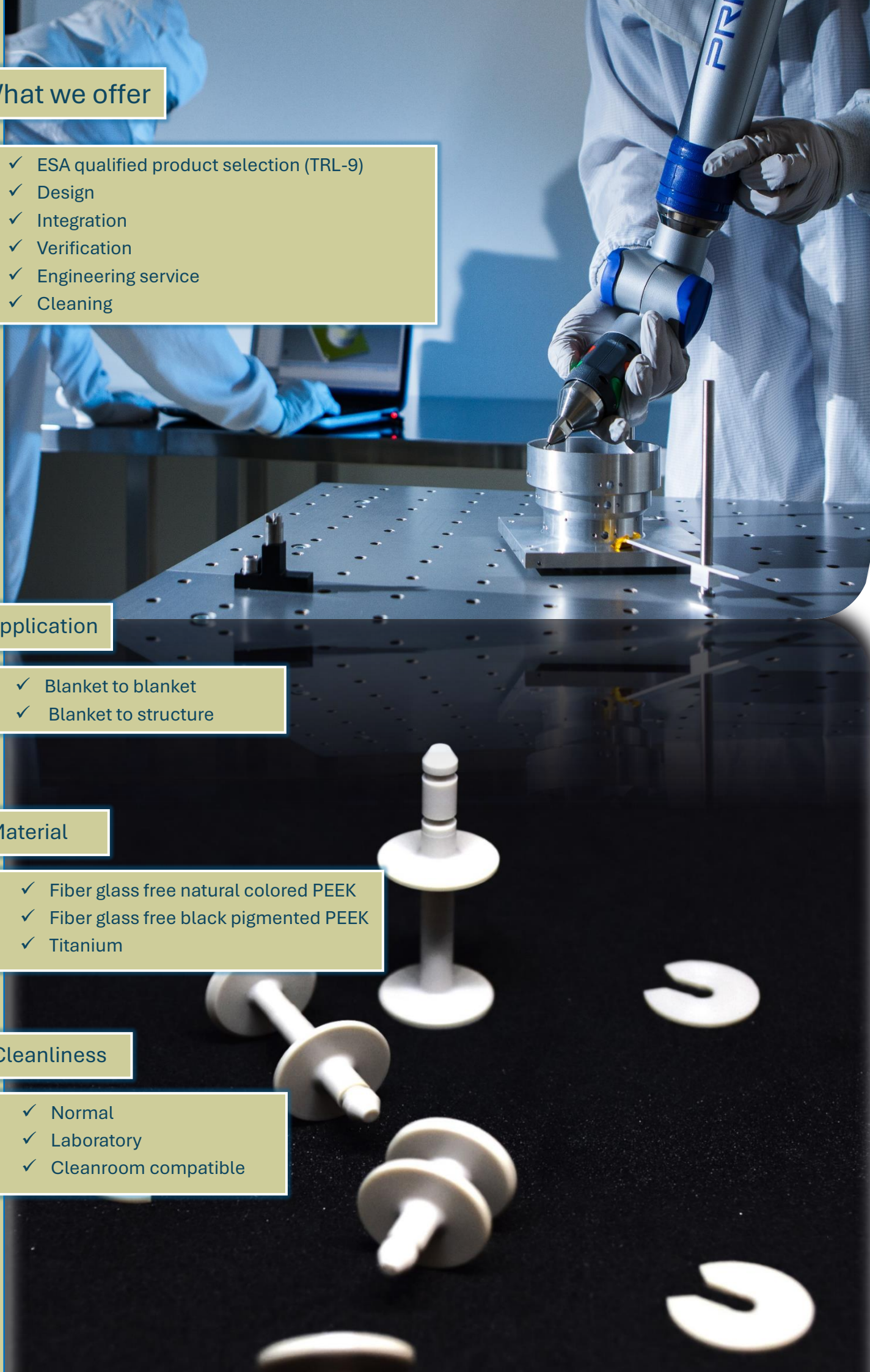
- ✓ Blanket to blanket
- ✓ Blanket to structure

Material

- ✓ Fiber glass free natural colored PEEK
- ✓ Fiber glass free black pigmented PEEK
- ✓ Titanium

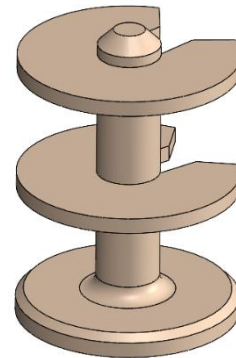
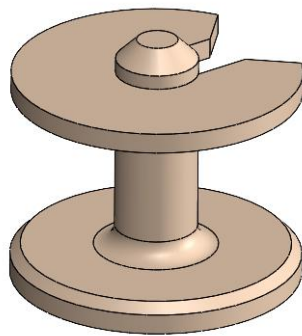
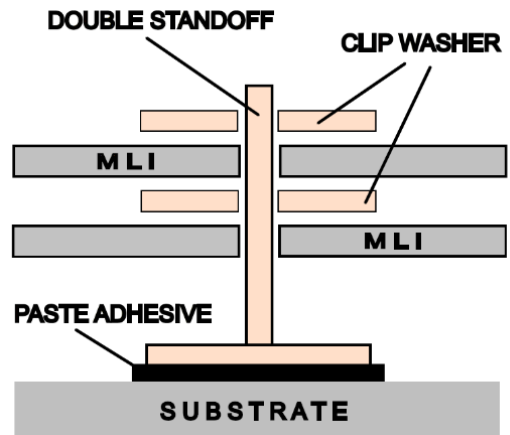
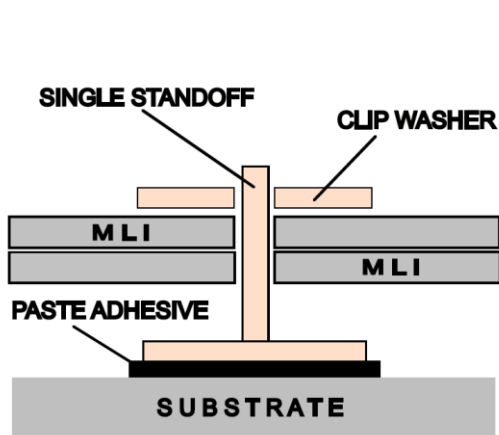
Cleanliness

- ✓ Normal
- ✓ Laboratory
- ✓ Cleanroom compatible

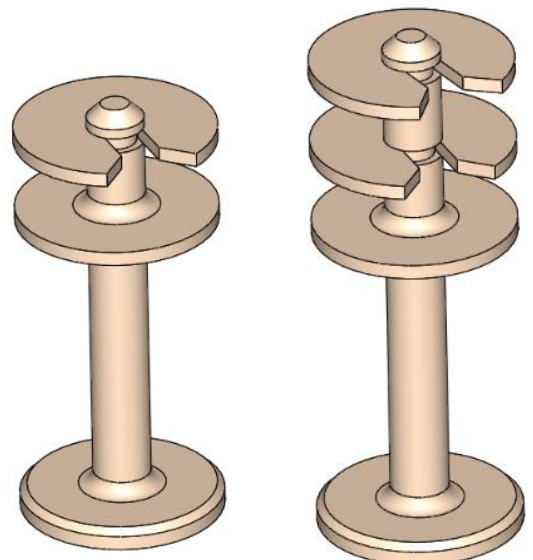
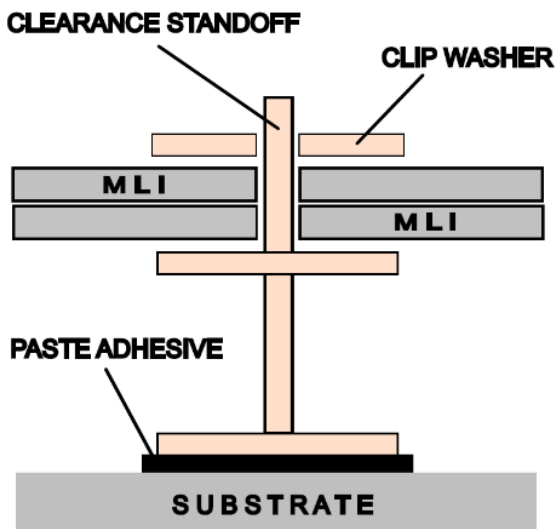


PEEK Standoff Types

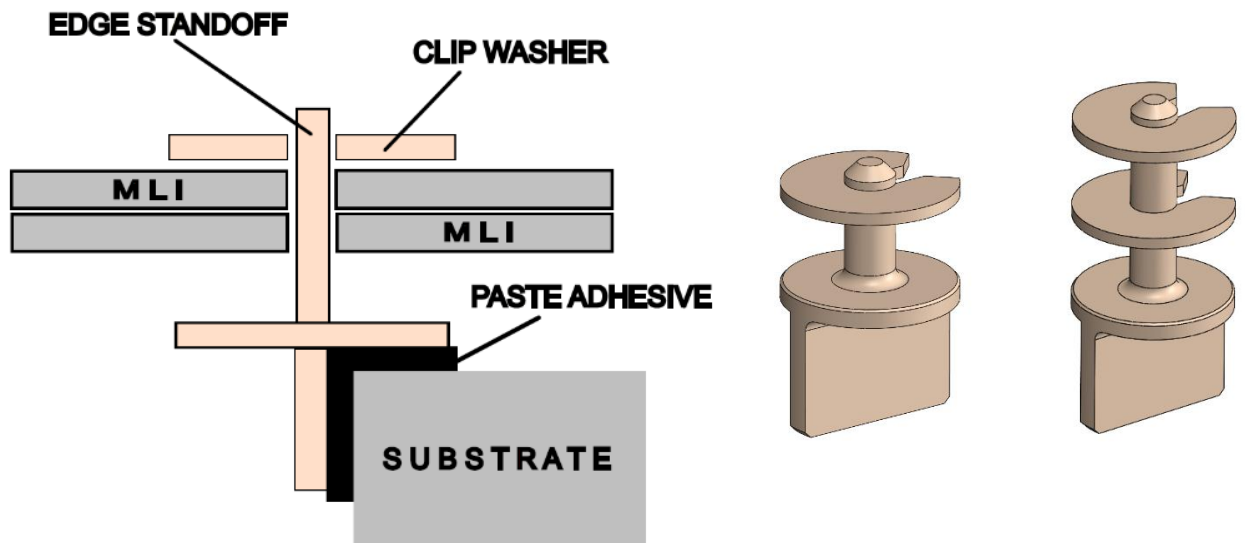
- Single and double groove



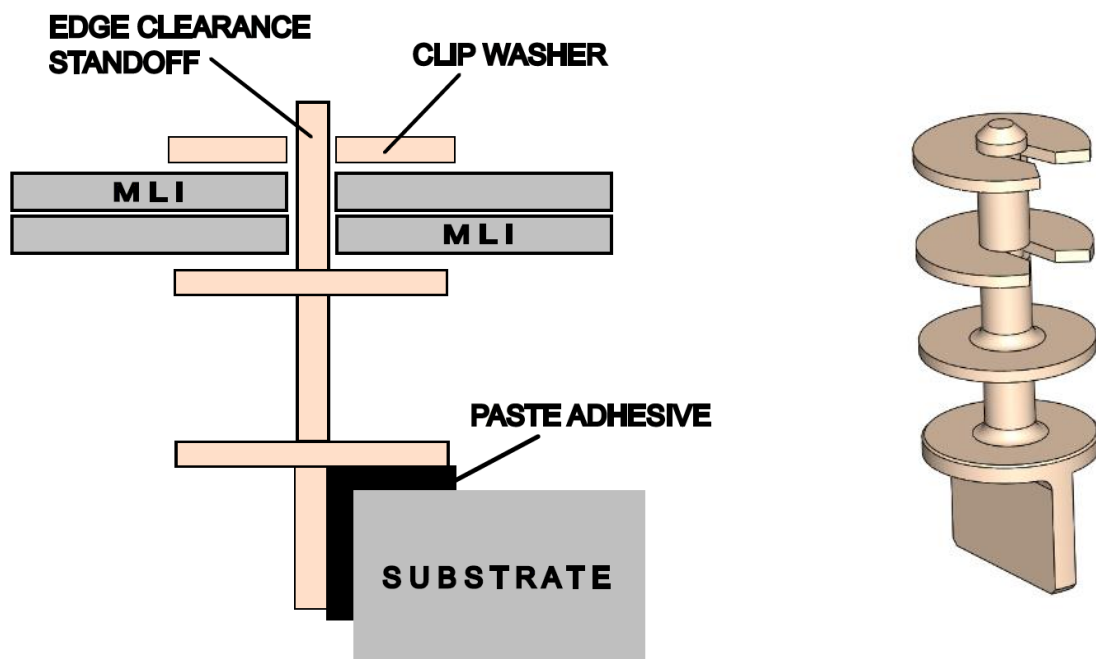
- Clearance single and double groove



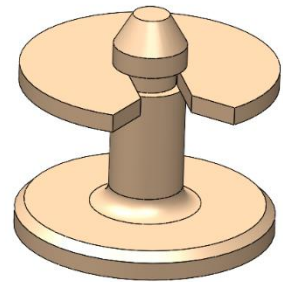
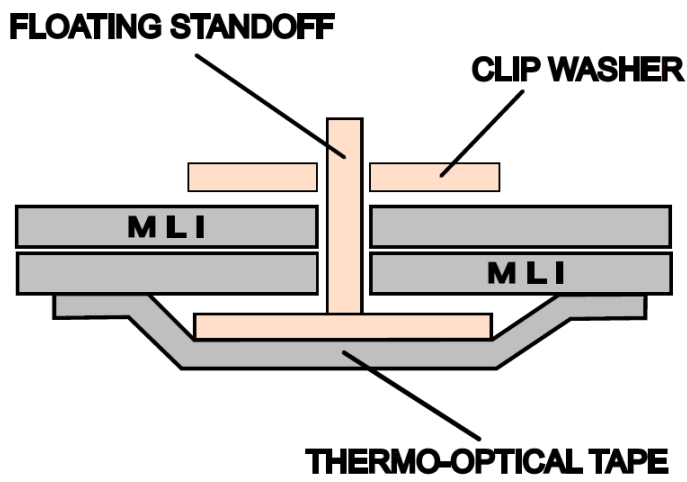
- Edge single and double groove



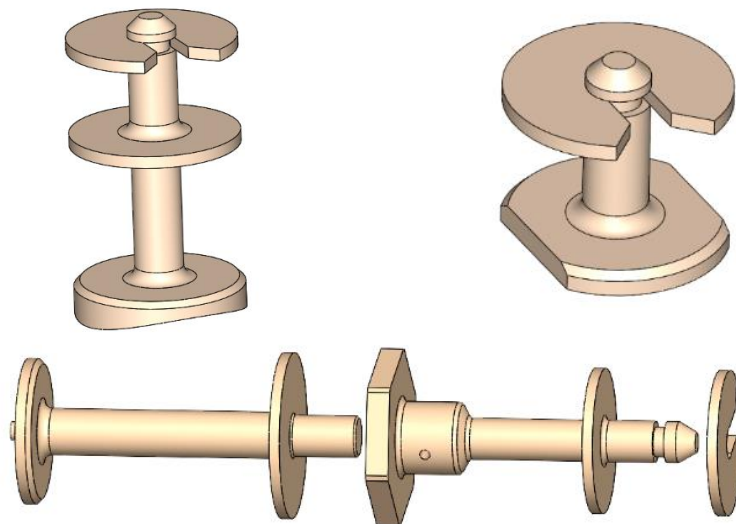
- Edge clearance single and double groove



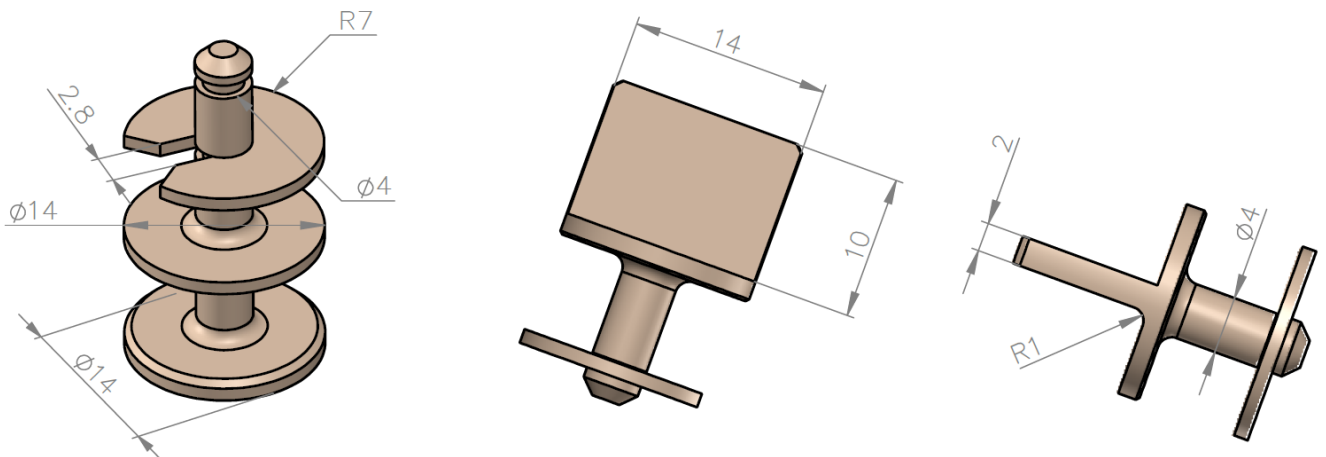
- Floating



- Custom designed

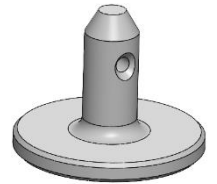
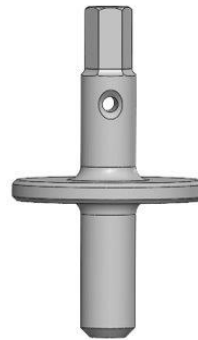
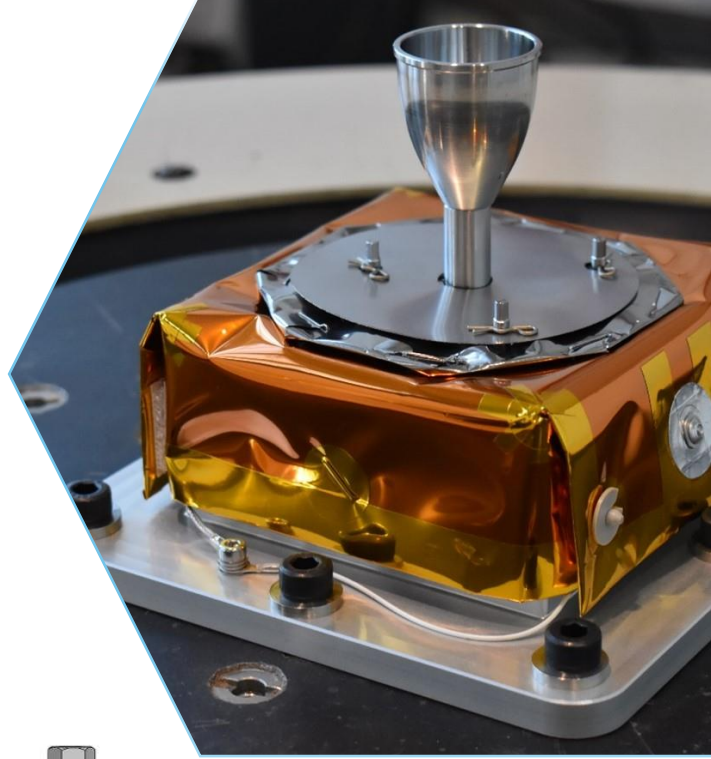


PEEK Standoff Typical Geometry

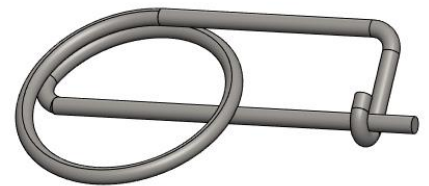
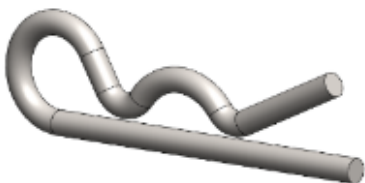


Titanium Standoff Types

- Threaded single
- Threaded clearance double
- Floating
- Custom designed



- Fixation pins bent from AISI 3010 stainless steel wire



Materials

TECAPEEK Natural and Black

Chemical Designation:

- PEEK (Polyetheretherketone)

Mechanical properties

- Tensile strength: 116 MPa
- Modulus of elasticity: 4200 MPa
- Density: 1.31 g/cm³

Thermal properties

- Temperature range: -70 ° to 120 °C
- Thermal conductivity: 0.27 W/(K*m)

Outgassing measured according to ECSS-Q-ST-70-02 and based on Victrex™ PEEK 450G

- ✓ Total Mass Loss (TML):
 - 0.18 (Natural),
 - 0.17 (Black)
- ✓ Recovered Mass Loss (RML):
 - 0.05 (Natural)
 - 0.03 (Black)
- ✓ Collected Volatile Condensable Materials (CVCM):
 - 0.01 (Natural)
 - 0.00 (Black)

Radiation

- Proved against LEO radiation environment 7.5 years

Electrical properties

- Surface resistivity: 10¹⁵ Ω
- Volume resistivity 10¹⁵ Ω*cm

Flammability (UL94): V0

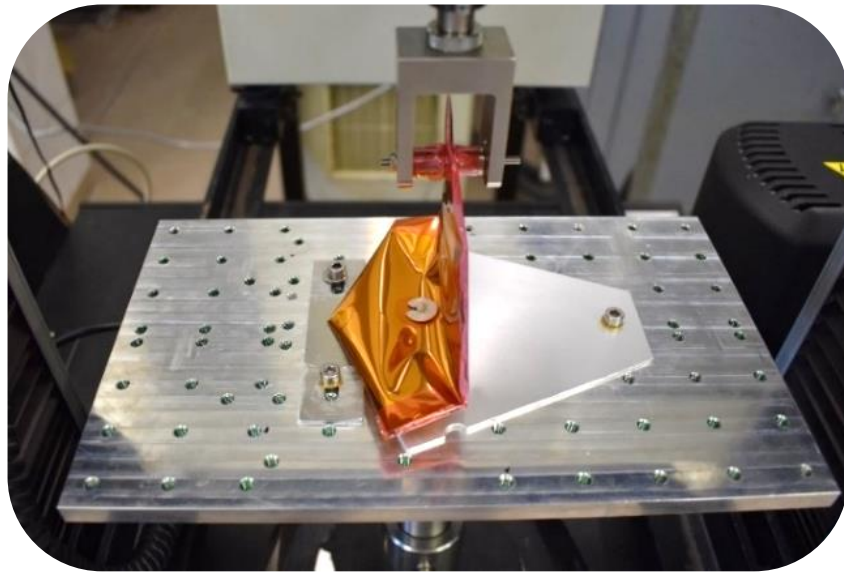
Titanium (Ti6Al4V)

Thermal properties

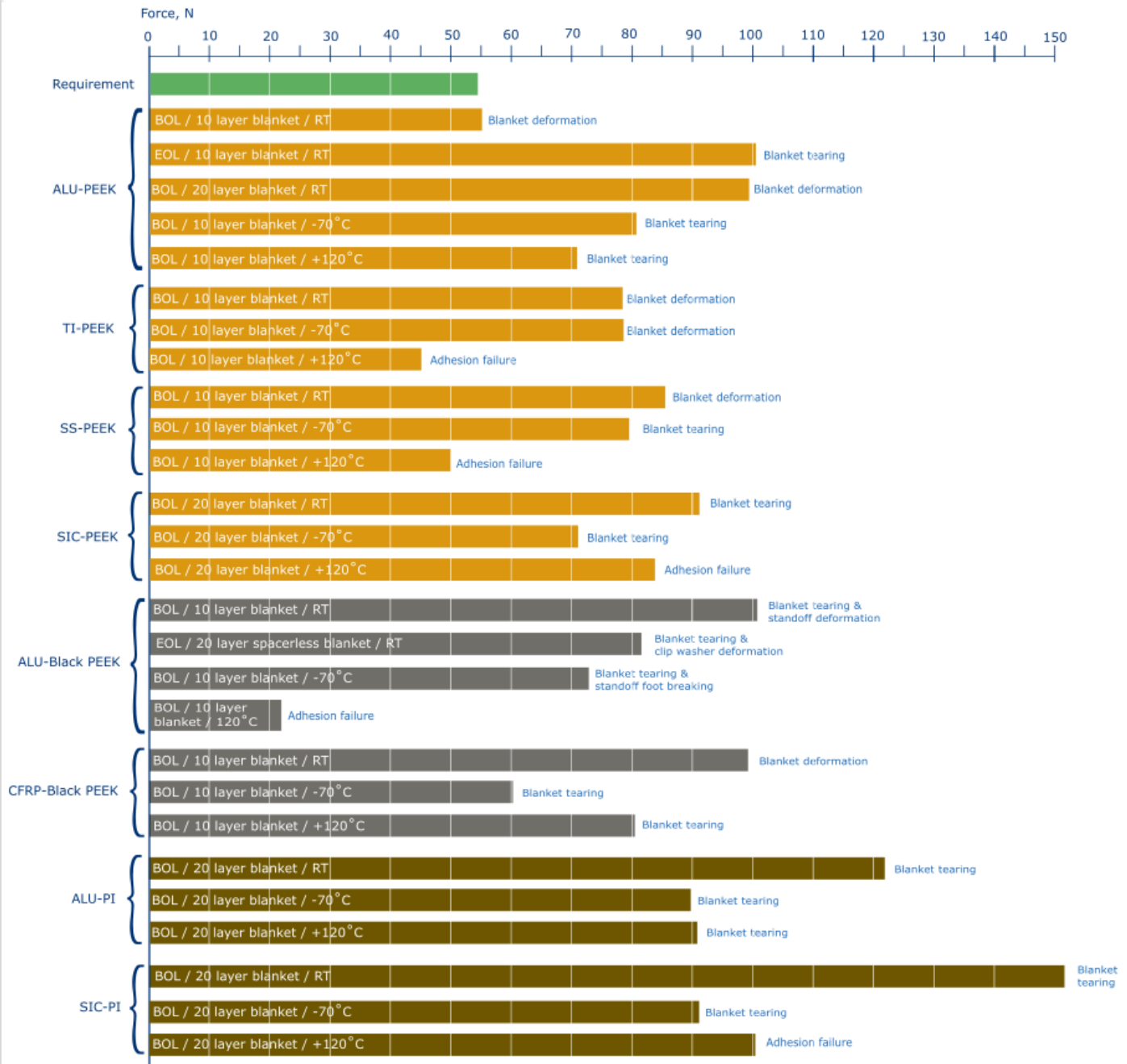
- Threaded titanium standoffs qualified to -180 ° to 650 °C temperature range

Qualification

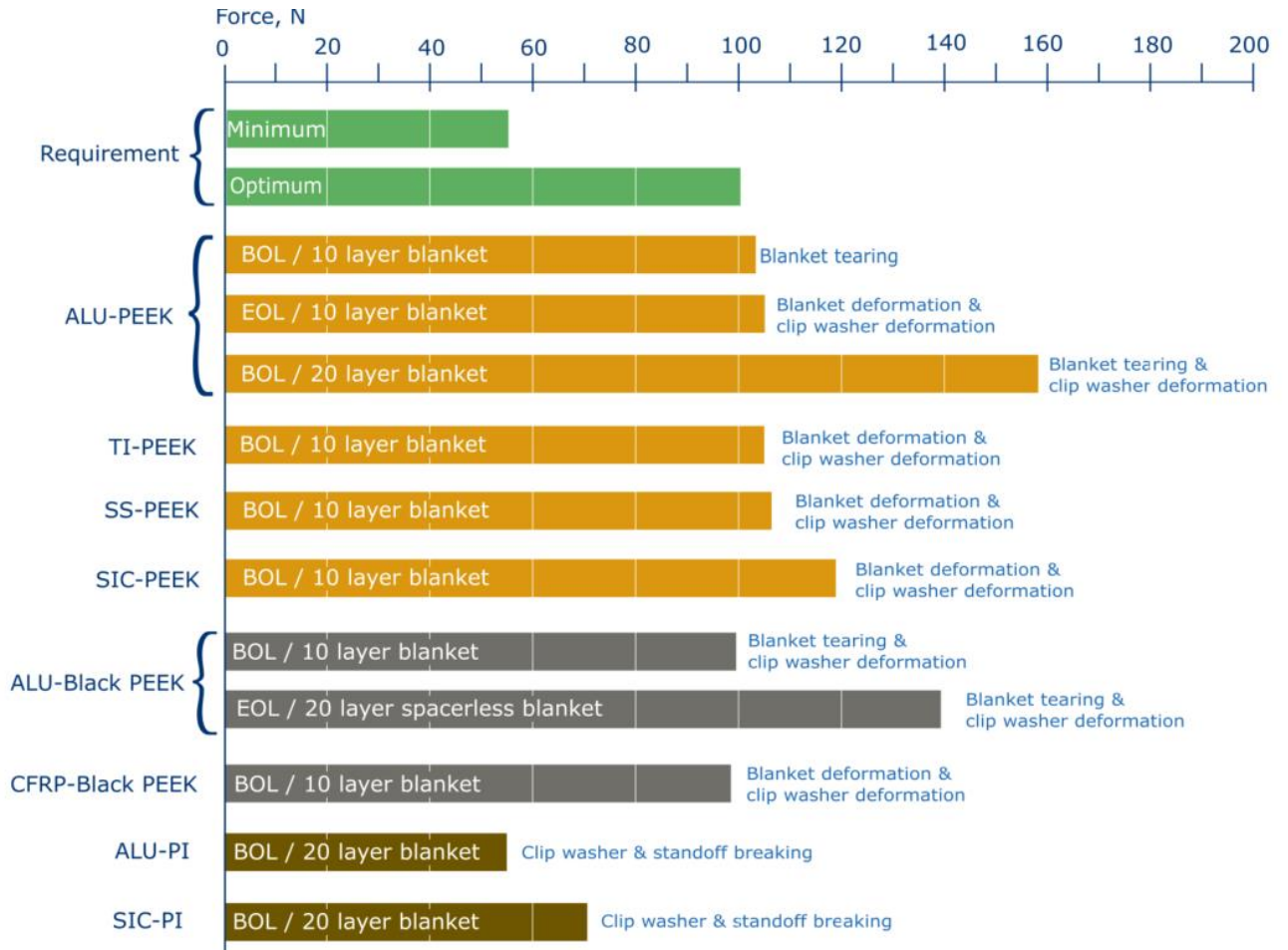
- PEEK standoffs, clip washers and gluing were tensile tested with blanket in in-plane and out-of-plane directions at different temperatures and with different substrates
- Requirement:
 - ✓ Clip-washers shall withstand a 20N pull-off force and the standoff attachment itself shall bear 100N force
 - ✓ Minimum force to be endured is 54N calculated from general Admatis design features and 60g QSL mechanical environment



In-plane test results



Out-of-plane test results



Mating-demating

- PEEK clip washer mating-demating cycles are covered by mechanical analysis and test
 - ✓ 15 cycles are qualified

