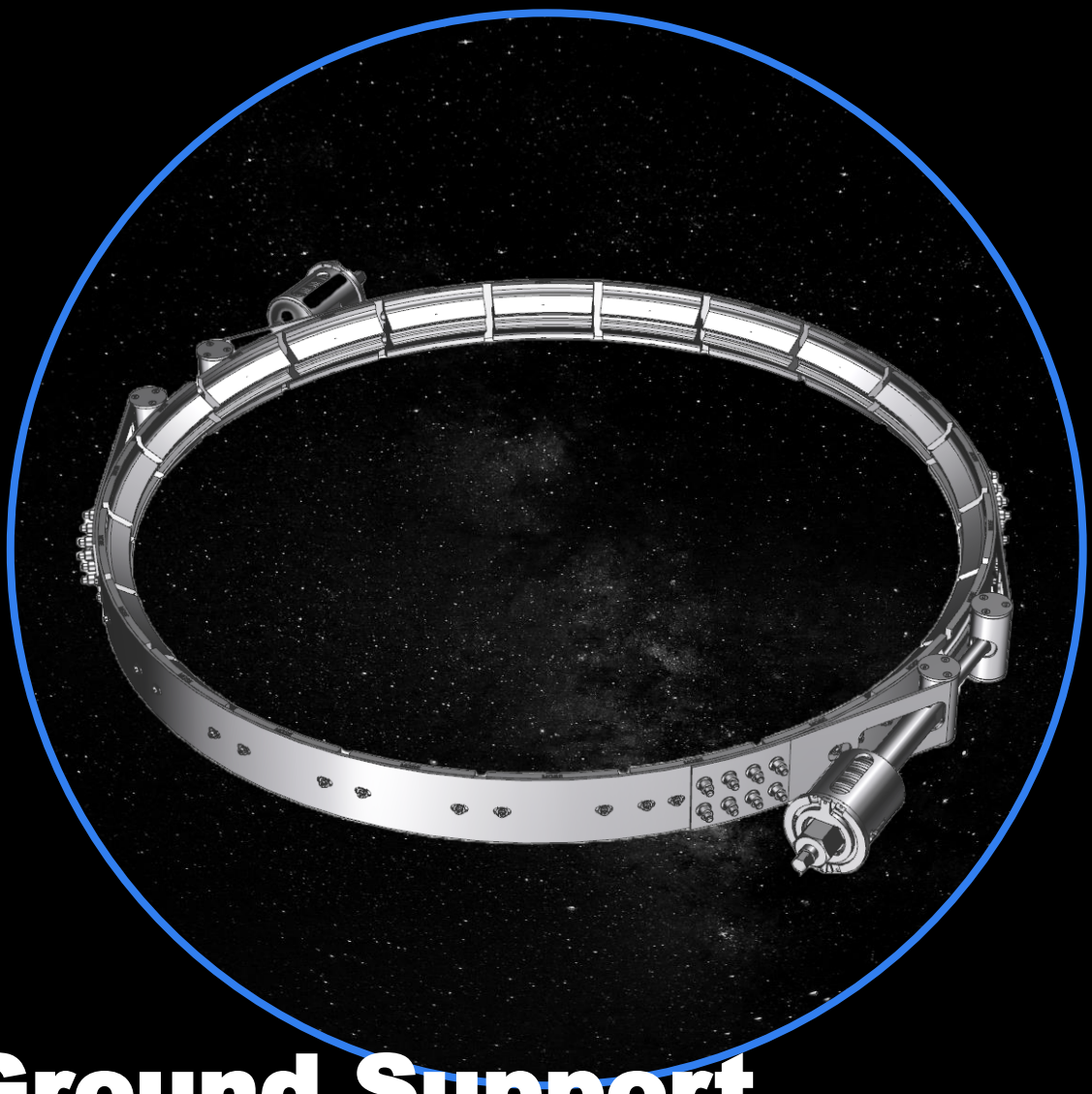
beyond gravity



Ground Support Equipment Clampband PAS 1666 MVS

30 years of high performance, high reliable and high end GSE Clampbands.

Beyond Gravity delivers GSE Clampbands for spacecraft on-ground handling and testing. The GSE Clampband is designed to connect the S/C Interface Ring to any different Test-Adapter during the AIT campaign. The main focus of the design of the GSE Clampband has been set to achieve a high product reliability and easy handling.

Beyond Gravity rsatdm.at@beyondgravity.com beyondgravity.com

Heritage

More than 50 GSE Clampbands have been delivered to institutional and commercial customers worldwide.

Key features

S/C Interface	PAS 1666 MVS	acc. to: Ariane 5 User's Manual (Issue 5, Revision 2) Soyuz User's Manual (Issue 2, Revision 1)
Temperature	-40°C to +100°C (operational)	
Factors of Safety	Yield/Ultimate 2/3 or 3/5	
Cleanliness	Class ISO 8 (ISO 14644-1)	
Advantages	no grease vacuum compatible temperature compensation easy application	

Physical Properties

Dimensions	CB (Item) [L x W x H]	1850 × 1730 × 90 mm 72,9 × 68,2 × 3,6 in
	Transportbox [L x W x H]	2080 × 940 × 550 mm 81,9 × 37,1 × 21,7 in
Item mass **Item in Transportbox**		45 kg / 99 lbs 119 kg / 263 lbs
Transportation		road, rail, sea, air compatible

Options

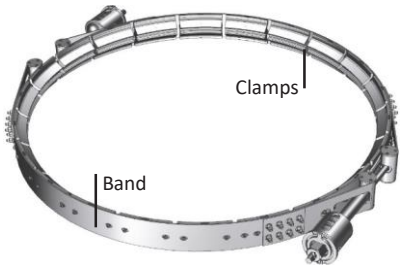
Monitoring	online measurement of acting band pre-load
Spare Parts	relevant spares included
Clampband Tools	application tools optional
Operator Training	in house or external site

Deliverable Hardware

2 x Clampband-Half / 2 x Tapping Tool /
1 x Transportbox / 2 x Strain
Gauges (optional) / Readout Equipment (optional)
/ Tools (optional)

Deliverable Documents

User Manual / Certificates / Interface Control
Drawing / Test Report/ Proof-Load Certification



Pre-Load mechanism
(incl. temperature compensation)

Transportbox

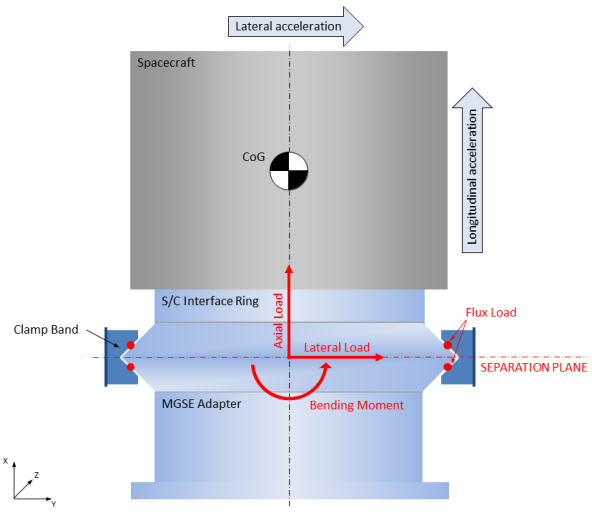
Readout Equipment

Load configuration

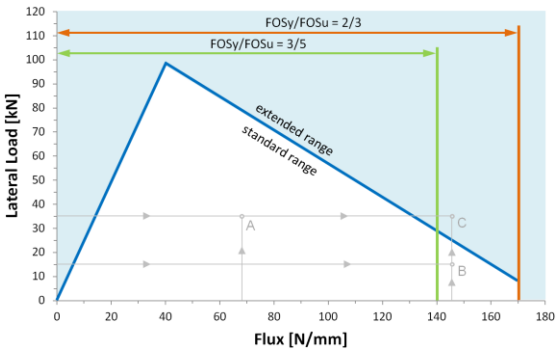
The following three load input parameters are required to determine the achievable safety factors of the Clampband:

- Axial Load [kN]
- Bending Moment [kNm]
- Lateral Load [kN]

Safety Factors:
FOSy … Factor of Safety -Yield
FOSu … Factor of Safety Ultimate



Clampband Selection Diagram



Formula to estimate Flux due to given loads:

*Flux [N/mm]=0.2*Axial Load [kN]+ 0.47*Bending Moment [kNm]*

Instructions for use:

1. Calculate the Flux using Axial Load and Bending Moment.
2. Determine the intersection between flux and lateral load in the diagram.
3. The position of the intersection of flux and lateral load in the diagram provides information about the achievable safety factors of the Clampband.
4. If the point of intersection is in the white area (standard range), the load combination can be met by Beyond Gravity.
5. If the point of intersection is in the blue area (extended range), the load combination has to be checked individually by Beyond Gravity.

Examples of how the use the diagram:

Name	Unit	Example A	Example B	Example C
Axial Load	[kN]	200	400	213
Bending Moment	[kNm]	60	140	220
Flux	[N/mm]	68	146	146
Lateral Load	[kN]	35	15	35

Example A:

The given load combination lies in the envelope of the standard range of the Clampband. The Clampand is feasible with a combination of FOSy/FOSu = 2/3 and also FOSy/FOSu = 3/5.

Example B:

The given load combination lies in the envelope of the standard range of the Clampband. The Clampand is feasible with a combination of FOSy/FOSu = 2/3.

Example C:

The given load combination lies outside the envelope of the standard range of the Clampband. Beyond Gravity has to check the load combination individually to see if the Clampband is feasible and fulfills customer needs.