

Ground Support Equipment Clampband PAS 1194 VS

**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.

Heritage

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

Key features

S/C Interface	PAS 1194 VS	acc. to: Ariane 5 User's Manual (Issue 5, Revision 2) Soyuz User's Manual (Issue 2, Revision 1)
Temperature	-100°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

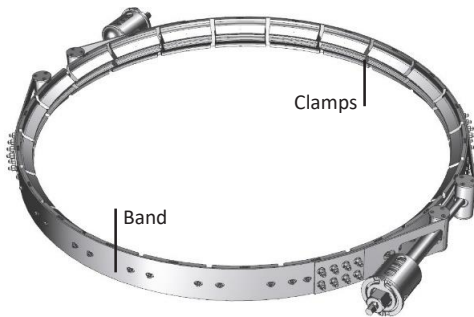
Dimensions	CB (Item) [L x W x H]	1400 x 1300 x 90 mm 55.2 x 51.2 x 3.6 in
	Transportbox [L x W x H]	1560 x 880 x 680 mm 61.4 x 34.7 x 26.8 in
Item mass		33 kg / 73 lbs
Item in Transportbox		98 kg / 216 lbs
Transportation		road, rail, sea, air compatible

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)



Pre-Load mechanism
 (incl. temperature compensation)

Readout Equipment



Deliverable Documents

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



Transportbox

Load configuration

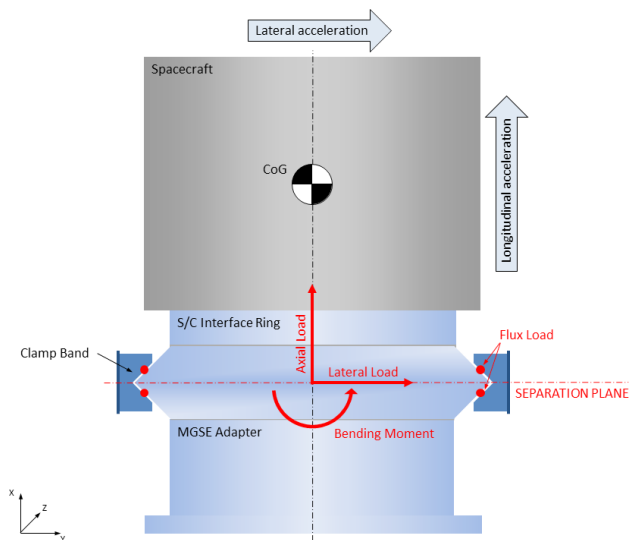
The following three load input parameters are required to determine the achievable safety factors of the Clampband:

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

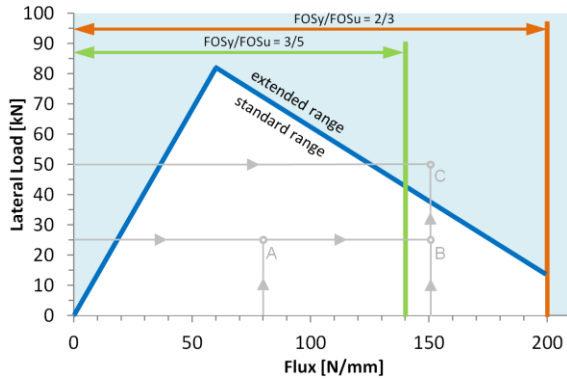
Safety Factors:

FOS_y ... Factor of Safety - Yield

FOS_u ... Factor of Safety Ultimate



Clampband Selection Diagram



Formula to estimate Flux due to given loads:

$$\text{Flux [N/mm]} = 0.27 * \text{Axial Load [kN]} + 0.88 * \text{Bending Moment [kNm]}$$

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	300	200
Bending Moment	[kNm]	30	80	110
Flux	[N/mm]	80	151	151
Lateral Load	[kN]	25	25	50

Example A:

The given load combination lies in the envelope of the standard range of the Clampband. The Clampband 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 Clampband 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.