



Scope of application

For the performance of fatigue and load collective tests, a buckling support is used when compressive stresses occur. This buckling support is suitable for the cyclic characterisation of the tensile, compression and shear properties of fibre-reinforced plastics and can be used in all common servo-hydraulic universal testing machines or electropulsers.

The following laminates can be tested:

- Unidirectional laminates with fibre orientation in $\pm 45^\circ$, 0° or $0^\circ/90^\circ$ direction
- Fabric laminates with fibre orientation in $\pm 45^\circ$ or $0^\circ/90^\circ$ direction
- Short and long fibre reinforced plastics

The fatigue test is carried out in accordance with the RHV guideline of the German Federal Aviation Authority or comparable standards.

The specimen is clamped in the buckling support. The precise alignment takes place outside the testing machine. A clamping device prevents slippage during clamping in the testing machine. Due to the V-shaped slot in the buckling support, the cyclic tests can also be carried out for fibre orientations in the $\pm 45^\circ$ direction for determining the shear characteristic value, where a high energy dissipation occurs. For a fibre orientation of the specimen in $\pm 45^\circ$ direction, the cyclic shear properties are determined in single or multi-stage tests. With a fibre orientation of 0° , 90° or $0/90^\circ$ direction, the cyclic tension-compression properties are tested.

Features & benefits

- Universal buckling support for high quasi-static and cyclic loads
- Compact and high-quality test fixture
- Material stainless steel



Technical data

Characteristics	Values
Specimen geometry	32 mm x 1...4 mm x 210 mm
Max. test load	50 kN
Permitted temperature range	-40...+150 °C
Dimensions (W x D x H)	32 mm x 25 mm x 210 mm
Weight	approx. 3 kg

Options

- Clamping jaws with cross milling, longitudinal milling or diamond coating
- Clamping jaws for universal testing machine for a clamping width of 25 mm
- Infrared temperature sensor for frequency-optimised testing (trimodal control of the universal testing machine required)

Standards

- RHV Guideline of the German Federal Aviation Authority 1991-01
Guideline for the approval of resin-fibre composite systems in the field of manufacture and maintenance of gliders and motorgliders

