



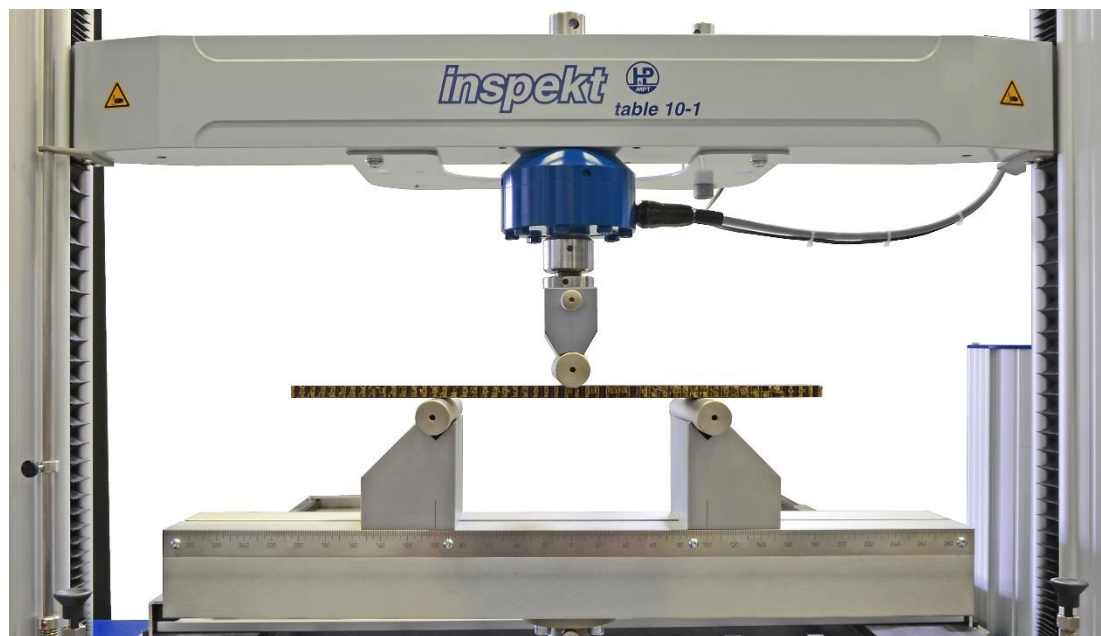
# Hegewald & Peschke

Meß- und Prüftechnik GmbH

Product information

## Bending and folding devices

for 3- and 4-point bending tests and folding tests



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### Field of application:

- Determination of material properties of brittle composites, ceramics, metals, wooden panels, rigid plastics
- Analysis of welded sheets

For the selection of a bending device, various criteria have to be considered based on the test procedures and the standard specification:

- Procedure: 3-point or 4-point bending test or folding test
- Rigid, rotatable or tiltable bending fin and supports
- Dimensions & spacing of supports and fin
- Material, hardness
- Maximum bending force
- Accuracy of deflection
- Possible risks in case of breakage

### Test methods

#### 3-point bending test

- Simple test set-up for a variety of test methods
- Especially used for elastic materials

#### Folding test

- Deformation always up to the plastic range

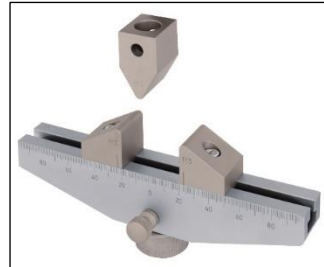
#### 4-point bending test

- Constant bending moment between both support points (shear force-free area)
- Used mainly to determine the flexural modulus of elasticity of brittle materials.

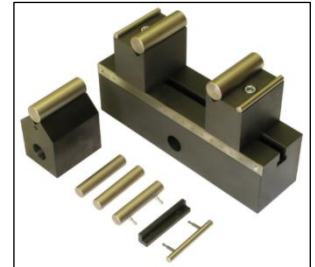
### Options for the support and bending fins:

- Bearing can be swivelled, tilted and fixed → Purpose: avoidance of transverse loads with non-symmetrical specimens
- Different bearing surfaces and radii at the bending edges

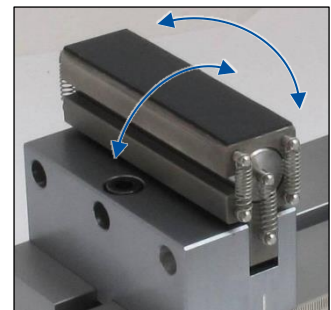
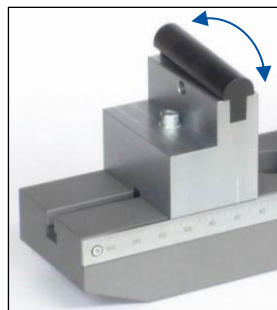
Simple version with fixed supports:



Variable support surfaces with different radii:



Tiltable supports with round or rectangular support plates:



Support with ball bearing:

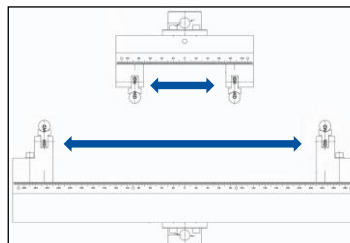


Rotatable supports:



### Support distances

- Mostly specified by test standard / specimen dimensions.
- The adjustment of the support distances is carried out either via screws or via a crank. The distances can be read off with millimetre precision using an applied scale.



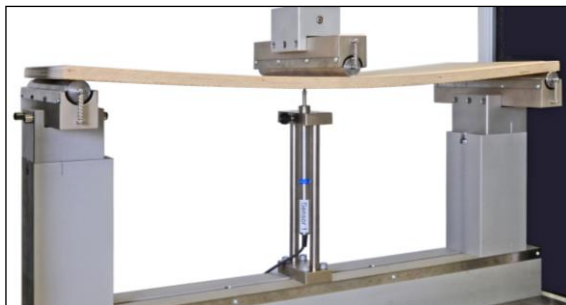
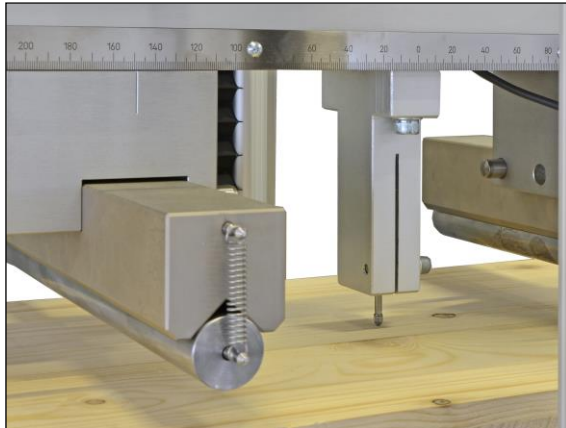


### Determination of the deflection

#### Measuring probe/control probe

- For accurate measurement of deflection

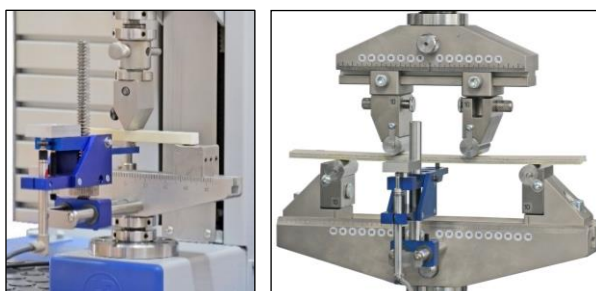
#### 1 Measuring probe from above or below:



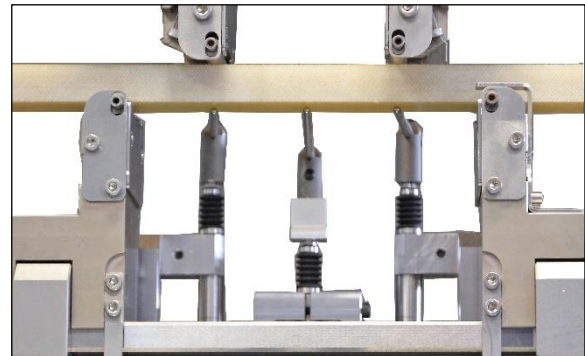
#### 2 measuring probes e.g. for tests according to DIN EN 789



#### Compensator as a holder for the measuring probes

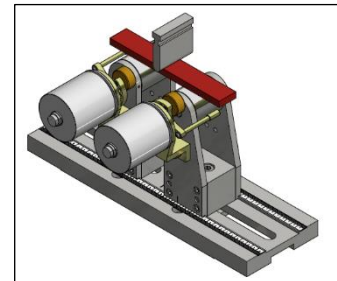


#### Magnetic measuring probes



#### Support with angle sensors

- Direct determination of the bending angle via angle sensors on both supports, e.g. according to DIN EN 12814-1



#### Protection devices

- Safety enclosure of the bending device: especially for testing ceramics



- Safety door over the entire test room





Application examples:

3-point bending test on ceramic tiles and panels according to DIN EN ISO 10545-4



4-point bending test on sandwich elements with probe according to DIN EN 14509



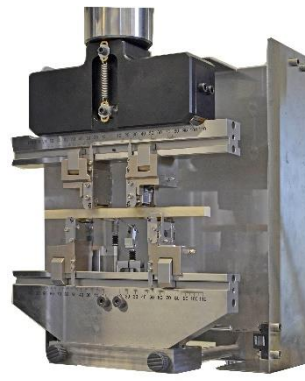
3-point folding test according to DVS 2203 Part 5



3-point bending test on wooden planks and insulating materials according to EN 12089



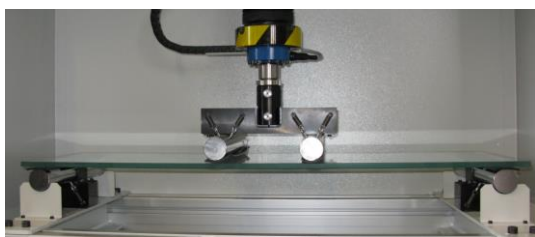
4-point bending test on ceramic high-performance materials according to EN 843-2 (method A)



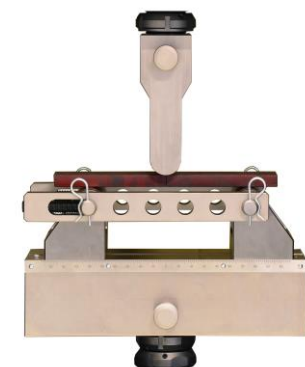
Bending device "Ball on 3 Balls" for biaxial bending tests on wafers



4-point bending test on glass according to ISO 614 and DIN EN 1288-3



3-point bending/folding device 250 kN



3-point miniature bending device for GRP/CFRP specimens acc. to DIN EN 2563



4-point bending test on wood-based materials according to EN 789  
4-point bending test on ceramics according to EN 843-2 (method A)  
4-point bending test on sandwich panels according to ASTM C393