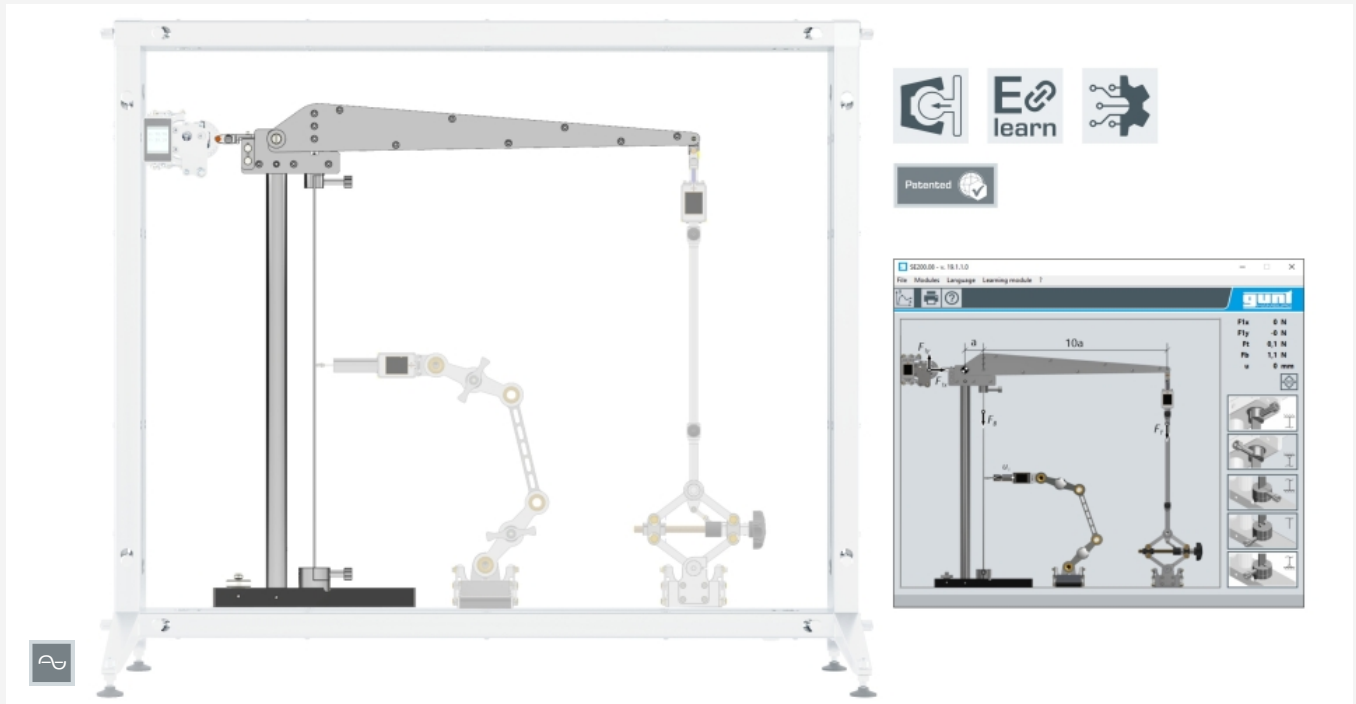


# SE 200.08

## MEC - Buckling



### Description

- **wireless setup of a buckling device together with smart, communication-enabled accessories**
- **stainless steel test bars**
- **different types of support for test bars: free, hinged and clamped**
- **click system for easy setup and reconfiguration**
- **automatic identification in GUNT software**

Columns and supports are used as load-bearing structures in buildings or machines. The design and testing of the load-bearing structures includes not only the compressive force that need to be absorbed, but also the stability. In engineering mechanics, the loss of stability is referred to as buckling.

SE 200.08, in combination with other accessories of the MEC Line, enables the smart, digitally supported experimental setup of a buckling device. The experiment contains a clamping device for the test rods with a lever mechanism. A load unit, support and distance measurement are available as smart accessories. The experimental arrangement is set up in the SE 200 mounting frame.

The stainless steel mounting frame provides direct and wireless data transmission and power supply for the smart components. The click system ensures the components easily snap into place.

The buckling behaviour of test bars is examined in the experiment under the influence of different types of support: free, hinged and clamped. The load is applied to the test bars using the SE 200.22 load unit. The measured forces and deflection are displayed both directly on the smart components and in the GUNT software as measured values. The opposing forces of the load are absorbed by a separate support. All 4 Euler cases are displayed.

The GUNT software identifies the components used and reacts dynamically to changes. The measured values are analysed in real time.

All components are clearly laid out and well protected in a storage system.

### Learning objectives/experiments

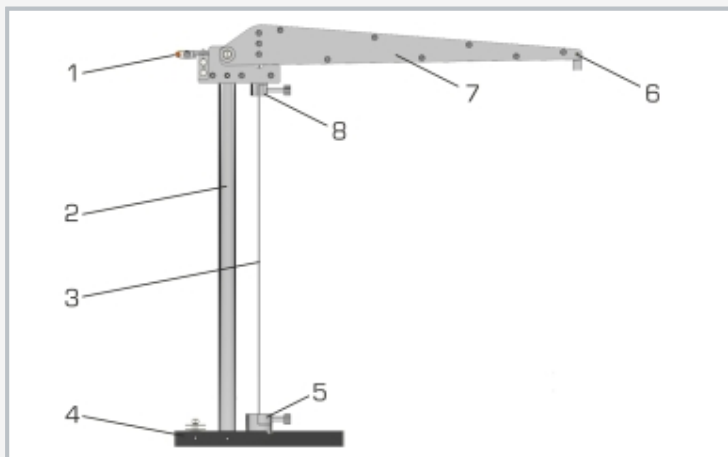
- investigation of buckling behaviour under the influence of different bearings
- verification of the Euler theory: buckling of elastic bars
- calculation of the expected buckling force using the Euler formulae
- measure force and deflection
- accessories of the modular MEC Line can be combined for any setup and extension of the experiments

GUNT Media Center, develop digital skills

- retrieve information from digital networks
- E-Learning course with fundamental knowledge and detailed presentation of the experiment procedure and engaging animations
- assured learning success through digital worksheets

# SE 200.08

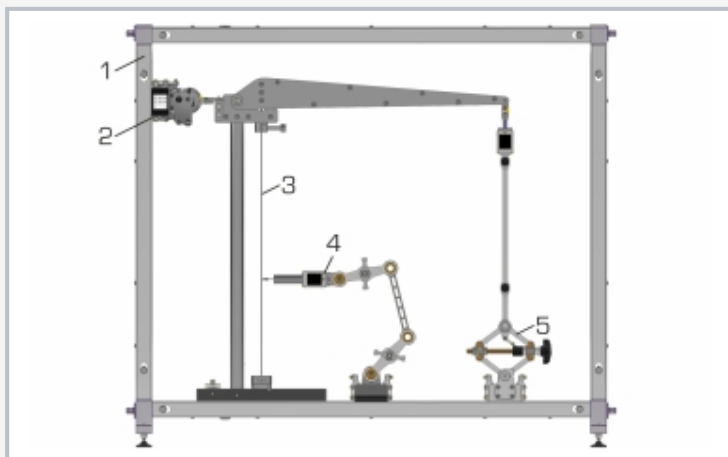
## MEC - Buckling



1 holder for support, 2 support, 3 test bar, 4 support, 5 lower holder for test bar, 6 holder for load unit, 7 lever arm, 8 upper holder for test bar



Screenshot of the GUNT software with display of measured forces and deflection



Setup example: 1 mounting frame SE 200, 2 support SE 200.21, 3 buckling device with test bar SE 200.08, 4 distance measurement SE 200.23, 5 load unit SE 200.22

### Specification

- [1] measurement of buckling forces and deflections on test bars for all 4 Euler cases
- [2] high transmission ratio for a wide range of experiments (1:11)
- [3] test bars are supported free, hinged or clamped
- [4] setup of the entire experiment arrangement in the SE 200 mounting frame
- [5] click system for simple, fast experimental setup without cabling
- [6] load unit, support and distance measurement available as accessories
- [7] automatic identification and assignment of accessories during setup and while conducting the experiment
- [8] display of measured values directly on the smart components and in the GUNT software
- [9] GUNT software via USB under Windows 11
- [10] digital multimedia teaching material online in the GUNT Media Center: E-Learning course, worksheets

### Technical data

#### Lever arm

- transmission ratio: 1:11
- maximum force: 2kN

#### Test bars

- cross-sections: 25x3mm
- material: stainless steel
- bearing: free, hinged, clamped

LxWxH: 800x600x200mm (storage system)

Weight: approx. 20kg (total)

### Required for operation

Accessories from the GUNT MEC Line series, PC with Windows recommended

### Scope of delivery

- 1 buckling device
- 1 set of test bars
- 1 GUNT software
- 1 set of instructional material
- 1 online access to the GUNT Media Center
- 1 storage system with foam inlay

## **SE 200.08**

### **MEC - Buckling**

#### Required accessories

SE 200 1x	MEC - Frame digital & smart
SE 200.21 1x	MEC - Support
SE 200.22 1x	MEC - Load unit
SE 200.23	MEC - Distance measurement