



## DIDACTIC SYSTEM FOR THE STUDY AND TRAINING IN BEAMS AND FRAMES WITH DYNAMOMETERS AND SOFTWARE DL ST033



The modular training system **DL ST33** allows users to study theoretical-practical assemblies involving beams and gates, to measure with two electronic dynamometers and to visualize the applied force values graphically on PC (not included).

Dynamometers can be used in the customer's laboratory for other educational activities.

The system uses an extremely robust 1400 x 1100 x 500 mm primary structure, which allows a weight of up to 34kg and to which the test structures are attached.

The set allows the installation of comparators, cells and pulleys for the study of loads and deformations in different test structures (flat).

The structure under test is secured with steel connectors, allowing easy disassembly with an Allen key. The beams / frames are made of polished AISI-304 stainless steel.

The beams and frames have a 200 Gpa elastic module. Initially, the system is modular and can be exchanged in activities. The system enables activities and measurements with the help of typical metrology lab instruments.

### EDUCATIONAL ACTIVITY

- Study of hardware support, fixings and their impact on measurements
- Metrological measurement practices
- Overlay study
- Deformation study of beams resting on one or two points
- Frame deformation study
- Comparison between calculated and measured deformations

The product includes the software and exercise manual.



## U + V GATE STRUCTURES

The purpose of these test structures is to study deformation in the plane under the action of applications. The equipment is supplied with two gates, one U type and one “roof” type.

The assembly has a snap-in system and a sliding pivot bracket. The recorded deformation is extracted from the system using 2 comparison clocks that are placed anywhere on the frame.

These deformations are the response of the system to different applied loads. The loading of the test frame is carried out by means of 2 load systems with weights, the maximum load of which is 12 kg, with different mass weights from 0.5 to 2.5 kg.

## BEAM STRUCTURE

The purpose of this test structure is to study the deformation in a plane of continuous beams under the action of loads. The assembly has an insert system and sliding articulated supports, with dynamometer.

The recorded deformation is extracted from the system by means of 3 dial gauges which can be placed at any point on the beam. These deformations are the response of the system to different applied loads. The loading of the test frame is achieved by means of 2 load systems with weights, whose maximum load is 12 kg, the weights are of different masses, from 0.5 to 2.5 kg. The equipment is supplied with 2 beams of different sections, i.e. 20x5mm and 20x3mm.

## DYNAMOMETRIC METERS

The system is accompanied by two dynamometric gauges that allow the application of precise stresses with a measured value.

Both dynamometers have a USB port and both can be connected to two USB ports on a non-supplied laptop.

The supplied acquisition software allows you to view both channels and view graphs.

Each dynamometer can also be used in other laboratory applications.

### Main elements provided

- a) Tin plated bronze weights
  - 3 x 2.5 kg
  - 3 x 1.0 kg
  - 2 x 0.5 kg
- b) 4 x steel hooks
- c) Fasteners
- d) Adjust items
- e) 1 meter, 200 mm and 500 mm steel cables
- f) Cable ties for placing loads
- g) Sliding dynamometric support (two pieces)
- h) Three dial indicators