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Units
7.-Mechanics & Materials

DESCRIPTION

This unit has been designed to enable the students to observe and study the following phenomena in simple supported beams and cantilever beams:

- Relation between the deflections and the applied loads.
- Effect of the length and the cross section on the beam behaviour. Ex: deflection load ratio.

The "MFV" unit consists of an aluminium and stainless steel structure for carry out experiment with metal beams up to a length of 1 m. Three beams with different cross section are supplied.

The structure makes it easy to study cantilevers holding the beam by one end, or beams simply supported on two points. The MFV unit gives us the possibility of modifying the position of the supporting and holding points.

It has a graduated ruler fixed on the structure that allows to obtain measures easily in different points of the beam.

The weights will be hung from hooks included in the device, in order to apply the load on any point in the beam.



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SPECIFICATIONS

Bench-top unit.

Structure of anodized aluminium and stainless steel.

Metallic guide with a graduated ruler for positioning the different supports.

2 Stainless steel simple supports.

1 Stainless steel cantilever support.

Dial gauge 0-25 mm range and 0.01 accuracy.

It allows experimentation with beams up to 1000 mm length for their study.

Three test beams with different cross sections and 1 m. of length are supplied.

The unit allows test as:

- cantilever beam simple.
- beam with a cantilever support fixed end and a simple support in the other end.
- beams with two simple supported points.

Adjustable legs for balancing the unit.

In order to carry out some of the practices with MFV unit, 2 set of weights "C type" are required. (See required accessories).

Manuals: This unit is supplied with the following manuals: Required services, Assembly and Installation, Starting-up, Security, Maintenance and Practices manual.

EXERCISES AND PRACTICAL POSSIBILITIES

Some Practical Possibilities of the Unit:

- 1.- Study the characteristics of simply-supported and cantilever beams.
- 2.- Determination of the relationship between applied load and deflection.
- 3.- Beam supported on its two ends with a central loading point.
- 4.- Study of the variation of length in deflection.
- 5.- The effect the beam's length has on a centrally loaded beam supported by its two ends.
- 6.- The effect of the cross-section of deflection.
- 7.- The effect the beam's section on a centrally loaded beam supported on its two ends.
- 8.- Cantilever beam with a load on one of its ends.
- 9.- The effect the beam's length has on a cantilever with a load on one of its ends.
- 10.- The effect of a cross-section in a cantilever with a load on one of its ends.
- 11.- Beam supported by two points and subjected to a momentum of uniform bending.
- 12.- Study of bending, application of loads at distinct points with fixed or free ends.

DIMENSIONES Y PESOS

-Dimensions: 1200 x 400 x 400 mm. approx. -Weight: 20 Kg. approx.

REQUIRED ACCESSORIES

- 2 set of weights "C type" (set C).

Each "C type" set is composed of:

- 1 support hook.
- 1 weight of 100 gr.
- 2 weights of 200 gr.
- 2 weights of 500 gr.
- 6 weights of 1000 gr.

*Specifications subject to change without previous notice, due to the convenience of improvements of the product.



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