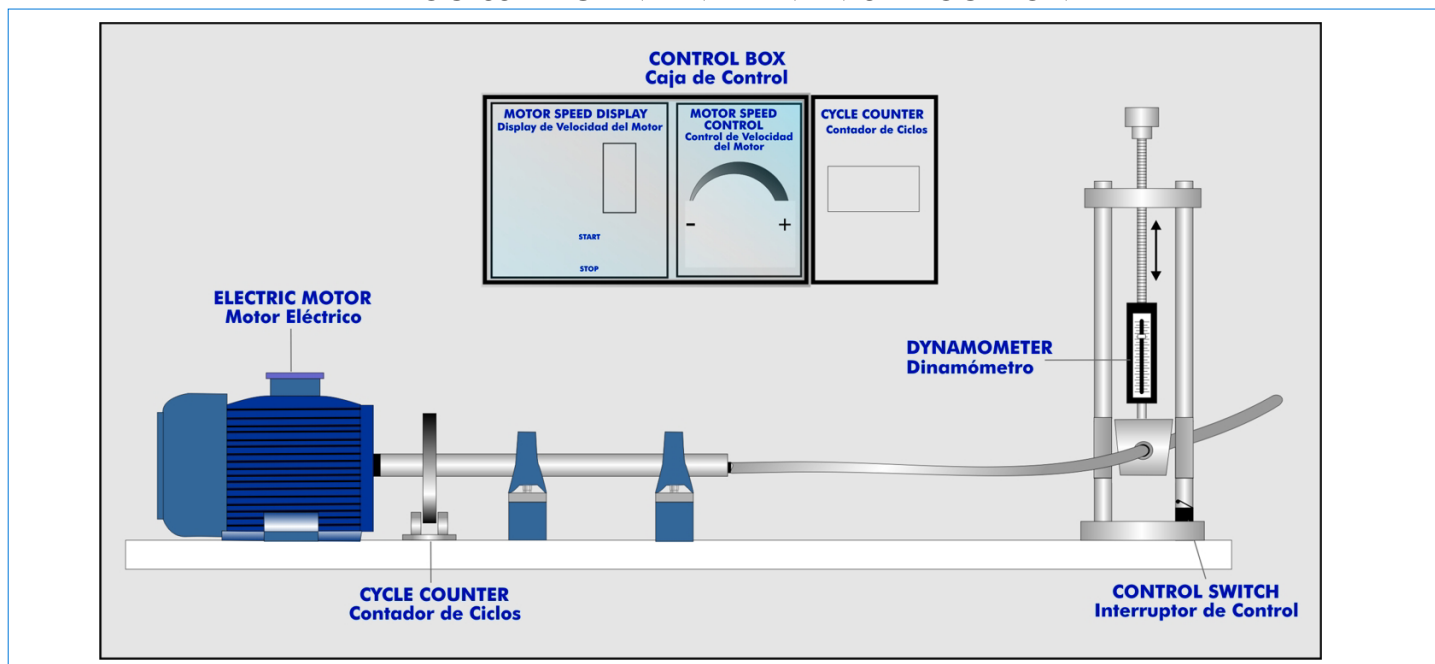




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Units
7.-Mechanics & Materials

PROCESS DIAGRAM AND ELEMENTS ALLOCATION



DESCRIPTION

With this unit, it is possible to determine the basic principles of the fatigue strength testing.

On the lower panel of the unit, it is fixed an electric motor which axis is joined to an end of the test specimen (test bar) by means of a coupling. As well, this axis has a coupled disc, which by means a device will count the number of turns of the motor.

On the panel's right side, it is placed the system with which the test specimen is loaded. This system is composed by a spring balance, which is joined to a threaded spindle by its upper end, while on its lower side, it is joined to an articulated guided system, in which it is held the right side of the test specimen. When turning the threaded spindle clockwise, we transmit a vertical force upwards to the test specimen. The applied force can be directly measured using the spring balance.

In order to guarantee the force verticality, the system has two guides to avoid horizontal displacements during the transmission of stress. Likewise, in order to assure the constant application of the load, besides of allowing the test specimen rotation on its axial axis, the system also permits the alignment of the coupling with the test specimen, due to the deformity suffered by bending.

Both the area where the test specimen is located and the motor axis outcome are covered with a protection cover, without it the unit does not work, since it is provided with a safety system to avoid accidents.

On the upper panel, the unit control box is mounted, containing: the main (on/off) switch of the unit; the cycle counter that shows us the quantity of turns the motor's axis carries out; the motor's speed control that permits us increase or diminish the turning speed of the electric motor; the motor speed display that shows us the frequency in Hz, which is being transmitted to the motor at every moment; and the on/off switch of the electric motor.

SPECIFICATIONS

Bench-top unit for fatigue strength testing.

Anodized aluminium structure and panels in painted steel (epoxy paint).

Diagram in the front panel with similar distribution to the elements in the real unit.

Electrical motor of 0.37 kW, maximum speed: 1500 rpm.

Metallic protective covers, one for the motor axis zone, and other for the test specimen zone, with safety protection system to avoid accidents.

Test specimens (test bars):

- 2 Stainless steel AISI 304L cylindrical test specimens.**
- 6 Stainless steel AISI 304L cylindrical test specimens, with different notches.**
- 2 Carbon steel F-1 cylindrical test specimens.**
- 6 Carbon steel F-1 cylindrical test specimens, with different notches.**
- 2 Steel F-212 cylindrical test specimens.**
- 6 Steel F-212 cylindrical test specimens, with different notches.**

Loading device with spring balance (0-300 N) and adjustment using threaded spindle with hand wheel.

Loading via moveable plain bearing. Automatic shut down on specimen fracture by stop switch integrated into the bearing.

Control box, including:

- On/Off Main switch of the Unit.**
- On/Off Switch of the electric motor.**
- Cycle counter, with digital display.**
- Motor speed controller.**
- Motor speed digital display.**

Cables and accessories, for normal operation.

Manuals:

This unit is supplied **with the following manuals:** Required Services, Assembly and Installation, Starting-up, Safety, Maintenance & Practices Manuals.

EXERCISES AND PRACTICAL POSSIBILITIES

Some Practical Possibilities of the Unit:

- 1.- Determination of the basic principles of fatigue strength testing.
- 2.- Influence of the type of material on fatigue strength.
- 3.- Determination of the influence of notching and surface finish on fatigue strength.
- 4.- Influence of different curvature radio and surface finish on fatigue strength.
- 5.- Influence of the section on fatigue strength.
- 6.- Fatigue strength of specimens (bars) subject to cyclic bending load.
- 7.- Preparation of a stress-number (S-N) diagram.

REQUIRED SERVICES

- Electrical supply: single phase, 220V./50Hz or 110V./60Hz.

DIMENSIONS & WEIGHT

- Dimensions: 1000 x 600 x 600 mm. approx.
- Weight : 50 Kg. approx.

AVAILABLE VERSIONS

- EEF. **Fatigue Testing Unit.**

Offered in this catalogue:

- EEFC. **Computer Controlled Fatigue Testing Unit.**

Offered in other catalogue:

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



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