

HYDRAULIC MACHINES Serie HM

Hydraulic machine for testing of Traction, Compression and Flexion



Fig. 1 – Hydraulic Machine HM-600

The hydraulic machines Series HM consist of a frame with tensile, compression, (optional flexion) equipment for metal test tubes, electro hydraulic version with double effect piston and special dimensions that reach a capacity between the grips up to 950 mm.

This is because the frame is made with a system of approach between the clamps by means of two small spindles which allow to move motorized and simultaneously the superior crosspiece and the hydraulic cylinder to obtain a suitable initial separation for the tensile test or to approach to the bottom of the zone for compression and flexion.

HM Models are machines for motorized drive test, having a hydraulic group integrated in the control case for obtaining the force and the necessary speed to accomplishment the tests.

The electronic measurement is integrated in a case including the computer, the screen, and the printer, as well the electronic model CPC.

The electronic case is connected with the receivers of the machine and the electronic control system, by means of several connections.

This electronics serve to capture the signals of the force and movement receivers and also to control the speed of the test. These machines are made for 400kN up to 2,000 kN.

Optional we can provide as well different extension meter for these machines, for precise determination of the elastic limits of metals.



EXTENSOMETER (Capturing of Deformations) EXT-502/ EXT-1002 for precise measurement of elastic limits according the norms in metallic test tubes of tensile, as well as for the measurement of the Elastic Module E of metals.

Series HM machine contains:

- § Frame DI-V2
- § Hydraulic drive for the tensile grips with push-button controls and independent pressure controller
- § Hydraulic Group with Servo-valve Moog
- § Electronic extensometer, ref. EXM-502: = 50 mm, dL = 2.5 mm, (2.5 %) for precise measurement of elastical metal limits (Rp0.2, Rp0.1, Rp1, etc.)
- § Control and process of data by computer (CPC) software under Windows of the test machine control. Includes the program for metal testing, card interface, wiring, calibrated and instruction personalised for each user.
- § Compatible computer + inkjet HP: installed in the control and measurement box.

The frame DI-V2 has the following advantages compared to the classic frames with these capacities:

- § Lower grip fixed and at low altitude
- § System of approach by two small spindle column
- § No need for an hole below the machine
- § Test zones for testing are made between 900 and 1800 mm from the floor
- § The compression zone can remain at a working height between 1400 mm and 1700 mm
- § The machine can remain in a minimum height of 2900 mm. which facilitates transport and its transfer before Start-up.

The computer control is a closed loop of different parameters from the test (force, displacement and deformation) and allows testing with constant increase of any of these physical parameters.

The structuring of the control specifications in various steps (up to 10) facilitates the user the generation of simple or complex control specifications, enabling to interlace several steps to obtain repetitive sequences of tests.

The program also allows to establish a control that allows even to modify the speeds and limits of the specifications during the same test. The data generated by the tests can be consulted in different references or formats for other programs or data bases (ACCESS compatible), allowing the same user to convert the results in special reports, consultations, statistics, etc..

| Technical data Series HM | | | |
|---------------------------|----------------------|--------------|-------------|
| Model | HM-400 / HM-600 | HM-1000 | HM-2000 |
| Capacity | 400-600 kN | 1000kN | 2000kN |
| Piston stroke | 300 mm | 300 mm | 300 mm |
| Test speed | 0-120 mm/min | 0-100 mm/min | 0-75 mm/min |
| Drive | Hydraulic-electrical | | |
| Control | Automatic (PC) | | |
| Approximation | | | |
| Maximum Crosshead Travel | 650 mm | 900 mm | 900 mm |
| Drive | motor | | |
| Testing Speed | 250 mm/min | | 100 mm /min |
| Tensile Zone | | | |
| Clearance between columns | 545 mm | 675 mm | 890 mm |
| Between clamps | 50-950 mm | 50-1200 mm | 50-1200 mm |
| Compresión Zone | | | |
| Clearance between columns | 348 mm | 442 mm | 500 mm |
| Between plates | 0-320 mm | | 0-320 mm |



Fig. 2 – Hydraulic Machine HM-1000



Fig. 3 – Hydraulic Machine HM-2000

CONTROL SYSTEM AND CPC MEASUREMENT

Containing:

- Control: CV-PC
- Hardware: PC + Printer
- Software

The CV-PC control allows a manual control of the test speed and as well facilitates control from the PC (in option)

Incorporated in the framework:

- Control Panel with button controlled CV-PC
- Digital visualizer of speed (199.9/19.99 mm/min)
- Potentiometer speed selector (manual control)

Internally incorporated as well:

- PIC controller of digital input/output, relay, etc.
- Overscale detector (connected to a force signal)

HARDWARE

- PC Pentium IV 2600 (o better)
 - § 256 MB DDR RAM y 40 Gb. Hard Drive
 - § Monitor 15 " COLOR TFT
 - § CD-R/RW
 - § Network card 10/100 Mbps
 - § Serial port, paralell port
 - § Keyboard and Microsoft compatible mouse
 - § WINDOWS XP Professional
- Printer HP DESKJET 5100 USB

