

Concrete Advanced Testing

50

MCC, MULTIFUNCTIONAL COMPUTERISED CONTROL CONSOLE



MCC advanced servo hydraulic control console for static and low frequency dynamic test on building materials shown complete with PC and PC cabinet

General Description

Automatic hydraulic systems for static and low frequency dynamic tests on building materials under control of Load/Stress, Displacement, Strain.

Ideal both for **traditional tests**, such as compression and flexure on concrete, cement, mortar, blocks etc. and cyclic tests for the determination of **secant elastic modulus (E) (MCC Classic)**, and also for measuring, for example, the **ductility and fracture energy** of concrete reinforced with fibres (**FRP**) and lined with polymers (**FRP**), or the toughness of sprayed concrete slabs (**shotcrete**) under concentrated load tests (**MCC Multitest**). The console is connectable to up to four test frames.

Two versions available:

MCC Classic 50-C8422/C for the automatic execution of compression, flexure, indirect tensile tests and determination of Elastic Modulus and

MCC Multitest 50-C8422/M for the same performances of MCC Classic plus tests under Displacement and Strain control.

Main Features

- Completely automatic execution of Compression, Flexure and Indirect tensile tests as well as test cycles to determine the ELASTIC MODULUS
- MCC Multitest version also suitable for tests under displacement and strain control.
- Can control up to 2 test frames extendable to 4 with the suitable upgrade
- Dual control system through PC and keyboard display
- Multi-language software with facility to introduce user defined text (Latin alphabet only)



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50

MCC8 MULTIFUNCTIONAL COMPUTERISED CONTROL CONSOLE contd.

Technical Specifications

Hydraulic group

Dual stage pump, 700 bar max. pressure, 2 hydraulic outputs extendable to 4 with the accessories 50-C7022/UP1 and / UP2 (See Upgrading Options), Servo-control system for load control with proportional valve.

Hardware and on board firmware

- Resolution 132000 divisions, Closed loop control with high frequency PID.
- 4 channels for deformation sensors used in Elastic Modulus determination (normally strain gauges or digital compressometers).
- Diagnostic menu to identify possible problems
- Saving of calibration curves of the different sensors
- Digital linearity of calibration curves with automatic selection of coefficients

User interface

The system is controlled via the PC. An alphanumerical keyboard and an icon driven display are also provided for factory settings and use of unit in local mode.

- Graphical display 320x240 pixel

Software

Designed for the remote control of the machine all over the test conforming to the reference Standards. Allows selection of the active frame.

The **MCC Classic** version permits the execution, using the appropriate testing frame and accessories, of the following tests and relevant Standards:

- **Compression test:** EN 12390-3, EN 196, ASTM C39, ASTM C109, ASTM C349, AASHTO T22
- **Flexural test:** EN 1339, EN 1340, EN 12390-5, ASTM C78, ASTM C293, AASHTO T97
- **Splitting tensile test:** EN 1338, EN 12390-6, ASTM C496
- **Elastic Modulus of concrete:** ASTM C469, ISO 6784, DIN 1048, BS 1881:121, UNI 6556,

EN 12390-xx, EN 13412, EN 13286:43

The **Datamanager software** features:

Automatic execution of compression, flexural and splitting tensile tests on concrete and building materials. See [Data manager PC software](#).

The **E-Module software** features:

Automatic execution of tests for the determination of the Elastic Modulus. Fully customizable program, permits the configuration of load cycles conforming to the various Standards with high accuracy of measurements.

The **MCC Multitest** version, further to the above, permits the execution, using the appropriate testing frame and accessories, of the following tests and relevant Standards:

- **Toughness of fiber reinforced concrete (FRC):** ASTM C1550
- **Energy absorption of sprayed concrete:** EN 14488-5, UNI 10834
- **Flexural strength of Shotcrete:** EN 14488-3
- **Flexural strength of fiber reinforced concrete (FRC):** EN 14641, ASTM C1609, C1018

The **Multitest software** features:

Automatic execution of fully customized tests under load/stress, displacement strain rate control which are for materials such as fiber reinforced concrete (FRC), Shotcrete, concrete elements lined with polymeric membranes, structural reinforcement elements. It is also possible to program sequence of steps with different feed-back parameters. All test parameters can be easily modified to meet the Standards requirements.

MCC Upgrading options

Connection to 3rd or 4th frame

50-C7022/UP1

Upgrading of the MCC Classic and Multitest control consoles for the connection of a third frame.

50-C7022/UP2

Upgrading of the MCC Classic and Multitest control consoles for the connection of a third and fourth frame.

