

Advanced Concrete Testing

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ADVANTEST 9

Servo-hydraulic control console

The **CONTROLS Advantest 9** is a servo-hydraulic system 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., The Advantest 9 performs cyclic tests for the determination of **secant elastic modulus (E)** according to all relevant international standards, as well as measuring, for example, the **ductility and fracture energy** of concrete reinforced with fibres (**FRC**) and lined with polymers (**FRP**), or the toughness of sprayed concrete slabs (shotcrete) under concentrated load tests.

This system provides high flexibility, allowing accurate oil flow and pressure control from 2 to 700 bar.



MAIN FEATURES:

- **Performance:** user defined test procedures which can be easily performed under load, specific load, displacement and strain control.
- **Flexibility:** possibility to connect up to 4 different frames from 15 to 5000 kN load capacity, easily selectable by the user friendly software.
- **Accuracy and reliability:** long life system due, essentially, to the advanced electronic, efficiency of closed loop system, P.I.D. control adapted to the test and very high resolution.
- **Interactive software:** To perform: Remote control of the system; Monitoring and display of all test data and parameter either in graphic or numerical format; File management by building materials, tests, specifications, clients etc.; Print of standard or customised test certificate; Real time variation of the setting including the control method (load, displacement or strain); User-friendly interface.
- **Extra channels:** in addition to the four channels used for the connection of up to four separate test frames, an extra four channels are provided for connection to the displacement transducers, pressure transducers, load cells, strain gauges or similar sensors, which can be configured by the user conforming to the test requirement on a case by case basis.



53 Granite Street, GEEBUNG, QLD, 4034, Australia | P.O. Box 124, VIRGINIA, QLD 4014, Australia

Ph.: +61 (0)7 3265 4952 | Fax: +61 (0)7 3265 2713 | Email: sales@geo-con.com.au | Web: www.geo-con.com.au

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TECHNICAL SPECIFICATIONS

Hydraulic group

- Max. working pressure: 700 bar
- Max. oil delivery: 2 lpm at low pressure, 0,7 lpm at high pressure
- Hydraulic ports for connection of test frames: 4
- Oil flow control via servo-controlled proportional valve
- Oil cooling system with forced ventilation
- 4 ON/OFF valves with electronic control

Hardware and on board firmware

- Maximum resolution: 1/524,000 divisions
- 8 input channels: 4 for load sensors (load cells or pressure transducers); 4 for displacement transducers (potentiometric, LVDT amplified or analogical) and deformation transducers (clip gauge, strain gauges). The configuration can be altered by the user to specific needs except the 4 load sensors
- Electrical characteristics of the channel conditioners: Feed from 0,5 to 10 V dc calibrated by firmware; single/dual ended input with automatic recognition; Input signal from -2.5 to +2.5 V dc; Zero and gain adjustable via software.
- Data acquisition synchronized on all channels
- 8 analogical outputs corresponding to each channel for possible use of external data acquisition system
- Test execution with control of: Load/specific load, Displacement, Strain
- The test can be controlled by each one of the 8 channels
- Diagnostic system to detect possible malfunction of the system including low oil level and dirty oil filter.
- 320x240 pixel display
- Storage of multiple calibration curves for immediate connection of various sensors.
- Low frequency Dynamic tests: execution of user set tests with max. frequency 0.1 Hz. (depending on the wave amplitude) sample

PC and software

- PC and printer of latest generation
- Software modules: Performs the remote control of the system. Manages the graphical and numerical display of the data including the overlay of various curves on the same axis (e.g. 3 different deformation curves with respect to a single time axis). Free unlimited programmable load/stress on displacement/strain cycles, sequences of romps, test procedures. Print out of test reports. Real time variation of all test parameters during the test, including the change of the channels and/or control variable.

