

ADVANTEST 9, Servo-hydraulic control console

THE ADVANCED SYSTEM FOR RESEARCH LABORATORIES OF BUILDING MATERIALS

ADVANTEST9

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 testing 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.

GENERAL DESCRIPTION

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. and cyclic tests for the determination of **secant elastic modulus (E)** according to all relevant international standards, and also for 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. The console is connectable to up to four test frames.

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 gage, strain gages)

- The configuration can be altered by the user to specific needs except the 4 load sensors
- o 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.
- o Data acquisition synchronized on all channels
- o 8 analogical outputs corresponding to each channel for possible use of external data acquisition system
- o Test execution with control of:
 - Load/specific load
 - Displacement
 - Strain

The test can be controlled by each one of the 8 channels

- o Diagnostic system to detect possible malfunction of the system including low oil level and dirty oil filter.
- o 320x240 pixel display
- o Storage of multiple calibration curves for immediate connection of various sensors.
- o Low frequency Dynamic tests: execution of user set tests with max. frequency 0.1 Hz. (depending on the wave amplitude) sample

PC and software

- o PC and printer of latest generation included
- o 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 ramps, 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
 - Language selection: English, French, Spanish, Italian, plus another language which can be input by the user by overwriting messages of the desired language.

Physical specifications

- o Power rating 750 W
- o Voltage: 230V, 50 Hz, 1 ph (Model 50-C9842), 230 V, 60 Hz, 1 ph (Model 50-C9843) and 110 V, 60 Hz, 1 ph (Model 50-C9844)
- o Dimensions (lxwxh): 470x410x1000 mm
- o Weight approx.: 120 kg, excluding PC and printer

ORDERING INFO

50-C9842

Advantest 9, Servo-hydraulic unit for controlling up to four test frames for compression, flexure and indirect tensile tests with load, displacement and deformation control. Complete with PC, printer and software. 230 V, 50 Hz, 1 ph.

50-C9843

Advantest 9, Servo-hydraulic unit for controlling up to four test frames for compression, flexure and indirect tensile tests with load, displacement and deformation control. Complete with PC, printer and software. 220 V, 60 Hz, 1 ph.

50-C9844

Advantest 9, Servo-hydraulic unit for controlling up to four test frames for compression, flexure and indirect tensile tests with load, displacement and deformation control. Complete with PC, printer and software. 110 V, 60 Hz, 1 ph.

ACCESSORIES

ACCESSORIES FOR ELASTIC MODULUS AND ADVANCED TESTS

Compressometer-Extensometer for Elastic Modulus determination

Strain gauges

Axial-circumferential compression device

Measurement of beam deflection and toughness

Displacement transducer for measurement of crack opening

Energy absorption test on slabs

ADDITIONAL INFORMATION

FLEXURE TEST ON FIBRE REINFORCED CONCRETE (FRC) AND SHOTCRETE. See Testing Fiber Reinforced Concrete and Shotcrete accessories.

ROCK TESTING: mechanical behavior under uniaxial and triaxial conditions. See Automatic uniaxial and triaxial Test system.



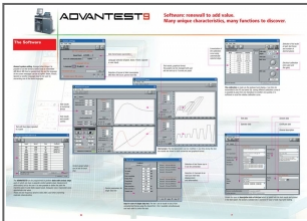
ADVANTEST 9, Servo-hydraulic control console model 50-C9842 with PC cabinet code 86-D2999



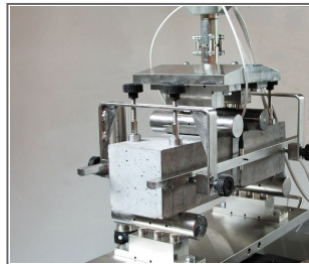
Typical configuration with 4 frames for compression and flexure test on concrete and cement



ADVANTEST & SERCOMP ROCK, Configuration for Uniaxial and Triaxial tests on rocks cores



Examples of software screens



FRC beam with auxiliary frame 50-C1200/5



Concrete beam subjected to flexure loading with measurement of crack opening



Concrete beams subjected to flexure loading



300 kN flexural frame model 50-C1601/FR fitted with auxiliary testing frame code 50-C1200/5 for measuring the beams deflection.



300 kN flexural frame model 50-C1601/FR fitted with lower support frame suitable for circular slabs, conforming to ASTM standard



Uniaxial test on cataclastic sample

Array