

MODEL MES

Compression Testing Machines up to 8 MN



**Concrete specimens, rocks, cements and building materials tests
between 1500 kN and 8000 kN.**

Model MES. Description

The main purpose of this model is to test concrete specimens, rocks, cements and building materials between 1500 kN and 8000 kN.

They are built under Standard ISO-EN 12390-4 requirements, meeting ISO-EN 7500-1 Class 1 accuracy.

They have an excellent robustness, a high stiffness and an easy location.

Models MES series AF have a fixed distance between compression platens (standard 330 mm). They can incorporate spacer plates to change the height.

Models MES series AV have a variable distance between compression platens (standard from 0 to 400 mm). The upper platen is on a spherical ball joint for improved alignment and to ensure even pressure across the entire surface of the specimen.

Side columns are grinded and hard-chrome covered to avoid oxidation.

It includes a safety enclosure to protect the user against flying particles. It is available with metallic or methacrylate panels, depending on the material to test.

It is possible to assemble flexure fixtures.

Computer controlled through PCD2K testing software. Control station can be installed into a 19" industrial rack, or on a working table.

Additionally it is possible to incorporate a manual control system, without using the PC.



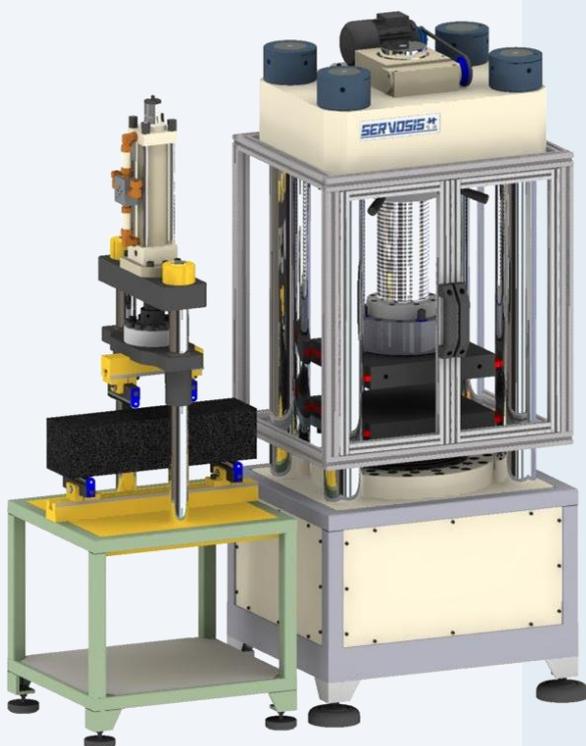
MES machines can be equipped with a simple or a double acting actuator.

The simple acting actuator is controlled by a proportional valve, suitable for uniaxial compression tests in most cases.

The double acting actuator is controlled by a servovalve, and incorporates a displacement transducer and double pressure transducer. This system gives the machine a high precision control, which is essential for certain types of tests, such as module calculation.

It is also possible to close the loop by force or displacement, which makes MES machines with double action actuator an improved alternative to the classic compression testers.

All MES machines are prepared to connect a second extra testing frame for flexure tests of prismatic specimens. Both hydraulic and control system are ready to control the second testing frame.



Model MES. Rock mechanics

One of the specific purposes of MES machines is rock tests, being necessary to acquire some specific fixtures:

Hoek cell: For **triaxial** tests under ISO-EN 22-950-92.

Measuring module with strain gauges: Analog electronic unit for a direct measure with strain gauges on specimen, for Poisson's ratio. The standard module is for 4 channels, expandable to 8 channels.

Measuring module with deflectometers for axial strain measurement and modulus calculation.

HOEK CELL



Triaxial test requires the application of lateral pressure on the specimen.

Our system can generate this pressure by means of water or oil.

It is a multi-actuator system, where the lateral pressure and the axial load are servocontrolled parameters.

Unlike other systems, the lateral pressure in this case is a servo controlled channel more in the software, treated in the same way as the axial force or the displacement, for example. This means that there is a Servocontrol and a PID adjustment on this measurement, and it is not about applying theoretical values by steps. The user can control, generate ramps at a required speed, cyclical functions, step type, etc.

The accuracy and exactitude in the control of this channel increases notably in comparison with open loop pressures application systems.

Lateral pressure is applied inside the Hoek cell., that is composed by:

- Cell body.
- 2 threaded caps.
- Axial loading body, with spherical seat.
- Rubber or latex membrane.



During the test, the lateral pressure application can be constant or increase as the axial force increases, depending on the test method chosen.

The user has complete control of the machine, being able to choose the most appropriate method in each moment.

Model MES. Rock mechanics

MEASURING ANALOG MODULE Measure with strain gauges

Strain gauges attached to the specimen are used to measure axial and diametral strains occurred during the triaxial test.

Usually the test is performed using 4 gauges, 2 for axial strain and 2 for diametral strain.

MES machines can incorporate measuring systems for these tests, and obtain Poisson's ratio.

The equipment includes signal conditioning electronics for wheatstone bridge.



MEASURING ANALOG MODULE Measure with deflectometers

When the test does not require the use of strain gauges, you can use a direct strain measure on the specimen, by using deflectometers.

The deflectometers can be mounted in a specific supporting fixture, or in contact with the compression platens. They offer a direct measure for modulus calculations, axial strains, etc.

MES machines can incorporate analog modules for deflectometers or any other type of extensometer signal reading.



Model MES. Description

	MES 150t	MES 200t	MES 250t	MES 300t	MES 500t	MES 800t
Number of columns	2	4	4	4	4	
Actuator stroke (mm)	100 (any other can be manufactured upon request)					
Compression platens diameter (mm)	305 or 300x300 square			400 or 400x400 square		
Max axial distance between platens (mm)	330 (VERSION AF) // Adjustable from 0 to 400 (VERSION AV)					
Lateral distance between columns (mm)	330	370	370	410	450	500
Analog output (V)	± 10VDC in Force, Displacement and Strain.					
Control rack measures (mm)	700*900*1900 (width, depth, heigh)					

Options:

Simple / double acting actuator.

Safety enclosure with metallic / methacrylate panels.

Manual / authomatic switching.

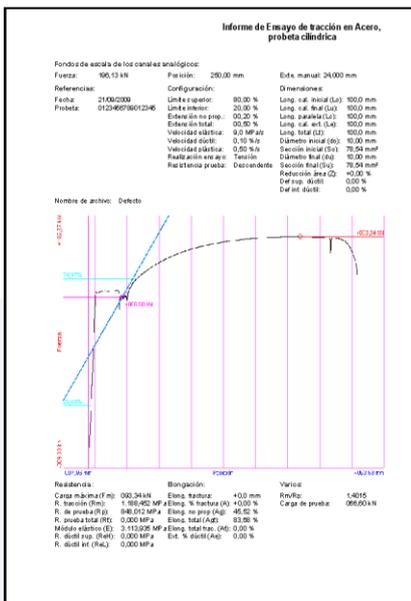
Extra flexure testing frame.



Model MES. Control software

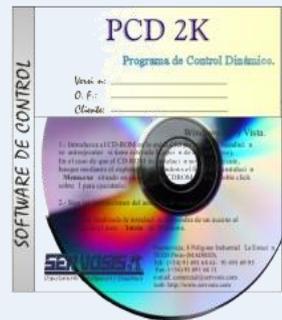


Test window



Test report.

Customized with your logo.



The machine is controlled by PCD2K test software, where the user has different ways of managing:

The **general purpose**, where you can have the maximum possibilities in test performance. The customer can set up a custom test, and obtain the intended data.

The **custom test windows under Standard**, which brings together in a single window only the necessary elements for a specific test. All necessary calculations required by the Standard are directly obtained.

You can have as many Standard windows as you need in the same machine, with the only limit being the force and speed capacity of the test frame, or the hydraulic power supply.

You will have a test report with the Standard reference, required calculations and test results, data and graphics.



Model MES. Control software Test window for rock mechanics

PCD2K control and analysis software can include an extensive list of Standardized test windows, as following:

ISO-EN 22950-1, Uniaxial compressive strength.

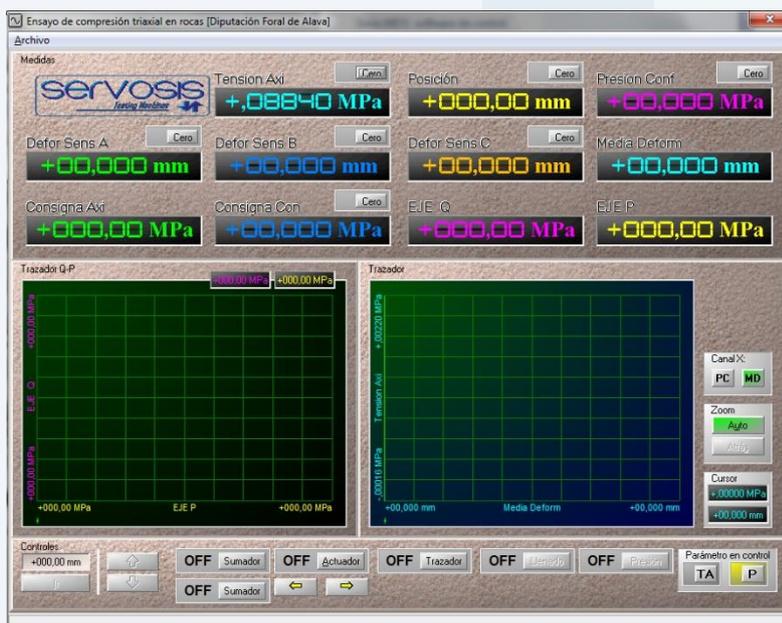
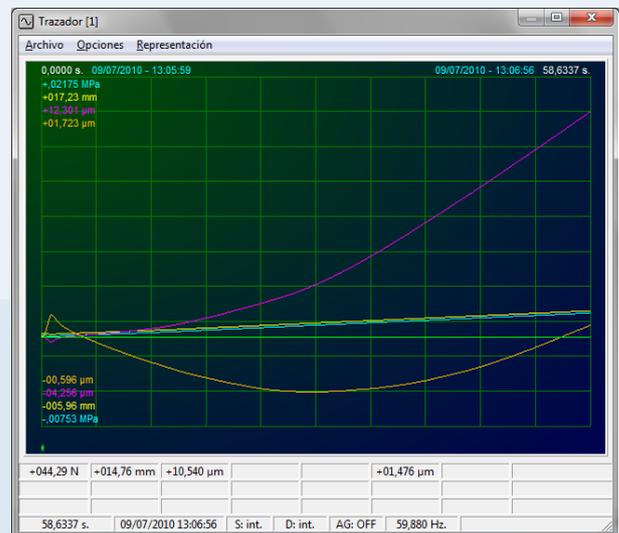
ISO-EN 22950-2, Tensile strength, indirect determination (Brazilian test).

ISO-EN 22950-3, Modulus of elasticity (Young) and Poissons's ratio.

ISO-EN 22950-4, Triaxial compression strength.

ISO-EN 22950-5, Point load test.

Any ISO or ASTM Standard can be developed to bring together in a single window all required calculations, and report the required results and graphics by clicking in "Test report".





www.servosis.com

[comercial@ servosis.com](mailto:comercial@servosis.com)

+ 34 91 691 68 61