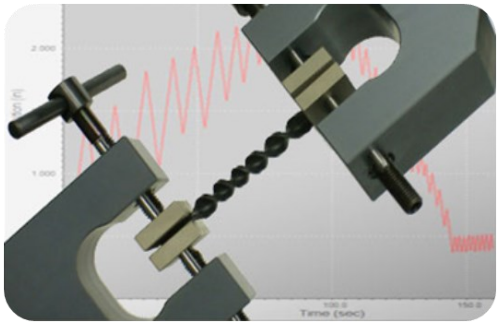
SM 1000
MATERIAL SCIENCE



SM 1000
Universal testing machine -100KN

PHT 3500
Digital Hardness Tester

PT 1013L
Electric Furnace

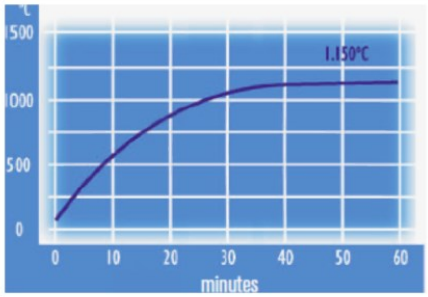
The SM-1000 laboratory introduces the student to **Materials Testing and Properties** range including the high-quality, robust construction of the equipment which makes it ideal for the laboratory environment. It provides **long-term performance and reliability** to give dependable, accurate results every time from basic to advanced level.

The laboratory deals with the **destructive materials testing in various modes** including bending, tension, creep and toughness.
All the equipment is specifically designed for the educational environment but reflects real world standards and practice. Stress and strain analysis is covered by a comprehensive set of standard classical textbook experiments, as well as equipment and resources to support student project work for strain and stress measurement.

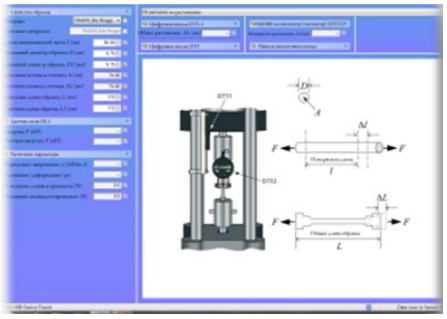
The range, at its most basic level, introduces students to the **underlying principles of Hooke's law, Young's modulus and second moment of area and gradually progresses to more complex experiments.**

The laboratory equipment is accompanied by the appropriate software to run interactively with PC workstations, wherever this is applicable. The software is organized in subjects corresponding to the simulations and the experimental exercises with scope:

- A series of aims for the specific experiment and the level of knowledge that must be obtained.
- Theoretical background relevant to the lesson as well as practical examples of use.
- Data acquisition and analysis on line with the operating machine, for measurement data display and graphical results of the testing process.
- Tests/Questions for the students and fault testing.



Graph showing temperature and time



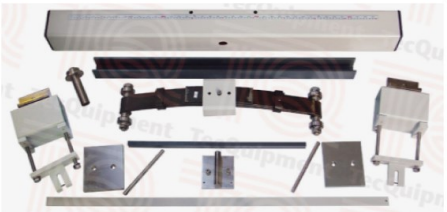
The system is accompanied by technical manuals for theory and exercises. Each one of the lab equipment is described hereinafter.

SM 1000 Trainer
Universal testing machine-100 KN

The SM 1000 is an Universal Testing Machine ideal for classroom demonstrations and for safe use by small groups of students. It fits onto any suitable strong desk or bench top with a steel frame with four columns that supports a hydraulic ram. The ram pushes up a loading platform. The area above the loading platform is for compression tests on a wide range of materials such as wood, brick and mortar. The space below the platform is for tensile tests. A high-impact strength clear-plastic guard protects the user during tests. It is supplied with instrumentation and Data acquisition system.

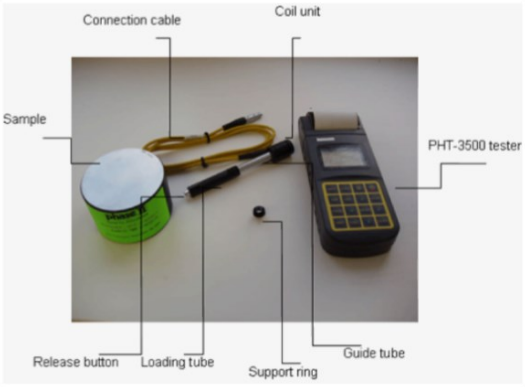
During tests, force sensors **measure the load applied by the ram**. A digital load meter shows the real-time force and stores the peak force.
A **digital displacement** indicator measures and displays the **vertical movement of the loading platform** or part of the structure under test. Students use the force and the dimensions of the part under test to find the **applied stress**.
They also use the **vertical displacement** to find **the strain**.
For accurate measurements of the small changes in length of a specimen **tested in its elastic region**, the **extensometer** allows students to find the **Young's modulus of a tensile test specimen**. Students can use the Universal Testing Machine to test many materials, engineering parts and structures.
The system allow students to do Brinell hardness tests on materials and tests on coil springs, leaf springs and beams. The system is provided with a **data acquisition system** for data collection and analysis of various tests (PC is required) and the **appropriate software experimental and DAQ application.**
The SM 1000 testing machine comes with the following auxiliaries:

SM1000B	Hand operated pump
SM1000D	Extensometer
SM1000E	Brinell Indenter
SM1000F	Spring Coil
SM1000G	Beam and Leaf spring
SM V DAQ	Data Acquisition system



PHT 3500 DIGITAL HARDNESS TESTER

The PHT 3500 is a portable tester for Brinell, Rockwell A, Rockwell B, Rockwell C, Vickers and Shore scale testing.



It is a compact bench-top PHT-3500 of the portable Hardness tester, ideal for classroom demonstrations and student experiments. It comes in a briefcase with:
* Main Unit with Built-in Printer
* Standard Test block & Cleaning Brush
* D type Impact Device with cable
* Small Support Ring Battery Charger Paper Roll
* Instrument Carry case with Keys

PT 1013 L ELECTRIC FURNACE

An Electric furnace. A heater up to 1000 degrees Celsius, with programming temperature thermostat and a safety top cavity for placing and heating metals. It has cut off thermostatic switch and timer.
Can be programmed for various heating conditions.