

# UNIVERSAL TESTING MACHINES (UTM)

**RYCOLAB**



---

# UNIVERSAL TESTING MACHINES WITH ONE COLUMN



# MANUFACTURE OF STANDARD AND CUSTOMISED MODELS:

With testing frames for capacities of 1 kN or 5 kN, we manufacture two standard models according to the length of the test column. It is also possible to customise the length of the column according to requirements.

Single-column universal testing machines are designed to test a wide range of materials in tension, compression, bending, tearing or peeling: plastics, films, rubber, packaging, non-woven material, filter material, leather, adhesives, paper, aluminium, food, toys, medical products, etc.

## TECHNOLOGY FOR YOUR LABORATORY:

### **High-resolution colour touchscreen:**

Change between numerical and graphic display modes. Real-time data to facilitate its interpretation.

### **Control unit:**

Push-button controls to position the crossbar, stop, test characteristics and statistics. Configuration of the test routines, both standardised—ISO, ASTM and DIN—and customised. Possibility of pre-recording up to 100 different tests or routines.

### **Machine connection to other devices without external software:**

Directly to a printer (PCL5 protocol) or to a PC to send files (csv, txt, pdf, etc.). To extract the information from the tests, we can connect it to a pen drive.

### **Connection via software:**

The machine can be connected to a PC with our CAPTURE software to save the tests, operate the machine and have greater autonomy and control of the UTM.

### **Fast and simple changes:**

Quick change of load cells and automatic recognition of these. The changes of jaws or devices are equally simple, allowing us to carry out a wide variety of tests on almost any material. The selection of the correct cell allows the machine to perform the tests with maximum precision.

### **Robustness and rigidity:**

The combination of aluminium and steel in the construction of the machine allows us to safely handle a load greater than 150% of the nominal capacity.

### **Complete control of speed and movement:**

The servomotor and low-friction ball screw drive allows us to have control over speed and precision in the position that makes it possible to test all types of material.

**Safety for overload protection:** The machines have a double safety system, both electronic (programming) and physical (travel limiters). Load cells can be tared with a maximum of 20% of their nominal capacity without affecting the full scale.

### **Connection interfaces and data outputs:**

RS-232 using ASCII mode and super high-speed binary mode, USB2 and Ethernet RJ45 10/100.

### **Connection of strain gauges:**

Encoder, LVDT and laser types, to measure the elongation of the sample. All compatible strain gauges have their own anchors to facilitate their use and removal when they are not being used. We also have an internal pneumatic circuit, with air inlet and connection at the rear, to connect the devices that need air without having the pneumatic tubes in sight.

COMPLETE  
CONTROL OF  
THE TEST,  
WHATEVER THE  
MATERIAL.



		<b>RL-VTT-A</b>	<b>RL-VTT-B</b>	<b>RL-VTT-C</b>	<b>RL-VTT-D</b>
Nominal capacity	<i>kN</i>	1		5	
	<i>Kg</i>	100		500	
	<i>lbf</i>	200		1000	
Overloading test	150% of frame capacity				
Maximum diameter of sample	<i>mm</i>	150			
	<i>in</i>	6			
Load cells	<i>N</i>	1000, 500, 250, 100, 50, 20, 10, 5		5000, 2000, 1000, 500, 250, 100, 50, 20, 10, 5	
Maximum travel without jaws	<i>mm</i>	500	750	500	750
	<i>in</i>	19.65	29.5	19.65	29.50
Test speed range and approach speed	<i>mm/m</i>	0.05 to 750			
	<i>in/min</i>	0.002 to 29.50			
Approach speed	<i>mm/m</i>	0.05 to 750			
	<i>in/min</i>	0.002 to 29.50			
Return speed	<i>mm/m</i>	0.05 to 750			
	<i>in/min</i>	0.002 to 29.50			
Precision of load measurement		< ± 0.5% of the force applied for a range between 2 and 100% of (F.S.)			
Precision of position measurement		< ± 0.1% of the reading or 0.001 mm			
Precision of the velocity		< ± 0.005% of the preset velocity			
Weight	<i>Kg</i>	50	55	50	55
	<i>lb</i>	110	121	110	121
Dimensions	<i>mm</i>	480x397x900	480x397x1205	480x397x900	480x397x1205
	<i>in</i>	18.90x15.60x35.40	18.90x15.60x47.45	18.90x15.60x35.40	18.90x15.60x47.45
Operating temperature range	<i>°C</i>	Between 0 and 38			
	<i>°F</i>	Between 32 and 100			
Operating humidity range	<i>HR %</i>	Between 10 and 90			
Air connection		Ø6 tube – 6 bar clean and dry			
Electrical connection		110/240 VAC – 50/60 HZ 2000 W			

---

# UNIVERSAL TESTING MACHINES WITH TWO COLUMNS



# DESIGNED FOR TESTS WITH HEAVY LOADS:

With capacities of 10 kN, 25 kN, 50 kN and 100 kN, the double column machines increase the force range and allow us to carry out higher load tests on different types of material (specimens) and parts (finished product), etc.

All of the machines are desktop, which makes them very versatile for use in a laboratory or on the production lines themselves. Made of steel and aluminium, they are characterised by their robustness and rigidity, with a perfectly balanced weight.

## Tests on large volume parts:

The distance between columns of 420 mm and a travel of 1100 mm allows us to carry out tests on large volume pieces and to fit a wide variety of devices.

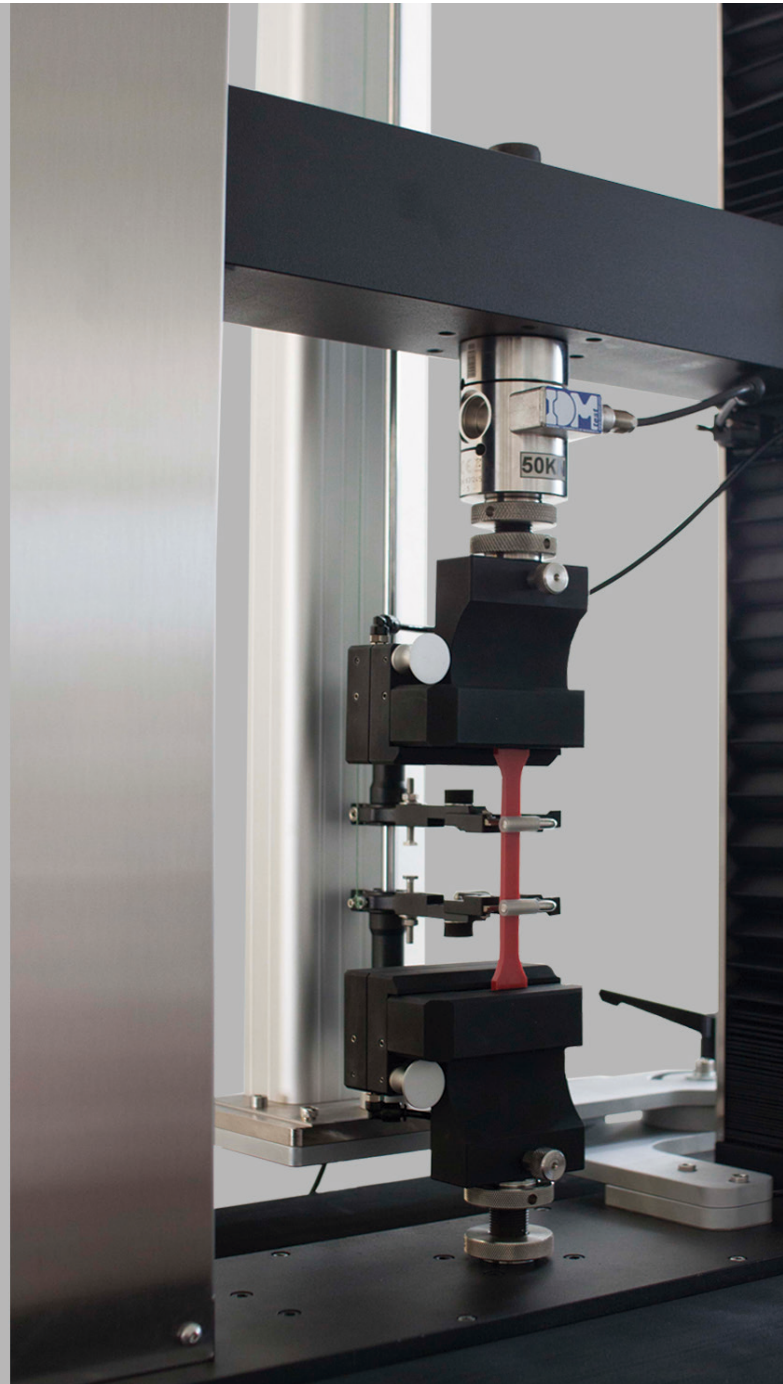
## Customised temperature control:

We have temperature and humidity control chambers in order to perform tests in conditions ranging from the cold of the Arctic to high temperature furnaces. Temperature ranges from  $-70$  to  $450^{\circ}\text{C}$ .

## Strain gauges:

As with the single-column MTC machines, we can connect a wide variety of strain gauges, both for small and large extensions such as those occurring with rubber.

VERSATILITY  
FOR YOUR  
LABORATORY.



		RL-DCT-10-A	RL-DCT-25-A	RL-DCT-50-A	RL-DCT-100-A
Nominal capacity	<i>kN</i>	10	25	50	100
	<i>Kg</i>	1000	2500	5000	10000
	<i>lbf</i>	2200	5500	11000	22000
Overloading test		150% of frame capacity			
Maximum diameter of sample	<i>mm</i>	400			
	<i>in</i>	15.75			
Distance between columns	<i>mm</i>	422			
	<i>in</i>	16.60			
Load cells	<i>N/kN</i>	10 kN, 5 kN, 3 kN, 1 kN, 500 N, 250 N, 100 N, 50 N, 20 N, 10 N, 5 N	25 kN, 10 kN, 5 kN, 3 kN, 1 kN, 500 N, 250 N, 100 N, 50 N, 20 N, 10 N, 5 N	50 kN, 25 kN, 10 kN, 5kN, 3 kN, 1 kN, 500 N, 250 N, 100 N, 50 N, 20 N, 10 N, 5 N	100 kN, 50 kN, 25 kN, 10 kN, 5 kN, 3 kN, 1 kN, 500 N, 250 N, 100 N, 50 N, 20 N, 10 N, 5 N
Maximum travel without jaws	<i>mm</i>	1100			
	<i>in</i>	43.30			
Range of test velocity	<i>mm/m</i>	0.05 to 800			
	<i>in/min</i>	0.002 to 31.50			
Approach speed	<i>mm/m</i>	0.05 to 800			
	<i>in/min</i>	0.002 to 31.50			
Return speed	<i>mm/m</i>	0.05 to 800			
	<i>in/min</i>	0.002 to 31.50			
Precision of load measurement		< ± 0.5% of the force applied for a range between 2 and 100% of (F.S.)			
Precision of position measurement		< ± 0.01% of the reading or 0.001 mm			
Precision of the velocity		< ± 0.005% of the preset velocity			
Weight	<i>Kg</i>	115	115	140	165
	<i>lb</i>	255	255	309	365
Dimensions	<i>mm</i>	731x500x1774			
	<i>in</i>	28.78x19.68x69.85			
Operating temperature range	°C	Between 0 and 38			
	°F	Between 32 and 100			
Operating humidity range	HR %	Between 10 and 90			
Air connection		Ø6 tube – 6 bar clean and dry			
Electrical connection		110/240 VAC – 50/60 HZ 2000 W			





# **ACCESSORIES:** COMPLETE YOUR LABORATORY EQUIPMENT

Jaws for tensile tests

Accessories for compression

Coefficient of friction, peeling, ball burst, punching, etc.

Strain gauge equipment, thermal chamber and sample preparation

## Jaws for tensile tests

---



Manual



Pneumatic



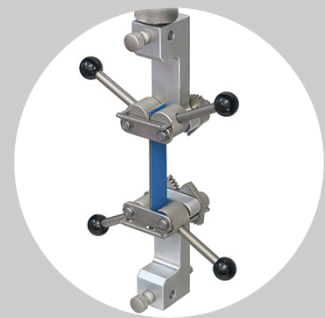
Scissor



Self-tightening



Hydraulic



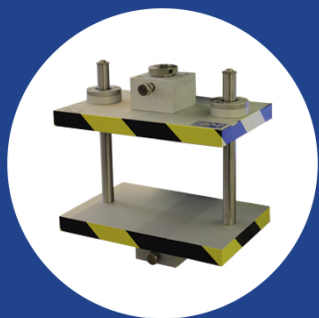
Roller

## Accessories for compression

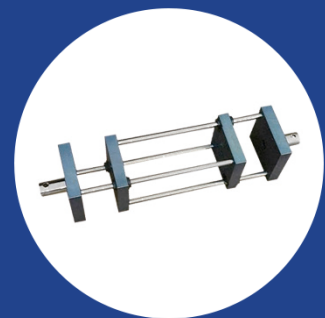
---



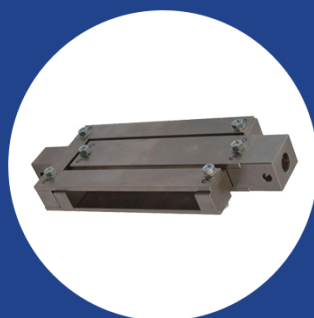
Compression plates



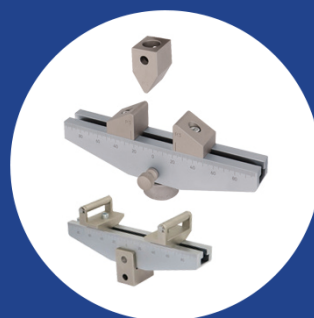
Guided compression plates



Compression cage plates



Shearing



Bending bridge

Coefficient of friction, peeling, ball burst, punching, etc.

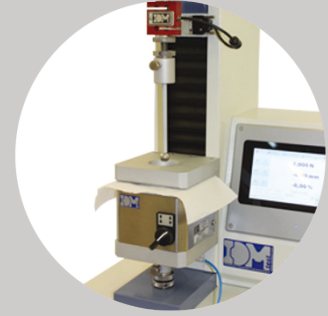
---



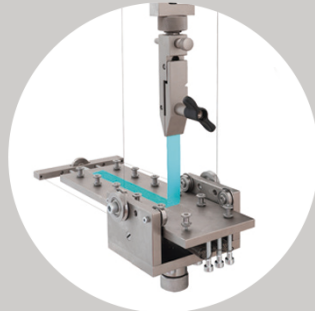
COF



Punching



Ball Burst



90° peeling



Electrical terminals

Strain gauge equipment and thermal chamber

---



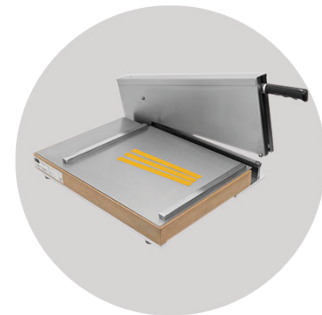
Strain gauge equipment



Thermal chamber

Preparation of samples

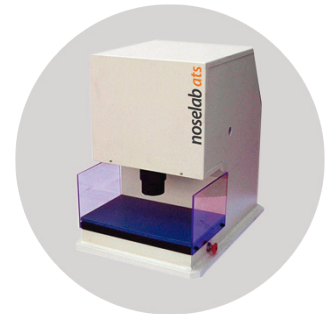
---



Dual blade shear



Manual specimen cutter



Pneumatic specimen cutter

# ADVANCED USER INTERFACE.

## 7" COLOUR TOUCHSCREEN:

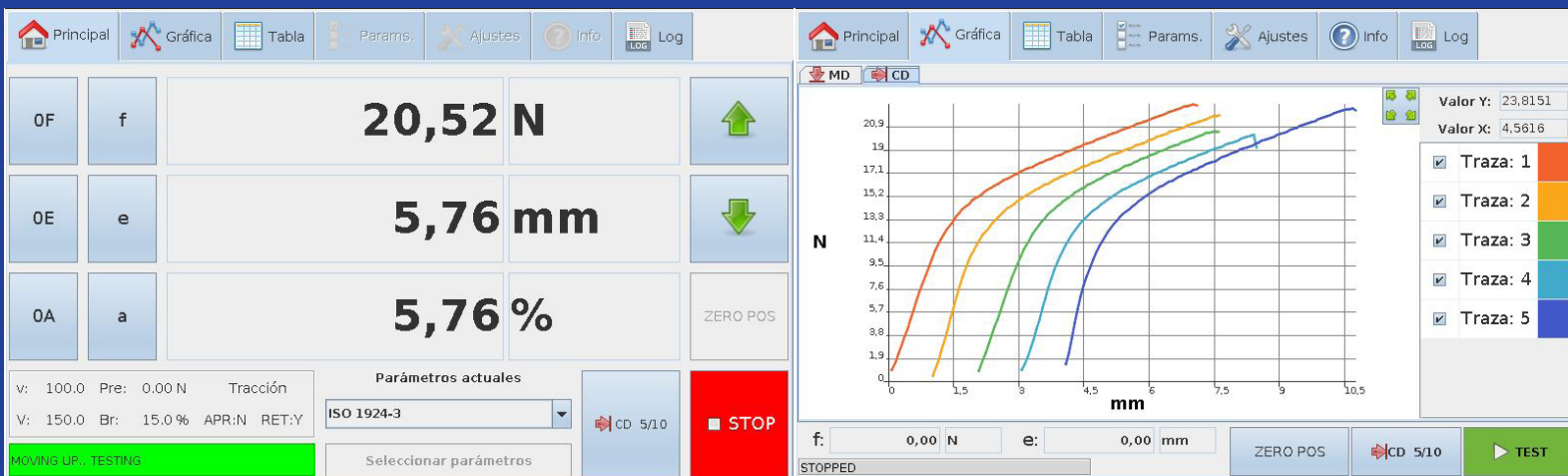
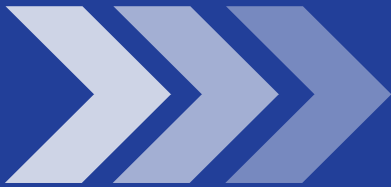
For simple operation of the equipment through an intuitive menu from which to configure and perform tests.

## COMPLETE AUTONOMY:

Autonomous equipment with respect to external elements (PC, tablet, etc.).

## CUSTOMISABLE CONFIGURATION:

In different languages (Spanish, English, French, Chinese, Russian, Portuguese, etc.) and units of force (Newtons, pounds, kg force, etc.) and extension (millimetres and inches).



## DISPLAYING OF RESULTS:

Both in a table of statistics and graphically (curves). Possibility of selecting and defining up to 10 columns of results for the tests carried out.

## TEST ROUTINES:

Possibility of saving up to 100 different test routines in the main test menu.

## TABLE OF RESULTS:

Two results tables (MD/CD) with a maximum of 20 tests per table.

## STATISTICAL CONTROL:

Average Value, Standard Deviation and Maximum and Minimum Values.

## MULTIPLE CONNECTIONS:

To a PC, printer, ERP, management, capture and machine control software.

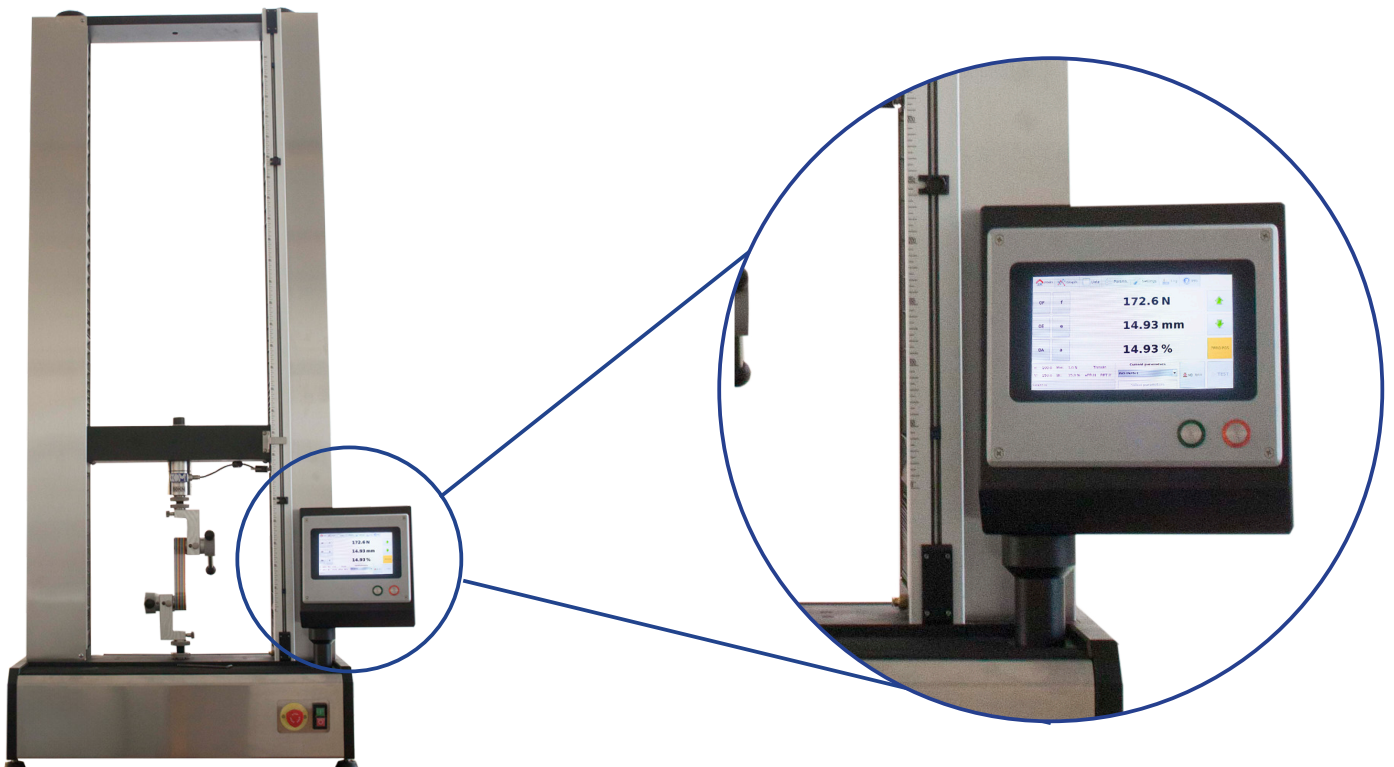


# AUTONOMY + CUSTOMISATION = TOTAL CONTROL

MD	CD	Ratio MD/CD	F (N)	TS (N/mm)	SB (%)
1			22.730	1.515	7.050
2			21.850	1.457	6.620
3			20.510	1.367	5.560
4			20.230	1.349	5.430
5			22.370	1.492	6.660
6					
Media			21.538	1.436	6.264
C.V. (%)			5.180	5.182	11.547
Max.			22.730	1.515	7.050
Min.			20.230	1.349	5.430
Desviación			1.116	0.074	0.723

**Test Parameters (ISO 1924-3):**

- Título: ISO 1924-3
- Descripción: Paper and board - Determination of tensile properties -Part 3: Constant rate of elongation method (100mm/min) TENSILE STIFFNESS
- Tipo de ensayo: Tracción
- Detección de rotura: 15.0 [%]
- Unidad de fuerza: N
- Aproximación hasta precarga:  Aproximación
- Unidad de longitud: mm
- Activar auto-retorno:  Volver
- Velocidad de ensayo (v): 100.0 [mm/min] 3,94 [in/min]
- Umbral de detección de rotura: 2.00 [N]
- Vel. de aproximación (V): 150.0 [mm/min] 5,91 [in/min]
- Longitud máxima de ensayo: 0.0 [mm] 0 [in]
- Precarga: 0.00 [N]
- Fuerza máxima de ensayo: 0.0 [N] 0 [lbf]



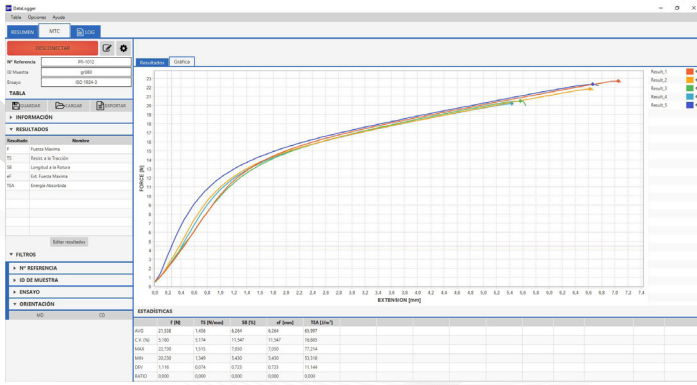
# CAPTURE: DATA CAPTURE AND EQUIPMENT CONTROL SOFTWARE.

Designed to automatically capture and store the results of physical tests performed with dynamometers, as well as to control them.

The advanced technology allows you to automatically capture the results of one or more pieces of equipment connected to a single PC.

Once the communication parameters have been configured, each piece of equipment has its own tab in which the program shows the information relating to it displayed in tables.

- Allows [the data to be saved](#) from the active tab for later recovery and processing, as well as exporting the information in PDF, CSV and Excel spreadsheet format.
- Allows [different user profiles to be established](#).
- [Intuitive user interface](#) and clearly presented information, divided into tabs, accessible at a glance.
- The user only needs to ensure that [the equipment is connected to the software](#). You do not need to organise or validate data; you should use the testing machine as you would working autonomously.
- [Facilitates the work of the operator](#), since it returns values that are not usually provided by a device with a single display and must be calculated manually.
- [The way the tests are stored is adapted to the needs of the user](#) and it is easy to search for a specific test.
- Provides a [comprehensive statistical package](#) which is also very easy to use. Each report is made up of common statistics. Within the stored tests you have the [possibility of managing the trend values and percentage graph](#).
- [The reports obtained can be customised](#) according to the user's requirements and can be exported to different formats (Excel, html, txt).



ESTADÍSTICAS	F [N]	TS [N/mm]	SE [N]	σ [mm]	TRIA [mm/s]
AUS	21.28	1.56	0.24	0.24	81.97
CA-70	3.16	3.74	1.347	11.347	16.80
MS	22.28	1.05	1.00	1.00	72.24
MPS	22.28	1.34	1.40	1.40	53.14
MS	1.16	6.74	0.22	0.22	11.14
SALDO	0.00	0.00	0.00	0.00	0.00

## CALIBRATION AND REPAIRS

## TECHNICAL SUPPORT SERVICE

Periodic calibration of laboratory equipment is essential to guarantee product quality, reduce costs due to poor quality and increase customer confidence.

We have a team of experts who provide our technical support service. We advise and assist our customers who require the maintenance or repair of their equipment.

