

# SECTION AC



# STEELS

This section is dedicated to machinery that performs quality tests for the metallurgical industry. These universal machines, equipped with mechanisms and accessories to carry out tensile, bending, bending and unbending tests on samples such as steel bars, rods, plastics, rubber and several metals.

They are mostly controlled by a PC, guaranteeing control, acquisition and more precise and technological data analysis.



## UNIVERSAL HYDRAULIC MACHINES

EN 15630-1 | EN 15630-3 | EN 10080

These machines have been specifically designed to suit the requirements of central and commercial laboratories of the construction industry and civil engineering in general.

It is a universal tester that can be used for tensile tests on steel rebars and flats. It can also be used, with the appropriate accessory, for transverse and bending tests on steel, flexural tests on concrete beams and general compression tests. Special accessories are also available for testing steel strands and electro-welded steel screen.

Tension is always tested using the hydraulic grips, located in lower area, and compression in the upper test area. Includes a high precision load cell, which grants accurate force measurement.

Each machine includes test control software, and our custom designed electronics. This enables users to extract maximum performance and precision, through a simple and intuitive interface. Software for material testing in multiple languages.

The machine is supplied without grips and accessories that must be ordered separately.

**Power supply:** 380 V | 3 ph



AC013+AC050-20+AC050-30

		AC011	AC013	AC015
<b>CAPACITY</b>	kN	400-600	1000	1500-2000
<b>MAXIMUM PISTON SPEED</b>	mm/min	200	250	150
<b>MAXIMUM PISTON STROKE</b>	mm	500	500	500
<b>DISTANCE BETWEEN GRIPS</b>	mm	100-600	100-600	100-600
<b>TENSILE HORIZONTAL DISTANCE</b>	mm	620	750	810
<b>COMPRESSION HORIZONTAL SPACE</b>	mm	340	440	500
<b>DIMENSIONS</b>	mm	1050x900x2900	1250x1000x3400	1250x1000x3500
<b>MAXIMUM HEIGHT (PISTON FULLY OUT)</b>	mm	3400	3900	4000
<b>WEIGHT</b>	Kg	3600	5000	6000

**ACCESORIES FOR UNIVERSAL TESTING MACHINES:**

**UNIVERSAL GRIPS**

Our grips are notable for their quality and design, and offer a choice between hydraulic or manual operation. The range of capacities and wedges are the perfect accessory to universal testing machines.

AC050-10  
Manual grips

- AC050-11  
Flat wedges 0-8 mm for 5-10-20 kN
- AC050-12  
Flat wedges 0-12 mm for 25-50-100 kN
- AC050-13  
Flat wedges 0-16 mm for 150-200-250-300 kN
- AC050-16  
Round wedges 4-10 mm for 5-10-20 kN
- AC050-17  
Round wedges 6-16 mm for 25-50-100 kN
- AC050-18  
Round wedges 8-20 mm for 150-200-250-300 kN



AC050-11



AC050-17



AC050-10



AC050-20

AC050-20  
Hydraulic grips

- AC050-21  
Flat wedges 0-12 mm for 25-50-100 kN
- AC050-22  
Flat wedges 0-16 mm for 150-200-250-300 kN
- AC050-23  
Flat wedges 0-24 mm for 400-500-600 kN
- AC050-24  
Flat wedges 0-25 mm for 1000 kN
- AC050-25  
Flat wedges 25-50 mm for 1000 kN
- AC050-26  
Round wedges 6-16 mm for 25-50-100 kN
- AC050-27  
Round wedges 8-20 mm for 150-200-250-300 kN
- AC050-28  
Round wedges 10-30 mm for 400-500-600 kN
- AC050-29  
Round wedges 10-30 mm for 1000 kN
- AC050-30  
Round wedges 30-50 mm for 1000 kN

AC010-01  
Safety guards

The guard ensures machine operator safety in the event of any potential projection from a broken specimen or tested material. Additionally, a microswitch will stop the test if the door is opened.



AC010-01

AC050-02  
Compression platens  
UNE-EN 384

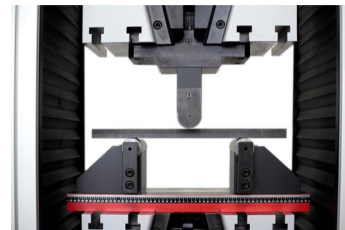
These platens are easy to install and adapt to any type of test. With self-aligning ball joint to compensate for a potential lack of specimen parallelism.



AC050-02

AC050-03  
Device for flexural testing  
UNE-EN 384

Designed to perform tests with variable length support points. They adapt to standard or customer specifications via their rollers and punches.



AC050-03

AC061  
Compressometer-extensometer  
EN 13286-43

It can be installed on rigid compression platens, enabling deformations to be measured with great accuracy. The system provides accuracy levels of 0.5 μm throughout the sensor range (12 mm).



AC061

**EXTENSOMETERS**

EN ISO 10275, EN ISO 10113  
High precision and reliability.

Our models depends on in the abilities to calculate:

- AC063  
Extensometer for elastic limit
- AC065  
Extensometer for elastic limit and elongation
- AC067  
Transverse extensometer for n and R index



AC065



## ELECTROMECHANICAL TESTING MACHINES

EN 12390-4 | EN ISO 6892, 7500-1 | ASTM E4

These machines have been specifically designed to suit the requirements of central and commercial laboratories of the construction industry and civil engineering in general.

It is a universal tester that can be used for tensile tests on steel rebars and flats. It can also be used, with the appropriate accessory, for transverse and bending tests on steel, flexural tests on concrete beams and general compression tests.

Typical test applications performed by these machines are:

- High strength steel tests
- Automotive structures tests
- Aerospace industry tests
- Tests on screws, nuts,...

Its high capacity load cell provides maximum accuracy across the entire measurement range. It can also be equipped with a large range of fixtures, such as tensile grips, T-Slotted plates, compression plates, bending tools, extensometers, etc.

Each machine includes test control software, and our custom designed electronics. This enables users to extract maximum performance and precision, through a simple and intuitive interface. Software for material testing in multiple languages.

The machine is supplied without grips and accessories that must be ordered separately.

**Power supply:** 380-400 V | 3 ph



AC025+AC050-20+AC050-30

		AC021	AC023	AC025	AC027
<b>CAPACITY</b>	kN	100	200-300	400-600	1000
<b>MAXIMUM PISTON SPEED</b>	mm/min	600	600	350	200
<b>MAXIMUM PISTON STROKE</b>	mm	1100	1100	1450	1550
<b>MAXIMUM VERTICAL DISTANCE</b>	mm	1275	1275	1650	1700
<b>DISTANCE BETWEEN GRIPS</b>	mm	725	680	710	750
<b>DISTANCE BETWEEN COLUMNS</b>	mm	565	565	635	635
<b>DIMENSIONS</b>	mm	1100x600x2100	1100x600x2100	1160x900x2300	1110x950x2750
<b>WEIGHT</b>	Kg	850	900	2000	3000

**ACCESORIES FOR UNIVERSAL TESTING MACHINES:**

**UNIVERSAL GRIPS**

Our grips are notable for their quality and design, and offer a choice between hydraulic or manual operation. The range of capacities and wedges are the perfect accessory to universal testing machines.

AC050-10  
Manual grips

- AC050-11  
Flat wedges 0-8 mm for 5-10-20 kN
- AC050-12  
Flat wedges 0-12 mm for 25-50-100 kN
- AC050-13  
Flat wedges 0-16 mm for 150-200-250-300 kN
- AC050-16  
Round wedges 4-10 mm for 5-10-20 kN
- AC050-17  
Round wedges 6-16 mm for 25-50-100 kN
- AC050-18  
Round wedges 8-20 mm for 150-200-250-300 kN



AC050-10

AC050-20  
Hydraulic grips

- AC050-21  
Flat wedges 0-12 mm for 25-50-100 kN
- AC050-22  
Flat wedges 0-16 mm for 150-200-250-300 kN
- AC050-23  
Flat wedges 0-24 mm for 400-500-600 kN
- AC050-24  
Flat wedges 0-25 mm for 1000 kN
- AC050-25  
Flat wedges 25-50 mm for 1000 kN
- AC050-26  
Round wedges 6-16 mm for 25-50-100 kN
- AC050-27  
Round wedges 8-20 mm for 150-200-250-300 kN
- AC050-28  
Round wedges 10-30 mm for 400-500-600 kN
- AC050-29  
Round wedges 10-30 mm for 1000 kN
- AC050-30  
Round wedges 30-50 mm for 1000 kN



AC050-13



AC050-20



AC050-27

AC061  
Compressometer-extensimeter  
EN 13286-43

It can be installed on rigid compression platens, enabling deformations to be measured with great accuracy. The system provides accuracy levels of 0.5 µm throughout the sensor range (12 mm).



AC061

AC050-01  
Double test chamber  
Option for enabling the upper area for testing, thereby using both areas for tensile, bending or compression tests. A second load cell can also be attached, and each area used for different load capacities.



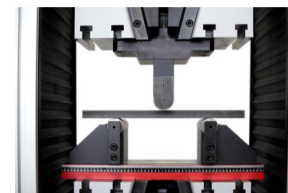
AC050-01

AC050-02  
Compression platens  
UNE-EN 384  
These platens are easy to install and adapt to any type of test. With self aligning ball joint to compensate for a potential lack of specimen parallelism.



AC050-02

AC050-03  
Device for flexural testing  
UNE-EN 384  
Designed to perform tests with variable length support points. They adapt to standard or customer specifications via their rollers and punches.



AC050-03

AC050-04  
Slotted base plate  
This accessory enables T-slot nuts to be used to adapt to, and attach any type of special fixture. Thereby enabling required tensile, bending or compression tests to be performed.

AC020-01  
Safety guards  
The guard ensures machine operator safety in the event of any potential projection from a broken specimen or tested material. Additionally, a microswitch will stop the test if the door is opened.

**EXTENSOMETERS**  
EN ISO 10275, EN ISO 10113  
High precision and reliability.  
Our models depends on in the abilities to calculate:

- AC063  
Extensometer for elastic limit
- AC065  
Extensometer for elastic limit and elongation
- AC067  
Transverse extensometer for n and R index



AC065



## UNIVERSAL TABLETOP TENSILE MACHINES

EN ISO 6892, ASTM E8, ASTM E4

It is a universal tester that can be used for tensile tests on steel rebars and flats. It can also be used, with the appropriate accessory, for transverse and bending tests on steel, flexural tests on concrete beams and general compression tests.

Typical test applications performed by these machines are:

- High strength steel tests
- Automotive structures tests
- Aerospace industry tests
- Tests on screws, nuts,...

Its high capacity load cell provides maximum accuracy across the entire measurement range. It can also be equipped with a large range of fixtures, such as tensile grips, T-Slotted plates, compression plates, bending tools, extensometers, etc.

Each machine includes test control software, and our custom designed electronics. This enables users to extract maximum performance and precision, through a simple and intuitive interface. Software for material testing in multiple languages.

The machine is supplied without grips and accessories that must be ordered separately.

Power supply: 220 V | 1 Ph



AC031

		AC031	AC033	AC035
<b>CAPACITY</b>	kN	5-20	25-50	100
<b>MAXIMUM PISTON SPEED</b>	mm/min	1000	750	500
<b>MAXIMUM PISTON STROKE</b>	mm	800	1000	1000
<b>MAXIMUM VERTICAL DISTANCE</b>	mm	1000	1230	1230
<b>DISTANCE BETWEEN GRIPS</b>	mm	650	680	650
<b>DISTANCE BETWEEN COLUMNS</b>	mm	450	450	450
<b>DIMENSIONS</b>	mm	900x650x1450	900x650x1650	900x650x1650
<b>WEIGHT</b>	Kg	200	380	380

## AC041 TENSILE MACHINE 1-5 KN

ISO 7500 | ASTM E4

This machine is manufactured for nominal capacities up to 5 kN. It can also be equipped with an extensive range of fixtures, such as tensile grips, T-slotted plates, compression plates, bending fixtures, extensometers, etc.

Custom designed electronics which enables users to get maximum performance and precision, through a simple and intuitive interface.

This machine allows the testing of metals, plastics, polymers, composites, wood, textiles, vidrio and ceramics, in addition to many others.

Power supply: 220 V | 1 ph

Maximum distance between grips: 580 mm

Dimensions: 400x530x1160 mm

Weight: 80 Kg



AC041

**ACCESORIES FOR UNIVERSAL TESTING MACHINES:**

UNIVERSAL GRIPS

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AC050-10  
Manual grips

- AC050-11  
Flat wedges 0-8 mm for 5-10-20 kN
- AC050-12  
Flat wedges 0-12 mm for 25-50-100 kN
- AC050-13  
Flat wedges 0-16 mm for 150-200-250-300 kN
- AC050-16  
Round wedges 4-10 mm for 5-10-20 kN
- AC050-17  
Round wedges 6-16 mm for 25-50-100 kN
- AC050-18  
Round wedges 8-20 mm for 150-200-250-300 kN

AC050-20  
Hydraulic grips

- AC050-21  
Flat wedges 0-12 mm for 25-50-100 kN
- AC050-22  
Flat wedges 0-16 mm for 150-200-250-300 kN
- AC050-23  
Flat wedges 0-24 mm for 400-500-600 kN
- AC050-24  
Flat wedges 0-25 mm for 1000 kN
- AC050-25  
Flat wedges 25-50 mm for 1000 kN
- AC050-26  
Round wedges 6-16 mm for 25-50-100 kN
- AC050-27  
Round wedges 8-20 mm for 150-200-250-300 kN
- AC050-28  
Round wedges 10-30 mm for 400-500-600 kN
- AC050-29  
Round wedges 10-30 mm for 1000 kN
- AC050-30  
Round wedges 30-50 mm for 1000 kN

AC030-02  
Base for universal testing machines  
This base raises the machine to a more comfortable working height. Specially recommended for tabletop machines.



AC030-02

AC050-01  
Double test chamber  
Option for enabling the upper area for testing, thereby using both areas for tensile, bending or compression tests. A second load cell can also be attached, and each area used for different load capacities.



AC050-01+AC050-02

AC050-02  
Compression platens  
UNE-EN 384  
These platens are easy to install and adapt to any type of test. With self aligning ball joint to compensate for a potential lack of specimen parallelism.

AC050-03  
Device for flexural testing  
UNE-EN 384  
Designed to perform tests with variable length support points. They adapt to standard or customer specifications via their rollers and punches.

AC050-04  
Slotted base plate  
This accessory enables T-slot nuts to be used to adapt to, and attach any type of special fixture. Thereby enabling required tensile, bending or compression tests to be performed.



AC050-04

AC030-01  
Safety guards  
The guard ensures machine operator safety in the event of any potential projection from a broken specimen or tested material. Additionally, a microswitch will stop the test if the door is opened.

AC061  
Compressometer-extensimeter  
EN 13286-43  
It can be installed on rigid compression platens, enabling deformations to be measured with great accuracy. The system provides accuracy levels of 0.5 µm throughout the sensor range (12 mm).



AC061

EXTENSOMETERS  
EN ISO 10275, EN ISO 10113  
High precision and reliability.  
Our models depends on in the abilities to calculate:

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Extensometer for elastic limit
- AC065  
Extensometer for elastic limit and elongation
- AC067  
Transverse extensometer for n and R index



## UNIVERSAL MACHINES FOR TENSILE-COMPRESSION TESTS

EN 10002 | EN ISO 6892-1, 7500-1, 15630-1  
 ASTM C39, E4 | BS 1610 | NF P18-411  
 DIN 51220 | AASHTO T22

These machines designed with The four columns loading frame is overdimensioned to assure high rigidity and stability. The loading piston, double action, is rectified and lapped. The piston is foreseen of an hydraulic maximum and minimum piston stroke's security device, by avoiding any damage risk due to wrong manipulations of the unit. An hydraulic selector allows to select the tensile or the compression test.

The heads holding the jaws are obtained from only one block of high tungsten steel, while the jaws are hardened over 65 HRC. The "V" autoclamping form allows a quick and practical churking of the specimen.

These machines are utilized to carry out tensile tests on steel reinforced bars from diameter 6 to 25 mm and flat maximum 25x15 mm. These sample measurements are suitable only for traditional reinforcement bars with maximum resistance around 540 Mpa. In case of testing high resistance rebars with maximum resistance of 800/850 Mpa, the maximum diameter is 20 mm and flat is 25x12 mm.

It can also carry out compression tests on concrete cube specimens maximum side 150 mm. and cylinders maximum diameter 160x320 mm.

The machine is supplied with pair of jaw-holders, but without accessoires for the tensile and compression tests, which must be ordered separately .

- Maximum tensile load:** 500 kN
- Maximum compression load:** 1500 kN
- Power supply:** 230 V | 50 Hz | 750 W
- Piston's stroke:** 100 mm
- Distance between columns:** 270 mm
- Distance between the jaws:** from 300 to 400 mm
- Distance between the compression platens:** 340 mm
- Dimensions:** 780x420x1700 mm
- Weight:** 900 Kg



AC131

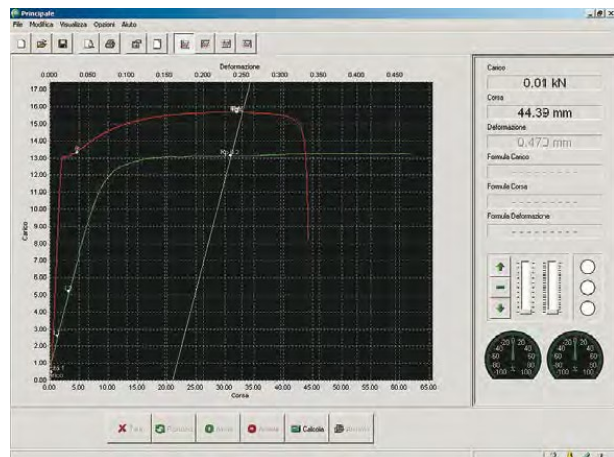
CODE	CONTROL SYSTEM	HYDRAULIC PUMP
AC131	8 channels	Semiautomatic
AC133	8 channels	Automatic

## ACCESSORY

### MG030-54

Software for tensile tests on Steel  
 This Software has been developed on the base of Microsoft Windows operating system. It is composed by many test procedures in conformity with the International Standards for metal, plastic, cement, wood and composed materials.

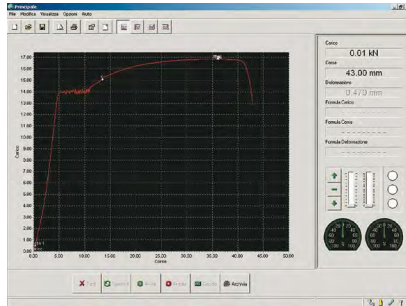
The software allows a speedy and easy management of all the machine parameters such as the management of the load acquisition by means of a load cell, the specimen deformations by means of an extensometer and the crossbar displacement.



MG030-54 Software for tensile tests on steels

**ACCESSORIES**

MG030-11  
Software for compression tests on concrete  
MG030-74  
Software for tensile steel and compression concrete tests



**MG030-54** Tensile test graphic

MG031  
Custom computer  
Supplied with keyboard, mouse and connection cable.

AC130-01  
Safety guards to CE Directive  
Polycarbonate made with hinges and lock.

AC130-02  
Upper platen for compression tests on concrete  
The platens have Ø 216 mm and are hardened and rectified as requested by Standards. Foreseen of seat ball, fixing device, lower compression platen and distance pieces test cylinders maximum diameter 160x320 mm and cubes 150 mm maximum side.



**AC130-02**

MG021-07  
Load cell 500kN for tensile calibration test  
AC130-07  
Device for tensile calibration test  
MG021  
Digital tester for loads cells



**MG021-07+AC130-07**

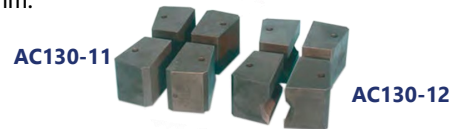
MG035  
Graphic printer on thermal paper  
MG035-01  
Thermal paper (10 rolls)



**MG035**

AC130-11  
Set of 4 jaws, upper and lower, for round steel specimens from Ø 6 to 15 mm, and flat specimens from 6 to 15 mm. thickness (max. width 25 mm).

AC130-12  
Set of 4 jaws, upper and lower for round specimens from Ø15 to 25 mm.



AC150  
Electronic extensometer  
It gives the possibility to take the longitudinal deformations of the specimen during the tensile test. A graph load/deformation is obtained and from this graph the coefficient of elasticity together with the loads RPO.1 - RPO.2 - Rt1 can be identified even on materials that are not presenting a yield point that can be clearly identified.



Measuring base: 50 mm  
Deformation range: +1 mm / -0,2 mm  
Max. % measurable deformation: + 2%

**EXTENSOMETER FOR TENSILE DEFORMATION STRENGTH TESTS UNTIL BREAKAGE**

This electronic coaxial extensometer is used to measure the deformation of a specimen under tensile test until breakage. The extensometer is directly fixed to the test specimen and it remains connected until breakage, by measuring the deformation both in the elastic and in the plastic phases. Supplied with 4 spacers for the intermediate sample diameters of the specific measuring range, connection cable, accessories, carrying case.

AC151  
Extensometer for round specimens from 4,5 to 11 mm diameter.  
Transducer stroke: 25 mm

AC153  
Extensometer for round specimens from Ø10 a 19 mm  
Transducer stroke: 50 mm

AC155  
Extensometer for round specimens from Ø18 a 25 mm  
Transducer stroke: 50 mm

AC157  
Extensometer for flat specimens, width max. 25 mm; thickness max. 10 mm.  
Transducer stroke: 50 mm  
Measuring base: 25 - 50 - 60 - 70 mm



**AC153**



## SU353 MULTIPURPOSE 50 KN - TENSILE 25 KN TESTER

This frame represents the ideal solution for major laboratories performing tests requiring displacement control. The multipurpose tester features a rigid two-column structure with an upper cross beam which can be set at various heights and an automatic load or displacement/deformation control, for testing:

The versatility of the machine allows to carry out the tests:

**METAL, PLASTIC, WIRES, ROPES, TEXTILES, PAPERS,...**

Tensile test 25 kN max capacity load

**SOIL:**

CBR (California Bearing Ratio)

Unconfined compression

Quick triaxial

**CONCRETE:**

Flexural on beams and tiles

**CLAY BLOCKS:**

Punching

**CEMENT:**

Tensile in mortar briquettes

Flexural test on mortar prisms 40x40x160 mm

Compression test on mortar prisms 40x40x160 mm

**ASPHALT:**

Marshall

Splitting tensile

Direct shear Leutner

**ROCKS AND STONES:**

Uniaxial splitting tensile

The load is applied by a mechanical jack that is driven by a motor brushless with closed loop through optic encoder and controlled by a microprocessor. Limit switches are installed at the end of the stroke to prevent accidental damage.

The electronic control unit with touch-screen colour display, runs like a standard PC based on Windows. The machine has unlimited memory storage with: 2 USB ports, 1 SD card slot.

Supplied without accessories and software to perform the specific tests which must be ordered separately.

### ACCESORIES MULTIPURPOSE 25 KN FOR STEELS:

TENSILE TEST ON METALS, PLASTICS,...

ASTM D2166 | BS 1377:7 | AASHTO T208

MG020-05

Load cell 25 kN

AC120-16

Coupling for tensile heads installation

AC120-01

Tensile heads (upper and lower)

AC120-11

Grips for round specimens

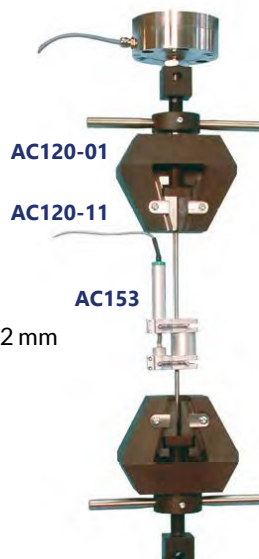
from Ø3 to 5 mm and flat specimens with maximum thickness from 1 to 10 mm and maximum width 25 mm

AC120-12

"V" grips for round specimens from Ø5 to 12 mm

MG030-54

Software for tensile tests on steel



AC151

Extensometer for round bars from Ø4,5 to 11 mm

Transducer stroke: 25 mm

AC153

Extensometer for round specimens from Ø10 to 19 mm

Transducer stroke: 50 mm

AC155

Extensometer for round specimens from Ø18 a 25 mm

Transducer stroke: 50 mm

AC157

Extensometer for flat specimens till width 25 mm; thickness 10 mm

Transducer stroke: 50 mm

Measuring base: 25 - 50 - 60 - 70 mm



SU353

Power supply: 230 V | 50-60 Hz | 150 W

Adjustable testing speed: from 0,01 to 51 mm/min

Load gradient: from 1 to 15000 N/seg

Maximum ram travel: 100 mm

Daylight between columns: 380 mm

Maximum vertical daylight: 850 mm

Dimensions: 500x450x1450 mm

Weight: 130 Kg

**SU355**  
**DIGITAL MULTIPURPOSE TESTER 200 KN**

By using suitable devices, our multipurpose tester performs compression, flexural, splitting tensile and direct tensile tests with automatic load or displacement/deformation control, up to 200 kN for compression/flexural and 50 kN for tensile tests.

The versatility of the machine allows to carry out the tests:

**METAL, PLASTIC, WIRES, ROPES, TEXTILES, PAPERS,...**

Tensile test 50 kN max capacity load

**SOIL:**

CBR (California Bearing Ratio)

Unconfined compression

Quick triaxial

**CONCRETE:**

Flexural on beams and tiles

**CLAY BLOCKS:**

Punching

**CEMENT:**

Flexural test on mortar prisms 40x40x160 mm

Compression test on mortar prisms 40x40x160 mm

Tensile on mortar briquettes

**ASPHALT:**

Marshall

Splitting tensile

Direct shear Leutner

Duriez

**ROCKS AND STONES:**

Uniaxial splitting tensile

**METAL, PLASTIC, WIRES, ROPES, TEXTILES, PAPERS,...**

Tensile test 50 kN max capacity load

The machine consists essentially of a robust two-column frame with an upper crosshead which can be adjusted in height and a lower mobile crosshead moved by an electromechanical system with a single recirculating ball screw powered by a brushless servomotor which assures smooth application of load at constant speed.

The load is applied by a mechanical jack that is driven by a brushless motor with closed loop through optic encoder and controlled by a microprocessor. Limit switches are installed at the end of the stroke to prevent accidental damage.

The electronic control unit with touch-screen colour display, runs like a standard PC based on Windows. The machine has unlimited memory storage with: 2 USB ports, 1 SD card slot.

**ACCESORIES MULTIPURPOSE 200 KN FOR STEELS:**

MG020-06

Load cell 50 kN

MG020-16

Connector for 50 kN load cell

AC120-01

Jaws for tensile tests

MG020-15

Coupling for tensile heads installation

AC120-11

Grips for round specimens

from Ø3 to 5 mm and flat specimens with maximum thickness from 1 to 10 mm and maximum width 25 mm

AC120-12

"V" grips for round specimens from Ø5 to 12 mm

MG030-54

Software for tensile tests on steel



AC151

Extensometer for round bars

from Ø4,5 to 11 mm

Transducer stroke: 25 mm

AC153

Extensometer for round specimens

from Ø10 to 19 mm

Transducer stroke: 50 mm

AC155

Extensometer for round specimens

from Ø18 a 25 mm

Transducer stroke: 50 mm

AC157

Extensometer for flat specimens till

width 25 mm; thickness 10 mm

**Transducer stroke: 50 mm**

**Measuring base: 25 - 50 - 60 - 70 mm**



Supplied with an electric load cell 200 kN and lower compression platens. Accessories and software for specific tests are not included which must be ordered separately.

**Power supply: 230 V | 50-60 Hz | 850 W**

**Maximum vertical distance: 900 mm**

**Daylight between columns: 650 mm**

**Adjustable testing speed: from 0,01 to 100 mm/min**

**Load gradient: from 1 N/s to 5 kN/s**

**Dimensions: 950x560x2400 mm**

**Weight: 820 Kg**

## AC161 EDUCATIONAL UNIVERSAL TESTING MACHINE 20 KN

The machine has been designed to measure strength of metallic materials and study the various reactions they undergo when subject to different stresses, verifying the same with the tensile test, shear test, compression test, flexural test, brinell hardness.

This machine is primarily for educational purposes and intended for use in higher educational institutes or universities and allows students of material science to have a hands-on approach to applications so far studied at a theoretic level only.

The machine is manually controlled, while readings are both analog, through the manometer and the dial indicator, and digital, through the pressure transducer and the displacement transducer connected to the digital indicator.

It consists of a 30 kN (160 bar) manometer, an analog indicator with a full scale of 50 mm, a 250 bar pressure transducer, a 50 mm travel displacement transducer and a digital indicator.

### ACCESSORIES

AC161-01

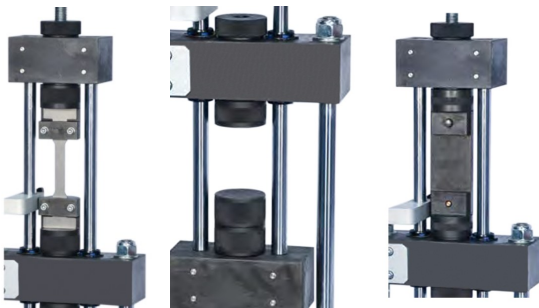
Educational device for tensile test

AC161-02

Educational device for compression test

AC161-03

Educational device for shear test



AC161-01

AC161-02

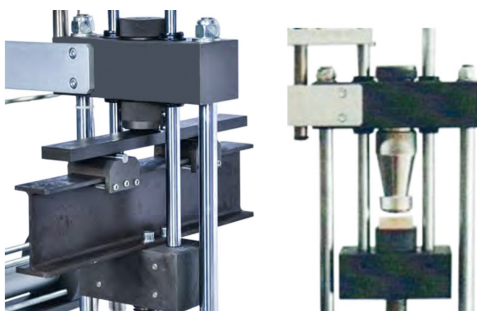
AC161-03

AC161-04

Educational device for Brinell hardness test

AC161-05

Educational device for flexure test



AC161-04

AC161-05



AC161

Power supply: 230 V | 50-60 Hz | 70 W

Dimensions: 600x600x850 mm

Weight: 60 Kg

MG030-54

Software for tensile tests on steel

### SAMPLES FOR TENSILE TEST

AC161-11

Round bar test specimens  $\varnothing 6$  mm, stainless steel made (14 pcs)

AC161-12

Round bar test specimens  $\varnothing 6$  mm, brass made (14 pcs)

AC161-13

Round bar test specimens  $\varnothing 6$  mm, bronze made (14 pcs)

AC161-14

Round bar test specimens  $\varnothing 6$  mm, copper made (14 pcs)

AC161-15

Round bar test specimens  $\varnothing 6$  mm, aluminium made (14 pcs)

AC161-16

Flat bar test specimens, different materials (14 pcs)

### SAMPLES FOR SHEAR TEST

AC161-21

Round copper bar specimens  $\varnothing 6$  mm (14 pcs)

### SAMPLES FOR FLEXURE TEST

AC161-31

Flat bar specimen (14 pcs)



AC161-11... AC161-31



**AC181  
BEND-TESTING MACHINE**

Manufactured with a strong self-supporting structure. The bi-directional working plate allows any type of bending without any bar displacement. The type of bending can be modified by moving the bolt into the different plate holes.

This bending machine complies with EC safety requirements. Supplied with bolts, bushings, tilt square and pedal.

**Power supply:** 400-230 V | 3 ph | 50 Hz  
**Dimensions:** 1050x890x950 mm  
**Weight:** 490 Kg



**ACCESORIOS**

AC181-01  
Stirrup measuring bender for bars up to Ø12 mm



AC181-02  
Circular stirrup bender for bars from Ø6 up to Ø25 mm



AC181-03  
Large radius wheels for arm

AC181-04  
Large radius arm



**AC183  
AUTOMATIC MARKING-OFF MACHINE**

Used to mark off specimens with round, square shape and with improved bond for the measurement of the percentage elongation after their breaking.

The machine can mark specimens as follows:  
 -Round from 4 mm up to 50 mm diameter  
 -Flat from 4 mm up to 50 mm thickness  
 -Square from 4 mm to 45 mm side

**Useful length:** 300 mm  
**Marking steps:** 5 or 10 mm selectable with lateral graduation  
**Marking speed:** 60 marks per minute  
**Power supply:** 400 V | 3 ph | 50 Hz  
**Dimensions:** 530x480x445 mm  
**Weight:** 58 Kg



**HR473  
SPECIMEN CUTTING MACHINE**

Supplied with abrasive blades up to Ø 350 mm.

**Power supply:** 230 V | 50 Hz | 2000 W  
**Maximum disc diameter:** up to 350 mm  
**Useful cutting height:** 120 mm  
**Blade rotation speed:** 3900 r.p.m.  
**Dimensions:** 560x460x390 mm  
**Weight:** 20 Kg



**ACCESSORY**

HR473-01  
Diamond blade Ø450 mm  
It has a long life for a faster and more precise cutting operation.

## CHARPY PENDULUM IMPACT TESTER

EN 10045 | ASTM E23 | ISO 148-1, 148-2

This apparatus is used for determining the steel tension and bending strength by impact. It is equipped with a falling pendulum hammer which breaks in a single blow a sample notched in the middle and positioned on two supports.

The test is carried out on a Charpy sample in order to check the energy absorbed during the impact, which is measured in Joules. The value indicates the impact strength of the material (resilience).

This machine performs tests automatically, and is operated via a simple and intuitive touch screen. Its guards include a polycarbonate sliding door with an electrical interlock, which meets the requirements for CE marking.

The pendulum is supplied with:

- Charpy impact blades according to ASTM and ISO
- Foundation base
- Self-centring specimen placement grips
- Verification template for pendulum geometric characteristics
- Data acquisition software for connecting machine to a PC

**Power supply:** 220 V | 750 W

**Pendulum length:** 800 mm

**Angle of strike:** 150°

**Velocity of strike:** 5,42 m/s

**Dimensions:** 2110x700x2110 mm

**Weight:** 1300 Kg



CODE	AC201	AC203	AC205
CAPACITY	300 J	450 J	750 J

### ACCESSORIES

AC200-01

Automatic specimen centering device  
Facilitates fast and precise specimen positioning, thus shortening the time between tests.

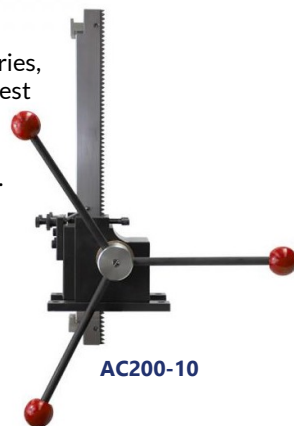


AC200-01

AC200-10

Manual notching device  
ISO 148-1

Designed for test houses and laboratories, which are producing small batches of test pieces. This machine cut Charpy and Izod 'V' and 'U' notches in pre-machined standard 10 mm square.



AC200-10



AC200-11

AC200-11

Broaches for creating notches on "V" with depth 2 mm

AC200-12

Broaches for creating notches on "U" with depth 5 mm

AC200-20

Motorized notching machine  
ISO 148-1

This notching uses a fast and precise machining process to create notches for Charpy and Izod testing.

The speed controller enables the machining of the hardest materials, and increased broach durability.

The standard broach is used for carbon and low alloy steels. Broaches with a special coating must be used for more resistant, harder or stainless steels.

**Cutting speed:** from 6 to 30 mm/s

**Specimen size :** 10x10 mm

**Dimensions:** 400x400x1250 mm

**Weight:** 125 Kg



AC200-20

**TABLETOP PENDULUM IMPACT TESTER**

EN ISO 13802

This apparatus is used for determining the tension and bending strength of plastics and composites by impact.

These machines perform tests automatically, and is operated via a simple and intuitive touch screen. Its guard includes a polycarbonate sliding door with an electrical interlock, which meets the requirements for CE marking.

The pendulum is supplied with:  
 -Charpy impact blades according to ASTM and ISO  
 -Automatic brake  
 -Data acquisition software for connecting machine to a PC

**Power supply:**  
 110-240 V | 750 W  
**Pendulum length:**  
 340 mm  
**Velocity of strike:**  
 3,46 m/s



CODE	AC213	AC215	AC221	AC227	AC229
CAPACITY	2,75 J	7,5 J	15 J	25 J	50 J
DIMENSIONS MM	1000x600x1000	1000x600x1000	1000x600x1000	1000x600x1000	1250x800x1040
WEIGHT KG	200-300	200-300	200-300	200-300	500

**ACCESORIES**

**AC200-01**  
 Automatic specimen centering device  
 Facilitates fast and precise specimen positioning, thus shortening the time between tests.



**AC200-01**



**AC200-10**

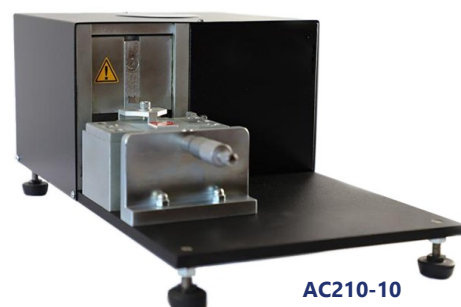
**AC200-10**  
 Manual notching device  
 Designed for test houses and laboratories, which are producing small batches of test pieces. This machine cut Charpy and Izod 'V' and 'U' notches in pre-machined standard 10mm square.

**AC200-11**  
 Broaches for creating notches on "V" with depth 2 mm  
**AC200-12**  
 Broaches for creating notches on "U" with depth 5 mm

**AC200-30**  
 Motorized notching machine for plastics  
 EN 180 | EN ISO 179 B  
 This notching employs a fast and precise machining process to create notches for Charpy and Izod testing.

The micrometre enables notches to be set with a precision of 0,01 mm.  
 The machine includes a notching blade for standard EN ISO 179-1.

**Dimensions:** 440x240x200 mm  
**Weight:** 22 Kg



**AC210-10**



## AC251 ROCKWELL & BRINELL HARDNESS TESTER

EN 10045 | ASTM E23 | ISO 148-1, 148-2

In the Rockwell test, hardness is determined by comparison, by measuring the depth of two carefully controlled indentations, one superimposed on the other.

This hardness tester is capable of applying loads of:

- Rockwell 60-100-150 Kg
- Brinell 31,25-62,5-187,5 Kg

First, a small load is applied (the weaker load) with a steel ball or a round-conical diamond indenter. Then, while the smaller load continued to be applied, a larger load is applied (the stronger load) with controlled precision. The larger load is removed, revealing the specific hardness. The hardness evaluation is obtained from the additional depth marked on the sample by the larger load, over and above the initial indentation made by the smaller load.

Loads are applied via a motor. Loads are easy to select using a rotary controller, and application speed is motorised.

Included accessories:

- Rockwell indenter - Ball 1/16"
- Rockwell indenter - Diamond cone
- Brinell indenter - Ball Ø2.5 mm
- Spare balls
- Rockwell template (HRC, HRB)
- V-shaped support table Ø40 mm
- Horizontal support table Ø72 mm
- Flat support table Ø150 mm (Optional)
- Brinell conversion tables
- Case with accessories

### ACCESORIES:

AC250-01  
Reference blocks with UKAS certification  
Available with different hardnesses and ranges



AC250-11  
Magnifier for reading Brinell indentations 20x  
Measurement range: 7mm  
Resolution: 0,05 mm

AC250-12  
Magnifier for reading Brinell indentations 30x  
Measurement range: 5mm  
Resolution: 0,025 mm

AC250-13  
Magnifier for reading Brinell indentations 40x  
Measurement range: 4 mm  
Resolution: 0,02 mm



AC250-12

## AC253 DIGITAL ROCKWELL & BRINELL HARDNESS TESTER

EN 10045 | ASTM E23 | ISO 148-1, 148-2

Same as model AC251 but data display via touch screen and USB data output for integration into customer's test programme.



Power supply: 220 V  
Preload: 10 Kg  
Rockwell scale loads: 60 - 100 - 150 Kg  
Brinell scale loads: 31,25 - 62,5 - 187,5 Kg  
Vertical capacity: 170 mm  
Dimensions: 215x520x700 mm  
Weight: 100 Kg

AC250-20  
Portable Brinell indentation digital measuring device  
System that enables Brinell indentations to be quickly, simply and precisely measured. Additionally, all captures are saved in an internal database, together with the results. Equipped with USB camera, tablet and data read and write software.



AC250-20

AC250-30  
Indenter for hardness tester  
Available for different hardness methods with official UKAS certification. Rockwell B, C and Vickers indenters.



AC250-30

**PENETRATING LIQUIDS**

UNE EN 1289 | 1M:2002

Penetrating liquid inspection is a universal method used to detect and view open defects in the surface of non-porous materials.

The basic principle of the method is very simple. First, clean all grease and dirt from the surface to be inspected. Afterwards, apply a coloured product known as a penetrant. If there are any cracks or defects, the penetrant will enter them due to capillarity, regardless of the size of the crack.

Remove excess penetrating liquid from the part so the surface is completely clean except for the penetrating liquid in the cracks. Then apply a coat of highly absorbent product, known as a developer, that acts like desiccant paper forcing the penetrant to come out of the crack, so its location and approximate dimensions are visible.

The main advantages of using penetrating liquids for inspection over other crack detection methods are that it can be used on both ferrous and non-ferrous materials.

The size and shape of the specimen to be inspected are not important.

The procedure is simple and application is not difficult.

**AC301  
PENETRATING LIQUID**

**AC303  
DEVELOPER LIQUID**

**AC305  
REMOVER LIQUID**



AC303

AC301

AC305

**AC311  
ULTRASONIC DEFECT DETECTOR**

EN 12668-1

A lightweight, portable flaw detector built to be rugged and flexible for nearly any inspection. The rugged, ergonomic design allows use in nearly any inspection environment from bench top testing in a laboratory to extreme outdoor and hazardous conditions.

Its robust structure allows it to be used in almost any inspection environment: as a bench-top instrument in laboratories or as a portable outdoor instrument under field conditions.

The user interface combines a simple menu structure for instrument settings, calibration and software feature adjustment.

The software includes powerful flaw detection capabilities:

-Dynamic curves DAC/TCG

Calculates signal amplitude as a percentage or decibel level compared to a DAC curve or a reference echo amplitude fixed at a time-varied gain.

-DGS/AVG Diagram

Illustrates the relationships between echo height, flaw size, and distance from the transducer.

-AWS D1.1 y D1.5 Rating

Provides a dynamic reflector indication rating for various AWS weld inspection applications. This allows more efficient inspections by eliminating manual calculations.

The equipment is supplied with:

- Rechargeable lithium-ion battery
- Battery charger
- USB cable
- Quick reference card
- Comprehensive operation manual
- Transport case

**Power supply:** 240 V | 50-60 Hz

**Battery life:** 15 h

**Dimensions:** 236x70x167 mm

**Weight:** 1,6 Kg



AC311