HOYTOM®

Die Maschine

English

Product Catalogue

www.hoytom.com

Founded in 1961, Hoytom is a third generation family business that has been designing and manufacturing quality control and material testing equipment for over 50 years. We are located in the Bizkaia province in the Basque Country, well-known for its strong business environment and multiple synergies.

In today's world, in which every sector strives for excellence in its components and products, Hoytom has carved a space for itself by helping companies to find points for improvement in the materials that they use in their processes, from design and production up to the final product, through its testing machines.

Our teamwork-based philosophy makes we feel the need to work hand-in-hand with our customers, developing testing solutions tailored to their requirements and specific features. This approach has allowed Hoytom to become a national benchmark in this field and also to maintain a privileged position internationally, exporting our products to countries in every continent.

HOYTOM

Universal Testing Machine

HM-D

Lab Series

3 Year Warranty

HBM

Solutions for all sectors
In the framework of its specialization, Hoytom provides solutions to all types of sectors. Our regular customers include companies in the automotive, aeronautical, metal, paper and corrugated board, plastics and wood sectors, among others. For this reason, its R&D&I department is constantly evolving, making our customers' future needs our projects of today.

One of the strengths of Hoytom is that we are a company that designs, machines and assembles the testing machines, which allows it to have full control over each of them, using highly qualified staff with extensive experience in manufacturing and assembly, together with the machine tool necessary to achieve the required quality in all its products. Located in Leioa (Basque country – Spain), 10kms from Bilbao, Hoytom's facilities are used for manufacturing, storage, offices and a calibration laboratory.

Quality and excellence are our goal and, therefore, our challenge, in which they want to involve all the customers who believe in Hoytom.

Hoytom has a calibration laboratory to provide a verification and calibration service in its customers' laboratories (in situ), certified as an ENAC Calibration Laboratory since 1996, which demonstrates our commitment to quality. Convinced of the importance of education and training, Hoytom also offers training courses to any companies, universities, research institutes or groups that request it.

Die Maschine

Pg.

TOM

8 reasons trust

to Hoytom

1

We know what we're doing

Over 55 years manufacturing quality control equipment

Founded in 1961, Hoytom is a third generation family run business that has dedicated **over 55 years** to the design and manufacture of quality control and materials testing equipment.

We design, manufacture and assemble our machines at our plant in the Basque Country, Spain. **100% European product.** We invite you to get to know our factory, so you can see how **proud** we are **of what we manufacture.**

> "Its machines are tailored to the requirements of each customer."

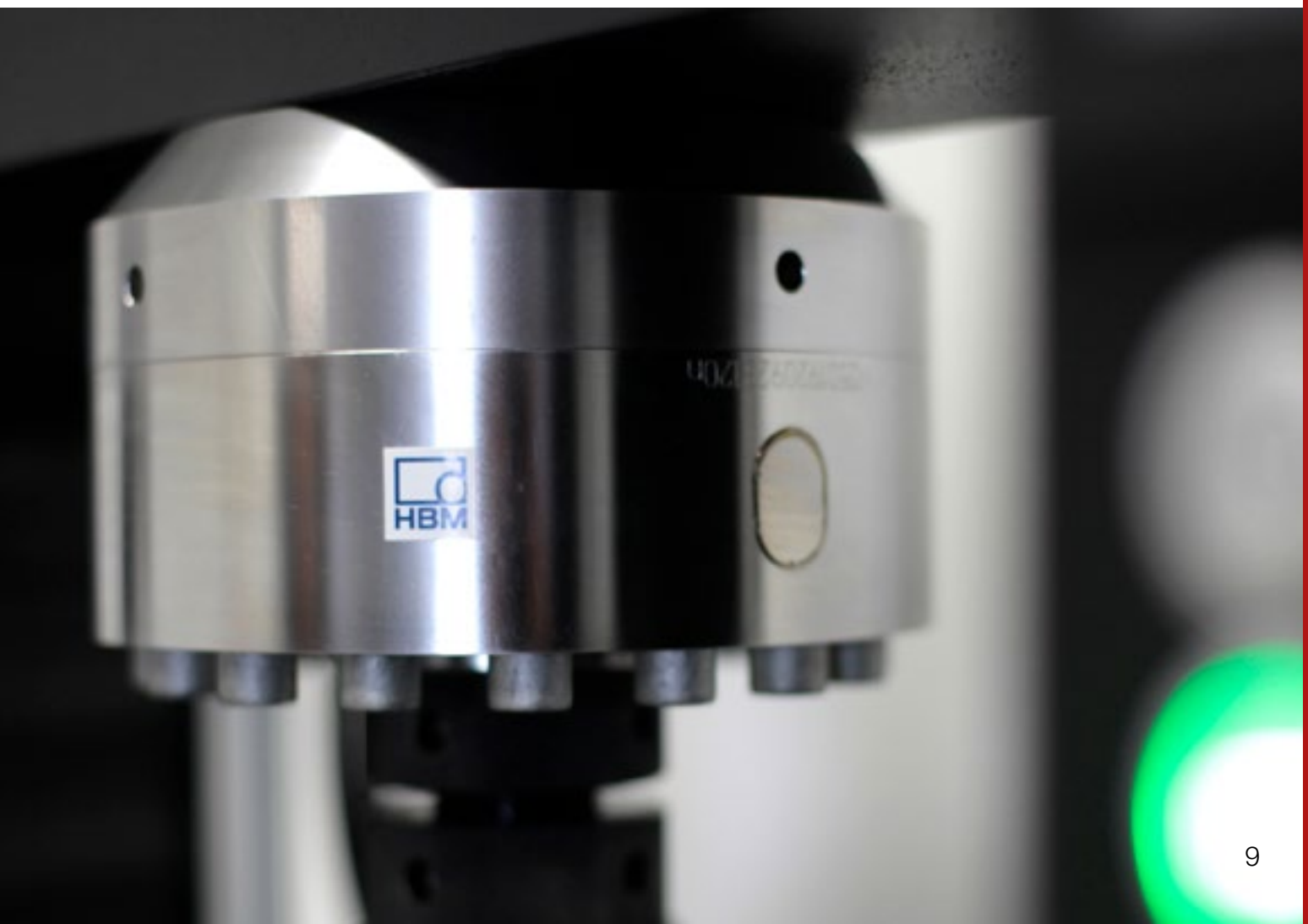
2

HBM® load cells

Leading measurement technology company

Hoytom has placed its trust in **HBM** for the **load cells** used in our machines. German firm HBM, is a **leading** technology and product and services company that produces a wide range of **measurement** applications for numerous industries.

Force transducer	
Machine accuracy (Class)	0.5
Range	0.4% – 100% FS
Resolution	0.001% FS



3

Constant innovation

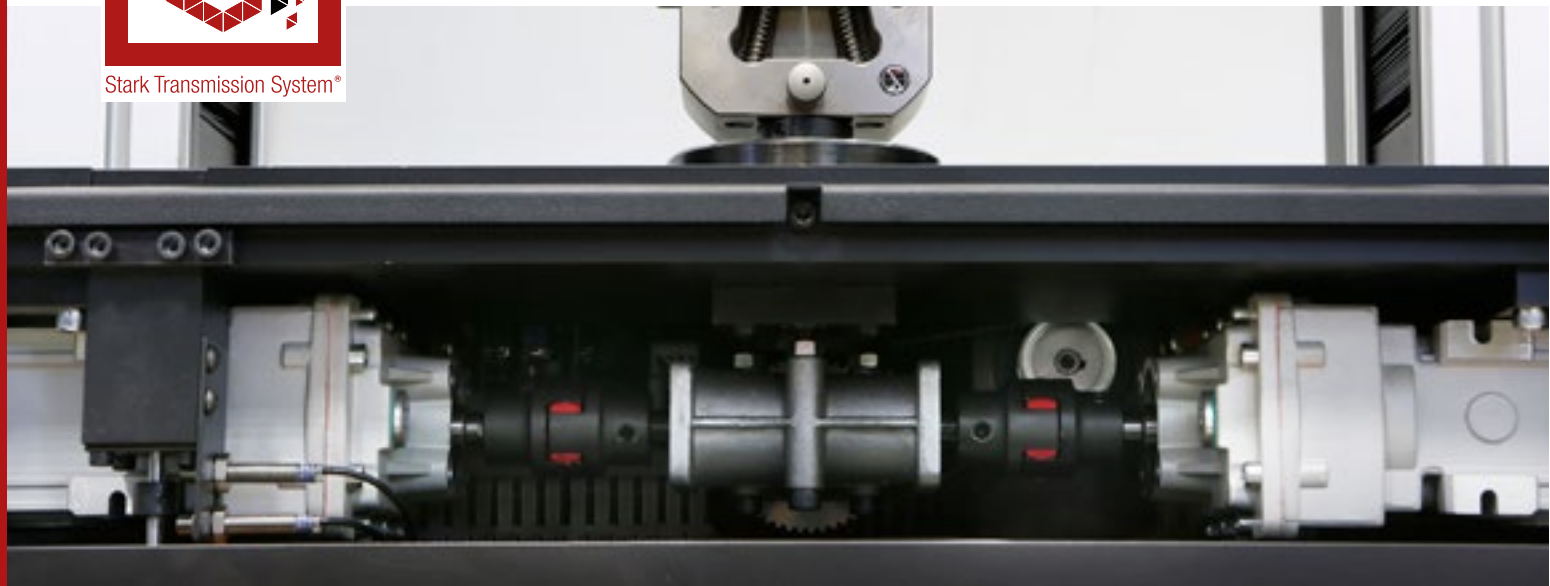
Never settle

This philosophy underlines **the design of our machines. Functionality** comes first when creating a machine, but this does not have to be at odds with **attractive and aesthetically pleasing design.**

Whenever we design a machine we think of **the end user,** which is why you should contact us if you have special specifications, and we will create a custom machine to **meet your needs.**

Stark Transmission System®

The new **Stark®** transmission system **designed by Hoytom** is one of our engineering products. This system makes machines **more stiffness, efficient** and also **reduces operational noise.**



4

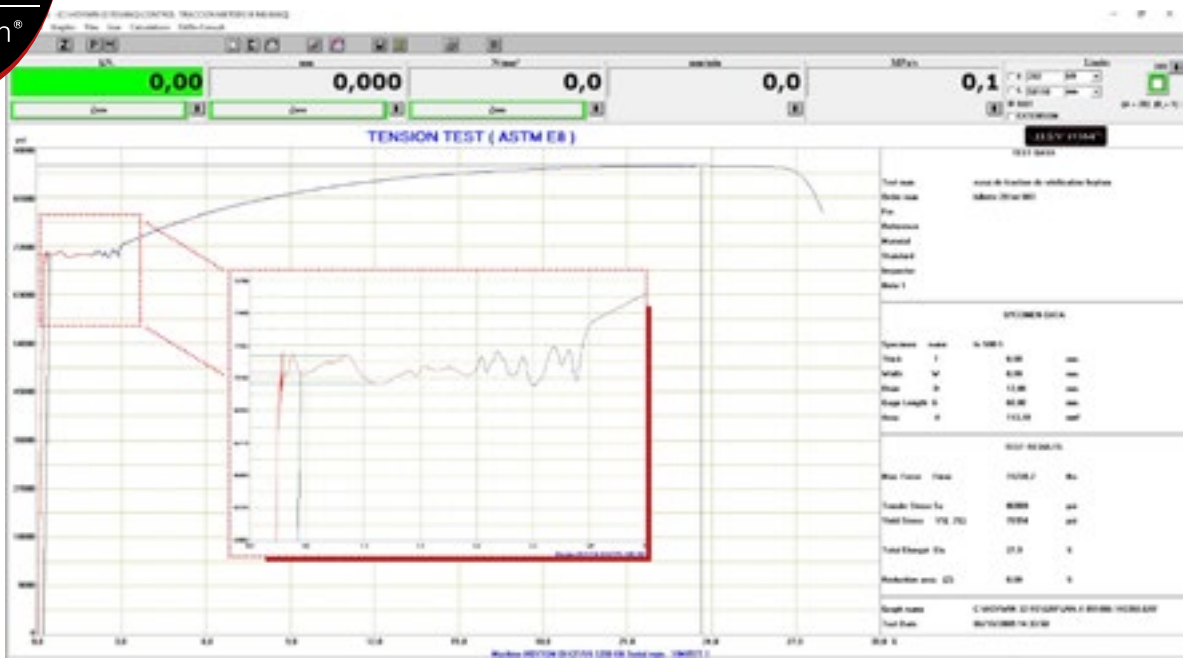
Potent Materials Testing Software

Updated to meet the latest standards

HoyWin® has been designed to be **an extension of our testing instruments,** providing efficient operation and **powerful analytical tools for each test.**

Test speed based on strain rates (Method A) and on stress rates (Method B) **according to EN ISO 6892-1 and ASTM E8.**

HoyWin® **meets** the requirements recommended in “Annex A” to standard ISO 6892-1 on the validation of project software, **under the TENSTAND project funded by the European Union.**



5

ilac-MRA ENAC CALIBRACIÓN Nº 57/LC10.035

ENAC accredited certification laboratory

Since 1996, when ENAC was founded

Hoytom has been an **ENAC accredited calibration laboratory** since 1996. We provide fully warrantied machine calibration services **at our customers' facilities.** And issue a **machine condition certificate.**

We are **accredited for Force, Extensometry and Hardness.**

+ info about our accreditation at www.enac.es

6

3 Year warranty

With all Hoytom® machines

Hoytom machines are manufactured according to **the most stringent standards** in the testing machine sector. We are so confident of this that we would like to share the benefits with our customers by offering what nobody else does: **a 3 year warranty.**

7

Our customers endorse us

They are our travelling companions

"We trust Hoytom because of their extensive experience in the measurement and quality control sector. Their machines are reliable, and their support and service are one of their strengths."
Jose Manuel Gorosabel
FAGOR EDERLAN

"Our lab contains Hoytom testing machines and hardness testers. Which they periodically calibrate. I would highlight the reliability of everything they do and their close contact."
Julian De Bustos
GRUPO ANTOLIN

"The R&D&I department at Hoytom has done a great job designing and continuously improving their machines. We recently acquired a CiHo+ hardness tester that exceeds our expectations. We trust them fully."
Oier Etxabe
GESTAMP

"The fact that they are an ENAC certified laboratory and their many years of experience generates a lot of trust. Which is why we use Hoytom when we need a testing or calibration solution."
Francisco Caamaño
TITANIA

"We needed to perform a specific test and could not find a machine on the market to meet our requirements. We contacted Hoytom and they made just the machine we were looking for. We made the right choice in contacting them."
Benito Campos
GRUPO TTT

"We've established a relationship of trust. And have spent many years working together. Their measurement equipment is precise and their quality and design reflect just how well the do things at Hoytom."
Aitziber Renteria
OLARRA

KNAUF · Volkswagen · RENAULT · Talgo · NISSAN · ITP the power of talent · CAF · Gestamp · BOSCH · FLEX N GATE

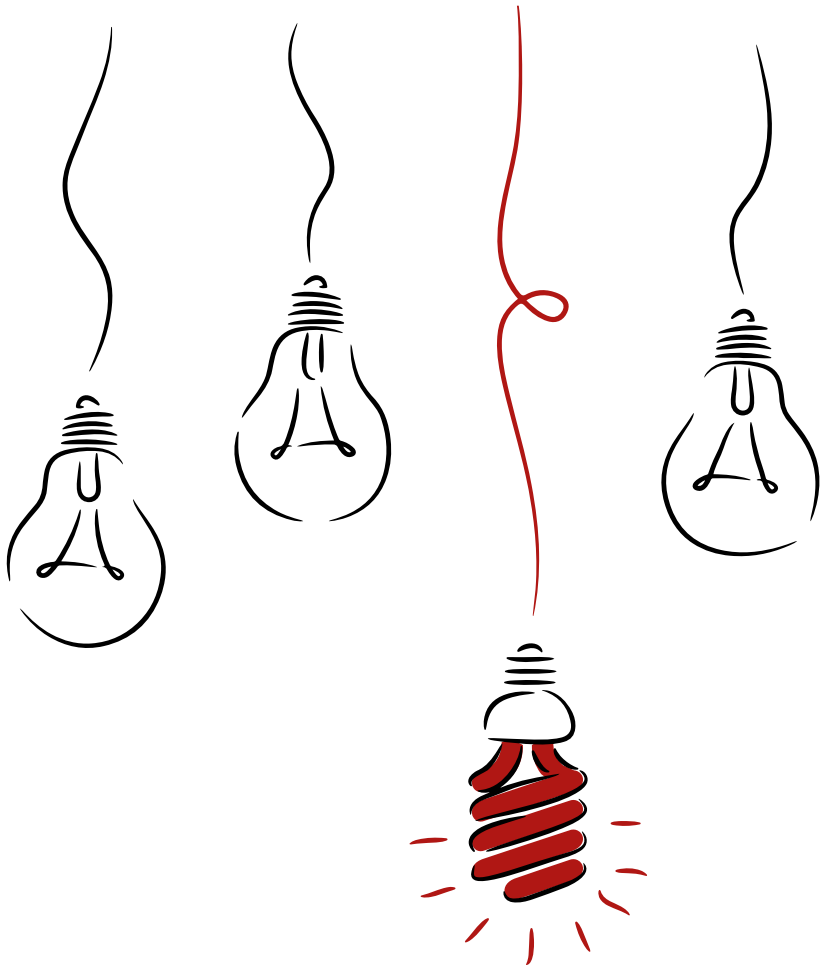
8

YOU are our eighth reason

You are our challenge

The daily challenge for any company is to satisfy its customers, but at Hoytom we want to go beyond that. We want **to form part of our customers' needs and participate in each of their projects.**

We are not conformists and are not satisfied with what is commonly taken to be "normal" or what's to be "expected". We want each company that buys a Hoytom machine to be our best ambassador and to feel, just as we do, **the value of being different,** of the fact **that ideas are infinite** and that one should pursue them and **make them one's own.**



¿Are you ready to trust Hoytom?

Material Testing Machines

Universal testing machine

HM-D Lab Series

3 Year Warranty

Technology

Stark Transmission System®

HBM

The HM-D model, which is part of the Hoytom LAB series, is made with nominal capacities between 5 and 1000 kN. Its high capacity load cell provides maximum precision across the entire measurement range. It can also be equipped with an extensive range of fixtures, such as tensile grips, T-slotted plates, compression plates, bending fixtures, extensometers, etc.

Each machine includes HoyWin® test control software, and our custom designed electronics. This enables users to get maximum performance and precision, through a simple and intuitive interface.

Typical test applications include high strength steel (HSS), aerospace and automotive structures, screws, nuts, etc.

Characteristics:

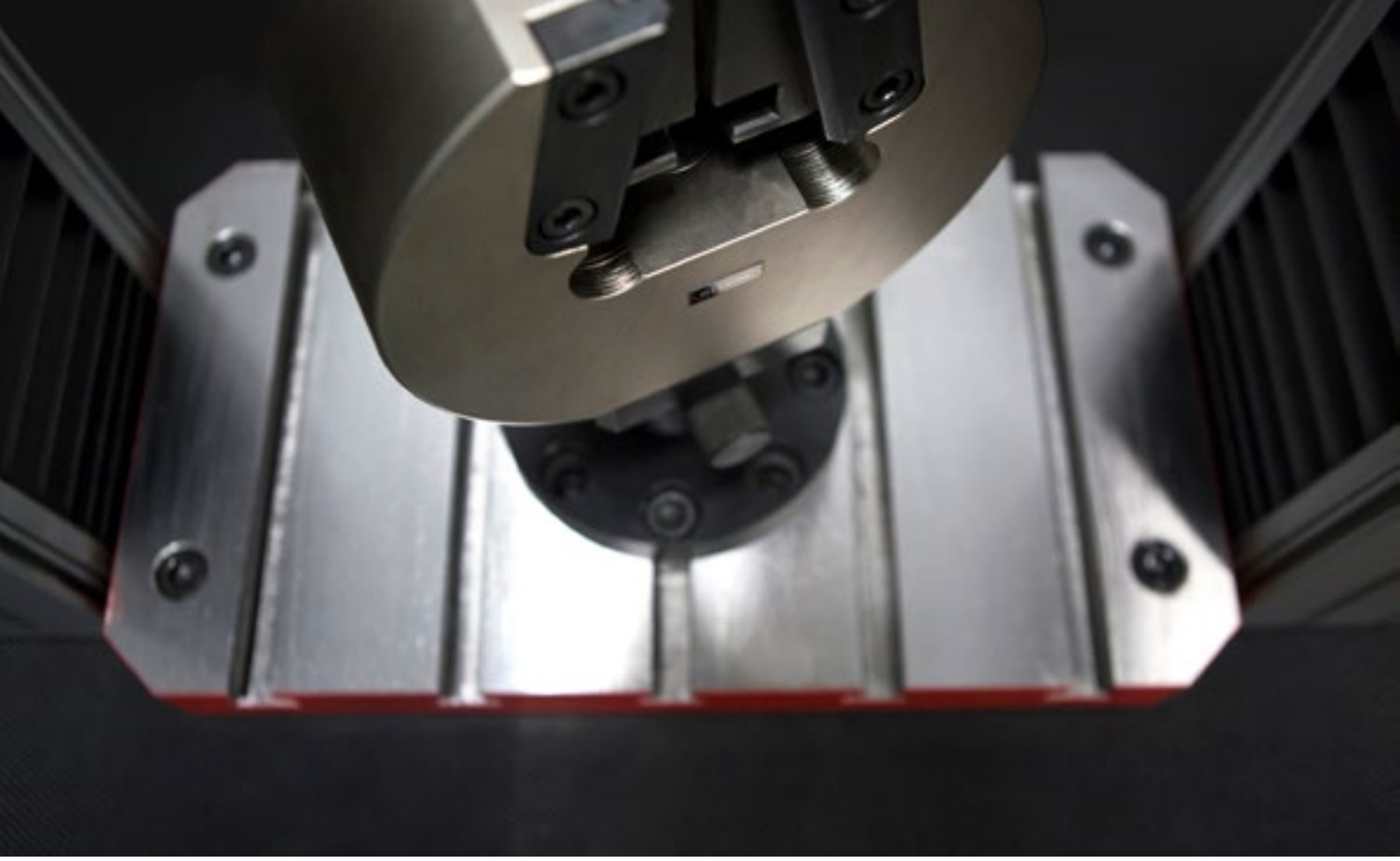
- Extremely rigid frame for minimum deformation during testing.
- Preload precision ball screws.
- HBM® load cell (international leader in this technology).
- Stark® Transmission System.
- Integrated touch screen.
- Desktop computer with HoyWin® software.
- Modern appearance.

Optional accessories:

- Manual, pneumatic or hydraulic grips.
- Large range of tools for each test.
- T-slotted plate for adapting to components with different geometries.
- Extensometers.
- Perimeter guards.
- Table to raise work area.
- Double test area.

Floor Model

Capacity kN	100	200-300	400-600	1000
Maximum Speed mm/min	600	600	350	250
Travel mm	1100 (1350) *1	1100 (1350) *1	1450	1550
Maximum vertical space *2 mm	1275 (1525) *1	1275 (1525) *1	1650	1700
Space between grips *3 mm	725 (975) *1	640 (890) *1	710	750
Space between columns mm	565	565	635	635
Dimensions (W x D x H) mm	1100 x 600 x 2100 (2350) *1	1100 x 600 x 2100 (2350) *1	1160 x 900 x 2300	1110 x 950 x 2750
Weight kg	850	900	2000	3000
Power supply V	380-400 V/III			



Tabletop Model

Capacity kN	5-20	25-50	100
Maximum Speed mm/min	1000	750	500
Travel mm	800	1000	1000
Maximum vertical space *2 mm	1000	1230	1230
Space between grips *3 mm	650	680	650
Space between columns mm	450	450	450
Dimensions (W x D x H) mm	900 x 650 x 1450	900 x 650 x 1650	900 x 650 x 1650
Weight Kg	200	380	380
Power supply V	220 V/Single phase		

Force transducer

Machine accuracy (Class) *4	0.5
Range	0.4% – 100% FS
Resolution	0.001% FS

Displacement transducer

Type	Incremental encoder on servomotor
Resolution	< 0.001mm
Accuracy	< 0.1%

*1 Models with special height.
*2 Distance without load cell or fixtures.
*3 With grips type MO-CP, MO-CN or MO-CH.
*4 According to Standards ISO 7500 and ASTM E4.

Play

Stark®
A new transmission system designed by Hoytom.

Stark provides our machines with:

\+ **Stiffness**
\+ **Efficiency**
\- **Noise**

Stark Transmission System®

Universal testing machine

DI-CP/V4 Pro Series

3 Year Warranty

Technology

HBM

The DI-CP/V4 model, which is part of the PRO series, has been designed to perform tensile, compression, bend/flex and shear testing, with nominal capacities between 400 and 2000 kN. Tension is always tested using the hydraulic grips, located in lower area, and compression in the upper test area.

Each machine includes HoyWin® test control software, and our custom designed electronics. This enables users to extract maximum performance and precision, through a simple and intuitive interface.

Applications include the testing of metals, cables, fixings, concrete, composites, etc.

Characteristics:

- Double test area.
- HBM® load cell (international leader in this technology).
- Comfortable working height for greater productivity and comfort.
- Computer with HoyWin® software.
- Modern appearance.
- Hydraulic tensile grips.

Optional accessories:

- Perimeter guards.
- Large range of tools for each test.
  Compression, nut testing
  Bending, shear, etc.
- Grips for shoulder or screw head specimens.
- Extensometers.
- Wedges to fit different specimens.

Capacity kN		400-600	1000	1500-2000
Piston speed [*1] mm/min	Forward	150	150	100
	Backward	200	250	150
Piston travel mm			500	
Space between grips mm			100-600	
Tensile horizontal space mm		620	750	810
Compression horizontal space mm		340	440	500
Maximum height mm		3400	3900	4000
Dimensions mm	Width	1050	1250	1250
	Depth	900	1000	1000
	Height	2900	3400	3500
Weight Kg		3600	5000	6000
Power supply V			380-III	

Force transducer

Machine accuracy (Class) [*2]	0.5
Range	0.4% – 100% FS
Resolution	0.001% FS

Displacement transducer

Type	Linear encoder
Resolution	< 0.01mm
Accuracy	< 0.1%

[*1] Higher speeds and larger sizes available upon request.
[*2] According to Standards ISO 7500 and ASTM E4.

Universal testing machine

DI-CP/V2 Pro Series

3 Year Warranty

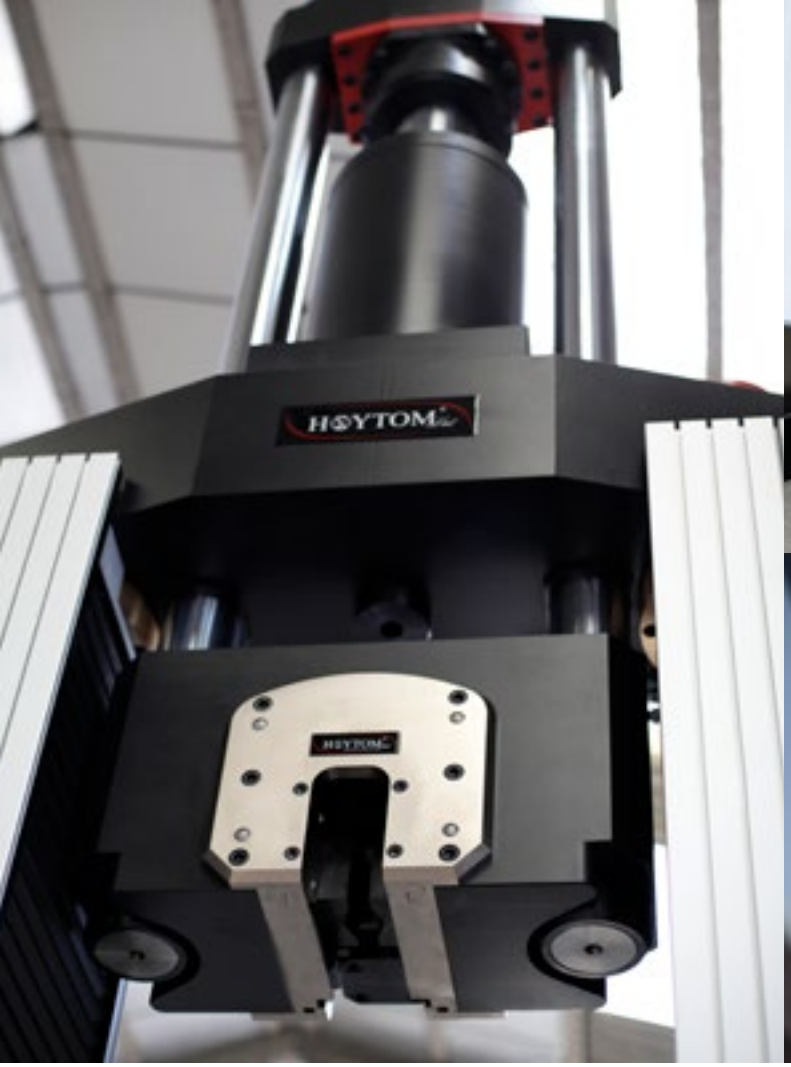
Technology

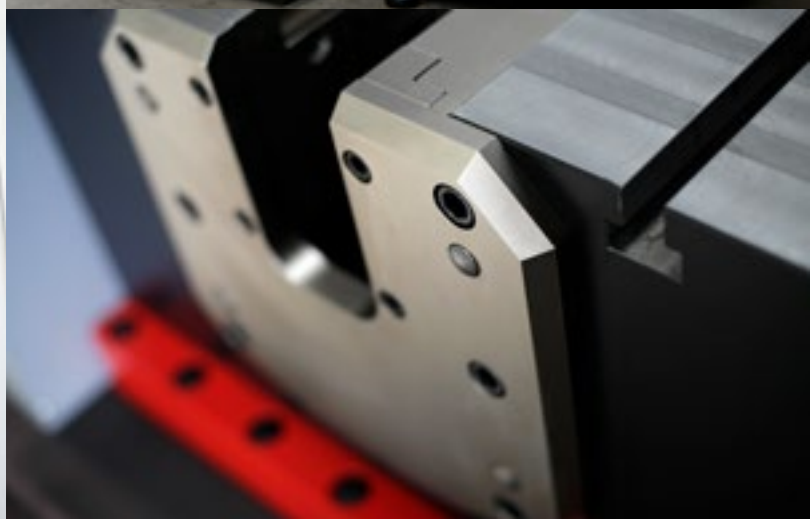
HBM

The DI-CP/V2 model, which is part of the PRO series, has been designed to perform tensile, compression, bend/flex and shear testing, with nominal capacity between 1500 and 2000 kN. Tension is always tested using the hydraulic grips, located in lower area, and compression in the upper test area.

In this model the crosshead supporting the piston can be moved electromechanically via ball screws, and thereby vary the space between the grips. This makes the equipment extremely flexible for a wide range of applications.

Each machine includes HoyWin® test control software, and our custom designed electronics. This enables users to extract maximum performance and precision, through a simple and intuitive interface.Applications include the testing of metals, cables, fixings, concrete, composites, etc.





Characteristics:

- Adjustable height upper crosshead.
- Double test area.
- HBM® load cell (international leader in this technology).
- Comfortable working height for greater productivity and comfort.
- Computer with HoyWin® software.
- Modern appearance.
- Hydraulic tensile grips.

Optional accessories:

- Perimeter guards.
- Large range of tools for each test.
  Compression, nut testing
  Bending, shear, etc.
- Grips for shoulder or screw head specimens.
- Extensometers.
- Wedges to fit different specimens.

Capacity kN			1500-2000
Piston speed mm/min	Forward		100
	Backward		150
Approach speed *1 mm/min			100
Piston travel mm			300
Space between grips mm			50-1350
Tensile horizontal space mm			890
Maximum height mm			4600
Dimensions mm	Width		1500
	Depth		1100
	Height		3400
Weight Kg			6500
Power supply V			380-III

Force transducer	
Machine accuracy (Class) *2	0.5
Range	0.4% – 100% FS
Resolution	0.001% FS

Displacement transducer	
Type	Linear encoder
Resolution	< 0.01mm
Accuracy	< 0.1%

*1 Higher speeds and larger sizes available upon request.
*2 According to Standards ISO 7500 and ASTM E4.

Universal testing machine

HM-V Pro Series

3 Year Warranty

Technology

HBM

The HM-V 5 kN model, which is part of the Hoytom PRO series, is made 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.

Each machine includes our custom designed electronics which you can read the force and travel on a touch screen. This 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.

Characteristics:

- Grips and plates included.
- Extremely rigid frame for minimum deformation during testing.
- Preload precision ball screw.
- HBM® load cell (international leader in this technology).
- Integrated touch screen.
- Modern appearance.

Optional accessories:

- Large range of tools for each test.
- T-slotted plate for adapting to components with different geometries.
- Desktop computer with HoyWin® software.
- Extensometers.
- Perimeter guards.
- Table to raise work area.

Capacity kN	5
Maximum Speed mm/min	1000
Travel mm	750
Space between grips *1 mm	580
Space between plates mm	700
Throat depth (horizontal) mm	150
Dimensions (W x D x H) mm	400 x 530 x 1160
Weight Kg	80
Power supply V	220 V/Single phase

Force transducer	
Machine accuracy (Class) *2	0.5
Range	0.4% – 100% FS
Resolution	0.001% FS

Displacement transducer	
Type	Incremental encoder on servomotor
Resolution	< 0.001mm
Accuracy	< 0.1%

*1 With grips type MO-CP.
*2 According to Standards ISO 7500 and ASTM E4.

Universal testing machine

HM-S Pro Series

3 Year Warranty

Technology

HBM

The HM-S model, which is part of the Hoytom PRO series, can achieve nominal capacities between 100 and 250 kN. Its high quality load cells provide a high degree of test precision. It can also be equipped with an extensive range of fixtures, such as tensile grips, compression plates, bending fixtures, extensometers, etc.

Each machine includes HoyWin® test control software, and our custom designed electronics. This enables users to extract maximum performance and precision, through a simple and and intuitive interface.

It is mainly geared for use in production, for repetitive testing with similar longitudinal specimens, etc.

Characteristics:

- Extremely rigid frame for minimum deformation during testing.
- Robust preload precision ball screw.
- HBM® load cell (international leader in this technology).
- Computer, HoyWin® software and monitor (peripherals).
- Modern appearance with ergonomic design.
- Easy to transport via forklift or crane.

Optional accessories:

- Manual, pneumatic or hydraulic grips.
- Large range of tools for each test.
- Extensometers.
- Perimeter guards.

Capacity kN	100-150	200-250
Maximum Speed mm/min	140	140
Travel mm	460	460
Maximum vertical space mm	900	900
Space between grips *1 mm	425	460
Space between columns mm	620	620
Dimensions (W x D x H) mm	730 x 585 x 2070	730 x 585 x 2070
Weight kg	560	600
Power supply V	220 V	

Force transducer	
Machine accuracy (Class) *2	0.5
Range	0.4% – 100% FS
Resolution	0.001% FS

Displacement transducer	
Type	Incremental encoder on servomotor
Resolution	< 0.001mm
Accuracy	< 0.1%

*1 With grips type MO-CP, MO-CN or MO-CH.
*2 According to Standards ISO 7500 and ASTM E4.

Testing machine

CTM Pro Series

3 Year Warranty

The CTM model hydraulic press, which is part of the HOYTOM PRO series, can achieve nominal capacities of up to 6000 kN. This equipment has been especially designed to test the compressive strength of cylindrical, cubic and prismatic concrete test specimens, and to test for indirect traction, in compliance with the corresponding standards.

Each machine includes Hoytom's HoyWin® test control software, and our custom designed electronics. This enables users to extract maximum performance and accuracy, through a simple and intuitive interface.

Typical applications are aimed at the construction industry, where it is used for testing materials such as concrete, rocks and cement.

Characteristics:

- Extremely rigid frame for minimum deformation during testing.
- Top plate with ball joint.
- Computer,HoyWin® software and monitor (peripherals).
- Side guard.
- Modern appearance with ergonomic design.
- Easy to transport via forklift or crane.

Capacity kN	2000 - 3000	4500	6000
Maximum Speed mm/min		50	
Piston travel mm		75	
Piston diameter mm	350	430	470
Adjustment N/s		0-10000 (via PC)	
Drive		Electro-Hydraulic	
Plate dimensions mm	Top plate Ø 320 Bottom plate Ø 410	Top plate Ø 320 Bottom plate Ø 510	Top plate Ø 320 Bottom plate Ø 520
Distance between plates mm		320	
Distance between columns mm	480	530	580
Working height mm	800	800	950
Dimensions (W x D x H) mm	1200 x 500 x 1650	1250 x 550 x 1650	1300 x 700 x 1750
Weight Kg	1550	2550	2700
Power supply V		380-III	

Pressure transducer	
Machine accuracy (Class) *1	1
Range	5% – 100% FS
Resolution	0.01% FS

*1 According to Standards ISO 7500 and ASTM E4.

HOYTOM®

Die Maschine

3 Year Warranty

Universal Testing Machine

HM-D

Lab Series

Stark Transmission System®

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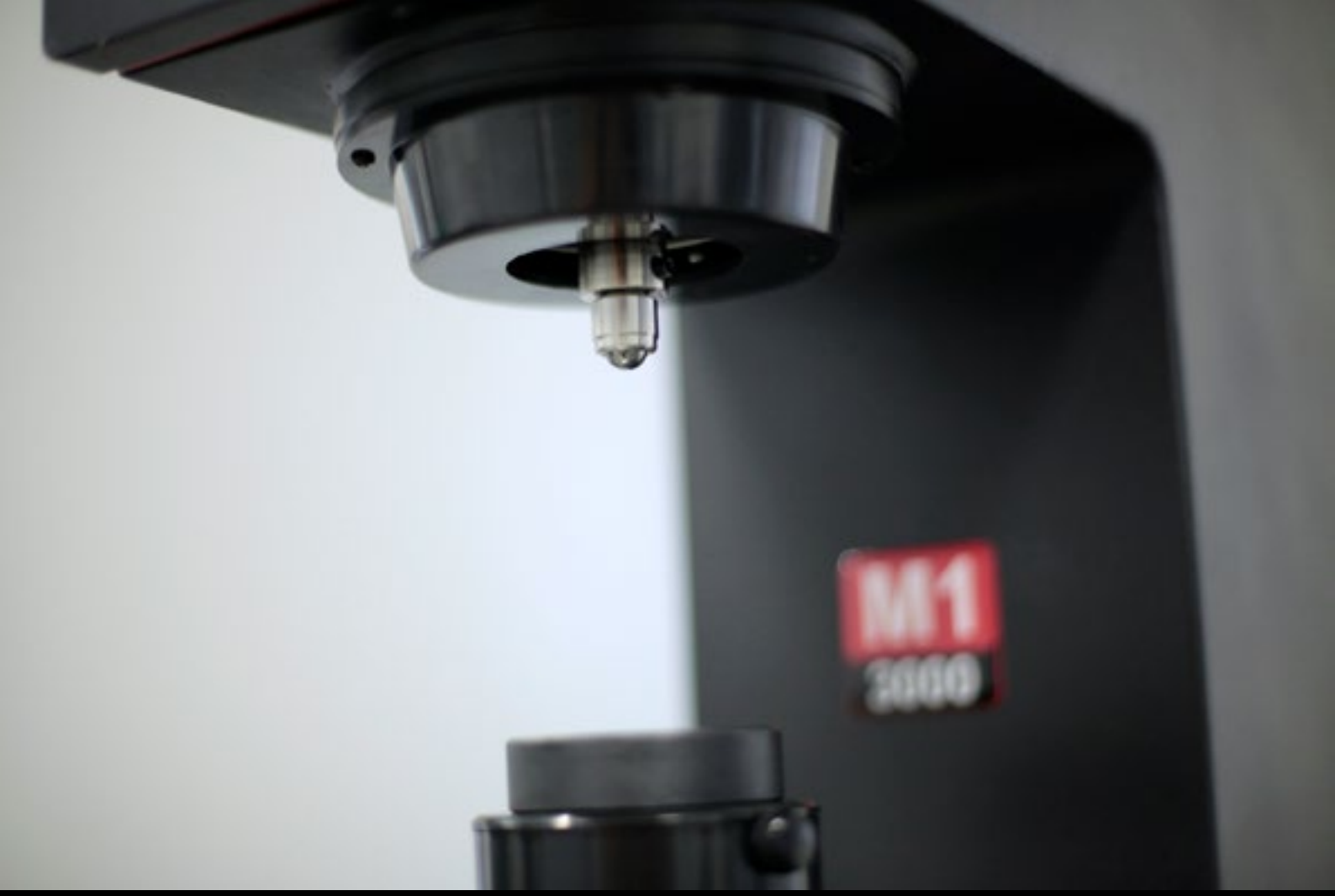
HoyWin®

Play



Hardness Testers

Rockwell hardness tester

CiHo+ SRD

3 Year Warranty

Technology

HBM

Play

This model has been developed to perform tests using the Rockwell scale (with loads of 60, 100 and 150 kp), and the Rockwell superficial scale (loads of 15, 30 and 45 kp), but can also apply additional loads for other tests, such as Brinell or Vickers. It is comprised of a motorised frame, which includes the load application systems (which employ a computer controlled force transducer).

The indentation depth is measured using by a sensor with a resolution of 0.1 microns (0.0001 mm).

The Rockwell system is used to test parts made of metal, plastic, rubber, etc. The Rockwell indenter can move horizontally and vertically to test different points on large parts.

Characteristics	
Preload kgf	3 and 10
Rockwell superficial scale loads kgf	15, 30 and 45
Rockwell scale loads kgf	60, 100 and 150
Brinell loads kgf	31.25, 62.5, 125, 187.5, 250
Vickers loads kgf	3, 5, 10, 20, 30, 60 and 100
Load application rate	Automatically adjusted
Test load selection	Via touch screen
Load cell	HBM® (international leader in this technology)
Vertical capacity mm	650
Space between columns mm	900
Dimensions (W x D x H) mm	1440 x 1160 x 1720
Read-out system	Touch screen with microprocessor (Hoytom) Direct read-out on 15” touch screen Statistical calculations (median, deviation, travel, etc.) Results in database (.mdb)

Included accessories:

- 120º diamond cone Rockwell indenter.
- 1/16” hard metal ball Rockwell indenter.
- 2.5 and 5 mm diameter hard metal ball Brinell indenter.
- Hard metal balls (spare) in each of the aforementioned diameters.
- Templates for Rockwell (HRC, HRBW).
- Support tables with horizontal support for flat pieces (Ø50 mm y Ø10 mm).
- Support tables with V-shaped support for cylindrical pieces.
- Instruction manual.

Rockwell hardness tester

CiHo SRD

3 Year Warranty

Technology

HBM

This model has been developed to perform tests using the Rockwell scale (with loads of 60, 100 and 150 kp), and the Rockwell superficial scale (loads of 15, 30 and 45 kp), but can also apply additional loads for other tests, such as Brinell or Vickers. It is comprised of a motorised frame, which includes the load application systems (which employ a computer controlled force transducer).

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- Hard metal balls (spare) in each of the aforementioned diameters.
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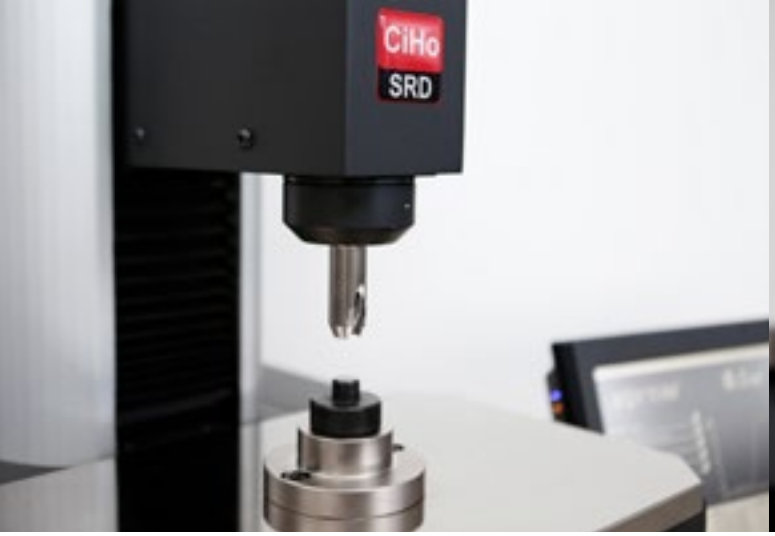
- Support tables with horizontal support for flat pieces (Ø50 mm y Ø10 mm).
- Support tables with V-shaped support for cylindrical pieces.
- Instruction manual.



Characteristics	
Preload kgf	3 and 10
Rockwell superficial scale loads kgf	15, 30 and 45
Rockwell scale loads kgf	60, 100 and 150
Brinell loads kgf	31.25, 62.5, 125, 187.5, 250
Vickers loads kgf	3, 5, 10, 20, 30, 60 and 100
Load application rate	Automatically adjusted
Test load selection	Via touch screen
Load cell	HBM® (international leader in this technology)
Vertical capacity mm	350
Goose neck (horizontal) mm	160
Dimensions (W x D x H) mm	731 x 396 x 975
Weight Kg	150
Read-out system	Touch screen with microprocessor (Hoytom) Direct read-out on 15” touch screen Statistical calculations (median, deviation, travel, etc.) Results in database (.mdb)

Brinell hardness tester

M1 3000

Pro Series

3 Year Warranty

The M1-3000 model is a semi-automatic hardness tester that can perform Brinell hardness tests between 62.5 and 3000 Kg, in a fast and simple manner.

Its load application system includes a force sensor directly above the indenter, providing maximum measurement precision and excellent stability of applied loads.

It includes a touch screen for test selection and displaying the load applied.

The “LHB” camera and software can be included for indentation measurement.

Characteristics:

- Load selection via touch screen.
- Selectable loads: 62.5, 100, 125, 187.5, 250, 500, 750, 1000, 1500 and 3000 kgf.
- High precision load cell.
- Manual bottom ball screw.
- Semi-automatic motorised operation.
- Selectable load application times.

Included accessories:

- Brinell indenter - Ball Ø10.
- Brinell indenter - Ball Ø5.
- Brinell indenter - Ball Ø2.5.
- Spare balls for each indenter.
- Brinell template HBW 10/3000.
- Indentation measurement microscope (20x).
- Horizontal support table.
- V-shaped support table.
- Brinell conversion tables.

Characteristics	
Maximum load Kg	3000
Vertical capacity mm	225
Goose neck (Horizontal) mm	135
Dimensions (W x D x H) mm	200 x 530 x 750
Net weight Kg	130
Power supply V	220

Rockwell & Brinell Hardness tester

Link RB

3 Year Warranty

The Link RB model is a Rockwell hardness tester that is capable of applying loads of 60, 100 and 150 Kg. It also has additional loads for Brinell tests (31.25, 62.5 y 187.5 Kg).

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

Characteristics:

- Selectable Rockwell and Brinell loads.
- Load selection via rotary controller.
- Loads applied via motor.

Characteristics	
Preload Kg	10
Rockwell scale loads Kg	60 - 100 - 150
Brinell loads Kg	31.25 - 62.5 - 187.5
Vertical capacity mm	170
Goose neck (Horizontal) mm	165
Dimensions (W x D x H) mm	215 x 520 x 700
Net weight Kg	100
Power supply V	220

Included accessories:

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

Rockwell hardness tester

Minor R **Minor S**

3 Year Warranty

The Minor-R and Minor-S models are quick and simple hardness testers, that enable direct readings to be taken using the Rockwell and Rockwell superficial scales respectively.

Test loads applied via the incorporated lever and weights system. Loads are easily selectable via a rotary dial.

Characteristics	Minor R	Minor S
Read-out system	Analogue	
Preload Kg	10	3
Loads Kg	60 – 100 – 150	15 – 30 – 45
Vertical capacity mm	175	
Goose neck (Horizontal) mm	165	
Dimensions (W x D x H) mm	550 x 185 x 760	
Packing (W x D x H) mm	625 x 465 x 875	
Net weight Kg	100	
Resolution HR	0.5	
Rockwell type	Rockwell	Superficial Rockwell

Included accessories:

- Rockwell indenter - Ball 1/16”.
- Rockwell indenter - Diamond cone.
- Spare balls.
- Rockwell HRC and HRB template. (For Minor R).
- Rockwell HRN and HRT template. (For Minor S).
- Flat support table Ø60 mm.
- Flat support table Ø150 mm (Optional).
- V-shaped support table Ø40 mm.
- Case with accessories.
- Instruction manual.
- Rockwell tables.

Pendulum Impact Testers

Pendulum Impact Tester

CHARPY Pro Series

IZOD Pro Series

3 Year Warranty

For Metals

The Hoytom pendulum impact tester has been designed to test metals according to the Charpy or Izod impact testing standards. It is available in capacities from 150 to 750 Joules.

It can run tests automatically, and is operated via a simple and intuitive touch screen. Its octagonal guard includes a polycarbonate sliding door with an electrical interlock, which meets the requirements for CE marking and Standard ISO 13849.

Characteristics:

- Available capacities: 150, 300, 450 and 750 Joules.
- Fully automatic.
- Ability to run quick test cycles.
- Electromagnetic brake enables hammer to be launched safely.
- Motorised hammer elevation with automatic return after each test, provides enhanced productivity and safety during use.
- Automatic test initiation upon closure of guard door.
- Manufactured using low friction rigid components.
- Simple touch screen operation.
- Charpy impact blades according to ASTM and ISO.
- Charpy impact test for metallic materials (EN 10045).
- Self-centring specimen placement grips (According to ISO 148-1 and ASTM E23).
- Pendulum geometric characteristics verification template (According to ISO 148-2).

Optional accessories:

- Concrete fixing base.
- Automatic centring stop.
- Data acquisition software for connecting machine to a PC.

Capacity Joules	150/300/450/750
Release angle Degrees	150
Pendulum length mm	800
Maximum impact speed m/s	5.42
Resolution Joules	0.01
Dimensions (W x D x H) mm	2110 x 700 x 2110
Net weight Kg	1300
Power supply V	220
Power w	750

For Plastics and Composites

The Hoytom tabletop pendulum impact tester has been designed to test plastics and composites according to the Charpy or Izod impact testing standards.

It is available in capacities from 2 to 25 J. It is operated via a simple and intuitive touch screen.

Its octagonal guard includes a polycarbonate door, which meets the requirements for CE marking and Standard ISO 13802.

Characteristics:

- Available capacities:
  ISO 2, 4, 5, 7.5, 15, 25 / ASTM 2.7, 5.4, 10.8, 21.6 / IZOD 2.75, 5.5, 11, 22
- Automatic brake.
- Automatic test initiation upon closure of polycarbonate guard door.
- Simple operation via touch screen.
- Charpy impact blades according to ASTM and ISO.

Capacity Joules	ISO Charpy		ASTM Charpy	ISO/ASTM Izod
Pendulum length mm	Up to 5J 230	From 5J 340	340	340
Maximum impact speed m/s	Up to 5J 2.9	From 5J 3.46	3.46	3.46
Resolution Joules	0.01		0.01	0.01
Dimensions (W x D x H) mm	1000 x 600 x 1000			
Optional Table Dimensions (W) mm	+ 700			
Net weight Kg	200/300			
Power V	110-240			

Accesories

Testing Machine Accessories

UNIVERSAL GRIPS

Hoytom grips are notable for their quality and design, and offer a choice between hydraulic, manual or pneumatic operation.

Also, if a special grip is required the Hoytom R&D team will design a wedge to suit the test the customer wishes to perform. The range of capacities and wedges are the perfect accessory to Hoytom's universal testing machines.

Hydraulic

Capacities	Wedges
25-50-100 kN	Flat wedges 0-8 mm Round wedges 4-10 mm
150-200-250-300 kN	Flat wedges 0-12 mm Round wedges 6-16 mm
400-500-600 kN	Flat wedges 0-16 mm Round wedges 8-20 mm
1000 kN	Flat wedges 0-25mm o 25-50 mm Round wedges 10-30mm o 30-50 mm

Manual and Pneumatic

Capacities	Wedges
5-10-20 kN	Flat wedges 0-8 mm Round wedges 4-10 mm
25-50-100 kN	Flat wedges 0-12 mm Round wedges 6-16 mm
150-200-250-300 kN	Flat wedges 0-16 mm Round wedges 8-20 mm

WEDGES FOR GRIPS

Wedges for testing flat or cylindrical specimens with different thicknesses and diameters.

Adaptable to multiple materials. Their ribbed shape ensures specimens are held and do not move, thereby minimising any possibility of error during test calculations.

COMPRESSION PLATES

Hoytom compression plates are easy to install and adapt to any type of test.

There are two types of compression plate, with and without self aligning ball joint to compensate for a potential lack of specimen parallelism.

BENDING FIXTURE

Hoytom bending fixtures can perform tests with variable length support points.

They adapt to standard or customer specifications via their rollers and punches.

SHEAR

Hoytom designs different fixtures for shear testing according to internal standards or customer specifications.

MARSHALL AND CBR PUSH PISTONS

Push pistons for Marshall and CBR tests. Enables testing according to the Standard on bituminous mixtures and asphalts.

EXTENSOMETERS

Hoytom supplies extensometers from the German brand MF. MF is recognised globally for its excellent reliability and precision.

The difference between the different extensometers resides in their abilities to calculate:

- Plastic extension
- Plastic and total extension
- Transverse strain for calculating R and n-values

SPECIAL FIXTURES

Our machines use fixtures to adapt to test materials or products.

At Hoytom we manufacture the fixtures required by our customers according to their specifications.

T-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.

The plate is directly attached to all HM-D LAB SERIES models and can also be used for conventional testing by attaching the Hoytom grips and common fixtures adapter.

SAFETY GUARD

100% recommended accessory. The Hoytom guard ensures machine operator safety in the event of any potential projection from a broken specimen or tested material.

In addition, the electrical safety will stop the test if the door opens.

ERGONOMIC BASE

Hoytom recommends the ergonomic base accessory for its testing machines. It is the perfect accessory for tabletop machines.

This base raises the machine to a more comfortable working height, and thanks to its large capacity drawer you can save the specimens or materials you regularly use with each test inside.

KILNS AND ENVIRONMENTAL CHAMBERS

Hoytom's kilns and environmental chambers enable the execution of temperature-controlled test simulations in compliance with the various international test standards.

DOUBLE TEST AREA

This option allows assembly and disassembly tasks to be avoided in cases where different types of tests are necessary using different fixtures, with the corresponding time saving and ease of use benefits.

A second load cell can also be attached, and each area used for different load capacities.

SPECIAL HEIGHT

The special height enables long travel testing to be performed or for specimens with special dimensions to be tested.

Hardness Tester Accessories

BRINELL CAMERA

The “HOYTOM - LHB” Brinell indentation digital measuring device is a portable system that enables Brinell indentations to be quickly, simply and precisely measured. In addition, all captures are saved in an internal database, together with the results obtained therefrom.

Equipped with USB camera, Tablet PC/laptop and data read and write software.

USB digital microscope:
- Excellent image quality
- USB 2.0 connection
- Measurement ranges

Measurement ranges
Option 1: from 2.4 - 6 mm
Option 2: from 0.6 - 3 mm

BRINELL MAGNIFIER

Magnifier for reading Brinell indentations.

Magnification	Measurement range	Resolution
20 x	7 mm	0,05 mm
30 x	5 mm	0,025 mm
40 x	4 mm	0,02 mm

INDENTERS

Indenters for different hardness methods with official UKAS certification.

Rockwell B, C and Vickers indenters.

SPECIMEN TEMPLATES

Specimen templates with UKAS certification with different hardnesses and ranges.

Hardness Tester Machine

CiHo

Lab Series

HBM

HOYTOM®

Die Maschine

3 Year Warranty

Pendulum - Impact Tester Accesories

MOTORISED NOTCHING

The Hoytom variable speed motorised notching machine uses a fast and precise machining process to create notches for Charpy and Izod testing.

Broaches are easily interchangeable, and have been produced to create different sized notches according to standards ISO, EN, ASTM and BS. The speed controller enables the machining of harder materials, and increase broach durability.

The machine is very comfortable and simple to use. When the proper broach is installed, the specimen must be adjusted and fixed using the fixing clamp and adjustment system. Then, after having selected forward speed according to the material, press the down button to start machining.

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

Broaches are not included with the notching machine.

Technical characteristics

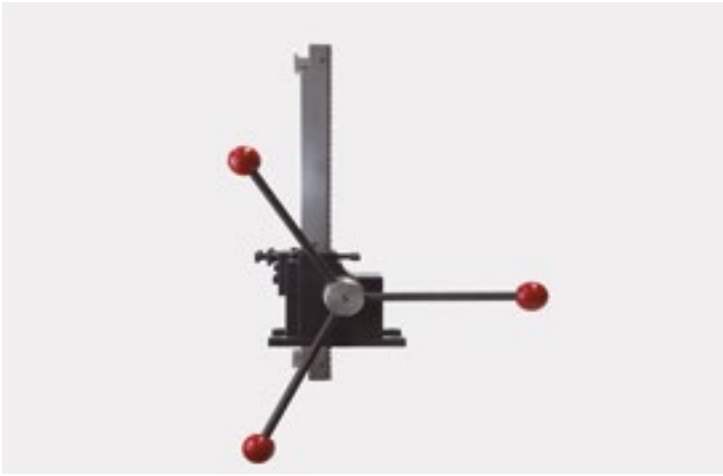
Cutting speed mm/s	Adjustable 6 – 30
Return speed mm/s	37
Specimen type mm	Squared 10x10 *1
Machine dimensions mm	400 x 400 x 1250
Weight Kg	125
Packaging dimensions mm	680 x 680 x 1400
Weight with packaging Kg	160

*1 Contact us for other specimen types.

MANUAL NOTCHING

The Hoytom´s manual notching machine is 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.



BROACHES

Broaches for creating notches on Charpy and Izod specimens according to international standards EN ISO148-1 and ASTM E23.

Notch	Depth	HRC hardness
V	2 mm	< 42 or < (52 *1)
U	5 mm	< 32 or < (42 *1)

*1 Broach with special coating.

PENDULUM BASE

The Hoytom Pendulum base guarantees foundation mass according to standard EN ISO148-2.

Material Testing Software

HoyWin®

The HoyWin® software is available for Hoytom testing machines. HoyWin® has been designed to be an extension of our testing instruments, providing efficient operation and powerful analytical tools for each test.

HoyWin® meets the requirements recommended in “Annex A” to standard ISO 6892-1 on the validation of project software, under the TENSTAND project funded by the European Union.

HoyWin®

- HoyWin® software
- PC + Monitor + Keyboard + Mouse
- Microsoft Windows PRO

Creation of test definition files with up to 10 user defined fields
To ensure test definition, test files can be created, or opened after having been run, thereby providing identification and the option to recover and check the settings at any time.

Creation of machine control files
Predefined control files for executing main tests according to international standards. Test speed based on strain rates (Method A) and on stress rates (Method B) according to EN ISO 6892-1 and ASTM E8. Optional easy user programming of different machine control files, with up to 20 steps for the definition of other required tests.

These steps can be adjusted for:

- Stress rate (MPa s^{-1})
- Strain rate (s^{-1})
- Parallel length strain rate (s^{-1})
- Grip separation rate (mm s^{-1})

Creation of specimen files for the definition of

- Test piece type
- Test piece dimensions
    - Original cross-sectional area of the parallel length (S_0)
    - Original gauge length (L_0)
    - Parallel length (L_c)
    - Extensometer gauge length (L_e)
- Machine control file selection

Calculations performed
The HoyWin® program meets the requirements in “Annex A” of standard EN ISO 6892-1 regarding data sampling frequencies, in addition to the validation of machine software. The software can be validated using the files created by the TENSTAND project, funded by the European Union www.npl.co.uk/tenstand

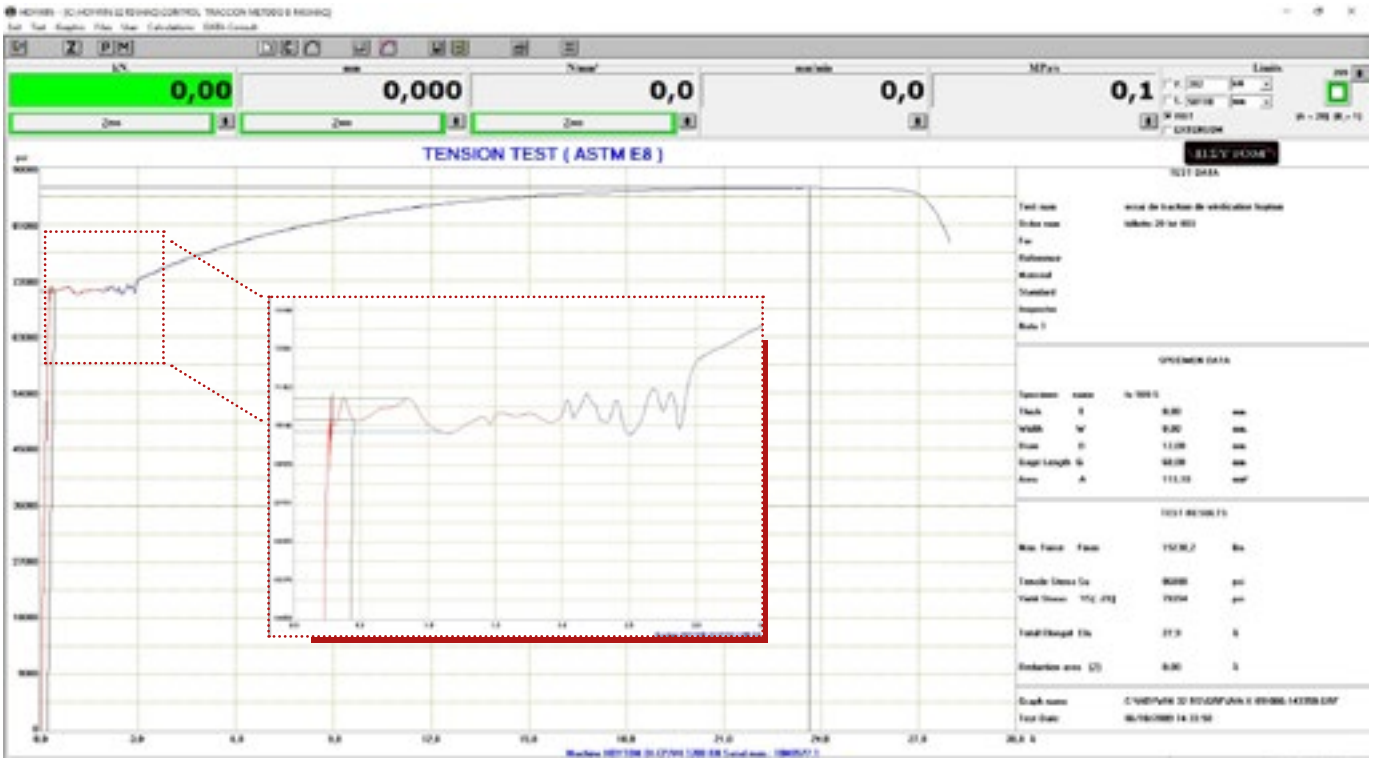
The program is configured for each customer to display different calculations:

- R_m Tensile strength
- R_{eH} Upper yield strength
- R_{eL} Lower yield strength
- R_p Plastic extension
- R_t Total extension
- E Modulus of elasticity
- A Percentage elongation after fracture
- ...

Data and chart visualisation

- Real-time chart visualisation during test execution.
- Option for the simultaneous visualisation of up to 5 different parameters.
- Manual selection of chart scales and SI units (International System of Units).
- Zoomable critical chart areas.
- On-screen comparison between different charts.
- Save charts to later visualisation and analysis, even from another PC.
- Save results in .mdb format for consultation and report creation.

The HoyWin® software is available for Hoytom testing machines. It may also be installed, together with the electronics, on modernisations for other brand machines.



Test speed based on strain rates (Method A) and on stress rates (Method B) according to EN ISO 6892-1 and ASTM E8.

HOYTOM®

Die Maschine

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3 Year Warranty

with all Hoytom® machines

3 Year Warranty

When you purchase a Hoytom® machine the equipment comes with a 3 year warranty.