BUILDING

Testing building materials is a wide and very important sector all over the world. HİRA Testing Equipment Co. provides reliable and convenient testing devices for safer and stronger building structures.

With developing of structure technologies buildings are longer and more functional. We are following technologic developments and applying all to our devices.

The Building section consists of detecting the deformations of various materials such as concrete, cement, metal, rock, asphalt, soil, etc. You will find sufficient types of Hydraulic Testing equipment that conform to various standards as well as accessories such as grips, fixtures and load cells.

Our product range for test on steel includes universal hydraulic machines to perform tensile, compression and flexural tests on metallic materials.

CONTENTS

UNIVERSAL TESTING MACHINES

STANDARDS: EN ISO 15630-1, EN ISO 6892-1, EN ISO 7500-1, TS 708, TS EN 10080

Universal Hydraulic Tensile Test Machine (600/1000 kN capacity) is designed to test the ferrous materials for structural values such as yield strength and tensile strength. Apart from tensile tests, Universal Test Machines can also be used for compression tests up to the capacity of the machine and Bending Tests on 8-20 mm diameter rebars. Bending apparatus and mandrels for Bending tests and Ball Seating Assembly for compression tests should be ordered separately.

To Test Core samples up to 100 mm upper platen must be ordered separately.

Maximum security is maintained on 600kN/1000 kN capacity Universal Test Machine by limit switch on the lower grip as well as the safety check valves on the hydraulic system. Hydraulic power unit works silently.

0-40 mm flat and 8-32 mm round samples can be tested on 600 kN capacity frame and 0-40 mm flat and 8-40 mm round samples can be tested on 1000 kN capacity frame with a user-friendly hydraulic jaws that comply with standards.

Load cell is used to measure stress. Strain measurement is done by the electronic displacement transducer built in the machine.

Tests can be done fully automatic by digital control unit or computer. Machine completes the test with the set pace rate and turns to start position automatically.

The distance between the grips can be set by motor driven handset system. The system is controlled by a hand up/down system. With open front hydraulic wedge grips user can load specimen easily.

HR-B6000

HYDRAULIC GRIPS

Hydraulically operated grips, completely stop the possibility of sample sliding from the grips enabling for correct and definite strain measurements. Hydraulic grips are very safe and user friendly. The hydraulic grips has an independent hydraulic power unit with a working pressure of 400 bars.

600 kN capacity Machine is supplied with 8-32 mm round samples grip set and 1000 kN capacity Machine is supplied with 8-40 mm round samples grip set.

Jaw faces for flat samples should be ordered separately.

BENDING APPARATUS

Bending Apparatus is used for Bending Tests on 8-20 mm diameter rebars.

Can be chosen HR-B6100 & HR-B1100 Models Tensile-Bending Testing Machine for Ø 8-40 mm rebars.

The test piece is bent over a mandrel.

The angle of bend and the diameter of the mandrel should be selected in accordance with the relevant product standard.

The bend test is performed with a minimum angle of bend of 180° over a mandrel according to TS 708 and TS EN 10080 Standards.

After the test, it is checked whether there are any visible breaks or cracks on the test pieces.

Bending apparatus and mandrels for bend tests should be ordered separately.

HYDRAULIC POWER PACK AND DIGITAL DATA ACQUISITION & CONTROL SYSTEM

Hydraulic Power Pack

Hydraulic Power Unit is designed to control the machine and processing of data from load-cell and displacement transducers which are fitted to the machine.
Controller unit has a simple and compact configuration.

Very silent power pack can load the specimen between 2mm/min - 18mm/min with an accuracy of ±5%. Safety valve (maximum pressure valve) is used to avoid machine overloading.

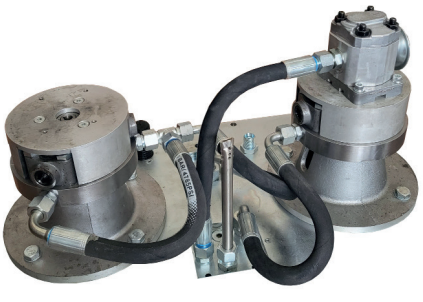
All the operations of Graphic Display are controlled from the front LCD display and function keys 2 analogue channels are provided for load-cells and displacement transducers.

It has easy to use menu options. It displays all menu option listings simultaneously, allowing the operator to access the required option in a seemless manner to activate the option or enter a numeric value to set the test parameters. The digital graphic display is able to draw stress vs. strain graph.

Dual Pumps

The dual pumps are formed by two groups;

1. Grip pump with dual stage pump
2. Piston pump to make tensile and compression tests



HİRA Test HR-B6000 & HR-B1000 tensile testing machine consist of two independent pumps working in one oil tank system.

One pump is controlled with digital readout unit with 3 phase controlled with and inverter to make test, other runs with a pedal to supply pressure to the grips. Grip pump has dual stage pump inside.

On the dual stage pump, a high delivery, low pressure gear pump is used for rapid approach, for quick gripping the rebar while a low delivery, high pressure radial piston pump is used for 400 bar grip pressure.

Two Motors

The motor which drives the main pump in an AC motor and it is controlled by motor inverter. The variation in the oil flow is executed with the variation of the rotation speed of the motor.

The motor which drives the grip pump in an AC motor and it is controlled by a manual pedal. The maximum pressure of the grips can be monitored by a 0-600 bar manometer fitted to the end of the pipe of upper and lower grip connection.

Two Distribution Blocks

Two distribution blocks are used to control the oil flow direction supplied by the pumps, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Transducer and High pressure radial piston pump for main pump to make the test and Solenoid valve, Safety valve (max. pressure valve), low pressure gear pump and High pressure radial piston pump for grip pump.

Oil Tank

The tank includes enough oil to fill the mechanism which pushes the piston up during the test. The level and oil temperature can be seen on the indicator fitted to the tank. It has 60 L capacity. Hydraulic motor oil, number 46, must be used.

HİRA TESTING EQUIPMENT

Digital Data Acquisition & Control System

The unit is designed to control the machine and processing of data from load-cells and displacement transducers which are fitted to the machine.

All the operations of the unit is controlled from the front panel consisting of a LCD display and function keys.

The unit has easy to use menu options.

Digital graphic display unit loading rate of the time of Testing and load values can be monitored.

Digital graphic display is able to draw real-time “Load vs. Time”.

Software

Sample, company, laboratory and test values can be entered in the programme.

Stress-Strain, Load-time graphic, test reports and sample reports can be taken.

Software provides test data, results, and the Stress-Strain graphs can be seen at LCD screen.

The Universal Testing machine can be controlled (Start, Stop commands) by a computer with the software free of charge. This software provides data acquisition and management for compression, tensile and splitting tensile test throughout the test execution. The advanced functions for data base management provide an easy navigation of all saved data. The test results certificate includes all descriptive information. Therefore, test parameters can be set and details about the test carried out such as client details, test type, specimen type, user info and other information required can be entered and printed out as well as test report and graph.

Universal Test Software is developed for testing tensile strength of Reinforcing Rubbed Steel Bars and Welded fabric for the Reinforcement and Prestressing of Concrete. The software includes control of machine, data acquisition, saving them and preparing reports. The software accepts sample’s weight, length, diameter and gauge length as input, and then the user can give start test command to the machine. The samples calculated diameter gives user a perspective about the density of rebar prior to the test. The software continuously updates load, stress and elongation percentage till the break point. The software is prepared as making at least 3 samples for each diameter. This gives user a total report about all the batch. The report includes all standard limits and one can easily check whether the sample can be acceptable. These limits are minimum yield, minimum tensile, minimum break elongation value, Tensile per yield ratio etc. Software can be performed in Turkish and English.
Test results, graphics and properties of 12 different specimens can be saved in one folder. Old test folders can be reviewed and be edited easily. Advanced Graphic User Interface Software.

User can highlight all 12 different specimen curves in different colors on the graphics.

Frequently used information like name and location of the laboratory, type and dimensions of mostly used specimens are held in memory and can be written automatically by right clicking on information boxes and selecting frequently used text in menu.

User can access any data of previously completed tests and use in his/ her new report since most of the tests have same structure and properties.

Main Features

•Can make test with displacement control.

•Real time display of test graph.

•2 analog channels (one for load cell, one for displacement transducer)

•10 data per second sample rate for each channel

•Multi-language support (Turkish and English)

•2 different unit system selection; SI and metric

•Real-time clock and date

•RS-232 serial port connection with the device

•Free of charge PC software for the test control and advanced report generation

Technical Specifications:

Product Name		Universal Testing Machine			
Product Code		HR-B6000	HR-B6000/60Hz	HR-B1000	HR-B1000/60Hz
Capacity		600 kN		1000 kN	
Test Speed		2mm/min - 18mm/min		2mm/min - 18mm/min	
Load Measurement Accuracy		± %1		± %1	
Displacement Measurement Resolution		0,01 mm		0,01 mm	
Columns Diameter	Lower	50 mm		60 mm	
	Upper	70 mm		80 mm	
Vertical Test Distance	Tension	Minimum 70 mm		Minimum 70 mm	
		Maximum 300 mm		Maximum 320 mm	
	Compression	Maximum 110 mm		Maximum 110 mm	
Distance Between Columns		460 mm		480 mm	
Piston Stroke		150 mm		200 mm	
Maximum Pressure	Grips	400 bar		400 bar	
	Load	200 bar		320 bar	
Weight		1850 kg		2050 kg	
Height		2400 mm		2400 mm	
	Max. stroke	2650 mm		2700 mm	
Power Supply		220 V, 50 Hz, 1ph	220 V, 60 Hz, 1ph	220 V, 50 Hz, 1ph	220 V, 60 Hz, 1ph

Mandrels for Bending Apparatus:

Specimen Nominal Diameter	Maximum Mandrel Dia. (mm)		Specimen Nominal Diameter	Maximum Mandrel Dia. (mm)		
	TS 708			TS EN 10080		
d (ø) (mm)	Mandrel Code	Ø 5d	d (ø) (mm)	Mandrel Code	d ≤ Ø 16 3d	d > Ø 16 6d
8-9	HR-B6015/1	40	**8-9**	HR-B6015/11	24	---
10-11	HR-B6015/2	50	**10-11**	HR-B6015/12	30	---
12-14	HR-B6015/3	60	**12-14**	HR-B6015/13	36	---
16-18	HR-B6015/4	80	**16**	HR-B6015/14	48	---
20	HR-B6015/6	100	**18-20**	HR-B6015/15	---	108

HİRA TESTING EQUIPMENT

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-B6000/1	600 kN capacity Universal Testing Frame	66x70x260	1800	---
HR-B1000/1	1000 kN capacity Universal Testing Frame	76x80x260	2000	---
HR-B8000	Hydraulic Power Pack and Digital Data Acquisition & Control System	70x45x100	150	220 V, 50 Hz, 1 ph
HR-B8000/60Hz	Hydraulic Power Pack and Digital Data Acquisition & Control System	70x45x100	150	220 V, 60 Hz, 1 ph
HR-B8001	Hydraulic Power Pack	70x45x100	148	220 V, 50 Hz, 1 ph
HR-B8001/60Hz	Hydraulic Power Pack	70x45x100	148	220 V, 60 Hz, 1 ph
HR-B8002	Digital Data Acquisition & Control System	---	---	220 V, 50-60 Hz, 1 ph
HR-B8003	Software	---	---	---
HR-G0975	Computer & Printer	---	---	---
HR-G0975/1	Usb to com port Converter	---	---	---
HR-G0979	Thermal Printer	---	---	---
HR-G0979/1	Thermal Printer roll for printer (pack of 10 rolls)	---	---	---
HR-B6005	Jaw faces for flat samples	---	---	---
HR-B6006	Jaw faces for round samples	---	---	---
HR-B6007	Ball Seating Assembly in order to perform the compression tests	---	---	---
HR-B6008	Upper Platen to test core samples up to 100 mm	---	---	---
HR-B6015	Bending Apparatus for 8-20 mm diameter steel rebars	---	---	---
HR-B6015/1	Mandrel for 8-9 mm diameter samples, TS 708	---	---	---
HR-B6015/2	Mandrel for 10-11 mm diameter samples, TS 708	---	---	---
HR-B6015/3	Mandrel for 12-14 mm diameter samples, TS 708	---	---	---
HR-B6015/4	Mandrel for 16-18 mm diameter samples, TS 708	---	---	---
HR-B6015/6	Mandrel for 20 mm diameter samples, TS 708	---	---	---
HR-B6015/11	Mandrel for 8-9 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/12	Mandrel for 10-11 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/13	Mandrel for 12-14 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/14	Mandrel for 16 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/15	Mandrel for 18-20 mm diameter samples, TS EN 10080	---	---	---

UNIVERSAL TESTING MACHINES
WITH H-TOUCH PRO MAX CONTROL UNIT (TOUCH SCREEN)

STANDARDS: EN ISO 15630-1, EN ISO 6892-1, EN ISO 7500-1, TS 708, TS EN 10080

Universal Hydraulic Tensile Test Machine (600/1000 kN capacity) is designed to test the ferrous materials for structural values such as yield strength and tensile strength. Apart from tensile tests, Universal Test Machines can also be used for compression tests up to the capacity of the machine and Bending Tests on 8-20 mm diameter rebars. Bending apparatus and mandrels for Bending tests and Ball Seating Assembly for compression tests should be ordered separately.

To Test Core samples up to 100 mm upper platen must be ordered separately.

Maximum security is maintained on 600kN/1000 kN capacity Universal Test Machine by limit switch on the lower grip as well as the safety check valves on the hydraulic system. Hydraulic power unit works silently.

HR-B6000/TS

0-40 mm flat and 8-32 mm round samples can be tested on 600 kN capacity frame and 0-40 mm flat and 8-40 mm round samples can be tested on 1000 kN capacity frame with a user-friendly hydraulic jaws that comply with standards.

Load cell is used to measure stress. Strain measurement is done by the electronic displacement transducer built in the machine.

Tests can be done fully automatic by digital control unit or computer. Machine completes the test with the set pace rate and turns to start position automatically.

HYDRAULIC GRIPS

Hydraulically operated grips, completely stop the possibility of sample sliding from the grips enabling for correct and definite strain measurements. Hydraulic grips are very safe and user friendly. The hydraulic grips has an independent hydraulic power unit with a working pressure of 400 bars.

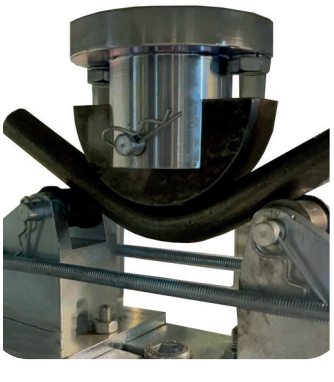
600 kN capacity Machine is supplied with 8-32 mm round samples grip set and 1000 kN capacity Machine is supplied with 8-40 mm round samples grip set.

Jaw faces for flat samples should be ordered separately.

BENDING APPARATUS

Bending Apparatus is used for Bending Tests on 8-20 mm diameter rebars.

Can be chosen HR-B6100 & HR-B1100 Models Tensile-Bending Testing Machine for Ø 8-40 mm rebars.



The test piece is bent over a mandrel.

The angle of bend and the diameter of the mandrel should be selected in accordance with the relevant product standard.

The bend test is performed with a minimum angle of bend of 180° over a mandrel according to TS 708 and TS EN 10080 Standards.

After the test, it is checked whether there are any visible breaks or cracks on the test pieces.

Bending apparatus and mandrels for bend tests should be ordered separately.

HYDRAULIC POWER PACK AND H-TOUCH PRO MAX UNIVERSAL CONTROL UNIT

Hydraulic Power Pack

Automatic Hydraulic Power Pack, controlled by H-Touch Pro Max Universal Control Unit is designed to control the machine and processing of data from load-cells and displacement transducers which are fitted to the machine.

Very silent power pack can load the specimen between 2mm/min - 18mm/min with an accuracy of ±5%. Safety valve (maximum pressure valve) is used to avoid machine overloading.

All the operations of Graphic Display are controlled from the front LCD display and function keys 2 analogue channels are provided for load-cells and displacement transducers.

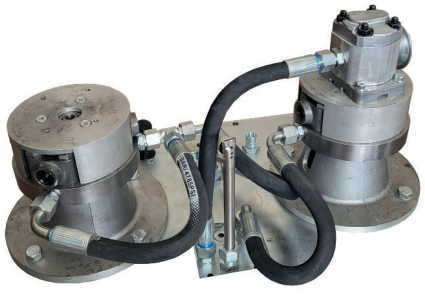
It has easy to use menu options. It displays all menu option listings simultaneously, allowing the operator to access the required option in a seemless manner to activate the option or enter a numeric value to set the test parameters. Digital graphic display is able to draw real-time "Load vs. Time", or "Stress vs. Strain" graphics.

Automatic Hydraulic Power Pack has Dual Pumps.

Dual Pumps

The dual pumps are formed by two groups;

1. Grip pump with dual stage pump
2. Piston pump to make tensile and compression tests



HİRA Test HR-B6000 & HR-B1000 tensile testing machine consist of two independent pumps working in one oil tank system.

One pump is controlled with digital readout unit with 3 phase controlled with and inverter to make test, other runs with a pedal to supply pressure to the grips. Grip pump has dual stage pump inside.

On the dual stage pump, a high delivery, low pressure gear pump is used for rapid approach, for quick gripping the rebar while a low delivery, high pressure radial piston pump is used for 400 bar grip pressure.

Two Motors

The motor which drives the main pump in an AC motor and it is controlled by motor inverter. The variation in the oil flow is executed with the variation of the rotation speed of the motor.

The motor which drives the grip pump in an AC motor and it is controlled by a manual pedal. The maximum pressure of the grips can be monitored by a 0-600 bar manometer fitted to the end of the pipe of upper and lower grip connection.

Two Distribution Blocks

Two distribution blocks are used to control the oil flow direction supplied by the pumps, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Transducer and High pressure radial piston pump for main pump to make the test and Solenoid valve, Safety valve (max. pressure valve), low pressure gear pump and High pressure radial piston pump for grip pump.

Oil Tank

The tank includes enough oil to fill the mechanism which pushes the piston up during the test. The level and oil temperature can be seen on the indicator fitted to the tank. It has 60 L capacity. Hydraulic motor oil, number 46, must be used.

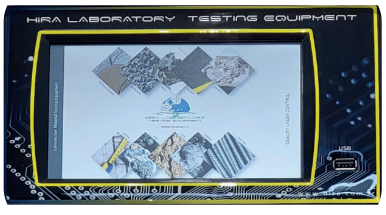
Digital Data Acquisition & Control System

HİRATEST H-Touch Pro Max Universal Control Unit is designed to control the machine and processing of data from the load cells or pressure transducers connected to the device in order to test the structural values of ferrous materials such as yield strength and tensile strength.

All the operations of H-Touch Pro Max Control Unit are controlled from the front panel color resistive of TFT-LCD Touchscreen display and function keys.

The unit has easy to use menu options.

It displays all menu option listings simultaneously, allowing the operator to access the required option in a seamless manner to activate the option or enter a numeric value to set the test parameters.



HR-B8002/TS

H-Touch PRO Max Control Unit enable simultaneously display machine status, test values, warnings during operation and test graphs such as load-time or load-displacement curves in real time.

Digital graphic display is able to draw real-time “Load vs. Time”, or “Stress vs. Strain” graphics.

Main Features of H-Touch Pro Max Universal Control Unit

• Displacement and load controlled
• Real-time graphic display,
• 2 analog channels for load cell or pressure sensors or displacement sensors.
• Optionally supplied-integrated thermal printer (If requested, must be specified in the order)
• Real-time numeric display of load, loading rate and load/ time curves with automatic resolution adjustment on the touchscreen
• Up to 8-point calibration support and adjustable digital gains for every channel
• User-customizable load, position limits and test termination conditions
• Backup and recall option for device settings
• Recalling to factory default settings option.
• Easy recall of embedded test parameters for different types of tests and sample sizes
• Storage capacity up to 10.000 test result or 80 hours real time data recording with 1 sample per second recording interval (recording interval is variable).
• The axes of the graph drawn on the device can be set to constant maximum values or axes can be automatically scaled according to the data
• Three different unit system selection; kN- Mpa -mm or lbf- psi- in or kgf- kgf/cm²- cm
• Real time and adjustable date/time
• PC interface with Ethernet connection
• Multi-language support (English, French, Spanish, Turkish)
• LAN connection for instantaneous transfer of test data to PC.
• USB port support for transfer of test data to a flash drive.
• Password Protection for machine settings, calibration and channel menus
• Record of test results in txt and MS excel format on pre-defined intervals
• Customizable IP

Hardware

• 2 fully customizable analog channels with 24-bit ADC and PGA-FPGA circuit
• 800x480 pixel and 65535 color resolution TFT-LCD touchscreen
• 33 Hz control loop
• 32 Bit, 120 MHz ARM CORTEX M3 micro-PROcessor (CPU) for data acquisition
• 32 Bit, 400 MHz ARM CORTEX M3 micro-PROcessor (CPU) for data display
• Additional memory support up to 32 GB via external USB flash drive
• Support for -optionally supplied- integrated thermal printer
• Real time display of test graph
• LAN connection for instantaneous transfer of test data to PC.
• USB port support for transfer of test data to a flash drive

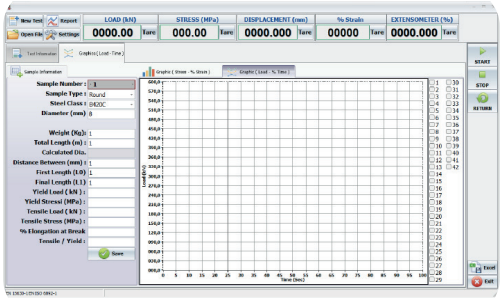
HİRA TESTING EQUIPMENT

Software

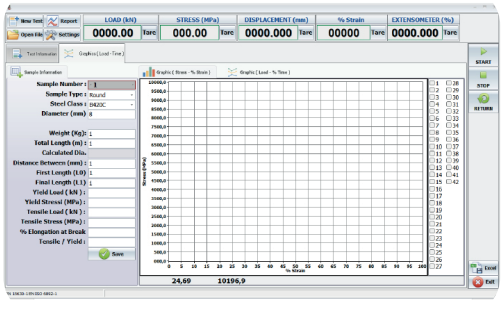
HİRATEST H-GUI Universal Software has been designed to test the structural values of ferrous materials such as yield strength and tensile strength with appropriate Hydraulic Universal Testing Machines and also with a computer.

The Hydraulic Universal Testing Machine can be controlled (Start, Stop commands) by a computer with the HİRATEST H-GUI Universal Software free of charge.

This software provides data acquisition and management for compression, tensile and splitting tensile test throughout the test execution. The advanced functions for data base management provide an easy navigation of all saved data. The test results certificate includes all descriptive information. Therefore, test parameters can be set and details about the test carried out such as client details, test type, specimen type, user info and other information required can be entered and printed out as well as test report and graph.



HİRATEST H-GUI Universal Software is developed for testing tensile strength of Reinforcing Rubbed Steel Bars and Welded fabric for the Reinforcement and Prestressing of Concrete. The software includes control of machine, data acquisition, saving them and preparing reports. The software accepts sample's weight, length, diameter and gauge length as input, and then the user can give start test command to the machine. The samples calculated diameter gives user a perspective about the density of rebar prior to the test. The software continuously updates load, stress and elongation percentage till the break point. The software is prepared as making at least 3 samples for each diameter. This gives user a total report about all the batch. The report includes all standard limits and one can easily check whether the sample can be acceptable. These limits are minimum yield, minimum tensile, minimum break elongation value, Tensile per yield ratio etc.



Software can be performed in Turkish and English.

Test results, graphics and properties of specimens can be saved in one folder. Old test folders can be reviewed and be edited easily.

User can highlight all 42 different specimen curves in different colors on the graphics.

Test parameters can be set and details about the test carried out such as Test Type, Sample Type, Report details, Customer details, Sample details and other information required can be entered in the software.

User can access any data of previously completed tests and use in his/ her new report since most of the tests have same structure and properties.

Each report is a group of 42 samples where 14 different diameters had been entered.

This informations and “Load vs. Time” or “Stress vs. Strain” graphics can be seen and printed out on the Test Report.

Main Features of H-GUI Universal Software

- Multi-language support and customizable user interface
- 42 Tests Results, Graphics and Properties Storage Capacity in One Test File
- Exporting test results to database
- Advanced test graphical interface
- Option to store and recall test information
- Modification of test machine parameters using the software
- Exporting reports and graphs
- Flexible report and graph formats

Technical Specifications:

Product Name		Universal Testing Machine			
Product Code		HR-B6000/TS	HR-B6000/60Hz/TS	HR-B1000/TS	HR-B1000/60Hz/TS
Capacity		600 kN		1000 kN	
Test Speed		2mm/min - 18mm/min		2mm/min - 18mm/min	
Load Measurement Accuracy		± %1		± %1	
Displacement Measurement Resolution		0,01 mm		0,01 mm	
Columns Diameter	Lower	50 mm		60 mm	
	Upper	70 mm		80 mm	
Vertical Test Distance	Tension	Minimum 70 mm		Minimum 70 mm	
		Maximum 300 mm		Maximum 320 mm	
	Compression	Maximum 110 mm		Maximum 110 mm	
Distance Between Columns		460 mm		480 mm	
Piston Stroke		150 mm		200 mm	
Maximum Pressure	Grips	400 bar		400 bar	
	Load	200 bar		320 bar	
Weight		1850 kg		2050 kg	
Height		2400 mm		2400 mm	
	Max. stroke	2650 mm		2700 mm	
Power Supply		220 V, 50 Hz, 1ph	220 V, 60 Hz, 1ph	220 V, 50 Hz, 1ph	220 V, 60 Hz, 1ph

Mandrels for Bending Apparatus:

Specimen Nominal Diameter	Maximum Mandrel Dia. (mm)		Specimen Nominal Diameter	Maximum Mandrel Dia. (mm)		
	TS 708			TS EN 10080		
d (ø) (mm)	Mandrel Code	Ø 5d	d (ø) (mm)	Mandrel Code	d ≤ Ø 16 3d	d > Ø 16 6d
8-9	HR-B6015/1	40	**8-9**	HR-B6015/11	24	---
10-11	HR-B6015/2	50	**10-11**	HR-B6015/12	30	---
12-14	HR-B6015/3	60	**12-14**	HR-B6015/13	36	---
16-18	HR-B6015/4	80	**16**	HR-B6015/14	48	---
20	HR-B6015/6	100	**18-20**	HR-B6015/15	---	108

HİRA TESTING EQUIPMENT

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-B6000/1	600 kN capacity Universal Testing Frame	66x70x260	1800	---
HR-B1000/1	1000 kN capacity Universal Testing Frame	76x80x260	2000	---
HR-B8000/TS	Hydraulic Power Pack and H-Touch Pro Max Universal Control Unit	70x45x100	150	220 V, 50 Hz, 1 ph
HR-B8000/60Hz/TS	Hydraulic Power Pack and H-Touch Pro Max Universal Control Unit	70x45x100	150	220 V, 60 Hz, 1 ph
HR-B8001	Hydraulic Power Pack	70x45x100	148	220 V, 50 Hz, 1 ph
HR-B8001/60Hz	Hydraulic Power Pack	70x45x100	148	220 V, 60 Hz, 1 ph
HR-B8002/TS	H-Touch Pro Max Universal Control Unit	---	---	220 V, 50-60 Hz, 1 ph
HR-B8003/TS	H-GUI Universal Software	---	---	---
HR-G0975	Computer & Printer	---	---	---
HR-G0975/1	Usb to com port Converter	---	---	---
HR-G0979	Thermal Printer	---	---	---
HR-G0979/1	Thermal Printer roll for printer (pack of 10 rolls)	---	---	---
HR-B6005	Jaw faces for flat samples	---	---	---
HR-B6006	Jaw faces for round samples	---	---	---
HR-B6007	Ball Seating Assembly in order to perform the compression tests	---	---	---
HR-B6008	Upper Platen to test core samples up to 100 mm	---	---	---
HR-B6015	Bending Apparatus for 8-20 mm diameter steel rebars	---	---	---
HR-B6015/1	Mandrel for 8-9 mm diameter samples, TS 708	---	---	---
HR-B6015/2	Mandrel for 10-11 mm diameter samples, TS 708	---	---	---
HR-B6015/3	Mandrel for 12-14 mm diameter samples, TS 708	---	---	---
HR-B6015/4	Mandrel for 16-18 mm diameter samples, TS 708	---	---	---
HR-B6015/6	Mandrel for 20 mm diameter samples, TS 708	---	---	---
HR-B6015/11	Mandrel for 8-9 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/12	Mandrel for 10-11 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/13	Mandrel for 12-14 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/14	Mandrel for 16 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/15	Mandrel for 18-20 mm diameter samples, TS EN 10080	---	---	---

UNIVERSAL TENSILE/BENDING TESTING MACHINES

STANDARDS: EN ISO 15630-1, EN ISO 6892-1, EN ISO 7500-1, TS 708, TS EN 10080

Universal Hydraulic Tensile/Bending Test Machine (600/1000 kN capacity) is designed to test the ferrous materials for structural values such as yield strength and tensile strength. Apart from tensile tests, Universal Test Machines can also be used for compression tests up to the capacity of the machine and Bending Tests on 8-40 mm diameter rebars. Bending apparatus and mandrels for Bending tests and Ball Seating Assembly for compression tests should be ordered separately.

To Test Core samples up to 100 mm upper platen must be ordered separately.

Maximum security is maintained on 600kN/1000 kN capacity Universal Test Machine by limit switch on the lower grip as well as the safety check valves on the hydraulic system. Hydraulic power unit works silently.

0-40 mm flat and 8-32 mm round samples can be tested on 600 kN capacity frame and 0-40 mm flat and 8-40 mm round samples can be tested on 1000 kN capacity frame with a user-friendly hydraulic jaws that comply with standards.

Load cell is used to measure stress. Strain measurement is done by the electronic displacement transducer built in the machine.

Tests can be done fully automatic by digital control unit or computer. Machine completes the test with the set pace rate and turns to start position automatically.

The distance between the grips can be set by motor driven handset system. The system is controlled by a hand up/down system. With open

HR-B6100

HYDRAULIC GRIPS

Hydraulically operated grips, completely stop the possibility of sample sliding from the grips enabling for correct and definite strain measurements. Hydraulic grips are very safe and user friendly. The hydraulic grips has an independent hydraulic power unit with a working pressure of 400 bars.

600 kN capacity Machine is supplied with 8-32 mm round samples grip set and 1000 kN capacity Machine is supplied with 8-40 mm round samples grip set.

Jaw faces for flat samples should be ordered separately.

BENDING APPARATUS

Bending Apparatus is used for Bending Tests on 8-40 mm diameter rebars.

Can be chosen HR-B6000 & HR-B1000 Models Tensile-Bending Testing Machine for Ø 8-20 mm rebars.

The test piece is bent over a mandrel.

The angle of bend and the diameter of the mandrel should be selected in accordance with the relevant product standard.

The bend test is performed with a minimum angle of bend of 180° over a mandrel according to TS 708 and TS EN 10080 Standards.

After the test, it is checked whether there are any visible breaks or cracks on the test pieces.

Bending apparatus and mandrels for bend tests should be ordered separately.

HYDRAULIC POWER PACK AND DIGITAL DATA ACQUISITION & CONTROL SYSTEM

Hydraulic Power Pack

Hydraulic Power Unit is designed to control the machine and processing of data from load-cell and displacement transducers which are fitted to the machine.
Controller unit has a simple and compact configuration.

Very silent power pack can load the specimen between 2mm/min - 18mm/min with an accuracy of ±5%. Safety valve (maximum pressure valve) is used to avoid machine overloading.

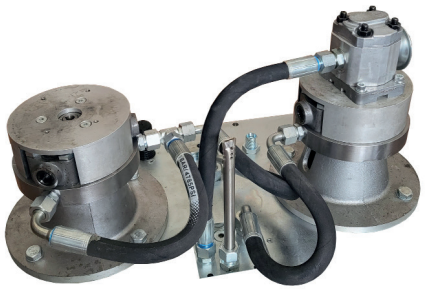
All the operations of Graphic Display are controlled from the front LCD display and function keys 2 analogue channels are provided for load-cells and displacement transducers.

It has easy to use menu options. It displays all menu option listings simultaneously, allowing the operator to access the required option in a seemless manner to activate the option or enter a numeric value to set the test parameters. The digital graphic display is able to draw stress vs. strain graph.

Dual Pumps

The dual pumps are formed by two groups;

1. Grip pump with dual stage pump
2. Piston pump to make tensile and compression tests



HİRA Test HR-B6100 & HR-B1100 Tensile/Bending Testing machine consist of two independent pumps working in one oil tank system.

One pump is controlled with digital readout unit with 3 phase controlled with and inverter to make test, other runs with a pedal to supply pressure to the grips. Grip pump has dual stage pump inside.

On the dual stage pump, a high delivery, low pressure gear pump is used for rapid approach, for quick gripping the rebar while a low delivery, high pressure radial piston pump is used for 400 bar grip pressure.

Two Motors

The motor which drives the main pump in an AC motor and it is controlled by motor inverter. The variation in the oil flow is executed with the variation of the rotation speed of the motor.

The motor which drives the grip pump in an AC motor and it is controlled by a manual pedal. The maximum pressure of the grips can be monitored by a 0-600 bar manometer fitted to the end of the pipe of upper and lower grip connection.

Two Distribution Blocks

Two distribution blocks are used to control the oil flow direction supplied by the pumps, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Transducer and High pressure radial piston pump for main pump to make the test and Solenoid valve, Safety valve (max. pressure valve), low pressure gear pump and High pressure radial piston pump for grip pump.

Oil Tank

The tank includes enough oil to fill the mechanism which pushes the piston up during the test. The level and oil temperature can be seen on the indicator fitted to the tank. It has 60 L capacity. Hydraulic motor oil, number 46, must be used.

Digital Data Acquisition & Control System

The unit is designed to control the machine and processing of data from load-cells and displacement transducers which are fitted to the machine.

All the operations of the unit is controlled from the front panel consisting of a LCD display and function keys.

The unit has easy to use menu options.

Digital graphic display unit loading rate of the time of Testing and load values can be monitored.

Digital graphic display is able to draw real-time “Load vs. Time”.

Software

Sample, company, laboratory and test values can be entered in the programme.

Stress-Strain, Load-time graphic, test reports and sample reports can be taken.

Software provides test data, results, and the Stress-Strain graphs can be seen at LCD screen.

The Universal Testing machine can be controlled (Start, Stop commands) by a computer with the software free of charge. This software provides data acquisition and management for compression, tensile and splitting tensile test throughout the test execution. The advanced functions for data base management provide an easy navigation of all saved data. The test results certificate includes all descriptive information. Therefore, test parameters can be set and details about the test carried out such as client details, test type, specimen type, user info and other information required can be entered and printed out as well as test report and graph.

Universal Test Software is developed for testing tensile strength of Reinforcing Rubbed Steel Bars and Welded fabric for the Reinforcement and Prestressing of Concrete. The software includes control of machine, data acquisition, saving them and preparing reports. The software accepts sample’s weight, length, diameter and gauge length as input, and then the user can give start test command to the machine. The samples calculated diameter gives user a perspective about the density of rebar prior to the test. The software continuously updates load, stress and elongation percentage till the break point. The software is prepared as making at least 3 samples for each diameter. This gives user a total report about all the batch. The report includes all standard limits and one can easily check whether the sample can be acceptable. These limits are minimum yield, minimum tensile, minimum break elongation value, Tensile per yield ratio etc. Software can be performed in Turkish and English.
Test results, graphics and properties of 12 different specimens can be saved in one folder. Old test folders can be reviewed and be edited easily. Advanced Graphic User Interface Software.

User can highlight all 12 different specimen curves in different colors on the graphics.

Frequently used information like name and location of the laboratory, type and dimensions of mostly used specimens are held in memory and can be written automatically by right clicking on information boxes and selecting frequently used text in menu.

User can access any data of previously completed tests and use in his/ her new report since most of the tests have same structure and properties.

Main Features

•Can make test with displacement control.

•Real time display of test graph.

•2 analog channels (one for load cell, one for displacement transducer)

•10 data per second sample rate for each channel

•Multi-language support (Turkish and English)

•2 different unit system selection; SI and metric

•Real-time clock and date

•RS-232 serial port connection with the device

•Free of charge PC software for the test control and advanced report generation

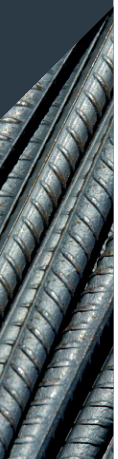
HİRA TESTING EQUIPMENT

Technical Specifications:

Product Name		Universal Tensile/Bending Testing Machine			
Product Code		HR-B6100	HR-B6100/60Hz	HR-B1100	HR-B1100/60Hz
Capacity		600 kN		1000 kN	
Test Speed		2mm/min - 18mm/min		2mm/min - 18mm/min	
Load Measurement Accuracy		± %1		± %1	
Displacement Measurement Resolution		0,01 mm		0,01 mm	
Columns Diameter	Lower	50 mm		60 mm	
	Upper	70 mm		80 mm	
Vertical Test Distance	Tension	Minimum 70 mm		Minimum 70 mm	
		Maximum 300 mm		Maximum 320 mm	
	Compression	Maximum 110 mm		Maximum 110 mm	
Distance Between Columns		460 mm		480 mm	
Piston Stroke		150 mm		200 mm	
Maximum Pressure	Grips	400 bar		400 bar	
	Load	200 bar		320 bar	
Weight		1950 kg		2150 kg	
Height		2500 mm		2500 mm	
	Max. stroke	2750 mm		2800 mm	
Power Supply		220 V, 50 Hz, 1ph	220 V, 60 Hz, 1ph	220 V, 50 Hz, 1ph	220 V, 60 Hz, 1ph

Mandrels for Bending Apparatus:

Specimen Nominal Diameter	Maximum Mandrel Dia. (mm) TS 708		Specimen Nominal Diameter	Maximum Mandrel Dia. (mm) TS EN 10080		
d (ø) (mm)	Mandrel Code	Ø 5d	d (ø) (mm)	Mandrel Code	d ≤ Ø 16 3d	d > Ø 16 6d
8-9	HR-B6015/1	40	**8-9**	HR-B6015/11	24	---
10-11	HR-B6015/2	50	**10-11**	HR-B6015/12	30	---
12-14	HR-B6015/3	60	**12-14**	HR-B6015/13	36	---
16-18	HR-B6015/4	80	**16**	HR-B6015/14	48	---
20-22	HR-B6015/5	100	**18-20**	HR-B6015/15	---	108
24-25	HR-B6015/7	120	**22-24**	HR-B6015/16	---	132
26-28	HR-B6015/8	130	**25-26**	HR-B6015/17	---	150
30-32	HR-B6015/9	150	**28-30**	HR-B6015/18	---	168
40	HR-B6015/10	200	**32**	HR-B6015/19	---	192
			40	HR-B6015/20	---	240



Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-B6100/1	600 kN capacity Universal Tensile/Bending Testing Frame	66x70x250	1800	---
HR-B1100/1	1000 kN capacity Universal Tensile/Bending Testing Frame	76x80x250	2000	---
HR-B8000	Hydraulic Power Pack and Digital Data Acquisition & Control System	70x45x100	150	220 V, 50 Hz, 1 ph
HR-B8000/60Hz	Hydraulic Power Pack and Digital Data Acquisition & Control System	70x45x100	150	220 V, 60 Hz, 1 ph
HR-B8001	Hydraulic Power Pack	70x45x100	148	220 V, 50 Hz, 1 ph
HR-B8001/60Hz	Hydraulic Power Pack	70x45x100	148	220 V, 60 Hz, 1 ph
HR-B8002	Digital Data Acquisition & Control System	---	---	220 V, 50-60 Hz, 1 ph
HR-B8003	Software	---	---	---
HR-G0975	Computer & Printer	---	---	---
HR-G0975/1	Usb to com port Converter	---	---	---
HR-G0979	Thermal Printer	---	---	---
HR-G0979/1	Thermal Printer roll for printer (pack of 10 rolls)	---	---	---
HR-B6005	Jaw faces for flat samples	---	---	---
HR-B6006	Jaw faces for round samples	---	---	---
HR-B6007	Ball Seating Assembly in order to perform the compression tests	---	---	---
HR-B6008	Upper Platen to test core samples up to 100 mm	---	---	---
HR-B6012	Bending Apparatus for 8-40 mm diameter steel rebars	---	---	---
HR-B6015/1	Mandrel for 8-9 mm diameter samples, TS 708	---	---	---
HR-B6015/2	Mandrel for 10-11 mm diameter samples, TS 708	---	---	---
HR-B6015/3	Mandrel for 12-14 mm diameter samples, TS 708	---	---	---
HR-B6015/4	Mandrel for 16-18 mm diameter samples, TS 708	---	---	---
HR-B6015/5	Mandrel for 20-22 mm diameter samples, TS 708	---	---	---
HR-B6015/7	Mandrel for 24-25 mm diameter samples, TS 708	---	---	---
HR-B6015/8	Mandrel for 26-28 mm diameter samples, TS 708	---	---	---
HR-B6015/9	Mandrel for 30-32 mm diameter samples, TS 708	---	---	---
HR-B6015/10	Mandrel for 40 mm diameter samples, TS 708	---	---	---
HR-B6015/11	Mandrel for 8-9 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/12	Mandrel for 10-11 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/13	Mandrel for 12-14 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/14	Mandrel for 16 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/15	Mandrel for 18-20 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/16	Mandrel for 22-24 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/17	Mandrel for 25-26 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/18	Mandrel for 28-30 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/19	Mandrel for 32 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/20	Mandrel for 40 mm diameter samples, TS EN 10080	---	---	---

UNIVERSAL TENSILE/BENDING TESTING MACHINES WITH H-TOUCH PRO MAX CONTROL UNIT (TOUCH SCREEN)

STANDARDS: EN ISO 15630-1, EN ISO 6892-1, EN ISO 7500-1, TS 708, TS EN 10080

Universal Hydraulic Tensile/Bending Test Machine (600/1000 kN capacity) is designed to test the ferrous materials for structural values such as yield strength and tensile strength. Apart from tensile tests, Universal Test Machines can also be used for compression tests up to the capacity of the machine and Bending Tests on 8-40 mm diameter rebars. Bending apparatus and mandrels for Bending tests and Ball Seating Assembly for compression tests should be ordered separately.

To Test Core samples up to 100 mm upper platen must be ordered separately.

Maximum security is maintained on 600kN/1000 kN capacity Universal Test Machine by limit switch on the lower grip as well as the safety check valves on the hydraulic system. Hydraulic power unit works silently.

0-40 mm flat and 8-32 mm round samples can be tested on 600 kN capacity frame and 0-40 mm flat and 8-40 mm round samples can be tested on 1000 kN capacity frame with a user-friendly hydraulic jaws that comply with standards.

Load cell is used to measure stress. Strain measurement is done by the electronic displacement transducer built in the machine.

Tests can be done fully automatic by digital control unit or computer. Machine completes the test with the set pace rate and turns to start position automatically.

The distance between the grips can be set by motor driven handset system. The system is controlled by a hand up/down system. With open front hydraulic wedge grips user can load specimen easily.

HR-B6100/TS

HYDRAULIC GRIPS

Hydraulically operated grips, completely stop the possibility of sample sliding from the grips enabling for correct and definite strain measurements. Hydraulic grips are very safe and user friendly. The hydraulic grips has an independent hydraulic power unit with a working pressure of 400 bars.

600 kN capacity Machine is supplied with 8-32 mm round samples grip set and 1000 kN capacity Machine is supplied with 8-40 mm round samples grip set.

Jaw faces for flat samples should be ordered separately.

BENDING APPARATUS

Bending Apparatus is used for Bending Tests on 8-40 mm diameter rebars.

Can be chosen HR-B6000 & HR-B1000 Models Tensile-Bending Testing Machine for Ø 8-20 mm rebars.

The test piece is bent over a mandrel.

The angle of bend and the diameter of the mandrel should be selected in accordance with the relevant product standard.

The bend test is performed with a minimum angle of bend of 180° over a mandrel according to TS 708 and TS EN 10080 Standards.

After the test, it is checked whether there are any visible breaks or cracks on the test pieces.

Bending apparatus and mandrels for bend tests should be ordered separately.

HYDRAULIC POWER PACK AND H-TOUCH PRO MAX UNIVERSAL CONTROL UNIT

Hydraulic Power Pack

Automatic Hydraulic Power Pack, controlled by H-Touch Pro Max Universal Control Unit is designed to control the machine and processing of data from load-cells and displacement transducers which are fitted to the machine.

Very silent power pack can load the specimen between 2mm/min - 18mm/min with an accuracy of ±5%. Safety valve (maximum pressure valve) is used to avoid machine overloading.

All the operations of Graphic Display are controlled from the front LCD display and function keys 2 analogue channels are provided for load-cells and displacement transducers.

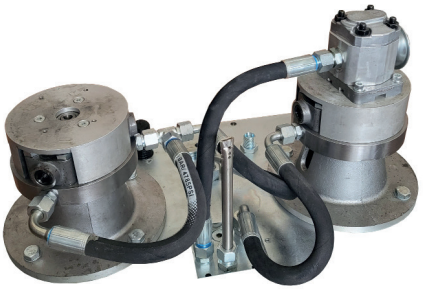
It has easy to use menu options. It displays all menu option listings simultaneously, allowing the operator to access the required option in a seemless manner to activate the option or enter a numeric value to set the test parameters. Digital graphic display is able to draw real-time “Load vs. Time”, or “Stress vs. Strain” graphics.

Automatic Hydraulic Power Pack has Dual Pumps.

Dual Pumps

The dual pumps are formed by two groups;

1. Grip pump with dual stage pump
2. Piston pump to make tensile and compression tests



HİRA Test HR-B6100/TS & HR-B1100/TS Tensile/Bending Testing machine consist of two independent pumps working in one oil tank system.

One pump is controlled with digital readout unit with 3 phase controlled with and inverter to make test, other runs with a pedal to supply pressure to the grips. Grip pump has dual stage pump inside.

On the dual stage pump, a high delivery, low pressure gear pump is used for rapid approach, for quick gripping the rebar while a low delivery, high pressure radial piston pump is used for 400 bar grip pressure.

Two Motors

The motor which drives the main pump in an AC motor and it is controlled by motor inverter. The variation in the oil flow is executed with the variation of the rotation speed of the motor.

The motor which drives the grip pump in an AC motor and it is controlled by a manual pedal. The maximum pressure of the grips can be monitored by a 0-600 bar manometer fitted to the end of the pipe of upper and lower grip connection.

Two Distribution Blocks

Two distribution blocks are used to control the oil flow direction supplied by the pumps, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Transducer and High pressure radial piston pump for main pump to make the test and Solenoid valve, Safety valve (max. pressure valve), low pressure gear pump and High pressure radial piston pump for grip pump.

Oil Tank

The tank includes enough oil to fill the mechanism which pushes the piston up during the test. The level and oil temperature can be seen on the indicator fitted to the tank. It has 60 L capacity. Hydraulic motor oil, number 46, must be used.

HİRA TESTING EQUIPMENT

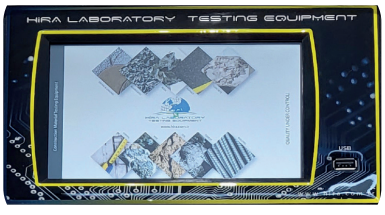
Digital Data Acquisition & Control System

HİRATEST H-Touch Pro Max Universal Control Unit is designed to control the machine and processing of data from the load cells or pressure transducers connected to the device in order to test the structural values of ferrous materials such as yield strength and tensile strength.

All the operations of H-Touch Pro Max Control Unit are controlled from the front panel color resistive of TFT-LCD Touchscreen display and function keys.

The unit has easy to use menu options.

It displays all menu option listings simultaneously, allowing the operator to access the required option in a seamless manner to activate the option or enter a numeric value to set the test parameters.



HR-B8002/TS

H-Touch PRO Max Control Unit enable simultaneously display machine status, test values, warnings during operation and test graphs such as load-time or load-displacement curves in real time.

Digital graphic display is able to draw real-time “Load vs. Time”, or “Stress vs. Strain” graphics.

Main Features of H-Touch Pro Max Universal Control Unit

- Displacement and load controlled
- Real-time graphic display,
- 2 analog channels for load cell or pressure sensors or displacement sensors.
- Optionally supplied-integrated thermal printer (If requested, must be specified in the order)
- Real-time numeric display of load, loading rate and load/ time curves with automatic resolution adjustment on the touchscreen
- Up to 8-point calibration support and adjustable digital gains for every channel
- User-customizable load, position limits and test termination conditions
- Backup and recall option for device settings
- Recalling to factory default settings option.
- Easy recall of embedded test parameters for different types of tests and sample sizes
- Storage capacity up to 10.000 test result or 80 hours real time data recording with 1 sample per second recording interval (recording interval is variable).
- The axes of the graph drawn on the device can be set to constant maximum values or axes can be automatically scaled according to the data
- Three different unit system selection; kN- Mpa -mm or lbf- psi- in or kgf- kgf/cm²- cm
- Real time and adjustable date/time
- PC interface with Ethernet connection
- Multi-language support (English, French, Spanish, Turkish)
- LAN connection for instantaneous transfer of test data to PC.
- USB port support for transfer of test data to a flash drive.
- Password Protection for machine settings, calibration and channel menus
- Record of test results in txt and MS excel format on pre-defined intervals
- Customizable IP

Hardware

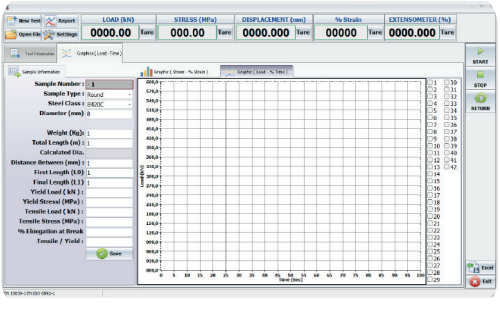
- 2 fully customizable analog channels with 24-bit ADC and PGA-FPGA circuit
- 800x480 pixel and 65535 color resolution TFT-LCD touchscreen
- 33 Hz control loop
- 32 Bit, 120 MHz ARM CORTEX M3 micro-PROcessor (CPU) for data acquisition
- 32 Bit, 400 MHz ARM CORTEX M3 micro-PROcessor (CPU) for data display
- Additional memory support up to 32 GB via external USB flash drive
- Support for -optionally supplied- integrated thermal printer
- Real time display of test graph
- LAN connection for instantaneous transfer of test data to PC.
- USB port support for transfer of test data to a flash drive

Software

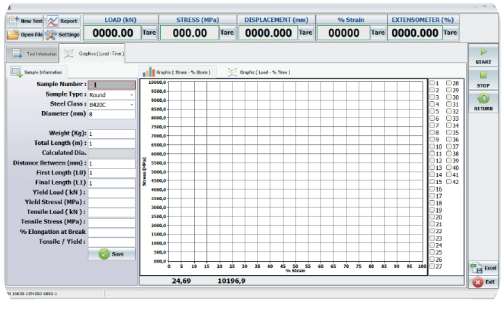
HİRATEST H-GUI Universal Software has been designed to test the structural values of ferrous materials such as yield strength and tensile strength with appropriate Hydraulic Universal Testing Machines and also with a computer.

The Hydraulic Universal Testing Machine can be controlled (Start, Stop commands) by a computer with the HİRATEST H-GUI Universal Software free of charge.

This software provides data acquisition and management for compression, tensile and splitting tensile test throughout the test execution. The advanced functions for data base management provide an easy navigation of all saved data. The test results certificate includes all descriptive information. Therefore, test parameters can be set and details about the test carried out such as client details, test type, specimen type, user info and other information required can be entered and printed out as well as test report and graph.



HİRATEST H-GUI Universal Software is developed for testing tensile strength of Reinforcing Rubbed Steel Bars and Welded fabric for the Reinforcement and Prestressing of Concrete. The software includes control of machine, data acquisition, saving them and preparing reports. The software accepts sample's weight, length, diameter and gauge length as input, and then the user can give start test command to the machine. The samples calculated diameter gives user a perspective about the density of rebar prior to the test. The software continuously updates load, stress and elongation percentage till the break point. The software is prepared as making at least 3 samples for each diameter. This gives user a total report about all the batch. The report includes all standard limits and one can easily check whether the sample can be acceptable. These limits are minimum yield, minimum tensile, minimum break elongation value, Tensile per yield ratio etc.



Software can be performed in Turkish and English.

Test results, graphics and properties of specimens can be saved in one folder. Old test folders can be reviewed and be edited easily.

User can highlight all 42 different specimen curves in different colors on the graphics.

Test parameters can be set and details about the test carried out such as Test Type, Sample Type, Report details, Customer details, Sample details and other information required can be entered in the software.

User can access any data of previously completed tests and use in his/ her new report since most of the tests have same structure and properties.

Each report is a group of 42 samples where 14 different diameters had been entered.

This informations and "Load vs. Time" or "Stress vs. Strain" graphics can be seen and printed out on the Test Report.

Main Features of H-GUI Universal Software

- Multi-language support and customizable user interface
- 42 Tests Results, Graphics and Properties Storage Capacity in One Test File
- Exporting test results to database
- Advanced test graphical interface
- Option to store and recall test information
- Modification of test machine parameters using the software
- Exporting reports and graphs
- Flexible report and graph formats

HİRA TESTING EQUIPMENT

Technical Specifications:

Product Name		Universal Tensile/Bending Testing Machine			
Product Code		HR-B6100/TS	HR-B6100/60Hz/TS	HR-B1100/TS	HR-B1100/60Hz/TS
Capacity		600 kN		1000 kN	
Test Speed		2mm/min - 18mm/min		2mm/min - 18mm/min	
Load Measurement Accuracy		± %1		± %1	
Displacement Measurement Resolution		0,01 mm		0,01 mm	
Columns Diameter	Lower	50 mm		60 mm	
	Upper	70 mm		80 mm	
Vertical Test Distance	Tension	Minimum 70 mm		Minimum 70 mm	
		Maximum 300 mm		Maximum 320 mm	
	Compression	Maximum 110 mm		Maximum 110 mm	
Distance Between Columns		460 mm		480 mm	
Piston Stroke		150 mm		200 mm	
Maximum Pressure	Grips	400 bar		400 bar	
	Load	200 bar		320 bar	
Weight		1950 kg		2150 kg	
Height		2500 mm		2500 mm	
	Max. stroke	2750 mm		2800 mm	
Power Supply		220 V, 50 Hz, 1ph	220 V, 60 Hz, 1ph	220 V, 50 Hz, 1ph	220 V, 60 Hz, 1ph

Mandrels for Bending Apparatus:

Specimen Nominal Diameter	Maximum Mandrel Dia. (mm)		Specimen Nominal Diameter	Maximum Mandrel Dia. (mm)		
	TS 708			TS EN 10080		
d (ø) (mm)	Mandrel Code	Ø 5d	d (ø) (mm)	Mandrel Code	d ≤ Ø 16 3d	d > Ø 16 6d
8-9	HR-B6015/1	40	**8-9**	HR-B6015/11	24	---
10-11	HR-B6015/2	50	**10-11**	HR-B6015/12	30	---
12-14	HR-B6015/3	60	**12-14**	HR-B6015/13	36	---
16-18	HR-B6015/4	80	**16**	HR-B6015/14	48	---
20-22	HR-B6015/5	100	**18-20**	HR-B6015/15	---	108
24-25	HR-B6015/7	120	**22-24**	HR-B6015/16	---	132
26-28	HR-B6015/8	130	**25-26**	HR-B6015/17	---	150
30-32	HR-B6015/9	150	**28-30**	HR-B6015/18	---	168
40	HR-B6015/10	200	**32**	HR-B6015/19	---	192
			40	HR-B6015/20	---	240

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-B6100/1	600 kN capacity Universal Tensile/Bending Testing Frame	66x70x250	1800	---
HR-B1100/1	1000 kN capacity Universal Tensile/Bending Testing Frame	76x80x250	2000	---
HR-B8000/TS	Hydraulic Power Pack and H-Touch Pro Max Universal Control Unit	70x45x100	150	220 V, 50 Hz, 1 ph
HR-B8000/60Hz/TS	Hydraulic Power Pack and H-Touch Pro Max Universal Control Unit	70x45x100	150	220 V, 60 Hz, 1 ph
HR-B8001	Hydraulic Power Pack	70x45x100	148	220 V, 50 Hz, 1 ph
HR-B8001/60Hz	Hydraulic Power Pack	70x45x100	148	220 V, 60 Hz, 1 ph
HR-B8002/TS	H-Touch Pro Max Universal Control Unit	---	---	220 V, 50-60 Hz, 1 ph
HR-B8003/TS	H-GUI Universal Software	---	---	---
HR-G0975	Computer & Printer	---	---	---
HR-G0975/1	Usb to com port Converter	---	---	---
HR-G0979	Thermal Printer	---	---	---
HR-G0979/1	Thermal Printer roll for printer (pack of 10 rolls)	---	---	---
HR-B6005	Jaw faces for flat samples	---	---	---
HR-B6006	Jaw faces for round samples	---	---	---
HR-B6007	Ball Seating Assembly in order to perform the compression tests	---	---	---
HR-B6008	Upper Platen to test core samples up to 100 mm	---	---	---
HR-B6012	Bending Apparatus for 8-40 mm diameter steel rebars	---	---	---
HR-B6015/1	Mandrel for 8-9 mm diameter samples, TS 708	---	---	---
HR-B6015/2	Mandrel for 10-11 mm diameter samples, TS 708	---	---	---
HR-B6015/3	Mandrel for 12-14 mm diameter samples, TS 708	---	---	---
HR-B6015/4	Mandrel for 16-18 mm diameter samples, TS 708	---	---	---
HR-B6015/5	Mandrel for 20-22 mm diameter samples, TS 708	---	---	---
HR-B6015/7	Mandrel for 24-25 mm diameter samples, TS 708	---	---	---
HR-B6015/8	Mandrel for 26-28 mm diameter samples, TS 708	---	---	---
HR-B6015/9	Mandrel for 30-32 mm diameter samples, TS 708	---	---	---
HR-B6015/10	Mandrel for 40 mm diameter samples, TS 708	---	---	---
HR-B6015/11	Mandrel for 8-9 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/12	Mandrel for 10-11 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/13	Mandrel for 12-14 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/14	Mandrel for 16 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/15	Mandrel for 18-20 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/16	Mandrel for 22-24 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/17	Mandrel for 25-26 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/18	Mandrel for 28-30 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/19	Mandrel for 32 mm diameter samples, TS EN 10080	---	---	---
HR-B6015/20	Mandrel for 40 mm diameter samples, TS EN 10080	---	---	---

COLD TEST BENDING MACHINE

STANDARDS: EN ISO 15630-1, 7438, EN 10080

150 kN capacity Cold Test Bending Machine is used for bending and re-bending tests of reinforcing bars, wire rod and wire for concrete in accordance with the requirements of EN ISO 15630-1.

The test piece is bent over a mandrel. The angle of bend and the diameter of the mandrel (D) is selected in accordance with the relevant product standard EN 10080.

The Bending test is performed with a minimum angle of bend of 180° over a mandrel according to EN ISO 15630-1.

For Re-Bending test, first the test piece is bend with a minimum angle of bend of 90° over a mandrel, in a second step, the aging treatment is applied and then the test pieces bent back up to a minimum of 20° according to EN ISO 15630-1.

After the test, test pieces are inspected for cracks and fissures visible to a person with normal or corrected vision.

Bending & Re-Bending Apparatus is used for Bending & Re Bending Tests on 8-40 mm diameter rebars. Bending & Re-Bending Apparatus and Mandrels should be ordered separately.

HR-B0150

Spare Parts & Accessories:

Mandrels for Bending Apparatus:

Specimen Nominal Diameter	Maximum Mandrel Dia. (mm)		Specimen Nominal Diameter	Maximum Mandrel Dia. (mm)		
	TS 708			TS EN 10080		
d (ø) (mm)	Mandrel Code	Ø 5d	d (ø) (mm)	Mandrel Code	d ≤ Ø 16 3d	d > Ø 16 6d
8-9	HR-B6015/1	40	**8-9**	HR-B6015/11	24	---
10-11	HR-B6015/2	50	**10-11**	HR-B6015/12	30	---
12-14	HR-B6015/3	60	**12-14**	HR-B6015/13	36	---
16-18	HR-B6015/4	80	**16**	HR-B6015/14	48	---
20-22	HR-B6015/5	100	**18-20**	HR-B6015/15	---	108
24-25	HR-B6015/7	120	**22-24**	HR-B6015/16	---	132
26-28	HR-B6015/8	130	**25-26**	HR-B6015/17	---	150
30-32	HR-B6015/9	150	**28-30**	HR-B6015/18	---	168
40	HR-B6015/10	200	**32**	HR-B6015/19	---	192
			40	HR-B6015/20	---	240

Mandrels for Re-Bending Apparatus:

Specimen Nominal Diameter	Maximum Mandrel Dia. (mm)			
	TS 708 and TS EN 10080			
d (ø) (mm)	Mandrel Code	d ≤ Ø 16 5d	Ø16 < d ≤ Ø25 8d	d > Ø25 10d
8-9	HR-B6020/1	40	---	---
10-11	HR-B6020/2	50	---	---
12-14	HR-B6020/3	60	---	---
16	HR-B6020/4	80	---	---
18-20	HR-B6020/5	---	144	---
22-24	HR-B6020/6	---	176	---
25	HR-B6020/7	---	200	---
26-28	HR-B6020/8	---	---	260
30-32	HR-B6020/9	---	---	300
40	HR-B6020/10	---	---	400

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-B0150	150 kN capacity Cold Test Bending Machine	150x85x120	520	220 V, 50 Hz, 1 ph
HR-B0150/60Hz	150 kN capacity Cold Test Bending Machine	150x85x120	520	220 V, 60 Hz, 1 ph
HR-B6010	Bending Apparatus for 8-40 mm diameter steel rebars	---	---	---
HR-B6015/1	Mandrel for 8-9 mm diameter samples, TS 708 Bending Test	---	---	---
HR-B6015/2	Mandrel for 10-11 mm diameter samples, TS 708 Bending Test	---	---	---
HR-B6015/3	Mandrel for 12-14 mm diameter samples, TS 708 Bending Test	---	---	---
HR-B6015/4	Mandrel for 16-18 mm diameter samples, TS 708 Bending Test	---	---	---
HR-B6015/5	Mandrel for 20-22 mm diameter samples, TS 708 Bending Test	---	---	---
HR-B6015/7	Mandrel for 24-25 mm diameter samples, TS 708 Bending Test	---	---	---
HR-B6015/8	Mandrel for 26-28 mm diameter samples, TS 708 Bending Test	---	---	---
HR-B6015/9	Mandrel for 30-32 mm diameter samples, TS 708 Bending Test	---	---	---
HR-B6015/10	Mandrel for 40 mm diameter samples, TS 708 Bending Test	---	---	---
HR-B6015/11	Mandrel for 8-9 mm diameter samples, TS EN 10080 Bending Test	---	---	---
HR-B6015/12	Mandrel for 10-11 mm diameter samples, TS EN 10080 Bending	---	---	---
HR-B6015/13	Mandrel for 12-14 mm diameter samples, TS EN 10080 Bending	---	---	---
HR-B6015/14	Mandrel for 16 mm diameter samples, TS EN 10080 Bending Test	---	---	---
HR-B6015/15	Mandrel for 18-20 mm diameter samples, TS EN 10080 Bending	---	---	---
HR-B6015/16	Mandrel for 22-24 mm diameter samples, TS EN 10080 Bending	---	---	---
HR-B6015/17	Mandrel for 25-26 mm diameter samples, TS EN 10080 Bending	---	---	---
HR-B6015/18	Mandrel for 28-30 mm diameter samples, TS EN 10080 Bending	---	---	---
HR-B6015/19	Mandrel for 32 mm diameter samples, TS EN 10080 Bending Test	---	---	---
HR-B6015/20	Mandrel for 40 mm diameter samples, TS EN 10080 Bending Test	---	---	---
HR-B6020	Re-Bending Apparatus for 8-40 mm diameter steel rebars	---	---	---
HR-B6020/1	Mandrel for 8-9 mm diameter samples, TS 708 and TS EN 10080	---	---	---
HR-B6020/2	Mandrel for 10-11 mm diameter samples, TS 708 and TS EN 10080	---	---	---
HR-B6020/3	Mandrel for 12-14 mm diameter samples, TS 708 and TS EN 10080	---	---	---
HR-B6020/4	Mandrel for 16 mm diameter samples, TS 708 and TS EN 10080	---	---	---
HR-B6020/5	Mandrel for 18-20 mm diameter samples, TS 708 and TS EN 10080	---	---	---
HR-B6020/6	Mandrel for 22-24 mm diameter samples, TS 708 and TS EN 10080	---	---	---
HR-B6020/7	Mandrel for 25 mm diameter samples, TS 708 and TS EN 10080	---	---	---
HR-B6020/8	Mandrel for 26-28 mm diameter samples, TS 708 and TS EN 10080	---	---	---
HR-B6020/9	Mandrel for 30-32 mm diameter samples, TS 708 and TS EN 10080	---	---	---
HR-B6020/10	Mandrel for 40 mm diameter samples, TS 708 and TS EN 10080	---	---	---

REBAR CUTTING MACHINE

Rebar Cutting Machine is with hydraulic system and with spring system return.

Along the ease of transport in short distances thanks to its wheels, it is suitable for construction sites thanks to their durable structures against heavy conditions such as dust and heavy work.

It consumes low power, can conduct cutting operations in low bar pressures, it is silent, safe and environment friendly.

The control type is comfortable; it requires less maintenance and has a long product life.

When compared to machines with the same capacity but different systems, it is much economic. As the hydraulic oil tank of the machine is threaded and disassembled, its assembly is very easy (during parts change and renewal).

Hydraulic Oil Tank capacity is 20 lt.

Supplied complete with Allen Key and 2 pieces Spare Blade Set.

Technical Specifications:

Product Code	Product Name	Engine Power (kW)	Dimensions (cm)	Weight (kg)	Power Supply
HR-B9000	Rebar Cutting Machine	3	64x133x75	352	380 V, 50 Hz

Strength of Steel	Piece	Sample Dia. (mm)
45 kg/mm2	1	Ø 38
45 kg/mm2	2	Ø 26
65 kg/mm2	1	Ø 36
65 kg/mm2	2	Ø 22
85 kg/mm2	1	Ø 32
85 kg/mm2	2	Ø 20

Spare Parts & Accessories:

Product Code	Product Name
HR-B9000/1	Allen Key
HR-B9000/3	Spare Blade Set. 2 pieces

HR-B9000

AUTOMATIC CORE-ROCK COMPRESSION TESTING MACHINE

STANDARDS: EN 12390-3, 12390-4; BS 1881, ASTM C39

The HİRA Automatic 600 kN Capacity Compression Testing Machine has been designed for reliable and consistent testing of core and rock samples. Machine confirms all EN, ASTM and BS standards written above. These also meet the requirements of CE norms for the safety and health of the operator.

A compression test determines behavior of materials under crushing loads. The specimen is compressed and deformation at various loads is recorded.

Testing machines are supplied with EN compression platens as standard. Machines also comply with the ASTM C39 standard when used together with suitable platens.

Tests can be performed by either Digital Readout Unit or on a computer with using free Software.

The Automatic Core-Rock Compression Testing Machine allow inexperienced operators to perform the tests. Once the machine has been switched on and the specimen is positioned and centered by the help of centering apparatus. The only required operations are;

- Setting test parameters, including pace rate (only required when the specimen type is changed).
- Pressing the START button on the control unit
- The machine automatically starts the rapid approach, when the specimen touches the upper platen the rapid approach is ended and starts loading at the pace rate that selected by user and stops once the specimen fails.
- Automatically saves the test parameters and test results.

HR-R6000

The Automatic Core-Rock Compression Testing Machines consist of;

- Load Frame,
- Automatic Hydraulic Power Pack,
- Digital data acquisition & control system,
- Distance Pieces, Ø165x30 mm, Ø165x50 mm and Ø165x80 mm,
- Upper Platen (with ball seating assembly) Ø165 mm,
- Lower Platen Ø165 mm,
- Loading Cylinder Assembly & Limit Switch for safety,
- Front and Rear Protective Doors for safety.
- Software and Ethernet Cable.

Core-Rock Compression Load Frame

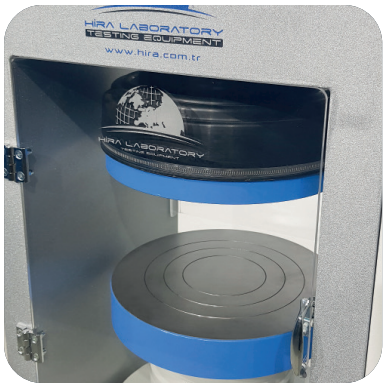
Load Frame is 600 kN Capacity.

The dimensions of the 600 kN Load Frame allow the testing of concrete and rock samples up to its capacity.

The load frame provides the stability needed for accurate and repeatable test results over the years of operation.

The frames are supplied with factory calibration certificate for force transfer stability and the self-alignment of the upper loading platen conforming to EN 12390-4.

HİRA TESTING EQUIPMENT

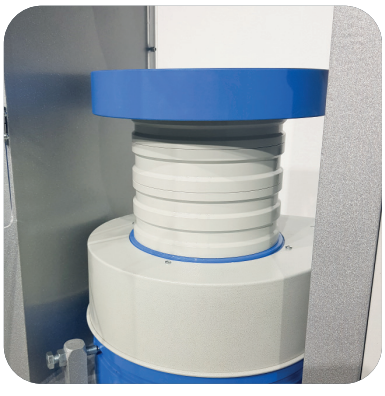


Upper Platens/Lower Platens

Upper Platen (with ball seating assembly) Ø 165 mm and Lower Platen Ø 165 mm.

The platens enable the testing of a wide variety of cylinder or similar samples.

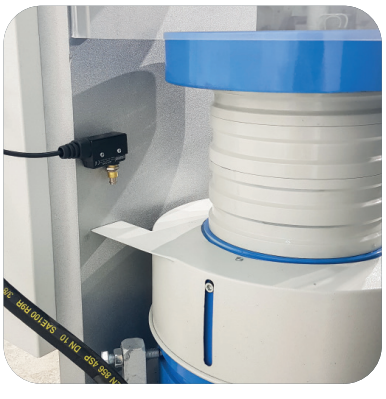
- Manufactured from high quality steel, which is then hardened, smoothed and finished.
- The roughness value for the surface texture of the auxiliary platens is ≤ 3.2 µm.
- Ø 165 mm Upper Platen (with ball seating assembly) and Lower Platen have centering rings on the lower platens for proper centering of 100 mm and 150 mm cylinder samples.



Distance Pieces

Distance pieces are used to reduce the amount of vertical clearance between the upper platen and the lower platen. Supplied with Ø165x30 mm, Ø165x50 mm and Ø165x80 mm distance pieces.

HR-C8166 HR-C8167 HR-C8168



Loading Cylinder Assembly & Limit Switch

The Load Frame has a single acting up stroking ram. The diameter of piston changes with regard to the capacity.

The maximum ram stroke is 50 mm, a limit switch is fitted to prevent over travel of the ram which cuts the power to the pump for safety.

At the end of the test process to start a new test the piston returns to default position.

There is a low friction coaxial PTFE seal between the cylinder and the piston fitted to the cylinder.

HYDRAULIC POWER PACK AND DIGITAL DATA ACQUISITION & CONTROL SYSTEM

Hydraulic Power Pack

Automatic Hydraulic Power Pack, dual stage, controlled by digital readout unit is designed to supply the required oil to the load frames for loading.

Controller unit has a simple and compact configuration.

Very silent power pack can load the specimen between 1 kN/sec. to 20 kN/sec, with an accuracy of ±5%. A Rapid approach pump is supplied as standard. Safety valve (maximum pressure valve) is used to avoid machine overloading.

Maximum working pressure of the system is 400 bar.

HR-C8000

Dual Stage Pump

The dual stage pump is formed by two groups;

1. Low pressure gear pump
2. High pressure radial piston pump

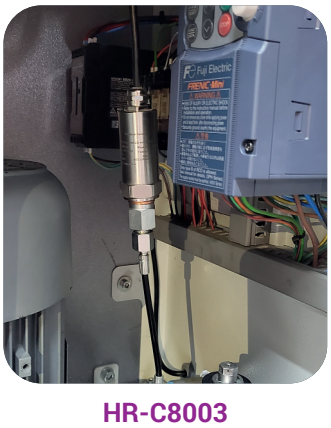
On the dual stage pump, a high delivery, low pressure gear pump is used for rapid approach, while a low delivery, high pressure radial piston pump is used for test execution. The rapid approach facility shortens the time interval from piston start until the upper platen touches to the specimen. This excellent feature helps to save a lot of time when a large number of specimens are going to be tested.

Motor

The motor which drives the dual pumps in an AC motor and it is controlled by motor inverter. The variation in the oil flow is executed with the variation of the rotation speed of the motor.

Distribution Block

A distribution block is used to control the oil flow direction supplied by the dual stage pump, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), High Precision Pressure Transducer, Low pressure gear pump and High pressure radial piston pump.



HR-C8003

High Precision Pressure Transducer

The HİRA range of Automatic Machines can be upgraded with option High Precision Pressure Transducer special calibration Class 1 starting from 1% of the full range.

This unique performance enables the machines to be used for a considerable number of applications including:

- Early age (2 or 3 days) compression strength tests
- Flexural and splitting tests by using proper accessories
- Mortar (Cement) compression tests by using proper accessories
- Core Testing

Load Cell

600 kN Load Cell can be used for load measurements instead of High Precision Pressure Transducer.

These property allows high accuracy at very low sample failures. (Class 1 at 6 kN to 600 kN)

The user can choose Load Cell or Transducer in the order stage.

HİRA TESTING EQUIPMENT

Oil Tank

The tank includes enough oil to fill the mechanism which pushes the ram during the test. The level and oil temperature can be seen on the indicator fitted to the tank. It has 25 L capacity. Hydraulic motor oil, number 46, must be used.

Digital Data Acquisition & Control System

The unit is designed to control the machine and processing of data from load-cells and pressure transducers which are fitted to the machine.

All the operations of the unit is controlled from the front panel consisting of a LCD display and function keys.

The unit has easy to use menu options.

Digital graphic display unit loading rate of the time of Testing and load values can be monitored.

Digital graphic display is able to draw real-time “Load vs. Time”.

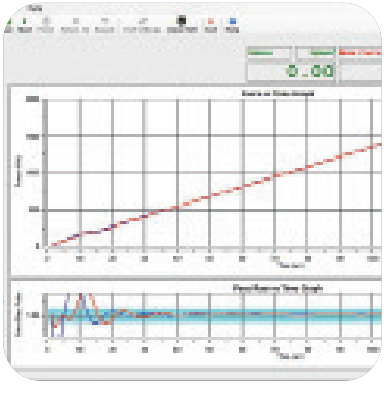
HR-C8002

Software

Sample, company, laboratory and test values can be entered in the programme.

Load-time graphic, test reports and sample reports can be taken.

Software provides test data, results, and the load-time graphs can be seen at LCD screen.



The Automatic Core-Rock Compression machine can be controlled (Start, Stop commands) by a computer with the software free of charge. This software provides data acquisition and management for compression, tensile and splitting tensile test throughout the test execution. The advanced functions for data base management provide an easy navigation of all saved data. The test results certificate includes all descriptive information. Therefore, test parameters can be set and details about the test carried out such as client details, test type, specimen type, user info and other information required can be entered and printed out as well as test report and graph.

Software can be performed in Turkish and English.

Test results, graphics and properties of 24 different specimens can be saved in one folder. Old test folders can be reviewed.

User can highlight all 12 different specimen curves in different colors on the graphics.

Frequently used information like name and location of the laboratory, type and dimensions of mostly used specimens are held in memory and can be written automatically by right clicking on information boxes and selecting frequently used text in menu.

User can access any data of previously completed tests and use in his/ her new report since most of the tests have same structure and properties.

Main Features

- Pace rate control from 1 kN/sec to 20 kN/sec depending on piston size.
- Can control 2 frames (optional)
- Can make test with load control.
- Real time display of test graph.
- Analog channels for different frame load cells
- RS-232 serial port connecting for computer interface
- LCD display
- 2 different unit system selection; kN and kgf
- Multi-language support (English and Turkish)
- 2 different unit system selection; SI and Metric
- Real-time clock and date
- Free of charge PC software for the test control and printout the test report.

Technical Specifications:

Product Code	HR-R6000
Capacity (kN)	600
Roughness (µm)	≤ 3.2
Ø Lower Platen (mm)	165
Ø Upper Platen (mm)	165
Max. Vertical clearance (mm)	330
Piston diameter (mm)	150
Piston Stroke (mm)	50
Horizontal clearance (mm)	230
Oil Capacity (lt)	25
Max. Working Pressure (bar)	400
Power (W)	750

Safety Features

- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch
- Emergency stop button
- Software controlled maximum load value
- Front and rear transparent durable Plexiglas guards

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-R6000	600 kN Automatic Core-Rock Compression Testing Machine	71x38x91	450	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-R6000	600 kN Automatic Core-Rock Compression Testing Machine	71x38x91	450	220 V, 50-60 Hz, 1 ph
HR-R6000/1	600 kN Load Frame	35x30x91	350	---
HR-C8000	Hydraulic Power Pack and Digital Data Acquisition & Control System	36x38x91	100	220 V, 50-60 Hz, 1 ph
HR-C8001	Hydraulic Power Pack	36x38x91	98	220 V, 50-60 Hz, 1 ph
HR-C8002	Digital Data Acquisition & Control System	---	---	220 V, 50-60 Hz, 1 ph
HR-C8003	High Precision Pressure Transducer	---	---	---
HR-C8004	Software	---	---	---
HR-C8165	Distance Pieces	Ø 16,5 x 2,5	---	---
HR-C8166	Distance Pieces	Ø 16,5 x 3	---	---
HR-C8167	Distance Pieces	Ø 16,5 x 5	---	---
HR-C8168	Distance Pieces	Ø 16,5 x 8	---	---
HR-G0975	Computer & Printer	---	---	220 V, 50-60 Hz, 1 ph
HR-G0975/1	Usb to com port Converter	---	---	---
HR-G0979	Thermal Printer	---	---	---
HR-G0979/1	Thermal Printer roll for printer (pack of 10 rolls)	---	---	---

AUTOMATIC CORE-ROCK COMPRESSION TESTING MACHINE WITH H-TOUCH PRO MAX CONTROL UNIT (TOUCH SCREEN)

STANDARDS: EN 12390-3, 12390-4; BS 1881, ASTM C39

The HİRA Automatic 600 kN Capacity Compression Testing Machine has been designed for reliable and consistent testing of core and rock samples. Machine confirms all EN, ASTM and BS standards written above. These also meet the requirements of CE norms for the safety and health of the operator.

Testing machines are supplied with EN compression platens as standard. Machines also comply with the ASTM C39 standard when used together with suitable platens.

Tests can be performed by controlling the machine either H-Touch Pro Max Control Unit or on a computer with using free HİRATEST Software which is provided free of charge with the machines. There are several advantages of performing tests on computer with using HİRATEST Software, such as reporting and graphical output.

The Automatic Core-Rock Compression Testing Machine allow inexperienced operators to perform the tests. Once the machine has been switched on and the specimen is positioned and centered by the help of centering apparatus. The only required operations are;

- Setting test parameters, including pace rate (only required when the specimen type is changed).
- Pressing the START button on the control unit
- The machine automatically starts the rapid approach, when the specimen touches the upper platen the rapid approach is ended and starts loading at the pace rate that selected by user and stops once the specimen fails.
- Automatically saves the test parameters and test results.

HR-R6000/TS

HR-R6000/TS with HR-G0979

The Automatic Core-Rock Compression Testing Machines consist of;

- Load Frame,
- Automatic Hydraulic Power Pack,
- H-Touch Pro Max Control Unit,
- Distance Pieces, Ø165x30 mm, Ø165x50 mm and Ø165x80 mm,
- Upper Platen (with ball seating assembly) Ø165 mm,
- Lower Platen Ø165 mm,
- Loading Cylinder Assembly & Limit Switch for safety,
- Front and Rear Protective Doors for safety,
- H-GUI Software and Ethernet Cable..

Core-Rock Compression Load Frame

Load Frame is 600 kN Capacity.

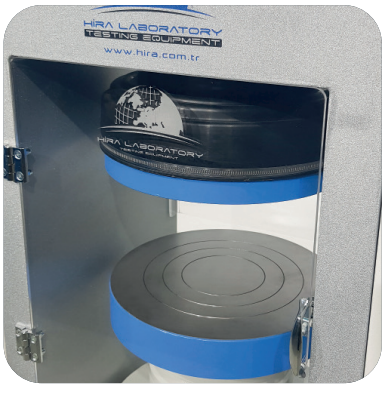
The dimensions of the 600 kN Load Frame allow the testing of concrete and rock samples up to its capacity.

The load frame provides the stability needed for accurate and repeatable test results over the years of operation. The machine's hydraulic power pack, control and read out units are positioned on the right hand side of the load frame for easier accessibility, increased productivity and for safer operations.

The frames are supplied with factory calibration certificate for force transfer stability and the self-alignment of the upper loading platen conforming to EN 12390-4.

Upper Platens/Lower Platens

Upper Platen (with ball seating assembly) Ø 165 mm and Lower Platen Ø 165 mm.



The platens enable the testing of a wide variety of cylinder or similar samples.

- Manufactured from high quality steel, which is then hardened, smoothed and finished.
- The roughness value for the surface texture of the auxiliary platens is ≤ 3.2 µm.
- Ø 165 mm Upper Platen (with ball seating assembly) and Lower Platen have centering rings on the lower platens for proper centering of 100 mm and 150 mm cylinder samples.

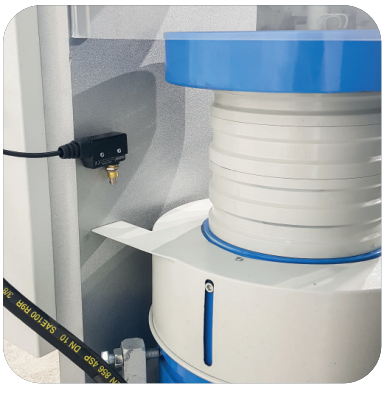
Distance Pieces

Distance pieces are used to reduce the amount of vertical clearance between the upper platen and the lower platen. Supplied with Ø 165x30 mm, Ø 165x50 mm and Ø 165x80 mm distance pieces.

HR-C8166 HR-C8167 HR-C8168

Loading Cylinder Assembly & Limit Switch

The Load Frame has a single acting up stroking ram. The diameter of piston changes with regard to the capacity.



The maximum ram stroke is 50 mm, a limit switch is fitted to prevent over travel of the ram which cuts the power to the pump for safety.

At the end of the test process to start a new test the piston returns to default position.

There is a low friction coaxial PTFE seal between the cylinder and the piston fitted to the cylinder.

HYDRAULIC POWER PACK AND H-TOUCH PRO MAX CONTROL UNIT

Hydraulic Power Pack

Automatic Hydraulic Power Pack, dual stage, controlled by H-Touch Pro Max Control Unit is designed to supply the required oil to the load frames for loading.

Controller unit has a simple and compact configuration. The Hydraulic Power Pack, Control and Read out Units are positioned on the right-hand side of the load frame for easier accessibility, increased productivity and for safer operations.

Very silent power pack can load the specimen between 1 kN/sec. to 20 kN/sec, with an accuracy of ±5%. A Rapid approach pump is supplied as standard. Safety valve (maximum pressure valve) is used to avoid machine overloading.

Maximum working pressure of the system is 400 bar.

HR-C8000/TS

HİRA TESTING EQUIPMENT

Dual Stage Pump

The dual stage pump is formed by two groups;

1. Low pressure gear pump
2. High pressure radial piston pump

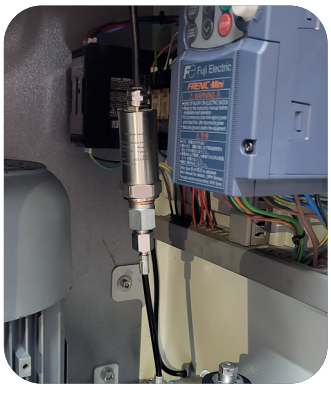
On the dual stage pump, a high delivery, low pressure gear pump is used for rapid approach, while a low delivery, high pressure radial piston pump is used for test execution. The rapid approach facility shortens the time interval from piston start until the upper platen touches to the specimen. This excellent feature helps to save a lot of time when a large number of specimens are going to be tested.

Motor

The motor which drives the dual pumps in an AC motor and it is controlled by motor inverter. The variation in the oil flow is executed with the variation of the rotation speed of the motor.

Distribution Block

A distribution block is used to control the oil flow direction supplied by the dual stage pump, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), High Precision Pressure Transducer, Low pressure gear pump and High pressure radial piston pump.



High Precision Pressure Transducer

The HİRA range of Automatic Machines can be upgraded with option High Precision Pressure Transducer special calibration Class 1 starting from 1% of the full range.

This unique performance enables the machines to be used for a considerable number of applications including:

- Early age (2 or 3 days) compression strength tests
- Flexural and splitting tests by using proper accessories
- Mortar (Cement) compression tests by using proper accessories
- Core Testing

HR-C8003

Load Cell

600 kN Load Cell can be used for load measurements instead of High Precision Pressure Transducer.

These property allows high accuracy at very low sample failures. (Class 1 at 6 kN to 600 kN)

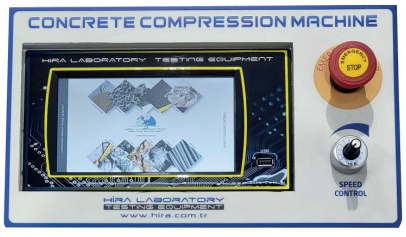
The user can choose Load Cell or Transducer in the order stage.

Oil Tank

The tank includes enough oil to fill the mechanism which pushes the ram during the test. The level and oil temperature can be seen on the indicator fitted to the tank. It has 25 L capacity. Hydraulic motor oil, number 46, must be used.

Digital Data Acquisition & Control System

HİRATEST H-Touch Pro Max Control Unit is designed to control the automatic compressive, flexural and splitting tensile strength tests of construction materials such as concrete, cement mortar, masonry units, paving blocks, roofing tiles by processing of data from load-cells, pressure transducers or displacement transducers which are fitted to the machine.



HR-C8002/TS

All the operations of H-Touch Pro Max Control Unit are controlled from the front panel color resistive of TFT-LCD Touchscreen display and function keys.

The unit has easy to use menu options.

It displays all menu option listings simultaneously, allowing the operator to access the required option in a seamless manner to activate the option or enter a numeric value to set the test parameters.

H-Touch PRO Max Control Unit enable simultaneously display machine status, test values, warnings during operation and test graphs such as load-time or load-displacement curves in real time.

Digital graphic display of the unit is able to draw real-time “Load vs. Time” or “Stress vs. Time” graphics.

Main Features of H-Touch Pro Max Control Unit

- 2 analog channels for load cell or pressure sensors or displacement sensors.
- Can control 2 frames
- Provides load control of two separate testing frames with Closed-loop PID.
- Optionally supplied-integrated thermal printer (If requested, must be specified in the order)
- Real-time numeric display of load, loading rate and load/ time curves with automatic resolution adjustment on the touchscreen
- Up to 8-point calibration support and adjustable digital gains for every channel
- User-customizable load, position limits and test termination conditions
- Backup and recall option for device settings
- Recalling to factory default settings option.
- Easy recall of embedded test parameters for different types of tests and sample sizes
- Storage capacity up to 10.000 test result or 80 hours real time data recording with 1 sample per second recording interval (recording interval is variable).
- Graph axes on touchscreen can be configured for different tests and configurations
- The axes of the graph drawn on the device can be set to constant maximum values or axes can be automatically scaled according to the data
- Three different unit system selection; kN- Mpa -mm or lbf- psi- in or kgf- kgf/cm²- cm
- Real time and adjustable date/time.
- Multi-language support (English, French, Spanish, Turkish, Russian…)
- LAN connection for instantaneous transfer of test data to PC.
- USB port support for transfer of test data to a flash drive.
- Password Protection for machine settings, calibration and channel menus
- Record of test results in txt and MS excel format on pre-defined intervals
- Customizable IP

Hardware

- 2 fully customizable analog channels with 24-bit ADC and PGA-FPGA circuit
- 800x480 pixel and 65535 color resolution TFT-LCD touchscreen
- 33 Hz control loop
- 32 Bit, 120 MHz ARM CORTEX M3 micro-PROcessor (CPU) for data acquisition
- 32 Bit, 400 MHz ARM CORTEX M3 micro-PROcessor (CPU) for data display
- Additional memory support up to 32 GB via external USB flash drive
- Support for -optionally supplied- integrated thermal printer
- Real time display of test graph
- LAN connection for instantaneous transfer of test data to PC.
- USB port support for transfer of test data to a flash drive

HİRA TESTING EQUIPMENT

Software

HİRATEST H-GUI Software has been designed for data acquisition, processing controlling, presentation and reporting compressive, flexural and splitting tensile strength tests of construction materials such as concrete, cement mortar, masonry units, paving blocks, roofing tiles with appropriate Automatic Compression/Flexure Testing Machines and also with a computer.

The Automatic Compression Machine can be controlled (Start, Stop commands) by a computer with the HİRATEST H-GUI Software free of charge.

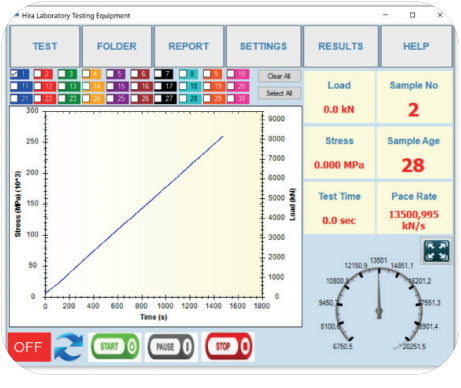
The advanced functions for database management provide an easy navigation of all saved data.

Test parameters can be set and details about the test carried out such as Test Type, Sample Type, Report details, Customer details, Sample details and other information required can be entered in the software.

This informations and “Load vs. Time” or “Stress vs. Time” graphics can be seen and printed out on the Test Report.

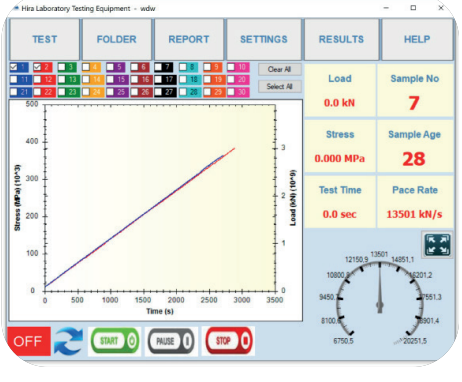
Following tests can be done with the HİRATEST H-GUI Software;

- Compressive Strength of Concrete Cylinders / Cubes
- Flexural Strength of Concrete Beams
- Compressive Strength of Cement Mortars
- Flexural Strength of Cement Mortars
- Tensile Splitting Strength of Concrete Paving Blocks
- Tensile Splitting Strength of Concrete Cylinders / Cubes
- Flexural Strength of Roofing Tiles
- Flexural Strength of Concrete Kerbs
- Compressive Strength of Masonry Units



Main Features of H-GUI Software

- Multi-language support and customizable user interface
- 30 Tests Results, Graphics and Properties Storage Capacity in One Test File
- Exporting test results to database
- Advanced test graphical interface
- Option to store and recall test information
- Modification of test machine parameters using the software
- Able to save frequently used texts in memory and recall them when necessary
- Exporting reports and graphs
- Flexible report and graph formats
- Help and user manual display



Main Features of the device

- Pace rate control from 1 kN/sec to 20 kN/sec depending on piston size.
- Accuracy Class 1 acc. to EN 12390-4 starting from with the 5% of the machine capacity (Special calibration option Class 1 starting from 1% of the full range with HR-C8003)
- Supplied with factory calibration certificate for force transfer stability and the self-alignment of the upper loading platen conforming to EN 12390-4
- Tests automatically with closed loop control
- Tests can be performed by controlling the machine either H-Touch Screen Digital Readout Unit or on a computer with using free HİRATEST Software which is provided free of charge with the machines.
- Load measurement with a pressure transducer
- Hydraulic pump with dual stage for rapid approach
- Welded steel walled frame with a single acting piston
- Piston return at the end of test automatically
- Multi-Point calibration function for the channels
- Optionally supplied-integrated thermal printer (If requested, must be specified in the order)
- Ethernet port connecting for computer interface
- H-Touch Screen Digital Readout Unit
- Free of charge HİRATEST Software for the test control and printout the test report.

Technical Specifications:

Product Code	HR-R6000/TS
Capacity (kN)	600
Roughness (µm)	≤ 3.2
Ø Lower Platen (mm)	165
Ø Upper Platen (mm)	165
Max. Vertical clearance (mm)	330
Piston diameter (mm)	150
Piston Stroke (mm)	50
Horizontal clearance (mm)	230
Oil Capacity (lt)	25
Max. Working Pressure (bar)	400
Power (W)	750

Safety Features

- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch
- Emergency stop button
- Software controlled maximum load value
- Front and rear transparent durable Plexiglas guards

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-R6000/TS	600 kN Automatic Core-Rock Compression Testing Machine	71x38x91	450	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-R6000/1	600 kN Load Frame	35x30x91	350	---
HR-C8000/TS	Hydraulic Power Pack and H-Touch Pro Max Control Unit	36x38x91	100	220 V, 50-60 Hz, 1 ph
HR-C8001	Hydraulic Power Pack	36x38x91	98	220 V, 50-60 Hz, 1 ph
HR-C8002/TS	H-Touch Pro Max Control Unit	---	---	220 V, 50-60 Hz, 1 ph
HR-C8003	High Precision Pressure Transducer	---	---	---
HR-C8004/TS	H-GUI Software	---	---	---
HR-C8165	Distance Pieces	Ø 16,5 x 2,5	---	---
HR-C8166	Distance Pieces	Ø 16,5 x 3	---	---
HR-C8167	Distance Pieces	Ø 16,5 x 5	---	---
HR-C8168	Distance Pieces	Ø 16,5 x 8	---	---
HR-G0975	Computer & Printer	---	---	220 V, 50-60 Hz, 1 ph
HR-G0975/1	Usb to com port Converter	---	---	---
HR-G0979	Thermal Printer	---	---	---
HR-G0979/1	Thermal Printer roll for printer (pack of 10 rolls)	---	---	---

CYLINDER CAPPING EQUIPMENT

STANDARDS: TS EN 12390–3, ASTM C31, C192, C617, AASTHO T23, T126

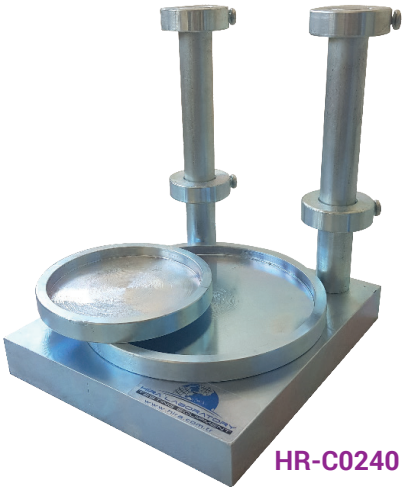
This heavy-duty vertical Cylinder capper is used in applying capping compound to Ø75, Ø100 and Ø150 mm concrete test cylinders in preparation for compression tests.

The vertical Capper simplifies the capping process by ensuring the plane, end surfaces are at right angles to the axis of the cylinder. The upright is used as a guide for positioning the cylinder. Molten capping compound is poured into the mold (plate); then the cylinder is placed on the capping material. After the compound is set, the capped cylinder is removed for testing. All types of capping compounds can be used with this apparatus.

Supplied complete with base plates for Ø100 and Ø150 mm cylinder specimens.

Base plates for Ø 75 mm cylinder specimens should be ordered separately.

Concrete Cylinder Carrier (Cradle-Type) is plated to resist rust. Used to carry Ø150 mm concrete cylinders in field or laboratory. Concrete Cylinder Carrier should be ordered separately.



HR-C0240

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0240	Cylinder Capping Equipment	21x19x24	12

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-C0240/1	Cylinder Capping Frame	200x200x320	5
HR-C0240/2	Base Plate	Ø 75x20	1
HR-C0240/3	Base Plate	Ø 100x20	1,5
HR-C0240/4	Base Plate	Ø 150x20	2
HR-C0249	Concrete Cylinder Carrier	Ø 165x450	1

HR-C0249

HR-C0249
with sample

MELTING POT

STANDARDS: EN 12390–3, 12390-1, 12504-1; ASTM C31, C192, C617, C39, C42; AASTHO T23, T126

Used for Melting Capping Compound (Sulphur + Graphite).

HR-C0245

The apparatus consists of a 3,5 lt capacity aluminum cast container, covered by a special made steel resistance, stone wool insulator and thermostatic control heating system to keep the temperature constant in the range of 40 to 350 °C.

Supplied with scoop.

Sulphur and Graphite should be ordered separately.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C0245	Melting Pot	35x40x30	9	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name
HR-G0914	Sulphur, 1 kg
HR-G0915	Sulphur, 25 kg
HR-G0912	Graphite, 1 kg
HR-G0913	Graphite, 25 kg
HR-G0739	Ladle, Stainless

HR-G0912

HR-G0739

HR-G0914

UNBONDED CAPPING PADS AND RETAINERS

STANDARDS: ASTM C1231

Used for compression tests on concrete cylinder samples, as an alternative method to the sulphur capping and grinding machine.

Two Steel Capping Retainers are applied on the two flat surfaces of the cylinder.

Two Neoprene Pads are put between them, for a better load distribution.

The Neoprene Pads are available in two models.

- 60 Shore hardness pads for expected strength from 10 to 48 MPa.
- 70 Shore hardness pads for expected strength over 48 MPa.

The system is not applicable for expected strength lower than 10 MPa.

Technical Specifications:

Product Code	Product Name	Hardness	Sample Dimensions (mm)
HR-C8800	Capping Retainers (Pack of 2)	---	100x200
HR-C8801	Capping Retainers (Pack of 2)	---	150x300
HR-C8802	Capping Retainers (Pack of 2)	---	160x320
HR-C8805	Neoprene Pads (Pack of 2)	60 Shore	100x200
HR-C8806	Neoprene Pads (Pack of 2)	60 Shore	150x300
HR-C8807	Neoprene Pads (Pack of 2)	60 Shore	160x320
HR-C8810	Neoprene Pads (Pack of 2)	70 Shore	100x200
HR-C8811	Neoprene Pads (Pack of 2)	70 Shore	150x300
HR-C8812	Neoprene Pads (Pack of 2)	70 Shore	160x320

CORE DRILLING MACHINE

For shock-free drilling in concrete, natural stone and asphalt with a diameter range from 50 to 255 mm. The machine is equipped with 2 load speeds. Electronics - soft start, current limitation, thermal overload protection. Mechanical safety clutch. 2-speed (460/840 rpm) oil bath gearbox – optimal speed adjustment in the entire drill range. Feed lever change without any tool (right/left side). Feed lever – drilling in tight areas. Quick-change plate – motor/rig.

Water Pump is 15 lt capacity. It is supplied with 3 m hose. Water Pump should be ordered separately.

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-G3025	Core Bit	Ø 50x450	2
HR-G3026	Core Bit	Ø 54,74x450	2,25
HR-G3027	Core Bit	Ø 75x450	2,5
HR-G3028	Core Bit	Ø 100x450	3
HR-G3029	Core Bit	Ø 150x450	5
HR-G3030	Core Bit	Ø 200x450	8
HR-G3000/1	Water Pump	---	---

Technical Specifications:

Product Code	Product Name	Power input	Drilling dia. (mm)	Rated speed (rpm)	Weight (kg)	Power Supply
HR-G3000	Core Drilling Machine	2600 W	50-255	460/840	25,2	220 V, 50-60 Hz, 1 ph

MASONRY SAW (SPECIMEN CUTTING MACHINE)

STANDARDS: EN 12390-3, 12504-1, ASTM C42, D4543

The Universal Cutting Machines have been developed to cut and prepare concrete, rock or natural stone cores or other type test specimens.

Special "V" block clamp assembly allows specimens to be held during cutting operation.

The machine is supplied complete with circulation water pump and Cutting Blade.

Special clamp assembly should be ordered separately.

If 220 V Power Supply is required please mention at time of order.

HR-C0250 with HR-C0250/1 & HR-C0280

Technical Specifications:

Product Code	HR-C0250	HR-C0250/220	HR-C0255	HR-C0255/220	HR-C0260	HR-C0270
Product Name	Masonry Saw (Specimen Cutting Machine)					
Blade Diameter (cm)	35		45		60	35
Cutting Depth (cm)	12		17,5		25	10,5
Cutting Length (cm)	60		50		50	180
Engine Power	3 hp - 380 V	3 hp - 220 V	4 hp - 380 V	4 hp - 220 V	5.5 hp - 380 V	4 hp - 380 V
Water Pump Power	0.37 hp - 220 V		0.37 hp - 220 V		0.37 hp - 220 V	0.37 hp - 220 V
Blade Speed (rpm)	2800		1435	1420	1440	2800
Water Tank Capacity (lt)	60		60		65	220
Weight (kg)	110		135		165	190
Dimension (cm)	110x66x125		110x71x135		122x81x150	240x70x140

Spare Parts & Accessories:

Product Code	Product Name	Diameter (mm)
HR-C0250/1	Cutting Blade	350
HR-C0255/1	Cutting Blade	450
HR-C0260/1	Cutting Blade	600
HR-C0280	Clamp for Concrete Cutting Machine	---

HR-C0250/1 with HR-C0280

PULL OUT TEST APPARATUS

The device is used for determining the bond strength between anchored reinforcing steel bar (rebar) and concrete and for checking anchorage performance in-situ.

Manuel Rebar Pull-Out Force Testers have Hydraulic Jack (Piston), 700 bar Hydraulic Hand Pump, High Pressure Hose and Connection apparatus.

Two alternatives are offered for Digital Rebar Pull-Out Test Apparatus.

HR-C0295, HR-C0297 and HR-C0299 Models are supplied with Battery Operated Digital Readout Unit, Pressure Transducer, Hydraulic Jack (Piston), 700 bar Hydraulic Hand Pump, High Pressure Hose and Connection apparatus.

HR-C0290

HR-C0295/LPI, HR-C0297/LPI and HR-C0299/LPI Models are supplied with LPI Battery Operated Digital Readout Unit, Pressure Transducer, Hydraulic Jack (Piston), 700 bar Hydraulic Hand Pump, High Pressure Hose and Connection apparatus.
Rebar Pull-Out Force Testers have a steel hydraulic cylinder.

HR-C0290, HR-C0292, HR-C0295, HR-C0295/LPI, HR-C0297 and HR-C0297/LPI Models are supplied complete with three Jaw Sets for 8/12 - 12/20 - 22/32 mm rebars and Jaw Seat for Ø 8/32 mm rebars which allows user to test anchorage rebar with different diameters. These jaws are made of high strength steel.

HR-C0291/1
HR-C0291/2
HR-C0291/3

HR-C0293, HR-C0299 and HR-C0299/LPI Models are supplied complete with three Jaw Sets for 8/12 - 12/20 - 22/32 mm rebars, Jaw Seat for Ø 8/32 mm rebars and Jaw Seat for Ø 32/40 mm rebars which allows user to test anchorage rebar with different diameters. These jaws are made of high strength steel.

Technical Specifications:

Product Code	Product Name	Rebar dia. (mm)	Stroke (mm)	Dimensions (cm)	Weight (kg)
HR-C0290	Manuel Pull Out Test Apparatus. 30 ton capacity.	Ø 8 to 32	50	80x35x32	50
HR-C0295	Digital Pull Out Test Apparatus. 30 ton capacity.	Ø 8 to 32	50	80x35x32	50
HR-C0295/LPI	LPI Digital Pull Out Test Apparatus. 30 ton capacity.	Ø 8 to 32	50	80x35x32	50
HR-C0292	Manuel Pull Out Test Apparatus. 60 ton capacity.	Ø 8 to 32	50	80x40x32	60
HR-C0297	Digital Pull Out Test Apparatus. 60 ton capacity.	Ø 8 to 32	50	80x40x32	60
HR-C0297/LPI	LPI Digital Pull Out Test Apparatus. 60 ton capacity.	Ø 8 to 32	50	80x40x32	60
HR-C0293	Manuel Pull Out Test Apparatus. 100 ton capacity.	Ø 8 to 40	50	80x43x32	75
HR-C0299	Digital Pull Out Test Apparatus. 100 ton capacity.	Ø 8 to 40	50	80x43x32	75
HR-C0299/LPI	LPI Digital Pull Out Test Apparatus. 100 ton capacity.	Ø 8 to 40	50	80x43x32	75

Spare Parts & Accessories:

Product Code	Product Name
HR-C0290/1	Hydraulic Hand Pump
HR-C0290/2	Hydraulic Jack (Piston). 30 ton capacity.
HR-C0292/2	Hydraulic Jack (Piston). 60 ton capacity.
HR-C0293/2	Hydraulic Jack (Piston). 100 ton capacity.
HR-C0290/3	High Pressure Hose, 1 m
HR-C0295/1	Battery Operated Digital Readout Unit
HR-C9002/LPI	LPI Battery Operated Digital Readout Unit
HR-C0295/2	Pressure Transducer
HR-C0291	Three Jaws Set and Jaw Seat for Ø 8/32 mm rebars
HR-C0294	Three Jaws Set, Jaw Seats for Ø 8/32 mm and for Ø 32/40 mm rebars
HR-C0291/1	Jaw Set for Ø 8-12 mm
HR-C0291/2	Jaw Set for Ø 12-20 mm
HR-C0291/3	Jaw Set for Ø 20-32 mm
HR-C0291/4	Jaw Seat for Ø 8/32 mm rebars
HR-C0291/5	Jaw Seat for Ø 32/40 mm rebars

HR-C0295/1 & HR-C0295/2

HR-C9002/LPI

ROCK BOLT (SOIL NAIL-GROUND ANCHOR) PULL OUT TEST APPARATUS

This device is used to test the firmness of the combination between the anchor and the foundation. It is widely used in railways, highway tunnels, water conservancy projects, coal mine shafts and national defense projects.
Manuel Rebar Pull-Out Force Testers have Hydraulic Jack (Piston), 700 bar Hydraulic Hand Pump, High Pressure Hose and Connection apparatus.
Two alternatives are offered for Digital Rebar Pull-Out Test Apparatus.
HR-C0405, HR-C0407 and HR-C0409 Models are supplied with Battery Operated Digital Readout Unit, Pressure Transducer, Hydraulic Jack (Piston), 700 bar Hydraulic Hand Pump, High Pressure Hose and Connection apparatus.
HR-C0405/LPI, HR-C0407/LPI and HR-C0409/LPI Models are supplied with LPI Battery Operated Digital Readout Unit, Pressure Transducer, Hydraulic Jack (Piston), 700 bar Hydraulic Hand Pump, High Pressure Hose and Connection apparatus.
Rebar Pull-Out Force Testers have a steel hydraulic cylinder.
HR-C0400, HR-C0402, HR-C0405, HR-C0407, HR-C0405/LPI ve HR-C0407/LPI Models allow the user to test rock bolts up to 32 mm diameter.
HR-C0403, HR-C0409 ve HR-C0409/LPI Models allow the user to test rock bolts up to 38 mm diameter.
Intermediate reduction shaft must be ordered separately depending on the sample type and diameter.

HR-C0295/1 & HR-C0295/2

HR-C9002/LPI

Technical Specifications:

Product Code	Product Name	Rock Bolt dia. (mm)	Dimensions (cm)	Weight (kg)
HR-C0400	Manuel Rock Bolt Pull Out Test Apparatus. 30 ton capacity.	Ø 16 to 32	80x35x32	50
HR-C0405	Digital Rock Bolt Pull Out Test Apparatus. 30 ton capacity.	Ø 16 to 32	80x35x32	50
HR-C0405/LPI	LPI Digital Rock Bolt Pull Out Test Apparatus. 30 ton capacity.	Ø 16 to 32	80x35x32	50
HR-C0402	Manuel Rock Bolt Pull Out Test Apparatus. 60 ton capacity.	Ø 16 to 32	80x40x32	60
HR-C0407	Digital Rock Bolt Pull Out Test Apparatus. 60 ton capacity.	Ø 16 to 32	80x40x32	60
HR-C0407/LPI	LPI Digital Rock Bolt Pull Out Test Apparatus. 60 ton capacity.	Ø 16 to 32	80x40x32	60
HR-C0403	Manuel Rock Bolt Pull Out Test Apparatus. 100 ton capacity.	Ø 16 to 38	80x43x32	75
HR-C0409	Digital Rock Bolt Pull Out Test Apparatus. 100 ton capacity.	Ø 16 to 38	80x43x32	75
HR-C0409/LPI	LPI Digital Rock Bolt Pull Out Test Apparatus. 100 ton capacity.	Ø 16 to 38	80x43x32	75

Spare Parts & Accessories:

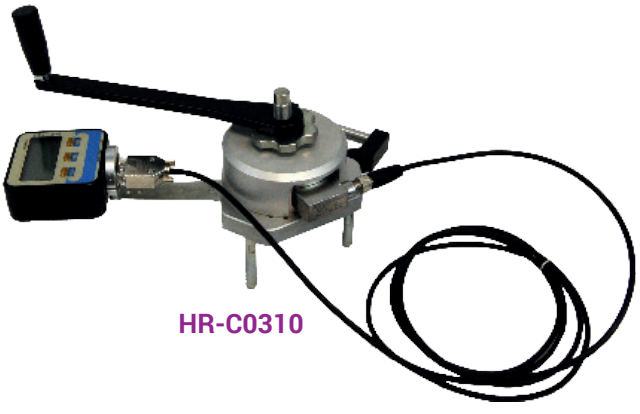
Product Code	Product Name
HR-C0290/1	Hydraulic Hand Pump
HR-C0400/1	Hydraulic Jack (Piston). 30 ton capacity.
HR-C0400/2	Piston placing apparatus for HR-C0400/1.
HR-C0402/1	Hydraulic Jack (Piston). 60 ton capacity.
HR-C0402/2	Piston placing apparatus for HR-C0402/1.
HR-C0403/1	Hydraulic Jack (Piston). 100 ton capacity.
HR-C0403/2	Piston placing apparatus for HR-C0403/1.
HR-C0400/3	High Pressure Hose, 3 m
HR-C0295/1	Battery Operated Digital Readout Unit
HR-C9002/LPI	LPI Battery Operated Digital Readout Unit
HR-C0295/2	Pressure Transducer
HR-C0400/5	SN Bulon Intermediate reduction shaft for 16 mm dia.
HR-C0400/6	SN Bulon Intermediate reduction shaft for 18 mm dia.
HR-C0400/7	SN Bulon Intermediate reduction shaft for 20 mm dia.
HR-C0400/8	SN Bulon Intermediate reduction shaft for 22 mm dia.
HR-C0400/9	SN Bulon Intermediate reduction shaft for 25 mm dia.
HR-C0400/10	SN Bulon Intermediate reduction shaft for 28 mm dia.
HR-C0400/11	SN Bulon Intermediate reduction shaft for 32 mm dia.
HR-C0400/12	İBO Bulon Intermediate reduction shaft for 25 mm dia.
HR-C0400/13	İBO Bulon Intermediate reduction shaft for 32 mm dia.
HR-C0400/14	İBO Bulon Intermediate reduction shaft for 38 mm dia.

HR-C0400

PULL-OFF TESTER DRC

STANDARDS: EN 1015-12, EN 1348, ASTM C1583, ASTM D4541, BS 1881 Part 207, DIN 1048 Part 2

The LDV Pull-Off Tester provides a quick and easy way to determine the adhesion force between two different surfaces/ materials. The Pull-Off tester is generally used to check the adhesion of different kind of materials (i.e. plastic, synthetic, fabric and others), fixed to concrete surfaces.



HR-C0310

The Pull-Off test can be run on site without the need for installing or preparing any equipment during the casting process or while the part is being made.

The test consists in gluing a metal plate to the part being tested: the plate is then pulled off the part, using a top support complete with extraction system coupled to a load cell.

The pull off force is shown on the instrument's digital display. The peak value is logged.

Thanks to its versatile attachment system, the LDV Pull-Off tester can be used for testing the adhesion of mechanical components (anchors) and components which are larger than conventional plates, using support extenders.

The extended point of support makes it possible to test elements which are larger than normal adhesion plates.

Fields of Application

- Any application in which the adhesion between two different materials is to be measured;
- Checking restoration work on damaged concrete structures;
- Work using carbon fibre.

The instrument can be used with bitumen, cement, mortar, plaster, plastics and fabrics.

Reading system with DaTa 500 connection

The result is displayed either by the removable external force reader, which facilitates display when the test position is difficult to access, or by connecting the pull-off tester to the DaTa 500 reader with the cable included in the kit.

Pull Off LDV is supplied complete with Contrast Support, Loading Cell (25 o 50 kN) and Removable Display System, Adjustable Ball Traction Handles, Support Extensions, Pull-off Plate D50, Calibration Report, User Manual and Rigid Carry Case.

Technical Specifications:

Product Name:	Pull Off Tester
Product Code:	HR-C0310
Load Cell:	TC4 25KN with DFI - A/D16 bit reader
Accuracy:	± 0,020 %
Linearity:	± 0,015 %
Working Temperature:	0 - 50°C
Max. Force:	2,5 tons
Filters:	digital, programmable, peak and zero force function
Display:	digital, 5 divisions
Battery Life:	1 year without recharging
Calibration:	digital
Dimensions:	150x150x145 mm
Dimensions with package:	260x230x145 mm
Weight:	1,2 kg
Weight with package:	4 kg

AUTOMATIC PULL-OFF TESTER

STANDARDS: EN 1015-12, EN 1348, EN 1542, EN 13693, EN 14496, ASTM C1583, ASTM D4541, ASTM D7522, ASTM D7234, BS 1881 Part 207, DIN 1048 Part 2

Automatic Pull-Off Tester is used to evaluate the bond strength of two layers of concrete or the adhesive strength of surface coatings (e.g. cement plaster, lime, wall plaster etc.) on its support.

Automatic Pull-Off Tester is DC Controlled with touch screen.

Calibration Certificate is optional.

All accessories should be ordered separately.

HR-C0345

Technical Specifications:

Product Name:	Automatic Pull Off Tester
Product Code:	HR-C0345
Load Capacity:	10 kN
Load Speed:	15-250 N/sec.
Digital Indicator:	kN or Newton or Mpa
Battery:	Up to 99 tests
Charge Unit:	230 V, 50 Hz
Power Supply:	220 V adapter or Battery (optional)
Weight:	15 kg

Spare Parts & Accessories:

Product Code	Product Name
HR-C0330/1	Drill bit with centering point to obtain, Ø 50 mm test surface
HR-C0330/2	Drill bit with centering point to obtain, Ø 20 mm test surface
HR-C0330/3	Metal ring (dinking die), Ø 50x25 mm high, for fresh plaster, to EN 1015-12
HR-C0330/4	Aluminium Test Disc, Ø 50 mm
HR-C0330/5	Aluminium Test Disc, Ø 20 mm
HR-C0330/6	Square Aluminium Test Plate, 50x50mm, conforming to EN 1348
HR-C0330/7	Stainless Steel Disc Ø 50x20 mm thickness, conforming to EN 1015-12
HR-C0330/8	Adhesion Silicon and Gun

SEMI-AUTOMATIC PULL-OFF TESTER

STANDARDS: EN 1015-12, EN 1348, EN 1542, EN 13693, EN 14496, ASTM C1583, ASTM D4541, ASTM D7522, ASTM D7234, BS 1881 Part 207, DIN 1048 Part 2

Semi-Automatic Pull-Off Tester is used to evaluate the bond strength of two layers of concrete or the adhesive strength of surface coatings (e.g. cement plaster, lime, wall plaster etc.) on its support.

Supplied complete with Carrying Case.

Battery operated Pull-Off Tester has Seat ball assuring Axial/Central Load Application.

To perform the test a common electric drill is required.

All accessories should be ordered separately.

Technical Specifications:

Product Name:	Semi-Automatic Pull Off Tester
Product Code:	HR-C0330
Load Capacity:	10 kN
Resolution:	10 N
Working Range:	0,10 to 10 kN
Accuracy:	better than ± % 1
Repeatability:	better than ± % 1
Hand Wheel rounds:	60 with mechanical round/counter
Dimensions:	21x26x17 cm
Weight:	3,5 kg

Spare Parts & Accessories:

Product Code	Product Name
HR-C0330/1	Drill bit with centering point to obtain, Ø 50 mm test surface
HR-C0330/2	Drill bit with centering point to obtain, Ø 20 mm test surface
HR-C0330/3	Metal ring (dinking die), Ø 50x25 mm high, for fresh plaster, to EN 1015-12
HR-C0330/4	Aluminium Test Disc, Ø 50 mm
HR-C0330/5	Aluminium Test Disc, Ø 20 mm
HR-C0330/6	Square Aluminium Test Plate, 50x50mm, conforming to EN 1348
HR-C0330/7	Stainless Steel Disc Ø 50x20 mm thickness, conforming to EN 1015-12
HR-C0330/8	Adhesion Silicon and Gun

DISC PULL OUT TEST APPARATUS

STANDARDS: BS EN 12504-3:2005

Pull-Out Test Apparatus is used to evaluate concrete resistance as per the strength applied to extract a disc embedded into concrete.

The kit consists of a 100kN capacity hydraulic extraction unit with pump, 0-100kN precision manometer, bearing ring, & 10 x 25 mm diameter steel discs (EN 12504-3) in carrying cases.

Technical Specifications:

Product Code	Product Name	Weight (kg)
HR-C0298	Disc Pull Out Test Apparatus. 10 ton capacity. EN 12504-3	18

Spare Parts & Accessories:

Product Code	Product Name
HR-C0298/1	Hydraulic Hand Pump
HR-C0298/2	Hydraulic Jack (Piston). 10 ton capacity.
HR-C0298/3	0-100kN precision manometer
HR-C0298/4	25 mm diameter steel discs (EN 12504-3) (Pack of 10)

CONCRETE (SCHMIDT) TEST HAMMER

STANDARDS: EN 12504-2, 13791; ASTM C 805; BS 1881:202

The quality of concrete is mainly judged by its compressive strength directly affecting the load-bearing capacity and durability of concrete structures.

Spring impact energy 2,207 Nm (Joule). Suitable for finished concrete structures and buildings having strength resistances from 10 to 70 N/mm².

This concrete test hammer, has aluminum frame, and thanks to its very accurate manufacture processing and selected components ensures high precision test results in the time.

Supplied complete with calibration curve chart in N/mm² (Mpa) values, abrasive stone and carrying case.

Calibration Anvil, Used for the verification of the calibration of the hammers.

For more information on the Calibration Anvil, see Calibration Anvil, Model HR-C7000.

HR-C7010

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C7010	Concrete (Schmidt) Test Hammer	35x18x10	2 kg
HR-C7000	Calibration Anvil	15x15x23	16 kg

DIGITAL CONCRETE TEST HAMMER

STANDARDS: EN 12504-2, ASTM C 805; BS 1881:202

The Digital Concrete Test Hammer for concrete allows for an analysis of on on-site concrete quality in order to estimate the mechanical characteristics of the material. Investigations with the Rebound Hammer are based on the surface “hardness” measurement of material expressed in terms of the “Rebound Index.”

Investigations with the Digital Rebound Hammer falls under the category of Non Destructive methods, as implementation of the testing, in addition to not causing damage to structures and building function, involves relatively low costs.

The Rebound hammer method field of application is mainly directed toward evaluation of the following properties:

Concrete uniformity checks in different parts of the structure.

The above-mentioned applications can therefore be summarized by stating that rebound hammer tests are to be used to estimate concrete compressive strength of already built structures.

HR-C7035

It can be easily connected to a PC or serial printer via the RS 232 port.

A large permanent memory can store up to 48000 results.

Digital Rebound Hammer is supplied with Abrasion Stone, Plastic Case for Stone, Rechargeable Battery and Carrying Case.

Technical Specifications:

Product Name	Digital Test Hammer
Product Code	HR-C7035
Impact Energy	2.207 Nm
Measuring Range of Compressive Strength	10 to 70 N/mm²
Memory	48000 results
Screen	16-bit true color, 176×220 resolution, 5 grades backlight adjustment
Connection	USB 2.0
Dimensions (mm)	60x90x290
Dimensions with Package (mm)	150x350x440
Weight (kg)	4,5

MECHANICAL TEST HAMMER (MADE IN ITALY)

STANDARDS: EN 12504-2, ASTM C 805; BS 1881:202

The Rebound Hammer for concrete allows for an analysis of on on-site concrete quality in order to estimate the mechanical characteristics of the material. Investigations with the Rebound Hammer are based on the surface “hardness” measurement of material expressed in terms of the “Rebound Index.”

Investigations with the Mechanical Rebound Hammer falls under the category of Non Destructive methods, as implementation of the testing, in addition to not causing damage to structures and building function, involves relatively low costs.

The Mechanical Rebound Hammer is supplied with a rubberised plastic handle which facilitates manoeuvrability at work sites and protects it from possible accidental shock. The Mechanical Test Hammer is entirely made in Italy.

HR-C7020

The Rebound hammer method field of application is mainly directed toward evaluation of the following properties:

Concrete uniformity checks in different parts of the structure.
Estimation of the mechanical characteristics of the concrete through the use of correlation curves.
Evaluation of changes in concrete properties over time.
Verification of concrete characteristics on-site during the testing phase.

The above-mentioned applications can therefore be summarized by stating that rebound hammer tests are to be used to estimate concrete compressive strength of already built structures.

Mechanical Test Hammer is supplied with Abrasion Stone, Plastic Case for Stone, Plastic Grid 30x30 cm, Pencil, Fenolftaleina 100ml, Paper Note, Operating Manual, Calibration Report and Soft Bag.

Technical Specifications:

Product Name:	Mechanical Rebound Hammer
Product Code	HR-C7020
Impact Energy	2.207 Nm
Measuring Range of Compressive Strength	5 to 120 N/mm2
Dimensions (mm)	70x70x300
Dimensions with Package (mm)	300x150x400
Weight (kg)	1,3
Weight with Package (kg)	4

HR-C7020

DIGITAL CONCRETE TEST HAMMER (MADE IN ITALY)

STANDARDS: EN 12504-2, ASTM C 805; BS 1881:202

The Digital Concrete Test Hammer for concrete allows for an analysis of on on-site concrete quality in order to estimate the mechanical characteristics of the material. Investigations with the Rebound Hammer are based on the surface "hardness" measurement of material expressed in terms of the "Rebound Index."

Investigations with the Digital Rebound Hammer falls under the category of Non Destructive methods, as implementation of the testing, in addition to not causing damage to structures and building function, involves relatively low costs.

The Digital Test Hammer is entirely made in Italy.

The Rebound hammer method field of application is mainly directed toward evaluation of the following properties:

Concrete uniformity checks in different parts of the structure.

Estimation of the mechanical characteristics of the concrete through the use of correlation curves.

Evaluation of changes in concrete properties over time.

Verification of concrete characteristics on-site during the testing phase.

The above-mentioned applications can therefore be summarized by stating that rebound hammer tests are to be used to estimate concrete compressive strength of already built structures.

Digital Rebound Hammer is supplied with Abrasion Stone, Plastic Case for Stone, Plastic Grid 30 x 30 cm, Pencil, Fenolftaleina 100ml, Paper Note, Operating Manual, Calibration Report, SD Card, Rechargeable Feeder and Carrying Case.

HR-C7040

Technical Specifications:

Product Name:	Digital Test Hammer
Product Code	HR-C7040
Impact Energy	2.207 Nm
Measuring Range of Compressive Strength	5 to 120 N/mm²
Memory	2 GB
Screen	LCD 64x128
Connection	USB & SD Kart
Power Supply	5 x LR6 Rechargeable Battery
Working Temperature	-10 + 60 °C
Dimensions (mm)	65x80x320
Dimensions with Package (mm)	420x280x180
Weight (kg)	1,4
Weight with Package (kg)	5

HR-C7040

PROCEQ (SCHMIDT) TEST HAMMERS

STANDARDS: EN 12504-2, 13791; ASTM C 805; BS 1881:202

The Concrete Test Hammers are the most widely used portable NDT measuring instruments for a rapid assessment of the condition of a concrete structure.

ORIGINAL SCHMIDT

The classic Original Schmidt Hammer that became the basis of every major rebound hammer testing standard worldwide.

HR-C7015

Type N/L: The benchmark against which all rebound hammers are compared and the basis of every international rebound hammer standard. Available with different impact energies allowing customers to test a wide variety of materials and types of structure.

Original Schmidt Hammers are supplied with Impact Device, Carrying Case, Grinding Stone and Operating Instructions.

Calibration Certificate should be ordered separately.

Technical Specifications for ORIGINAL SCHMIDT

ORIGINAL SCHMIDT		
Type	Type N	Type L
Product Code	HR-C7015	HR-C7019
Impact Energy Measuring Range of Compressive Strength	2.207 Nm 10 to 70 N/	0.735 Nm 10 to 70 N/

SILVER SCHMIDT

The SilverSchmidt is a unique integrated concrete test hammer featuring true rebound value calculated from the quotient of the impact velocity and rebound velocity to provide maximum accuracy.

HR-C7023

ST: Standard model. Hammerlink software provided for performing firmware upgrades and selecting statistics presets only. Useful memory limited to the last 20 series.

PC: Full Hammerlink software functionality. Extended memory usage. Download to PC. User defined custom curves.

Type N: Standard impact energy. Test object should have minimum thickness of 100 mm (3.9") and be firmly fixed in the structure.

Type L: Low impact energy. Suitable for brittle objects or structures less than 100 mm (3.9") thick.

Intuitive User Interface

The language independent user interface is simple to use and provides all of the functionality necessary for a rapid assessment of the structure. Practically every command can be activated either directly or in two consecutive steps.

Data Acquisition and Processing

Pre-programmed statistical methods in accordance with all of the major standards assures an error free, rapid determination of the rebound value.

Reduced dispersion and direct conversion to compressive strength based on validated curves, regional curves or user defined curves bring improved accuracy to compressive strength estimates.

All data is automatically saved and the last 20 series may be reviewed in the data list.

Hammerlink – Data Analysis made simple

The Windows based software Hammerlink unlocks the full capabilities of the SilverSchmidt PC version, making it an even more powerful instrument for structural assessment.

HİRA TESTING EQUIPMENT

Hammerlink features:
- Extended memory usage
- Rapid uniformity testing with the summary view
- User defined conversion curves (polynomial and exponential)
- User defined statistical methods
- Printouts
- Export to third party software

Extending the range to fresh Concrete
The mushroom plunger in combination with the SilverSchmidt PC Type L hammer extends the lower measuring range down to approximately 5 MPa (725 psi).

This coupled with the SilverSchmidt's inherent angle independency makes it the perfect tool for early strength applications such as determining when to remove formwork in tunnel linings.

SilverSchmidt Hammers are supplied with Impact device, carrying case, grinding stone and operating instructions.

Calibration Certificate should be ordered separately.

Technical Specifications for SILVER SCHMIDT

SILVER SCHMIDT				
Type	Type ST/N	Type PC/N	Type ST/L	Type PC/L
Product Code	HR-C7023	HR-C7027	HR-C7025	HR-C7029
Impact Energy Measuring Range of Compressive Strength	2.207 Nm 10 to 100 N/mm2 (1'450 to 14'500 psi)		0.735 Nm 10 to 100 N/mm2 (1'450 to 14'500 psi)	

Features

Product Name:	Silver Schmidt	Original Schmidt
Display	Integrated Digital Display	Mechanical Display
Memory	400 series of 10 measurements (PC N and PC L versions only)	---
Connections	USB interface to PC	---
Standards	EN 12504-2, EN 13791, ASTM C805	EN 12504-2, EN 13791, ASTM C805

The Schmidt Concrete Test Hammers can be applied on all concrete structures such as bridges, buildings, retaining walls, barrages and many more. But they are also the perfect instruments to test in tunnels (e.g. the formwork stripping strength which is the concrete compressive strength fc to be achieved before removal of the formwork).

CALIBRATION ANVIL

STANDARDS: EN 12504-2, ASTM D5873, C805

Used for the verification of the calibration of the hammers.

The EN 12504:2 Specification requires obligatory the use of the anvil for the hammer tests.

The Standard specifies; before a sequence of tests on a concrete surface, take and record readings using the steel reference anvil and check to ensure that they are within the range recommended by the manufacturer. If they are not, clean and/or adjust the hammer.

After tests, take readings using the steel anvil, record them and compare them with those taken prior to the test. If the results differ, clean and/or adjust the hammer and repeat the test.

Made of hardened steel according to the standards.

HR-C7000

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C7000	Calibration Anvil	Ø 15x23	16

ULTRASONIC PULSE VELOCITY AND PULSE ECHO TESTING OF CONCRETE

STANDARDS: EN 12504-4, ASTM C 597-02, BS 1881 Part 203, ISO 1920-7:2004

Structural defects cause serious damages and collapses. Ultrasonic testing provides information on the strength and uniformity of concrete, rock, composites, ceramics, wood, epoxy, refractory materials and can be used to detect and localize voids, pipes, cracks and defects.

The pulse velocity in a material depends on its density and its elastic properties which in turn are related to the quality and the compressive strength of the concrete. It is therefore possible to obtain information about the properties of components by sonic investigations.

Proceq offers the most versatile instrument for ultrasonic testing of concrete.

Ultrasonic Pulse Velocity - Pundit Lab

Measurement performance; Optimized pulse shaping, automated transmission settings for optimum performance and a range of new, more powerful transducers ensure accurate, stable measurements.

Integrated waveform display; Allows analysis of the received signal and manual triggering directly on the instrument.

On-line data acquisition; Full remote control of all transmission parameters, data logging function and functionality that turns your PC into an oscilloscope.

USB interface and data analysis software; Data analysis and export to third party programs.

Open interface; Control Pundit Lab using third party software such as LabVIEW.
Pundit Lab consisting of: Display unit, 2 transducers (54kHz), 2 BNC cables 1.5 m, couplant, calibration rod, battery charger with USB-cable, 4x AA(LR6) batteries, data carrier with software, documentation and carrying case.

Ultrasonic Pulse Velocity - Pundit Lab Plus
Integrated gain stage; Removes the need for an external amplifier when using exponential transducers and long cables.

HR-C7050

HİRA TESTING EQUIPMENT

Compressive strength measurement; Conversion curves for strength estimation can be created in the software and uploaded to the instrument to give instant strength estimations on site.

Combined estimates with rebound hammer; SONREB curves may also be uploaded onto the instrument for improved compressive strength estimates in combination with rebound hammer measurements.

Time stamp; A real time clock has been integrated to provide a time stamp to every measurement recorded.

Review list; Saved measurements may be reviewed directly on site without the need for a PC connection.

Pundit Lab Plus consisting of: Display unit, 2 transducers (54kHz), 2 BNC cables 1.5 m, couplant, calibration rod, battery charger with USB-cable, 4x AA(LR6) batteries, data carrier with software, documentation and carrying case

HR-C7050

Pundit Link Analysis Software
The Windows based software Pundit Link, developed by Proceq SA, unlocks the full capabilities of the Pundit Lab, providing the user with:

- Waveform visualization and analysis turning your PC into an oscilloscope
- Interactive adjustment of trigger point
- On-line data acquisition
- Full remote control of the instrument instrument including programmable data logging functionality
- Export of data to third party applications
- (Pundit Lab+ only) creation of conversion curves for compressive strength (exponential, polynomial).
- (Pundit Lab+ only) creation of SONREB curves for combined (ultrasonic/rebound value) estimates of compressive strength

Technical Specifications

Product Code	HR-C7055	HR-C7050
Product Name	Ultrasonic Pulse Velocity and Pulse Echo Testing of Concrete	
	Pundit Lab	Pundit Lab Plus
Transit Time Range	0.1 – 9999 µs	
Resolution	0.1 µs	
Energising Pulse	125 V, 250 V, 350 V, 500V, AUTO	
Tx Frequency Range	24 kHz – 500 kHz	
Transit Time	Yes	
Pulse Velocity	Yes	
Path Length	Yes	
Surface Velocity	Yes	
Crack Depth	Yes	
Memory	> 500 readings	
Power Supply	Mains/Battery(>20h)/USB	
IP Classification	IP42	
Integrated Gain Stage	1x, 10x, 100x	1x, 2x, 5x, 10x, 20x, 50x, 100x, 200x, 500x, 1000x
Compressive Strength	---	Yes
SONREB Method (Ultrasonic plus rebound hammer for compressive strength)	---	Yes
Time Stamp for Measurements	---	Yes
Measurement Review List on Instrument	---	Yes

CONCRETE COVERMETER

The Professional Multi-detector can be used to locate live cables and wooden sub-constructions as well as ferrous and non-ferrous metals.

The automatic calibration eliminates errors and the LED luminous ring displays results in conjunction with the Centre Finder scale.

Complete with 1 x 9 V 6LR61 (block) battery and Protective Bag.

HR-C7075

Technical Specifications:

Product Code	Product Name	Maximum Detection Depth			Dimensions (mm)	Weight (kg)
		Steel	Copper	Copper Wiring		
HR-C7075	Concrete Covermeter	120 mm	80 mm	50 mm	85x200x32	0,27

PROFOMETER PM-600 – ADVANCED CONCRETE COVER METER – ENTRY LEVEL MODEL

STANDARDS: BS 1881 Part 204, DIN 1045

The Profometer PM-600 is an Advanced Cover Meter for the precise and non-destructive measurement of concrete cover and rebar diameters and the detection of rebar locations using the eddy current principle with pulse induction as the measuring method.

Based on the new generation Profometer Touchscreen unit, the instrument offers real time control over the measurement procedure directly on site. The high resolution color display allows best possible measuring and analysis of the statistical data for an entire working day (battery lifetime > 8h).

The instrument comes along with a Universal Probe including a spot probe especially suited for areas with congested rebar arrangement such as columns, girders and slabs over columns.

Lightweigth IP 67 universal probe with detachable scan cart and spot functionality for measurements where space is limited.

PM-600

Features

- 1-Layer Neighboring Rebar Correction (NRC)
- Visual assistance for scanning speed and signal strength control
- Settings directly accessible on the measurement screen
- Graphical display of measured values and minimum cover set
- Change settings before and after storage
- 11 Languages and timezone supported
- PC Software; Profometer Link to download saved data to a PC for analysis and export to third party applications
- Connections; USB host / device and Ethernet
- Measurement Modes; Rebar location, diameter estimation and cover measurement and Data acquisition

HİRA TESTING EQUIPMENT

Applications

- Locate rebars before drilling, cutting and coring
- Spot check of rebar cover
- Measurements on rough surfaces with scan cart

Technical Specifications:

Product Code	PM-600
Product Name	Profometer - Advanced Concrete Cover Meter
Cover Measuring Range	Up to 185 mm (7.3")
Cover Measuring Accuracy	± 1 mm to ± 4 mm (0.04" to 0.16")
Measuring Resolution	Depending on diameter and cover
Path Measuring Accuracy on Smooth Surface	± 3 mm (0,12 inch) + 0.5 to 1.0 % of measured length
Display	7" color rugged touchscreen unit (800 x 480 pixels) with dual core processor
Diameter Measuring Range	Cover up to 63 mm (2.50 inch), Diameter up to 40 mm (# 12)
Diameter Measuring Accuracy	± 1 on single rebar
Memory	Internal 8 GB Flash memory
Regional Settings	Metric and imperial units and multi-language supported
Battery	3.6 V, 14.0 Ah
Battery Lifetime	> 8h (in standard operating mode)
Operating temperature	-10°C – 50°C
Humidity	< 95 % RH, non-condensing
IP Classification	Touchscreen IP54, Universal Probe IP67
Directives	CE certification
Dimensions	250 x 162 x 62 mm
Weight (of display device)	1525 g (incl. Battery)
Power Input	12 V +/-%25 / 1,5 A

PROFOMETER PM-630 AL – ADVANCED SCAN CONCRETE COVER METER

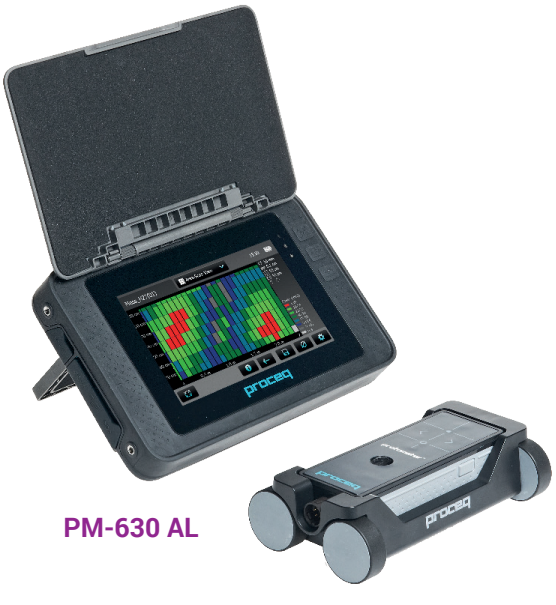
STANDARDS: BS 1881 Part 204, DIN 1045

The Profometer PM-630 Al is an Advanced Cover Meter is a sophisticated instrument extending the application range of the Profometer PM-600 with the Line and Area Scan Modes and an extensive choice of statistical views.

Based on the new generation Profometer touchscreen with universal probe and scan cart. Enhanced correction factor for maximum cover accuracy on congested rebar arrangements. Dedicated functionalities for mapping concrete cover and for reporting one layer rebar arrangements.

It is especially suited to measuring large areas, long lines or when comprehensive reporting is required. For example when inspecting tunnels, retaining walls, concrete slab soffits, bridge slabs or dams.

The instrument offers real time control over the measurement procedure directly on site. The high resolution color display allows best possible measuring and analysis of the statistical data for an entire working day (battery lifetime > 8h).



PM-630 AL

Features

- 2-Layer Neighboring Rebar Correction Artificial Intelligence (NRC AI)
- Cover calibration
- Zoom in to scale rebars according to your needs
- Display with cover curve or signal strength curve
- Signal strength spectrum for further evaluation
- Visual assistance for scanning speed and signal strength control
- Settings directly accessible on the measurement screen
- Graphical display of measured values and minimum cover set
- Change settings before and after storage
- 11 Languages and timezone supported
- PC Software; Profometer Link to download saved data to a PC for analysis and export to third party applications
- Connections; USB host / device and Ethernet
- Measurement Modes; Rebar location, diameter estimation and cover measurement and Data acquisition, One layer scans, tomographic view, advanced statistics

Applications

- Locate rebars before drilling, cutting and coring
- Spot check of rebar cover
- Measurements on rough surfaces with scan cart
- Measuring wide areas over long distances
- Conformity check of new buildings
- Fire resistance assessment

Technical Specifications:

Product Code	PM-630 AI
Product Name	Profometer - Advanced Scan Concrete Cover Meter
Cover Measuring Range	Up to 185 mm (7.3“)
Cover Measuring Accuracy	± 1 mm to ± 4 mm (0.04” to 0.16”)
Measuring Resolution	Depending on diameter and cover
Path Measuring Accuracy on Smooth Surface	± 3 mm (0,12 inch) + 0.5 to 1.0 % of measured length
Display	7” color rugged touchscreen unit (800 x 480 pixels) with dual core processor
Diameter Measuring Range	Cover up to 63 mm (2.50 inch), Diameter up to 40 mm (# 12)
Diameter Measuring Accuracy	± 1 on single rebar
Memory	Internal 8 GB Flash memory
Regional Settings	Metric and imperial units and multi-language supported
Battery	3.6 V, 14.0 Ah
Battery Lifetime	> 8h (in standard operating mode)
Operating temperature	-10°C – 50°C
Humidity	< 95 % RH, non-condensing
IP Classification	Touchscreen IP54, Universal Probe IP67
Directives	CE certification
Dimensions	250 x 162 x 62 mm
Weight (of display device)	1525 g (incl. Battery)
Power Input	12 V +/-%25 / 1,5 A

PROFOMETER PM-650 AL – ADVANCED CROSS-SCAN CONCRETE COVER METER

STANDARDS: BS 1881 Part 204, DIN 1045

The Profometer PM-650 Al extends the measuring modes of the Profometer PM-630 Al with the unique Cross-Line Mode and further analysis functions. The Cross-Line Mode allows users to measure the rebar of the first and second layer typically arranged in a rectangular mesh.

Advanced cover meter based on the new generation Profometer touchscreen with universal probe and scan cart. Enhanced correction factor for maximum cover accuracy on congested rebar arrangements. Dedicated functionalities for mapping concrete cover and for reporting any 2D rectangular rebar arrangement.

Features

- 2-Layer Neighboring Rebar Correction Artificial Intelligence (NRC AI)
- Cover calibration
- Zoom in to scale rebars according to your needs
- Display with cover curve or signal strength curve
- Signal strength spectrum for further evaluation
- Visual assistance for scanning speed and signal strength control
- Settings directly accessible on the measurement screen
- Graphical display of measured values and minimum cover set
- Change settings before and after storage
- 11 Languages and timezone supported
- PC Software; Profometer Link to download saved data to a PC for analysis and export to third party applications
- Connections; USB host / device and Ethernet
- Measurement Modes; Rebar location, diameter estimation and cover measurement and Data acquisition, One layer scans, tomographic view, advanced statistics
- Two layers scans, tomographic view, advanced statistics

PM-650 AL

Applications

- Locate rebars before drilling, cutting and coring
- Spot check of rebar cover
- Measurements on rough surfaces with scan cart
- Measuring wide areas over long distances
- Conformity check of new buildings
- Fire resistance assessment
- Investigation of unknown structures
- Complete, 2D and 3D imaging of rebar layout

Technical Specifications:

Product Code	PM-650 Al
Product Name	Profometer - Advanced Cross-Scan Concrete Cover Meter
Cover Measuring Range	Up to 185 mm (7.3")
Cover Measuring Accuracy	± 1 mm to ± 4 mm (0.04" to 0.16")
Measuring Resolution	Depending on diameter and cover
Path Measuring Accuracy on Smooth Surface	± 3 mm (0,12 inch) + 0.5 to 1.0 % of measured length
Display	7" color rugged touchscreen unit (800 x 480 pixels) with dual core processor
Diameter Measuring Range	Cover up to 63 mm (2.50 inch), Diameter up to 40 mm (# 12)
Diameter Measuring Accuracy	± 1 on single rebar
Memory	Internal 8 GB Flash memory
Regional Settings	Metric and imperial units and multi-language supported
Battery	3.6 V, 14.0 Ah
Battery Lifetime	> 8h (in standard operating mode)
Operating temperature	-10°C – 50°C
Humidity	< 95 % RH, non-condensing
IP Classification	Touchscreen IP54, Universal Probe IP67
Directives	CE certification
Dimensions	250 x 162 x 62 mm
Weight (of display device)	1525 g (incl. Battery)
Power Input	12 V +/-%25 / 1,5 A

CRACK DETECTION MICROSCOPE

The Crak Detection Microscope is suitable for measuring cracks in concrete. This microscope is further enhanced by having its own adjustable light source for darkened conditions.

Current codes of practice, state that calculated maximum crack widths should not exceed certain values. BS 8110: Part 2 for concrete permits a crack width of 0.3 mm which is 15 divisions on the scale for most types of environment.

The image is focused by turning a knurled knob on the side of the instrument.

Two models are available as 40X and 100X.

100X Crak Detection Microscope Measuring range is 1,6 mm which are subdivided into 0,02 mm divisions.

Complete with carrying case.

HR-C7125

Technical Specifications:

Product Code	Product Name	Magnification	Dimensions (mm)	Weight (kg)
HR-C7125	Crack Microscope	X40	50x23x138	0,550
HR-C7126	Crack Microscope	X100	50x23x138	0,550

MECHANICAL STRAIN GAUGE

STANDARDS: BS 1881:206

Mechanical Strain Gauges are used for determining the length changes in different parts of a structure. Especially designed to perform measurement on concrete structures. It can also be used for other structures like steel, wood etc.

There are models in different lengths according to the standard length to be measured.

The digital dial gauge has a resolution of 0.001 mm and an output for PC connection.

Mechanical Strain gauge with digital dial gauge, standard bar, calibration bar, datum discs (pack of 50), adhesive compound for datum discs and carrying case supplied with all models.

Serial cable for PC connection should be ordered separately.

HR-C7132

Technical Specifications:

Product Code	Product Name	Measuring Base (mm)	Dimensions (mm)	Weight (kg)
HR-C7130	Mechanical Strain Gauge	100x5	300x400x110	2,5
HR-C7131	Mechanical Strain Gauge	200x5	300x400x110	3
HR-C7132	Mechanical Strain Gauge	300x5	300x600x110	3,5
HR-C7133	Mechanical Strain Gauge	600x5	300x600x110	4

Spare Parts & Accessories:

Product Code	Product Name
HR-C7130/1	Datum Discs. Pack of 50.
HR-C7130/2	Adhesive, 20 gr
HR-C7130/3	Standard Bar
HR-C7130/4	Calibration Bar
HR-C7130/5	Digital Dial Gauge, 0.001 mm
HR-C7130/6	Serial Cable
HR-C7130/7	Carrying Case for HR-C7130 & HR-C7131
HR-C7130/8	Carrying Case for HR-C7132 & HR-C7133

CRACK METER

Crackmeters are used to monitor the progress of surface cracks in structural components and buildings caused by subsidence or mechanical failure.

Two models are available, depending on the type and positioning of the lesion to be detected, the Linear Crackmeter for linear cracks and the Angular Crackmeter for Angular cracks.

HR-C7141

They are composed of two transparent acrylic resin plates, overlapping and able to move relative to each other.

The upper plate is engraved with a reference cross, while the underlying one is marked with a grid in millimetres, both horizontal and vertical, which can be zeroed along its axes.

The plates are mounted to the wall or structure with screws or other mechanical mounting equipment (wall plugs, glue, resin, silicone) in such a way that the cross on the upper plate is centred on the origin (centre) of the grid underlying it.

HR-C7140

The movement of the crack can then be read in millimetres by monitoring the displacement of the top plate (cross) relative to the underlying one (grid).

Crackmeters have the advantages of being much less costly than other solutions, as well as being easy to install and use.

Technical Specifications:

Product Code	Product Name
HR-C7140	Crack meter, Linear
HR-C7141	Crack meter, Angolar

CONCRETE WATER IMPERMEABILITY TESTERS

STANDARDS: EN 12390-8

Concrete Water Impermeability Testers are used to determine the depth of penetration of the water into the hardened concrete specimens (impermeability) under known time and pressure.

The system can test 150x150x150 mm, 200x200x200 mm cube or 100x200 mm, 150x300 mm cylinder specimens.

3 or 6 specimen capacity models and with and without quantitative measurement equipment of water penetratoion models are available.

Pressure to the sample, up to 8 bar with 0,2 bar precision is generated by way of compressed air applied to the integral water tank and controlled by a pressure regulator; with a pressure gauge.

The test sets with the quantitative measurement equipment of water penetration the penetration of water is measured through the burettes. The system comprises impermeability gaskets for every cell.

The apparatus has to be fitted with the suitable air compressor with maximum working pressure of bar.

The Air Compressor should be ordered separately.

HR-C0300

HR-G0825

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-G0825	Air Pressure Pump, 8 bar, 25 lt	60x30x60	30	220 V, 50-60 Hz, 1 ph

Technical Specifications:

Product Code	Product Name	Specimen Capacity	Dimensions (cm)	Weight (kg)
HR-C0300	Concrete Water Impermeability Tester with Quantitative Measurement Equipment	3 pieces	50x160x180	125
HR-C0305	Concrete Water Impermeability Tester with Quantitative Measurement Equipment	6 pieces	50x160x180	165
HR-C0307	Concrete Water Impermeability Tester without Quantitative Measurement Equipment	3 pieces	50x160x180	90
HR-C0308	Concrete Water Impermeability Tester without Quantitative Measurement Equipment	6 pieces	50x160x180	130