CONCRETE

Concrete is a composite construction material made primarily from aggregate, cement, and water. There are many formulations of concrete that provide various properties.

Concrete is the most widely used man-made product in the world as the main building material within architectural structures, foundations, brick/block walls, pavements, bridges, roads, runways, parking structures, dams, pipes, highways and superhighways. Therefore, concrete quality must accurately be tested for any building realization.

The quality of concrete is important in planning earthquake resistant structures that minimize damage, preventing injury and human loss.

Due to this reason, concrete must be closely controlled according to the relevant standards in every stage of production by experienced people using quality test equipment.

Since then the quality and the production technology of concrete strongly evolved hence considerable care supported by knowledge is required to produce quality concrete.

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AUTOMATIC CONCRETE COMPRESSION TESTING MACHINES, WELDED WALL

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

The HİRA Automatic range of 1500 kN, 2000 kN and 3000 kN Capacity Compression Testing Machines have been designed for reliable and consistent testing of a wide range of specimens. Machines confirm 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 either Digital Readout Unit or on a computer with using free Software.

The Automatic Compression Testing Machines 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-C2000

HR-C3000 & HR-G0979

The Automatic Concrete Compression Testing Machines consist of;

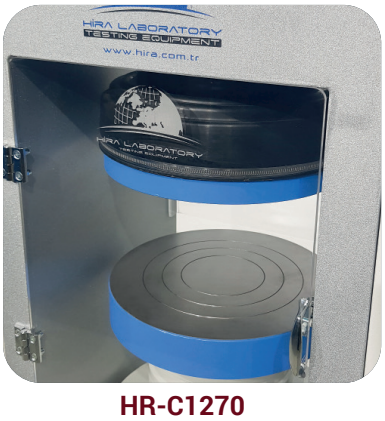
- Load Frame,
- Automatic Hydraulic Power Pack,
- Digital data acquisition & control system,
- Distance Pieces, 30 mm, 50 mm and 80 mm,
- Upper Platen (with ball seating assembly),
- Lower Platen,
- Loading Cylinder Assembly & Limit Switch for safety,
- Front and Rear Protective Doors for safety.
- Software and Ethernet Cable.

Concrete Compression Load Frame

Capacities of 1500 kN, 2000 kN and 3000 kN Load Frames are most popular and available models for welded type frames.

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.



HR-C1270

Upper Platens / Lower Platens

The platens enable the testing of a wide variety of cylinder, cube blocks 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 and Ø 300 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 cube, 100 mm and 150 mm cylinder samples.

Block Platens with Sliding Rail Assembly

STANDARDS: EN 772-1, 12390-4

Product Code: HR-C1250

Block Platens with Sliding Rail Assembly are installed on the compression testing machines for testing concrete blocks and other structural materials. The Sliding Rail Assembly allows the platens to be easily installed without removing the existing Ø 300 mm compression platens. This assembly should be factory installed.

It should be noted that after installing, the vertical clearance between the platens decreases by 50 mm.

Block Platens Lifting Assembly is used for easy removal of the lower platen of Block Platens and easy replacement of the distance pieces between the piston and the lower platen.

HR-C1250

Technical Specifications:

Product Code	HR-C1255	HR-C1260	HR-C1265	HR-C1270	HR-C1275
Product Name	Upper Loading Platen (with ball seating assembly) and Lower Loading Platen				
Standard	ASTM C39	ASTM C39	EN 12390-4 & ASTM C39	EN 12390-4	EN 772-1
Dimensions (mm)	Ø 105	Ø 165	Ø 216	Ø 300	310x510x50
Samples	Ø 2", 3", 4" cylinders	Ø 4", 6" cylinders, 100 mm cubes	Ø 6" cylinders 100, 150 mm cubes	Ø 100, 150, 160 mm cylinders 100, 150, 200 mm cubes	Blocks up to 310x510 mm
Hardness (not less than)	≥ 55 HRC	≥ 55 HRC	≥ 55 HRC	≥ 55 HRC	≥ 55 HRC

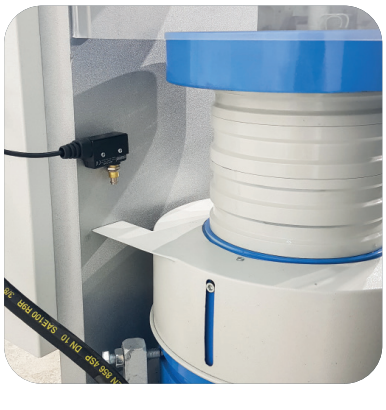
Distance Pieces

Distance pieces are used to reduce the amount of vertical clearance between the upper platen and the lower platen.

HR-C8201
HR-C8202
HR-C8203

Technical Specifications:

Product Name	Distance Piece					
Product Code	HR-C1500	HR-C1550	HR-C2000	HR-C2100	HR-C3000	HR-C3100
Distance Piece Dia. (mm)	Ø 200	Ø 165	Ø 200	Ø 165	Ø 200	Ø 165



Loading Cylinder Assembly & Limit Switch

All frames have 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.

The pressure transducer is used for load measurements.

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. 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

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

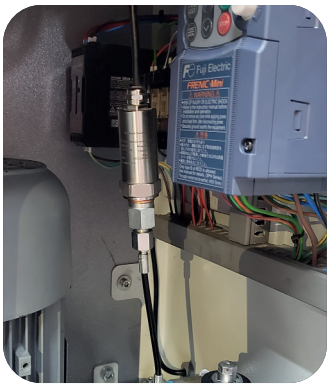
A distribution block is used to control the oil flow direction supplied by the dual stage pump, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Transducer, Low pressure gear pump and High pressure radial piston pump.

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

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 are 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

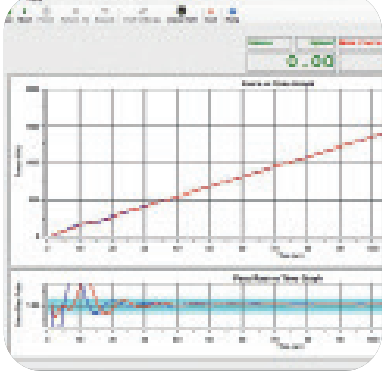
Software

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 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.



HİRA TESTING EQUIPMENT

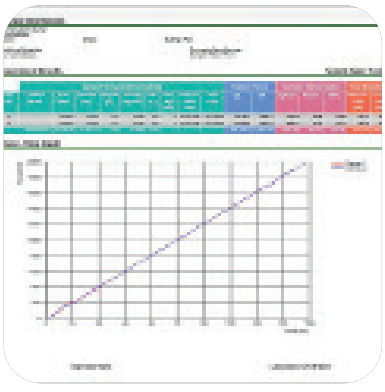
Software can be performed in Turkish and English.

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 Name	Automatic Compression Testing Machines, Welded Wall					
Product Code	HR-C1500	HR-C1550	HR-C2000	HR-C2100	HR-C3000	HR-C3100
Standard	EN	ASTM	EN	ASTM	EN	ASTM
Capacity (kN)	1500	1500	2000	2000	3000	3000
Roughness (µm)	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2
Ø Lower Platen (mm)	300	165	300	165	300	165
Ø Upper Platen (mm)	300	165	300	165	300	165
Max. Vertical clearance (mm)	340	365	340	365	340	365
Piston diameter (mm)	230	230	250	250	320	320
Piston Stroke(mm)	50	50	50	50	50	50
Horizontal clearance (mm)	320	320	350	350	440	440
Thickness of platens (mm)	50	50	50	50	50	50
Hardness of Platens (HRC)	55-60	55-60	55-60	55-60	55-60	55-60
Oil Capacity (lt)	25	25	25	25	25	25
Max. Working Pressure (bar)	400	400	400	400	400	400
Power (W)	750	750	750	750	750	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-C1500	1500 kN Automatic Compression Testing Machine, Welded Wall, EN	79x38x93	650	220 V, 50-60 Hz, 1 ph
HR-C1550	1500 kN Automatic Compression Testing Machine, Welded Wall, ASTM	79x38x93	600	220 V, 50-60 Hz, 1 ph
HR-C2000	2000 kN Automatic Compression Testing Machine, Welded Wall, EN	81x38x101	850	220 V, 50-60 Hz, 1 ph
HR-C2100	2000 kN Automatic Compression Testing Machine, Welded Wall, ASTM	81x38x101	800	220 V, 50-60 Hz, 1 ph
HR-C3000	3000 kN Automatic Compression Testing Machine, Welded Wall, EN	95x48x105	1150	220 V, 50-60 Hz, 1 ph
HR-C3100	3000 kN Automatic Compression Testing Machine, Welded Wall, ASTM	95x48x105	1100	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C1500/1	1500 kN Load Frame, Welded Wall, EN	43x35x93	550	---
HR-C1550/1	1500 kN Load Frame, Welded Wall, ASTM	43x35x93	500	---
HR-C2000/1	2000 kN Load Frame, Welded Wall, EN	45x35x101	750	---
HR-C2100/1	2000 kN Load Frame, Welded Wall, ASTM	45x35x101	700	---
HR-C3000/1	3000 kN Load Frame, Welded Wall, EN	59x48x105	1050	---
HR-C3100/1	3000 kN Load Frame, Welded Wall, ASTM	59x48x105	1000	---
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-C8200	Distance Pieces	Ø 20 x 2,5	---	---
HR-C8201	Distance Pieces	Ø 20 x 3	---	---
HR-C8202	Distance Pieces	Ø 20 x 5	---	---
HR-C8203	Distance Pieces	Ø 20 x 8	---	---
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-C1250	Block Platens with Sliding Rail Assembly	51x31x50	175	---
HR-C1280	Ball Seating Assembly	---	---	---
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 CONCRETE COMPRESSION TESTING MACHINES, WELDED WALL, WITH H-TOUCH PRO MAX CONTROL UNIT (TOUCH SCREEN)

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

The HİRA Automatic range of 1500 kN, 2000 kN and 3000 kN Capacity Compression Testing Machines have been designed for reliable and consistent testing of a wide range of specimens. Machines confirm all EN, ASTM and BS standards written above. These also meet the requirements of CE norms for the safety and health of the operator.

HR-C2000/TS

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 Compression Testing Machines 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-C3000/TS & HR-G0979

The Automatic Concrete Compression Testing Machines consist of;

- Load Frame,
- Automatic Hydraulic Power Pack,
- H-Touch Pro Max Control Unit,
- Distance Pieces, 30 mm, 50 mm and 80 mm,
- Upper Platen (with ball seating assembly),
- Lower Platen,
- Loading Cylinder Assembly & Limit Switch for safety,
- Front and Rear Protective Doors for safety.
- H-GUI Software and Ethernet Cable.

Concrete Compression Load Frame

Capacities of 1500 kN, 2000 kN and 3000 kN Load Frames are most popular and available models for welded type frames.

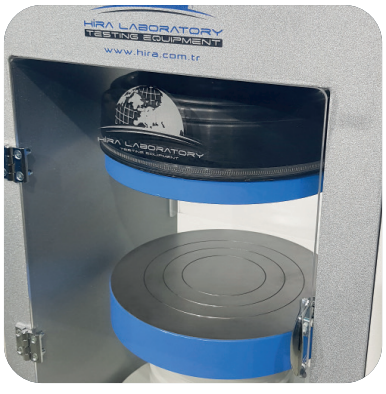
The load frame provides the stability needed for accurate and repeatable test results over the years of operation.

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.

Upper Platens / Lower Platens

The platens enable the testing of a wide variety of cylinder, cube blocks 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 and Ø 300 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 cube, 100 mm and 150 mm cylinder samples.



HR-C1270

Block Platens with Sliding Rail Assembly

STANDARDS: EN 772-1, 12390-4

Product Code: HR-C1250

Block Platens with Sliding Rail Assembly are installed on the compression testing machines for testing concrete blocks and other structural materials. The Sliding Rail Assembly allows the platens to be easily installed without removing the existing Ø 300 mm compression platens. This assembly should be factory installed.

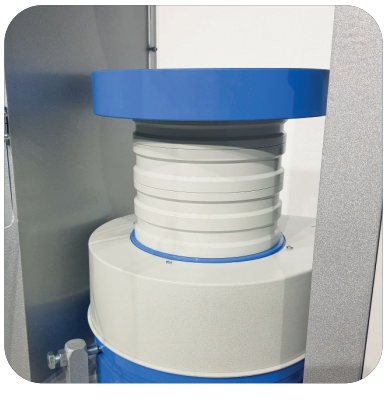
It should be noted that after installing, the vertical clearance between the platens decreases by 50 mm.

Block Platens Lifting Assembly is used for easy removal of the lower platen of Block Platens and easy replacement of the distance pieces between the piston and the lower platen.

HR-C1250

Technical Specifications:

Product Code	HR-C1255	HR-C1260	HR-C1265	HR-C1270	HR-C1275
Product Name	Upper Loading Platen (with ball seating assembly) and Lower Loading Platen				
Standard	ASTM C39	ASTM C39	EN 12390-4 & ASTM C39	EN 12390-4	EN 772-1
Dimensions (mm)	Ø 105	Ø 165	Ø 216	Ø 300	310x510x50
Samples	Ø 2", 3", 4" cylinders	Ø 4", 6" cylinders, 100 mm cubes	Ø 6" cylinders 100, 150 mm cubes	Ø 100, 150, 160 mm cylinders 100, 150, 200 mm cubes	Blocks up to 310x510 mm
Hardness (not less than)	≥ 55 HRC	≥ 55 HRC	≥ 55 HRC	≥ 55 HRC	≥ 55 HRC



Distance Pieces

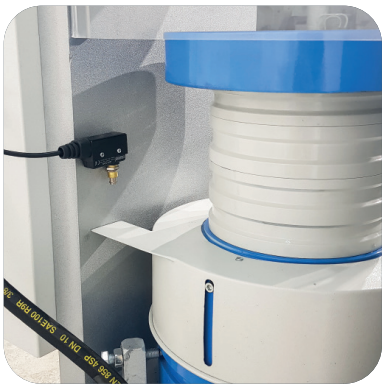
Distance pieces are used to reduce the amount of vertical clearance between the upper platen and the lower platen.

HR-C8201
HR-C8202
HR-C8203

Technical Specifications:

Product Name	Distance Piece					
Product Code	HR-C1500/TS	HR-C1550/TS	HR-C2000/TS	HR-C2100/TS	HR-C3000/TS	HR-C3100/TS
Distance Piece Dia. (mm)	Ø 200	Ø 165	Ø 200	Ø 165	Ø 200	Ø 165

HİRA TESTING EQUIPMENT



Loading Cylinder Assembly & Limit Switch

All frames have a single acting up stroking ram. The diameter of the piston is designed to work with the load 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.

The pressure transducer is used for load measurements.

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

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 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

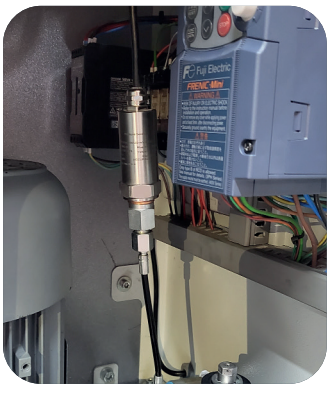
A distribution block is used to control the oil flow direction supplied by the dual stage pump, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Transducer, Low pressure gear pump and High pressure radial piston pump.

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

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.

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.

HR-C8002/TS

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.

HİRA TESTING EQUIPMENT

Main Features of H-Touch Pro Max Control Unit

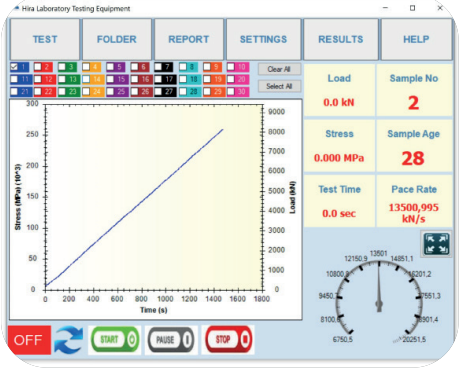
- 2 analog channels for load cell or pressure sensors or displacement sensors.
- Can control 2 frames
- Provides load control of two separate testing frames with Closed-loop PID.
- Optionally supplied-integrated thermal printer (If requested, must be specified in the order)
- Real-time numeric display 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

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.



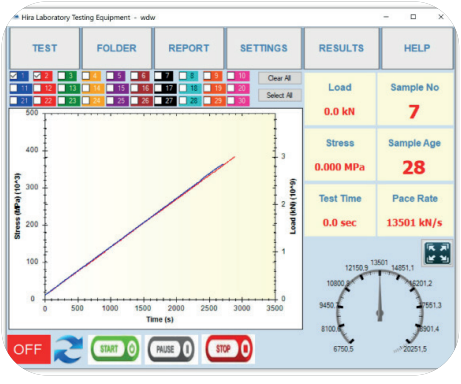
The Automatic Compression Machine can be controlled (Start, Stop commands) by a computer with the HİRATEST H-GUI Software free of charge.

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 Name	Automatic Compression Testing Machines, Welded Wall					
Product Code	HR-C1500/TS	HR-C1550/TS	HR-C2000/TS	HR-C2100/TS	HR-C3000/TS	HR-C3100/TS
Standard	EN	ASTM	EN	ASTM	EN	ASTM
Capacity (kN)	1500	1500	2000	2000	3000	3000
Roughness (µm)	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2
Ø Lower Platen (mm)	300	165	300	165	300	165
Ø Upper Platen (mm)	300	165	300	165	300	165
Max. Vertical clearance (mm)	340	365	340	365	340	365
Piston diameter (mm)	230	230	250	250	320	320
Piston Stroke(mm)	50	50	50	50	50	50
Horizontal clearance (mm)	320	320	350	350	440	440
Thickness of platens (mm)	50	50	50	50	50	50
Hardness of Platens (HRC)	55-60	55-60	55-60	55-60	55-60	55-60
Oil Capacity (lt)	25	25	25	25	25	25
Max. Working Pressure (bar)	400	400	400	400	400	400
Power (W)	750	750	750	750	750	750

HİRA TESTING EQUIPMENT

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-C1500/TS	1500 kN Automatic Compression Testing Machine, Welded Wall, EN	79x38x93	650	220 V, 50-60 Hz, 1 ph
HR-C1550/TS	1500 kN Automatic Compression Testing Machine, Welded Wall, ASTM	79x38x93	600	220 V, 50-60 Hz, 1 ph
HR-C2000/TS	2000 kN Automatic Compression Testing Machine, Welded Wall, EN	81x38x101	850	220 V, 50-60 Hz, 1 ph
HR-C2100/TS	2000 kN Automatic Compression Testing Machine, Welded Wall, ASTM	81x38x101	800	220 V, 50-60 Hz, 1 ph
HR-C3000/TS	3000 kN Automatic Compression Testing Machine, Welded Wall, EN	95x48x105	1150	220 V, 50-60 Hz, 1 ph
HR-C3100/TS	3000 kN Automatic Compression Testing Machine, Welded Wall, ASTM	95x48x105	1100	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C1500/1	1500 kN Load Frame, Welded Wall, EN	43x35x93	550	---
HR-C1550/1	1500 kN Load Frame, Welded Wall, ASTM	43x35x93	500	---
HR-C2000/1	2000 kN Load Frame, Welded Wall, EN	45x35x101	750	---
HR-C2100/1	2000 kN Load Frame, Welded Wall, ASTM	45x35x101	700	---
HR-C3000/1	3000 kN Load Frame, Welded Wall, EN	59x48x105	1050	---
HR-C3100/1	3000 kN Load Frame, Welded Wall, ASTM	59x48x105	1000	---
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-C8200	Distance Pieces	Ø 20 x 2,5	---	---
HR-C8201	Distance Pieces	Ø 20 x 3	---	---
HR-C8202	Distance Pieces	Ø 20 x 5	---	---
HR-C8203	Distance Pieces	Ø 20 x 8	---	---
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-C1250	Block Platens with Sliding Rail Assembly	51x31x50	175	---
HR-C1280	Ball Seating Assembly	---	---	---
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 CONCRETE COMPRESSION TESTING MACHINES, FOUR COLUMN

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

The HİRA Automatic range of 2000 kN, 3000 kN and 4000 kN, 5000 kN capacity four column compression testing machines have been designed for reliable and consistent testing of a wide range of specimens. Machines 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 either Digital Readout Unit or on a computer with using free Software.

The Automatic Compression Testing Machines 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-C2200

The Four Column Automatic Concrete Compression Testing Machines consist of;

- Heavy duty Four Column Load Frame,
- Automatic Hydraulic Power Pack,
- Digital data acquisition & control system,
- Distance Pieces, Ø 200x30 mm, Ø 200x50 mm and Ø 200x80 mm,
- Upper Platen (with ball seating assembly) Ø300 mm,
- Lower Platen Ø300 mm,
- Loading Cylinder Assembly & Limit Switch for safety,
- Front and Rear Protective Doors for safety.

HR-C2200/1

Heavy duty Four Column Concrete Compression Load Frame

Capacities of 2000 kN, 3000 kN, 4000 kN and 5000 kN Four Column Load Frames are available models for column type frames.

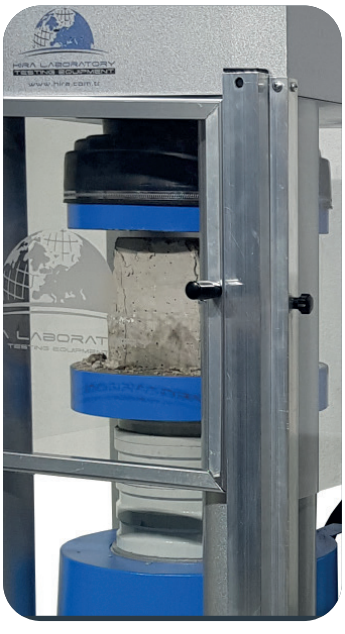
The Four Column load frame provides the stability needed for accurate and repeatable test results over the years of operation.

Upper Platens / Lower Platens

Upper Platen (with ball seating assembly) Ø 300 mm, Lower Platen Ø 300 mm.

The platens enable the testing of a wide variety of cylinder, cube blocks 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 300 mm Upper Platen (with ball seating assembly) and Lower Platen have centering rings on the lower platens for proper centering of samples



HR-C1270

Technical Specifications:

Product Code	HR-C1270
Product Name	Upper Loading Platen (with ball seating assembly) and Lower Loading Platen
Standard	EN 12390-4
Dimensions (mm)	Ø 300
Samples	Ø 100, 150, 160 mm cylinders & 100, 150, 200 mm cubes
Hardness (not less than)	≥ 55 HRC

Distance Pieces

Distance pieces are used to reduce the amount of vertical clearance between the upper platen and the lower platen. Supplied with Ø200 mm distance pieces.

Loading Cylinder Assembly & Limit Switch

All frames have 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.

The pressure transducer is used for load measurements.

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. The Hydraulic Power Pack is equipped with 4 wheels for easy carriage and flexible installation.

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

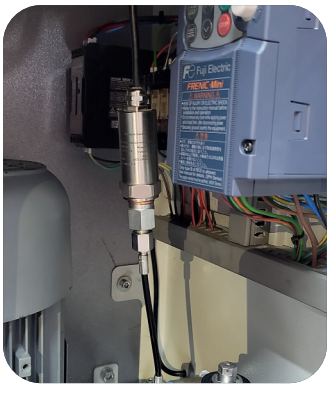
A distribution block is used to control the oil flow direction supplied by the dual stage pump, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Transducer, Low pressure gear pump and High pressure radial piston pump.

High Precision Pressure Transducer

All models are supplied in Class 1 starting from 50 kN as standard EN 12390-3, 12390-4, BS 1881 and ASTM C39. 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

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.

HİRA TESTING EQUIPMENT

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

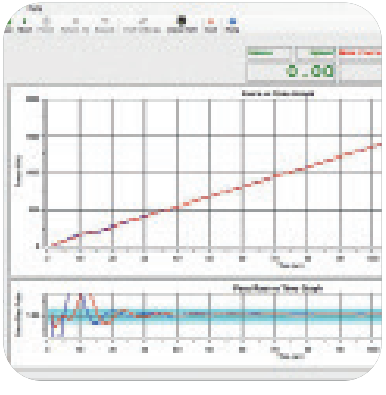
Software

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 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.



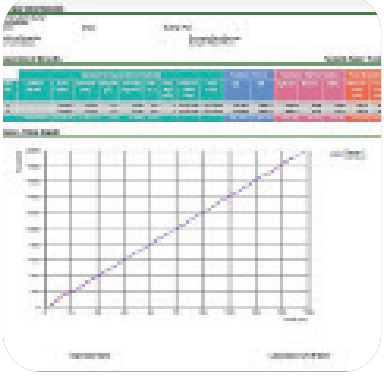
Software can be performed in Turkish and English.

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 Name	Automatic Compression Testing Machines, Four Column			
Product Code	HR-C2200	HR-C3200	HR-C4200	HR-C5200
Capacity (kN)	2000	3000	4000	5000
Roughness (µm)	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2
Ø Lower Platen (cm)	300	300	300	300
Ø Upper Platen (cm)	300	300	300	300
Max. Vertical clearance (cm)	33	33	52	52
Piston diameter (cm)	25	32	37	41
Piston Stroke(cm)	5	5	5	5
Horizontal clearance (cm)	35	44	49	53
Thickness of platens (cm)	5	5	5	5
Hardness of Platens (HRC)	55-60	55-60	55-60	55-60
Oil Capacity (lt)	25	25	25	25
Max. Working Pressure (bar)	400	400	400	400
Power (W)	750	750	750	750

Safety Features

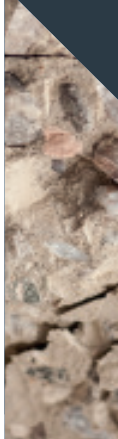
- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch
- Emergency stop button
- Software controlled maximum load value
- Front and rear transparent durable Plexiglas guards

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C2200	2000 kN Automatic Compression Testing Machine, Four Column	91x56x107	1130	220 V, 50-60 Hz, 1 ph
HR-C3200	3000 kN Automatic Compression Testing Machine, Four Column	102x57x112	1900	220 V, 50-60 Hz, 1 ph
HR-C4200	4000 kN Automatic Compression Testing Machine, Four Column	109x61x135	2450	220 V, 50-60 Hz, 1 ph
HR-C5200	5000 kN Automatic Compression Testing Machine, Four Column	115x64x154	3250	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C2200/1	2000 kN Load Frame, Four Column	53x56x107	1030	---
HR-C3200/1	3000 kN Load Frame, Four Column	64x57x112	1800	---
HR-C4200/1	4000 kN Load Frame, Four Column	71x61x135	2350	---
HR-C5200/1	5000 kN Load Frame, Four Column	77x64x154	3150	---
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-C8200	Distance Pieces	Ø 20 x 2,5	---	---
HR-C8201	Distance Pieces	Ø 20 x 3	---	---
HR-C8202	Distance Pieces	Ø 20 x 5	---	---
HR-C8203	Distance Pieces	Ø 20 x 8	---	---
HR-C1280	Ball Seating Assembly	---	---	---
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 CONCRETE COMPRESSION TESTING MACHINES, FOUR COLUMN WITH H-TOUCH PRO MAX CONTROL UNIT (TOUCH SCREEN)

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

The HİRA Automatic range of 2000 kN, 3000 kN and 4000 kN, 5000 kN capacity four column compression testing machines have been designed for reliable and consistent testing of a wide range of specimens. Machines 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.

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 Compression Testing Machines 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-C2200/TS

The Four Column Automatic Concrete Compression Testing Machines consist of;

- Heavy duty Four Column Load Frame,
- Automatic Hydraulic Power Pack,
- H-Touch Pro Max Control Unit,
- Distance Pieces, Ø 200x30 mm, Ø 200x50 mm and Ø 200x80 mm,
- Upper Platen (with ball seating assembly) Ø300 mm,
- Lower Platen Ø300 mm,
- Loading Cylinder Assembly & Limit Switch for safety,
- Front and Rear Protective Doors for safety.
- H-GUI Software and Ethernet Cable.

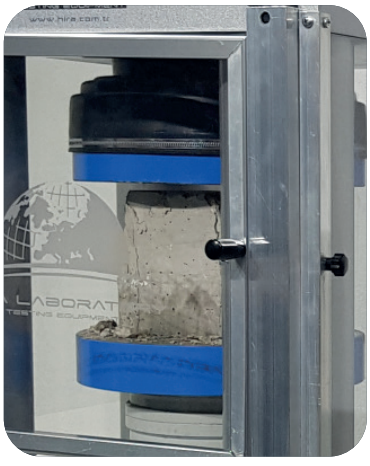
HR-C2200/1

Heavy duty Four Column Concrete Compression Load Frame

Capacities of 2000 kN, 3000 kN, 4000 kN and 5000 kN Four Column Load Frames are available models for column type frames.

The Four Column 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.



HR-C1270

Upper Platens / Lower Platens

The platens enable the testing of a wide variety of cylinder, cube blocks 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 300 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 cube, 100 mm and 150 mm cylinder samples.
- Ø 300 mm Upper Platen (with ball seating assembly) and Lower Platen has a specimen centering apparatus on lower platen as standard 150 mm cube and 150 mm cylinder.

Technical Specifications:

Product Code	HR-C1270
Product Name	Upper Loading Platen (with ball seating assembly) and Lower Loading Platen
Standard	EN 12390-4
Dimensions (mm)	Ø 300
Samples	Ø 100, 150, 160 mm cylinders & 100, 150, 200 mm cubes
Hardness (not less than)	≥ 55 HRC

Distance Pieces

Distance pieces are used to reduce the amount of vertical clearance between the upper platen and the lower platen. Supplied with Ø200 mm distance pieces.

Loading Cylinder Assembly & Limit Switch

All frames have 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.

The pressure transducer is used for load measurements.

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

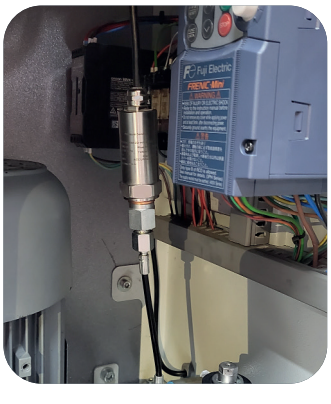
A distribution block is used to control the oil flow direction supplied by the dual stage pump, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Transducer, Low pressure gear pump and High pressure radial piston pump.

High Precision Pressure Transducer

All models are supplied in Class 1 starting from 50 kN as standard EN 12390-3, 12390-4, BS 1881 and ASTM C39. 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

Oil Tank

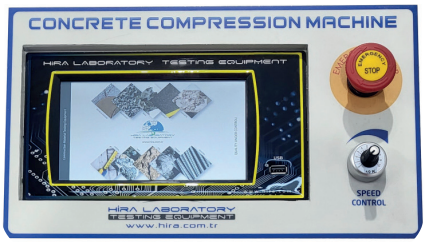
The tank includes enough oil to fill the mechanism which pushes the ram during the test.

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.

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.



HR-C8002/TS

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

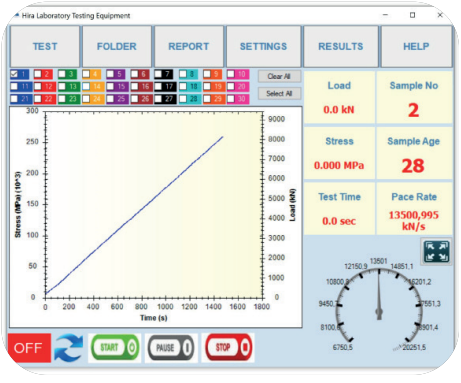
Hardware

- 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.

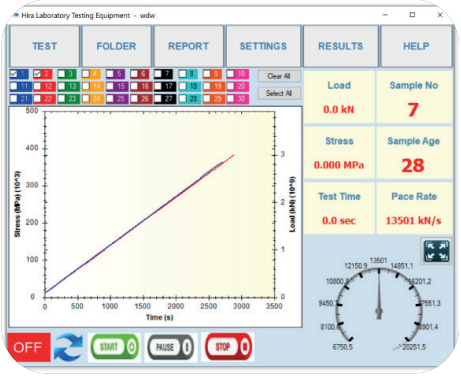
The advanced functions for database management provide an easy navigation of all saved data.

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 Name	Automatic Compression Testing Machines, Four Column			
Product Code	HR-C2200/TS	HR-C3200/TS	HR-C4200/TS	HR-C5200/TS
Capacity (kN)	2000	3000	4000	5000
Roughness (µm)	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2
Ø Lower Platen (cm)	300	300	300	300
Ø Upper Platen (cm)	300	300	300	300
Max. Vertical clearance (cm)	33	33	52	52
Piston diameter (cm)	25	32	37	41
Piston Stroke(cm)	5	5	5	5
Horizontal clearance (cm)	35	44	49	53
Thickness of platens (cm)	5	5	5	5
Hardness of Platens (HRC)	55-60	55-60	55-60	55-60
Oil Capacity (lt)	25	25	25	25
Max. Working Pressure (bar)	400	400	400	400
Power (W)	750	750	750	750

Safety Features

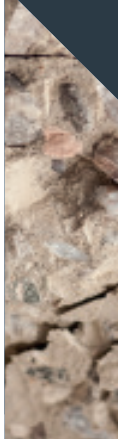
- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch
- Emergency stop button
- Software controlled maximum load value
- Front and rear transparent durable Plexiglas guards

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C2200/TS	2000 kN Automatic Compression Testing Machine, Four Column	91x56x107	1130	220 V, 50-60 Hz, 1 ph
HR-C3200/TS	3000 kN Automatic Compression Testing Machine, Four Column	102x57x112	1900	220 V, 50-60 Hz, 1 ph
HR-C4200/TS	4000 kN Automatic Compression Testing Machine, Four Column	109x61x135	2450	220 V, 50-60 Hz, 1 ph
HR-C5200/TS	5000 kN Automatic Compression Testing Machine, Four Column	115x64x154	3250	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C2200/1	2000 kN Load Frame, Four Column	53x56x107	1030	---
HR-C3200/1	3000 kN Load Frame, Four Column	64x57x112	1800	---
HR-C4200/1	4000 kN Load Frame, Four Column	71x61x135	2350	---
HR-C5200/1	5000 kN Load Frame, Four Column	77x64x154	3150	---
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-C8200	Distance Pieces	Ø 20 x 2,5	---	---
HR-C8201	Distance Pieces	Ø 20 x 3	---	---
HR-C8202	Distance Pieces	Ø 20 x 5	---	---
HR-C8203	Distance Pieces	Ø 20 x 8	---	---
HR-C1280	Ball Seating Assembly	---	---	---
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)	---	---	---



SEMI-AUTOMATIC CONCRETE COMPRESSION TESTING MACHINES

STANDARDS: ASTM C39, ISO EN 7500, 12390-4

The HİRA Semi-Automatic (Motorized) range of 600 kN, 1500 kN, 2000 kN and 3000 kN capacity compression testing machines have been designed for reliable and consistent testing of a wide range of specimens. Machines 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.

The Semi-Automatic Concrete Compression Testing Machines consist of;

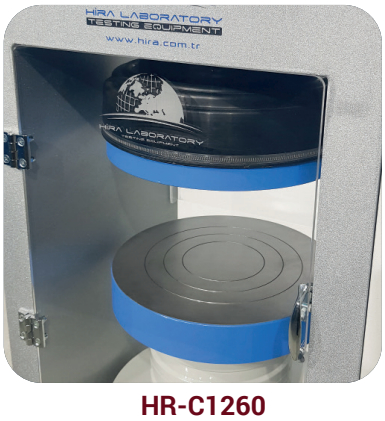
- Load Frame,
- Semi-Automatic Hydraulic Power Pack,
- Digital Readout Unit or LPI Digital Readout Unit,
- Distance Pieces, 30 mm, 50 mm and 80 mm,
- Upper Platen (with ball seating assembly),
- Lower Platen,
- Loading Cylinder Assembly & Limit Switch for safety,
- Front and Rear Protective Doors for safety.

HR-C2450

Concrete Compression Load Frame

Capacities of 600 kN, 1500 kN, 2000 kN and 3000 kN Load Frames are most popular and available models for welded type frames.

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.



HR-C1260

Upper Platens/Lower Platens

The platens enable the testing of a wide variety of cylinder, cube blocks 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 and Ø 300 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 cube, 100 mm and 150 mm cylinder samples.
- Ø 300 mm Upper Platen (with ball seating assembly) and Lower Platen has an specimen centering apparatus on lower platen as standard 150 mm cube and 150 mm cylinder.

Block Platens with Sliding Rail Assembly

STANDARDS: EN 772-1, 12390-4

Product Code: HR-C1250

Block Platens with Sliding Rail Assembly are installed on the compression testing machines for testing concrete blocks and other structural materials. The Sliding Rail Assembly allows the platens to be easily installed without removing the existing Ø 300 mm compression platens. This assembly should be factory installed.

It should be noted that after installing, the vertical clearance between the platens decreases by 50 mm.

Block Platens Lifting Assembly is used for easy removal of the lower platen of Block Platens and easy replacement of the distance pieces between the piston and the lower platen.

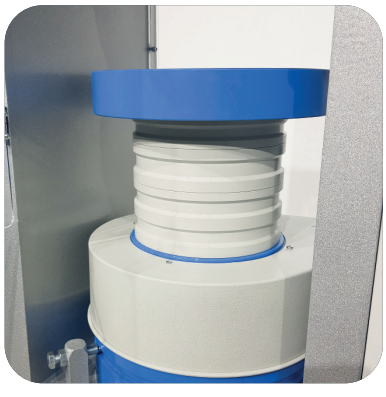
HR-C1250

Technical Specifications:

Product Code	HR-C1255	HR-C1260	HR-C1265	HR-C1270	HR-C1275
Product Name	Upper Loading Platen (with ball seating assembly) and Lower Loading Platen				
Standard	ASTM C39	ASTM C39	EN 12390-4 & ASTM C39	EN 12390-4	EN 772-1
Dimensions (mm)	Ø 105	Ø 165	Ø 216	Ø 300	310x510x50
Samples	Ø 2", 3", 4" cylinders	Ø 4", 6" cylinders, 100 mm cubes	Ø 6" cylinders 100, 150 mm cubes	Ø 100, 150, 160 mm cylinders 100, 150, 200 mm cubes	Blocks up to 310x510 mm
Hardness (not less than)	≥ 55 HRC	≥ 55 HRC	≥ 55 HRC	≥ 55 HRC	≥ 55 HRC

Distance Pieces

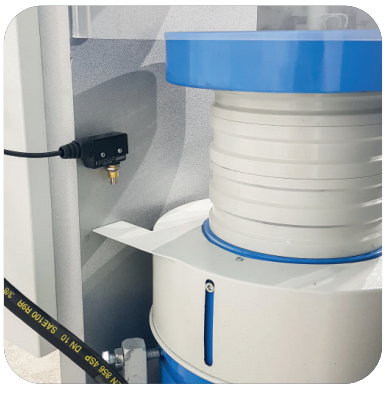
Distance pieces are used to reduce the amount of vertical clearance between the upper platen and the lower platen.



HR-C8166 & HR-C8167
HR-C8168

Technical Specifications:

Product Name	Distance Pieces						
Product Code	HR-C2350	HR-C2400	HR-C2450	HR-C2500	HR-C2600	HR-C3500	HR-C3600
Distance Piece Dia. (mm)	Ø 165	Ø 200	Ø 165	Ø 200	Ø 165	Ø 200	Ø 165



Loading Cylinder Assembly & Limit Switch

All frames have 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.

The pressure transducer is used for load measurements.

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

SEMI-AUTOMATIC (MOTORIZED) HYDRAULIC POWER PACK AND DIGITAL READOUT UNIT

Semi-Automatic (Motorized) Hydraulic Power Pack

The Semi-Automatic (Motorized) Power Pack, controlled by a pressure rate control valve is designed to supply the required oil to the load frames for loading.

The power pack can load different frames with required pace rates. A pump is supplied as standard.

The power pack is equipped with a safety valve (maximum pressure valve) to avoid machine overloading.

Maximum working pressure of the system is 400 bar.

HR-C9000

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 pump in an AC motor.

Distribution Block

A distribution block is used to control the oil flow direction supplied by the pump.

Loading and unloading process and pace rate adjustment is done from the arms on the distribution block.

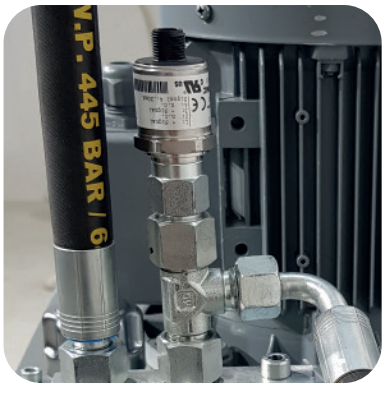
The following parts are fitted to the distribution block; Safety valve (max. pressure valve) and Transducer.

High Precision Pressure Transducer

The HİRA range of Semi-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

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 15 L capacity. Hydraulic motor oil, number 46, must be used.

Digital Readout Unit

The Digital Readout Unit has been designed to use with load cells or pressure transducers on different material test applications.

The peak value and the load change during the test are displayed on the screen.

- Peak value hold property
- Easy preload zeroing
- 5 Digits
- Multi-point Calibration

HR-C9002

LPI Digital Readout Unit

LPI Digital Readout Unit is used for reading of the applied load on load cells or pressure transducers in different material test applications.

- Can operate with 2 x AA batteries or 5V AC adapter
- Real time numeric display of load and load pressure
- 1 channel with two different calibration table (by changing the sensor belong to other frame, the unit can be control for second test frame)
- Peak hold property
- Multi-point calibration
- Easy preload zeroing
- 8 keys keyboard
- RS232 Serial port for PC or thermal or dot matrix printer

HR-C9002/LPI

Technical Specifications:

Product Name	Semi-Automatic Compression Testing Machines						
Product Code	HR-C2350	HR-C2400	HR-C2450	HR-C2500	HR-C2600	HR-C3500	HR-C3600
Standard	ASTM	EN	ASTM	EN	ASTM	EN	ASTM
Capacity (kN)	600	1500	1500	2000	2000	3000	3000
Roughness (µm)	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2
Ø Lower Platen (mm)	165	300	165	300	165	300	165
Ø Upper Platen (mm)	165	300	165	300	165	300	165
Max. Vertical clearance (cm)	365	340	365	340	365	340	365
Piston diameter (cm)	150	230	230	250	250	320	320
Piston Stroke(cm)	50	50	50	50	50	50	50
Horizontal clearance (cm)	230	320	320	350	350	440	440
Thickness of platens (cm)	50	50	50	50	50	50	50
Hardness of Platens (HRC)	55-60	55-60	55-60	55-60	55-60	55-60	55-60
Oil Capacity (lt)	25	25	25	25	25	25	25
Max. Working Pressure (bar)	400	400	400	400	400	400	400
Power (W)	750	750	750	750	750	750	750

Safety Features

- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch
- Front and rear transparent durable Plexiglas guards

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C2350	600 kN Semi-Automatic Compression Testing Machine, ASTM	71x38x91	370	220 V, 50-60 Hz, 1 ph
HR-C2400	1500 kN Semi-Automatic Compression Testing Machine, EN	79x38x93	620	220 V, 50-60 Hz, 1 ph
HR-C2450	1500 kN Semi-Automatic Compression Testing Machine, ASTM	79x38x93	570	220 V, 50-60 Hz, 1 ph
HR-C2500	2000 kN Semi-Automatic Compression Testing Machine, EN	81x38x101	820	220 V, 50-60 Hz, 1 ph
HR-C2600	2000 kN Semi-Automatic Compression Testing Machine, ASTM	81x38x101	770	220 V, 50-60 Hz, 1 ph
HR-C3500	3000 kN Semi-Automatic Compression Testing Machine, EN	95x48x105	1120	220 V, 50-60 Hz, 1 ph
HR-C3600	3000 kN Semi-Automatic Compression Testing Machine, ASTM	95x48x105	1070	220 V, 50-60 Hz, 1 ph
HR-C2350/LPI	600 kN Semi-Automatic Compression Testing Machine, ASTM with LPI unit	71x38x91	370	220 V, 50-60 Hz, 1 ph
HR-C2400/LPI	1500 kN Semi-Automatic Compression Testing Machine, EN with LPI unit	79x38x93	620	220 V, 50-60 Hz, 1 ph
HR-C2450/LPI	1500 kN Semi-Automatic Compression Testing Machine, ASTM with LPI	79x38x93	570	220 V, 50-60 Hz, 1 ph
HR-C2500/LPI	2000 kN Semi-Automatic Compression Testing Machine, EN with LPI unit	81x38x101	820	220 V, 50-60 Hz, 1 ph
HR-C2600/LPI	2000 kN Semi-Automatic Compression Testing Machine, ASTM with LPI	81x38x101	770	220 V, 50-60 Hz, 1 ph
HR-C3500/LPI	3000 kN Semi-Automatic Compression Testing Machine, EN with LPI unit	95x48x105	1120	220 V, 50-60 Hz, 1 ph
HR-C3600/LPI	3000 kN Semi-Automatic Compression Testing Machine, ASTM with LPI	95x48x105	1070	220 V, 50-60 Hz, 1 ph

HİRA TESTING EQUIPMENT

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C0650/1	600 kN Load Frame, Welded Wall, ASTM	35x30x91	300	---
HR-C1500/1	1500 kN Load Frame, Welded Wall, EN	43x35x93	550	---
HR-C1550/1	1500 kN Load Frame, Welded Wall, ASTM	43x35x93	500	---
HR-C2000/1	2000 kN Load Frame, Welded Wall, EN	45x35x101	750	---
HR-C2100/1	2000 kN Load Frame, Welded Wall, ASTM	45x35x101	700	---
HR-C3000/1	3000 kN Load Frame, Welded Wall, EN	59x48x105	1050	---
HR-C3100/1	3000 kN Load Frame, Welded Wall, ASTM	59x48x105	1000	---
HR-C9000	Semi-Automatic Hydraulic Power Pack and Digital Readout Unit	36x38x91	70	220 V, 50-60 Hz, 1 ph
HR-C9000/LPI	Semi-Automatic Hydraulic Power Pack and LPI Digital Readout Unit	36x38x91	70	220 V, 50-60 Hz, 1 ph
HR-C9001	Semi-Automatic Hydraulic Power Pack	36x38x91	70	220 V, 50-60 Hz, 1 ph
HR-C9002	Digital Readout Unit	10x9x5	0,300	220 V, 50-60 Hz, 1 ph
HR-C9002/LPI	LPI Digital Readout Unit	15x20x20	1	220 V, 50-60 Hz, 1 ph
HR-C8003	High Precision Pressure Transducer	---	---	---
HR-C8200	Distance Pieces	Ø 20 x 2,5	---	---
HR-C8201	Distance Pieces	Ø 20 x 3	---	---
HR-C8202	Distance Pieces	Ø 20 x 5	---	---
HR-C8203	Distance Pieces	Ø 20 x 8	---	---
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-C1250	Block Platens with Sliding Rail Assembly	51x31x50	175	---
HR-C1280	Ball Seating Assembly	---	---	---

HR-C2500/LPI

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.

60 Shore hardness pads for expected strength from 10 to 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

COMPRESSOMETER

STANDARDS: ASTM C469

Compressometers are used to determine the strain and deformation characteristics of concrete specimens.

Supplied without dial gauge or LVDT and should be ordered separately.

If any Compressometer will use with LVDT, it is used with HİRATEST Semi-Automatic or Automatic Power Units. Digital Data Unit is also required and should be ordered separately. Digital Data Unit can transfer the raw data to computer transiently.

Technical Specifications:

Product Code	Product Name
HR-C8500	Compressometer for 150 mm Cubes
HR-C8501	Compressometer for 200 mm Cubes
HR-C8502	Compressometer for 100x200 mm Cylinders
HR-C8503	Compressometer for 150x300 mm Cylinders

***Please choose dial gauge or LVDT from Accessories.

Spare Parts & Accessories:

Product Code	Product Name
HR-G0879	Digital Dial Gauge, 12.7 x 0,001 mm
HR-G0895	Linear Potantiometric Displacement Transducer, 10 mm
HR-C8550	Digital Data Unit

AUTOMATIC FLEXURAL TESTING MACHINES

STANDARDS: EN 1338, 1339, 1340, 12390-5, 12390-6, BS 1881, ASTM C78, C293, C496

The HİRA Automatic range of 100 kN, 200 kN and 300 kN capacity Flexural Testing Machines have been designed for reliable and consistent testing of flexural test on standard concrete beams, concrete or natural stone kerbs, concrete paving flags, and natural stone slabs and tensile splitting test of concrete paving blocks with suitable apparatus.

Machines confirm all EN, ASTM and BS standards written above. These also meet the requirements of CE norms for the safety and health of the operator.

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

The Automatic Flexural Testing Machines allow inexperienced operators to perform the tests. Once the machine is switched on and the specimen is placed. 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, switches the test speed after 1% of the load capacity of the machine and stops once the specimen failure.
- Automatically saves the test parameters and test results.

The HİRA ranges of Flexural Machines have the accuracy of Class 1 starting from 2% of the full capacity.

HR-C5005

The Automatic Flexural Testing Machines consist of;

- Heavy Duty Welded Load Frame,
- Automatic Hydraulic Power Pack,
- Digital data acquisition & control system,
- Software and Ethernet Cable.

Flexural test assemblies should be ordered separately.

Flexural Load Frame

The multipurpose HİRA Flexural Testing Frames are designed for minimum deflection at maximum load resulting in very high accuracy. The load frame is a welded steel fabrication carrying the ram fitted to the steel base. All Frames have a single acting up stroking ram with over travel switch protection to stop the machine when maximum ram travel is reached. A load cell is used for load measurements on all frames.

Flexural Frames are designed to accept all accessories required for flexural or compression tests.

Flexural Frames are U Type 100 kN, 200 kN, 300 kN capacity designed to allow easy and practical front loading of the specimen.

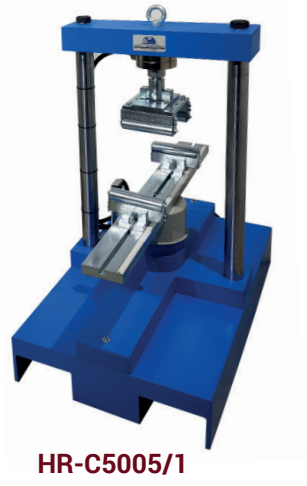
The load frame provides the stability needed for accurate and repeatable test results over the years of operation.

All frames can be connected to HİRA compression machine as a second frame or can be used with any HİRA power pack as an independent Flexural Machine.

The main characteristics are:

• High stability welded assembly
• High accuracy load measurement with load cells
• Can accept wide range of accessories for mentioned standards
• Can be connected to HİRA Compression Machine or Hydraulic Power Pack

HR-C2000



HR-C5005/1

FLEXURAL TESTING ACCESSORIES

Flexural Testing Assembly for Concrete Beams

The test assembly is used for 3 or 4 point flexural tests on 100 or 150 mm Concrete Beams.

The set consist of 2 upper and 2 lower rollers of Ø38 x 160 mm.

The distance of lower bearers can be adjusted between 100 mm and 800 mm. The distance between upper bearers can be set to 100 mm or 150 mm.

For 3 point testing one of the bearers can be removed and the other placed in the center.

HR-C5050

HR-C5051

Flexural Testing Assembly for Concrete Kerbs

The test assembly is used for flexural tests on Concrete Kerbs.

The set consists of 2 lower rollers of Ø 20 x 620 mm and Ø 40 mm upper loading piston with ball seating assembly.

The distance of lower rollers can be adjusted between 100 mm to 800 mm.

Flexural Test Assembly for Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs

The test assembly is used for flexural tests on Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs.

The set consists of 2 lower rollers and upper roller of Ø 20x 620 mm.

The distance of lower rollers can be adjusted between 100 mm to 800 mm.

HR-C5052

HİRA TESTING EQUIPMENT

HR-C5054

Splitting Tensile Test Device for Block Pavers

Splitting Tensile Test Device for Block Pavers is accessory for compression machines for measuring the splitting tensile strengths of 60-100 mm height x 220 mm length concrete block pavers according to the requirements of the related standards.

HR-C5053

Splitting Tensile Test Device for Concrete Cubes

Splitting Tensile Test Device for Concrete Cubes is accessory for compression machines for measuring the splitting tensile strengths of 150 mm cube concrete specimens according to the requirements of the related standards.

Distance Piece for Splitting Tensile Test Device for Concrete Cubes

Can be used for 100 mm cube concrete specimens by using this Distance pieces with Splitting Tensile Test Device for Concrete Cubes.

HR-C5055

Splitting Tensile Test Device for Cylinders

Splitting Tensile Test Device for Cylinders is accessory for compression machines for measuring the splitting tensile strengths of Ø150x300 mm and Ø160x320 mm cylindrical specimens according to the requirements of the related standards.

Distance Piece for Splitting Tensile Test Device for Cylinders

Can be used for Ø100x200 mm Cylindrical Specimens by using this Distance pieces with Splitting Tensile Test Device for Concrete Cylinders.

HR-C5057

Technical Specifications:

Product Code	Product Name	Standards	Dimensions (cm)	Weight (kg)
HR-C5050	Flexural Testing Assembly for Concrete Beams	ASTM C 293, ASTM C 78, EN 12390-5, BS 1881:118	20x20x20	16
HR-C5051	Flexural Testing Assembly for Concrete Kerbs	EN 1340	62x25x10	17
HR-C5052	Flexural Testing Assembly for Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs	EN 1339, EN 1343, EN 12372	62x26x15	25
HR-C5053	Splitting Tensile Test Device for 150x150 mm Cube Specimens	EN 12390-6	18x15x32	15
HR-C5053/1	Distance Piece for HR-C5053 for 100x100 mm Cube Specimens	EN 12390-6	---	---
HR-C5054	Splitting Tensile Test Device for 60-100 mm height Block Pavers	EN 12390-6, EN 1338, ASTM C 496	24x16x32	17,5
HR-C5055	Splitting Tensile Test Device for Ø150x300 mm & Ø160x320 mm Cylindrical Specimens	EN 12390-6, ASTM C 496	34x15x33	25
HR-C5055/1	Distance Piece for HR-C5055 for Ø100x200 mm Cylindrical Specimens	EN 12390-6	---	---
HR-C5056	Apparatus, used for Flexure Test on Rain Gutter	---	---	---
HR-C5057	Wood Fibre Boards, Pack of 50	---	0,4x1,5x34,5	---

HYDRAULIC POWER PACK AND DIGITAL DATA ACQUISITION & CONTROL SYSTEM

Hydraulic Power Pack

Automatic Hydraulic Power Pack, 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. The Hydraulic Power Pack is equipped with 4 wheels for easy carriage and flexible installation.

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

Maximum working pressure of the system is 400 bar.

HR-C8000

Single Stage Pump

The single stage pump is formed by;

High pressure radial piston pump

On the single stage pump, high pressure radial piston pump is used for test execution.

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

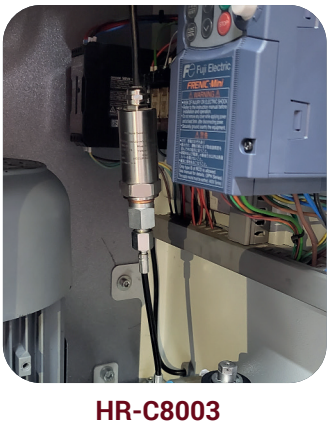
A distribution block is used to control the oil flow direction supplied by the single stage pump, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Load Cell and High pressure radial piston pump.

High Precision Pressure Transducer (Optional)

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

HİRA TESTING EQUIPMENT

Load Cell

Load Cell is used according to the device capacity for load measurements.

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

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

HR-C8002

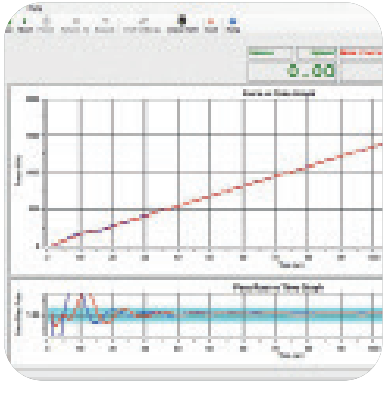
All the operations of the unit is controlled from the front panel consisting of a LCD display and function keys.

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

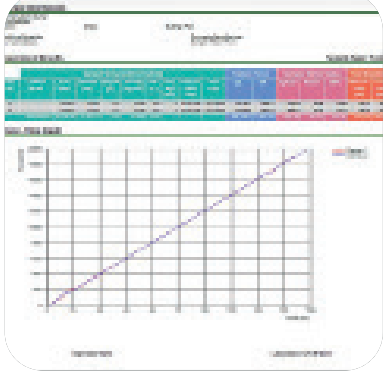


Sample, company, laboratory and test values can be entered in the programme.

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 Flexural 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, flexure 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 Name	Automatic Flexural Testing Machines		
Product Code	HR-C5000	HR-C5005	HR-C5010
Type	U Type	U Type	U Type
Capacity (kN)	100	200	300
Ram Travel (mm)	50		
Max. Vertical clearance (mm)	405 (without accessories)		
Max. Horizontal clearance (mm)	1000		
Max. Clerance Between Lower Rollers (mm)	890		
Class 1 range	1-100 kN	3-200 kN	3-300 kN

Safety Features

- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch
- Emergency stop button
- Software controlled maximum load value

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C5000	100 kN Automatic Flexural Testing Machine, U Type	119x100x100	300	220 V, 50-60 Hz, 1 ph
HR-C5005	200 kN Automatic Flexural Testing Machine, U Type	119x100x100	325	220 V, 50-60 Hz, 1 ph
HR-C5010	300 kN Automatic Flexural Testing Machine, U Type	119x100x100	400	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C5000/1	100 kN Flexural Testing Frame, U Type	81x100x100	200	---
HR-C5005/1	200 kN Flexural Testing Frame, U Type	81x100x100	225	---
HR-C5010/1	300 kN Flexural Testing Frame, U Type	81x100x100	300	---
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	100	220 V, 50-60 Hz, 1 ph
HR-C8002	Digital Data Acquisition & Control System	---	---	220 V, 50-60 Hz, 1 ph
HR-G0982	Load Cell, 100 kN capacity	---	---	---
HR-G0983	Load Cell, 200 kN capacity	---	---	---
HR-G0984	Load Cell, 300 kN capacity	---	---	---
HR-C8003	High Precision Pressure Transducer (optional)	---	---	---
HR-C8004	Software	---	---	---
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 FLEXURAL TESTING MACHINES WITH H-TOUCH PRO MAX CONTROL UNIT (TOUCH SCREEN)

STANDARDS: EN 1338, 1339, 1340, 12390-5, 12390-6, BS 1881, ASTM C78, C293, C496

The HİRA Automatic range of 100 kN, 200 kN and 300 kN capacity Flexural Testing Machines have been designed for reliable and consistent testing of flexural test on standard concrete beams, concrete or natural stone kerbs, concrete paving flags, and natural stone slabs and tensile splitting test of concrete paving blocks with suitable apparatus.

Machines confirm all EN, ASTM and BS standards written above. These also meet the requirements of CE norms for the safety and health of the operator.

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 Flexural Testing Machines allow inexperienced operators to perform the tests. Once the machine is switched on and the specimen is placed. 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, switches the test speed after 1% of the load capacity of the machine and stops once the specimen failure.
- Automatically saves the test parameters and test results.

HR-C5005/TS

The HİRA ranges of Flexural Machines have the accuracy of Class 1 starting from 2% of the full capacity.

The Automatic Flexural Testing Machines consist of;

- Heavy Duty Welded Load Frame,
- Automatic Hydraulic Power Pack,
- H-Touch Pro Max Control Unit,
- H-GUI Software and Ethernet Cable.

Flexural test assemblies should be ordered separately.

Flexural Load Frame

The multipurpose HİRA Flexural Testing Frames are designed for minimum deflection at maximum load resulting in very high accuracy. The load frame is a welded steel fabrication carrying the ram fitted to the steel base. All Frames have a single acting up stroking ram with over travel switch protection to stop the machine when maximum ram travel is reached. A load cell is used for load measurements on all frames.

Flexural Frames are designed to accept all accessories required for flexural or compression tests.

Flexural Frames are 100 kN, 200 kN, 300 kN capacity U Type designed to allow easy and practical front loading of the specimen.

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

All frames can be connected to HİRA compression machine as a second frame or can be used with any HİRA power pack as an independent Flexural Machine.

The main characteristics are:
• High stability welded assembly
• High accuracy load measurement with load cells
• Can accept wide range of accessories for mentioned standards
• Can be connected to HİRA Compression Machine or Hydraulic Power Pack

HR-C2000/TS

HR-C5005/1

FLEXURAL TESTING ACCESSORIES

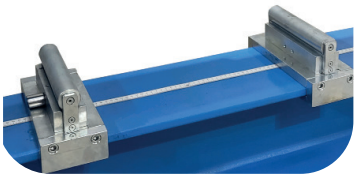
Flexural Testing Assembly for Concrete Beams

The test assembly is used for 3 or 4 point flexural tests on 100 or 150 mm Concrete Beams.

The set consist of 2 upper and 2 lower rollers of Ø38 x 160 mm.

The distance of lower bearers can be adjusted between 100 mm and 800 mm. The distance between upper bearers can be set to 100 mm or 150 mm.

For 3 point testing one of the bearers can be removed and the other placed in the center.



HR-C5050

HR-C5051

Flexural Testing Assembly for Concrete Kerbs

The test assembly is used for flexural tests on Concrete Kerbs.

The set consists of 2 lower rollers of Ø 20 x 620 mm and Ø 40 mm upper loading piston with ball seating assembly.

The distance of lower rollers can be adjusted between 100 mm to 800 mm.

Flexural Test Assembly for Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs

The test assembly is used for flexural tests on Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs.

The set consists of 2 lower rollers and upper roller of Ø 20x 620 mm.

The distance of lower rollers can be adjusted between 100 mm to 800 mm.

HR-C5052

HİRA TESTING EQUIPMENT

HR-C5054

Splitting Tensile Test Device for Block Pavers

Splitting Tensile Test Device for Block Pavers is accessory for compression machines for measuring the splitting tensile strengths of 60-100 mm height x 220 mm length concrete block pavers according to the requirements of the related standards.

HR-C5053

Splitting Tensile Test Device for Concrete Cubes

Splitting Tensile Test Device for Concrete Cubes is accessory for compression machines for measuring the splitting tensile strengths of 150 mm cube concrete specimens according to the requirements of the related standards.

Distance Piece for Splitting Tensile Test Device for Concrete Cubes

Can be used for 100 mm cube concrete specimens by using this Distance pieces with Splitting Tensile Test Device for Concrete Cubes.

HR-C5055

Splitting Tensile Test Device for Cylinders

Splitting Tensile Test Device for Cylinders is accessory for compression machines for measuring the splitting tensile strengths of Ø150x300 mm and Ø160x320 mm cylindrical specimens according to the requirements of the related standards.

Distance Piece for Splitting Tensile Test Device for Cylinders

Can be used for Ø100x200 mm Cylindrical Specimens by using this Distance pieces with Splitting Tensile Test Device for Concrete Cylinders.

HR-C5057

Technical Specifications:

Product Code	Product Name	Standards	Dimensions (cm)	Weight (kg)
HR-C5050	Flexural Testing Assembly for Concrete Beams	ASTM C 293, ASTM C 78, EN 12390-5, BS 1881:118	20x20x20	16
HR-C5051	Flexural Testing Assembly for Concrete Kerbs	EN 1340	62x25x10	17
HR-C5052	Flexural Testing Assembly for Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs	EN 1339, EN 1343, EN 12372	62x26x15	25
HR-C5053	Splitting Tensile Test Device for 150x150 mm Cube Specimens	EN 12390-6	18x15x32	15
HR-C5053/1	Distance Piece for HR-C5053 for 100x100 mm Cube Specimens	EN 12390-6	---	---
HR-C5054	Splitting Tensile Test Device for 60-100 mm height Block Pavers	EN 12390-6, EN 1338, ASTM C 496	24x16x32	17,5
HR-C5055	Splitting Tensile Test Device for Ø150x300 mm & Ø160x320 mm Cylindrical Specimens	EN 12390-6, ASTM C 496	34x15x33	25
HR-C5055/1	Distance Piece for HR-C5055 for Ø100x200 mm Cylindrical Specimens	EN 12390-6	---	---
HR-C5056	Apparatus, used for Flexure Test on Rain Gutter	---	---	---
HR-C5057	Wood Fibre Boards, Pack of 50	---	0,4x1,5x34,5	---

HYDRAULIC POWER PACK AND H-TOUCH PRO MAX CONTROL UNIT

Hydraulic Power Pack

Automatic Hydraulic Power Pack, 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 is equipped with 4 wheels for easy carriage and flexible installation.

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

Maximum working pressure of the system is 400 bar.

HR-C8000/TS

Single Stage Pump

The single stage pump is formed by;

High pressure radial piston pump

On the single stage pump, high pressure radial piston pump is used for test execution.

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

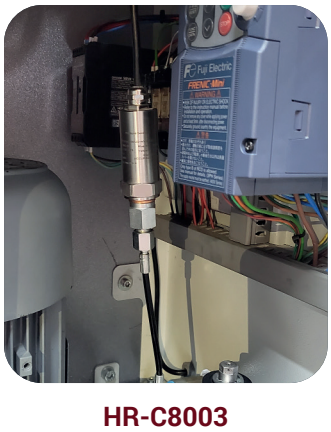
A distribution block is used to control the oil flow direction supplied by the single stage pump, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Load Cell and High pressure radial piston pump.

High Precision Pressure Transducer (Optional)

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

Load Cell is used according to the device capacity for load measurements.

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

Oil Tank

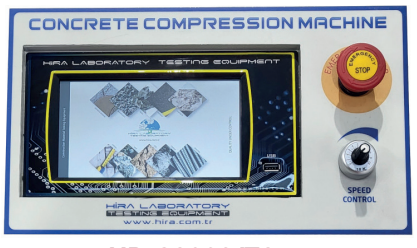
The tank includes enough oil to fill the mechanism which pushes the ram during the test.

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.

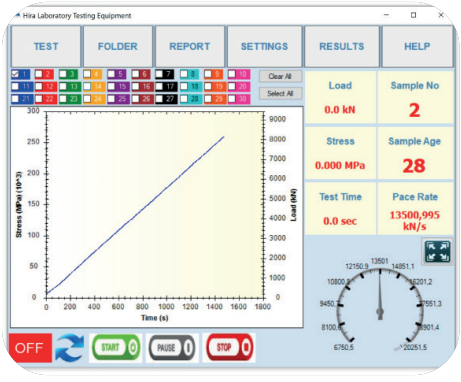
H-Touch PRO Max Control Unit enable simultaneously display machine status, test values, warnings during operation and test graphs such as load-time or load-displacement curves in real time.

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

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

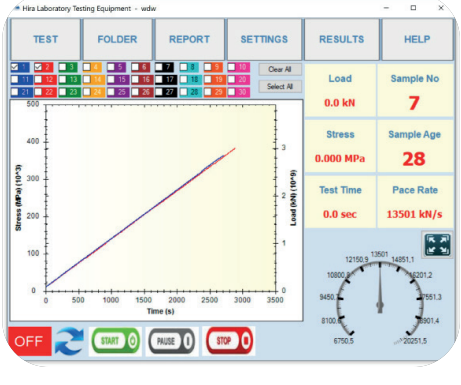
The advanced functions for database management provide an easy navigation of all saved data.

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.
- 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 load cell
- 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.

HİRA TESTING EQUIPMENT

Technical Specifications:

Product Name	Automatic Flexural Testing Machines, Touch Screen		
Product Code	HR-C5000/TS	HR-C5005/TS	HR-C5010/TS
Type	U Type	U Type	U Type
Capacity (kN)	100	200	300
Ram Travel (mm)	50		
Max. Vertical clearance (mm)	405 (without accessories)		
Max. Horizontal clearance (mm)	1000		
Max. Clerance Between Lower Rollers (mm)	890		
Class 1 range	1-100 kN	3-200 kN	3-300 kN

Safety Features

- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch
- Emergency stop button
- Software controlled maximum load value

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C5000/TS	100 kN Automatic Flexural Testing Machine, U Type	119x100x100	300	220 V, 50-60 Hz, 1 ph
HR-C5005/TS	200 kN Automatic Flexural Testing Machine, U Type	119x100x100	325	220 V, 50-60 Hz, 1 ph
HR-C5010/TS	300 kN Automatic Flexural Testing Machine, U Type	119x100x100	400	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C5000/1	100 kN Flexural Testing Frame, U Type	81x100x100	200	---
HR-C5005/1	200 kN Flexural Testing Frame, U Type	81x100x100	225	---
HR-C5010/1	300 kN Flexural Testing Frame, U Type	81x100x100	300	---
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	100	220 V, 50-60 Hz, 1 ph
HR-C8002/TS	H-Touch Pro Max Control Unit	---	---	220 V, 50-60 Hz, 1 ph
HR-G0982	Load Cell, 100 kN capacity	---	---	---
HR-G0983	Load Cell, 200 kN capacity	---	---	---
HR-G0984	Load Cell, 300 kN capacity	---	---	---
HR-C8003	High Precision Pressure Transducer (optional)	---	---	---
HR-C8004/TS	H-GUI Software	---	---	---
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)	---	---	---

FLEXURAL DEVICE ON CONCRETE BEAMS

STANDARDS: EN 12390–5, ASTM C78, C293, AASHTO T 97, BS 1881:118

Flexural device for two points and centre point tests on concrete beams is complete with two lower rollers, one of them articulated, and two upper rollers for third point tests.

• Two fix distances between lower rollers: 300 and 450 mm
• Two fix distances between upper rollers: 100 and 150 mm
It is possible to place in the centre only one upper roller for centre point tests.

HR-C5060

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C5060	Flexural Device on Concrete Beams	26x63x29	28

WIDE CLEARANCE AUTOMATIC FLEXURAL TESTING MACHINES

STANDARDS: EN 1338, 1339, 1340, 12390-5, 12390-6, BS 1881, ASTM C78, C293, C496

The HİRA Automatic range of U Type 200 kN and 500 kN capacity, C Type 300 kN and 500 kN capacity Wide Clearance Flexural Testing Machines have been designed for reliable and consist-ent testing of flexural test on standard concrete beams, concrete or natural stone kerbs, concrete paving flags, and natural stone slabs and tensile splitting test of concrete paving blocks with suitable apparatus.

HR-C5150

Machines confirm all EN, ASTM and BS standards written above. These also meet the requirements of CE norms for the safety and health of the operator.

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

The Automatic Flexural Testing Machines allow inexperienced operators to perform the tests. Once the machine is switched on and the specimen is placed. 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, switches the test speed after 1% of the load capacity of the machine and stops once the specimen failure.
- Automatically saves the test parameters and test results.

The HİRA ranges of Flexural Machines have the accuracy of Class 1 starting from 2% of the full capacity.

The Wide Clearance Automatic Flexural Testing Machines consist of;

- Heavy Duty Welded Wide Clearance Load Frame,
- Automatic Hydraulic Power Pack,
- Digital data acquisition & control system,
- Software and Ethernet Cable.

Flexural test assemblies should be ordered separately.

Wide Clearance Flexural Load Frame

The multipurpose HİRA Flexural Testing Frames are designed for minimum deflection at maximum load resulting in very high accuracy. The load frame is a welded steel fabrication carrying the ram fitted to the steel base. All Frames have a single acting up stroking ram with over travel switch protection to stop the machine when maximum ram travel is reached. A load cell is used for load measurements on all frames.

The distance between the columns can be adjusted up to 1 meter.

Wide clearance Flexural Frames are designed to accept all accessories required for flexural or compression tests.

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

All frames can be connected to HİRA compression machine as a second frame or can be used with any HİRA power pack as an independent Flexural Machine.

The main characteristics are:
• High stability welded assembly
• High accuracy load measurement with load cells
• Can accept wide range of accessories for mentioned standards
• Can be connected to HİRA Compression Machine or Hydraulic Power Pack

FLEXURAL TESTING ACCESSORIES

Flexural Testing Assembly for Concrete Beams

The test assembly is used for 3 or 4 point flexural tests on 100 or 150 mm Concrete Beams.

The set consist of 2 upper and 2 lower rollers of Ø38 x 160 mm.

The distance of lower bearers can be adjusted between 100 mm and 800 mm. The distance between upper bearers can be set to 100 mm or 150 mm.

For 3 point testing one of the bearers can be removed and the other placed in the center.

HR-C6050

HR-C6051

Flexural Testing Assembly for Concrete Kerbs

The test assembly is used for flexural tests on Concrete Kerbs.

The set consists of 2 lower rollers of Ø 20 x 620 mm and Ø 40 mm upper loading piston with ball seating assembly.

The distance of lower rollers can be adjusted between 100 mm to 800 mm.

Flexural Test Assembly for Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs

The test assembly is used for flexural tests on Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs.

The set consists of 2 lower rollers and upper roller of Ø 20x 620 mm.

The distance of lower rollers can be adjusted between 100 mm to 800 mm.

HR-C6052

HR-C6054

Splitting Tensile Test Device for Block Pavers

Splitting Tensile Test Device for Block Pavers is accessory for compression machines for measuring the splitting tensile strengths of 60-100 mm height x 220 mm length concrete block pavers according to the requirements of the related standards.

HR-C6053

Splitting Tensile Test Device for Concrete Cubes

Splitting Tensile Test Device for Concrete Cubes is accessory for compression machines for measuring the splitting tensile strengths of 150 mm cube concrete specimens according to the requirements of the related standards.

Distance Piece for Splitting Tensile Test Device for Concrete Cubes

Can be used for 100 mm cube concrete specimens by using this Distance pieces with Splitting Tensile Test Device for Concrete Cubes.

HR-C6055

Splitting Tensile Test Device for Cylinders

Splitting Tensile Test Device for Cylinders is accessory for compression machines for measuring the splitting tensile strengths of Ø150x300 mm and Ø160x320 mm cylindrical specimens according to the requirements of the related standards.

Distance Piece for Splitting Tensile Test Device for Cylinders

Can be used for Ø100x200 mm Cylindrical Specimens by using this Distance pieces with Splitting Tensile Test Device for Concrete Cylinders.

HR-C6057

Technical Specifications:

Product Code	Product Name	Standards	Dimensions (cm)	Weight (kg)
HR-C6050	Flexural Testing Assembly for Concrete Beams	ASTM C 293, ASTM C 78, EN 12390-5, BS 1881:118	20x20x20	16
HR-C6051	Flexural Testing Assembly for Concrete Kerbs	EN 1340	62x25x10	17
HR-C6052	Flexural Testing Assembly for Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs	EN 1339, EN 1343, EN 12372	62x26x15	25
HR-C6053	Splitting Tensile Test Device for 150x150 mm Cube Specimens	EN 12390-6	18x15x32	15
HR-C6053/1	Distance Piece for HR-C5053 for 100x100 mm Cube Specimens	EN 12390-6	---	---
HR-C6054	Splitting Tensile Test Device for 60-100 mm height Block Pavers	EN 12390-6, EN 1338, ASTM C 496	24x16x32	17,5
HR-C6055	Splitting Tensile Test Device for Ø150x300 mm & Ø160x320 mm Cylindrical Specimens	EN 12390-6, ASTM C 496	34x15x33	25
HR-C6055/1	Distance Piece for HR-C5055 for Ø100x200 mm Cylindrical Specimens	EN 12390-6	---	---
HR-C6056	Apparatus, used for Flexure Test on Rain Gutter	---	---	---
HR-C6057	Wood Fibre Boards, Pack of 50	---	0,4x1,5x34,5	---

HYDRAULIC POWER PACK AND DIGITAL DATA ACQUISITION & CONTROL SYSTEM

Hydraulic Power Pack

Automatic Hydraulic Power Pack, 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. The Hydraulic Power Pack is equipped with 4 wheels for easy carriage and flexible installation.

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

Maximum working pressure of the system is 400 bar.

HR-C8000

Single Stage Pump

The single stage pump is formed by;

High pressure radial piston pump

On the single stage pump, high pressure radial piston pump is used for test execution.

HİRA TESTING EQUIPMENT

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

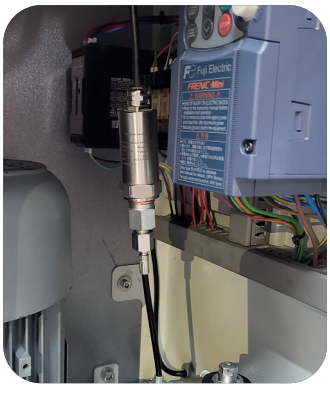
A distribution block is used to control the oil flow direction supplied by the single stage pump, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Load Cell and High pressure radial piston pump.

High Precision Pressure Transducer (Optional)

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

Load Cell is used according to the device capacity for load measurements.

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

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.

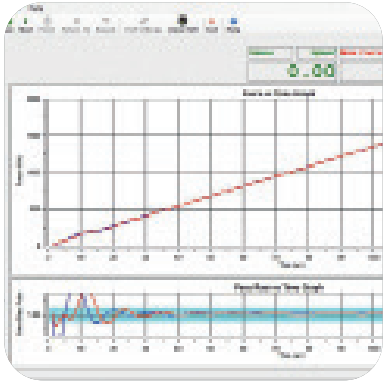
The unit has easy to use menu options.

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

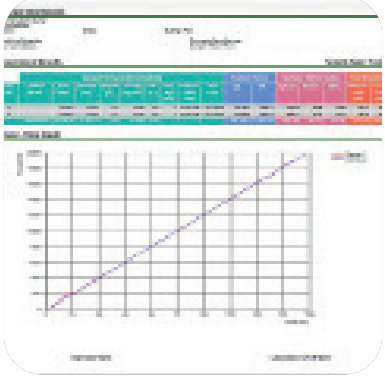


Sample, company, laboratory and test values can be entered in the programme.

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 Flexural 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, flexure 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 Name	Wide Clearance Automatic Flexural Testing Machines			
Product Code	HR-C5100	HR-C5150	HR-C5125	HR-C5130
Type	U Type	U Type	C Type	C Type
Capacity (kN)	200	500	300	500
Ram Travel (mm)	50			
Max. Vertical clearance (mm)	425 (without accessories)			
Max. Horizontal clearance (mm)	1000			
Max. Clerance Between Lower Rollers (mm)	900		890	

Safety Features

- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch
- Emergency stop button
- Software controlled maximum load value

HİRA TESTING EQUIPMENT

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C5100	200 kN Wide Clearance Automatic Flexural Testing Machine, U Type	180x60x115	600	220 V, 50-60 Hz, 1 ph
HR-C5150	500 kN Wide Clearance Automatic Flexural Testing Machine, U Type	190x75x115	700	220 V, 50-60 Hz, 1 ph
HR-C5125	300 kN Wide Clearance Automatic Flexural Testing Machine, C Type	140x110x130	655	220 V, 50-60 Hz, 1 ph
HR-C5130	500 kN Wide Clearance Automatic Flexural Testing Machine, C Type	140x110x135	700	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C5100/1	200 kN Wide Clearance Flexural Testing Frame, U Type	140x60x115	500	---
HR-C5150/1	500 kN Wide Clearance Flexural Testing Frame, U Type	150x75x115	600	---
HR-C5125/1	300 kN Wide Clearance Flexural Testing Frame, C Type	100x110x130	555	---
HR-C5130/1	500 kN Wide Clearance Flexural Testing Frame, C Type	100x110x135	600	---
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	100	220 V, 50-60 Hz, 1 ph
HR-C8002	Digital Data Acquisition & Control System	---	---	220 V, 50-60 Hz, 1 ph
HR-G0983	Load Cell, 200 kN capacity	---	---	---
HR-G0986	Load Cell, 500 kN capacity	---	---	---
HR-G0984	Load Cell, 300 kN capacity	---	---	---
HR-C8003	High Precision Pressure Transducer (optional)	---	---	---
HR-C8004	Software	---	---	---
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)	---	---	---

HR-C5125

WIDE CLEARANCE AUTOMATIC FLEXURAL TESTING MACHINES WITH H-TOUCH PRO MAX CONTROL UNIT (TOUCH SCREEN)

STANDARDS: EN 1338, 1339, 1340, 12390-5, 12390-6, BS 1881, ASTM C78, C293, C496

The HİRA Automatic range of U Type 200 kN and 500 kN capacity, C Type 300 kN and 500 kN capacity Wide Clearance Flexural Testing Machines have been designed for reliable and consist-ent testing of flexural test on standard concrete beams, concrete or natural stone kerbs, concrete paving flags, and natural stone slabs and tensile splitting test of concrete paving blocks with suitable apparatus.
Machines confirm all EN, ASTM and BS standards written above. These also meet the requirements of CE norms for the

HR-C5150/TS

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 Flexural Testing Machines allow inexperienced operators to perform the tests. Once the machine is switched on and the specimen is placed. 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, switches the test speed after 1% of the load capacity of the machine and stops once the specimen failure.
- Automatically saves the test parameters and test results.

The HİRA ranges of Flexural Machines have the accuracy of Class 1 starting from 2% of the full capacity.

The Wide Clearance Automatic Flexural Testing Machines consist of;

- Heavy Duty Welded Wide Clearance Load Frame,
- Automatic Hydraulic Power Pack,
- H-Touch Pro Max Control Unit,
- H-GUI Software and Ethernet Cable.

Flexural test assemblies should be ordered separately.

Wide Clearance Flexural Load Frame

The multipurpose HİRA Flexural Testing Frames are designed for minimum deflection at maximum load resulting in very high accuracy. The load frame is a welded steel fabrication carrying the ram fitted to the steel base. All Frames have a single acting up stroking ram with over travel switch protection to stop the machine when maximum ram travel is reached. A load cell is used for load measurements on all frames.

The distance between the columns can be adjusted up to 1 meter.

Wide clearance Flexural Frames are designed to accept all accessories required for flexural or compression tests.

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

All frames can be connected to HİRA compression machine as a second frame or can be used with any HİRA power pack as an independent Flexural Machine.

The main characteristics are:
• High stability welded assembly
• High accuracy load measurement with load cells
• Can accept wide range of accessories for mentioned standards
• Can be connected to HİRA Compression Machine or Hydraulic Power Pack

FLEXURAL TESTING ACCESSORIES

Flexural Testing Assembly for Concrete Beams

The test assembly is used for 3 or 4 point flexural tests on 100 or 150 mm Concrete Beams.

The set consist of 2 upper and 2 lower rollers of Ø38 x 160 mm.

The distance of lower bearers can be adjusted between 100 mm and 800 mm. The distance between upper bearers can be set to 100 mm or 150 mm.

For 3 point testing one of the bearers can be removed and the other placed in the center.

HR-C6050

HR-C6051

Flexural Testing Assembly for Concrete Kerbs

The test assembly is used for flexural tests on Concrete Kerbs.

The set consists of 2 lower rollers of Ø 20 x 620 mm and Ø 40 mm upper loading piston with ball seating assembly.

The distance of lower rollers can be adjusted between 100 mm to 800 mm.

Flexural Test Assembly for Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs

The test assembly is used for flexural tests on Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs.

The set consists of 2 lower rollers and upper roller of Ø 20x 620 mm.

The distance of lower rollers can be adjusted between 100 mm to 800 mm.

HR-C6052

HR-C6054

Splitting Tensile Test Device for Block Pavers

Splitting Tensile Test Device for Block Pavers is accessory for compression machines for measuring the splitting tensile strengths of 60-100 mm height x 220 mm length concrete block pavers according to the requirements of the related standards.

Splitting Tensile Test Device for Concrete Cubes

Splitting Tensile Test Device for Concrete Cubes is accessory for compression machines for measuring the splitting tensile strengths of 150 mm cube concrete specimens according to the requirements of the related standards.

HR-C6053

Distance Piece for Splitting Tensile Test Device for Concrete Cubes

Can be used for 100 mm cube concrete specimens by using this Distance pieces with Splitting Tensile Test Device for Concrete Cubes.

HR-C6055

Splitting Tensile Test Device for Cylinders

Splitting Tensile Test Device for Cylinders is accessory for compression machines for measuring the splitting tensile strengths of Ø150x300 mm and Ø160x320 mm cylindrical specimens according to the requirements of the related standards.

Distance Piece for Splitting Tensile Test Device for Cylinders

Can be used for Ø100x200 mm Cylindrical Specimens by using this Distance pieces with Splitting Tensile Test Device for Concrete Cylinders.

HR-C6057

Technical Specifications:

Product Code	Product Name	Standards	Dimensions (cm)	Weight (kg)
HR-C6050	Flexural Testing Assembly for Concrete Beams	ASTM C 293, ASTM C 78, EN 12390-5, BS 1881:118	20x20x20	16
HR-C6051	Flexural Testing Assembly for Concrete Kerbs	EN 1340	62x25x10	17
HR-C6052	Flexural Testing Assembly for Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs	EN 1339, EN 1343, EN 12372	62x26x15	25
HR-C6053	Splitting Tensile Test Device for 150x150 mm Cube Specimens	EN 12390-6	18x15x32	15
HR-C6053/1	Distance Piece for HR-C5053 for 100x100 mm Cube Specimens	EN 12390-6	---	---
HR-C6054	Splitting Tensile Test Device for 60-100 mm height Block Pavers	EN 12390-6, EN 1338, ASTM C 496	24x16x32	17,5
HR-C6055	Splitting Tensile Test Device for Ø150x300 mm & Ø160x320 mm Cylindrical Specimens	EN 12390-6, ASTM C 496	34x15x33	25
HR-C6055/1	Distance Piece for HR-C5055 for Ø100x200 mm Cylindrical Specimens	EN 12390-6	---	---
HR-C6056	Apparatus, used for Flexure Test on Rain Gutter	---	---	---
HR-C6057	Wood Fibre Boards, Pack of 50	---	0,4x1,5x34,5	---

HYDRAULIC POWER PACK AND H-TOUCH PRO MAX CONTROL UNIT

Hydraulic Power Pack

Automatic Hydraulic Power Pack, 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 is equipped with 4 wheels for easy carriage and flexible installation.

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

Maximum working pressure of the system is 400 bar.

HR-C8000/TS

Single Stage Pump

The single stage pump is formed by;

High pressure radial piston pump

On the single stage pump, high pressure radial piston pump is used for test execution.

HİRA TESTING EQUIPMENT

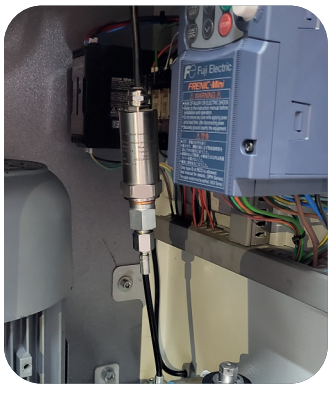
Motor

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 single stage pump, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Load Cell and High pressure radial piston pump.



HR-C8003

High Precision Pressure Transducer (Optional)

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

Load Cell is used according to the device capacity for load measurements.

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.

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.

HR-C8002/TS

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.

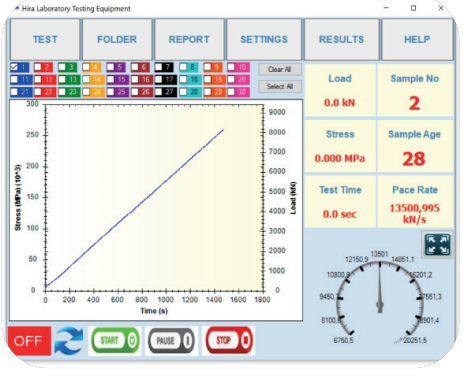
Digital graphic display of the unit is able to draw real-time “Load vs. Time” or “Stress vs. Time” graphics.

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



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 Flexural Testing 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.

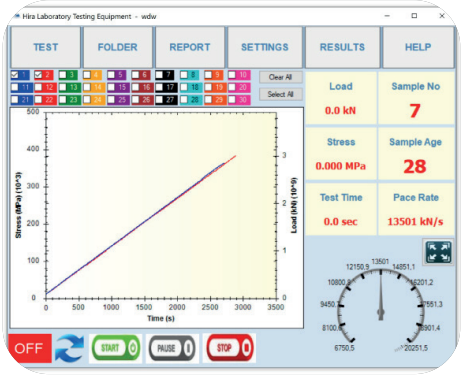
Test parameters can be set and details about the test carried out such as Test Type, Sample Type, Report details, Customer details, Sample details and other information required can be entered in the software.

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

HİRA TESTING EQUIPMENT

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.
- 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 load cell
- 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 Name	Wide Clearance Automatic Flexural Testing Machines, Touch Screen			
Product Code	HR-C5100/TS	HR-C5150/TS	HR-C5125/TS	HR-C5130/TS
Type	U Type	U Type	C Type	C Type
Capacity (kN)	200	500	300	500
Ram Travel (mm)	50			
Max. Vertical clearance (mm)	425 (without accessories)			
Max. Horizontal clearance (mm)	1000			
Max. Clerance Between Lower Rollers (mm)	900		890	

Safety Features

- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch
- Emergency stop button
- Software controlled maximum load value

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C5100/TS	200 kN Wide Clearance Automatic Flexural Testing Machine, U Type	180x60x115	600	220 V, 50-60 Hz, 1 ph
HR-C5150/TS	500 kN Wide Clearance Automatic Flexural Testing Machine, U Type	190x75x115	700	220 V, 50-60 Hz, 1 ph
HR-C5125/TS	300 kN Wide Clearance Automatic Flexural Testing Machine, C Type	140x110x130	655	220 V, 50-60 Hz, 1 ph
HR-C5130/TS	500 kN Wide Clearance Automatic Flexural Testing Machine, C Type	140x110x135	700	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C5100/1	200 kN Wide Clearance Flexural Testing Frame, U Type	140x60x115	500	---
HR-C5150/1	500 kN Wide Clearance Flexural Testing Frame, U Type	150x75x115	600	---
HR-C5125/1	300 kN Wide Clearance Flexural Testing Frame, C Type	100x110x130	555	---
HR-C5130/1	500 kN Wide Clearance Flexural Testing Frame, C Type	100x110x135	600	---
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	100	220 V, 50-60 Hz, 1 ph
HR-C8002/TS	H-Touch Pro Max Control Unit	---	---	220 V, 50-60 Hz, 1 ph
HR-G0983	Load Cell, 200 kN capacity	---	---	---
HR-G0986	Load Cell, 500 kN capacity	---	---	---
HR-G0984	Load Cell, 300 kN capacity	---	---	---
HR-C8003	High Precision Pressure Transducer (optional)	---	---	---
HR-C8004/TS	H-GUI Software	---	---	---
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)	---	---	---

HR-C5125/TS

FLEXURAL TESTING FRAMES

STANDARDS: EN 1338, 1340, 12390-5, 12390-6, BS 1881, ASTM C78, C293, C496

The multipurpose HİRA Flexural Testing Frames are designed for minimum deflection at maximum load resulting in very high accuracy. The load frame is a welded steel fabrication carrying the ram fitted to the steel base. All Frames have a single acting up stroking ram with over travel switch protection to stop the machine when maximum ram travel is reached. A load cell is used for load measurements on all frames.

Flexural Frames are designed to accept all accessories required for flexural or compression tests.

Flexural Frames are 100 kN, 200 kN, 300 kN capacity U Type, 200 kN, 500 kN capacity Wide clearance U Type and 300 kN, 500 kN capacity C Type open structure designed to allow easy and practical front loading of the specimen.

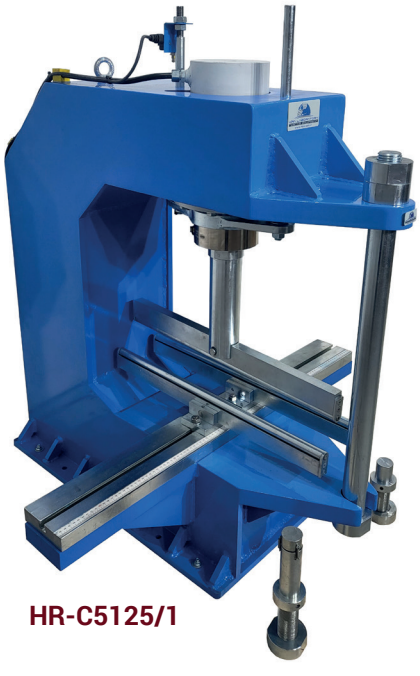
The very rigid C type design is ideal either for conventional flexural test or for more sophisticated tests such as deformability and ductility index.

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

Flexural test assemblies should be ordered separately.

All frames can be connected to HİRA compression machine as a second frame or can be used with any HİRA power pack as an independent Flexural Machine.

The main characteristics are:
- High stability welded assembly
- High accuracy load measurement with load cells
- Can accept wide range of accessories for mentioned standards
- Can be connected to HİRA Compression Machine or Hydraulic Power Pack



HR-C5125/1

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C5000/1	100 kN Flexural Testing Frame, U Type	81x100x100	200
HR-C5005/1	200 kN Flexural Testing Frame, U Type	81x100x100	225
HR-C5010/1	300 kN Flexural Testing Frame, U Type	81x100x100	300
HR-C5100/1	200 kN Wide Clearance Flexural Frame, U Type	140x60x115	500
HR-C5150/1	500 kN Wide Clearance Flexural Frame, U Type	150x75x115	600
HR-C5125/1	300 kN Wide Clearance Flexural Testing Frame, C Type	100x110x130	555
HR-C5130/1	500 kN Wide Clearance Flexural Testing Frame, C Type	100x110x135	600

HR-C5010/1

HR-C5150/1

Spare Parts & Accessories:

Product Code	Product Name
HR-G0982	Load Cell, 100 kN capacity
HR-G0983	Load Cell, 200 kN capacity
HR-G0984	Load Cell, 300 kN capacity
HR-G0986	Load Cell, 500 kN capacity

AUTOMATIC PUMICE CONCRETE-BRICK-CONCRETE BLOCK COMPRESSION TESTING MACHINE

STANDARDS: EN 772-1

The HİRA Automatic range of 1200 kN capacity compression testing machine has been designed for reliable and consistent testing of a Pumice Concrete, Brick and Concrete Blocks of specimens.

The dimensions of the upper and lower plates allow the testing of sample on 510x310x50 mm compression plates, concrete blocks and building materials.

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

The Automatic Pumice Concrete-Brick-Concrete Block Compression Testing Machines 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-C1200

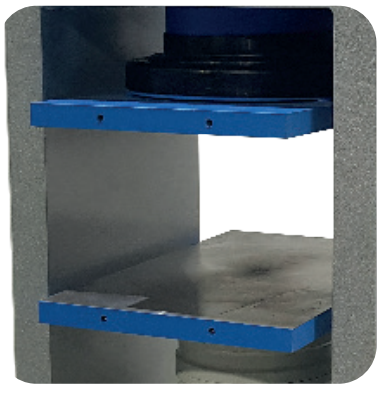
The Automatic Pumice Concrete-Brick-Concrete Block Compression Testing Machine consist of;

- Load Frame,
- Automatic Hydraulic Power Pack,
- Digital data acquisition & control system,
- Distance Pieces, 30 mm and 50 mm,
- Upper Platen (with ball seating assembly) 510x310x50 mm,
- Lower Platen 510x310x50 mm,
- Loading Cylinder Assembly & Limit Switch for safety,
- Software and Ethernet Cable.

Pumice Concrete-Brick-Concrete Block Compression Load Frame

The Load Frame is made of welded steel walls the piston is placed in the center of frame.

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



Upper Platens/Lower Platens

Upper Platen (with ball seating assembly) 510x310x50 mm and Lower Platen 510x310x50 mm.

• 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.

Distance Pieces

Distance pieces are used to reduce the amount of vertical clearance between the upper platen and the lower platen. Supplied with 30 mm and 50 mm distance pieces.

HR-C8201
HR-C8202

Loading Cylinder Assembly & Limit Switch

All frames have 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.

The pressure transducer is used for load measurements.

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. The Hydraulic Power Pack is equipped with 4 wheels for easy carriage and flexible installation.

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

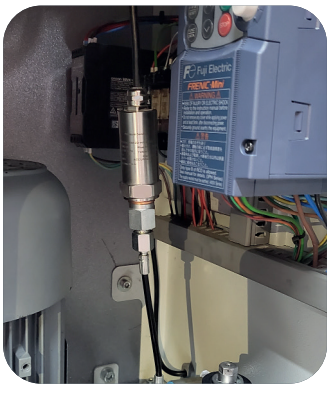
A distribution block is used to control the oil flow direction supplied by the dual stage pump, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Transducer, Low pressure gear pump and High pressure radial piston pump.

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

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.

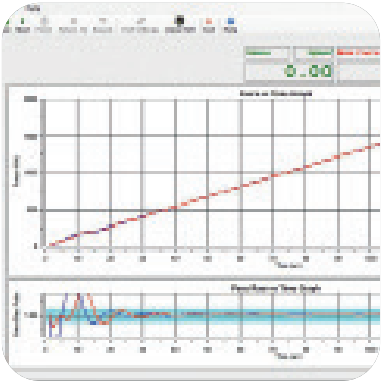
Digital graphic display unit loading rate of the time of Testing and load values can be monitored.

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

HR-C8002

HİRA TESTING EQUIPMENT

Software



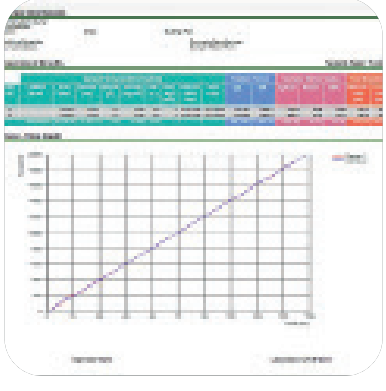
Sample, company, laboratory and test values can be entered in the programme.

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 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 Name	Automatic Pumice Concrete-Brick-Concrete Block Compression Testing Machine
Product Code	HR-C1200
Capacity (kN)	1200
Roughness (µm)	≤ 3.2
Ø Lower Platen (mm)	510x300x50
Ø Upper Platen (mm)	510x300x50
Max. Vertical clearance (cm)	25
Piston diameter (cm)	20
Piston Stroke(cm)	5
Horizontal clearance (cm)	31
Thickness of platens (cm)	5
Hardness of Platens (HRC)	55-60
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

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C1200	Automatic Pumice Concrete-Brick-Concrete Block Compression Testing Machine	75x60x100	600	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C1200/1	1200 kN Pumice Concrete-Brick-Concrete Block Compression Testing Frame	37x60x100	500	---
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-C8200	Distance Pieces	2,5	---	---
HR-C8201	Distance Pieces	3	---	---
HR-C8202	Distance Pieces	5	---	---
HR-C8203	Distance Pieces	8	---	---
HR-C1280	Ball Seating Assembly	---	---	---
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 PUMICE CONCRETE-BRICK-CONCRETE BLOCK COMPRESSION TESTING MACHINE WITH H-TOUCH PRO MAX CONTROL UNIT (TOUCH SCREEN)

STANDARDS: EN 772-1

The HİRA Automatic range of 1200 kN capacity compression testing machine has been designed for reliable and consistent testing of a Pumice Concrete, Brick and Concrete Blocks of specimens.

The dimensions of the upper and lower plates allow the testing of sample on 510x310x50 mm compression plates, concrete blocks and building materials.

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 Pumice Concrete-Brick-Concrete Block Compression Testing Machines 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;

HR-C1200/TS

- 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.

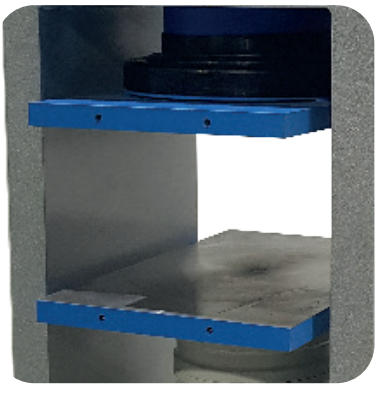
The Automatic Pumice Concrete-Brick-Concrete Block Compression Testing Machine consist of;

- Load Frame,
- Automatic Hydraulic Power Pack,
- H-Touch Pro Max Control Unit,
- Distance Pieces, 30 mm and 50 mm,
- Upper Platen (with ball seating assembly) 510x310x50 mm,
- Lower Platen 510x310x50 mm,
- Loading Cylinder Assembly & Limit Switch for safety,
- H-GUI Software and Ethernet Cable.

Pumice Concrete-Brick-Concrete Block Compression Load Frame

The Load Frame is made of welded steel walls the piston is placed in the center of frame.

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



Upper Platens/Lower Platens

Upper Platen (with ball seating assembly) 510x310x50 mm and Lower Platen 510x310x50 mm.

• 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.

Distance Pieces

Distance pieces are used to reduce the amount of vertical clearance between the upper platen and the lower platen. Supplied with 30 mm and 50 mm distance pieces.

HR-C8201
HR-C8202

Loading Cylinder Assembly & Limit Switch

All frames have 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.

The pressure transducer is used for load measurements.

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

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.

HİRA TESTING EQUIPMENT

Motor

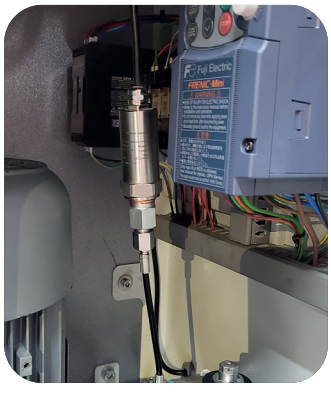
The motor which drives the dual pumps in an AC motor and it is controlled by motor inverter.

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), 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

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

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.

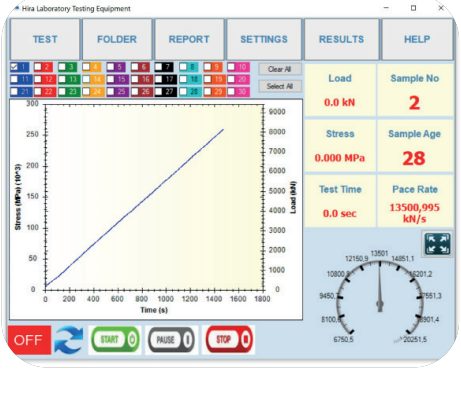
The advanced functions for database management provide an easy navigation of all saved data.

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.

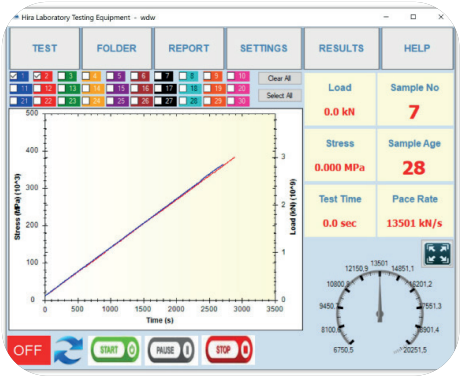
Following tests can be done with the HİRATEST H-GUI Software;

- 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



HİRA TESTING EQUIPMENT

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 H-GUI Software

- Pace rate control from 1 kN/sec to 20 kN/sec depending on piston size.
- 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 Name	Automatic Pumice Concrete-Brick-Concrete Block Compression Testing Machine
Product Code	HR-C1200/TS
Capacity (kN)	1200
Roughness (µm)	≤ 3.2
Ø Lower Platen (mm)	510x300x50
Ø Upper Platen (mm)	510x300x50
Max. Vertical clearance (cm)	25
Piston diameter (cm)	20
Piston Stroke(cm)	5
Horizontal clearance (cm)	31
Thickness of platens (cm)	5
Hardness of Platens (HRC)	55-60
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

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C1200/TS	Automatic Pumice Concrete-Brick-Concrete Block Compression Testing Machine	75x60x100	600	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C1200/1	1200 kN Pumice Concrete-Brick-Concrete Block Compression Testing Frame	37x60x100	500	---
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-C8200	Distance Pieces	2,5	---	---
HR-C8201	Distance Pieces	3	---	---
HR-C8202	Distance Pieces	5	---	---
HR-C8203	Distance Pieces	8	---	---
HR-C1280	Ball Seating Assembly	---	---	---
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)	---	---	---

SEMI-AUTOMATIC FLEXURAL TESTING MACHINES

STANDARDS: EN 1338, 1339, 1340, 12390-5, 12390-6, BS 1881, ASTM C78, C293, C496

The HİRA Semi-Automatic (Motorized) range of 100 kN, 200 kN, 300 kN and 500 kN capacity Flexural Testing Machines have been designed for reliable and consistent testing of flexural test on standard concrete beams, concrete or natural stone kerbs, concrete paving flags, and natural stone slabs and tensile splitting test of concrete paving blocks with suitable apparatus.

The Semi-Automatic Flexural Testing Machines consist of;

- Heavy Duty Welded Load Frame,
- Semi-Automatic Hydraulic Power Pack,
- Digital Readout Unit

Flexural test assemblies should be ordered separately.

HR-C5600

Flexural Load Frame

The multipurpose HİRA Flexural Testing Frames are designed for minimum deflection at maximum load resulting in very high accuracy. The load frame is a welded steel fabrication carrying the ram fitted to the steel base. All Frames have a single acting up stroking ram with over travel switch protection to stop the machine when maximum ram travel is reached. A load cell is used for load measurements on all frames.

Flexural Frames are designed to accept all accessories required for flexural or compression tests.

Flexural Frames are 100 kN, 200 kN, 300 kN capacity U Type, 200 kN, 500 kN capacity Wide Clearance U Type and 300 kN, 500 kN capacity Wide Clearance C Type open structure designed to allow easy and practical front loading of the specimen.

The very rigid C type design is ideal either for conventional flexural test or for more sophisticated tests such as deformability and ductility index.

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

All frames can be connected to HİRA compression machine as a second frame or can be used with any HİRA power pack as an independent Flexural Machine.

The main characteristics are:

- High stability welded assembly
- High accuracy load measurement with load cells
- Can accept wide range of accessories for mentioned standards
- Can be connected to HİRA Compression Machine or Hydraulic Power Pack

HR-C5125/1

HR-C5750

FLEXURAL TESTING ACCESSORIES

HR-C5050

Flexural Testing Assembly for Concrete Beams

The test assembly is used for 3 or 4 point flexural tests on 100 or 150 mm Concrete Beams.

The set consist of 2 upper and 2 lower rollers of Ø38 x 160 mm.

The distance of lower bearers can be adjusted between 100 mm and 800 mm. The distance between upper bearers can be set to 100 mm or 150 mm.

For 3 point testing one of the bearers can be removed and the other placed in the center.

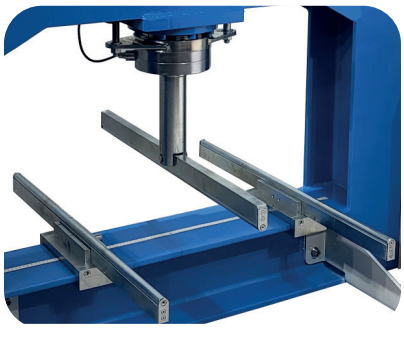
HR-C5051

Flexural Testing Assembly for Concrete Kerbs

The test assembly is used for flexural tests on Concrete Kerbs.

The set consists of 2 lower rollers of Ø 20 x 620 mm and Ø 40 mm upper loading piston with ball seating assembly.

The distance of lower rollers can be adjusted between 100 mm to 800 mm.



HR-C5052

Flexural Test Assembly for Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs

The test assembly is used for flexural tests on Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs.

The set consists of 2 lower rollers and upper roller of Ø 20x 620 mm.

The distance of lower rollers can be adjusted between 100 mm to 800 mm.

Splitting Tensile Test Device for Block Pavers

Splitting Tensile Test Device for Block Pavers is accessory for compression machines for measuring the splitting tensile strengths of 60-100 mm height x 220 mm length concrete block pavers according to the requirements of the related standards.

HR-C5054

HR-C5053

Splitting Tensile Test Device for Concrete Cubes

Splitting Tensile Test Device for Concrete Cubes is accessory for compression machines for measuring the splitting tensile strengths of 150 mm cube concrete specimens according to the requirements of the related standards.

Distance Piece for Splitting Tensile Test Device for Concrete Cubes

Can be used for 100 mm cube concrete specimens by using this Distance pieces with Splitting Tensile Test Device for Concrete Cubes.

HİRA TESTING EQUIPMENT

HR-C5055

Splitting Tensile Test Device for Cylinders

Splitting Tensile Test Device for Cylinders is accessory for compression machines for measuring the splitting tensile strengths of Ø150x300 mm and Ø160x320 mm cylindrical specimens according to the requirements of the related standards.

Distance Piece for Splitting Tensile Test Device for Cylinders

Can be used for Ø100x200 mm Cylindrical Specimens by using this Distance pieces with Splitting Tensile Test Device for Concrete Cylinders.

HR-C5057

Technical Specifications:

Product Code	Product Name	Standards	Dimensions (cm)	Weight (kg)
HR-C5050	Flexural Testing Assembly for Concrete Beams	ASTM C 293, ASTM C 78, EN 12390-5, BS 1881:118	20x20x20	16
HR-C5051	Flexural Testing Assembly for Concrete Kerbs	EN 1340	62x25x10	17
HR-C5052	Flexural Testing Assembly for Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs	EN 1339, EN 1343, EN 12372	62x26x15	25
HR-C5053	Splitting Tensile Test Device for 150x150 mm Cube Specimens	EN 12390-6	18x15x32	15
HR-C5053/1	Distance Piece for HR-C5053 for 100x100 mm Cube Specimens	EN 12390-6	---	---
HR-C5054	Splitting Tensile Test Device for 60-100 mm height Block Pavers	EN 12390-6, EN 1338, ASTM C 496	24x16x32	17,5
HR-C5055	Splitting Tensile Test Device for Ø150x300 mm & Ø160x320 mm Cylindrical Specimens	EN 12390-6, ASTM C 496	34x15x33	25
HR-C5055/1	Distance Piece for HR-C5055 for Ø100x200 mm Cylindrical Specimens	EN 12390-6	---	---
HR-C5056	Apparatus, used for Flexure Test on Rain Gutter	---	---	---
HR-C5057	Wood Fibre Boards, Pack of 50	---	0,4x1,5x34,5	---

SEMI-AUTOMATIC (MOTORIZED) HYDRAULIC POWER PACK AND DIGITAL READOUT UNIT

Semi-Automatic (Motorized) Hydraulic Power Pack

The Semi-Automatic (Motorized) Power Pack, controlled by a pressure rate control valve is designed to supply the required oil to the load frames for loading. The power pack can load different frames with required pace rates. A pump is supplied as standard. The power pack is equipped with a safety valve (maximum pressure valve) to avoid machine overloading. Maximum working pressure of the system is 400 bar.

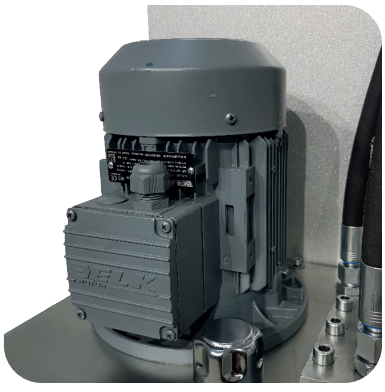
HR-C9000

Single Stage Pump

The single stage pump is formed by;

High pressure pump

On the single stage pump, high pressure pump is used for test execution.



Motor

The motor which drives the pump in an AC motor.

Distribution Block

A distribution block is used to control the oil flow direction supplied by single stage pump. Loading and unloading process and pace rate adjustment is done from the arms on the distribution block. The following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Load Cell and High pressure radial piston pump.

High Precision Pressure Transducer

The HİRA range of Semi-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

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 15 L capacity. Hydraulic motor oil, number 46, must be used.

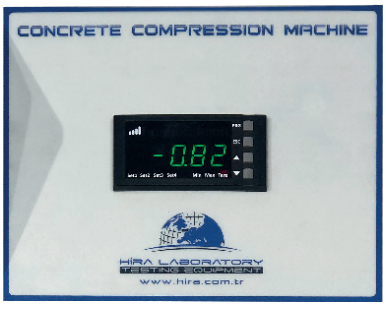
HİRA TESTING EQUIPMENT

Digital Readout Unit

The Digital Readout Unit has been designed to use with load cells or pressure transducers on different material test applications.

The peak value and the load change during the test are displayed on the screen.

- Peak value hold property
- Easy preload zeroing
- 5 Digits
- Multi-point Calibration



HR-C9002

Technical Specifications:

Product Code	Semi-Automatic Flexural Testing Machines						
Product Code	HR-C5500	HR-C5600	HR-C5700	HR-C5650	HR-C5750	HR-C5800	HR-C5900
Type	U Type	U Type	U Type	U Type	U Type	C Type	C Type
Capacity (kN)	100	200	300	200	500	300	500
Ram Travel (mm)	50						
Max. Vertical clearance (mm)	405 (without accessories)						
Max. Horizontal clearance (mm)	1000						
Max. Clerance Between Lower Rollers (mm)	890						

Safety Features

- Maximum pressure valves to avoid machine overloading
- Piston travel limit switch
- Emergency stop button

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C5500	100 kN Semi-Automatic Flexural Testing Machine, U Type	119x100x100	300	220 V, 50-60 Hz, 1 ph
HR-C5600	200 kN Semi-Automatic Flexural Testing Machine, U Type	119x100x100	325	220 V, 50-60 Hz, 1 ph
HR-C5700	300 kN Semi-Automatic Flexural Testing Machine, U Type	119x100x100	400	220 V, 50-60 Hz, 1 ph
HR-C5650	200 kN Semi-Automatic Wide Clearance Flexural Testing Machine, U Type	178x60x115	655	220 V, 50-60 Hz, 1 ph
HR-C5750	500 kN Semi-Automatic Wide Clearance Flexural Testing Machine, U Type	188x75x115	300	220 V, 50-60 Hz, 1 ph
HR-C5800	300 kN Semi-Automatic Wide Clearance Flexural Testing Machine, C Type	138x110x130	655	220 V, 50-60 Hz, 1 ph
HR-C5900	500 kN Semi-Automatic Wide Clearance Flexural Testing Machine, C Type	138x110x135	300	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C5000/1	100 kN Flexural Testing Frame, U Type	81x100x100	200	---
HR-C5005/1	200 kN Flexural Testing Frame, U Type	81x100x100	225	---
HR-C5010/1	300 kN Flexural Testing Frame, U Type	81x100x100	300	---
HR-C5100/1	200 kN Wide Clearance Flexural Testing Frame, U Type	140x60x115	555	---
HR-C5150/1	500 kN Wide Clearance Flexural Testing Frame, U Type	150x75x115	600	---
HR-C5125/1	300 kN Wide Clearance Flexural Testing Frame, C Type	100x110x130	555	---
HR-C5130/1	500 kN Wide Clearance Flexural Testing Frame, C Type	100x110x135	600	---
HR-C9000	Semi-Automatic Hydraulic Power Pack and Digital Readout Unit	36x38x91	70	220 V, 50-60 Hz, 1 ph
HR-C9001	Semi-Automatic Hydraulic Power Pack	36x38x91	70	220 V, 50-60 Hz, 1 ph
HR-C9002	Digital Readout Unit	10x9x5	0,300	220 V, 50-60 Hz, 1 ph
HR-G0982	Load Cell, 100 kN capacity	---	---	220 V, 50-60 Hz, 1 ph
HR-G0983	Load Cell, 200 kN capacity	---	---	---
HR-G0984	Load Cell, 300 kN capacity	---	---	---
HR-C8003	High Precision Pressure Transducer (optional)	---	200	---

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

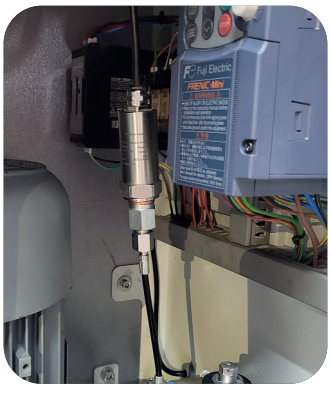
The motor which drives the dual pumps in an AC motor and it is controlled by motor inverter. The variation in the oil flow is executed with the variation of the rotation speed of the motor.

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), Transducer, Low pressure gear pump and High pressure radial piston pump.

HİRA TESTING EQUIPMENT

High Precision Pressure Transducer



HR-C8003

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

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.

HR-C8002

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.

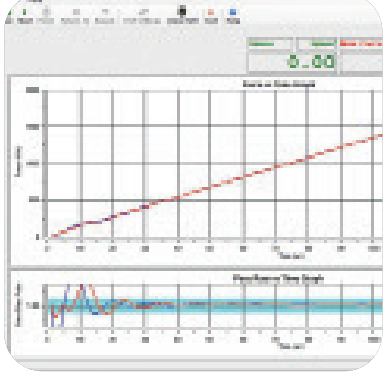
Digital graphic display unit loading rate of the time of Testing and load values can be monitored.

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.

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



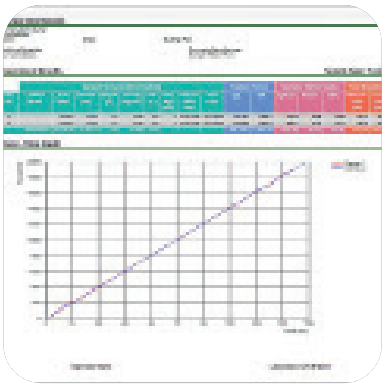
Software provides test data, results, and the load-time graphs can be seen at LCD screen.

The Automatic 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	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C8000	Hydraulic Power Pack and Digital Data Acquisition & Control System	36x38x91	100	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
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-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)	---	---	---

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

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

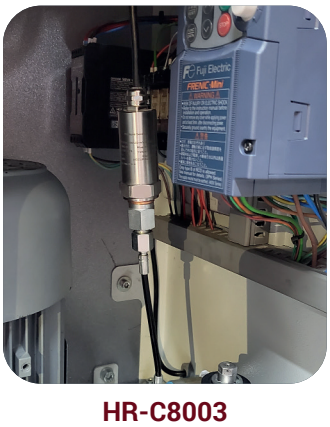
A distribution block is used to control the oil flow direction supplied by the dual stage pump, the following parts are fitted to the distribution block; Solenoid valve, Safety valve (max. pressure valve), Transducer, Low pressure gear pump and High pressure radial piston pump.

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



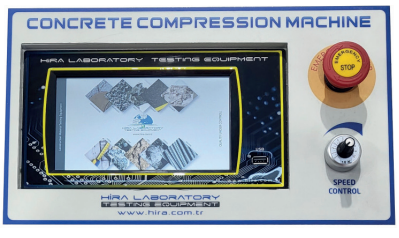
HR-C8003

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

HİRA TESTING EQUIPMENT

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 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.

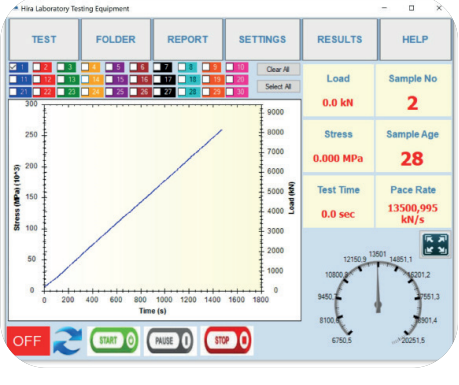
The advanced functions for database management provide an easy navigation of all saved data.

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.

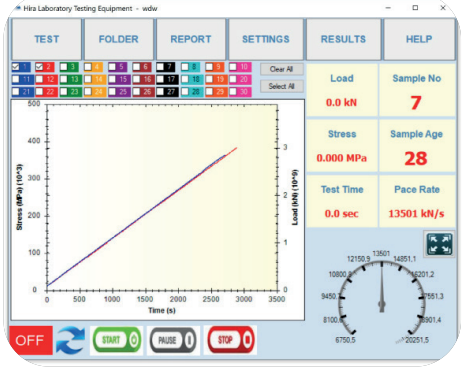
Following tests can be done with the HİRATEST H-GUI Software;

- 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



Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C8000/TS	Hydraulic Power Pack and Digital Data Acquisition & Control System	36x38x91	100	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
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-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)	---	---	---

SEMI-AUTOMATIC (MOTORIZED) HYDRAULIC POWER PACK AND DIGITAL READOUT UNIT

Semi-Automatic (Motorized) Hydraulic Power Pack

The Semi-Automatic (Motorized) Power Pack, controlled by a pressure rate control valve is designed to supply the required oil to the load frames for loading. The power pack can load different frames with required pace rates. A pump is supplied as standard. The power pack is equipped with a safety valve (maximum pressure valve) to avoid machine overloading. Maximum working pressure of the system is 400 bar.

HR-C9000

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 pump in an AC motor.

Distribution Block

A distribution block is used to control the oil flow direction supplied by the pump.

Loading and unloading process and pace rate adjustment is done from the arms on the distribution block.

The following parts are fitted to the distribution block; Safety valve (max. pressure valve) and Transducer.

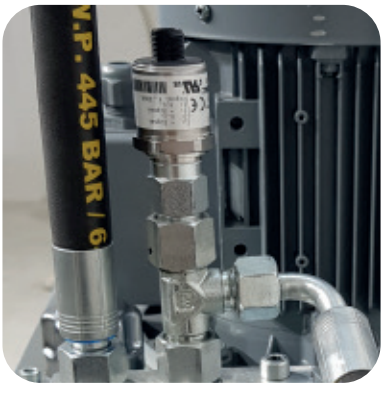
HİRA TESTING EQUIPMENT

High Precision Pressure Transducer

The HİRA range of Semi-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

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 15 L capacity. Hydraulic motor oil, number 46, must be used.

Digital Readout Unit

The Digital Readout Unit has been designed to use with load cells or pressure transducers on different material test applications.

The peak value and the load change during the test are displayed on the screen.

- Peak hold property
- Easy preload zeroing
- 5 Digits
- Multi-point Calibration

HR-C9002

LPI Digital Readout Unit

LPI Digital Readout Unit is used for reading of the applied load on load cells or pressure transducers in different material test applications.

- Can operate with 2 x AA batteries or 5V AC adapter
- Real time numeric display of load and load pressure
- 1 channel with two different calibration table (by changing the sensor belong to other frame, the unit can be control for second test frame)
- Peak hold property
- Multi-point calibration
- Easy preload zeroing
- 8 keys keyboard
- RS232 Serial port for PC or thermal or dot matrix printer

HR-C9002/LPI

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C9000	Semi-Automatic Hydraulic Power Pack and Digital Readout Unit	36x38x91	70	220 V, 50-60 Hz, 1 ph
HR-C9000/LPI	Semi-Automatic Hydraulic Power Pack and LPI Digital Readout Unit	36x38x91	70	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C9001	Semi-Automatic Hydraulic Power Pack	36x38x91	70	220 V, 50-60 Hz, 1 ph
HR-C9002	Digital Readout Unit	10x9x5	0,300	220 V, 50-60 Hz, 1 ph
HR-C9002	LPI Digital Readout Unit	15x20x20	1	220 V, 50-60 Hz, 1 ph
HR-C8003	High Precision Pressure Transducer	---	---	---

CONCRETE PIPE TESTING MACHINE (PEAK LOAD)

STANDARDS: TS EN 1916

1000 kN capacity Concrete Pipe Testing Machines are designed for the Peak Load Tests on Sewer and Drain Pipes, Concrete Pipes, Fittings, Cones on from 200 mm up to 3700 mm (outer diameters) pipes. Can be used for concrete pipes with a length up to 3000 mm.

600 kN capacity Concrete Pipe Testing Machines are designed for the Peak Load Tests on Sewer and Drain Pipes, Concrete Pipes, Fittings, Cones on from 200 mm up to 2000 mm (outer diameters) pipes. Can be used for concrete pipes with a length up to 2000 mm.

Please contact with us for different dimensions and capacity of Concrete Pipe Testing Machines.

Concrete Pipe Testing Machines consist of;

- Load Frame
- Automatic Hydraulic Power Pack and
- Digital data acquisition & control system

Concrete Pipe Testing Load Frame

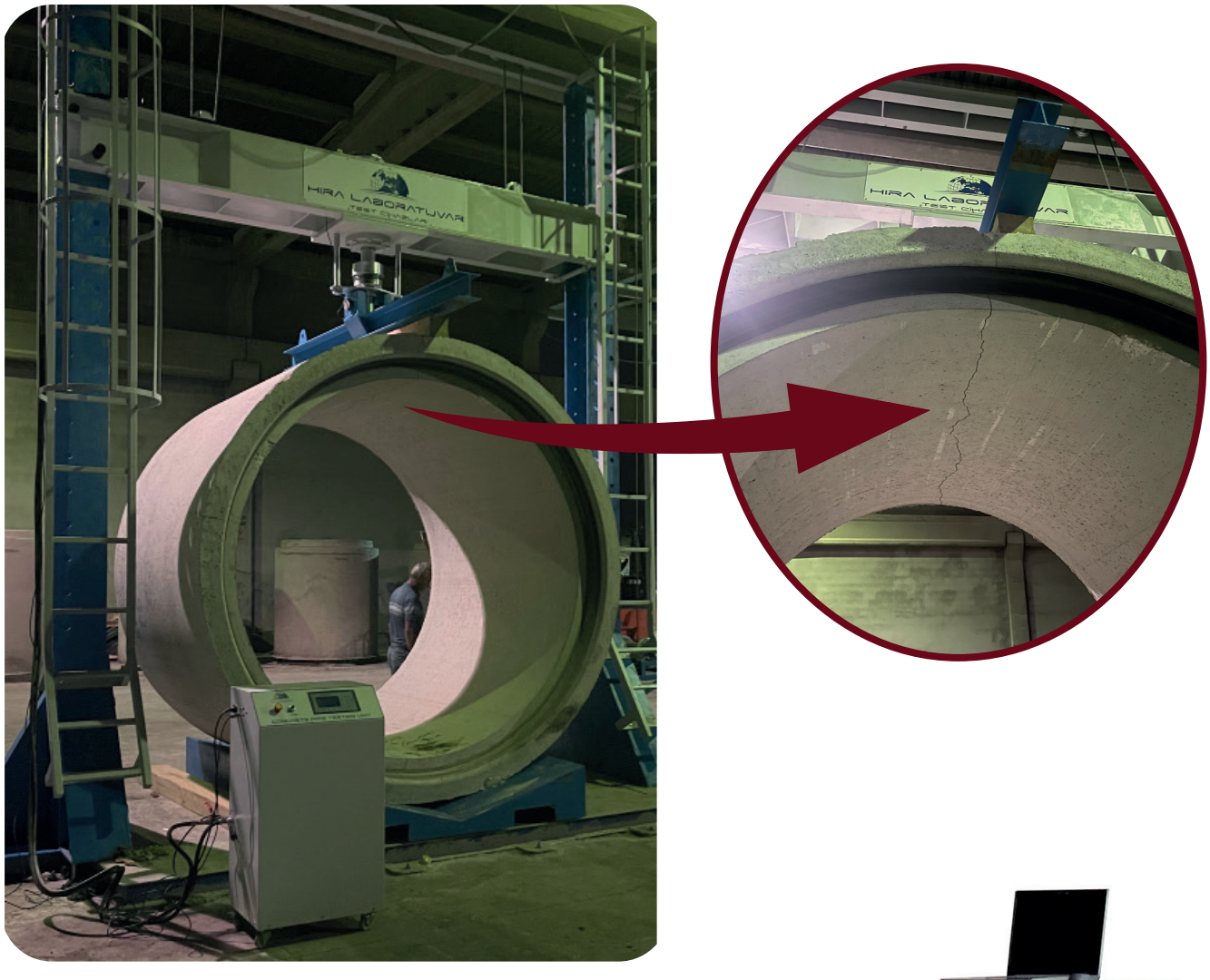
The frames are rigid 2 column constructions with superior axial and lateral stiffness and are precision aligned. The load-controlled double acting piston is integrated to upper beam. The actuator has anti-rotation system to prevent the natural tendency of the actuator to rotate. The stroke of the double acting actuator is 300 mm. Load cell is used for precise load measurement and closed loop control.

The rectangular shaped top bearer is detachable from the actuator and the bottom bearer is V-shaped with an angle of 150°. During pipe loading the system doesn't permit top bearer to move at horizontal plane and allows it to move at vertical plane of a minimum value of ±8°. Upper crosshead height adjustment is done with electric motor drive for easy and precise test set up and manual through locking pins are used to fix the upper crosshead.

There are 2 options depending on frame fixing system, with or without chassis.

First option is not including carrying chassis for the machine. These types of frames have to be anchored to concrete base. Steel fasteners and anchorage plan are sent to the customer before installation. Steel fasteners have to be anchored to concrete base by customer according to plan. Following this anchorage process, the frame is assembled.

Second option is including metal carrying chassis for the machine.



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 410 bar.

HR-C8005

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.

Digital Data Acquisition & Control System

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

HR-C8002

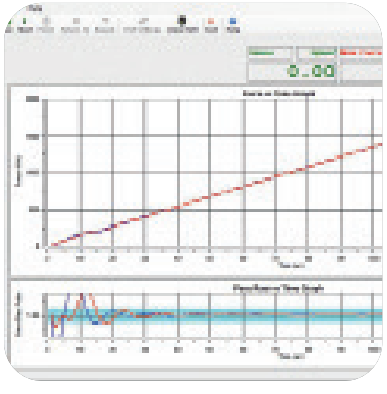
All the operations of the unit are controlled from the front panel consisting of a LCD display and function keys.

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



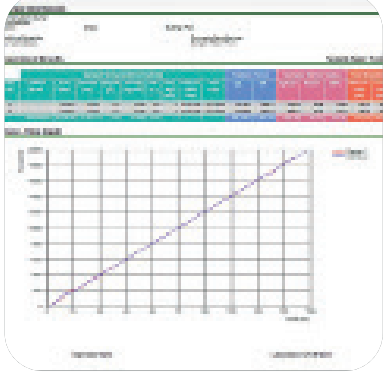
The Concrete Pipe Testing Software is supplied free of charge with the Concrete Pipe Testing Machine.

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 Concrete Pipe 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 tests 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.

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.

Safety Features

- Maximum pressure valves to avoid machine overloading
- Emergency stop button
- Software controlled maximum load value

HİRA TESTING EQUIPMENT

Technical Specifications:

Product Code	Product Name	Capacity (kN)	Max. External Sample Dia. (mm)	Power Supply
HR-C6000	Concrete Pipe Testing Machine without Carrying Chassis	600	2000	220 V, 50-60 Hz, 1 ph
HR-C6005	Concrete Pipe Testing Machine with Carrying Chassis	600	2000	220 V, 50-60 Hz, 1 ph
HR-C1000	Concrete Pipe Testing Machine without Carrying Chassis	1000	3000	220 V, 50-60 Hz, 1 ph
HR-C1005	Concrete Pipe Testing Machine with Carrying Chassis	1000	3000	220 V, 50-60 Hz, 1 ph
HR-C1050	Concrete Pipe Testing Machine without Carrying Chassis	1000	3700	220 V, 50-60 Hz, 1 ph
HR-C1055	Concrete Pipe Testing Machine with Carrying Chassis	1000	3700	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Capacity (kN)	Max. External Sample Dia. (mm)	Power Supply
HR-C6000/1	Concrete Pipe Testing Frame without Carrying Chassis	600	2000	---
HR-C6005/1	Concrete Pipe Testing Frame with Carrying Chassis	600	2000	---
HR-C1000/1	Concrete Pipe Testing Frame without Carrying Chassis	1000	3000	---
HR-C1005/1	Concrete Pipe Testing Frame with Carrying Chassis	1000	3000	---
HR-C1050/1	Concrete Pipe Testing Frame without Carrying Chassis	1000	3700	---
HR-C1055/1	Concrete Pipe Testing Frame with Carrying Chassis	1000	3700	---
HR-C8005	Hydraulic Power Pack and Digital Data Acquisition & Control System	---	---	220 V, 50-60 Hz, 1 ph
HR-C8006	Hydraulic Power Pack	---	---	220 V, 50-60 Hz, 1 ph
HR-C8007	Digital Data Acquisition & Control System	---	---	220 V, 50-60 Hz, 1 ph
HR-C8008	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)	---	---	---

ELECTROMECHANICAL FLEXURAL & COMPRESSION TESTING MACHINE

Electromechanical Flexural-Compression Testing Machine can perform Flexural-Compression Tests of various types of materials.
It is produced with a capacity of 50 kN or 100 kN.

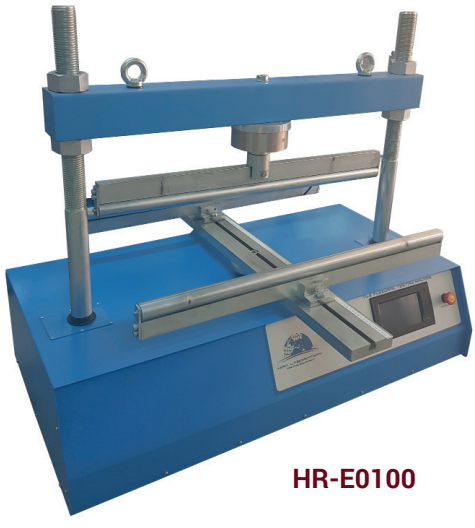
The device works with an Electromechanical Motor.

Piston movement is limited by 2 switches located at the top and bottom of the piston.

The Electromechanical Flexural-Compression Testing Machine machine consists of;

- Load Frame
- 50 kN or 100 kN Load Cell according to device capacity,
- Movable Upper Plate for compression tests,
- Digital graphic readout unit
- Software

Accessories should be ordered separately according to the type of test to be performed for flexure tests.



HR-E0100

Load Frame

The Load Frame consist of 2 rigid columns, a cast iron base with gear box inside and a steel bridge to hold the Load cell and accessories.
The vertical distance can be adjusted by the help of the upper platen.
The distance between the columns can be adjusted up to 1 meter.

Digital Graphic Readout Unit

The device can be controlled from the computer automatically or run from the control unit automatically or manually.
Load/stress values can be read from the computer or LCD screen Graphic Readout Unit.
The Load vs Time graph can be seen from the LCD screen during the test.
Test data can be stored by the computer after failure.
The pace rate can be adjusted between 0,05 and 24 kN/sn.

Software

The device can be connected to any computer with Ethernet cable.
Thanks to software, different types of user and sample data can be stored and printed out the test report.
HİRA Compression-Flexural Software is provided free of charge with the device.

FLEXURAL TESTING ACCESSORIES

HR-C5050

Flexural Testing Assembly for Concrete Beams

The test assembly is used for 3 or 4 point flexural tests on 100 or 150 mm Concrete Beams.

The set consist of 2 upper and 2 lower rollers of Ø38 x 160 mm.

The distance of lower bearers can be adjusted between 100 mm and 800 mm. The distance between upper bearers can be set to 100 mm or 150 mm.

For 3 point testing one of the bearers can be removed and the other placed in the center.

HR-C5051

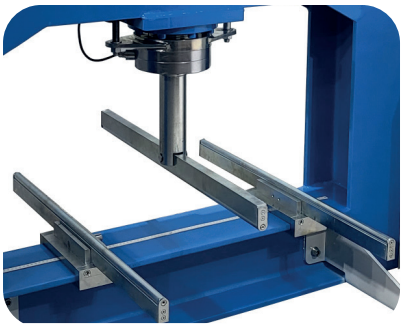
Flexural Testing Assembly for Concrete Kerbs

The test assembly is used for flexural tests on Concrete Kerbs.

The set consists of 2 lower rollers of Ø 20 x 620 mm and Ø 40 mm upper loading piston with ball seating assembly.

The distance of lower rollers can be adjusted between 100 mm to 800 mm.

HİRA TESTING EQUIPMENT



HR-C5052

Flexural Test Assembly for Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs

The test assembly is used for flexural tests on Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs.

The set consists of 2 lower rollers and upper roller of Ø 20x 620 mm.

The distance of lower rollers can be adjusted between 100 mm to 800 mm.

Splitting Tensile Test Device for Block Pavers

Splitting Tensile Test Device for Block Pavers is accessory for compression machines for measuring the splitting tensile strengths of 60-100 mm height x 220 mm length concrete block pavers according to the requirements of the related standards.

HR-C5054

HR-C5053

Splitting Tensile Test Device for Concrete Cubes

Splitting Tensile Test Device for Concrete Cubes is accessory for compression machines for measuring the splitting tensile strengths of 150 mm cube concrete specimens according to the requirements of the related standards.

HR-C5055

Splitting Tensile Test Device for Cylinders

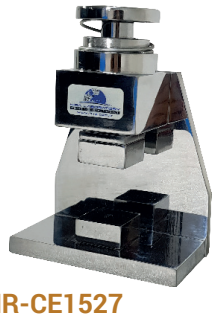
Splitting Tensile Test Device for Cylinders is accessory for compression machines for measuring the splitting tensile strengths of Ø150x300 mm and Ø160x320 mm cylindrical specimens according to the requirements of the related standards.

CEMENT COMPRESSION & FLEXURAL TEST ACCESSORIES

HR-CE1525

Cement Flexural Jig Assembly (40x40x160 mm)

It is used for flexural strength test of 40x40x160 mm cement samples.



HR-CE1527

Cement Compression Jig Assembly (40x40x40 mm)

It is used for compressive strength test of 40x40x160 mm cement samples.

Cement Compression Jig Assembly (50x50x50 mm)

It is used for compressive strength test of 50x50x50 mm cement samples.

HR-CE1528

Cement Compression Jig Assembly (70,7 mm)

It is used for compressive strength test of 70,7 mm cement samples.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-E0050	Electromechanical Flexural-Compression Testing Machine, 50 kN	105x130x115	220	220 V, 50-60 Hz, 1 ph
HR-E0100	Electromechanical Flexural-Compression Testing Machine, 100 kN	105x130x115	220	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Power Supply
HR-E0050/1	Electromechanical Flexural-Compression Testing Frame, 50 kN	---
HR-E0100/1	Electromechanical Flexural-Compression Testing Frame, 100 kN	---
HR-G0975	Computer & Printer	220 V, 50-60 Hz, 1 ph
HR-G0981	Load Cell, 50 kN capacity	---
HR-G0982	Load Cell, 100 kN capacity	---
HR-E8500	Digital Readout Unit	220 V, 50-60 Hz, 1 ph
HR-E8500/1	Software	---

Test Accessories:

Product Code	Product Name	Standards	Dimensions (cm)	Weight (kg)
HR-C5050	Flexural Testing Assembly for Concrete Beams	ASTM C 293, ASTM C 78, EN 12390-5, BS 1881:118	20x20x20	16
HR-C5051	Flexural Testing Assembly for Concrete Kerbs	EN 1340	62x25x10	17
HR-C5052	Flexural Testing Assembly for Concrete Paving Flags and Concrete Terrazzo Tiles, Natural Stone Kerbs and Slabs	EN 1339, EN 1343, EN 12372	62x26x15	25
HR-C5053	Splitting Tensile Test Device for 150x150 mm Cube Specimens	EN 12390-6	18x15x32	15
HR-C5054	Splitting Tensile Test Device for 60-100 mm height Block Pavers	EN 12390-6, EN 1338, ASTM C 496	24x16x32	17,5
HR-C5055	Splitting Tensile Test Device for Ø150x300 mm & Ø160x320 mm Cylindrical Specimens	EN 12390-6, ASTM C 496	34x15x33	25
HR-CE1525	Flexure Jig Assembly to test 40x40x160 mm mortar prisms	---	15x15x18	11
HR-CE1526	Compression Jig Assembly to test 50 mm (2") mortar cubes	---	15x15x18	12
HR-CE1527	Compression Jig Assembly to test 40x40x40 mm mortar prisms	---	15x15x18	12
HR-CE1528	Compression Jig Assembly BS, to test 70,7 mm mortar cubes	---	15x13x19	9

HYDRAULIC FLEXURAL-COMPRESSION-TENSILE TESTING MACHINE

Hydraulic Flexural-Compression-Tensile Testing Machine is used in 3-point and 4-point Flexural Tests, Compression and Tensile tests of different construction materials.

It is produced with a capacity of 100 kN.

With the help of the jaws on the upper part of the device, it allows Tensile tests of cylinder and flat materials with diameters between 0-8 mm.

3-point and 4-point Flexural Tests can be performed by using the Flexural Testing Assembly for Concrete Beams at the bottom of the device.

Compression tests also can be performed by using the Upper Platen (with ball seating assembly) and Lower platen.

The speed range can be adjusted manually or automatically.

Supplied with Automatic Hydraulic Power Pack and Digital Data Acquisition & Control System.

A displacement sensor is used to measure the elongation in tensile tests.

Load Cell is used for load measurements in flexural and compression tests.

HİRA Flexural-Compression-Tensile Software is provided free of charge with the device.

Flexural Testing Assembly for Concrete Beams should be ordered separately.

Upper Platen (with ball seating assembly) and Lower platen should be ordered separately.

HR-H0200

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-H0200	Hydraulic Flexural-Compression-Tensile Testing Machine	105x100x230	370	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Power Supply
HR-H0200/1	Hydraulic Flexural-Compression-Tensile Testing Frame	---
HR-G0982	Load Cell, 100 kN capacity	---
HR-H7000	Hydraulic Power Pack and Digital Data Acquisition & Control System	220 V, 50-60 Hz, 1 ph
HR-H7000/1	Software	---
HR-G0975	Computer & Printer	220 V, 50-60 Hz, 1 ph
HR-H0200/2	Jaws for tensile tests	---
HR-C5050	Flexural Testing Assembly for Concrete Beams	---
HR-H0200/3	Upper Platen (with ball seating assembly)	---
HR-H0200/4	Lower platen	---

HYDRAULIC COMPRESSION-TENSILE TESTING MACHINE

Hydraulic Compression-Tensile Testing Machine is used in Compression and Tensile tests of different construction materials.

It is produced with a capacity of 100 kN.

With the help of the jaws on the upper part of the device, it allows tensile tests of cylindrical and flat materials with diameters between 0-8 mm, while compression tests also performed by using the Upper Platen (with ball seating assembly) and Lower platen in the area at the bottom of the device.

Supplied with Semi-Automatic (Motorized) Hydraulic Power Pack and Digital Readout Unit.

Load can be seen from the digital display on the device and the loading speed can be adjusted manually from the potentiometer on the device.

HR-H0100

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-H0100	Hydraulic Compression-Tensile Testing Machine	100x55x145	270	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Power Supply
HR-H0100/1	Hydraulic Compression-Tensile Testing Frame	---
HR-G0982	Load Cell, 100 kN capacity	---
HR-H8000	Semi-Automatic (Motorized) Hydraulic Power Pack and Digital Readout Unit	220 V, 50-60 Hz, 1 ph
HR-H0100/2	Jaws for tensile tests	---
HR-H0100/3	Upper Platen (with ball seating assembly)	---
HR-H0100/4	Lower platen	---

PAN TYPE CONCRETE MIXERS


HR-C0800

The efficient mixing of concrete is essential if quality specimens are to be manufactured. Pan type mixers are suitable for the mixing in small quantities of concrete in the laboratory.

The mixers are designed to give efficient mixing of both dry and wet materials. The mixing pan is removable and tilts for easy access to the pan and emptying on completion of the mixing operation.

The total volume of the pan is 100 liters but the effective capacity of the mixer is 56 liters.

The mixer head lifts clear to provide maximum access to the pan and holds the mixing blades at a constant depth during the mixing operation. The blades can be adjusted to suit the different types and volume of materials to be mixed.

Double Engine Models enable more homogeneous mixtures to be prepared in a shorter time than Single-Engine Models. It has a second motor that rotates the mixing paddles in the opposite direction to the pan-type hopper rotation direction.

The speed of the Pan can be adjusted with the Double Engine, Frequency Controlled (Pan speed controlled) Models.

The speed of the Pan and Mixing Blade can be adjusted with the Double Engine, Frequency Controlled (Pan and Mixing Blade speed controlled) Models.

The pan type mixers are also equipped with rubber wheels which provide high portability. All parts of the IP55 protected mixer are noncorrosive painted and galvanized.

Trolley for Concrete Mixer Pan is available as optional and should be ordered separately. Extra pan is not included to the Trolley and should be ordered separately.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C0800	Pan Type Concrete Mixer	93x97x122	245	380 V, 50-60 Hz, 3 ph
HR-C0805/50 Hz	Pan Type Concrete Mixer	93x97x122	245	220 V, 50 Hz, 1 ph
HR-C0805/60 Hz	Pan Type Concrete Mixer	93x97x122	245	220 V, 60 Hz, 1 ph
HR-C0810	Pan Type Concrete Mixer, Double Engine	100x100x135	260	380 V, 50-60 Hz, 3 ph
HR-C0810/50Hz	Pan Type Concrete Mixer, Double Engine	100x100x135	260	220 V, 50 Hz, 1 ph
HR-C0810/60Hz	Pan Type Concrete Mixer, Double Engine	100x100x135	260	220 V, 60 Hz, 1 ph
HR-C0815	Pan Type Concrete Mixer, Double Engine, Pan speed controlled	100x100x135	260	220 V, 50-60 Hz, 1 ph
HR-C0820	Pan Type Concrete Mixer, Double Engine, Pan and Blade speed controlled	100x100x135	260	220 V, 50-60 Hz, 1 ph


HR-C0810


HR-C0810


HR-C0800

HR-C0800/1

HR-C0800/2

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0800/1	Spare Mixer Pan	64x64x39	60
HR-C0800/2	Trolley for Mixer Pan	80x138x138	40

DRUM TYPE CONCRETE MIXERS

The efficient mixing of concrete, plaster and mosaic.

The drum type mixers are equipped with rubber wheels which provide high portability.

HR-C0825

Technical Specifications:

Product Code	Product Name	Capacity (lt)	Mixing Cap. (lt)	Capacity (per hour)	Power	Dimensions (cm)	Weight (kg)
HR-C0825	Drum Type Concrete Mixer	125	100	1.0-2.0	220 V / 0,7 kW	102x67x115	39
HR-C0826	Drum Type Concrete Mixer	140	120	1.3-2.6	220 V / 0,7 kW	117x66x124	56
HR-C0827	Drum Type Concrete Mixer	160	140	1.4-2.8	220 V / 0,7 kW	123x73x129	65
HR-C0828	Drum Type Concrete Mixer	180	160	1.4-2.8	220 V / 0,7 kW	123x73x129	67

V-FUNNEL

STANDARDS: EN 12350-9

The apparatus is used to evaluate the segregation resistance of freshly mixed self-compacting concrete by the observation the flowing speed due to the difference of samples remaining period in the funnel.

The test is not suitable when the maximum size of the aggregate exceeds 22.4 mm.

The test set consists of a stainless steel funnel placed vertically on a supporting stand.

The discharge orifice is equipped with a lid, which can be momentarily opened.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0835	V-Funnel	55x30x104	18

HR-C0835

U-BOX

STANDARDS: UNI 11044

The U Shape Box is used to determine the confined flow ability and the capacity of SCC concrete to flow within confined spaces.

The U box is made of stainless steel consisting of three Ø12 mm rebars.

The U box is mounted on a frame with a fixing mechanism.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0837	U-Box	65x65x110	20

HR-C0837

L-BOX

STANDARDS: EN 12350-10

The L Shape Box is used for evaluation of self-compact ability (confined flow ability) of freshly mixed self-compacting concrete.

The box gives the opportunity to evaluate different properties, such as filling ability, passing ability and resistance to segregation.

L Shape Box is designed for ease of cleaning the vertical and horizontal hoppers.

The distance between 12 mm diameter bars can be set between 41 ±1 mm or 59 ±1 mm.

The L Shape Box Apparatus is supplied complete with Filling Hopper and Base.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0836	L-Box	30x100x135	35

HR-C0836

J-RING

STANDARDS: EN 12350-12

The J-Ring Test is used for determining the passing ability, the flow spread and the t flow time of self-compacting concrete 500J as the concrete flows through the J-Ring Apparatus.

J-Ring Narrow Gap with Ø 18 mm x 16 smooth bars is manufactured from stainless steel.

J-Ring Wide Gap with Ø 18 mm x 12 smooth bars is manufactured from stainless steel.

Base Plate is 900x900x3 mm square, made of stainless steel with engraved circles of Ø200 mm and Ø500 mm conforming to EN 12350-8.

Slump Cone is made from sheet steel protected against corrosion, with; top Ø100 mm, base Ø200 mm and with a height of 300 mm.

Steel weighted collar is used to stabilize the slump cone on J-Ring or slump flow tests.

J-Ring Narrow Gap Test Set is supplied with J-Ring with J-Ring Narrow Gap, Slump Cone and Base Plate.

J-Ring Wide Gap Test Set is supplied with J-Ring with J-Ring wide Gap, Slump Cone and Base Plate.

Steel weighted collar should be ordered separately.

HR-C0838

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0838	J-Ring Narrow Gap Test Set	90x90x30	32
HR-C0839	J-Ring Wide Gap Test Set	90x90x30	32
HR-C0838/1	J-Ring Narrow Gap	35x35x14	10
HR-C0839/1	J-Ring Wide Gap	35x35x14	10
HR-C0838/2	Base Plate	90x90x0,3	20
HR-C0838/3	Steel Weighted Collar	25x25x5	9
HR-C0850/1	Slump Cone	10x20x30	2

FILL BOX APPARATUS (KAJIMA TEST)

Fill Box Apparatus is used to measure the filling ability of self-compacting concrete with a maximum aggregate size of 20 mm.

The apparatus consists of a container (transparent) with a flat and smooth surface.

In the box, there are 35 pieces of obstacles made of PVC material with a diameter of 20 mm and a distance of 50 mm from the center to the center. At the top of the box, there is a filling pipe with a diameter of 100mm and a height of 500mm for filling material. There is a funnel with a height of 100 mm on the pipe.

HR-C0842

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0842	Fill Box Apparatus	50x30x90	5

SLUMP TEST SET

STANDARDS: EN 12350–2

The Slump test method is used for the determination of the consistency, the medium and high workability of fresh concrete.

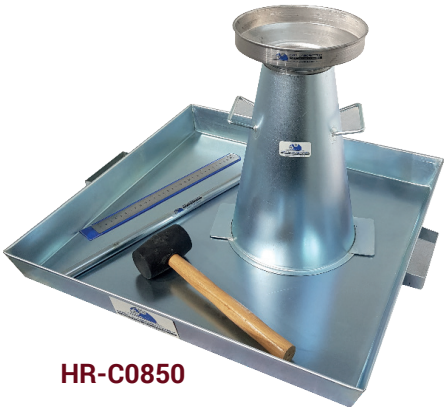
Slump Test Set is supplied either galvanized or paint coated to prevent corrosion.

Stainless Steel Slump Test Set is also available.

The set consists of Slump Cone, Slump Cone Funnel, Slump Base Plate, Tamping Rod which is hemispherical at both ends, Rubber Mallet and Steel Ruler.

Round Scoop should be ordered separately.

Portable Slump Test Set is also available.



HR-C0850

The Test consist of Slump Cone, Slump Cone Funnel, Slump Base Plate, Tamping Rod which is hemispherical at both ends, Rubber Mallet and Steel Ruler.

Base, manufactured from heavy duty galvanized steel, complete with clamps and measuring bridge which is also used as carrying handle.

HR-G0621

The components of the set are fitted together for easy carrying. Very practical, robust, ideal for site use.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0850	Slump Test Set	55x60x25	7,5
HR-C0860	Slump Test Set, Stainless Steel	55x60x25	8,5
HR-C0865	Portable Slump Test Set	55x60x25	10

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0850/1	Slump Cone	10x20x30	2
HR-C0850/2	Slump Cone Funnel	---	---
HR-C0850/3	Slump Base Plate	50x50x6	3
HR-G0763	Tamping Rod	Ø 1,6 x 60	0,950
HR-G0748	Rubber Mallet	---	---
HR-G0476	Steel Ruler	30	---
HR-G0621	Round Scoop, Medium	---	0,5

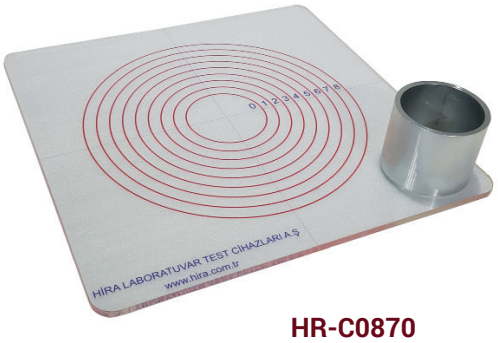
HR-C0865

GLASS REINFORCED CONCRETE SLUMP TESTER

Glass Reinforced Concrete Slump Tester is used for the determination of the slump value of cement slurry.

The dry tube is placed on the target plate coincident with the innermost ring and is then completely filled with slurry under test.

The tube is then lifted vertically off the plate by hand thereby allowing the slurry to flow over the target area of concentric circles. The slump value is given by the extent of flow of the slurry and is expressed on the scale 0-8.



HR-C0870

Technical Specifications:

Product Code	Product Name
HR-C0870	Glass Reinforced Concrete Slump Tester

SLUMP FLOW OF SELF-CONSOLIDATING CONCRETE

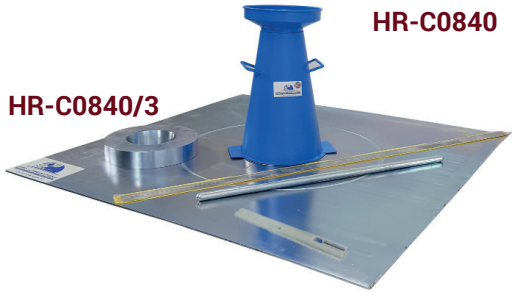
STANDARDS:ASTM C 1611

This test starts like a standard slump test, although many testing technicians will turn the cone upside down to make it easier to fill. When the cone is lifted, the SCC spreads out like pancake batter. The slump flow is measured as the diameter of the pancake.

Typical SCC mixes have slump flows ranging from 18 to 30 inches.

The Test Set is supplied with Steel Slump Cone, Strike-off bar, Tamping Rod and Base plate, 36" dia.

Steel Weighted Collar is optional and should be ordered separately.



HR-C0840

HR-C0840/3

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0850/1	Slump Cone	10x20x30	2
HR-C0840/1	Strike-off Bar	30	---
HR-C0840/2	Base Plate	90,5x90,5	5
HR-G0763	Tamping Rod	Ø 1,6 x 60	0,950
HR-C0840/3	Steel Weighted Collar	---	9

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0840	Slump Flow of Self-Consolidating Concrete	92x92x30	7,5

COMPACTING FACTOR APPARATUS

STANDARDS: BS 5075, 1881:103

The Compacting Factor Apparatus is used to determine the compaction factor of concrete with low, medium and high workability.

The apparatus consists of two conical hoppers mounted on a cylinder. Each hopper has a hinged flange with quick release mechanism and everything is mounted on a rigid steel stand.

The compacting factor is the ratio between the weight of the partially compacted concrete and the weight of the fully compacted concrete.

HR-C0896

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0896	Compacting Factor Apparatus	30x40x130	40

Spare Parts & Accessories:

Product Code	Product Name
HR-C0896/1	2 pcs Funnel, for HR-C0896
HR-C0896/2	Cylindrical Receiver for HR-C0896

VEBE CONSISTOMETER

STANDARDS: EN 12350–3, ASTM C1170, ASTM C1176

The method is a mechanized variation of the slump test and includes determination of workability of fresh concrete by performing vibration to concrete after removal of the slump cone.

The assembly is mounted upon a small vibrating table operating at a fixed amplitude and frequency.

The time to complete the required vibration gives an indication of the concrete workability.

HR-C0875 is complying with EN 12350-3 for Determining the Consistency of Fresh Concrete by means of the Vebe time. The set consists of Vibrating Consistometer, Cylindrical Bucket, Slump Cone, Graduated Rod with Transparent Plate with filling funnel and Tamping Rod.

HR-C0880 is complying with ASTM C 1170 for Determining Consistency and Density of Roller-Compacted Concrete. The set consists of Vibrating Consistometer, Cylindrical Bucket, Swivel Arm with Guide Sleeve with 50 lb Surcharge Weight and Tamping Rod.

HR-C0882 is complying with ASTM C 1176 for Making Roller-Compacted Concrete in Cylinder Moulds. The set consists of Vibrating Consistometer, Cylindrical Bucket, Swivel Arm with Guide Sleeve with 20 lb Surcharge Weight and Tamping Rod. Mould is not included.

HR-C0875

Technical Specifications:

Product Code	Product Name	Standard	Dimensions (cm)	Weight (kg)	Power Supply
HR-C0875	Vebe Consistometer Test Set	EN 12350–3	26x38x71	53	220 V, 50 Hz, 1 ph
HR-C0875/60Hz	Vebe Consistometer Test Set	EN 12350–3	26x38x71	53	220 V, 60 Hz, 1 ph
HR-C0880	Vebe Consistometer Test Set	ASTM C1170	26x38x71	53	220 V, 50 Hz, 1 ph
HR-C0880/60Hz	Vebe Consistometer Test Set	ASTM C1170	26x38x71	53	220 V, 60 Hz, 1 ph
HR-C0885	Vebe Consistometer Test Set	ASTM C1176	26x38x71	53	220 V, 50 Hz, 1 ph
HR-C0885/60Hz	Vebe Consistometer Test Set	ASTM C1176	26x38x71	53	220 V, 60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Standard	Dimensions (cm)	Weight (kg)	Power Supply
HR-C0850/1	Slump Cone	EN 12350–3	10x20x30	2	---
HR-C0875/1	Graduated Rod with Transparent Plate	EN 12350–3	Ø23 x 1	2,75	---
HR-C0880/1	50 lb Surcharge Weight	ASTM C1170	---	22,7±0,5	---
HR-C0885/1	20 lb Surcharge Weight	ASTM C1176	---	9,1±0,25	---
HR-C0876	Vibrating Consistometer	EN 12350-3, ASTM C1170, C1176	26x38x71	45	220 V, 50 Hz, 1 ph
HR-C0876/60Hz	Vibrating Consistometer	EN 12350-3, ASTM C1170, C1176	26x38x71	45	220 V, 60 Hz, 1 ph
HR-C0877	Cylindrical Bucket	EN 12350-3, ASTM C1170, C1176	Ø24 x 20	7,5	---
HR-G0763	Tamping Rod	EN 12350-3, ASTM C1170, C1176	Ø 1,6 x 60	0,950	---

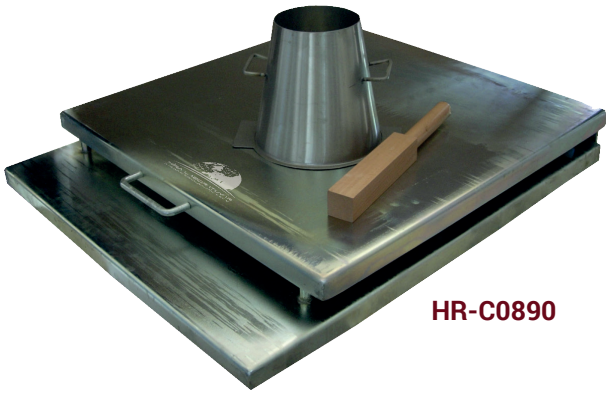
FLOW TABLE

STANDARDS: EN 12350-5

The test set is used for concrete mixes of high workability. The test determines flow index as an arithmetic mean of the diameter of the specimen after working on a flow table.

The apparatus consists of a double steel table, the upper table measuring 700x700 mm and hinged at one side to the lower table. The top table is inscribed and all parts are protected against corrosion. The stainless steel cone has a top Ø130 mm, base Ø200 mm, 200 mm high and 1.5 mm thickness. Dimension of wooden tamper is 40x40x200 mm and its holder is 120 mm.

Supplied complete with Flow Cone and Wooden Tamper.



HR-C0890

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0890	Flow Table Test Set	70x85x30	37

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0890/1	Flow Table	70x70	32,5
HR-C0890/2	Flow Cone	Ø13×Ø 20×20	4
HR-C0890/3	Wooden Tamper	4x4x32	0,5

K-SLUMP TESTER

STANDARDS: ASTM C1362

K-Slump Tester is used to determine the degree of compaction and the workability of fresh concrete.

The apparatus can be used for in-place measurements of concrete in test moulds and forms and may be correlated to the standard slump test.

It is simple, economical to use and reduces testing time.

No special calibration is required.

HR-C0940

Technical Specifications:

Product Code	Product Name	Weight (g)
HR-C0940	K-Slump Tester	500

KELLY BALL APPARATUS

STANDARDS: ASTM C360

Kelly Ball Apparatus is used to determine the workability of fresh concrete.

HR-C0945

The Kelly Ball Test is an alternative to the slump test. The simple and inexpensive test can be quickly performed on in-place concrete and the results can be correlated to slump.

Kelly Ball Apparatus consists of a Ø 6" (152 mm) ball which slides through a frame that rests on the fresh concrete. The ball is lowered into the concrete and the penetration measured.

It can be used on site or in laboratory.

Cadmium plated for rust protection.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0945	Kelly Ball Apparatus	36x16x36	15

WALTZ CONSISTOMETER

STANDARDS: EN 12350-4

To measure the consistency of fresh concrete.

Degree of Compactability (Waltz) Container, made of metal, 1.5mm thickness, 200x200 mm base, 400 mm height, square prism container with two carrying handles.

Painted for rust protection.

HR-C0895

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0895	Waltz Container	30x20x40	6

CONCRETE PENETROMETER

STANDARDS: ASTM C403, AASHTO T197

Used to determine the setting time of the mortar fraction in concrete mixes with slump greater than zero, by testing mortar sieved from mix.

The apparatus consists of a spring penetrometer (capacity 100 kgf, precision 1 kgf) and six interchangeable stainless steel needle pointers of 16-32-65-160-325-650 mm² area.

Penetrometer with the handle, barrel and spring-reaction plunger, graduated 10 N to 981 N (1 to 100 kgf).

A sliding ring indicates the reached load on the handle of the penetrometer.

Supplied complete with carrying case.

HR-C0900

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0900	Concrete Proctor Penetrometer	55x25x7	4

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0900/1	Penetrometer Needle Set	---	---
HR-C0900/2	Carrying Case	55x25x7	1

CONCRETE POCKET PENETROMETER

STANDARDS: ASTM C403, AASHTO T197

Used for the evaluation of the initial set of the concrete mortar for field and laboratory use.

The penetration plunger has a tip area of 32 sq/mm. The plunger graduated 0,5 MPa.

HR-C0905

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0905	Concrete Pocket Penetrometer	2,5x1,5x21	0,400

AIR ENTRAINMENT METER

STANDARDS: EN 12350–7, ASTM C231 TYPE B, AASTHO T152

The apparatus is used to determine air content of fresh concrete.

It consists of an aluminum cylindrical vessel with airtight cover assembly incorporating an air pump, a precision pressure gauge 90 mm dia. and valves.

Capacity is 7 lt and Air content range is 0 - 100%.

Lightweight, compact and durable, this meter allows quick clamping system and testing with few pump strokes.

It is not affected by change in atmospheric pressures.

The meter measures up to 22% entrained air.

Direct pressure gauge reading to the nearest 0.1% up to 6%, 0.2% from 6 to 8% and 0.5% from 8 to 10%.

The container can be used also for unit weight measures of fresh concrete and aggregates.

The instrument can be calibrated and it is supplied complete with Tamping Rod and Straight Edge.

Carrying Case should be ordered separately.

HR-C0915

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0915	Air Entrainment Meter, B Type	25x26x52	10

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0915/1	Manometer	11x14x5	0,700
HR-C0915/2	Tamping Rod	Ø 1,6x60	0,95
HR-C0915/3	Straight Edge	30x3x0,3	0,200
HR-C0915/4	Carrying Case	30x31x62	6

UNIT WEIGHT MEASURES

STANDARDS: EN 12350-6, ASTM C29, C138

Unit Weight Measures are used to determine the weight per cubic meter of freshly mixed and compacted concrete.

Manufactured from heavy gauge steel complying with the related standard.

Available in 3, 7, 10, 15 and 30 liter capacity models according to the requirements of different standards.

Coated against corrosion.

Technical Specifications:

Product Code	Product Name	Capacity (lt)	Dimensions (cm)	Weight (kg)
HR-C0930	Unit Weight Measure	3	15x20x20	3
HR-C0931	Unit Weight Measure	7	25x18x25	5
HR-C0932	Unit Weight Measure	10	25x20x30	9
HR-C0933	Unit Weight Measure	15	25x30x32	13
HR-C0934	Unit Weight Measure	30	30x36x42	16

SPECIFIC GRAVITY FRAME (BOUYANCY BALANCE SYSTEM)

STANDARDS: EN 1097-6, 12390-7

Used in conjunction with a suitable electronic balance for specific gravity determination of fresh and hardened concrete and aggregates.

To be used with a suitable electronic balance fitted with an under –hook facility.

The lower part of the frame incorporates a moving platform, which carries the water tank allowing the test specimens to be weighed in both air and water.

The balance is not included in the test set and must be ordered separately. Any type of electronic balance fitted with under-bench weighing facility can be used.

Specific Gravity Test Set complete with Specific Gravity Frame, Density Basket, Cradle and Density Tank.

HR-C0500

HR-C0500/2

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0500/1	Specific Gravity Frame	40x50x98	25
HR-C0500/2	Cradle	23x13x20	2,5
HR-C0500/3	Density Tank	28x38x30	0,300
HR-C0500/4	Density Tank	40x40x30	0,350
HR-G4040	Density Basket, 2 mm	Ø20x20	1,5

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-C0500	Specific Gravity Test Set	40x50x98	25

THERMOMETER, K-TYPE THERMOCOUPLE

Thermometers are used for monitoring of temperature development of mass concrete. The number of measurement points for connectors and the cable length needed for each measurement point should be indicated.

HR-C0950, HR-C0951, HR-C0952, HR-C0953 Models are supplied with 9V battery and User Manual, HR-C0954 Model is supplied with Lithium-Ion battery, Transport case and User Manual and HR-C0955 Model Temperature Datalogger is supplied with Software, Batteries, Transport case and User Manual. Usb cable for PC Connection and SD card should be ordered separately.

HR-C0955 Model Temperature Datalogger can measure the temperature of four different measurement points simultaneously. It also has a super-size memory for up to 2 Million readings; This gives you the freedom to read out the logger data at longer intervals, even when measuring cycles are shorter. An exceptionally wide measurement range and is compatible with a number of different thermocouple elements making it ideal for professional use in a variety of different fields. Battery life is 8 years at 15 min. measuring rate. Measuring rate is 1 s to 24 h (freely selectable, for online measurement 2 s to 24 h).

K Type Temperature Probe is Ø5 mm x 40 cm. Should be used with a K Type Digital Thermometer. It has 1 meter spiral cable. Working Temperature is -30°C +600°C. Total length is 53 cm.

K Type Temperature Probe, K-Type Thermocouple Cable and Connector should be ordered separately.

HR-C0951

Spare Parts & Accessories:

Product Code	Product Name
HR-C0950/1	K Type Temperature Probe
HR-C0960	K-Type Thermocouple Cable, 1 meter.
HR-C0961	Connector
HR-C0955/1	Usb cable for HR-C0955
HR-C0955/2	SD Card for HR-C0955

Technical Specifications:

Product Code	Product Name	Channel Capacity	Measuring Range (°C)	Accuracy (°C)	Resolution (°C)	Dimensions (cm)	Weight (kg)
HR-C0950	Digital Thermometer	1	-50 + 1300	±1	1	15x7x3,5	0,400
HR-C0951	Digital Thermometer	1	-200 + 1300	±1.1 or ±0.4 % of reading value	0.1	15x7x3,5	0,190
HR-C0952	Digital Thermometer	2	-50 + 400	±0,1	±0,1	14,9x7,1x4,1	0,300
HR-C0953	Digital Thermometer	2	-200 + 1300	±1.1 or ±0.4% of reading value	0.1	15x7x3,5	0,190
HR-C0954	Digital Thermometer	4	-200 + 1300	From -200 to 0; ±0.4 ±0.3 % of reading From 0 to 1300; ±0.4	0.1	21x11x6	0,485
HR-C0955	Temperature Datalogger	4	-195 + 1000	±1 % of mv (-195 to -100.1 °C) ±0.3 °C (-100 to +70 °C) ±0.5 % of mv (+70.1 to +1000 °C)	0.1	10,3x6,3x3,3	0,230

HR-C0953

HR-C0954

HR-C0952

HR-C0950

HR-C0955

HR-C0955/1

HR-C0955/2

HR-C0950/1

HR-C0961

HR-C0960 with HR-C0961

CUBE MOULDS

STANDARDS: EN 12390-1, ASTM C39, C192

Hard plastic or steel cube moulds are manufactured in accordance with dimensions and tolerances stated in the related standards.

Plastic Moulds; one-piece moulds, made from hard Plastic, strong, light, under formable; resistant to vibration shocks and wear, don't require mounting and dismounting operations, thus saving time and labour.

Stopper for Plastic moulds are available and should be ordered separately.

The specimen is expelled from the mould by compressed air or water. They just require a simple clean and demould oiling before being ready for use again for many times.

Steel Moulds are extremely sturdy and the inside surfaces are accurately machined.

HR-C0706

HR-C0700

HR-C0704

Technical Specifications:

Product Code	Product Name	Int. Dimensions (cm)	Ext. Dimensions (cm)	Weight (kg)
HR-C0700	Plastic Cube Mould, Two gang	10x10x10	26x12x12	2
HR-C0702	Steel Cube Mould	10x10x10	27x27x12	7
HR-C0704	Plastic Cube Mould	15x15x15	22x22x18	2,2
HR-C0706	Poliethylene Cube Mould	15x15x15	22x22x18	2,2
HR-C0710	Steel Cube Mould	15x15x15	30x21x16	16,2
HR-C0712	Steel Cube Mould	20x20x20	33x27x22	20,2

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-G0763	Tamping Rod	Ø 16x600	0,950
HR-C0765	Tamping Bar	25x25x380	2
HR-C0715	Tong for Cube Mould	140x900x50	2,5
HR-C0720	Demoulding Oil	---	---
HR-C0721	Stopper	---	---

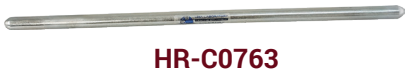
HR-C0715

HR-C0702

HR-C0710

HR-C0712

HR-C0765



HR-C0763

CYLINDER MOULDS

STANDARDS: EN 12390-1, ASTM C39, C192

Hard plastic, Polyethylene or Steel cylinder moulds are manufactured in accordance to dimensions and tolerances stated in the related standards.

Two part and clamp attached base plate plastic and steel moulds are designed to be durable, resistant and easy to clean.

HR-C0734 HR-C0728

Spare Parts & Accessories:

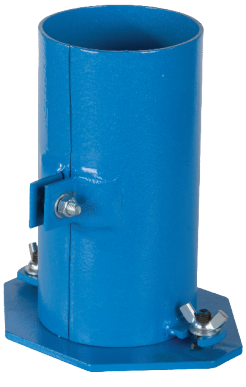
Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-G0763	Tamping Rod	Ø 16x600	0,950
HR-C0765	Tamping Bar	25x25x380	2
HR-C0720	Demoulding Oil	---	---

Technical Specifications:

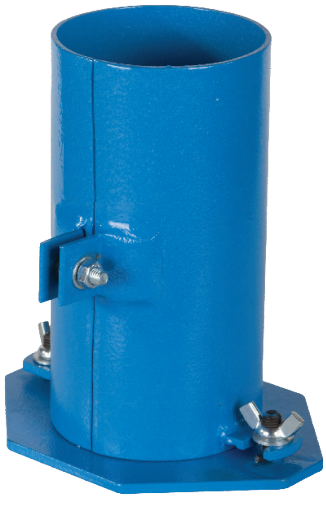
Product Code	Product Name	Int. Dimensions (cm)	Ext. Dimensions (cm)	Weight (kg)
HR-C0725	Plastic Cylinder Mould	10x20	16x16x21	2,6
HR-C0727	Steel Cylinder Mould	10x20	16x16x21	6
HR-C0728	Polyethylene Cylinder Mould	10x20	16x16x21	1,2
HR-C0729	Plastic Body with Steel Plate Cylinder Mould	10x20	16x16x21	0,6
HR-C0731	Plastic Cylinder Mould	15x30	25x25x31	3,7
HR-C0733	Steel Cylinder Mould	15x30	25x25x31	9
HR-C0734	Polyethylene Cylinder Mould	15x30	25x25x31	1,4
HR-C0735	Plastic Body with Steel Plate Cylinder Mould	15x30	20x20x31	1,5
HR-C0738	Steel Cylinder Mould	16x32	26x26x33	11
HR-C0739	Polyethylene Cylinder Mould	16x32	26x26x33	2,4
HR-C0737	Steel Cylinder Mould	25x50	35x35x51	12,5

HR-C0735

HR-C0729



HR-C0727



HR-C0733

HR-C0731 HR-C0725

HR-C0763

HR-C0765

BEAM MOULDS

STANDARDS: EN 12390-1, ASTM C39, C192

Steel beam moulds are manufactured in accordance to dimensions and tolerances stated in the related standards.

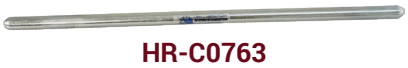
Two part and screwed base plate steel moulds are designed to be durable, resistant and easy to clean.

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-G0763	Tamping Rod	Ø 16x600	0,950
HR-C0765	Tamping Bar	25x25x380	2
HR-C0720	Demoulding Oil	---	---

Technical Specifications:

Product Code	Product Name	Int. Dimensions (cm)	Ext. Dimensions (cm)	Weight (kg)
HR-C0745	Steel Beam Mould	10x10x40	17x15x50	18,5
HR-C0747	Steel Beam Mould	10x10x50	17x15x60	20,5
HR-C0749	Steel Beam Mould	15x15x60	22x22x70	38,5
HR-C0751	Steel Beam Mould	15x15x75	22x22x85	40



VIBRATING TABLE, PORTABLE

STANDARDS: EN 12390–2

Vibrating table suitable for site and laboratory use, it accepts 1 or 2 pieces cube or cylinder moulds can be clamped on the table depending on outer size of the mould to be used.

Lightweight and small sized, it can be handled by one person and easily stored in the car trunk.

Supplied complete with elastic bands to fix the mould to the table.

HR-C0415 is suitable for site use, where no electric supply is available. Complete with connector for the vehicle cigar lighter.

HR-C0416 is Motorised.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C0415	Vibrating Table, Portable	40x30x20	16	DC 12 V
HR-C0416	Motorised Vibrating Table, Portable	40x30x20	16	220 V

VIBRATING TABLE

STANDARDS: EN 12390–2

Used for the compaction of concrete specimens in laboratory, they are manufactured from rugged steel sheet.

Equipped with motor-vibrator having 3000 vibrations-minute, it is possible to vary the vibration intensity by acting on the excentric masses.

All the vibrating tables accept a vibrating motor, command unit and the clamping device.

The clamping device is used to fix the moulds to the table during the vibrating action.

HR-C0420 and HR-C0425 model tables can also be used for beam moulds.

HR-C0420

HR-C0425

HR-C0430

HR-C0435

Technical Specifications:

Product Code	Product Name	Mould Capacity	Dimensions (cm)	Weight (kg)	Power Supply
HR-C0420	Vibrating Table	4	61x38x78	60	220 V, 50 Hz, 1 ph
HR-C0420/60Hz	Vibrating Table	4	61x38x78	60	220 V, 60 Hz, 1 ph
HR-C0425	Vibrating Table	8	62x126x106	130	220 V, 50 Hz, 1 ph
HR-C0425/60Hz	Vibrating Table	8	62x126x106	130	220 V, 60 Hz, 1 ph
HR-C0430	Vibrating Table	10	62x126x106	130	220 V, 50 Hz, 1 ph
HR-C0430/60Hz	Vibrating Table	10	62x126x106	130	220 V, 60 Hz, 1 ph
HR-C0435	Vibrating Table	6	46x68x37	60	220 V, 50 Hz, 1 ph
HR-C0435/60Hz	Vibrating Table	6	46x68x37	60	220 V, 60 Hz, 1 ph

POKER VIBRATOR

STANDARDS: EN 12390-2, ASTM C31, C192

Poker Vibrator is ideal for the international compaction of concrete specimens and a good alternative to traditional tamping bar especially when there are large numbers of specimens to be compacted.

Vibrating Head diameter and Hose height can be also selected upon user's request.

HR-C0401

Technical Specifications:

Product Code	Product Name	Vibrating Head dia. (mm)	Hose Height (m)	Dimensions (cm)	Weight (kg)	Power Supply
HR-C0401	Poker Vibrator	Ø 38	3	16x85x36	15	220 V, 50-60 Hz, 2 ph
HR-C0402	Poker Vibrator	Ø 45	3	16x85x36	15	220 V, 50-60 Hz, 2 ph

CURING TANKS

STANDARDS: EN 12390–2, ASTM C31, C192, C511

Curing Tanks are designed for curing concrete cubes and cylinders.

The temperature can be adjusted and can be kept constant by an electric resistance incorporating a digital thermo regulator which maintains the set temperature between ambient to 40 ºC with ± 2 ºC accuracy.

Supplied complete with Thermostat Controlled Heater, Base Metal Rack and Submersible Circulator Pump.

Cooling Unit is available as optional. Cooling Unit (should be factory installed) should be ordered separately.

Set of Removable Upper Racks, Cover for Curing Tank and Tong for Cube Mould should be ordered separately.

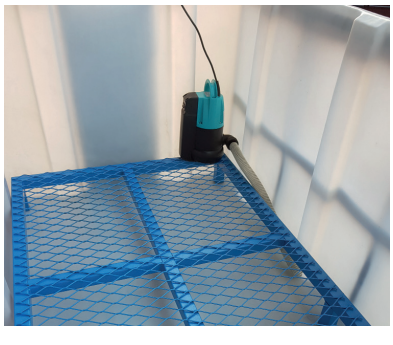
K-Type 4 Channels Datalogger is available as optional. RS 232 Interface and 16000 memory capacity. Resolution is 0,1°C in -200,0°C...+200°C.

HR-C0450

K-Type Thermocouple Cable and Connector should be ordered separately.

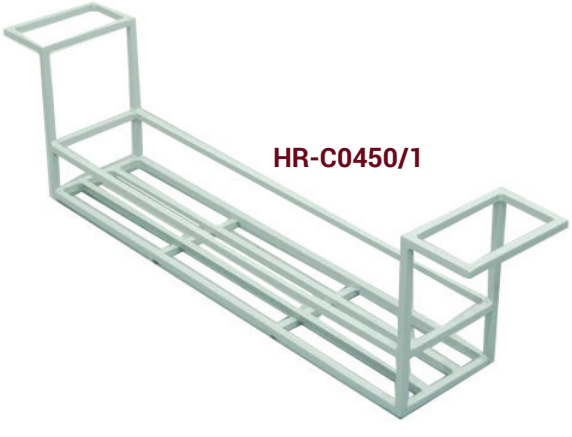
Standard Control Device is available as optional. Standard Control Device has 2 pieces 4 Digit Display, Auto-Tuning (automatic setting of PID parameters), Sensor Fault Detection. Usb to RS 485 Cable is needed an should be ordered seperately.

Advanced Control Device with Datalogger is available as optional. Advanced Control Device has 2 pieces 4 Digit Display, PID Heating/Cooling, Auto-Tuning (automatic setting of PID parameters), Automatic/Manual Operating Modes, Sensor Fault Detection. Datalogger for Advanced Control Device has 5 pieces Isolated Analog Input Channel, USB 1.1 and 2.0 Compatible PC Connection, Unlimited Recording Capacity, Excel, Access, Text, HTML and PDF reporting format.



HR-C0450/1 with HR-C0450/3

HR-C0477



HR-C0450/1

HR-C0475

HR-S5415 with HR-C0450/4

HR-C0450/4 with HR-C0450/5

Technical Specifications:

Product Code	Product Name	Mould Capacity (pieces)		Int. Dimensions (cm)	Weight (kg)	Power Supply
		Cube 15x15 cm	Cylinder Ø 15x30 cm			
HR-C0450	Large Curing Tank, Polyethylene	390	195	100x200x80	130	220 V, 50-60 Hz, 1 ph
HR-C0455	Small Curing Tank, Polyethylene	220	110	80x185x70	90	220 V, 50-60 Hz, 1 ph
HR-C0460	Small Curing Tank, Metal	108	54	77x160x70	95	220 V, 50-60 Hz, 1 ph
HR-C0465	Small Curing Tank, Stainless Steel	108	54	77x160x70	115	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)	Weight (kg)	Power Supply
HR-C0470	Cooling Unit	1000x500x800	90	220 V, 50-60 Hz, 1 ph
HR-C0475	Portable Curing Tank Heater	---	---	220 V, 50-60 Hz, 1 ph
HR-C0477	Portable Heater. 40 cm.	---	---	220 V, 50-60 Hz, 1 ph
HR-C0478	Portable Heater. 60 cm.	---	---	220 V, 50-60 Hz, 1 ph
HR-C0450/1	Set of Removable Upper Racks (6 pcs) for HR-C0450	---	---	---
HR-C0450/2	Curing Tank Heater	---	---	220 V, 50-60 Hz, 1 ph
HR-C0450/3	Circulating Pump	---	---	220 V, 50-60 Hz, 1 ph
HR-C0450/4	Curing Tank Digital Indicator	---	---	220 V, 50-60 Hz, 1 ph
HR-C0450/5	Curing Tank Resistance	---	---	---
HR-C0450/6	Cover for HR-C0450	---	---	---
HR-C0455/1	Cover for HR-C0455	---	---	---
HR-C0460/1	Cover for HR-C0460	---	---	---
HR-C0465/1	Cover for HR-C0465	---	---	---
HR-C0455/2	Set of Removable Upper Racks (6 pcs) for HR-C0455 & HR-C0460 & HR-C0465	---	---	---
HR-C0715	Tong for Cube Mould	140x900x50	2,5	---
HR-C0480	K-Type 4 Channels Datalogger	184x64x30	0,210	1 x 9V AC Adapter
HR-C0960	K-Type Thermocouple Cable, 1 m for HR-C0480	---	---	---
HR-C0961	Connector,1 pcs. for HR-C0480	---	---	---
HR-C0485/1	Advanced Control Device	48x48x108	---	24 V DC
HR-C0485/2	Datalogger for HR-C0485/1	72x112x26	---	---
HR-C0490/1	Standard Control Device	48x48x108	---	24 V DC
HR-C0490/2	Usb to RS 485 Cable for HR-C0490/1	---	---	---
HR-C0490/3	Software for HR-C0490/1	---	---	---

HR-C0460

HR-C0715

ACCELERATED CONCRETE CURING TANK

STANDARDS: ASTM C684, BS 1881:12

Accelerated Concrete Curing Tank has been designed for accelerated concrete strength curing.

HR-C0495

It comprises a fully insulated double wall tank with cover, inside all from stainless steel, outside from steel painted sheet with an intermediate layer of insulating mineral wool and an stainless steel perforated platform for circulation of water and to support the concrete specimes. The tank also has a circulation pump to provide the same water temperature at any point within the tank.

Accelerated Concrete Curing Tank can hold up to 16 pieces 150 mm cube moulds or 16 pieces 150 mm cylinder moulds or 8 pieces 200 mm cube mould. Temperature range; from ambient to 100 °C.

The Digital Control Panel is provided with a Thermoregulator with Timer.

Technical Specifications:

Product Code	Product Name	Mould Capacity (pieces)			Ext. Dimensions (cm)	Weight (kg)	Power Supply
		Cube 15x15 cm	Cylinder Ø 15x30 cm	Cube 20x20 cm			
HR-C0495	Accelerated Concrete Curing Tank	16	16	8	100x75x90	130	220 V, 50-60 Hz, 1 ph

CURING TANK, HEAVY PLASTIC

STANDARDS: EN 12390–2, ASTM C31, C192, C511

Curing Tanks are designed for curing concrete cubes and cylinders.

The temperature can be adjusted and can be kept constant by an electric resistance incorporating an Analog or a Digital thermo regulator which maintains the set temperature between ambient to 40 °C with ± 2 °C accuracy.

Supplied complete with Analog or Digital Thermostat Controlled Heater, Base Metal Rack, Submersible Circulator Pump and cover.

Tong for Cube Mould should be ordered separately.

HR-C0440

Technical Specifications:

Product Code	Product Name	Int. Dimensions (cm)	Ext. Dimensions (cm)	Weight (kg)	Power Supply
HR-C0440	Curing Tank with Analog Heater, Poliethylene	92x111x61	104x124x80	30	220 V, 50-60 Hz, 1 ph
HR-C0445	Curing Tank with Analog Heater, Poliethylene	74x112x65	84x124x84	25	220 V, 50-60 Hz, 1 ph
HR-C0441	Curing Tank with Digital Heater, Poliethylene	92x111x61	104x124x80	30	220 V, 50-60 Hz, 1 ph
HR-C0442	Curing Tank with Digital Heater, Poliethylene	74x112x65	84x124x84	25	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Power Supply
HR-C0477	Analog Thermostat Controlled Heater	220 V, 50-60 Hz, 1 ph
HR-C0450/4	Curing Tank Digital Indicator	220 V, 50-60 Hz, 1 ph
HR-C0450/5	Curing Tank Resistance	---
HR-C0440/1	Set of Removable Upper Racks (6 pcs) for HR-C0440 & HR-C0441	---
HR-C0445/1	Set of Removable Upper Racks (6 pcs) for HR-C0445 & HR-C0442	---
HR-C0450/3	Circulation Pump	---
HR-C0715	Tong for Cube Mould	---
HR-C0440/1	Plastic Cover, for HR-C0440 & HR-C0441	---
HR-C0445/1	Plastic Cover, for HR-C0445 & HR-C0442	---

CLIMATIC CHAMBERS

STANDARDS: EN 1367-1, EN 12390-2, EN 12390-9, EN 196-1

Designed for all research and control laboratories to perform: cold and/or hot temperature measurement at controlled humidity conditions, any kind of freezing/thawing tests, accelerated curing tests.

Climatic Chamber is designed to simulate real climate conditions by controlling and changing temperature, humidity, night and day light cycles. Devices Temperature and humidity control range allows making different kind of tests. Also stability, artificial aging, storage and shelf-life tests can be done with great controlled conditions.

Used to cure concrete (EN 12390-2) and cement specimens (EN 196-1) and analyze the behaviour to freezing and thawing of aggregates (EN 1367-1) and concrete (EN 12390-9).

The inner side of the device is made of stainless steel and outer side is made of electrostatically painted steel for long term of usage.

Shelves can be taken off and adjustable in height; adjustable feet.

The powerful lamps protected by anti-humidity glass cover supplies day light to the samples.

Inner tempered glass door allows user to see the samples without disrupting the settled temperature and humidity values.

High density polyurethane injected between the inner chamber and outer wall for Insulation of the device.

Humidity is supplied with a humidity generator and read from a humidity sensor inside the inner chamber. This allows accurate reading and control on the values.

Temperature is controlled with a PID system. Humidity and cooling systems are controlled proportionally.

Temperature safety is supplied with a safety thermostat.

The device is controlled and run from a touch screen 128x64 pixel LCD screen.

Powerful air circulation provides stabile temperature distribution even in low temperature and humidity settings. This also provides fast recovery time after door is opened and closed again.

It equipped with advanced microprocessor control system.

10 programs can be saved to the system.

The device can be connected to a computer with a RS-232 cable which is supplied optionally.

The gas used for the cooler does not include CFC's.

*Lamp for Lightening is optional and should be ordered separately.

HR-C0220

Technical Specifications:

Product Code	HR-C0215	HR-C0220	HR-C0225
Product Name	Climatic Chamber		
Capacity (lt)	120	250	500
Working Temperature Range without Light	-10 °C / +60 °C		
Working Temperature Range with Light*	0 °C / +60 °C		
Working Temperature Range with Humidity	10 °C / +60 °C		
Working Humidity Range	20% - 95% Rh		
Setting Accuracy Temperature/Humidity	± 0.1 °C / 1 % Rh		
Intensity of Light	12.000 lux		
Lighting Timer	0 - 999 h 59 min + Indefinitely		
Working Humidity Sensitivity	5 % Rh		
Lighting	0-24 hours 2 period lighting on, 2 period lighting off		
Power Supply	220 V, 50-60 Hz, 1 ph		

MANUEL GRINDING MACHINE

STANDARDS FOR CONCRETE SAMPLES: EN 12390-1, 12390-3, ASTM C31, C39, C192, C617
STANDARDS FOR CORE SAMPLES: EN 12390-1, 12390-3, 12504-1, ASTM C39, C42

Manuel Grinding Machine is quickly becoming the chosen alternative to the traditional rubber or Sulphur capping method used by Quality Construction Labs.

Can be used to grind concrete cylinder specimens, rocks, natural stones, tiles, block pavers, ceramic materials etc.

This machine is ideal for commercial testing labs and large producers who need to prepare a lot of cylinders for testing or wait times associated with capping compounds.

Not only is it a safer and healthier option, it also provides a better result in surface finish as well as flatness.

The maximum tolerance on the flatness of the potential load bearing surface (the ends of compression test specimens) is 0.050 mm for concrete samples.

The deviation of perpendicularity of the side, with reference to the end faces is 0,5° for core samples.

The safe and ergonomic design prevents the user to exposure to water and dust and provides easy access to the water inlet and outlet. For a safer usage On-Off switch is cover with waterproof box.

All parts of the device is electrostatically painted steel to prevent corrosion of water and concrete.

The device has locking wheels for easy transport.

Used a high-quality genuine diamond cutting wheel, which is supplied, to produce an accurate, smooth finish. The wheel and device unique design helps to make more grinding with one wheel compare to other grinding machines.

Manuel Grinding Machine can be used for Ø150x300 mm cylinder samples as standard.

Supplied with Diamond Cutting Wheel.

Adaptor for Ø 35 mm to Ø 100 mm core samples should be ordered separately. Adapter can be easily mounted and removed.

HR-C0200

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C0200	Manuel Grinding Machine	80x80x130	90	380 V, 50-60 Hz, 3 ph
HR-C0200/220	Manuel Grinding Machine	80x80x130	90	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name
HR-C0205/1	Diamond Cutting Wheel
HR-C0205/5	Adaptors for Ø 35 mm to Ø 100 mm core samples

AUTOMATIC GRINDING MACHINE

STANDARDS FOR CONCRETE SAMPLES: EN 12390-1, 12390-3, ASTM C31, C39, C192, C617
STANDARDS FOR CORE SAMPLES: EN 12390-1, 12390-3, 12504-1, ASTM C39, C42

Automatic Grinding Machine is quickly becoming the chosen alternative to the traditional rubber or sulphur capping method used by Quality Construction Labs.

Can be used to grind concrete specimens, rocks, natural stones, tiles, block pavers, ceramic materials etc.

This machine is ideal for commercial testing labs and large producers who need to prepare a lot of cylinders for testing or wait times associated with capping compounds.

Not only is it a safer and healthier option, it also provides a better result in surface finish as well as flatness.

The maximum tolerance on the flatness of the potential load bearing surface (the ends of compression test specimens) is 0.050 mm for concrete samples. The deviation of perpendicularity of the side, with reference to the end faces is 0,5° for core samples.

Thanks to the design of the machine the optimum grinding time is only 120-150 seconds and set default time at the factory.

The safe and ergonomic design prevents the user to exposure to water and dust and provides easy access to the water inlet and outlet. Specimen adapters and water restraint panels can easily be installed without the need for any assembly.

All parts of the device is steel to prevent corrosion of water and concrete.

The device has locking wheels for easy transport.

Used a high-quality genuine diamond cutting wheel, wh device unique design helps to make more grinding with one wheel compare to other grinding machines.

In built water spray to clean the device.

Confirms all CE safety standards, including emergency stop, locking mechanism to prevent user accents.

In built drain filter to protect water drainage. Easily removable for cleaning and maintenance.

Adapters of cylinders, cubes and core samples can be easily mounted and removed.

Large base table for grinding contemporaneously up to;

3 pieces 150x300 mm cylinder samples,
3 pieces 100x200 mm cylinder samples,
1 piece 150x150x150 mm cube samples,
3 pieces min. Ø 35 mm, max. Ø 150 mm core samples

or contemporaneously up to;

1 piece 150x300 mm cylinder sample,
1 piece 100x200 mm cylinder sample,
1 piece 150x150x150 mm cylinder sample or
1 piece min. Ø 35 mm, max. Ø 150 mm core sample.

Automatic Grinding Machine can be used for 3 pieces Ø150x300 mm cylinder samples or 1 piece 150 mm cube sample as standard.

Supplied with Diamond Cutting Wheel.

Adaptors for Ø 35 mm to Ø 100 mm core samples should be ordered separately. Adaptors can be easily mounted and removed.

HR-C0205

HR-C0205/2

HİRA TESTING EQUIPMENT

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-C0205	Automatic Grinding Machine	80x140x140	250	380 V, 50-60 Hz, 3 ph
HR-C0205/220	Automatic Grinding Machine	80x140x140	250	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name
HR-C0205/1	Diamond Cutting Wheel
HR-C0205/5	Adaptors for Ø 35 mm to Ø 100 mm core samples

RAPID CHLORIDE PERMEABILITY TESTER

STANDARDS: ASTM C1202, AASHTO T277

Chloride permeability characteristics of concrete can be reliably determined with the Rapid Chloride Permeability Tester.

Rapid Chloride Permeability Tester has 4 channels which independent of each other, 4 channels 16.000 converter for current, 4 channels temperature input and Large Graphic LCD Screen.

The test speed can be adjusted.

Can be monitored the current, voltage, time, temperature and load values over the Large Graphic LCD Screen for each channel as independent.

HR-C4900

60 V constant voltage difference property.

Accuracy is +/-0.1 V, +/-1 ma.

1 channel temperature sensor input for each cell pair.

Independent test start and stop function.

Sound alarm function when starting the experiment and at the end of the experiment.

Test values can be stored to memory and The stored values can be monitored after test.

Rapid Chloride Permeability Tester has 4 pcs. sturdy, transparent cells, temperature sensor for each cell pair, sample connecting Apparatus, Sealing gaskets, voltage supply inputs and different colors inputs for polarities.

Supplied with 4 pcs. Cells, 4 pcs. Supply cable for V(-), 4 pcs. Supply cable for V(+), 4 pcs. Temperature Sensor Connecting cable and device Supply cable.

Ø 150 x 75 mm Cell should be ordered separately.

Technical Specifications:

Product Code	Product Name	Power Supply
HR-C4900	Rapid Chloride Permeability Tester	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name
HR-C4900/1	Transparent Cell
HR-C4900/2	Supply cable for V(-)
HR-C4900/3	Supply cable for V(+)
HR-C4900/4	Temperature Sensor Connecting cable
HR-C4900/5	Supply cable
HR-C4900/6	Ø 150 x 75 mm Cell for HR-C4900

HIGH PRESSURE PERMEABILITY TESTER

STANDARDS: EN 12390-8

Automatic operated High Pressure Permeability Tester is used for the determination of the depth of penetration of water to hardened concrete specimens under pressure.

4,6,12 or 18 specimens capacity.

The system can test 75, 100, 150, 200 mm cube specimens, Ø100x200 mm and Ø150x300 mm cylinder specimens.

Maximum Pressure to the sample is up to 40 bar with 0.1 bar precision.

Impermeability gaskets for every cell and the measurement apparatus are supplied with the device as standard.

Two models are available.

On HR-C0320 Basic Model,
The pressure value in each tube can be adjusted to the same value.

On HR-C0325 Advance Model,
The pressure value in each tube can be adjusted to different values.

HR-C0320

Technical Datas

- Measuring range: 1 - 40 bar
- Universal rubber seals 75 mm and 100, 150, 200 mm dia.
- Electronic controller with high resolution touch screen
- Controlled by a pressure regulator with a pressure gauge with 0,1 bar graduations.
- The test sets with the quantitative measurement equipment of water penetration.
- Manufactured of stainless steel
- 4, 6,12 or 18 capacity models
- Equipped with electric water pump
- Closed water circulation
- 15 lt water tank capacity.

Technical Specifications:

Product Code	Product Name	Specimen Capacity	Dimensions (cm)	Weight (kg)
HR-C0320	High Pressure Permeability Tester, Basic model	4 pieces	75x135x160	130
HR-C0321	High Pressure Permeability Tester, Basic model	6 pieces	75x215x160	140
HR-C0322	High Pressure Permeability Tester, Basic model	12 pieces	75x215x240	325
HR-C0323	High Pressure Permeability Tester, Basic model	18 pieces	75x320x240	565
HR-C0325	High Pressure Permeability Tester, Advance model	4 pieces	75x135x160	130
HR-C0326	High Pressure Permeability Tester, Advance model	6 pieces	75x215x160	140
HR-C0327	High Pressure Permeability Tester, Advance model	12 pieces	75x215x240	325
HR-C0328	High Pressure Permeability Tester, Advance model	18 pieces	75x320x240	565