AUTOMATIC CONCRETE COMPRESSION TESTING MACHINES, WELDED WALL

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

The HİRA Automatic 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 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.

HR-C2000

HR-C3000 WITH 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.

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.

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, Ø 216 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 Ø 150 mm cylinder.

Block Platens with Sliding Rail Assembly

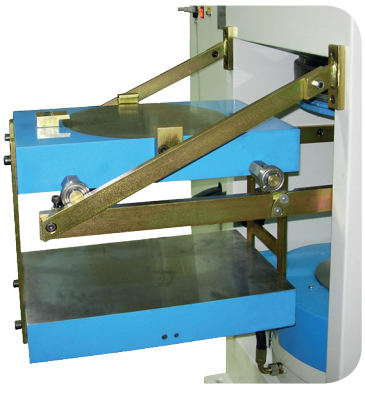
STANDARDS: EN 772-1, 12390-4

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

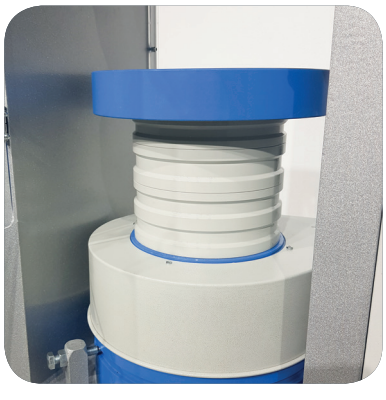
Technical Specifications:

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

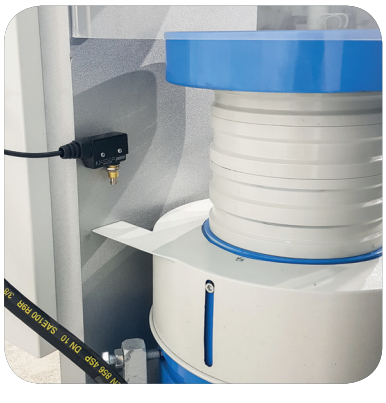
Distance Pieces

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

HR-C8201
HR-C8202
HR-C8203



Product Name	Automatic Compression Testing Machines, Welded Wall							
Product Code	HR-C0600	HR-C0650	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	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

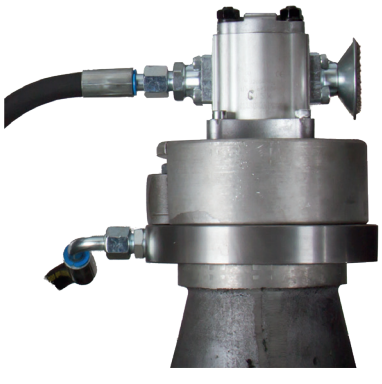
Automatic Hydraulic Power Pack, dual stage, controlled by digital readout unit is designed to supply the required oil to the load frames for loading.

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

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

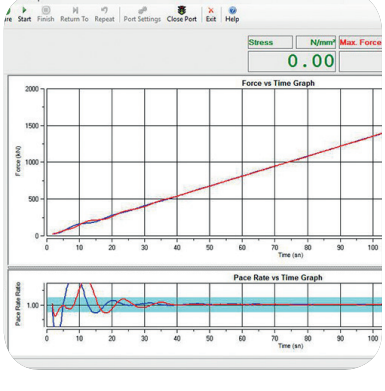
Software

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

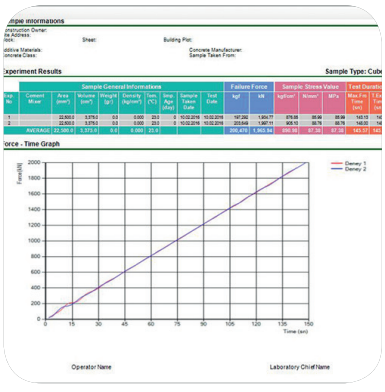
Software can be performed in Turkish and English.

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-C0600	HR-C0650	HR-C1500	HR-C1550	HR-C2000	HR-C2100	HR-C3000	HR-C3100
Standard	EN	ASTM	EN	ASTM	EN	ASTM	EN	ASTM
Capacity (kN)	600	600	1500	1500	2000	2000	3000	3000
Roughness (µm)	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2	≤ 3.2
Ø Lower Platen (mm)	300	165	300	165	300	165	300	165
Ø Upper Platen (mm)	300	165	300	165	300	165	300	165
Max. Vertical clearance (mm)	340	370	340	370	340	370	340	370
Piston diameter (mm)	150	150	230	230	250	250	320	320
Piston Stroke(mm)	50	50	50	50	50	50	50	50
Horizontal clearance (mm)	230	230	320	320	350	350	440	440
Thickness of platens (mm)	50	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	55-60
Oil Capacity (lt)	25	25	25	25	25	25	25	25
Max. Working Pressure (bar)	400	400	400	400	400	400	400	400
Power (W)	750	750	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-C0600	600 kN Automatic Compression Testing Machine, Welded Wall, EN	71x38x91	450	220 V, 50-60 Hz, 1 ph
HR-C0650	600 kN Automatic Compression Testing Machine, Welded Wall, ASTM	71x38x91	400	220 V, 50-60 Hz, 1 ph
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-C0600/1	600 kN Load Frame, Welded Wall, EN	35x30x91	350	---
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-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	---	---	---