



CEMENT

Cement is an inorganic material largely used in the construction industry, both on site and during the production of semi-manufactured products.

By mixing with water, the cement becomes a paste with adhesive properties: for this reason, it is considered a hydraulic binder and properly defined as hydraulic cement. This paste is generally used as a binder with solid inert materials such as sand, gravel and small rocks to produce the mortar and to prepare different types of concrete.

The most important use of cement is the production of concrete and mortar, which are the combination of cement and an aggregate to form a strong building material that is durable in the face of normal environmental effects.



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BLAINE AIR PERMEABILITY APPARATUS

STANDARDS: EN 196-6, ASTM C204, ASSHTO T153

Used to determine the fineness of Portland cement in terms of the specific surface expressed as total surface area in square centimeters per gram of cement.

Supplied complete with a U-Tube Glass Manometer with valve which is fitted to the steel stand, Stainless steel Test Cell with Perforated Disc and Plunger, 250 ml Manometric Liquid, Rubber Aspirator Bulb, 100 pieces Filter Paper Discs and 100 mm Plastic Funnel.

Calibration Sand should be ordered separately.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-CE8000	Blaine Air Permeability Apparatus	30x20x55	7

Spare Parts & Accessories:

Product Code	Product Name
HR-CE8000/1	U-Tube Glass Manometer
HR-CE8000/2	Cell with Perforated Disc and Plunger
HR-CE8000/3	Manometric Liquid, 250 ml
HR-CE8000/4	Rubber Aspirator Bulb
HR-CE8000/5	Filter Paper, Pack of 100
HR-CE8000/6	Filter Paper, Pack of 1000
HR-CE8010/7	Calibration Sand, 2 x 100 ml
HR-G0314	Plastic Funnel, 100 mm



DIGITAL SEMI-AUTOMATIC BLAINE AIR PERMEABILITY APPARATUS

STANDARDS: EN 196-6, ASTM C204, ASSHTO T153

Used to determine the fineness of Portland cement in terms of the specific surface expressed as total surface area in square centimeters per gram of cement.

The Digital Semi-Automatic Blaine Permeability Apparatus has 3 sensors. Can be monitored the test easily thanks to LED screen which works with this 3 sensors.

The device is controlled using a button.

Supplied complete with a U-Tube Glass Manometer, Stainless steel Test Cell with Perforated Disc and Plunger, 250 ml Manometric Liquid and 500 pieces Filter Paper Discs.

Calibration Sand should be ordered separately.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-CE8005	Digital Semi-Automatic Blaine Air Permeability Apparatus	25x25x35	15

Spare Parts & Accessories:

Product Code	Product Name
HR-CE8005/1	U-Tube Glass Manometer
HR-CE8005/2	Cell with Perforated Disc and Plunger
HR-CE8005/3	Manometric Liquid, 250 ml
HR-CE8005/4	Filter Paper, Pack of 500
HR-CE8010/7	Calibration Sand, 2 x 100 ml



AUTOMATIC BLAINE AIR PERMEABILITY APPARATUS

STANDARDS: EN 196-6, ASTM C204, ASSHTO T153

The Automatic Blaine Air Permeability Apparatus is used to determine particle size of powder materials such as portland cement and lime in terms of their specific surface according to the Blaine technique.

The microprocessor-controlled Automatic Blaine Air Permeability Apparatus is with a manometer column operates with 1 or 2 cells.

After enter the specifications of sample to control unit, the device makes the test automatically and post the results to printer.

The device has an interface for a generally commercially available printer.

Supplied complete with U-Tube Glass Manometer, 1 bottle of Filling Oil, 500 pieces Filter Paper Discs, 100 pieces Dust Filter Paper Discs and a tamper.

Calibration Sand should be ordered separately.



HR-CE8010

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-CE8010	Automatic Blaine Air Permeability Apparatus	50x40x45	15	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name
HR-CE8010/1	U-Tube Glass Manometer
HR-CE8010/2	Stainless Steel Cell
HR-CE8010/3	Filling Oil, 1 bottle
HR-CE8010/4	Filter Paper, Pack of 500
HR-CE8010/5	Dust Filter Paper, Pack of 100
HR-CE8010/6	Tamper
HR-CE8010/7	Calibration Sand, 2 x 100 ml

BULK & PACKAGED CEMENT SAMPLER

STANDARDS: EN 196-7, ASTM C183, ASSHTO T127

Bulk Cement Sampler is used to sample cement in bulk storages or shipment. Brass made, it consists of two concentric tubes with slots. Inside tube volume is 3 liters approx.

Packaged Cement Tube Sampler is used to sample cement homogeneously from cement bags.



HR-CE2000

Technical Specifications:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-CE2000	Bulk Cement Sampler	40x1500	5
HR-CE2005	Packaged Cement Tube Sampler	32x1050	3



HR-CE2005

HİRA TESTING EQUIPMENT

BULK DENSITY OF CEMENT

STANDARDS: ASTM C191, ASTM C110

Bulk Density of Cement Apparatus is used for the measurement of the apparent density (bulk density) of powders and non-cohesive materials.

It consists of Sieve Funnel with Tripod, 1 liter capacity Unit Weight Measure, Medium Rigid Spatula, 40 cm Straight Edge and Medium Round Aluminium Scoop.

The discharge hole of the funnel has 8 mm dia.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-CE2100	Bulk Density of Cement Apparatus	35x52	6

Spare Parts & Accessories:

Product Code	Product Name
HR-CE2100/1	Sieve Funnel with Tripod
HR-A0714	Unit Weight Measure, 1 liter
HR-G0706	Rigid Spatula, Medium
HR-S6675	Straight edge. 40 cm
HR-G0621	Round Aluminum Scoop, Medium



HR-CE2100

AIR CONTENT METER

STANDARDS: EN 459-2, EN 413-2, EN 1015-7

These apparatus have been designed to determine the air content in cement mortar, cement paste, and lime mortar.

Made from cast aluminum. The test pot 1 lt capacity and the upper part are air-tight sealed by means of two quick action spring clamps.

The whole is connected to a dial gauge directly indicating the air entrainment in percentage, with range 0 - 10%.

A built-in operated air pump is also included.

The push-buttons TEST and CORRECTION are arranged to perform the test in a simple and quick system.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-CE9020	Air Content Meter	Ø20x32	3,5



HR-CE9020

BULK DENSITY OF LIME

STANDARDS: EN 459-2, DIN 1060

Bulk Density of Lime Apparatus allows a sample to fall from a known height into a volumetric container.

Consisting of a hopper, 1 liter cylindrical container and spring loaded trap.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-CE2125	Bulk Density of Lime Apparatus	15x15x40	5



HR-CE2125

DROPPING BALL APPARATUS

STANDARDS: BS 4551-1, 6463-4

Used to measure the consistency of cement mortars, Dropping Ball Apparatus allows 25 mm diameter acrylic ball to fall freely from a standard height of 250 mm into a specimen of mortar contained into a brass ring mould, and the surface of which has been carefully prepared.

The depth of the ball penetration into the mortar gives the specimen consistency.

The instrument comprises a Dropping Device mounted on a Stand, Acrylic Ball, Ø 100 x 25 mm Mould.

The base of the stand is machined. Chromed finishing.

Ball Penetration Measuring Device should be ordered separately. It formed by a tripod on which a dial gauge 30 x 0,01 mm is mounted. A device to adjust the height of the dial in relation to the tripod is also included. Chromed finishing.

Technical Specifications:

Product Code	Product Name	Weight (kg)
HR-CE2150	Dropping Ball Apparatus	8

Spare Parts & Accessories:

Product Code	Product Name	Weight (kg)
HR-CE2150/1	Stand	---
HR-CE2150/2	Acrylic Ball	---
HR-CE2150/3	Mould, Ø100 x 25 mm	---
HR-CE2150/4	Ball Penetration Measuring Device	1

HR-CE2150



FLOW CONE SET

STANDARDS: EN 445

Used for viscosity and fluidity determinations of mortars, muds, grouts, fluid materials, etc.

The apparatus comprises a metal stand supporting the stainless steel cone having inside dimensions of Ø150 mm inside upper dia. x 280 mm height. When fit with the 10 mm nozzle the total height is 350 mm.

The Flow Cone Set is supplied complete with Cone, Stand Fitting Bush, Ø 150 mm, 1.5 mm opening Sieve, 1 Lt Plastic Beaker and Ø10 mm Nozzle.

It can also be fit with other Ø8, Ø9, Ø11 and Ø13 mm nozzles should be ordered separately.

Technical Specifications:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-CE9030	Flow Cone Set	250x250x600	10

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-CE9030/1	Flow Cone Apparatus	---	---
HR-CE9030/2	Stand and Fitting Bush	---	---
HR-CE9030/3	Sieve, 1.5 mm opening	Ø 150	---
HR-CE9030/4	Ø 8 mm Nozzle	Ø 8	---
HR-CE9030/5	Ø 9 mm Nozzle	Ø 9	---
HR-CE9030/6	Ø 10 mm Nozzle	Ø 10	---
HR-CE9030/7	Ø 11 mm Nozzle	Ø 11	---
HR-CE9030/8	Ø 13 mm Nozzle	Ø 13	---
HR-G0280	Plastic Beaker, 1 Lt	100x100x135	0,2

HR-CE9030

HR-CE9030/4
HR-CE9030/5
HR-CE9030/7
HR-CE9030/8



MUD BALANCE

The mud balance provides a simple, practical method for the accurate determination of mud density.

The item's durable construction makes it ideal for field use.

Its high-impact plastic case protects the balance during transport while providing a secure base for the balance during use.

The mud balance meets all the requirements of the API standard procedures for testing water base drilling fluids, oil base drilling fluids and oil well cements.

The constant volume cup is affixed to one end of the graduate arm and the counter-weight on the opposite end.

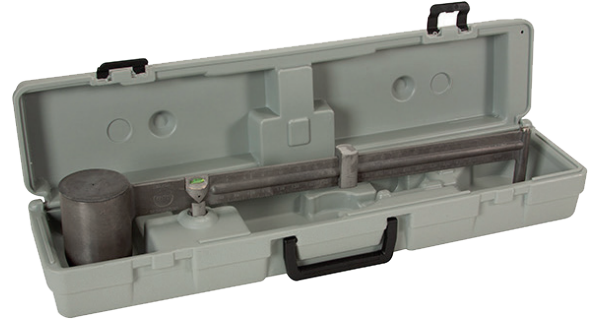
The balance consists of a base and graduated arm with cup, lid, knife edge, rider, built-in spirit level and counter-weight, carrying case.

Technical Specifications:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-CE9050	Mud Balance	550x110x100	1

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-CE9050/1	Carrying Case	550x110x100	1



HR-CE9050

MARSH FUNNEL VISCOMETER SET

STANDARDS: ISO 2431

Utilized for viscosity determination on drilling muds and fluid materials.

Orifice opening 4,7 mm Half part of the funnel mouth is foreseen of sieving cloth 2 mm mesh.

Plastic break-resistant made.

Supplied complete with 1 lt Plastic Measuring Cup.



HR-CE9040

Technical Specifications:

Product Code	Product Name	Top Dia. (mm)	Nozzle Length (mm)	Int. Dia. (mm)	Total Length (mm)	Weight (kg)
HR-CE9040	Marsh Funnel Viscometer Set	150	50	5	355	0,75

Technical Specifications:

Product Code	Product Name	Top Dia. (mm)	Nozzle Length (mm)	Int. Dia. (mm)	Total Length (mm)	Weight (kg)
HR-CE9040/1	Marsh Funnel Viscometer	150	50	5	355	0,5
HR-CE9040/2	Plastic Measuring Cup, 1 lt	---	---	---	---	0,25

VICAT TEST SET

STANDARDS: EN 196-3, 480-2, ASTM C187, C191, AASHTO T129, T131

Used for determination of setting time and consistency of cement by Vicat Method.

The EN Test set consist of a Vicat Frame, EN Vicat Mould, Initial and Final Needles, Consistency Plunger, Glass Plate and Glass Thermometer.

The ASTM Test set consist of a Vicat Frame, ASTM Vicat Mould, ASTM Needle, Consistency Plunger, Glass Plate and Glass Thermometer.

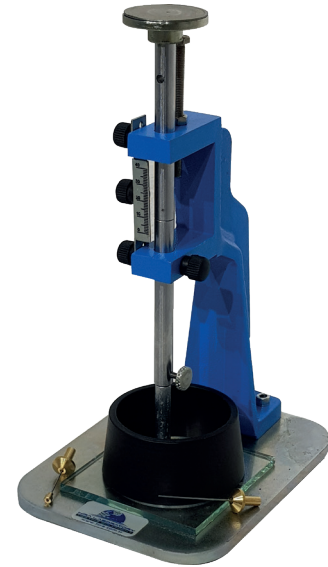
700 g Additional Weight should be ordered separately.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-CE9100	Vicat Test Set, EN	16x20x32	3,5
HR-CE9105	Vicat Test Set, ASTM	16x20x32	3,5

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-CE9100/1	Vicat Frame	160x200x320	2,5
HR-CE9100/2	Vicat Mould, EN	Ø 70/80 x 40	0,3
HR-CE9100/3	Initial Needle, EN	Ø 1,13	0,1
HR-CE9100/4	Final Needle, EN	Ø 1,13	0,1
HR-CE9100/5	Consistency Plunger	Ø 10x50	0,1
HR-CE9100/6	Glass Plate	Ø 120	0,1
HR-CE9100/7	Additional Weight, EN	---	0,700
HR-G0391	Glass Thermometer, max. 110°C	30x30x300	0,1
HR-CE9105/1	Vicat Mould, ASTM	Ø 60/70 x 40	0,3
HR-CE9105/2	Vicat Needle, ASTM	Ø 1	0,1



HR-CE9100

AUTOMATIC VICAT TEST SET

STANDARDS: EN 196-3, 13279-2, 480-2; ASTM C191, C187

Automatic Vicat Apparatus is used for determination of setting time and consistency of cement/mortar/gypsum by Vicat Method.

The Automatic Vicat Apparatus can be programmed up to 4 different test types and can be stored over 50 tests. These test values can be printed from the PC port or transferred to the computer.

It automatically records measurements up to 50 tests and stops automatically.

The penetration measure is read by a sensor with 0,1 mm resolution.

The Automatic Vicat Apparatus has RS 232 serial port for PC connection and Display for data input and graphic/test report.

It has Automatic Needle Cleaning Device and Consistency Plunger.

The EN Test set consist of Automatic Vicat Device, EN Vicat Mould, Initial Needle and Software.

The ASTM Test set consist of Automatic Vicat Device, ASTM Vicat Mould, ASTM Needle and Software.

Thermostatic Bath is available as an optional and should be ordered separately.

Conical penetration needle Ø8x50 mm and 100 g Probe to make gypsum tests following EN, DIN Specifications should be ordered separately.

Other accessories should be ordered separately.

HİRA TESTING EQUIPMENT

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-CE9120	Automatic Vicat Test Set, EN	36x62x58	42	220 V, 50-60 Hz, 1ph
HR-CE9123	Automatic Vicat Test Set, ASTM	36x62x58	42	220 V, 50-60 Hz, 1ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-CE9120/1	Automatic Vicat Apparatus	360x620x580	40
HR-CE9120/2	Vicat Mould, EN	Ø 70/80 x 40	0,3
HR-CE9120/3	Initial Needle, EN	Ø 1,13	0,1
HR-CE9120/4	Final Needle, EN	Ø 1,13	0,1
HR-CE9120/5	Consistency Plunger	Ø 10x50	0,1
HR-CE9120/6	Glass Plate	Ø 120	0,1
HR-CE9120/7	Additional Weight, EN	---	0,700
HR-CE9120/8	Needle Cleaning Device	---	---
HR-CE9123/1	Vicat Mould, ASTM	Ø 60/70 x 40	0,3
HR-CE9123/2	Vicat Needle, ASTM	Ø 1	0,1
HR-CE9120/9	Software	---	---
HR-CE9120/10	Thermostatic Bath	---	---
HR-CE9120/11	Conical Penetration Needle	Ø 8x50	---
HR-CE9120/12	Probe	---	0,1



HR-CE9120

GILLMORE APPARATUS

STANDARDS: ASTM C91, C141, C266, AASHTO T154

Gillmore Apparatus is used to determine the setting time of cement.

Vertical support shaft has a device to maintain the horizontal arms in alignment. Support assembly is adjustable in position. The two steel weights needles are calibrated to meet specifications. Needle points made from stainless steel. The Initial Setting Needle has Ø 2,12 mm and weight of 113 g, while the Final Setting Needle has Ø 1,06 mm and weight of 453,6 g.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-CE2175	Gillmore Apparatus	30x10x30	3

Spare Parts & Accessories:

Product Code	Product Name	Dia. (mm)	Weight (g)
HR-CE2175/1	Initial Setting Needle	2,12	113
HR-CE2175/2	Final Setting Needle	1,06	453,6



HR-CE2175

FLOW CHANNEL TEST APPARATUS (FUNNEL GROOVE)

STANDARDS: EN 13395-2, UNI 8997

Used to determine the consistency of the expansion premixed cement mortars for anchorages, mixed with water, classified of super-fluid type.

Technical Specifications:

Product Code	Product Name	Weight (kg)
HR-CE2200	Funnel Groove	20



HR-CE2200

LE CHATELIER FLASK

STANDARDS: EN 196-6, 450-1, 15617-1, ASTM C110, C128, C188, C989, AASHTO T133

Used to determine the relative density (specific gravity) of hydraulic cement, ground granulated blast-furnace slag and fly ash for concrete, filler aggregates and lime.

The glass flask has a 250ml capacity.

The neck is graduated from 0 to 1 ml and from 18 to 24 ml with divisions of 0,1 ml.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-CE9125	Le Chatelier Flask	10x10x30	0,5

HR-CE9125



LE CHATELIER TEST SET

STANDARDS: EN 196-3, 450-1, 459-2; EN ISO 9597

The soundness of cements and limes is determined using the expansion test with Le Chatelier moulds according to the relevant standard.

The mould consists of a spring tensioned split cylinder $\varnothing 30 \times 30$ mm with two indicator stems which measure 150 mm from the points to the center line of the cylinder and O ring.

The Le Chatelier Test Set is supplied with 3 pieces Le Chatelier Moulds, 6 pieces 50x50 mm Glass Plates, 300 gr Weight, 3 pieces 100 gr Weight, 70 gr Tamping Rod, Steel Ruler and Carrying Case.



HR-CE9135

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)	Weight (g)
HR-CE9135/1	Glass Plate	50x50	50
HR-CE9135/2	300 gr Weight	---	300
HR-CE9135/3	100 gr Weight	---	100
HR-CE9135/4	Tamping Rod	$\varnothing 17$	70
HR-G0476	Steel Ruler	300	10
HR-CE9135/5	Carrying Case	340x290x80	500

Technical Specifications:

Product Code	Product Name	Dimensions (mm)	Weight (g)
HR-CE9130	Le Chatelier Mould	$\varnothing 30 \times 30$	30
HR-CE9135	Le Chatelier Test Set	340x290x80	2000

PAT TEST (SOUNDNESS OF HYDRATED LIME AND GYPSUM PLASTERS)

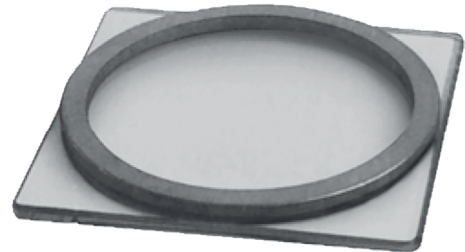
STANDARDS: EN 459-1, BS 1191, BS 890

Utilized for the determination of the soundness of hydrated lime, gypsum and building plasters.

Consisting of a Brass Ring Mould, $\varnothing 100 \times 5$ mm.

The mould has an inside taper of 5° .

Supplied complete with Glass Base Plate. To carry out one test, three moulds are required.



HR-CE2225

Technical Specifications:

Product Code	Product Name
HR-CE2225	Pat Test Apparatus

Spare Parts & Accessories:

Product Code	Product Name
HR-CE2225/1	Brass Ring Mould
HR-CE2225/2	Glass Base Plate

HİRA TESTING EQUIPMENT

LENGTH CHANGE (SHRINKAGE AND EXPANSION)

STANDARDS: EN 12808-4, EN 1367-4, EN 12617-4, ASTM C151, C490

Used to measure the length variations of mortar specimens after autoclave soundness tests.

It also measures the linear shrinkage/expansion of specimens having different dimensions.

The set consists of Length Measuring Frame, Steel Mould according to the related standard, Steel Inserts for mould and Reference Rod. The set is available in three models; with 0,01 mm Analogue Dial Gauge, with 0.01 mm Digital Dial Gauge and with 0.001 mm Digital Dial Gauge.

40x40x160 mm mm Three Gang Mould, complete with steel inserts, used for the determination of linear shrinkage of cement mortar. Made from hardness steel.

25x25x285 mm Two Gang Prism Mould, complete with steel inserts, used for the determination of linear shrinkage of cement mortar.

Length Comparator; the top beam is adjustable to suit the specimen's length.

Analog Dial Indicator; 10 x 0,01 mm division.

Digital Dial Indicator has two alternatives as 12.7 x 0,01 mm or 12.7 x 0,001 mm resolution.

Technical Specifications:

Product Code	Product Name
HR-CE0905/AS	Analog Drying Shrinkage Set with HR-CE9000/T & HR-G0875
HR-CE0915/DS	Digital Drying Shrinkage Set with HR-CE9000/T & HR-G0877
HR-CE0905/DS	Digital Drying Shrinkage Set with HR-CE9000/T & HR-G0879
HR-CE0910/AS	Analog Drying Shrinkage Set with HR-CE9010 & HR-G0875
HR-CE0920/DS	Digital Drying Shrinkage Set with HR-CE9010 & HR-G0877
HR-CE0910/DS	Digital Drying Shrinkage Set with HR-CE9010 & HR-G0879

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-CE9000/T	Three Gang Mould, 40x40x160 mm	300x190x70	12
HR-CE9000/1	Steel Insert for HR-CE9000/T (Pack of 10)	---	---
HR-CE9000/2	Reference Rod, 160 mm	160	---
HR-CE9010	Two Gang Prism Mould, 25x25x285 mm	90x340x40	4
HR-CE9010/1	Steel Insert for HR-CE9010 (Pack of 10)	---	---
HR-CE9010/2	Reference Rod, 305 mm	305	---
HR-A0905	Length Comparator	180x180x450	6
HR-G0875	Analog Dial Indicator, 10 x 0,01 mm	---	---
HR-G0877	Digital Dial Indicator, 12.7 x 0,01 mm	---	---
HR-G0879	Digital Dial Indicator, 12.7 x 0,001 mm	---	---



HR-A0905 with HR-G0877



HR-A0905 with HR-G0875



HR-CE9010 with HR-CE9010/1 & HR-CE9010/2



HR-CE9000/T



HR-CE9010/2



HR-CE9010/1

LE CHATELIER WATER BATH

STANDARDS: EN 196-3, 450-1, 459-2, EN ISO 9597

Constructed with stainless steel inside chamber and exterior case in painted steel sheet, it can hold up to 12 Le Chatelier moulds in the removable rack, supplied with the bath.

The bath reaches the boiling point in approx. 30 minutes.

Now an original device keeps the bath temperature at the boiling point, by avoiding the water evaporation and assuring that Le Chatelier moulds remain covered by the water during all the test execution.

For use with Le Chatelier moulds for the determination of the soundness of cement paste.

Inside of bath is made from stainless steel, complete with a removable rack to hold up to 12 Le Chatelier moulds.

An adjustable digital controller for the immersion heater regulates the water temperature from ambient to boiling point.

Le Chatelier Moulds are should be ordered separately.



HR-CE9150

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-CE9150	Le Chatelier Water Bath	25x50x30	10	220 V, 50-60 Hz, 1 ph

PLUNGER PENETRATION APPARATUS

STANDARDS: EN 459-2, EN 413-2, EN 1015-4

Used to determine the consistency of fresh mortar, lime and masonry cement.

Consisting of a steel base with recess to house the test cup and the vertical column holding the penetration plunger assembly. The height of drop is 100 mm and the weight of plunger assembly is 90 g.

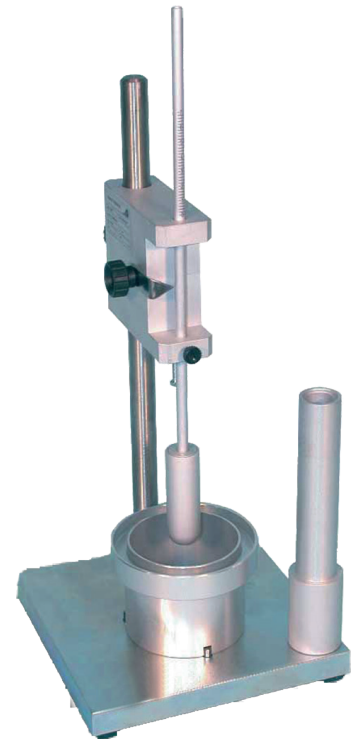
Supplied complete with Ø8 x 7 cm Test Cup and Tamper.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-CE9230	Plunger Penetration Apparatus	20x20x70	8

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-CE9230/1	Test cup	Ø 8 x 7	---
HR-CE9230/2	Tamper	---	---



HR-CE9230

HİRA TESTING EQUIPMENT

CALCIMETER

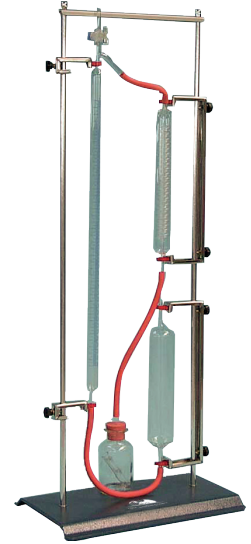
Calcimeter is used to determine the Carbonate content CaCO_3 in Limestone and Lime Marl.

It consists of a glass container in which the reaction between the calcium carbonate present in the product and a solution of hydrochloric acid takes place. The gaseous product is collected and measured by a device connected to the container.

As the volume of the produced gas (CO_2) is in relation to the CaCO_2 amount contained in the material, it is possible to calculate the percentage of CaCO_3 .

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-CE2250	Calcimeter	30x20x110	12



HR-CE2250

CEMENT FLOW TABLES

STANDARDS: EN 459-2, 1015-3, ASTM C230

Used for determining consistency of mortar, lime and cement specimens.

Manual and motorized two models are available.

The hand operated model is fitted with a hand wheel.

The motor operated model is driven by a motor speed reducer through a mechanical coupling at the rate of 1 revolution per second. The number of drops is preset on a counter and the machine stops automatically at the end of the cycle.

EN Model, the table is manufactured from stainless steel and $\varnothing 300$ mm.

The cone made of brass has dimensions of 100mm base dia. x 70mm top dia. x 60mm high.

ASTM Model; the table is manufactured from stainless steel and $\varnothing 254$ mm.

The cone made of brass has dimensions of 100 mm base dia. X 70 mm top dia. X 50 mm height.

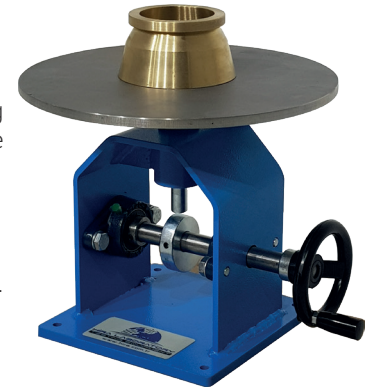
Both models are supplied complete with flow mould and tamper.

Technical Specifications:

Product Code	Product Name	Operated	Table dia. (mm)	Drop Height (mm)	Dimensions (mm)	Weight (kg)	Power Supply
HR-CE9200	Cement Flow Table, EN	Hand	$\varnothing 300$	10	260x260x27	13	---
HR-CE9205	Cement Flow Table, ASTM	Hand	$\varnothing 254$	12,7	260x260x27	13	---
HR-CE9215	Motorized Cement Flow Table, EN	Motorized	$\varnothing 300$	10	470x360x350	36	220 V, 50 Hz, 1 ph
HR-CE9215/60Hz	Motorized Cement Flow Table, EN	Motorized	$\varnothing 300$	10	470x360x350	36	220 V, 60 Hz, 1 ph
HR-CE9220	Motorized Cement Flow Table, ASTM	Motorized	$\varnothing 254$	12,7	470x360x350	36	220 V, 50 Hz, 1 ph
HR-CE9220/60Hz	Motorized Cement Flow Table, ASTM	Motorized	$\varnothing 254$	12,7	470x360x350	36	220 V, 60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)
HR-CE9200/1	Cement Flow Mould, EN	100x70x60
HR-CE9200/2	Tamper, 250 gr, EN	$\varnothing 40$ x200
HR-CE9205/1	Cement Flow Mould, ASTM	100x70x50
HR-CE9205/2	Tamper, Hardwood, ASTM	13x25x150



HR-CE9200

MANUEL MORTAR MIXER

STANDARDS: EN 196-1, EN 196-3, EN 413-2, EN 459-2, EN 480-1, 1015-2, 12617-4, EN ISO 679, ASTM C187, C305, AASHTO T129, T131, T162

The mixer has been designed to mix mortars and cement pastes primarily to the requirements of standards.

The user can choose speeds easily by using switch fitted to the machine. The mixing time can be adjusted from the digital timer on the front control panel.

2 speeds are defined on the device. The user can choose speed 1 (the paddle revolves at a rate of 140 rpm with a planetary motion of 62 rpm) and speed 2 (the paddle revolves at a rate of 285 rpm with a planetary motion of 125 rpm) and prepare the cement sample according to the standards.

The mixer is supplied complete with 5lt capacity bowl and the beater.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-CE9250	Manuel Mortar Mixer	35x50x55	45	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name
HR-CE9250/1	Bowl, 5 lt
HR-CE9250/2	Beater



HR-CE9250/1



HR-CE9250/2



HR-CE9250

AUTOMATIC MORTAR MIXER

STANDARDS: EN 196-1, EN 196-3, EN 413-2, EN 459-2, EN 480-1, 1015-2, 12617-4, EN ISO 679, ASTM C187, C305, AASHTO T129, T131, T162

The mixer has been designed to mix mortars and cement pastes primarily to the requirements of standards.

The mixing paddle has a planetary motion and is driven by a motor with a microprocessor based speed and preset programs to meet all listed EN and ASTM standards, custom designed programs or manual mode.

The mode button is used for the fast selection of different programs.

The mixing paddle revolves at a rate of 140 rpm with a planetary motion of 62 rpm in low speed. In high speed, the paddle revolves at the rate of 285 rpm with a planetary motion of 125 rpm.

An automatic sand dispenser is supplied with the machine and the sand is automatically discharged.

Custom design allows 6 programs to be set by the operator, where the motor speed, sand dispenser position and duration of the mix can be set.

The Automatic Programmable Mortar Mixer is supplied complete with 5lt capacity bowl and the beater.

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-CE9255	Automatic Mortar Mixer	35x50x75	55	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name
HR-CE9250/1	Bowl, 5 lt
HR-CE9250/2	Beater



HR-CE9255

HİRA TESTING EQUIPMENT

CEN REFERENCE SAND

STANDARDS: EN 196-1

CEN Standard sand is a natural sand, which is siliceous particularly its finest fractions.

It is clean, the particles are generally isometric and rounded in shape. It is dried, screened and prepared in a modern workshop which offers every guarantee in terms of quality and consistency.

The sand is packaged in bags each containing 1350±5 g.

Reference sand size is 0,08±2 mm.



HR-CE9285

Technical Specifications:

Product Code	Product Name	Dimensions (mm)	Weight (gr)
HR-CE9285	CEN Reference Sand	270x130x30	1350

Technical Specifications:

Square mesh Size (mm)	Cumulative Retained (%)
0,08	99 ± 1
0,16	87 ± 5
0,5	67 ± 5
1	33 ± 5
1,6	7 ± 5
2	0

CEMENT MOULDS

STANDARDS: EN 196-1, ASTM C109, BS 4550

Used to produce the mortar specimens for compression and flexural tests.

Made from hardness steel, it conforms to the above mentioned Specifications.

All dimensions and specifications comply with the related standards.

Feed Hopper is used for filling 40x40x160 mm cement moulds. Made from cast aluminum.



HR-CE9000

Technical Specifications:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-CE9000	Three Gang Mould, 40x40x160 mm	300x190x70	7
HR-CE9400	Three Gang Cube Mould, 50x50x50 mm	110x230x60	3
HR-CE9500	Cube Mould, 70.7 mm	100x130x90	3,5
HR-CE9010	Two Gang Prism Mould, 25x25x285 mm	90x340x40	4



HR-CE9400

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-CE9000/1	Steel Insert for HR-CE9000. (Pack of 10)	---	---
HR-CE9000/2	Reference Rod, 160 mm	160	---
HR-CE9300	Feed Hopper for HR-CE9000	210x200x40	2
HR-CE9010/1	Steel Insert for HR-CE9010 (Pack of 10)	---	---
HR-CE9010/2	Reference Rod, 305 mm	305	---



HR-CE9500

HR-CE9010/2



HR-CE9010/1



HR-CE9010

HR-CE9300



JOLTING TABLE APPARATUS

STANDARDS: EN 196-1, EN ISO 679

Used to compact cement mortar prisms 40x40x160 mm in the three gang mould containing cement specimens.

The apparatus, consists of a table holding the mould, seated on a rotating cam driven at 60 r.p.m.

The drop height is 15 mm.

The machine is equipped with a digital counter which provides automatic shut off at end of preset drop numbers.

Rapid mould lock and release system allows easy and quick operation.

The supporting frame of the machine has been designed to ensure precise dimensions, table flatness, correct centering of the three gang mould on the table.

The motor and gearbox assembly is enclosed in a protective housing, which promotes user safety (the moving parts are inaccessible) and long life for the gearbox.



HR-CE9275

Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-CE9275	Jolting Table Apparatus	35x105x50	55	220 V, 50 Hz, 1 ph
HR-CE9275/60Hz	Jolting Table Apparatus	35x105x50	55	220 V, 60 Hz, 1 ph

VIBRATING MACHINE

STANDARDS: BS 4550

Vibrating Machine for 70.7 mm Cube Moulds is used for the preparation and compaction of 70.7 mm mortar cube specimens.

The mould is mounted on a vibration platform with excentric mechanism which allows each sample to be vibrated at 12000 cycles per minute.

The machine is supplied complete with Control Panel with Timer.

70.7 mm Cube Mould should be ordered separately.



HR-CE2275

Technical Specifications:

Product Code	Product Name	Excentric Shaft Rotation	Dimensions (cm)	Weight (kg)	Power Supply
HR-CE2275	Vibrating Machine	12000 r.p.m	45x65x85	100	220 V, 50 Hz, 1 ph
HR-CE2275/60Hz	Vibrating Machine	12000 r.p.m	45x65x85	100	220 V, 60 Hz, 1 ph

HİRA TESTING EQUIPMENT

CURING CABINETS

STANDARDS: EN 196-1, ISO 679

Curing Cabinet is used for curing of cement, concrete cubes or other mortar specimens.

It can be used for curing cement specimens within the mould or after removing from the mould.

The curing cabinet provides $20 \pm 1^\circ\text{C}$ temperature and over 95% RH humidity for cement specimens.

Internal chamber and racks are made of stainless steel. The temperature is maintained at $20 \pm 1^\circ\text{C}$ by a immersion heater and refrigerator unit which are supplied complete with cabinet. The cabinet is equipped with a digital control unit which controls and monitors the temperature.

The humidity is maintained from 95% to saturation by water nebulizers and is also monitored on the digital control unit.

Two models are available. Single Programmed Model has Numeric Display and Step Controlled (10 programs) has LCD Touch Screen.



HR-CE9300

Technical Specifications:

Product Code	Product Name	Capacity (lt)	Power Supply
HR-CE7000	Curing Cabinet Single Programmed	120	220 V, 50-60 Hz, 1 ph
HR-CE7000/P	Curing Cabinet Step Controlled (10 programs)	120	220 V, 50-60 Hz, 1 ph
HR-CE7010	Curing Cabinet Single Programmed	250	220 V, 50-60 Hz, 1 ph
HR-CE7010/P	Curing Cabinet Step Controlled (10 programs)	250	220 V, 50-60 Hz, 1 ph
HR-CE7020	Curing Cabinet Single Programmed	500	220 V, 50-60 Hz, 1 ph
HR-CE7020/P	Curing Cabinet Step Controlled (10 programs)	500	220 V, 50-60 Hz, 1 ph
HR-CE7030	Curing Cabinet Single Programmed	750	220 V, 50-60 Hz, 1 ph
HR-CE7030/P	Curing Cabinet Step Controlled (10 programs)	750	220 V, 50-60 Hz, 1 ph
HR-CE7040	Curing Cabinet Single Programmed	1000	220 V, 50-60 Hz, 1 ph
HR-CE7040/P	Curing Cabinet Step Controlled (10 programs)	1000	220 V, 50-60 Hz, 1 ph

CEMENT COMPRESSION / FLEXURAL TEST MACHINE

STANDARDS: EN 196-1, 459-2, 1015-11, 13454-2, EN ISO 679, ASTM C109, C348, C349, BS 3892-1, 4551-1

The Automatic Cement Compression and Flexure Machine have been designed for testing the flexure of the mortar prisms 40x40x160 mm and the compression on the 40x40mm pieces of prisms after the flexure test or 50x50 mm and 70,7 mm mortar cubes.

These machines also meet the requirements of CE norms for safety and health of the operator.

Compression and flexure jigs, distance pieces, and also removable transparent front-rear safety doors (should be factory installed) should be ordered separately.

The Automatic Cement Compression and Flexure Testing Machines allow less experienced operators to perform the tests.



HR-CE1500

The only required operations are;

- Setting test parameters, including pace rate
- Choosing the compression or flexure frame by using valve.
- Choosing Capacity of the frame (to call calibration values of the required load cell)
- Use load cell switch frame or compression side (up/down)
- 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.

The Automatic Cement Compression and Flexural Testing Machines consist of;

- Very rigid two column single or double chamber Load Frames,
- Automatic Hydraulic Power Pack,
- Digital data acquisition & control system.

Cement Compression & Flexural Load Frames

15 kN and 250 kN high quality load cells are used on frames to provide high accuracy in load measuring. Both frames are fitted with round platens with Ø165 mm and these should be used together with suitable flexure and compression jigs.

Distance Pieces

Due to the modular design of the frames any sample with suitable size, load and pace rate can be test on both chambers by decreasing the distance between platens.

Upper Platens

Manufactured from high quality steel which is hardened (more than HRC 53), smoothed and finished.

The roughness value for the surface texture of machine and auxiliary platens are 3,2 µm. the movable design.

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.

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

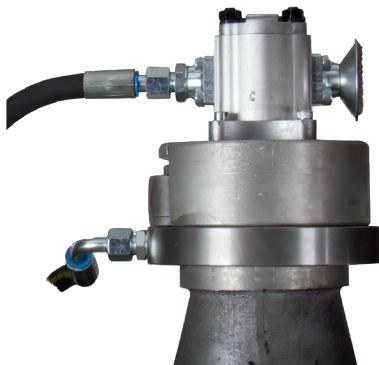
HYDRAULIC POWER PACK AND DIGITAL DATA ACQUISITION & CONTROL SYSTEM

Hydraulic Power Pack

Automatic Hydraulic Power Pack, dual stage, controlled by digital readout and control 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 0,05 to 2.4 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.

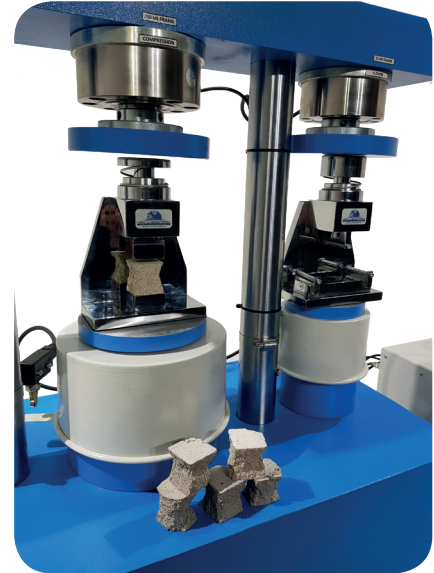


Dual Stage Pump

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.



HR-CE4000

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.

Maximum capacity is 400 bar.



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.



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 Readout and Control Unit

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", or "Stress vs. Time" graphics.



HR-CE4002

Software

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

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

Main Features

- Pace rate control from 0,05 kN/sec to 2,4 kN/sec depending on piston size.
- Can control 2 frames
- Can make test with load control.
- Real time display of test graph.
- Analog channels for different frame load cells
- 10 data per second sample rate for each channel
- RS-232 serial port connecting for computer interface
- LCD display
- 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:

CEMENT COMPRESSION / FLEXURAL TEST MACHINE			
Model	HR-CE2500	HR-CE1500	
Test Type	Compression	Flexure	Compression
Capacity (kN)	250	15	250
Class 1 Measuring Range (kN)	2.5 to 250	0.5 to 15	2.5 to 250
The roughness value for texture of loading and auxiliary platens (µm)	≤3.2	≤3.2	≤3.2
Lower Platen Dimensions (mm)	165	165	165
Upper Platen Dimensions (mm)	165	165	165
Maximum Vertical Clearance Between Platens (mm)	250	250	250
Piston Diameter (mm)	160	80	160
Maximum Piston Movement (mm)	50	50	50
Horizontal Clearance (mm)	300	200	300
Power (W)	750	750	
Oil Capacity (lt)	25	25	
Maximum Working Pressure (bar)	125 bar	30 bar	125 bar

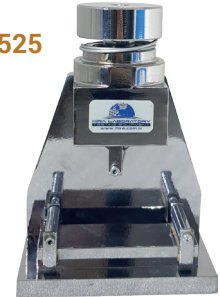
Safety Features

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

HR-CE1527



HR-CE1525



Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-CE1500	15/250 kN Automatic Cement Flexure/Compression Testing Machine	100x50x150	350	220 V, 50-60 Hz, 1 ph
HR-CE2500	250 kN Automatic Cement Compression Testing Machine	85x50x150	300	220 V, 50-60 Hz, 1 ph

Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-CE1500/1	15/250 kN Cement Flexure/Compression Testing Frame	64x50x150	250	---
HR-CE2500/1	250 kN Cement Compression Testing Frame	50x50x150	200	---
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 portions of 40x40x160 mm mortar prisms	15x15x18	12	---
HR-CE1528	Compression Jig Assembly BS, to test 70,7 mm mortar cubes	15x13x19	9	---
HR-CE4000	Hydraulic Power Pack and Digital Data Acquisition & Control System	36x38x91	100	220 V, 50-60 Hz, 1 ph
HR-CE4001	Hydraulic Power Pack	36x38x91	98	220 V, 50-60 Hz, 1 ph
HR-CE4002	Digital Data Acquisition & Control System	---	---	220 V, 50-60 Hz, 1 ph
HR-CE4003	Software	---	---	---
HR-CE4200	Distance Piece	Ø 15 x 1,5	---	---
HR-CE4201	Distance Piece	Ø 15 x 3	---	---
HR-CE4202	Distance Piece	Ø 15 x 5	---	---
HR-CE4203	Distance Piece	Ø 15 x 9	---	---
HR-G0975	Computer & Printer	---	---	220 V, 50-60 Hz, 1 ph
HR-G0975/1	Usb to com port Converter	---	---	---
HR-G0979	Thermal Printer	---	---	---