



## BITUMEN & ASPHALT

Asphalt, also called bituminous conglomerate, is a fundamental material of road construction field. The main area of usage of bituminous mixtures is in road construction. Bituminous mixtures consist of essentially two ingredients, aggregate and binder. The major difference between asphalt and concrete is that bitumen and bituminous materials are used as binder in asphalt.

Due to the ever increasing intensity of today's traffic conditions there is a demand for higher levels of performance from roads. As a result, the testing of the asphalt needs to look not only at the constituent mix but the performance characteristics as well.

Analysis and design tests of bituminous mixtures, bitumen and bituminous tests, asphalt and road quality tests are provided for engineering firms and construction companies to produce, inspect and evaluate the paving materials to ensure the strength, physical and mechanical performance and durability towards safe application and use.



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## CENTRIFUGE EXTRACTORS

STANDARDS: EN 12697-1 Clause B.1.5; EN 13108, ASTM D2172, AASHTO T164 A

Used for the determination of bitumen percentage in bituminous mixtures.

It consists of a removable precision machined rotor bowl, housed in a cylindrical aluminum box.

They are driven by an electric motor fitted with AC drive (inverter) with the double function of speed control up to 3600 rpm. Regardless of the frequency (50 or 60 Hz) and electrical breaking.

The centrifuge can be set for the automatic speed ramp up to 3600 rpm and will stop in 10-15 seconds.

The control panel includes: Start/Stop button and speed control knob.

Two models are available with 1500 g and 3000 g capacity.

The Centrifuge Extractors are supplied with aluminum Bowl and Cover and Filter Papers.



HR-AS1505

### Technical Specifications:

Product Code	Product Name	Capacity (lt)	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS1500	Centrifuge Extractor	1500	65x45x55	35	220 V, 50-60 Hz, 1 ph
HR-AS1505	Centrifuge Extractor	3000	65x45x55	35	220 V, 50-60 Hz, 1 ph

### Spare Parts & Accessories:

Product Code	Product Name
HR-AS1500/1	Filter Paper for HR-AS1500 (Pack of 50)
HR-AS1500/2	Rotating Bowl and Cover for HR-AS1500
HR-AS1505/1	Filter Paper for HR-AS1505 (Pack of 50)
HR-AS1505/2	Rotating Bowl and Cover for HR-AS1505



HR-AS1505/1

## REFLUX EXTRACTORS

STANDARDS: ASTM D2172, AASHTO T 164-B

Used for the quantitative determination of bitumen in hot-mixed paving mixtures and pavement samples. The bitumen content is calculated by difference from the weight of extracted aggregates, moisture content and ash from aliquot part of the extract.

The Reflux Extractor is available in two, 1000 g and 4000 g capacity models.

The apparatus comprises a cylindrical glass jar, two wire mesh cones with interlocking frames, a water condenser with inlet/outlet tubes, hot plate and 50 filter papers.



HR-AS1525/4



HR-AS1525

## Technical Specifications:

Product Code	Product Name	Capacity (gr)	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS1520	Reflux Extractor Test Set, 1000 gr	1000	26x26x62	10	220 V, 50-60 Hz, 1 ph
HR-AS1525	Reflux Extractor Test Set, 4000 gr	4000	26x26x62	12	220 V, 50-60 Hz, 1 ph

## Spare Parts & Accessories:

Product Code	Product Name	Capacity (gr)	Dimensions (cm)	Weight (kg)
HR-AS1520/1	Reflux Extractor Glass Jar	1000	Ø 15 x 46	6
HR-AS1520/2	Reflux Extractor Condenser	1000	---	---
HR-AS1520/3	Reflux Extractor Wire Mesh Cone	500	---	---
HR-AS1520/4	Filter Paper (pack of 50)	---	Ø 30	---
HR-AS1520/5	Iron Wire Gauze for HR-AS1520	---	12x12	---
HR-AS1525/1	Reflux Extractor Glass Jar	4000	Ø 22 x 46	8
HR-AS1525/2	Reflux Extractor Condenser	4000	---	---
HR-AS1525/3	Reflux Extractor Wire Mesh Cone	2000	---	---
HR-AS1525/4	Filter Paper (pack of 50)	---	Ø 40	---
HR-AS1525/5	Iron Wire Gauze for HR-AS1525	---	16x16	---
HR-G1010	Single Hot Plate. Thermostat Controlled	---	30x30x20	2,5

## SOLVENT RECOVERY STILL

The efficient and compact unit, easy to install, is totally self-contained. It is provided of two tanks: one for the clean solvent and one for the dirty solvent and of a water coolant system which only needs to be connected to a water tap.

The inside of the containers are stainless steel for low corrosion and long life time. Two liquid levels to see the volume of clean and dirty solvents.

Capacity is 10 liters/h.

Electrical heater and water cooling system.

Supplied with 10m plastic tube, tube clamps, sieve insert 0.6 mm opening and one lid.

## Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS1535	Solvent Recovery Still	32x40x65	25	220 V, 50-60 Hz, 1 ph

## Spare Parts & Accessories:

Product Code	Product Name	Power Supply
HR-AS1535/1	Circulation Pump	220 V, 50-60 Hz, 1 ph
HR-AS1535/2	Plastic Water Bucket	---



HR-AS1535

## LARGE SIZE HEAVY DUTY VACUUM PYKNOMETER (YALE PYKNOMETER)

### THEORETICAL MAXIMUM SPECIFIC GRAVITY OF UNCOMPACTED BITUMINOUS PAVING MIXTURES (RICE-TEST)

STANDARDS: ASTM D2041, EN 12697-5, EN 13108, AASHTO T209, T283

Stainless Steel made with Transparent Plexiglas cover, complete with valve and gauge, it is utilized for a rapid determination of asphalt content, bulk specific gravity of aggregates and the maximum theoretic specific gravity of bituminous uncompact road mixtures and the percent air voids in compacted mixtures.

To perform the test a minimum ultimate vacuum of 30 mm/Hg is requested.

Complete With Vacuum Pycnometer, Vibro-Deaerator, Vacuum Pump, 1,5 m tubing for vacuum, Vacuum Gauge and Filter Flask 250 ml.

Vibro-Deaerator is time controlled. To vibrate the pyknometer for the evacuation for the air. This unit can be used also as a sieve shaker.

Vacuum Pump is Portable, oil type, complete with 1,5 m tubing for vacuum.

Air Drying Unit and Silica Gel should be ordered separately.



#### Technical Specifications:

Product Code	Product Name	Capacity (lt)	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS1550	Vacuum Pyknometer Test Set	10 lt	51x51x82	40	220 V, 50 Hz, 1 ph
HR-AS1550/60Hz	Vacuum Pyknometer Test Set	10 lt	51x51x82	40	220 V, 60 Hz, 1 ph

#### Spare Parts & Accessories:

Product Code	Product Name	Capacity	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS1550/1	Vacuum Pyknometer	10 lt	Ø 30 x 45	8	---
HR-G0500	Vibro-Deaerator	---	51x51x37	24	220 V, 50 Hz, 1 ph
HR-G0500/60Hz	Vibro-Deaerator	---	51x51x37	24	220 V, 60 Hz, 1 ph
HR-G0800	Vacuum Pump	51 lt/min. - 2 Pa	29x13x23	6,6	220 V, 50-60 Hz, 1 ph
HR-G0815	Tubing for Vacuum	1,5 m	---	---	---
HR-G0816	Vacuum Gauge Manometer	1000 mbar	Ø 6,3	0,15	---
HR-G0080	Filter Flask	250 ml	19x19x31	0,2	---
HR-AS1550/2	Air Drying Unit	500 g	---	---	---
HR-G0935	Silica Gel, 1 kg	1 kg	---	1	---

## CORE DRILLING MACHINE (PETROL ENGINE)

STANDARDS: EN 12697-27

Compact and portable HR-AS1575 Core Drilling Machine is designed to cut cores up to 150 mm diameter from concrete, asphalt and similar hard construction materials.

These drilling machines are extremely robust, heavy duty, compact and reliable. The sliding group is rectified so as to assure a very soft and accurate drilling movement.

Built in water swivel to cool the diamond bit.

The robust steel base is equipped with wheels for easy site displacements, together with four levelling and stabilizing feet.

All working and moving parts are plated for rust protection.

The motor assembly comprises a 6.5 hp petrol engine. A ball screw mechanism enables close control of the drilling pressure and rapid return when drilling is completed.

The machine comprises a vertical support column which carries the drill head/ motor assembly.

The equipment is supplied complete with base unit, motor swivel attachment.

Core bits have to be ordered separately.



HR-AS1575

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Engine Power (hp)
HR-AS1575	Core Drilling Machine (Petrol Engine)	50x85x120	105	6,5

### Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-AS1600	Core Bit, Ø 50 mm	Ø 5 x 40	2
HR-AS1601	Core Bit, Ø 75 mm	Ø 7,5 x 40	2,5
HR-AS1602	Core Bit, Ø 100 mm	Ø 10 x 40	3
HR-AS1603	Core Bit, Ø 150 mm	Ø 15 x 40	5



HR-AS1603

HR-AS1602

## CORE DRILLING MACHINE ON TRAILER (PETROL ENGINE)

STANDARDS: EN 12697-27

Core Drilling Machine on trailer is designed to cut cores up to 150 mm diameter depth from asphalt, concrete and other similar hard construction material.

These drilling machines are extremely robust, heavy duty, compact and reliable. The sliding group is rectified so as to assure a very soft and accurate drilling movement.

Built in water swivel to cool the diamond bit.

The machine comprises a vertical support column which carries the drill head/ motor assembly.

All working and moving parts are plated for rust protection.

The motor assembly comprises a 6.5 Hp petrol engine. A ball screw mechanism enables close control of the drilling pressure and rapid return when drilling is completed.

The drilling machine is installed in a trailer for fast and precise sampling on-site. 100 lt water tank provides continuous spraying during drilling to protect diamond core. The two-wheeler taut liner trailer is fully equipped with brake lamps/hazard flashers/retro reflectors conforming to road traffic regulations. The trailer is designed with a space to be used for storing the core samples. The two fixing legs are robustly designed for improved stabilization.

Core bits have to be ordered separately.



HR-AS1580

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Engine Power (hp)
HR-AS1580	Core Drilling Machine On Trailer	160x260x200	290	6,5

### Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-AS1600	Core Bit, Ø 50 mm	Ø 5 x 40	2
HR-AS1601	Core Bit, Ø 75 mm	Ø 7,5 x 40	2,5
HR-AS1602	Core Bit, Ø 100 mm	Ø 10 x 40	3
HR-AS1603	Core Bit, Ø 150 mm	Ø 15 x 40	5



HR-AS1603

HR-AS1602

## VIBRATING HAMMER

STANDARDS: EN 12697-9, 12697-10, 12697-32, BS 598:10, BS 1377:4, 1924:2

The HR-AS2335 Vibratory Compactor Set is used to prepare the moulded test specimens of bituminous mixtures in loose state by using the vibratory compaction technique.

Such specimens are used to determine maximum density as described EN 12697-5, bulk density as described in EN 12697-6, void characteristics as described in EN 12697-8, reference density as described in EN 12697-9 or compactability as described in EN 12697-10 for a bituminous mixtures.

Vibrating Hammer has double insulated motor, trigger handle, for asphalt compaction in percentage refusal density test.

The HR-AS2335 Vibratory Compactor Set consists of a Vibrating Hammer, Supporting Frame, Small and Large Tamping Foots and 300 mm Shank.

P.R.D.(percentage refusal density) Split mould is vertically split on one side, foreseen of clamp attachment to the base plate, plated against corrosion, is utilized for determining the degree of compaction of bituminous pavements, for quality control purpose.

The split mould and base plate should be ordered separately.

The set is also used for compaction of proctor and CBR soil specimens.

Supporting Frame for Vibrating Hammer; the sliding mass has a total weight (including hammer and tamping foot) of 37 kg as requested by EN standards. Steel made, plated against corrosion.



### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS2335	Vibratory Compactor Set	51x30x112	75	220 V, 50-60 Hz, 1ph

### Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS2335/1	Vibrating Hammer	11x43x27	7	220 V, 50-60 Hz, 1ph
HR-AS2335/2	Supporting Frame for Vibrating Hammer	51x30x112	45	---
HR-AS2335/3	P.R.D.(Percentage Refusal Density) Split Mould	Ø 10 x 15	12	---
HR-AS2335/4	Small Tamping Foot, Ø 102 mm	Ø 10,2	---	---
HR-AS2335/5	Large Tamping Foot, Ø 146 mm	Ø 14,6	---	---
HR-AS2335/6	Shank, 300 mm Long for Tamping Foot	30	---	---

# HİRA TESTING EQUIPMENT



## ASPHALT MIXERS

STANDARDS: EN 12697-35

This mixers has been designed to mix bituminous samples for compaction tests, Marshall and tensile splitting test and for other tests where uniformity is required.

Thanks to the planetary action this mixer ensures a complete and uniform mixing.

The machine is provided with a variable speed drive allowing to set a wide range of speeds.

The mixing head rotates at speeds of 10 to 240 r.p.m. and the whisk from 20 to 480 r.p.m. A timer allows to select the mixing time or the continuous mixing.

The bituminous mix must be prepared at prescribed temperature for this reason the mixer can equipped with thermostatically controlled heater.

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

Electric heater should be ordered separately.



HR-AS1625



HR-AS1625/1

### Technical Specifications:

Product Code	Product Name	Capacity (lt)	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS1625	Asphalt Mixer	5	30x55x65	55	220 V, 50-60 Hz, 1 ph
HR-AS1630	Asphalt Mixer	10	70x75x80	75	220 V, 50-60 Hz, 1 ph
HR-AS1640	Asphalt Mixer	20	70x75x95	110	220 V, 50-60 Hz, 1 ph

### Spare Parts & Accessories:

Product Code	Product Name	Capacity (lt)	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS1625/1	Bowl for HR-AS1625	5	---	---	---
HR-AS1625/2	Beater for HR-AS1625	---	---	---	---
HR-AS1625/3	Electric Heater for HR-AS1625	---	Ø 25x30	5	220 V, 50-60 Hz, 1 ph
HR-AS1630/1	Bowl for HR-AS1630	10	---	---	---
HR-AS1630/2	Beater for HR-AS1630	---	---	---	---
HR-AS1630/3	Electric Heater for HR-AS1630	---	Ø 30x35	7	220 V, 50-60 Hz, 1 ph
HR-AS1640/1	Bowl for HR-AS1640	20	---	---	---
HR-AS1640/2	Beater for HR-AS1640	---	---	---	---
HR-AS1640/3	Electric Heater for HR-AS1640	---	Ø 40x40	10	220 V, 50-60 Hz, 1 ph



HR-AS1630



HR-AS1630/2



HR-AS1630/1



HR-AS1630/3

## MANUAL MARSHALL COMPACTORS

STANDARDS: ASTM D6926, D5581, AASHTO T245 (for HR-AS1700)

Manual Marshall Compactor is used to compress the Marshall samples manually.

The trip mechanism is arranged so that the sliding hammer falls at the same distance for every blow.

Manual Marshall Compactor is used to compact Marshall Specimens with hand, manually. The sliding weight is  $4536 \pm 9$  gr and dropped by the user from a height of  $457 \pm 3$  mm manually.

The assembly consists of a compaction hammer, wooden compaction pedestal, support rod to hold the hammer in perpendicular position and mould holder.

2 models are available. HR-AS1700 is used for 4" diameter moulds and HR-AS1705 is used for 6" diameter moulds.

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-AS1700	Manual Marshall Compactor Set (4")	35x40x160	50
HR-AS1710	Manual Marshall Compactor Set (6")	35x40x160	56

### Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-AS1700/1	Compaction Hammer for HR-AS1700	10x10x11	8
HR-AS1701	Wooden Compaction Pedestal	35x40x160	42
HR-AS1705	Compaction Hammer (BS)	10x10x11	8
HR-AS1710/1	Compaction Hammer for HR-AS1710	10x10x11	14



HR-AS1700

## AUTOMATIC MARSHALL COMPACTOR, EN

STANDARDS: EN 12697-10, EN 12697-30

This ruggedly constructed machine has been designed to eliminate the laborious process of hand compaction.

The apparatus automatically compacts the sample and stops after the preset number of blows.

The mould is held in position by a quick and practical clamping device. The trip mechanism is arranged so that the sliding hammer falls at the same distance for every blow. The compactor includes the laminate hardwood block and vibrated concrete base  $45 \times 45 \times 20$  cm.

All moving parts are protected with safety guard, which stops automatically the compactor when opened, and the control panel is fit with an emergency stop red button, all conforming to CE prescriptions.

The drive mechanism lifts the  $4535 \text{ g} \pm 15$  gr compaction hammer, plated against corrosion, to the height of  $457 \text{ mm} \pm 5$  mm allows free fall.

### Technical Specifications:

Product Code	HR-AS1750	HR-AS1750/60Hz
Product Name	Automatic Marshall Compactor	
Blows frequency	50 blows in 55/60 s	
Sliding mass weight (g)	$4535 \pm 15$	
Free fall height (mm)	$457 \pm 5$	
Overall dimensions (cm)	$55 \times 192 \times 55$	
Weight (kg)	265	
Power Supply	220 V, 50 Hz, 1 ph	220 V, 60 Hz, 1 ph



HR-AS1750

# HİRA TESTING EQUIPMENT



## AUTOMATIC MARSHALL COMPACTOR, ASTM

STANDARDS: ASTM D1559, AASHTO T245

This ruggedly constructed machine has been designed to eliminate the laborious process of hand compaction.

The apparatus automatically compacts the sample and stops after the preset number of blows.

The mould is held in position by a quick and practical clamping device. The trip mechanism is arranged so that the sliding hammer falls at the same distance for every blow. The compactor includes the laminate hardwood block.

All moving parts are protected with safety guard, which stops automatically the compactor when opened, and the control panel is fit with an emergency stop red button.

The drive mechanism lifts the 4536 g ± 9 gr compaction hammer, plated against corrosion, to the height of 457mm ± 3 mm allows free fall.

### Technical Specifications:

Product Code	HR-AS1755	HR-AS1755/60Hz
Product Name	Automatic Marshall Compactor	
Blows frequency	60 blows in 60 s	
Sliding mass weight (g)	4536 ±9	
Free fall height (mm)	457 ±3	
Overall dimensions (cm)	55x192x55	
Weight (kg)	240	
Power Supply	220 V, 50 Hz, 1 ph	220 V, 60 Hz, 1 ph



HR-AS1755

## MARSHALL MOULDS

STANDARDS: EN 12697-10, 12697-30, ASTM D1559, D6926, D5581; AASHTO T245

The Marshall Compaction Moulds are used to produce the Marshall specimens with automatic or manual compactors.

Complete with base plate, mould body and collar. Marshall Mould is made of Steel and plated against corrosion.

### Technical Specifications:

Product Code	Product Name	Standard	Dimensions	Weight (kg)
HR-AS1770	Marshall Mould Set	EN	Ø 101,6 mm	3,7
HR-AS1775	Marshall Mould Set	ASTM	4"	3,7
HR-AS1780	Marshall Mould Set	ASTM	6"	6
HR-AS1785	Marshall Storage Plate for 6 pcs. for 4"specimens	EN, ASTM	25x50x7 cm	6

### Spare Parts & Accessories:

Product Code	Product Name	Standard	Dimensions	Weight (kg)
HR-AS1770/1	Mould Body for HR-AS1770	EN	Ø 101,6 mm	1,3
HR-AS1770/2	Base plate for HR-AS1770	EN	Ø 120 x 170 mm	1,5
HR-AS1770/3	Collar for HR-AS1770	EN	Ø 101,6 mm	0,9
HR-AS1775/1	Mould Body for HR-AS1775	ASTM	4"	1,3
HR-AS1775/2	Base plate for HR-AS1775	ASTM	Ø 120 x 170 mm	1,5
HR-AS1775/3	Collar for HR-AS1775	ASTM	4"	0,9
HR-AS1780/1	Mould Body for HR-AS1780	ASTM	6"	2,2
HR-AS1780/2	Base plate for HR-AS1780	ASTM	Ø 175 x 210 mm	2,5
HR-AS1780/3	Collar for HR-AS1780	ASTM	6"	1,3
HR-AS1790	Filter paper for HR-AS1770 & HR-AS1775	ASTM	4"	---
HR-AS1795	Filter paper for HR-AS1780	ASTM	6"	---



HR-AS1795



HR-AS1790

## UNIVERSAL EXTRUDER

STANDARDS: EN 12697-30, 13286-2, 13286-47; AASTHO T245, T134, T180, T193; ASTM D1559, D698, D1557, D1883; BS 598-107, 1377-4, 1924-2

Used to extrude samples having dia. 4", 6", 100 mm and 150 mm. It can therefore extrude CBR, Marshall and Proctor specimens.

The extruder is actuated by a 50 kN hydraulic jack, having ram travel of 130 mm + 90 mm screw.

Supplied complete with 2 pieces adaptors for 4", 6", 100 mm and 150 mm samples.

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-AS1800	Universal Extruder	Ø 30 x 54	30



HR-AS1800

## MARSHALL STABILITY TEST MACHINE WITH LOAD RING

STANDARDS: EN 12697-34, 12697-23, 12697-12, 13108, ASTM D1559, AASHTO T245

The HR-AS5005 50 kN Capacity Marshall Stability Test Machine with Load Ring is used to determine the maximum load and flow values of bituminous mixtures. The machine comprises of a robust and compact two column frame with adjustable upper cross beam. The unit is a bench mounting compression frame with motor and worm gear housed within the base unit.

Platen rate is 50.8 mm/min also maintained under load thanks to an overpowered electric motor.

For safety, the up and down travel of the lower platen is limited the use of limit switches. Rapid adjustment of the platen is controlled using the buttons on the panel. The machine can be hand operated by a lateral hand wheel for calibration purposes.

The Marshall Stability Test Machine with Load Ring is supplied complete with 50 kN capacity Load Ring with 0,01 mm resolution Analog Dial gauge, 30 x 0.01 mm Dial Gauge and Breaking Head (Stability Mould) for Ø 4" Marshall samples.

Breaking Head (Stability Mould) for Ø 6" Marshall samples, Indirect Tensile Splitting Device for Ø 4" Marshall samples, Indirect Tensile Splitting Device for Ø 6" Marshall samples, Loading Strips, Ø 100 mm, for Tensile Splitting Device, Loading Strips, Ø 160 mm, for Tensile Splitting Device and Indirect Tensile Test Jig for Compacted Bituminous Samples with 30x0,01 mm Analog Dial Gauge for Ø 100 mm (4") & Ø 150 mm (6") samples should be ordered separately.



HR-AS5005

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS5005	Marshall Stability Test Machine with Load Ring	47x61x95	89	220 V, 50 Hz, 1 ph
HR-AS5005/60Hz	Marshall Stability Test Machine with Load Ring	47x61x95	89	220 V, 60 Hz, 1 ph

### Spare Parts & Accessories:

Product Code	Product Name
HR-AS5000/1	Breaking Head (Stability Mould) for Ø 4" Marshall samples
HR-AS5000/2	Breaking Head (Stability Mould) for Ø 6" Marshall samples
HR-G5003	Load Ring, 50 kN capacity with 0,01 mm resolution Analog Dial gauge
HR-G0876	Dial Gauge, 30 x 0,01 mm
HR-AS5000/3	Indirect Tensile Splitting Device for Ø 4" Marshall samples
HR-AS5000/4	Indirect Tensile Splitting Device for Ø 6" Marshall samples
HR-AS5000/5	Loading Strips, Ø 100 mm, for Tensile Splitting Device
HR-AS5000/6	Loading Strips, Ø 160 mm, for Tensile Splitting Device
HR-AS5000/7	Indirect Tensile Test Jig with 30x0,01 mm Analog Dial Gauge for Ø 100 mm (4") & Ø 150 mm (6") samples

## DIGITAL MARSHALL STABILITY TEST MACHINE

STANDARDS: EN 12697-34, 12697-23, 12697-12, 13108, ASTM D1559, AASHTO T245

The HR-AS5000 50 kN Capacity Digital Marshall Stability Test Machine is used to determine the maximum load and flow values of bituminous mixtures. The machine comprises of a robust and compact two column frame with adjustable upper cross beam. The unit is a bench mounting compression frame with motor and worm gear housed within the base unit. It is designed to operate with the minimum of maintenance.

Platen rate is 50.8 mm/min also maintained under load thanks to an overpowered electric motor.

For safety, the up and down travel of the lower platen is limited the use of limit switches. Rapid adjustment of the platen is controlled using the up and down buttons on the digital readout unit. The machine can be hand operated by a lateral hand wheel for calibration purposes.

The measuring system consists of a 50 kN capacity Load cell fitted to the upper cross beam to read stability values and the 25 x 0.01 mm Displacement Sensor fitted to the Breaking Head.

The Digital Marshall Stability Test Machine is supplied complete with LCD Control Unit, 50 kN capacity Load cell, Breaking Head (Stability Mould) for Ø 4" Marshall samples and 25 mm Displacement Sensor.

Breaking Head (Stability Mould) for Ø 6" Marshall samples, Indirect Tensile Splitting Device for Ø 4" Marshall samples, Indirect Tensile Splitting Device for Ø 6" Marshall samples, Loading Strips, Ø 100 mm, for Tensile Splitting Device, Loading Strips, Ø 160 mm, for Tensile Splitting Device and Indirect Tensile Test Jig for Compacted Bituminous Samples with 30x0,01 mm Analog Dial Gauge for Ø 100 mm (4") & Ø 150 mm (6") samples should be ordered separately.



HR-AS5000

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS5000	Digital Marshall Stability Test Machine	47x61x95	89	220 V, 50 Hz, 1 ph
HR-AS5000/60Hz	Digital Marshall Stability Test Machine	47x61x95	89	220 V, 60 Hz, 1 ph

### Spare Parts & Accessories:

Product Code	Product Name
HR-AS5000/1	Breaking Head (Stability Mould) for Ø 4" Marshall samples
HR-AS5000/2	Breaking Head (Stability Mould) for Ø 6" Marshall samples
HR-G0981	Load cell, 50 kN capacity
HR-G0995	Displacement Sensor, 25 x 0,01 mm
HR-AS5000/3	Indirect Tensile Splitting Device for Ø 4" Marshall samples
HR-AS5000/4	Indirect Tensile Splitting Device for Ø 6" Marshall samples
HR-AS5000/5	Loading Strips, Ø 100 mm, for Tensile Splitting Device
HR-AS5000/6	Loading Strips, Ø 160 mm, for Tensile Splitting Device
HR-AS5000/7	Indirect Tensile Test Jig with 30x0,01 mm Analog Dial Gauge for Ø 100 mm (4") & Ø 150 mm (6") samples

## CBR & MARSHALL TESTING MACHINE WITH LOAD RING

CBR & Marshall Testing Machine with Load Ring is used to make CBR and Marshall Tests.

The device is composed of a robust and compact two column frame with adjustable upper cross beam driven by an electromechanical ram with a maximum capacity of 50 kN.

The frame has 50 kN capacity. Three test speeds are provided 1.0 mm/min for BS CBR Tests, 1.27 mm/min for ASTM/EN/AASHTO CBR Tests and 50.8 mm/min for Marshall Tests.

Three models are available according the Dial Gauge.

The HR-AS0505 Analog Model is supplied complete with 50 kN Load Ring with 0,01 mm resolution Analog Dial Gauge.

The HR-AS0510 Digital Model is complete with 50 kN Load Ring with 0,01 mm resolution Digital Dial Gauge.

The HR-AS0515 Digital Model is complete with 50 kN Load Ring with 0,001 mm resolution Digital Dial Gauge.

The other Test Accessories should be ordered separately according to the test. Penetration Piston for CBR Tests and Breaking Head for Marshall Tests should be ordered separately.

### Technical Specifications:

Product Code	HR-AS0505	HR-AS0510	HR-AS0515
Product Name	CBR & Marshall Testing Machine with Load Ring		
Type	Analog Dial Gauge	Digital Dial Gauge	Digital Dial Gauge
Dial Gauge Resolution (mm)	0,01	0,01	0,001
Test Speed (mm/min)	Can be selected as 1.0 & 1.27 & 50.8		
Capacity (kN)	50		
Dimensions (cm)	40x65x110		
Weight (kg)	100		
Power Supply	220 V, 50-60 Hz, 1 ph		

### Spare Parts & Accessories:

Product Code	Product Name
HR-AS0505/1	CBR & Marshall Testing Frame
HR-G5003	Load Ring, 50 kN capacity with 0,01 mm resolution Analog Dial gauge
HR-G5013	Load Ring, 50 kN capacity with 0,01 mm resolution Digital Dial gauge
HR-G5008	Load Ring, 50 kN capacity with 0,001 mm resolution Digital Dial gauge

### Marshall Test Systems

STANDARDS: EN 12697-34, 12697-23, 12697-12, 13108, ASTM D1559, AASHTO T245

Should be used with Breaking Head Stability Mould for 4" (101,6 mm) or 6" (152,4 mm) Marshall Samples and Adaptor for Breaking Head to perform Marshall Tests.

### Spare Parts & Accessories:

Product Code	Product Name
HR-AS5000/1	Breaking Head Stability Mould, cast iron, for 4" (101,6 mm) Marshall Samples
HR-AS5000/2	Breaking Head Stability Mould, cast iron, for 6" (152,4 mm) Marshall Samples



HR-AS0505/1 & HR-G5003 & HR-AS5000/1

# HİRA TESTING EQUIPMENT



## CBR Test Systems

STANDARDS: EN 13286-47, BS 1377:4, ASTM D1883, AASHTO T193, NF P94-078, UNI CNR 10009

Should be used with CBR Penetration Piston to perform CBR Tests.

### Spare Parts & Accessories:

Product Code	Product Name
HR-S5000/1	CBR Penetration piston, used to perform CBR Tests



**HR-AS0505/1 & HR-G5003  
HR-S5000/1 & HR-G0876**

## CBR & MARSHALL & UNAXIAL TESTING MACHINE

CBR & Marshall & Unaxial Testing Machine is used to make CBR, Marshall and Uniaxial Tests.

The device is composed of a robust and compact two column frame with adjustable upper cross beam driven by an electromechanical ram with a maximum capacity of 50 kN.

The testing speed can be set between 0,001 mm/min to 51mm/min. The test automatically stops when load and displacement is reached to 95% value of the set measuring range.

CBR & Marshall & Unaxial Testing Machine features a microprocessor controlled drive system with an advanced servo motor enabling the operator to easily set any test speed via the membrane keyboard. The keyboard comprises adjustment buttons such as "start", "stop", "down", "up".

CBR & Marshall & Unaxial Testing Machine is supplied complete with 50 kN Load Cell, 25 mm Displacement Sensor and Digital Readout and Control Unit.

The other Test Accessories should be ordered separately according to the test. Compression Platens with ball seating assembly for Unaxial Tests, Penetration Piston for CBR Tests and Breaking Head for Marshall Tests should be ordered separately.



**HR-AS0500 with  
HR-AS5000/1**

**HR-S5100**

**HR-S5000/1**

### Technical Specifications:

Product Code	HR-AS0500
Product Name	CBR & Marshall & Unaxial Testing Machine
Test Speed (mm/min)	0,001 - 51
Capacity (kN)	50
Dimensions (cm)	40x65x110
Weight (kg)	100
Power Supply	220 V, 50-60 Hz, 1 ph

### Spare Parts & Accessories:

Product Code	Product Name
HR-AS0500/1	CBR & Marshall & Unaxial Frame
HR-G0981	Load Cell, 50 kN capacity
HR-G0995	Displacement Sensor, 25 x 0,01 mm
HR-E9000	Digital Readout and Control Unit

## Uniaxial Test Systems

STANDARDS: ASTM D2166, AASHTO T208

Compression Platens, used to perform uniaxial and unconfined compression tests.

Supplied complete with ball seating assembly.

### Spare Parts & Accessories:

Product Code	Product Name
HR-S1010	Compression Platens with ball seating assembly

## Marshall Test Systems

STANDARDS: EN 12697-34, 12697-23, 12697-12, 13108, ASTM D1559, AASHTO T245

Should be used with Breaking Head Stability Mould for 4" (101,6 mm) or 6" (152,4 mm) Marshall Samples and Adaptor for Breaking Head to perform Marshall Tests.

### Spare Parts & Accessories:

Product Code	Product Name
HR-AS5000/1	Breaking Head Stability Mould, cast iron, for 4" (101,6 mm) Marshall Samples
HR-AS5000/2	Breaking Head Stability Mould, cast iron, for 6" (152,4 mm) Marshall Samples



HR-AS0500/1 & HR-G0981  
HR-G0995 & HR-AS5000/1

## CBR Test Systems

STANDARDS: EN 13286-47, BS 1377:4, ASTM D1883, AASHTO T193, NF P94-078, UNI CNR 10009

Should be used with CBR Penetration Piston to perform CBR Tests.

### Spare Parts & Accessories:

Product Code	Product Name
HR-S5000/1	CBR Penetration piston, used to perform CBR Tests



HR-AS0500/1 & HR-G0981  
HR-G0995 & HR-S5000/1  
HR-S5100

## WATER BATHS

STANDARDS: EN 12697-27

Water baths are fully double walled stainless steel made with high quality stone wool insulation.

The specimens are held by a shelf spaced from the bottom.

Complete with digital thermostat and electric stirrer "for continuous water recirculation", ensuring a constant and uniform temperature of  $60 \pm 1$  °C as described in the standards.

Water bath with cooling unit is also available.

Depending on the capacity of the water bath, cooling unit can be under or near the water bath.



**HR-G1505**

### Technical Specifications:

Product Code	Product Name	Capacity (lt)	Int. Dimensions (cm)	Ext. Dimensions (cm)	Weight (kg)	Temperature Range (°C)
HR-G1500	Water Bath with Circulation System	15	16x33x30	30x52x37	14	Ambient to 99.9
HR-G1505	Water Bath with Circulation System	30	16x51x30	30x69x37	17	Ambient to 99.9
HR-G1510	Water Bath with Circulation System	48	16x65x55	30x82x58	24	Ambient to 99.9
HR-G1525	Water Bath with cooling device	15	16x33x30	63x40x60	25	+5 to 70
HR-G1530	Water Bath with cooling device	30	16x51x30	63x40x76	35	+5 to 70
HR-G1535	Water Bath with cooling device	48	16x65x55	65x62x90	45	+5 to 70

### Technical Specifications:

Temperature Sensor	Fe - Const
Control System	PID & MP
Temperature Resolution	$\pm 0.1$ °C
Pump Capacity	5 lt
Int. Surface Material	Stainless Steel
Ext. Surface Material	Steel with Electrostatic Powder Paint
Power Supply	220 V, 50-60 Hz, 1 ph



**HR-G1500**

## BITUMEN PENETROMETER

STANDARDS: EN 1426, ASTM D5, AASHTO T49

Used to determine the consistency of a bituminous sample under fixed conditions of load, time and temperature. The penetration is expressed in distance of tenths of millimeters vertically penetrated by a standard needle.

Penetration is measured with digital gauge 0,01 mm resolution.

The penetrometer is supplied with stop and release push button, automatic zero timer set, penetration needle, transfer dish and 6 penetration tins 55x35 mm dia.

The other accessories should be ordered separately.

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS1925	Semi-Automatic Digital Bitumen Penetrometer	20x30x50	10	220 V, 50-60 Hz, 1 ph



**HR-AS1925**

## Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Standards
HR-AS1925/1	Penetration Needle	---	0,0025	EN 1426, ASTM D5, AASHTO T49
HR-AS1925/2	Transfer Dish for HR-AS1925 & HR-AS1950	---	---	---
HR-G0610	Moisture content tin	Ø 5,5 x 3,5	0,02	---
HR-G0608	Moisture content tin	Ø 7 x 4,5	0,03	---
HR-AS1925/3	One-Quarter Scale Cone and Shaft for Lubricating Grease	---	---	ASTM D1403 & ASTM D1831
HR-AS1925/4	One-Half Scale Cone and Shaft for Lubricating Grease	---	---	ASTM D1403 & ASTM D1831
HR-AS1925/5	Brass Penetrometer Cone for Lubricating Grease and Petrolatum	---	---	ASTM D 217 & ASTM D 937
HR-AS1925/6	Resilience Ball Penetration Tool	---	---	ASTM D5329

## AUTOMATIC BITUMEN PENETROMETER

STANDARDS: EN 1426, ASTM D5, AASHTO T49, ISO 3997, IP 49

Used to determine the consistency of a bituminous sample under fixed conditions of load, time and temperature.

Base Table, light alloy leveling screws, plated vertical rod are adjustable as micrometric.

The Slide is manufactured from brass. Free fall timer can chosen 0 – 999 second. Measurement Resolution of Optic sensor is 0,01 mm.

Automatic Bitumen Penetrometer has stop - release button.

3 tests are made and the average is taken automatically.

The penetrometer is supplied with penetration needle, transfer dish and 6 penetration tins 55x35 mm dia.

The other accessories should be ordered separately.



**HR-AS1950**

## Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Measuring Range (mm)	Resolution (mm)	Power Supply
HR-AS1950	Automatic Digital Bitumen Penetrometer	25x20x45	15	0-50	0,01	220 V, 50-60 Hz, 1 ph

## Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Standards
HR-AS1925/1	Penetration Needle	---	0,0025	EN 1426, ASTM D5, AASHTO T49
HR-AS1925/2	Transfer Dish for HR-AS1925 & HR-AS1950	---	---	---
HR-G0610	Moisture content tin	Ø 5,5 x 3,5	0,02	---
HR-G0608	Moisture content tin	Ø 7 x 4,5	0,03	---
HR-AS1925/3	One-Quarter Scale Cone and Shaft for Lubricating Grease	---	---	ASTM D1403 & ASTM D1831
HR-AS1925/4	One-Half Scale Cone and Shaft for Lubricating Grease	---	---	ASTM D1403 & ASTM D1831
HR-AS1925/5	Brass Penetrometer Cone for Lubricating Grease and Petrolatum	---	---	ASTM D 217 & ASTM D 937
HR-AS1925/6	Resilience Ball Penetration Tool	---	---	ASTM D5329

**BITUMEN OVEN FOR ROLLING THIN-FILM OVEN TEST (RTFOT)**

STANDARDS: EN 12607-1, ASTM D2872-12, AASHTO T240

Utilized to measure the air and heat effect on a moving film of asphaltic semisolid materials. External frame and internal chamber are stainless steel made with insulated fiberglass intermediate chamber.

Provided of large glass door of inspections.

The oven must be connected to a suitable air pressure supply.

The Control System is digital PID controller and time adjusted. The device is circulated. There is a rotating engine (15 rpm/min), vertical platform and air input for compressor. Flow meter is available for adjustable air flow.

Rolling Thin Film Oven's front cover is made from duplex glass. Internal Surface Material is Stainless Steel and External Surface Material is Sheet Iron with Electrostatic Powder Paint.

Supplied complete with precision digital thermostat to maintain 163 °C temperature, ventilation device, set of eight 64 mm x 140 mm glass containers.

8 bar, 25 lt capacity Air Pressure Pump should be ordered separately.



HR-AS2000



HR-AS2000/1



HR-G0825

**Technical Specifications:**

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS2000	Bitumen Oven for Rolling Thin-Film Oven Test (RTFOT)	75x85x100	85	220 V, 50 -60 Hz, 1 ph

**Spare Parts & Accessories:**

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS2000/1	Glass Sample Tins. (Pack of 8)	6,4x14	0,5	---
HR-G0825	Air pressure Pump, 8 bar, 25 lt	60x30x60	30	220 V, 50 -60 Hz, 1 ph

## BITUMEN OVEN FOR THIN-FILM OVEN & LOSS ON HEATING TEST (TFOT)

STANDARDS: EN 12607-2, EN 13303, ASTM D6, D1754, AASHTO T47, T179

Used for determining the loss in mass of oil and asphaltic / bituminous compounds when heated with the loss on heating test method.

The internal chamber is made of stainless steel and the door has a panel window. The external surface is electrostatic painted.

Oven has double wall insulation with fiberglass.

The oven is equipped of a dual safety thermostat to prevent accidental over-heating.

Oven has a working temperature ambient to 200 °C, Digital PID controller and circulation fan.

Rotating shelf and sample cups should be ordered separately according to the test type.



HR-AS2100



HR-G0601/S



HR-AS2100/1

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS2100	Bitumen Oven for Thin-Film Oven & Loss on Heating Test (TFOT)	60x45x70	60	220 V, 50-60 Hz, 1 ph

### Spare Parts & Accessories:

Product Code	Product Name	Dimensions (mm)	Standards
HR-AS2100/1	Rotating Shelf for Loss on Heating Test	250	EN 13303 & ASTM D 6 & AASHTO T47
HR-AS2100/2	Rotating Shelf for Thin Film Oven Test	342	EN 12607-2 & ASTM D1754 & AASHTO T179
HR-G0610/S	Moisture Content Tin. (Pack of 9)	Ø 55 x 35	---
HR-G0601/S	Moisture Content Tin. (Pack of 4)	Ø 140 x 9,5	---

## WATER IN BITUMINOUS MATERIALS TEST SET (DEAN-STARK METHOD)

STANDARDS: ASTM D95, D244; AASHTO T55, T59; IP 74/77; CNR No.101; NLT 123

Used to determine the water content in petroleum products or bituminous materials, by distilling them with a water immiscible, volatile solvent.

Water in Bituminous Materials Test Set Complete with Electric Heater with Thermo Regulator, Glass Condenser, Glass Receiver and 10 ml Glass Still.

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS2345	Water in Bituminous Materials Test Set	20x20x45	5	220 V, 50 -60 Hz, 1 ph

### Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS2345/1	Electric Heater with Thermo Regulator	60x40x35	25	220 V, 50 -60 Hz, 1 ph
HR-AS2345/2	Glass Condenser, Glass Receiver, Glass Still	---	---	---



HR-AS2345

## DUCTILITY TESTING MACHINE

STANDARDS for HR-AS2200 & HR-AS2205 : EN 13398, ASTM D113, ASTM D6084, AASHTO T51

STANDARDS for HR-AS2210 & HR-AS2215 : EN 13589, EN 13398, EN 13703, ASTM D113, ASTM D6084, AASHTO T51, AASHTO T300

Used to determine the bituminous ductility, that is to say, the distance to which a briquette of molten bitumen can be extended under controlled conditions, before its breaking.

The Ductilometer basically consists of a moving carriage travelling along guide ways.

The carriage is driven by an electrical motor, inside a large tank which is fitted with digital thermostat, immersion electric heater and pump unit.

This model works in an automatic way at a speed of 50 mm/min. and its max. Stroke is 1500 mm.

The tank is all made from stainless steel with fiberglass insulation and the external frame is electrostatic painted.

Water bath temperature is maintained constant at  $25^{\circ}\text{C} \pm 0,5^{\circ}\text{C}$  by a digital thermoregulator.

Ductilometer with Cooling System is also available and it is equipped with incorporated refrigerating unit for tests with water temperature from  $+5^{\circ}$  to  $+25^{\circ}\text{C}$ .

Force Ductility Testing Machine has 3 loadcells. Speed can be set. Speed control with servo motor between 1 to 100 mm/min.

Force Ductility Testing Machine with Cooling System is also available.

All of devices are suitable for testing 3 samples simultaneously.

Supplied complete with 3 moulds and base plates.



### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS2200	Ductility Testing Machine	45x200x50	80	220 V, 50 Hz, 1 ph
HR-AS2200/60Hz	Ductility Testing Machine	45x200x50	80	220 V, 60 Hz, 1 ph
HR-AS2205	Ductility Testing Machine with Cooling System	45x200x100	110	220 V, 50 Hz, 1 ph
HR-AS2205/60Hz	Ductility Testing Machine with Cooling System	45x200x100	110	220 V, 60 Hz, 1 ph
HR-AS2210	Force Ductility Testing Machine	45x200x50	80	220 V, 50 Hz, 1 ph
HR-AS2210/60Hz	Force Ductility Testing Machine	45x200x50	80	220 V, 60 Hz, 1 ph
HR-AS2215	Force Ductility Testing Machine with Cooling System	45x200x100	110	220 V, 50 Hz, 1 ph
HR-AS2215/60Hz	Force Ductility Testing Machine with Cooling System	45x200x100	110	220 V, 60 Hz, 1 ph

### Spare Parts & Accessories:

Product Code	Product Name	Standards
HR-AS2200/1	Briquette Mould	ASTM D133 & AASHTO T51
HR-AS2200/2	Briquette Mould	EN 13398
HR-AS2200/3	Briquette Mould Base Plate	ASTM D133 & AASHTO T51 & EN 13398

## RING AND BALL SOFTENING POINT APPARATUS

STANDARDS: EN 1427, ASTM D36, AASHTO T 53

Used for determining softening point of bituminous materials by ring and ball method.

The softness of bitumen depends, amongst other factors, on the temperature of the substance, where, as the temperature is raised, the softness of the bitumen increases.

Supplied complete with a hotplate with magnetic stirrer, 2 steel balls, ball centering guide, 2 brass rings, 600 ml glass beaker and max. 110 °C thermometer.

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS2250	Ring and Ball Test Set	21x31x40	4,5	220 V, 50 -60 Hz, 1 ph

### Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-G1025/A	Analog Magnetic Stirrer Heater	21x31x10	2,8	230 V, 50-60 Hz, 1 ph
HR-AS2250/1	Steel ball	---	---	---
HR-AS2250/2	Ball centering Guide	---	---	---
HR-AS2250/3	Brass ring, 2 pieces	---	---	---
HR-G0007	Glass Beaker, 600 ml	9x9x12,5	0,25	---
HR-G0391	Glass Thermometer; max 110 °C	3x3x30	0,1	---

HR-AS2250/2



HR-AS2250/1 with  
HR-AS2250/3



HR-AS2250

## AUTOMATIC RING AND BALL SOFTENING POINT APPARATUS

STANDARDS: EN 1427, ASTM D36, AASHTO T 53

Used for determining softening point of bituminous materials by ring and ball method.

Automatic Ring and Ball Apparatus consist of a heater, electric lifting system and magnetic stirrer with speed control, barrier system with optic sensor, microprocessor controlled and large display with touch panel, 2 steel balls, ball centering guide, 2 brass rings, 600 ml glass beaker and max. 110°C thermometer.

The ring and ball values are automatically registered by two photoelectric cells.

Two test options are available;

- 30 to 80° C for water
- 80 to 150° C for glycerole

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS2260	Automatic Ring and Ball Test Set	60x40x35	25	220 V, 50 -60 Hz, 1 ph

### Spare Parts & Accessories:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-AS2250/1	Steel ball	---	---
HR-AS2250/2	Ball centering Guide	---	---
HR-AS2250/3	Brass ring, 2 pieces	---	---
HR-G0007	Glass Beaker, 600 ml	9x9x12,5	0,25
HR-G0391	Glass Thermometer; max 110 °C	3x3x30	0,1



HR-AS2260

# HİRA TESTING EQUIPMENT



## APPARATUS FOR DISTILLATION OF CUT-BACK ASPHALT

STANDARDS: ASTM D402, AASHTO T78

Used to measure the amount of the most volatile constituents in cut-back asphaltic products.

The apparatus consists of Aluminium still container, bunsen burner, stand, graduated cylinder, glass connectors including condenser, two thermometers ASTM 7C, range -2 to +300°C, bunsen burner with gas stop valve controlled by a flame sensor to CE safety Directive.

**Spare Parts & Accessories:**

Product Code	Product Name
HR-AS2325/1	High Distillation Thermometer, Range -2 +300°C, ASTM 7C

**Technical Specifications:**

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-AS2325	Apparatus for Distillation of Cut-Back Asphalt	30x30x60	6



## CLEVELAND FLASH AND FIRE POINT TESTER

STANDARDS: EN 22592, ASTM D92, AASHTO T48, ISO 2592, IP 36

Cleveland Flash Tester is used to measure the flash and fire points of lubricated oils and petroleum products.

It consists of a brass cup mounted on an electric heater with a temperature controller and a glass thermometer. Conforming to the CE European Directive, the unit is supplied complete with a double line-fuse.

-6 + 400°C Thermometer is optional and should be ordered separately.

**Spare Parts & Accessories:**

Product Code	Product Name
HR-AS2275/1	Brass Cup
HR-G0392	Glass Thermometer, Max. 360 °C
HR-G1393	-6 + 400°C Thermometer, IP 28C, ASTM 11C

**Technical Specifications:**

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS2275	Cleveland Flash and Fire Point Tester	25x30x25	7	220 V, 50-60 Hz, 1 ph



## SAYBOLT VISCOMETER

STANDARDS: ASTM D88, AASHTO T72

Used to determine the viscosity of petroleum products at specified temperatures between 21 to 99 °C.

Stainless steel made, the Saybolt viscometer is supplied complete with 2 x interchangeable orifices "Furol" and "Universal", oil bath, electric heater with digital thermoregulator, key, thermometer support, stirrer, cooling coil, digital thermometer, heat transfer oil and 2 pieces 60 ml glass saybolt viscosity flasks. Viscometer is 2 sample testing capacity with digital display.

Thermometer Set for Saybolt Viscometer; 19 to 27°C, 34 to 42°C, 49 to 57°C, 57 to 65°C, 79 to 87°C and 95 to 103°C where each thermometer has 0.1°C subdivisions.

Filter Funnel with Wire Mesh and Clip, Withdrawal Tube and Thermometers are optional and should be ordered separately.

### Spare Parts & Accessories:

Product Code	Product Name
HR-AS2290/1	Furol Orifices
HR-AS2290/2	Universal Orifices
HR-AS2290/3	Saybolt Viscosity Flask, Glass, 60 ml
HR-AS2290/4	Heat Transfer Oil, 5 lt
HR-AS2290/5	Filter Funnel with Wire Mesh and Clip
HR-AS2290/6	Withdrawal Tube
HR-G0385	Digital Thermometer, max. 300 °C
HR-AS2290/8	Thermometer Set for Saybolt Viscometer



HR-AS2290

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS2290	Saybolt Two-Tube Digital Viscometer	45x30x55	12	220 V, 50-60 Hz, 1 ph

## TRAVELLING BEAM DEVICE

STANDARDS: EN 12697-32, 13280-4, BS 598-104

The 3 meter long Travelling Beam Device is used to check for any irregularities in both concrete and bituminous road surfaces. A sensing unit comprising a wheel connected to an indicator provides a magnification of 4:1.

Deviation of the surface from a straight-line is shown on a scale calibrated in increments of 2 mm in the 0-10 mm range and 5 mm increments in the 10-25 mm range.

Travelling Beam Device comprises a manual dye marker which is used to mark irregular surface sections when found.

Wooden box should be ordered separately.

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-AS2315	Travelling Beam Device	33x180x60	55

### Spare Parts & Accessories:

Product Code	Product Name
HR-AS2315/1	Wooden Box



HR-AS2315

## HİRA TESTING EQUIPMENT

### AUTOGRAPHIC RECORDING TRAVELLING BEAM DEVICE

STANDARDS: EN 12697-32, 13280-4, BS 598-104

The 3 meter long Autographic Recording Travelling Beam Device is used to check for any irregularities in both concrete and bituminous road surfaces. A sensing unit comprising a wheel connected to an indicator provides a magnification of 4:1.

Deviation of the surface from a straight-line is shown on a scale calibrated in increments of 2 mm in the 0-10 mm range and 5 mm increments in the 10-25 mm range. A dye-marker is fitted which may be used to identify suspect areas. Outrigger wheels provide mobility on site. The device is supplied as three sub-assemblies which are quickly assembled on site.

The Travelling Beam is supplied fitted with an autographic recorder providing a permanent record of the surface profile. Records up to 1 km can be recorded on the special chart paper rolls used.

Wooden box should be ordered separately.



HR-AS2310

#### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-AS2310	Autographic Recording Travelling Beam Device	33x180x60	55

#### Spare Parts & Accessories:

Product Code	Product Name
HR-AS2310/1	Special chart paper rolls
HR-AS2310/2	Wooden Box

### RATE OF SPREAD SPRING BALANCE

STANDARDS: EN 12272-1, EN 12274-4, BS 598:108

This simple equipment use to determine the rate of spread of binder on the surface of the road.

The equipment consists of a metal 300 mm square tray, which can be lifted by means of four chains. The chains are attached to a balance and the rate of spread can be assessed by a balance.

Strength Capacity is up to 16 kg/m<sup>2</sup> and Readability is 0.5 kg/m<sup>2</sup>. It is calibrated to give direct reading in kg/ m<sup>2</sup>.



HR-AS2355 with  
HR-AS2356

#### Technical Specifications:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-AS2355	Spread Spring Balance	33x180x60	0,2
HR-AS2356	Metal Tray with Chain	300x300x25	0,4

## VIALIT PLATE (BINDER ADHESION) TEST

STANDARDS: EN 12272-1, 12272-3

This apparatus is used for determining the rate of spread of coated chippings on the road surface. The method is a check on the adhesion of aggregates to be applied to the surface of wearing course rolled asphalt.

Consist of a metal basement with three vertical pointed rods to hold the test plate; a 512 g steel ball, six metal test plates and a hand operated rubber lined roller.

Mechanical Aggregate Deployment should be ordered separately.

### Spare Parts & Accessories:

Product Code	Product Name
HR-AS1900/1	Flat Steel Plates, 6 pcs.
HR-AS1900/2	Steel Ball, 512 g
HR-AS1900/3	Rubber Wheel Roller, hand operated
HR-AS1900/4	Mechanical Aggregate Deployment, 100 chippings



HR-AS1900

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-AS1900	Vialit Plate (Binder Adhesion) Test Apparatus	40X140X40	45

## DEPOT TRAY TEST SET

STANDARDS: BS 1707

Depot Tray Test Set is used to determine the transverse uniformity of distribution of sprayed binder to BS 1707.

Consisting of a wheeled trolley with a holding device for accepting a set of 50 containers. Containers are included.

The trolley and containers are pushed underneath the spray hood of the distributor, which is backed over a catch pit for the test. Once the containers are almost full, the trolley is withdrawn and the depth of binder in each container is measured, ensuring that the correct depth (not obscured by froth on the surface of the liquid) is obtained.

Results are expressed as a percentage deviation from the mean for all the 50mm units over the effective width.

Height is 200mm without trays and 300mm with trays (including wheels).



HR-AS2400

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-AS2400	Depot Tray Test Set	140x365x30	440



HR-AS2400

# HİRA TESTING EQUIPMENT



## BOTTLE ROLLER APPARATUS

STANDARDS: BS 598-102, BS 812, EN 12697-1, EN 13108

A compact bench unit designed to rotate 2 bottles simultaneously about their longitudinal axis.

The Bottle Roller Apparatus is robustly constructed; designed to accept bottle of various sizes and rotates at speeds relevant to most international standards.

Main Shaft Rotation is Adjustable up to 30 rpm.

Steel Bottles and Flask funnel for Steel Bottles should be ordered separately.



HR-AS2450

### Spare Parts & Accessories:

Product Code	Product Name	Capacity (ml)
HR-AS2455	Steel Bottle with rubber stopper	600
HR-AS2456	Steel Bottle with rubber stopper	2500
HR-AS2457	Steel Bottle with rubber stopper	7000
HR-AS2460	Flask funnel for Steel Bottles	---



HR-AS2455  
HR-AS2456  
HR-AS2457



HR-AS2460

### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)	Power Supply
HR-AS2450	Bottle Roller Apparatus	560x910x295	40	220 V, 50-60 Hz, 1ph

## PRESSURE FILTER

STANDARDS: BS 598-102, EN 12697-1

Pressure Filter is used for determining the bitumen content.

The Pressure Filter consists of a plated steel pressure vessel with a filter support and pressure gauge.

Foot Pump, Test Sieve, Filter Paper and Filter Filler Funnel should be ordered separately.

### Technical Specifications:

Product Code	Product Name	Dimensions (mm)	Weight (kg)
HR-AS2475	Pressure Filter	Ø 292x382	24



HR-AS2475



HR-G2192

HR-AS2475/1



HR-AS2480

### Spare Parts & Accessories:

Product Code	Product Name
HR-AS2485	Foot Pump, (0 -100 psi / 0 - 7 bar) with flexible hose 65 cm long approx.
HR-G2192	Sieve, Ø200x50mm, stainless steel frame and mesh, woven cloth,63µm (#230)
HR-AS2480	Filter Paper, Ø 270 mm with 33 mm hole (Pack of 50)
HR-AS2475/1	Filter Filler Funnel



HR-AS2485

## **BINDER RECOVERY APPARATUS, VACUUM PUMP METHOD** **HOT EXTRACTION METHOD SOLUBLE BINDER CONTENT** **(BITUMEN RECOVERY)**

STANDARDS: BS 598-102, EN 12697-1

Used for the separation of solvent from the binder/solvent solution and to determine the binder content in an aggregate/bitumen mixture.

The apparatus consists of Thermostatically controlled Water Bath to keep boiling water during all the recovery cycle, complete with cover and digital thermostat, Vacuum Pump with Vacuum Gauge Manometer, 6 m Tubing for Vacuum, 1000 ml Filter Flask with rubber bung, Two flat-bottomed glass flasks having 250 ml capacity with rubber bungs and other necessary fittings and connections.

The Thermostatically controlled Water Bath may be used also as general purposes water bath.

For more information on the Water Bath, see Water Baths, Model HR-G1505.

For more information on the Vacuum Pump, see Vacuum Pumps, Model HR-G0801.



**HR-AS2500**

### Technical Specifications:

Product Code	Product Name	Weight (kg)	Power Supply
HR-AS2500	Binder Recovery Apparatus	25	220 V, 50-60 Hz, 1ph

### Spare Parts & Accessories:

Product Code	Product Name
HR-G1505	Water Bath with Circulation System, 30 lt capacity
HR-G0801	Vacuum Pump, Single Stage, 70 l/min
HR-G0815/1	Tubing for Vacuum. 6 m
HR-G0816	Vacuum Gauge Manometer, 1000 mbar, Ø63 mm
HR-G0082	Filter Flask with rubber bung, 1000 ml
HR-G0085	Glass Flask, Flat-bottomed, 250 ml with rubber bungs



**HR-G0085 with connections**

## HİRA TESTING EQUIPMENT

### HOT EXTRACTOR SET (PAPER FILTER METHOD)

STANDARDS: EN 12697-1

Hot Extractor Set is used to extract the binder from bituminous mixtures and to determine the moisture content.

Consisting of a Steel Pot complete with Gauze Basket and Filter, Dean Stark Collector, Condenser, Ø 400 mm Filter paper (Pack of 50).

Hot Plate should be ordered separately.

For more information on the Hot Plate, see Hot Plates, Model HR-G1010.

#### Technical Specifications:

Product Code	Product Name	Dimensions (cm)	Weight (kg)
HR-AS2550	Hot Extractor Set	48x48x90	22

#### Spare Parts & Accessories:

Product Code	Product Name
HR-AS2550/1	Steel Pot with Gauze Basket and Filter
HR-AS2550/2	Dean Stark Collector
HR-AS2555	Filter Paper, Ø 400 mm, (Pack of 50)
HR-G1010	Analog Hot Plate, Ø 20, (Single)

HR-AS2550



HR-G1010



HR-AS2555



HR-AS2550/1

