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ASPHALT / BITUMEN

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MARSHALL STABILITY TESTER (A-001/LCD)

ASTM D1559 • EN 12697-34 • AASHTO T-245

- Used to determine the stability of the bituminous mix materials and capability of resistance against plastic deformation and flow value of the materials.
- Equipped with an LCD Data Acquisition System control the test and display the results in a very easy and simple way and, a memory to store up to 1000 test results to recall them in the future.
- Has a capacity of 50 kN and a loading rate of 2"/minute (50.8 mm/min).
- Fully automatic and to stop the test by itself when finishes and return to its initial position.
- Equipped with RS 232 port for computer connection and thermal printer (which should be ordered separately) to report the results quickly and directly from the machine.
- Supplied with load cell that has a capacity of 50 kN and flow-meter.

SUPPLIED WITH

- Load cell: 50 kN capacity
- Breaking Head
- Software

TECHNICAL SPECIFICATIONS

- Capacity : 50 kN
- High Precision Load Cell
- Electronic Measure of Flow
- Peak Hold of load and Flow
- Equipped with LCD Indicator
- Load Rate: 50.8 mm/min (2"/ min)
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)



Marshall Stability Tester (A-001/LCD)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-001/LCD	45 x 60 x 110 (h)	90

MARSHALL STABILITY TESTER - DIGITAL (A-001/D)

ASTM D1559 • EN 12697-34 • AASHTO T-245

- Used to determine the stability of the bituminous mix materials and capability of resistance against plastic deformation and flow value of the materials.
- Has a capacity of 50 kN and equipped with a digital indicator that shows the load. The digital indicator displays the maximum load during the test via Peak Hold function.
- Supplied with a digital indicator and a stability mould.



Marshall Stability Tester - Digital (A-001/D)

TECHNICAL SPECIFICATIONS

- Capacity: 50 kN
- High Precision Load Cell
- Electronic Measure of Flow
- Peak Hold of load and Flow
- Stability Mould
- Complete with Digital Indicator
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-001/D	42 x 55 x 90 (h)	88.5

MARSHALL MOULD (A-010)

- The sample, moulded in this equipment, can be used in Marshall Stability Tester.
- The Ø 4" mould is made of a heavy-duty steel and protected against corrosion.
- The mould is supplied with base plate and collar.



Marshall Mould (A-010)

TECHNICAL SPECIFICATIONS

- Mould (Ø 4")
- Base Plate
- Collar

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-010	Dia: 12.5 / h: 15.5	3.8

AUTOMATIC MARSHALL COMPACTOR (A-015)

ASTM D6926 • AASHTO T 245 • EN 12697

- Used to determine the resistance of the asphalt sample to plastic flow. The test is performed in a fully automatic mechanism and programmed to stop automatically at the required number of blows.
- Supplied with the standard height and rammer weight according to ASTM/EN standards.
- Equipped with a blow counter, wooden pedestal and quick action clamping.



ASTM Model (A-015/ASTM)



EN Model (A-015/EN)

TECHNICAL SPECIFICATIONS (EN)

- Equipped with safety guard
- Blow Rate: 60 ± 5 blows per minute
- Rammer Weight: $4535 \text{ g} \pm 10 \text{ g}$
- Drop Height: $457 \pm 5 \text{ mm}$
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

TECHNICAL SPECIFICATIONS (ASTM)

- Blow Rate: 55 ± 5 blows per minute
- Rammer Diameter: $100.33 \text{ mm} \pm 0.25 \text{ mm}$ ($3.955" \pm 0.005"$)
- Rammer Weight: $4536 \text{ g} \pm 9 \text{ g}$ ($10 \text{ lb} \pm 0.02 \text{ lb}$)
- Drop Height: $457.205 \text{ mm} \pm 0.635 \text{ mm}$ ($18" \pm 0.025"$)
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

HI-LOW DETECTOR - TRAVELLING BEAM (A-069)

- Used for checking planeness/irregularities in concrete and bituminous road surfaces.
- The travelling beam is 3 meters long.
- Deviation of the surface is shown on a scale;
 - in increments of 2 mm from 0 - 10 mm
 - in increments of 5 mm from 10 - 25 mm



TECHNICAL SPECIFICATIONS

- Length : 3 m
- Equipped with scale (up to 25 mm)

SAMPLE EXTRUDER (A-020)

- Used to extract the sample from its mould. It can be used with proctor test moulds, CBR test moulds, Marshall test moulds and other moulds having the diameter 100 mm to 6".
- The machine is actuated using a manual hydraulic mechanism.



Sample Extruder (A-020)

TECHNICAL SPECIFICATIONS

- Manual-Hydraulic Type
- Used for 100 mm to 6" diameter samples
- Can be used with the moulds of Proctor, CBR, Marshall Tests

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-020	Dia: 30 / h: 60	35

BITUMEN PENETROMETER (A-090)

- Used to determine the moisture content while soil passing from plastic to liquid state by measuring the penetration of standard cone free falling into the soil under controlled conditions.
- Designed with auto-zeroing mechanism and a release button is equipped to the machine for easier using experience.



Digital Penetrometer (A-090)

A-090 Hand-operated model with a digital indicator to be used with a stopwatch.



Semi-Automatic Digital Penetrometer (A-090/SA)

A-090/SA Semi-Automated model with a digital indicator. It releases and stops the plunger automatically and shows the penetration measurements on a digital indicator.

SUPPLIED WITH

- Penetration Needle (A-090/PN)
- Sample Cup (Ø 55 mm x 35 mm) (A-090/SC)
- Transfer Dish (Ø 127 mm x 23 mm) (A-090/TD)

MARSHALL WATER BATH (G-040)

EN 12697:34 • ASTM D1559 • ASTM D5581 • AASHTO T245

- Used to cure specimens at constant temperature.
- Exterior is made of powder coated steel and the interior tank and the cover are corrosion-resistant stainless steel.
- Supplied with perforated stainless steel shelf which stands at the bottom of the tank to ensure uniform temperature.
- Equipped with digital thermoregulator with range of ambient to 82°C (180°F) and pilot light heat indicator.
- The tank is insulated from the outer cabinet with thick mineral wool to reduce thermal loss and to help maintain constant temperature.
- Available in 2 different capacities and with/without water circulation options.



Water Bath (G-040/30)

SUPPLIED WITH

- Digital Thermostat & Indicator
- Stainless Steel Cover
- Base Shelf
- Pilot Lamp

TECHNICAL SPECIFICATIONS

- Digital Thermostat & Indicator
- Interior Stainless Steel
- Water circulation is optional (to be specified at the time of order)
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)



Water Bath (G-040/60)

Code	External Dimensions (± 1 cm)	Internal Dimensions (± 1 cm)	Volume	Approximate Weight (kg)
G-040/30	12" x 20" x 8" 305 x 508 x 203 mm	13-3/4" x 21-1/2" x 15" 350 x 550 x 380 mm	7.93 gallons 30 liters	15
G-040/60	20" x 24-1/2" x 8" 508 x 622 x 203 mm	21-1/2" x 31-1/2" x 15" 550 x 800 x 380 mm	15.85 gallons 60 liters	30

BITUMEN CONTENT OVEN – IGNITION METHOD (A-030/IGN)

- Used to determine the bitumen/binder content in the asphalt and hot-mix samples.
- “After Burner” unit is installed at the top of the oven to reduce the gas emission during the test.
- The maximum temperature for the oven chamber is 600 °C.
- The maximum temperature for the After-Burner unit is 950 °C.
- The bottom of the innerchamber is made of insulating bricks with high strength against abrasion and impacts. The sides of the inner chamber with the ceiling lid are made of fiber board to provide better thermal insulation.
- The outer case is made of galvanized steel.
- The 7” True-Flat-Touch control panel is very user friendly and programmed to display the results graphically and in real-time during the test.
- Equipped with a sample plate and holder made of Nichrome.
- Weighing system (Capacity: 4 kg / Readability: 0.1 kg) is integrated in the oven.
- The oven is equipped with a thermal printer for faster/easier result reporting.



Bitumen Content Oven – Ignition Method (A-030/IGN)

SUPPLIED WITH

- After-Burner Unit.
- 7” Touch LCD Control Panel.
- Thermal Printer.
- Built-in Weighing System (Capacity: 4 kg / Readability: 0.1 kg).
- Sample Plate & Sample Holder.

TECHNICAL SPECIFICATIONS

- Chamber Maximum Temperature: 600 °C.
- After-Burner Maximum Temperature: 950 °C.
- Inner made of insulating bricks & fiber board.
- Outer made of galvanized steel.

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-030/IGN	63x60 x 112 (h)	95

ROLLING THIN FILM OVEN (A-030/RTFO)

ASTM D2872 • AASHTO T240

- Used to determine the effects of heat and air on a moving film of semi-solid asphaltic materials. The effects of this treatment are determined from measurements of the selected properties of the asphalt before and after the test.
- Internal chamber and external frame are made of stainless steel. Double wall insulation is made of fiberglass and the door is double glazed.
- The door has large glass for inspection during the test.
- Equipped with safety thermostat to prevent accidental over-heating.
- Clear, transparent, heat-resistant glass containers are supplied with the oven.
- Should be connected to a suitable air pressure supply (can be ordered separately).



Rolling Thin Film Oven (A-030/RTFO)

SUPPLIED WITH

- Digital thermostat to maintain 163 °C (325 °F) temperature
- Control thermometer
- Ventilation device
- Glass containers / sample bottles (8 ea)
- Safety thermostat
- Pilot light heat indicator

TECHNICAL SPECIFICATIONS

- Made of Stainless Steel
- Door with Large Window for Inspection
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-030/RTFO	62 x 91 x 62 (h)	55

ASPHALT OVEN WITH ROTATING SHELVES (A-030/TFO)

ASTM D1754 • EN 12607:2 • EN 13303 • AASHTO T179

- Used to determine the effects of heat and air on a film of semi-solid asphaltic materials. The effects of this treatment are determined from measurements of selected asphalt properties before and after the test.
- Internal chamber and external frame all made of stainless steel, double wall insulation with fiberglass, double-glazed door.
- Equipped with a digital thermostat and an indicator with operating temperature up to 180°C (356°F) fitted with overheat thermostat to prevent accidental over-temperature and to provide a safe working environment. The maximum temperature is regulated with the Proportional Integral Derivative (PID) control and goes to a maximum set value.
- The plate rotates at 5.5 ± 1.0 rpm.



Asphalt Oven With Rotating Shelves (A-030/TFO)

SUPPLIED WITH

- Digital thermostat to maintain 180°C (356°F) temperature
- Control thermometer
- Ventilation device
- Containers (2 ea + 9 ea)
- Safety thermostat

TECHNICAL SPECIFICATIONS

- Made of Stainless Steel
- Rotates at 5.5 ± 1.0 rpm
- Door with Large Window for Inspection
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-030/TFOT	46 x 45 x 70 (h)	40

CORING MACHINE - TRAILER MOUNTED (A-065)

- Used to take core samples from the asphalt.
- Installed on a trailer for easy transportation.
- Equipped with a petrol engine, four stabilizing feet, 100 lt water tank.
- Core Bits for the machine should be ordered separately



Coring Machine - Trailer Mounted (A-065)

TECHNICAL SPECIFICATIONS

- Trailer Mounted
- Petrol Engine
- Stabilizing Feet (4 ea)
- Water Tank (100 Lt)
- Core Bits should be ordered separately

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-065	130 x 141 x 140 (h)	260

Code	A-065/4	A-065/6
Core Bit Diameter	4" (≈ 100 mm)	6" (≈ 150 mm)



Coring Bits

■ CORING MACHINE - PORTABLE (A-066)

- Used to take core samples from the asphalt and concrete.
- The machine is designed to be portable and easily carried in a pick-up car.
- Equipped with a petrol engine, four stabilizing screw stands and a vertical screw feed.
- Suitable for Easy Single Person Operation.
- Core Bits for the machine should be ordered separately



Portable Coring Machine (A-066)

● TECHNICAL SPECIFICATIONS

- Portable unit.
- Petrol engine
- Four stabilizing screws.
- Vertical screw feed.
- Water inlet
- Engine Configuration : Vertical Shaft
- Engine Fuel : Gasoline
- Starter : Rewind
- Bit Capacity : Up to 6" (150 mm) diameter bits

FLASH POINT APPARATUS (A-470)

- Used to determine the maximum temperature the bitumen can be safely heated without the danger of instantaneous flash in the presence of an open flame.
- Equipped with electronic heater, thermoregulator, two thermometers, and a sample cup.



Flash Point Apparatus (A-470)

● SUPPLIED WITH

- Electric heater
- Thermoregulator
- Two Thermometers
- Sample Cup

RING AND BALL SOFTENING POINT APPARATUS (A-472)

- Used to determine the temperature at which a phase-change occur in the asphalt cement (bitumen) via “Softening Point Test”, that is to define the temperature at which an asphalt cement (bitumen) cannot support the weight of the steel ball and starts flowing.
- Comprises all the necessary parts to perform the test such as speed-controlled heater, magnetic stirrer, temperature probe, glass beaker, Ring and Ball support and test rings.

● SUPPLIED WITH

- Hot plate with magnetic stirrer
- Glass thermometer
- Glass beaker, ring and ball support, test rings



Ring and Ball Softening Apparatus (A-472)

REFLUX EXTRACTOR (A-035)

ASTM D2172 • AASHTO T-164

- Used to determine the percentage of bitumen in the asphalt pavement mixtures.
- Equipped with a glass cylinder, two wire mesh cones and brass condenser.
- Filter Papers should be ordered separately



Reflux Extractor (A-035)

TECHNICAL SPECIFICATIONS

- Capacity: 1000 g / 4000 g
- Glass Jar Cylinder
- Wire mesh Cone (2 ea)
- Thermometer
- Hotplate
- Brass Condenser

Code	Capacity (g)
A-035/1	1000
A-035/4	4000

CENTRIFUGE - EXTRACTOR (A-031)

ASTM D2172 • AASHTO T-164

- Used to determine the bitumen percentage in the asphalt mixtures.
- The extractor is available in two capacities (1500 g and 3000 g), and it is equipped with a speed control knob.
- Filter Papers should be ordered separately



Centrifuge - Extractor (A-031)

TECHNICAL SPECIFICATIONS

- Capacity: 1500 g / 3000 g
- Speed control knob
- Brake for fast stopping
- Filter Papers should be ordered separately
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	A-031/15	A-031/30
Capacity	1500 g	3000 g

FILTER PAPER (FP)

- A-031/1500/FP Used for Centrifuge: 1500 g
- A-031/3000/FP Used for Centrifuge: 3000 g
- C-035/FP Used for Blaine Apparatus
- A-035/FP Used for Reflux Extruder
- T-010/FP Used for CBR Mould
- A-010/FP Used for Marshall Mould



Filter Paper (FP)

ASPHALT HEATER (A-050/H)

- Used to heat the asphalt and make it within the standard range of temperature for mixing.
- Equipped with a thermostat to control the temperature of the mix.



Asphalt Heater (A-050/H)

■ MARSHALL MIXER (A-050)

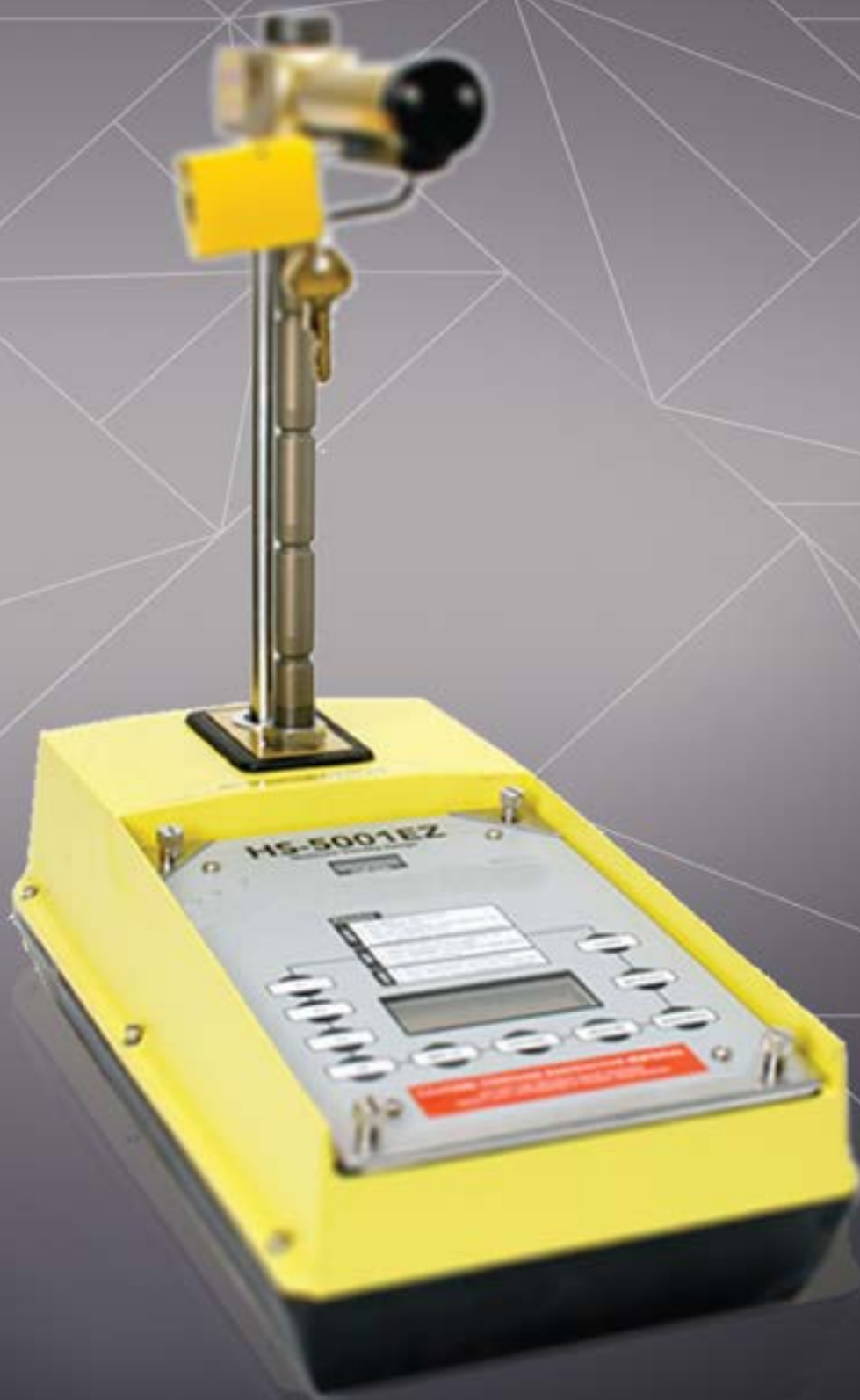
- Used to mix the samples with bituminous materials. The mixer provides uniform and quick mixing process.
- The beaters in the mixer rotates in both planetary and spindle ways to provide the best and the most efficient mixing state.
- Equipped with a stainless steel bowl and beater.



Marshall Mixer (A-050/05) with Heater (A-050/H)

● TECHNICAL SPECIFICATIONS

- Capacity: 5 lt (A-050/05)
10 lt (A-050/10)
- Rotates Planetary & Spindle
- Stainless Steel Bowl
- Beater
- Power Supply: 380 V (3 phase)



■ NUCLEAR DENSITY / MOISTURE GAUGE (EZ-121)

- Used to determine density and the moisture content of the sample in a very short period with very accurate results.
- The testing time can be chosen from the control panel as 15 seconds, 1 minute and 4 minutes.
- The depth range that can be measured by this equipment is 12" (30 cm), with 1" measurement increment.
- Supplied with all the necessary accessories to perform the test.

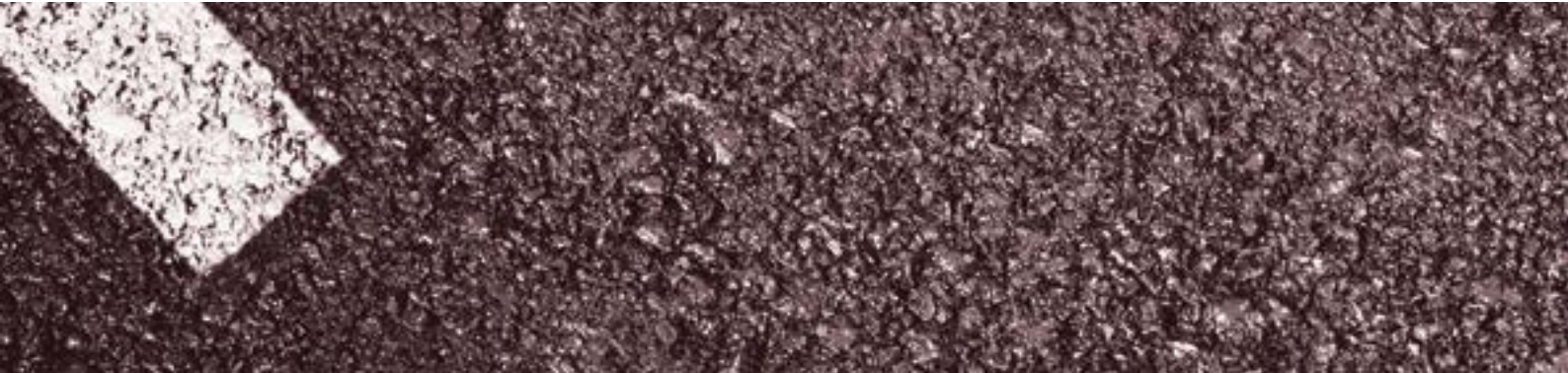
● TECHNICAL SPECIFICATIONS

- Used for rapid field tests.
- Test time: 15 sec / 1 min / 4 min
- Depth Range up to 12" (30 cm)
- Increment: 1" (2.5 cm)
- With Accessories



Nuclear Density / Moisture Gauge (EZ-121)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
EZ-121	Gauge : 40 x 22 x 14 (h)	41
	Reference Standard : 35 x 20 x 8 (h)	
	Transit Case : 79 x 36 x 50 (h)	
	Accessory Case : 50 x 25 x 13 (h)	



SAYBOLT VISCOMETER (A-430)

ASTM D88 • AASHTO T-72

- Used to determine the viscosity of the petroleum products at a specified temperature.
- Equipped with a digital thermostat and indicator to control the temperature.
- The body of the machine is made from a very strong and rigid stainless steel.
- Also equipped with a mixer to ensure the homogeneity while testing, copper coil for quick cooling and sample cup with orifice.



Saybolt Viscometer (A-430)

TECHNICAL SPECIFICATIONS

- Digital Thermostat & Indicator
- Stainless Steel Body
- Mixer for Homogeneity
- Copper coil for cooling
- Sample Cup and Orifice
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)

Code	Dimensions (± 1 cm)	Approximate Weight (kg)
A-030	41 x 45 x 60 (h)	15

KINEMATIC VISCOMETER (A-435)

ASTM D2170

- Used to determine the kinematic viscosity of the bitumen and road oil.
- Equipped with electronic thermostat, thermometer and a heating unit.
- Equipped with water circulating unit to provide homogeneous/constant temperature all over the bath.



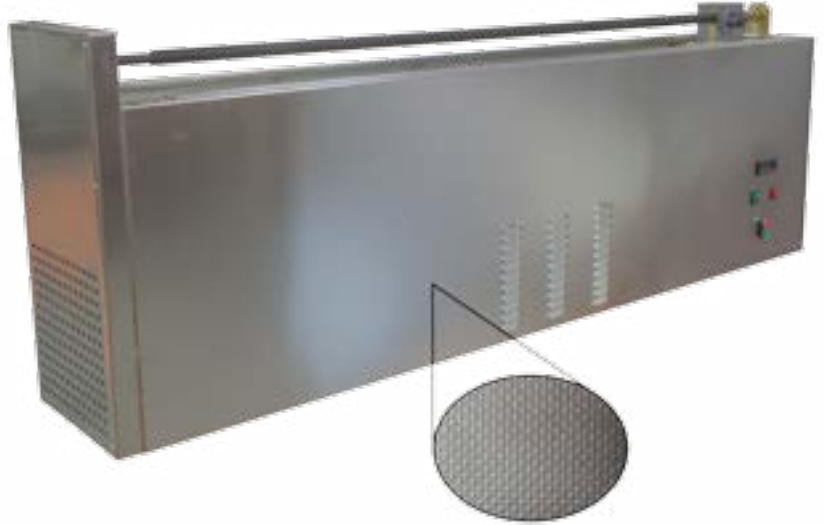
Kinematic Viscometer (A-435)

TECHNICAL SPECIFICATIONS

- Viscosity Tube(s) in accordance with ASTM D2170 (To be specified at the time of inquiry).
- Digital Thermostat & Indicator with accuracy of 0.02 °C.

DUCTILITY TESTER (A-440) ASTM D113 • AASHTO T-51

- Used to determine the ductility of a bituminous materials by measuring the distance to which it will elongate before breaking when two ends of a briquet specimen of the material are pulled apart at a specified speed and temperature.
- Unless otherwise specified, the test shall be made at a temperature of $25^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ and with a speed of $50 \text{ mm/min} \pm 5.0 \%$.
- The internal bath and external body are made of stainless steel, with double wall fiberglass insulation.
- Equipped with thermoregulator to maintain the test temperature during the test.
- In hot areas, upon request, refrigerating unit can be also equipped with the machine (A-440/CU).
- Equipped with circulation motor used to maintain a constant temperature.
- Supplied with ductility mould and plate (set of 2).



SUPPLIED WITH

- Ductility Mould (A-440/M)

TECHNICAL SPECIFICATIONS

- Digital Thermostat & Indicator
- Interior Stainless Steel
- Power Supply: 220 - 240 V / 50 or 60 Hz (110 V / 60 Hz is also available)



Ductility Mould (A-440/M)

EMULSION - DISTILLATION UNIT (A-450)

ASTM D402 • AASHTO T-78

- Used to determine the amount of water in the bitumen and petroleum products. The mechanism of the test is done via distilling the specimen with a water immiscible (volatile solvent).
- Comprises distillation flask, condenser, ring burner and two thermometers.



Emulsion - Distillation Unit (A-450)

TECHNICAL SPECIFICATIONS

- Distillation Flask
- Condenser
- Ring Burner
- Thermometer (2ea)

PARTICLE CHARGE TESTER (A-460)

ASTM D224

- Used to determine the particle charge (cationic) for the asphalt cement (bitumen) emulsion.
- Equipped with milliammeter, variable resistor, rechargeable batteries and two stainless steel electrodes.



Particle Charge Tester (A-460)

TECHNICAL SPECIFICATIONS

- Identify cationic emulsions
- Supplied with:
 - Milliammeter
 - Variable Resistor
 - Rechargeable Battery
 - 2 electrodes (ss)

VACUUM PYCNOMETER (A-490)

ASTM D204 • EN 12697:5 • AASHTO T-209

- Used to rapidly determine the asphalt content, bulk specific gravity of aggregates, the specific gravity of bituminous compacted road mixtures and the percent air voids in the sample.
- Vacuum pump must be ordered separately.



Vacuum Pycnometer (A-490)

TECHNICAL SPECIFICATIONS

- Minimum vacuum required: 30 mm/Hg
- Vacuum pump must be ordered separately.