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ALFA

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TESTING EQUIPMENT

LABORATORY OVEN (G-030)

ASTM • AASHTO

Laboratory Oven (G-030/250)

- The ovens are used for drying, conditioning and moisture determination.
- The oven is equipped with a digital thermostat and an indicator with range of ambient to 392°F (200°C) 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 internal chamber is made of stainless steel and the exterior surface of the oven is powder coated (also available in stainless steel). Mineral wool in between the internal chamber and outer cabinet for insulation.
- The oven has exhaust holes for moisture discharge and fast cooling.
- Air circulating fan provides forced convection airflow for uniformity of internal temperature which is mounted on the back wall.
- The oven is supplied with grid shelves which allows air-flow that can be easily adjusted and/or removed.

SUPPLIED WITH

- Two Adjustable shelves (additional shelves can be ordered)
- Digital Thermostat & Indicator
- Overheat Thermostat
- Pilot light heat indicator

TECHNICAL SPECIFICATIONS

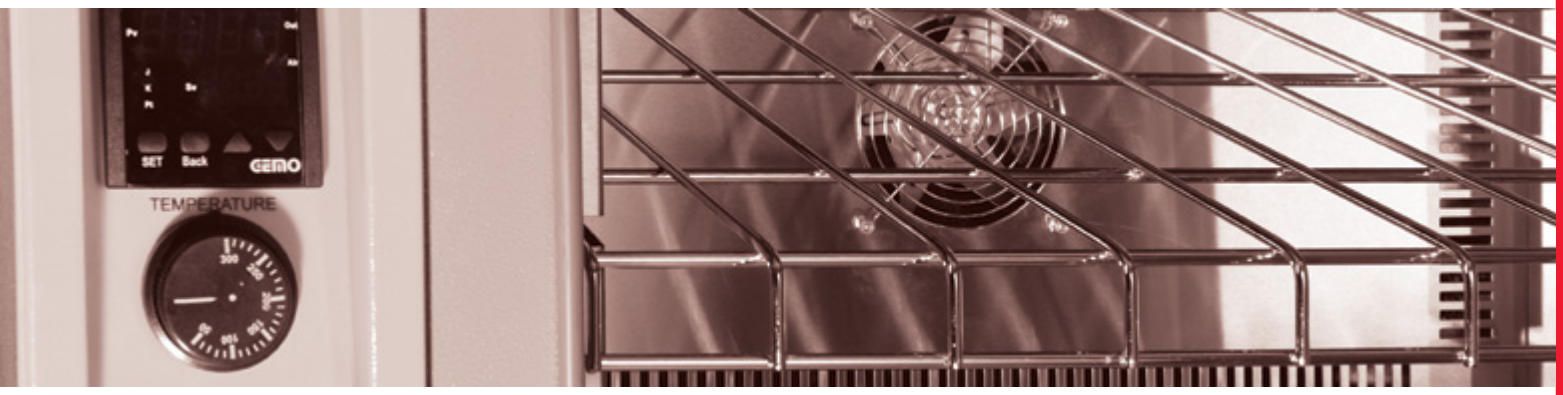
- Digital Thermostat & Indicator Fitted With overheat thermostat
- Temp max : 392°F (200°C) (PID control)
- Interior chamber : Stainless Steel
- Exterior : Powder Coated or Stainless Steel
- Insulated with thick mineral wool
- Forced convection airflow
- Power Supply : 110 V / 60 Hz (220 V / 50 Hz version is also available)

LABORATORY OVEN (G-030)

ASTM • AASHTO

G-030/250-2 (2 Doors - Horizontal)

G-030/120 - Stainless Steel Exterior



Code	Capacity	# of Doors	# of Shelves	# of Fans	External Cabinet Dimensions (W x L x H)	Internal Chamber Dimensions (W x D x H)	Approximate Weight	Power
G-030/120	4 cu. ft. 112.5 lt	1	2	1	29.5" x 25.2" x 24.5" 75 x 64 x 62 (h) cm	19.6" x 17.7" x 19.6" 50 x 45 x 50 (h) cm	148 lb 67 kg	800 Watts 110 V
G-030/250	8 cu. ft. 225 lt	1	2	1	27.5" x 27.5" x 50" 70 x 70 x 127 (h) cm	19.6" x 17.7" x 39.2" 50 x 45 x 100 (h) cm	198 lb 90 kg	1200 Watts 110 V
G-030/250-2	8 cu. ft. 225 lt	2	2	2	47" x 27.5" x 30" 119 x 70 x 76 (h) cm	39.2" x 17.7" x 39.2" 100 x 45 x 50 (h) cm	232 lb 105 kg	1200 Watts 110 V
G-030/400	14 cu. ft. 400 lt	1	2	2	38.5" x 32" x 49.6" 98 x 82 x 126 (h) cm	26.8" x 22" x 42" 68 x 56 x 107 (h) cm	285 lb 130 kg	1200 Watts 110 V

COMPRESSION TESTER (B-001/LCD)

ASTM C39

- Compression Tester is used to test the compression strength of concrete cubes/ cylinders of different sizes.
- The rigid design provides stability and strength for a better using experience.
- Equipped with an LCD unit that displays the data graphically of each test with the ability to save and recall the results of the tested specimens.
- The Data Acquisition Control provides real-time graphical indication.
- Automatically determines the load rate in accordance with the international standards upon sample type.
- With the AUTO-STOP function, the test will automatically stop.
- Fully automatic mode or manual mode in which the user gets the ability to adjust the load rate and period manually are available.
- The upper seating adjusts itself to apply homogeneous loading on the sample.
- Supplied complete with spacer discs.

Compression Tester (B-001/LCD)

SAMPLE SIZES

- Cubes with side length of 100 mm, 150 mm, 200 mm or any other custom cube/prism size can be tested with the machine.
- Cylinders with diameter of 4” & 6” or any other custom-sized specimen can be tested with the machine.

NAVIGATING THROUGH THE LCD CONTROL UNIT

- Using the LCD control unit, to perform tests, to calibrate and to adjust the settings provides an easy and user-friendly experience.

COMPRESSION TESTER (B-001/LCD)
ASTM C39

TECHNICAL SPECIFICATIONS

- Capacity: 500,000 lb (~ 2000 kN) / 250,000 lb (~ 1000 kN)
- Full Automatic
- LCD Graphical Data Acquisiton Control System
- Automatic Load Rate
- Stops Automatically upon test completion
- Real time graph indication, and Max. load and stress are shown
- Unit selection available (kN, kgf, lbf)
- User-friendly 5-Points calibration (password protected)
- Test result can be printed by thermal printer (via RS-232)
- Limit switch installed to prevent piston over-travelling
- Equipped with safety front guard
- Platens are hardened in accordance with standards
- Supplied with distance pieces to test:
  - Cubes (150 mm) & (200 mm)
  - Cylinders (Ø 6") & (Ø 6")
- Test can also be performed through computer via ALFA's state-of-the-art software that gives the best and easiest user-experience with the ability to save/recall and report the test results.
- Power Supply: 110 V / 60 Hz (220 V / 50 Hz version is also available)

COMPONENTS

Rexroth Bosch Group · OMRON · HAWE HYDRAULIK · YASKAWA

AVAILABLE MODELS/CAPACITIES

Compression Tester (250,000 lb)

Compression Tester (250,000 lb)

Cement Compression/Flexure Tester (C-001/LCD)

UNIVERSAL TESTING MACHINE (UTM-001/LCD)

ASTM A370 • A615 • A996

- The Universal Testin Machine is used to test the tensile strength of steel rebar.
- The grippers are hydraulically operated by 2 independent auxiliary cylinders controlled by separated hydraulic valves. Those grippers are designed to firmly hold the steel rebar and avoid any slipping that might happen during the test on the rebar.
- The upper mobile crosshead is driven up/down by a separate motor. It is used to adjust the distance between upper and lower grippers to suite the length of the steel rebar.
- The machine is designed with different capacities (upon user's request) such as: 500,000 lb (~ 2000 kN) / 250,000 lb (~ 1000 kN) / 150,000 lb (~ 600 KN).
- Capable of testing specimen with diameters from 5/16" to 1 1/2".
- The stroke of the ram is 8".
- Provides easier and faster reporting with the printing facility for the results and graphs.

Compression Tester (B-001/LCD)

SAMPLE SIZES

Tensile Testing:

- The machine can test steel rebar with diameters varying from 5/16" to 1 1/2".
- Upon request, grippers for metal/steel sheets can be installed in the machine.

Compression Testing:

- Concrete cubes and cylinders with maximum height of 200 mm.

DESIGN

- The state-of-the-art design of the Universal Tensile and Compression Tester is one of the shortest yet the strongest designs in the world (less than 230 cm). Designing the firm and rigid frame for the machine, provides the machine extra stability and strength.

UNIVERSAL TESTING MACHINE (UTM-001/LCD)

ASTM A370 • A615 • A996

TECHNICAL SPECIFICATIONS

- Capacities: 500,000 lb (~ 2000 kN) / 250,000 lb (~ 1000 kN) / 150,000 lb (~ 600 KN)
- Full Automatic Hydraulic System
- LCD Graphical Data Acquisiton Control System
- Automatic Load Rate
- Stops Automatically upon test completion
- Real time graph indication
- Specimen Diameter : 5/16” - 1 1/2”
- RAM stroke : 8”
- Maximum load and stress are shown
- Automatic detection for yield point
- Computer-controlled system
- User-friendly 5-Points calibration (password protected)
- Limit switch installed to prevent piston over-travelling
- Equipped with safety front guard

- Supplied with computer, ALFA software (Compression / Tension tests) and printer
- Power Supply: 110 V / 60 Hz (220 V / 50 Hz version is also available)

COMPONENTS

Rexroth Bosch Group · OMRON · HAWE HYDRAULIK · YASKAWA

USING THE MACHINE

- The LCD control unit provides easy, user-friendly experience with the machine. With the LCD unit, the user can control and monitor the tests, adjust the settings and calibrate the machine.

- Performing the tests are now the easiest ever. With the computer connected to the machine, all the tests, monitoring and calibrating can be done via computer using the state-of-the-art ALFA software.

SAMPLE SPLITTERS - FIXED CHUTE (G-080)

- The sample splitter equipment is designed to halve/divide aggregates, soils, sands and gravel into two representative halves.
- The equipment is made of powdered coated enamelled steel.

Sample Splitter - Fixed Chutes (G-080)

Code	Chute Width	Number of Chutes
G-080/09	.375” 9.52 mm	12
G-080/12	.500” 12.7 mm	12
G-080/19	.750” 19.0 mm	10
G-080/25	1.00” 25.4 mm	10
G-080/37	1.50” 38.1 mm	8
G-080/50	2.00” 50.8 mm	8
G-080/62	2.50” 63.5 mm	8

UNIVERSAL SAMPLE SPLITTER - ADJUSTABLE CHUTES (G-081)

Universal Sample Splitter - Adjustable Chutes (G-081)

- The equipment is used to halve/divide large amount of aggregates, soils, sands and gravel into two representative portions.
- The equipment is supplied with adjustable chutes spacing so that it can serve the purpose of all the models.
- The width of each chute bar is 1/2".
- The equipment is supplied with lever and release hoppers.
- The equipment is made of heavy-duty steel.
- Two pans are supplied with each equipment.

Code	Dimensions	Approximate Weight
G-081	19.3" x 28.3" x 33.8" (h) 49 x 72 x 86 (h) cm	100 lb 45 kg

LOS ANGELES ABRASION MACHINE (AG-191)

ASTM C131

Los Angeles Abrasion Machine (AG-191)

The abrasive charges should be ordered separately

- Los Angeles machine is used to measure the degradation of mineral aggregates of standard gradings resulting from a combination of actions including abrasion or attrition, impact, and grinding in a rotating steel drum containing a specified number of steel spheres.
- The machine consists of a hollow steel cylinder, with a wall thickness of 1/2” (12 mm) closed at both ends having an inside diameter of 28” (711 mm), and an inside length of 20” (508 mm).
- The drum rotates at 30 – 33 rpm.
- The equipment is supplied with an automatic digital counter that shows the number of revolutions for the drum.

SUPPLIED WITH

- Material catch pan

TECHNICAL SPECIFICATIONS

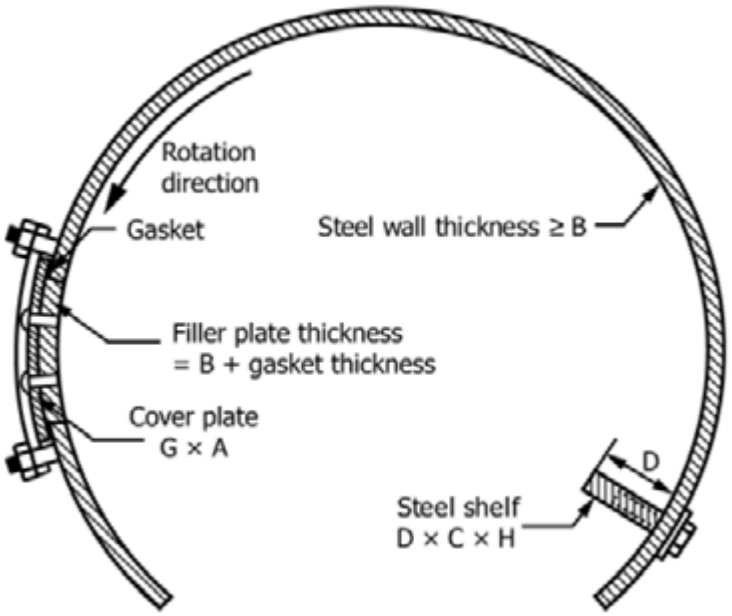
- Automatic digital counter
- The drum rotates at 30 - 33 rpm
- Power Supply : 110 V / 60 Hz (220 V / 50 Hz version is also available)

Code	Dimensions	Approximate Weight
AG-191	44” x 35” x 40” 110 x 88 x 100 (h) cm	830 lb 376 kg
AG-191/SPC	51” x 45” x 44” 128 x 113 x 110 (h) cm	305 lb 138 kg

LOS ANGELES ABRASION MACHINE (AG-191)

ASTM C131

DRUM DIMENSIONS



A	1/4” 6 mm
B	1/2” 12 mm
C	1” 25 mm
D	3 1/2” 90 mm
G	7 1/2” 190 mm
H	20” 510 mm

NOISE-REDUCTION CABINET (AG-191/SPC)

- The cabinet is to decrease the noise.
- AG-191/SPC should be ordered separately.

Noise-Reduction Cabinet (AG-191/SPC)

AUTOMATIC SOIL COMPACTOR (T-055/ASTM)

ASTM D558 • D559 • D560 • D698 • D1557 • D1558

- The Automatic Soil Compactor (T-055/ASTM) is used to determine the relationship between molding water content and dry unit weight of soil.
- Specifying this relationship will help detecting the optimum moisture contact of the compacted soil sample along with its maximum dry density.
- The compactor can perform both standard and modified compactions on soil samples assuring uniform and precise practice.
- Safety transparent door eliminates risks and allows observation.
- The compactor is equipped with automatic digital counter which stops at the required number of blows.
- The compactor can be used to compact samples in both standard and modified proctor moulds.

Automatic Soil Compactor (T-055/ASTM)

TECHNICAL SPECIFICATIONS

- Full automatic compaction
- Automatic digital counter
- Automatic Turntable Rotation
- Equipped with safety guard
- Power Supply : 110 V / 60 Hz (220 V / 50 Hz version is also available)

AUTOMATIC SOIL COMPACTOR (T-055/ASTM)

ASTM D558 • D559 • D560 • D698 • D1557 • D1558

SUPPLIED WITH

- Standard Proctor Rammer:
  - Weight: 5.5 lb (2.495 kg)
  - Diameter: 2” (50.8 mm)
  - Drop: 12” (304.8 mm)
  - Circular Face
- Modified Proctor Rammer:
  - Weight: 10 lb (4.5364 kg)
  - Drop: 18” (457.2 mm)
  - Circular Face:
    - Diameter: 2” (50.8 mm)
  - Sector Face (Pie Shape):
    - Radius: 2.9” (73.7 mm)

Automatic Soil Compactor (T-055/ASTM)

Code	Dimensions	Approximate Weight
T-055/ASTM	26” x 26” x 57” (h) 64 x 64 x 144 (h) cm	330 lb 156 kg

FULLY AUTOMATED TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181

- The fully automatic machine is used to perform Triaxial Tests on all soil types and to determine its mechanical properties and strength.
- Supplied with a user-friendly & self-explanatory software specially designed to accommodate all possible tests in accordance with the latest versions of the international standards. The software gives the ability of total automation, controlling, reporting of all the standard tests, such as:
  - UU Test (Unconsolidated Undrained Test)
  - CU Test (Isotropically Consolidated Undrained Test)
  - CD Test (Isotropically Consolidated Drained Test)
- The software is able to perform highly advanced and customized tests (ie, extension tests, Ko Consolidation, custom stress paths ... etc) based on findings of reliable researchers in the literature.
- The setup can be easily upgraded to perform Flexible Wall Permeability Test.

LOADING FRAME

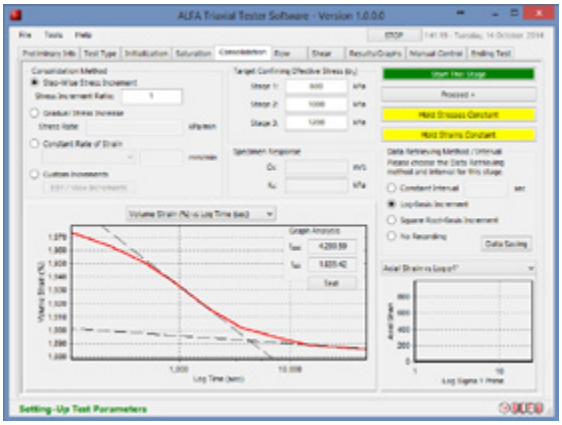
- Servo-Motor with controllable deformation rate (0.00001 – 9.99999 mm/min).
- Vertical Deformation Measuring Device with range of 0 – 50 mm.

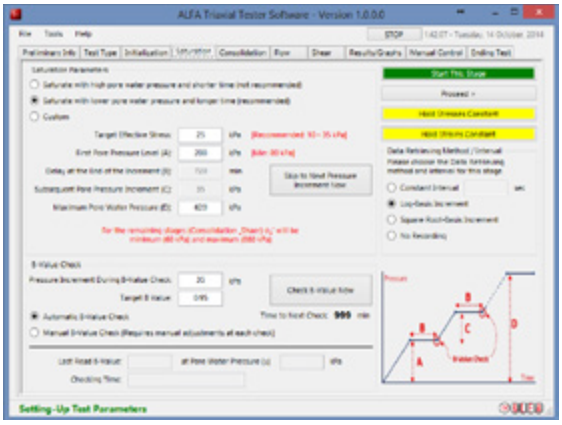
TRIAXIAL CELL

- Water-Proof Load Cell with capacity of 15 kN (~1.5 tons). The load cell is placed inside the triaxial chamber to eliminate the effects of piston friction.
- Transparent Plexiglass that allows inspection of the sample during the test
- Accommodating samples with diameter range of:
  - 36 – 75 mm for triaxial tests
  - 36 – 90 mm for flexible wall permeability
- Cell Pressure Capacity: 1500 kPa (~15 kgf/cm2)

FULLY AUTOMATED TRIAXIAL TESTER (T-5001/A)

ASTM D2850 • D4767 • D7181





- Two Pressure-Volume Actuators (PVA) (pneumatic pump, linear displacement sensor and a pressure transducer) that allow precise control and measurement of pore pressure, cell pressure and volume changes of the specimen.
- LCD Control that shows all the sensors in real time during the test.

SUPPLIED ACCESSORIES (Diameter to be specified at the time of order)

- Top cap & pedestal
- Porous stones
- End-plates
- Membrane
- Membrane stretcher with vacuum hose
- O-Rings
- O-Ring Stretcher
- Filter Papers
- Filter Strips
- Split compaction mould with vacuum hose
- Cutting Tube with extractor

AUTOMATIC SOIL COMPACTOR (T-055/ASTM)

ASTM D558 • D559 • D560 • D698 • D1557 • D1558

- Fully Automatic
- Data Acquisition System with LCD Display
- Load Cell with Capacity of 5000 N (500 kgf)
- Adjustable Test Speed via Servo-Motor between 0.00001 - 9.99999 mm/min
- Vertical and Horizontal Deformation are recorded automatically with Electronic Deformation Sensors
- Shear Box:
  - Circular: Ø60 mm
  - Square: 60x60 mm
- Supplied with weight set

TECHNICAL SPECIFICATIONS

- User Friendly Interface
- Display and Automatic Reporting with Graphs of Shear Stress and Vertical Deformation versus Shear Displacement
- Exporting Sensor Data to Microsoft Excel file
- Ability to Save / Recall data
- Mohr-Coulomb strength envelope construction and calculation of strength parameters

CORING MACHINE

Coring Machine - Trailer Mounted (A-065)

Coring Machine - Portable Unit (A-066)

TRAILER MOUNTED CORING MACHINE (A-065)

- Trailer Mounted Coring Machine is used to take core samples from the asphalt.
- The machine is installed on a trailer for easy transportation.
- The machine is equipped with 5.50 HP, 4-stroke petrol engine, four stabilizing feet, and having 100 gallon (380 lt) water tank for bit cooling.

PORTABLE CORING MACHINE (A-066)

- The equipment is used to take core samples from the asphalt.
- The machine is equipped with 5.50 HP, 4-stroke petrol engine, four stabilizing feet.

Core Bits for the machine should be ordered separately

MARSHALL WATER BATH (G-040)
ASTM D5581

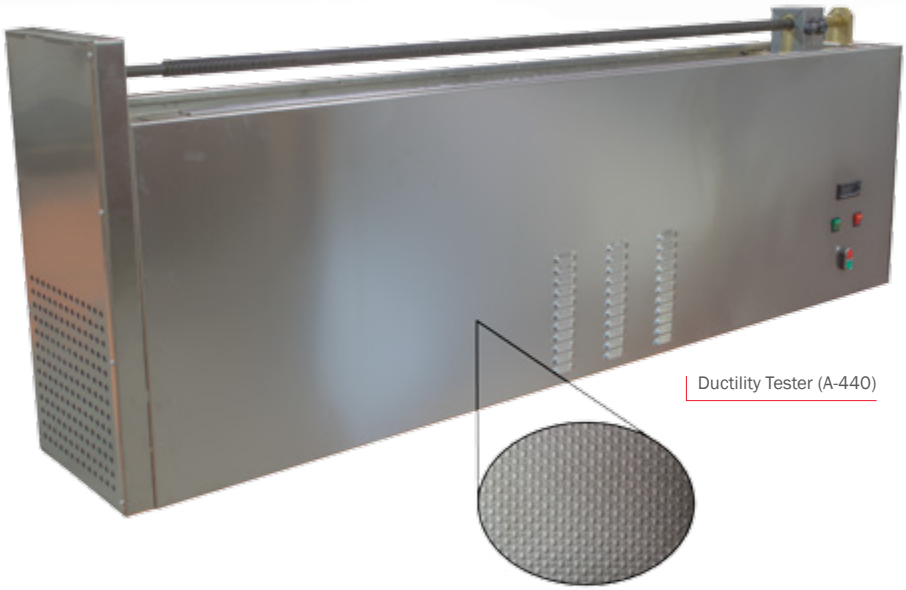
- The water baths are used to cure Marshall specimens at constant temperature.
- Exterior is made of powder coated steel and the interior tank and the cover are corrosion-resistant stainless steel.
- The bath is supplied with perforated stainless steel shelf which stands at the bottom of the tank to ensure uniform temperature.
- The bath is equipped with digital thermoregulator with range of ambient to 180 °F (82 °C) 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 contstant temperature.
- The water bath is available with 2 different capacities and with/without water circulation options.

Code	Internal Dimensions D x L x H	External Dimensions D x L x H	Volume	Water Circulation	Power
G-040/30/C-110	12” x 20” x 8” 305 x 508 x 203 mm	13-¾” x 21-½” x 15” 350 x 550 x 380 mm	7.93 gallons 30 liters	Yes	110 V
G-040/30-110	12” x 20” x 8” 305 x 508 x 203 mm	13-¾” x 21-½” x 15” 350 x 550 x 380 mm	7.93 gallons 30 liters	No	110 V
G-040/60/C-110	20” x 24-½” x 8” 508 x 622 x 203 mm	21-½” x 31-½” x 15” 550 x 800 x 380 mm	15.85 gallons 60 liters	Yes	110 V
G-040/60-110	20” x 24-½” x 8” 508 x 622 x 203 mm	21-½” x 31-½” x 15” 550 x 800 x 380 mm	15.85 gallons 60 liters	No	110 V

- 220 - 240 V / 50 Hz versions are also available.

DUCTILITY TESTER (A-440)

ASTM D113



Ductility Tester (A-440)

- The equipment is 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 °C ± 0.5 °C and with a speed of 50 mm/min ± 5.0 %.
- The internal bath and external body are made of stainless steel, with double wall fiberglass insulation.
- The bath is equipped with thermoregulator to maintain the temperature.
- Upon request, refrigerating unit is available with additional charge (A-440/CU).
- The bath is equipped with circulation motor to maintain a constant temperature througout the bath.
- The machine is supplied with ductility mould and plate (set of 2).

SUPPLIED WITH

- Ductility Mould and Plate (set of 2) (A-440/M)

TECHNICAL SPECIFICATIONS

- Maximum elongation (carriage travel): 1500 mm
- Equipped with Digital Thermoregulator
- Interior / Exterior are made of Stainless Steel
- Power Supply : 110 V / 60 Hz (220 V / 50 Hz version is also available)

Ductility Mould (A-440/M)

Code	Dimensions	Approximate Weight
A-440	15” x 72.5” x 26” (h) 38 x 184 x 66 (h) cm	139 lb 63 kg

ROLLING THIN-FILM OVEN (A-030/RTFO)

ASTM D2872

Rolling Thin-Film Oven (A-030/RTFO)

- The equipment is 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 is equipped with a large glass for inspection during the test.
- The oven is equipped with safety thermostat to prevent accidental over-heating.
- Clear, transparent, heat-resistant glass containers are supplied with the oven.
- The oven should be connected to a suitable air pressure supply (can be ordered separately).

SUPPLIED WITH

- Digital thermostat to maintain 325 °F (163 °C) 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 : 110 V / 60 Hz (220 V / 50 Hz version is also available)

Code	External Dimensions	Approximate Weight
A-030/RTFO	24.5” x 36” x 24.5” 62 x 91 x 62 (h) cm	122 lb 55 kg

THIN-FILM OVEN (A-030/TFO)

ASTM D6 • D1754

Thin-Film Oven (A-030/TFO)

- The equipment is 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.
- The oven is equipped with a digital thermostat and an indicator with operating temperature up to 356 °F (180 °C) 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.

SUPPLIED WITH

- Digital thermostat to maintain 325 °F (163 °C) temperature
- Control thermometer
- Ventilation device
- Containers (2 ea + 9 ea)
- Safety thermostat

TECHNICAL SPECIFICATIONS

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

Code	External Dimensions	Approximate Weight
A-030/TFO	17.7” x 17.7” x 27.5” 45 x 45 x 70 (h) cm	88 lb 40 kg

AUTOMATIC MARSHALL COMPACTOR (A-015/ASTM)

ASTM D6926

- The equipment is 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 upon test finish.
- The equipment has the standard height and rammer weight according to the international specifications.
- Equipped with a blow counter, wooden pedestal and quick action clamping.
- The Compactor is suitable for Ø 4” Marshall moulds.

Automatic Marshall Compactor (A-015)

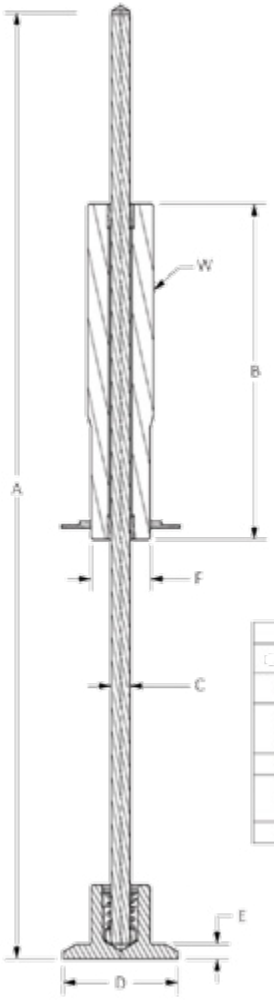
TECHNICAL SPECIFICATIONS

- Blow Rate : 55 blows per minute
- Rammer Face Diameter : 3.955 in (100.33 mm)
- Rammer Weight : 10 lb (4.536 kg)
- Drop Height : 18” (457.20 mm)
- Power Supply : 110 V / 60 Hz (220 V / 50 Hz version is also available)

Code	Dimensions	Approximate Weight
A-015/ASTM	21.6” x 15.7” x 63” (h) 55 x 40 x 160 (h) cm	43 lb 95 kg

AUTOMATIC MARSHALL COMPACTOR (A-015/ASTM)

ASTM D6926



	Description		
A-B	Drop Distance	456.57 - 457.84 mm	(17.975 -18.025 in)
C	Guide Rod Minimum Diameter	15.875 mm	(.625 in)
D	Face Diameter Hardened Impact Resistant	100.08 - 100.58 mm	(3.950 - 3.960 in)
E	Foot Thickness	11.43 - 13.97 mm	(0.450 - 0.550 in)
F	Weight Face Diameter	49.78 - 51.82 mm	(1.960 - 2.040 in)
W	Weight Mass	4.527 - 4.545 kg	(9.98 - 10.02 lb)

MARSHALL MOULD (A-010)

ASTM D6926

- The mould is used for preparing samples by Marshall Compactor that can be used in Marshall Stability Tester.
- The 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)

511 S. Catalina Ave Unit 1
Redondo Beach CA 90277

310.987.5252

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