LOUISIANA
DEPARTMENT OF TRANSPORATION AND DEVELOPMENT
SPECIFICATIONS

VIBRATORY SHAKER

DESCRIPTION:

This specification covers the requirements for a Vibratory Shaker used for the gradation of aggregates for materials testing.

REQUIREMENTS:

Shaker must hold seven (7) screen trays plus one (1) dust pan. Screen trays must be designed to allow screen cloth to be replaced. Shaker is to be of counter-balanced drive assembly and fully enclosed.

Must be/have the following:

- An electronic digital controller, with an LED display that shows the time remaining and produces an audible tone at the end of the test cycle. A controller capable of programming a test cycle up to 99 minutes, the controller must allow for the interruption of a cycle without loss of test time.
- Internal rotating counterweights of the drive system to equalize the vertical screening action to assure smooth, quiet operation and to prevent transfer of vibrations to other laboratory instruments.
- Capable of being placed anywhere within the laboratory without the need of permanent installation
- An integrated, moveable materials hopper. The hopper is to be rear-hinged to allow sample to be introduced incrementally while the shaker is running.
- A panel that prevents dust from escaping into the atmosphere when the hopper is closed.
- Access doors that are vertically-hinged to allow access to the trays.
- Doors that are equipped with a safety interlock switch that disables the shaker when the doors are open.
- Equipped with an ergonomically operated foot-pedal to operate the hydraulic clamping and release system for the trays.
- One (1) operator's manual and parts list
- Eight (8) screen trays and 1 dust pan
- Screen tray sizes to include: (1)-1 ½ inch, (1)-1 inch, (1)- ¾ inch, (1)- ½ inch, (1)- 3/8 inch, (1)-No. 4, (1)- No. 8, (1)-No. 200

ELECTRICAL:

- Standard power utilities of 115V, 60Hz with a capacitor start 1/3hp motor.

WARRANTY:

- Must include a standard manufacturer warranty

APPROVED BRANDS/MODELS:

- Gilson model TM-6 or equal.

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SPECIFICATIONS
AUTOMATIC SOIL COMPACTOR

EQUIPMENT REQUIREMENTS:

- Must be for standard or modified compaction tests with 5.5 lb hammer with 12 inch drop height or 10 lb hammer with 18 inch drop height.
- Compactor shall accommodate 4 inch and 6 inch inside diameter molds.
- During compaction, hammers must compensate for sample drop.
- Must operate using a chain driven lift system.
- Hammer weight must be concentrated at the foot, allowing free fall of the rammer.
- Hammer changes must be made from the front of the compactor.
- A digital automatic counter to register the number of blows per compaction and be preset to stop the machine.
- A start/stop switch to control the compactor independently of the counter control.
- Compaction mold must be capable of mounting on the circular base.
- The circular base must index automatically with each blow to ensure uniform sample compaction.
- Mechanical components of the compactor must be enclosed in a cabinet and easily accessible from the front of the compactor for repairs. The cabinet door must be secured with a latch to prevent opening during use.
- The cabinet door must be designed with an electronic safety interlock that will turn off the compactor if the door is opened during use.

- Compactor shall operate on standard power utilities of 115 V, 60 Hz

Must come complete with the following:

- One (1) 10 lb pie-faced hammer
- One (1) 5.5 lb - 2 inch round hammer
- One (1) 4 inch standard compaction mold
- One (1) 6 inch standard compaction mold
- One (1) surcharge weight
- One (1) copy of the operator's manual and parts list

WARRANTY:

Must include a standard manufacturer warranty on parts and labor.

APPROVED BRANDS/MODELS:

- Gilson model HM-530 or approved equal.

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INDUSTRIAL BATCH OVEN

DESCRIPTION:
This specification covers the requirements for an industrial batch oven that will be used for construction materials testing for asphalt, aggregate, and soils.

REQUIREMENTS:
Oven interior must be all welded heavy gauge, reinforced type 304 stainless steel. Oven exterior must be all welded heavy gauge, reinforced cold-rolled steel finished with a durable baked-on powder-coated white enamel paint finish. Oven door must be insulated with a cold-rolled steel exterior with same finish as oven, type 304 stainless steel interior, left hand ball-bearing door hinges, and industrial type latch to ensure maximum door seal. Oven must be 60 cu.ft. and insulated.

Oven must have a direct drive ball bearing 3 Hp motor with balanced stainless steel multi-blade blower wheel to provide horizontal air flow. Must have an air flow switch to disable the heating elements should blower system failure occur. Heater must utilize Nichrome wire with high temperature, high dielectric strength refractory disks.

Controls must be located on the right of the oven, opposite of the exhaust. The intake/exhaust system must allow for manual adjustments.

Oven Dimensions:
- External dimensions must be 80" W x 63" D x 93"H (± 1")
- Internal dimensions must be 36" W x 48" D x 60"H (± 1")

Must be/have the following:
- Single set point temperature controller with a range of 15°C above ambient to 316°C, pre-programmed for Celsius, with an independent sensor, and must display oven temperature and set point
- Over temperature protection controller with a range of 15°C above ambient to 316°C, pre-programmed for Celsius, with an independent sensor, and must display oven temperature and set point
- Resolution of ± 0.1°C
- Uniformity of ± 2% of set point
- Minimum 9 shelf positions on 6 inch centers

ELECTRICAL:
- Oven must operate on power utilities of 240V, 3 phase, 60 Hz
- 34 Amps
- 24 kW heater

Must come complete with the following:

- Nine (9) Heavy gauge type 304 stainless steel slotted shelves
- One (1) Power cord for hard wiring
- One (1) operator's manual, parts list, and installation instructions

WARRANTY:

Must include a standard manufacturer 2 year warranty on parts and labor.

APPROVED BRANDS/MODELS:

Blue M model DC-606-G-PM or equal.

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SPECIFICATIONS

RESISTIVITY METER

DESCRIPTION:
This specification covers the requirements for the resistivity meter that will be used for determination of surface resistivity of concrete cylinders.

REQUIREMENTS:
The resistivity meter must test resistance of concrete to chloride ion ingress.

Must be/have the following:

- Four (4) probes with fixed spacing at 38mm (1.5")
- Measuring range of 1 to 1000 kΩcm with an operating temperature of 0°C to 50°C
- Resolution at 200μA: ± 0.2 kΩcm or ± 1%
- Resolution at 50μA: ± 0.3 kΩcm or ± 2%
- Resolution at <50μA: ± 2 kΩcm or ± 5%
- Frequency of 40Hz
- Current flow and poor contact indication
- Onboard memory capabilities with hold, save, and delete functions for up to 500 measurements
- USB connection and dedicated PC software
- Able to float and have an IPX7 waterproof rating (up to 3 feet for up to 30 minutes)

Must come complete with the following:

- One (1) wrist strap
- One (1) test strip
- One (1) test strip
- One (1) charger with USB cable
- One (1) hard carry case
- One (1) operator's manual

WARRANTY:
Must include a standard manufacturer warranty on parts and labor.

APPROVED BRANDS/MODELS:
Proceq Resipod or equal.

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SPECIFICATIONS

ROTATIONAL VISCOMETER

DESCRIPTION:
This specification covers the requirements for a rotational viscometer that will be used for determination of viscosity of asphalt materials.

REQUIREMENTS:
Rotational viscometer must have speed options from 0.01 to 200 rpm ratings. Must range from 100 to 40,000,000 centipoises. Must have a built in temperature probe ranging from 9°C to 260°C.

Must be capable of programmable timed tests, data averaging, quality control limits with alarms, customized speed/spindle list, step program status, and data comparison. Must have an auto range feature to show maximum viscosity measured with any spindle/speed combination. Test data must be stored internally with a minimum 150MB capacity and capable of sending to a printer or computer.

Must be/have the following:

- 5 inch color touch screen display which shows viscosity in centipoises or millipascal seconds, % torque, temperature in °C or °F, shear rate/shear stress, speed, and spindle number.
- Accuracy of ± 1% of range
- Repeatability of ± 0.2 %

ELECTRICAL:

- 115 V
- Shall be UL listed

Must come complete with the following:

- Viscometer stand
- Storage case
- One (1) power cord
- One (1) operator's manual and parts list

WARRANTY:
Must include a standard manufacturer warranty on parts and labor.

APPROVED BRANDS/MODELS:
Brookfield model DV2T or equal.

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THERMOSEL SYSTEM

DESCRIPTION:
This specification covers the requirements for a thermosel system that will be used for determination of viscosity of asphalt materials.

REQUIREMENTS:
Temperature control unit must be a non-fluctuating, programmable unit that elevates and controls the temperature of liquid samples. The control unit must provide control of sample temperature within ± 1°C of set point up to +300°C. The unit must include a programmable temperature controller that offers a single set point and up to 10 programmable set points.

Viscometer must be/have the following:
- Temperature controller unit with RTD probe
- Thermo container
- Sample chamber cooling rack
- Alignment bracket
- Extracting tool
- Pliers
- Insulating cap
- Coupling link
- Coupling nut
- Reusable stainless steel sample chamber
- Five (5) disposable aluminum sample chambers
- Compatible with Brookfield DV2T viscometer

ELECTRICAL:
- 115 V
- Oven shall be UL listed

Must come complete with the following:
- SC4-21 Spindle
- SC4-27 Spindle
- Two (2) spindle extension links
- One (1) power cord
- One (1) operator's manual and parts list

WARRANTY:
Must include a standard manufacturer warranty on parts and labor.

APPROVED BRANDS/MODELS:
Brookfield thermosel system or equal.