# MOLD AND PLUNGERS

For measuring the compressive strength of bituminous mixtures. The set consists of a steel mold (available in three sizes 2", 3" and 4" ID), 7" long, upper and lower plungers with removable, hardened and ground, tool steel face and two steel support bars. Mold and plungers are machined to very close tolerances.

| MODELS | DESCRIPTION | STANDARDS |
|---|---|---|
| B8441 | MOLD AND PLUNGERS, 2" ID | ASTM D-1074 |
| B8443 | MOLD AND PLUNGERS, 3" ID | |
| B8445 | MOLD AND PLUNGERS, 4" ID | |

| ACCESSORIES | DESCRIPTION |
|---|---|
| B8442 | EXTRA MOLD, 2" ID |
| B8444 | EXTRA MOLD, 3" ID |
| B8446 | EXTRA MOLD, 4" ID |

# MOISTURE EXUDATION INDICATOR

Used in California Test Method No. 301-B for the determination of exudation pressure from R-Value test specimens of untreated, treated, or aggregates. The apparatus consists of a contact plate with cord, an instrument case with indicating lamps, battery power supply, and two phosphor bronze spring tampered perforated discs. The Expansion Pressure Device tests for R-Value and expansion pressure of compacted soils. The set consists of a stainless steel mold, 4" ID, 5" high; frame with turntable, specimen height measuring device and calibrated steel bar, perforated disc stem, dial gage and holder and lever type calibrating device.

| MODELS | DESCRIPTION | STANDARDS |
|---|---|---|
| B8821 | MOISTURE EXUDATION INDICATOR, 110V / 60 Hz | CA-301B |
| B8851 | MOISTURE EXUDATION INDICATOR, 220V / 50 Hz | |

# WATER BATHS

The **B9109** & **B9110** are thermostatically controlled and fully insulated water baths which are capable of heating up to twelve 4" diameter Marshall specimens at a time. Shelf supports molds to allow water to surround 2" above and below the molds. The exterior and tank are constructed from stainless steel. The I.D. of the tanks are 11-1/2" x 19-1/2" x 8" deep and has a capacity of 7.76 gal (29.398 liters). The **B9118** & **B9118E** are similar except that they are equipped with a magnetic circulator. The fully insulated **B9118A** Water Bath is controlled by a microprocessor for accuracy to 0.1% of input span. The dual digital displays simultaneously shows set point and process temperature. Samples are supported by a shelf which allows free circulation of 2" of water above and below. All exposed parts are stainless steel. The **B9118B** Extra Large Capacity Water Bath is ideal for the larger samples used in Superpave and Marshall test applications. The bath features a microprocessor-based digital controller with built-in magnetic circulator for precise temperature control. The **B9119** & **B9119E** are economical water baths which heat up to eight molds and also feature an automatic thermostatic control. The I.D. of these tanks are 11-1/2" x 19-1/2" x 8". ALL MODELS EXCEPT THE **B9119** & **B9119E** MEET ASTM D-1559 SPECIFICATIONS.

**B9110-B9118E**

**B9119 & B9119E**

| MODELS | DESCRIPTION | RANGE | CAPACITY |
|---|---|---|---|
| B9109 | WATER BATH, 120V / 60 Hz | A-150° F (65.5° C) | 7.76 GAL |
| B9110 | WATER BATH, 220V / 50 Hz | | |
| B9118 | WATER BATH W/ CIRCULATOR, 120V / 60 Hz | | |
| B9118E | WATER BATH W/ CIRCULATOR , 220V / 50 Hz | | |
| B9118A | WATER BATH W/ MICRO-PROCESSOR TEMP CONTROL, 110V / 60 Hz | A-180° F (82° C) | |
| B9118B | WATER BATH, LARGE CAPACITY W/ CIRCULATOR, 110V / 60 Hz | | 14 GAL |
| B9119 | ECONO WATER BATH 150- 500° F , 120V / 60 Hz | 150 - 500° F (65 - 160° C) | 4.5 GAL |
| B9119E | ECONO WATER BATH 150- 500° F , 220V / 50 Hz | | |

# BREAKING HEADS

The **B9114** & **B9115** Breaking heads consist of upper and lower cylindrical segments having an inside radius curvature of 3" for 6" sample and 2" for a 4" sample. Lower segment is mounted on a base; two perpendicular guide rods extend vertically from the base. One guide rod is larger than the other, with a correspondingly larger guide sleeve in the upper segment to assure correct assembly. The guide sleeves in the upper segment bring the two sections together without appreciable binding or loose motion on the guide rods. The **B9116** & **B9116L** Lottman breaking heads are used along with the **B9121** Marshall testing machine to determine the loss of strength in asphaltic concrete resulting from water saturation and accelerated water conditioning. SHRP has designated AASHTO T-283 as Superpave primary test method for moisture sensitivity. The breaking head is also used for determining resilient modulus using repeated load indirect tension test.

B9114 & B9115

B9116 & B9116L

| MODELS | DESCRIPTION | STANDARDS |
|---|---|---|
| B9114 | MARSHALL BREAKING HEAD, 6" | ASTM D-4123 / AASHTO T-283 |
| B9115 | MARSHALL BREAKING HEAD, 4" | |
| B9116 | LOTTMAN BREAKING HEAD, 4" | |
| B9116L | LOTTMAN BREAKING HEAD, 6" | |

# MARSHALL TESTING MACHINE, 4" AND 6"

This Marshall testing machine accurately measures the resistance to plastic flow of bituminous mixtures. Since the **B9121** & **B9122** are compact and lightweight, they can be transported to different sites with ease. The testing machine has a 1/4 hp motorized press with precision gear box for a deformation rate of 2" per minute. Supplied with the apparatus is a 10,000 lb. calibrated proving ring and dial indicator for determining test load. The machine can be used with either the 4" Marshall Stability breaking head or the 4" Lottman breaking head. Available in 110V/60Hz (**B9121**) and 220V/50Hz (**B9122**). Please specify type needed. For the Marshall Test Set please refer to the Bituminous set section. The **B9161** is a manual extractor for 4" molds. The **B9162** Specimen Extractor is used to eject a compacted 4" dia. test specimen from the mold after the specimen is compacted. The Extractor uses a 3 ton hydraulic jack centered under retainer rings to push a specimen up and out of the mold without fracture. The large base provides good stability and springs retract the jack when the valve is opened. The **B9163** is similar to the **B9162** except that it can be used with 4" & 6" molds and it is furnished with an 8000 lbf manual hydraulic jack. The Marshall Testing Machine MEETS ASTM D-1559.

B9121 & B9122

B9162

B9163

B4324

| MODELS | DESCRIPTION |
|---|---|
| B9121 | MARSHALL TESTING MACHINE FOR 4" & 6" MOLDS, 110V / 60 Hz |
| B9122 | MARSHALL TESTING MACHINE FOR 4" & 6" MOLDS, 220V / 50 Hz |

| ACCESSORIES | DESCRIPTION |
|---|---|
| B9101 | 4" MOLD, W/ BASE & COLLAR |
| B9102 | MOLD ONLY FOR **B9101** |
| B9106 | MOLD HOLDER |
| B9105 | FILTER PAPER, CIRCULAR, 4" DIA., 1000/PKG |
| B9107 | FILTER PAPER, THICKER, CIRCULAR, 4" DIA., 1000/PKG |
| B9108 | PAPER DISCS, 150 MM, 500/PKG |
| B9109 | WATER BATH, 110V / 60 Hz |
| B9110 | WATER BATH, 220V / 50 Hz |
| B9118 | WATER BATH W/ CIRCULATOR, 110V / 60 Hz |
| B9118E | WATER BATH W/ CIRCULATOR, 220V / 50 Hz |
| B9119 | ECONO WATER BATH, 110V / 60 Hz |
| B9119E | ECONO WATER BATH, 220V / 50 Hz |
| B9120 | SHELF FOR **B9119** AND **B9119E** |
| B9111 | TAMPER, COMPACTION 10 LB |
| B9114 | MARSHALL BREAKING HEAD, 6" |
| B9115 | 4" MARSHALL STABILITY BREAKING HEAD W/ GUIDES |
| B9116 | 4" LOTTMAN BREAKING HEAD |
| B9116L | 6" LOTTMAN BREAKING HEAD |
| B9117 | FLOW METER W/ DIAL |
| B9161 | MANUAL EXTRACTOR FOR 4" MOLDS |
| B9162 | SPECIMEN EXTRACTOR FOR 4" MOLDS |
| B9163 | EJECTOR JACK W/ 4" & 6" DISKS |
| B9165 | PEDESTAL W/ STEEL PLATE |
| B4324 | MATERIAL HANDLING CHUTE |

# DIGITRAC AUTO STABILITY PRESS

The DigiTrac stability press for the Marshall method allows the operator to initially set up the platen and then the load and flow values are digitally tracked until locked at peak load. Then the platen automatically reverses to the exact starting position for the next test. A 2"/min platen travel is assured by the 1/3 hp motor and oil-filled gear box. Quality constructed components translate load and flow output values. Operator error is eliminated. The machine cross head adjusts on strain rods anchored to a heavy-duty frame. The $6^{-1/4"}$ diameter guides for rapid positioning of specimens. Also available is the **B9124A** panel mounted printer. This allows the operator to have a hard copy of load/flow data. Output connections are also provided for X-Y (**B9124B**) or flatbed recorders (**B9124C**).

| MODELS | DESCRIPTION | STANDARDS |
|---|---|---|
| B9123 | DIGITRAC AUTO STABILITY PRESS, 115V / 60 Hz | ASTM D-1559 / AASHTO T-245 |
| B9124 | DIGITRAC AUTO STABILITY PRESS, 230V / 50 Hz | |

| ACCESSORIES | DESCRIPTION |
|---|---|
| B9124A | PANEL MOUNTED PRINTER |
| B9124B | X-Y RECORDER |
| B9124C | FLATBED RECORDER |

# MARSHALL AUTOMATIC DIGITAL TESTER

The **B9121A** features an auto-tare twin-channel digital display with maximum peak hold for stability and flow. The RS-232 port allows the operator to choose to download the test results to a PC or printer. Buffered analog output to an X/Yt chart recorder for graphical display. The unit is furnished with an S-type 10,000 lbf (50kN) load cell, 0.4" (10mm) linear strain transducer, and transducer bracket

| MODELS | DESCRIPTION |
|---|---|
| B9121A | MARSHALL AUTOMATIC DIGITAL TESTER, 110V / 60 Hz |

# MARSHALL TESTING MACHINE W/ RECORDER

This machine automatically tests and records Marshall stability and plastic flow data on one sheet. Operator error is eliminated since there are no manual readings involved. Stress is recorded by load cell and strain measurement is recorded by a LVDT sensor for superior accuracy. The tester is furnished with a 10,000 lb load ring for calibration. There are four load ranges that can be used, 1,000, 2,000, 5,000, and 10,000 lbs with internal calibration. Accuracy is within 1%.

| MODELS | DESCRIPTION | STANDARDS |
|---|---|---|
| B9129 | MARSHALL TESTING MACHINE W/ RECORDER, 115V / 60 Hz | ASTM D-1559 / AASHTO T-245 |
| B9129F | MARSHALL TESTING MACHINE W/ RECORDER, 220V / 50 Hz | |

# AUTOMATIC MARSHALL TESTING MACHINE (4" & 6")

The **B9130** test press is specifically designed to perform Stability-Flow measurements required by the Pennsylvania Highway Department in the "Marshall Control" program. The test press is designed so that very little service is required. The test press is certified to be accurate to within 1% of load reading from 500 lbs to 10,000 lbs under the ASTM E-4 procedure. Testing machine has three load ranges 2,500 lbs, 5,000 lbs and 10,000 lbs and will test 4" and 6" dia. specimens.

| MODELS | DESCRIPTION | STANDARDS |
|---|---|---|
| B9130 | AUTOMATIC MARSHALL TESTING MACHINE (4" & 6") | ASTM D-1559 / AASHTO T-245 |

| ACCESSORIES | DESCRIPTION |
|---|---|
| B9114 | 6" MARSHALL STABILITY BREAKING HEAD W/ GUIDES |
| B9115 | 4" MARSHALL STABILITY BREAKING HEAD W/ GUIDES |
| B9116 | 4" LOTTMAN BREAKING HEAD |
| B9116L | 6" LOTTMAN BREAKING HEAD |
| B9191 | WATER BATH, 110V / 60 Hz |
| B9192 | WATER BATH, 220V / 50 Hz |
| B9195 | WATER BATH W/ COOLING COIL, 110V / 60 Hz |
| B9196 | WATER BATH W/ COOLING COIL, 220V / 50 Hz |

# AUTOMATIC COMPACTOR, SINGLE UNIT

This single mold automatic compactor is used to prepare bituminous samples. Because it is mechanized, many of the errors incurred with hand compaction methods are eliminated. The compactor utilizes a constant surcharge weight that is applied to the hammer foot during compaction. The hammer foot is held squarely against the specimen at all times. The mold is held by a spring loaded clamp ring and can be easily removed. The compactor is available in both 110V/60Hz and 220V/50Hz models (please specify model needed). Compactor comes with counter, pedestal, and 1 mold.

| MODELS | DESCRIPTION | STANDARDS |
|---|---|---|
| B9131 | AUTOMATIC COMPACTOR, SINGLE UNIT, 110V / 60 Hz | ASTM D-1559 / AASHTO T-245 |
| B9132 | AUTOMATIC COMPACTOR, SINGLE UNIT, 220V / 50 Hz | |

| ACCESSORIES | DESCRIPTION |
|---|---|
| B9101 | 4" MOLD |
| B9141 | FLAT FACED HAMMER |
| B9142 | COUNTER |

# AUTOMATIC COMPACTOR, DUAL UNIT

This compactor has the same basic design as the **B9131** and **B9132** except that it provides duplicate specimens that are compacted simultaneously. This enables the operator to compare results. Temperature variation is eliminated, because of simultaneous compaction, which provides increased accuracy. The molds are rotated throughout the process to produce a modified kneading action. The apparatus automatically compacts the samples at a preset definite number of hammer blows, upon completion the unit will automatically shut off. Compactor is furnished with 2 molds, counter, and pedestal. The compactor is available in both 110V/60Hz and 220V/50Hz models (please specify model needed).

| MODELS | DESCRIPTION | STANDARDS |
|---|---|---|
| B9135 | AUTOMATIC COMPACTOR, DUAL UNIT, 110V / 60 Hz | ASTM D-1559 / AASHTO T-245 |
| B9136 | AUTOMATIC COMPACTOR, DUAL UNIT, 220V / 50 Hz | |

| ACCESSORIES | DESCRIPTION |
|---|---|
| B9139 | 4" MOLD, ROTATING BASE |
| B9142 | COUNTER |
| B9143 | EXTRA HAMMER W/ TAPERED FOOT |
| B9145 | FOOT, BEVELED |
| B9166 | COMPACTION PEDESTAL |

# AUTOMATIC COMPACTOR, TRIPLE UNIT

This compactor is similar to the **B9135** and **B9136** compactors except that it prepares three specimen samples. The compactor is available in both 110V/60Hz and 220V/50Hz models (please specify model needed). Compactor furnished with 3 molds, counter, and pedestal.

| MODELS | DESCRIPTION | STANDARDS |
|---|---|---|
| B9137 | AUTOMATIC COMPACTOR, TRIPLE UNIT, 110V / 60 Hz | ASTM D-1559 / AASHTO T-245 |
| B9138 | AUTOMATIC COMPACTOR, TRIPLE UNIT, 220V / 50 Hz | |

| ACCESSORIES | DESCRIPTION |
|---|---|
| B9139 | 4" MOLD |
| B9142 | COUNTER |
| B9143 | EXTRA HAMMER W/ TAPERED FOOT |
| B9145 | FOOT, BEVELED |

# AUTOMATIC COMPACTOR, (4" & 6" SPECIMENS)

The **B9147** single mold mechanical compactor can prepare either 4" or 6" compacted asphalt specimens for Marshall testing. The compactor has a bevelled foot on the hammer mechanism and a mold that rotates throughout the compaction process producing a modified kneading action. A redesigned automatic counter can be preset for the number of blows required and will turn off the machine when that number has been reached. After the number of blows has been set, the operator can start the machine with a push-button and keep track of the number of blows on an LCD readout. There is a switch located inside the cover which can operate the compactor on either 115V/60Hz or 220V/50Hz. A cam action lever operates the integral mold holder to facilitate insertion and removal of the stability mold. The compactor is furnished with the automatic counter, 4" hammer assembly, 4" stability mold, and a pedestal. The **B9147R** is the same unit as the **B9147** except that it has a rotating base.

| MODELS | DESCRIPTION | STANDARDS |
|---|---|---|
| B9147 | AUTOMATIC COMPACTOR, 4" & 6", 115-220V / 50-60 Hz | ASTM D-1559 / AASHTO T-245 |
| B9147R | AUTOMATIC COMPACTOR, 4" & 6", ROTATING BASE | |

| ACCESSORIES | DESCRIPTION |
|---|---|
| B9101 | 4" MOLD FOR NON ROTARY BASE |
| B9149 | 6" HAMMER ASSEMBLY |
| B9139 | 4" STABILITY MOLD FOR ROTARY BASE |
| B9145 | 6" MOLD W/ COLLAR AND BASE |

# AUTOMATIC COMPACTOR, SINGLE UNIT (4")

The **B9151** & **B9152** single unit automatic compactor is similar to the **B9131**. The compactor is used to prepare 4" specimens of bituminous samples. Since it is mechanized, many of the errors incurred with hand compaction methods are eliminated. The compactor utilizes a constant surcharge weight that is applied to the hammer foot during compaction. The hammer foot is held squarely against the specimen at all times. The mold is held by a spring loaded clamp ring and can be easily removed. Another feature is the counter which automatically stops the compactor after a predetermined number of strokes. The compactor is available in both 110V/60Hz and 220V/50Hz models (please specify model needed). Compactor is furnished with counter and pedestal.

| MODELS | DESCRIPTION | STANDARDS |
|---|---|---|
| B9151 | AUTOMATIC COMPACTOR, 4", 110V / 60 Hz | ASTM D-1559 / AASHTO T-245 |
| B9152 | AUTOMATIC COMPACTOR, 4", 220V / 50 Hz | |

| ACCESSORIES | DESCRIPTION |
|---|---|
| B9101 | EXTRA 4" MOLD |
| B9155 | HAMMER FOR 4" MOLDS |
| B9161 | EXTRACTOR FOR 4" MOLDS |
| B9162 | HYDRAULIC EXTRUDER FOR 4" MOLDS |
| B9163 | HYDRAULIC EXTRUDER FOR 4" & 6" MOLDS |
| B9165 | PEDESTAL W/ STEEL PLATE |

# HAND COMPACTION SET

The **B9171** compaction pedestal features an adjustable guide that fits the handle of the hammer. The guide holds the axis of the compaction hammer perpendicular to the base of the mold assembly during compaction. The set includes the compaction pedestal with steel plate hammer, a 4" compaction mold, a compaction mold holder, a compaction hammer, a hammer support and rod and an adjustable guide.

| MODELS | DESCRIPTION | STANDARDS |
|---|---|---|
| **B9171** | HAND COMPACTION SET | ASTM D-1559 / AASHTO T-245 |

| ACCESSORIES | DESCRIPTION |
|---|---|
| **B9101** | 4" MOLD FOR NON ROTARY BASE |

# CONSTANT TEMPERATURE WATER BATH

These water baths are fully insulated and are constructed from stainless steel. They are furnished complete with stirring motor, thermometer, thermometer holder, 3-wire cord and grounding plug. However, the **B9195** and **B9196** are also furnished with a cooling coil. Temperature range is ambient to 212° F with a stability of ±5° F. The inside dimensions are 14" X 16" X 8 1/2" deep. The outside dimensions are 18" x 16" x 15" high.

| MODELS | DESCRIPTION | POWER |
|---|---|---|
| **B9191** | CONSTANT TEMPERATURE WATER BATH | 110V / 60 Hz |
| **B9192** | CONSTANT TEMPERATURE WATER BATH | 220V / 50 Hz |
| **B9195** | CONSTANT TEMPERATURE WATER BATH W/ COOLING COIL | 110V / 60 Hz |
| **B9196** | CONSTANT TEMPERATURE WATER BATH W/ COOLING COIL | 220V / 50 Hz |

# ASPHALT PERMEAMETER

The Asphalt Permeameter is designed to perform the Florida DOT test procedure (FM 5-565) to measure the permeability of compacted asphalt paving mixtures. The specimen is placed inside a metal cylinder and held in place by expanding discs. The cylinder has a rubber inner membrane that is pressurized to push against the outer edge of the sample, filling the voids and eliminating flow down the side of the core. The sample is then saturated from the bottom. 500 cc of water from a manometer is then allowed to flow through the sample while being timed with a stopwatch readable to 0.1 second or better. A sink drain or other means to collect the water flow through the sample is required. The Permeameter also features a compact design which is easily transported to job sites. A built-in vacuum/air hand pump is used for applying membrane pressure while a gauge indicates the pressure being generated. The unit also includes a 500 cc monometer with 15 ft. of 1/4" tubing and saddle valve for hook-up to existing copper water line. DIM 8" x 11" x 49" w/ manometer, 14 lbs.

| MODELS | DESCRIPTION | STANDARDS |
|---|---|---|
| **B9993** | ASPHALT PERMEAMETER, 4" | PS-129-01 |
| **B9995** | ASPHALT PERMEAMETER, 6" | |

| ACCESSORIES | DESCRIPTION |
|---|---|
| **B9996** | REPLACEMENT MEMBRANES, 6/PK |

# CALIFORNIA BEARING RATIO (CBR) FOR LAB

For determining the California Bearing Ratio (CBR) of soils and to evaluate the relative quantity of subgrade and subbase soils and some base course materials. Soil samples are mixed with varying quantities of water, compacted in a mold by a tamper, weighed and the dry compacted density determined. A perforated plate with adjustable stem and surcharge weights are placed on the specimen and the mold and weights soaked in water. The initial height and the height after given periods of soaking are determined by a micrometer dial mounted on a tripod and the sample swell reported as the percentage of the initial height. The sample is penetrated by a piston at a constant rate and the load required for penetration to different depths is recorded.

## MANUAL CBR LOADING MACHINE

The **S4242** determines bearing ratio of soil when compacted and tested in the lab. It compares the penetration load of the soil to that of a standard material. The Manual CBR Loading Machine utilizes a three speed mechanical jack for test speeds and for rapid travel. The machine meets ASTM D-1883 and AASHTO T-193 when the operator accurately cranks to the required test speed of 0.05"/min. The loading machine is furnished with a 10,000 lbf calibrated load ring with dial indicator. If the soils vary widely in strength, it is advisable to order extra lower capacity load rings such as the **G3832** (2,000 lb) or a **G3836** (6,000 lb). The **S4111** CBR cylinder mold is 6" ID x 7" high. The perforated base is 8" x 8" x 3/8" plated steel and is fitted with threaded rods and thumb nuts.

## MOTORIZED LOADING MACHINE

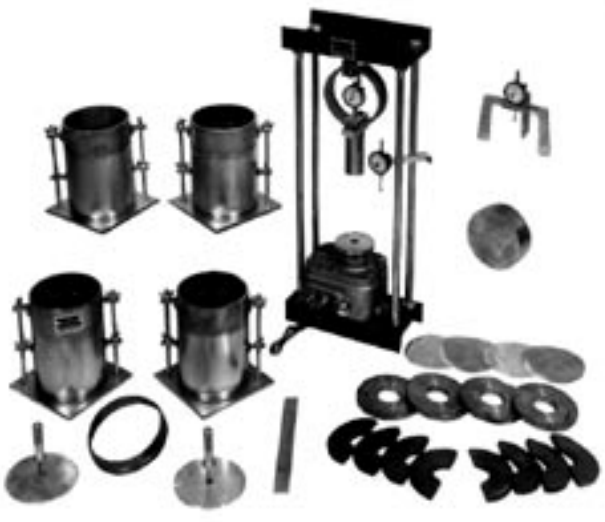
The **S4251** & **S4252** Motorized Loading Machine is very similar in design and application to the **S4242** except that it is motorized with preset speed selections. The motor drives the machine at a constant rate of 0.05"/min. The **S4252** is 220V/50Hz version.

## MASTER-LOADER MULTI-USE COMPRESSION TESTER

The **S4254** Master Loader handles a variety of tests with one load frame (Marshall, CBR, Unconfind, Unconsolidated undrained triaxial). Bench mounted unit features pre-set speed selections and accessories. Variable speed setting allows stepless adjustments from 0.002" to 2.000" per minute.

| MODELS | DESCRIPTION | STANDARDS |
|---|---|---|
| S4242 | CBR LOADING MACHINE, MANUAL | ASTM D-1883, D-4429 / AASHTO T-193 |
| S4251 | CBR LOADING MACHINE, MOTORIZED, 110V / 60 Hz | |
| S4252 | CBR LOADING MACHINE, MOTORIZED, 220V / 50 Hz | |
| S4254 | MASTER LOADER MULTI USE COMPRESSION TESTER, 120V / 60 Hz | ASTM D-1633, D-1883, D-2166, D-1559, / AASHTO T-193, T-208, T-245, / BS 1377 |

| ACCESSORIES | DESCRIPTION |
|---|---|
| C5041 | CURING TANK |
| G3103 | MICROMETER DIAL GAUGE, 1" TRAVEL IN .001" INCREMENTS |
| G4421 | SOLUTION BALANCE, 20 KG |
| G6091 | OVEN, 28" X 24" X 20" CHAMBER |
| L1118 | MIXING BOWL. 13-1/4" DIA. |
| L1642 | BOX, ALUMINUM, 2" DIA, 1 DOZ |
| L3652 | STRAIGHT EDGE, PLATED STEEL, 12" |
| S4111 | CBR, MOLD, W/ COLLAR & BASE |
| S4112 | LBR TEST MOLD, 6" ID X 6" H |
| S4121 | SPACER DISC, 2.416" H |
| S4122 | SPACER DISC, 1" H (VA SPECS) |
| S4135 | FILTER PAPER FOR MOLDS, 100 / PKG |
| S4141 | SWELL PLATE, W/ STEM & NUT |
| S4151 | STEEL WEIGHT, 5 LB ANNULAR |
| S4152 | STEEL WEIGHT, 5 LB SPLIT |
| S4155 | SURCHARGE WEIGHT, STEEL SLOTTED |
| S4161 | DIAL HOLDER TRIPOD, LESS DIAL |
| S4162 | TRIPOD, BRASS C.O.E. DESIGN |
| S4182 | PISTON, STATIC LOAD, W/ SCALE |



S4254