Bulk Density (“Unit Weight”) and Voids in Aggregate

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3660.1</td>
<td>Unit weight measure, 1/10 cu.ft. (2.8 liter)</td>
</tr>
<tr>
<td>1</td>
<td>H-3669.1P</td>
<td>Strike-off plate for 1/10 cu.ft. (2.8 liter) measure</td>
</tr>
<tr>
<td>1</td>
<td>H-3663.1</td>
<td>Unit weight measure, 1/3 cu.ft. (9.3 liter)</td>
</tr>
<tr>
<td>1</td>
<td>H-3669.4P</td>
<td>Strike-off plate for 1/3 cu.ft. (9.3 liter) measure</td>
</tr>
<tr>
<td>1</td>
<td>H-3661.1</td>
<td>Unit weight measure, 1/2 cu.ft. (14.1 liter)</td>
</tr>
<tr>
<td>1</td>
<td>H-3669.2P</td>
<td>Strike-off plate for 1/2 cu.ft. (14.1 liter) measure</td>
</tr>
<tr>
<td>1</td>
<td>H-3662.1</td>
<td>Unit weight measure, 1 cu.ft. (28.3 liter)</td>
</tr>
<tr>
<td>1</td>
<td>H-3669.3P</td>
<td>Strike-off plate for 1 cu.ft. (28.3 liter) measure</td>
</tr>
<tr>
<td>1</td>
<td>H-3650</td>
<td>Tamping rod, 5/8” (16mm) dia. x 24” (600mm) long</td>
</tr>
<tr>
<td>1</td>
<td>H-1702</td>
<td>Material handling scoop</td>
</tr>
<tr>
<td>1</td>
<td>HB-4771</td>
<td>Balance, 220 lb. (100 kg) x 0.1 lb. (0.05 kg) cap. 1</td>
</tr>
</tbody>
</table>
### ASTM C31

Related Standards: ASTM C138, C143, C172, C173, C192, C231

## Making and Curing Concrete Test Specimens in the Field

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3041</td>
<td>Plastic cylinder molds, 6&quot; dia. x 12&quot; long (carton of 36)</td>
</tr>
<tr>
<td>1</td>
<td>H-3041L</td>
<td>Domed plastic lids for use with cylinder molds</td>
</tr>
<tr>
<td>1</td>
<td>H-3041S</td>
<td>T-handle-style mold stripping tool</td>
</tr>
<tr>
<td>1</td>
<td>H-3015</td>
<td>Concrete beam form, 6&quot; x 6&quot; x 30&quot; (152 x 152 x 762mm)</td>
</tr>
<tr>
<td>1</td>
<td>H-3650</td>
<td>Tamping rod, 5/8&quot;(16mm) dia. x 24&quot;(600mm) long</td>
</tr>
<tr>
<td>1</td>
<td>H-2999A</td>
<td>Concrete vibrator, 115V 60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-2999A.4F</td>
<td>Concrete vibrator, 220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-4976</td>
<td>Rubber mallet</td>
</tr>
<tr>
<td>1</td>
<td>H-4982</td>
<td>Shovel, round-point</td>
</tr>
<tr>
<td>1</td>
<td>H-3762</td>
<td>Trowel, rectangular</td>
</tr>
<tr>
<td>1</td>
<td>H-3729</td>
<td>Scoop, aluminum</td>
</tr>
<tr>
<td>1</td>
<td>H-3753</td>
<td>Vibration indicator, tachometer type</td>
</tr>
<tr>
<td>1</td>
<td>H-3637</td>
<td>Slump cone test set</td>
</tr>
<tr>
<td>1</td>
<td>H-3725</td>
<td>Moisture/mixing pan</td>
</tr>
<tr>
<td>1</td>
<td>H-2783</td>
<td>Concrete air meter</td>
</tr>
<tr>
<td>1</td>
<td>H-2633</td>
<td>Pocket-type dial thermometer, 25 to 125°F</td>
</tr>
</tbody>
</table>
# Compressive Strength of Cylindrical Concrete Specimens

## Option A

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Concrete compression machine, 250,000 lb (1,112 kN) cap., iD Digital Indicator, platens for testing 6” x 12” specimens</td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH</td>
<td>Concrete compression machine, 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH.2F</td>
<td>Concrete compression machine, 230V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH.5F</td>
<td>Concrete compression machine, 230V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>HCM-0200</td>
<td>Machine Mounting Stand</td>
</tr>
</tbody>
</table>

## Option B

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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Concrete compression machine, 500,000 lb (2,224 kN) cap., iD Digital Indicator, platens for testing 6” x 12” specimens</td>
</tr>
<tr>
<td></td>
<td>HCM-5000LXI</td>
<td>Concrete compression machine, 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HCM-5000LXI.2F</td>
<td>Concrete compression machine, 230V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HCM-5000LXI .5F</td>
<td>Concrete compression machine, 230V 50Hz</td>
</tr>
</tbody>
</table>
### ASTM C40

Organic Impurities in Fine Aggregates for Concrete

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3493A</td>
<td>Organic impurities test set</td>
</tr>
<tr>
<td>1</td>
<td>H-3491</td>
<td>Spare bottle of sodium hydroxide</td>
</tr>
</tbody>
</table>
## ASTM C70

**Surface Moisture in Fine Aggregate**

<table>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3460</td>
<td>Specific gravity flask (Chapman)</td>
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<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HB-4534A</td>
<td>Adam core digital balance, 2600g x 0.1g, 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HB-4534A.4F</td>
<td>Adam core digital balance, 2600g x 0.1g, 220V 50/60Hz</td>
</tr>
</tbody>
</table>
## ASTM C78

**Flexural Strength of Concrete**

*(Using Simple Beam with Third-Point Loading)*

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Concrete compression machine, 250,000 lb (1,112 kN) cap., iD Digital Indicator, platens for testing 6&quot; x 12&quot; specimens</td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH</td>
<td>Concrete compression machine, 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH.2F</td>
<td>Concrete compression machine, 230V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH.5F</td>
<td>Concrete compression machine, 230V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>HCM-0119A</td>
<td>Flexural beam test attachment</td>
</tr>
<tr>
<td>1</td>
<td>HCM-0200</td>
<td>Machine mounting stand</td>
</tr>
</tbody>
</table>
Effect of Organic Impurities in Fine Aggregate on Strength of Mortar

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Flow table, hand-driven</td>
</tr>
<tr>
<td></td>
<td>H-3620</td>
<td>Flow table, counter and flow mold, 110V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3624</td>
<td>Flow table with counter and flow mold, 220V 50Hz</td>
</tr>
<tr>
<td></td>
<td>H-3624.5F</td>
<td>Flow table with counter and flow mold, 110V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3625</td>
<td>Flow table with flow mold, 110V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3625.5F</td>
<td>Flow table with flow mold, 220V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3621</td>
<td>Flow caliper</td>
</tr>
<tr>
<td>1</td>
<td>H-3624F</td>
<td>Pedestal form</td>
</tr>
<tr>
<td>1</td>
<td>H-3623</td>
<td>Circular shield for use with flow mold</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>ohaus navigator xl balance, 2100g x 0.1g, 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HB-4961</td>
<td>ohaus navigator xl balance, 2100g x 0.1g, 220V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>HB-4961.4F</td>
<td>Glass graduated cylinder, 250ml cap.</td>
</tr>
<tr>
<td></td>
<td>H-4915.250</td>
<td>Glass graduated cylinder, 500ml cap.</td>
</tr>
<tr>
<td>2</td>
<td>H-2820</td>
<td>2&quot; cube mold, 3-gang</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Mortar mixer, 5 Qt. 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3841</td>
<td>Mortar mixer, 5 Qt. 220V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3841.2F</td>
<td>Mortar mixer, 5 Qt. 220V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, rubber</td>
</tr>
<tr>
<td>2</td>
<td>H-3825</td>
<td>Cube test ottawa sand, 50 lb. (22.6 kg) bags</td>
</tr>
<tr>
<td>1</td>
<td>H-3761</td>
<td>Trowel, 2-3/4&quot; x 5&quot; (70 x 127mm)</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Compression machine, 250,000 lb (1,112 kN), 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH</td>
<td>Compression machine, 250,000 lb (1,112 kN), 230V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH.2F</td>
<td>Compression machine, 250,000 lb (1,112 kN), 230V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>HCM-0200</td>
<td>Machine mounting stand</td>
</tr>
<tr>
<td>1</td>
<td>HCM-0112A</td>
<td>2&quot; (50mm) cube platen set</td>
</tr>
</tbody>
</table>

Note: Also required but not part of basic set—Curing room/container and temperature recording equipment as described in ASTM C511.
### ASTM C88

Related Standards: ASTM C33, C136, C670, C702, D75, D3665, E11, E100, E323

#### Soundness of Aggregates by Use of Sodium or Magnesium Sulfate

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3920FS4</td>
<td>8&quot; dia. brass frame sieve, #4 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS5</td>
<td>8&quot; dia. brass frame sieve, #5 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS8</td>
<td>8&quot; dia. brass frame sieve, #8 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS16</td>
<td>8&quot; dia. brass frame sieve, #16 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS30</td>
<td>8&quot; dia. brass frame sieve, #30 ss mesh</td>
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<tr>
<td>1</td>
<td>H-3920FS50</td>
<td>8&quot; dia. brass frame sieve, #50 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS100</td>
<td>8&quot; dia. brass frame sieve, #100 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920P</td>
<td>8&quot; x 2&quot; sieve bottom pan</td>
</tr>
<tr>
<td>1</td>
<td>H-3930BC</td>
<td>8&quot; sieve cover with ring handle</td>
</tr>
<tr>
<td></td>
<td>Choose one:</td>
<td>Humboldt economy sieve shaker for 8&quot; sieves, 120v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-4325</td>
<td>Humboldt economy sieve shaker for 8&quot; sieves, 220v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-4325.2F</td>
<td>Humboldt economy sieve shaker for 8&quot; sieves, 220v 50hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3351</td>
<td>Sample container, #4 wire mesh 10&quot; x 4&quot; dia. (254 x 102mm)</td>
</tr>
<tr>
<td>1</td>
<td>H-3353</td>
<td>Sample container, #8 wire mesh 5.5&quot; x 4&quot; dia. (140 x 102mm)</td>
</tr>
<tr>
<td></td>
<td>Choose one:</td>
<td>Water bath, 14 gal. (53 liter) 110v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-1394</td>
<td>Water bath, 14 gal. (53 liter) 220v 50/60hz</td>
</tr>
<tr>
<td></td>
<td>H-1394.4F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Electronic balance, 12,000g x 0.1g cap. 115v 50/60hz</td>
</tr>
<tr>
<td></td>
<td>HB-4506A</td>
<td>Electronic balance, 12,000g x 0.1g cap. 220v 50/60hz</td>
</tr>
<tr>
<td></td>
<td>HB-4506A.4F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Laboratory bench oven, 7 cu.ft. (198 liter) cap. 115v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-30140</td>
<td>Laboratory bench oven, 7 cu.ft. (198 liter) cap. 230v 50/60hz</td>
</tr>
<tr>
<td></td>
<td>H-30140.4F</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>H-3705</td>
<td>Sample drying pans, 18&quot; x 18&quot; x 3&quot; (457 x 457 x 76mm)</td>
</tr>
<tr>
<td>1</td>
<td>H-3374</td>
<td>Hydrometer, 1.150 to 1.200 range</td>
</tr>
<tr>
<td>1</td>
<td>HCM-0112A</td>
<td>2&quot; (50mm) cube platen set</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Sodium or Magnesium Sulfate Solutions.
ASTM C91


Standard Specification for Masonry Cement

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3820</td>
<td>Tensile test ottawa silica sand</td>
</tr>
</tbody>
</table>

This specifications states requirements for the acceptance of three types of cements for use where mortar for masonry is required. Tensile test sand, and the remaining requirements refer to other ASTM standards, namely, C109/C109M, C151, C183, C185, C187, C188, C219, C230/C230M, C266, C270, C305, C430, C511, C778, C1506.
# ASTM C109

Related Standards: ASTM C230, C305, C349, C511, C670, C778, C1005, C1437

## Compressive Strength of Hydraulic Cement Mortars

*(Using 2" Cube Specimens)*

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HB-4961</td>
<td>Ohaus navigator xl balance, 2100g x 0.1G, 120v 60hz</td>
</tr>
<tr>
<td></td>
<td>HB-4961.4F</td>
<td>Ohaus navigator xl balance, 2100g x 0.1G, 220v 50/60hz</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.250</td>
<td>Glass graduated cylinder, 250ml cap.</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.500</td>
<td>Glass graduated cylinder, 500ml cap.</td>
</tr>
<tr>
<td>2</td>
<td>H-2820</td>
<td>2&quot; Cube mold, 3-gang</td>
</tr>
<tr>
<td></td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3841</td>
<td>Mortar mixer, 5 Qt. 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3841.2F</td>
<td>Mortar mixer, 5 Qt. 220V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3841.5F</td>
<td>Mortar mixer, 5 Qt. 220V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3820</td>
<td>Flow table, hand-driven</td>
</tr>
<tr>
<td></td>
<td>H-3624</td>
<td>Flow table with counter and flow mold, 110V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3624.5F</td>
<td>Flow table with counter and flow mold, 220V 50Hz</td>
</tr>
<tr>
<td></td>
<td>H-3625</td>
<td>Flow table with flow mold, 110V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3625.5F</td>
<td>Flow table with flow mold, 220V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3621</td>
<td>Flow caliper</td>
</tr>
<tr>
<td>1</td>
<td>H-3623</td>
<td>Circular shield for use with flow mold</td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, rubber</td>
</tr>
<tr>
<td>2</td>
<td>H-3825</td>
<td>Cube test ottawa sand, 50 lb. (22.6 Kg) bags</td>
</tr>
<tr>
<td>1</td>
<td>H-3761</td>
<td>Trowel, 2.75&quot; x 5&quot; (70 x 127mm)</td>
</tr>
<tr>
<td></td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH</td>
<td>Concrete compression machine, 250,000 lb (1,112 kN) cap., iD Digital Indicator, platen for testing 6&quot; x 12&quot; specimens</td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH.2F</td>
<td>Concrete compression machine, 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH.5F</td>
<td>Concrete compression machine, 230V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HCM-0200</td>
<td>Machine mounting stand</td>
</tr>
<tr>
<td></td>
<td>HCM-0112A</td>
<td>2&quot; (50mm) cube platen set</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Curing room/container and temperature recording equipment. For testing 50mm cubes, replace "H-2820, 2" Cube Molds" with "H-2820M, 50mm Cube Molds".
ASTM C110

Physical Testing of Quicklime, Hydrated Lime and Limestone

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3120</td>
<td>Modified vicat consistency apparatus with mold</td>
</tr>
<tr>
<td>1</td>
<td>H-3630A</td>
<td>Water retention apparatus</td>
</tr>
<tr>
<td>1</td>
<td>H-3817.20</td>
<td>SRM 114q portland calibration testing cement (20 vials)</td>
</tr>
</tbody>
</table>

Note: The above products represent only a small portion of item required. Please refer to ASTM C110 for a complete listing of the testing equipment required to carry out all test procedures used in the standard.
Fineness of Portland Cement by the Turbidimeter

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Choose one:</td>
</tr>
<tr>
<td></td>
<td>H-3805</td>
<td>Wagner turbidimeter, 110V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3805.2F</td>
<td>Wagner turbidimeter, 220V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3805.5F</td>
<td>Wagner turbidimeter, 220V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3807</td>
<td>Cement wet washing sieve</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Battery for turbidimeter and suspending liquid (white kerosene).
## ASTM C117

### Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Choose one:</td>
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</tr>
<tr>
<td></td>
<td>H-3949A</td>
<td>Aggregate washer, 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3949A.5F</td>
<td>Aggregate washer, 220V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3912FS16</td>
<td>12&quot; dia. brass frame sieve, #16 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3912FS200</td>
<td>12&quot; dia. brass frame sieve, #200 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3912P</td>
<td>12&quot; x 3&quot; brass pan</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-30140</td>
<td>Laboratory bench oven, 7 cu.ft. (198 liter), 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-30140.4F</td>
<td>Laboratory bench oven, 7 cu.ft. (198 liter), 230V 50/60Hz</td>
</tr>
<tr>
<td>2</td>
<td>H-3705</td>
<td>Sample drying pans, 18&quot; x 18&quot; x 3&quot; (457 x 457 x 76mm)</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Wetting agent such as liquid dishwashing detergent.
## ASTM C127

Related Standards: ASTM C29, 125, C128, C136, C566, C670, C702, D75, D488, E11, E12

### Specific Gravity and Absorption of Coarse Aggregate

#### (Option A)

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>HB-5382AC</td>
<td>Ohuas adventurer balance, 8,200g x 0.1g Cap., 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HB-5382AC.4F</td>
<td>Ohuas adventurer balance, 8,200g x 0.1g Cap., 220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-4888.2KG</td>
<td>ASTM class 1 stainless steel weight, 2000g</td>
</tr>
<tr>
<td>2</td>
<td>H-4888.1KG</td>
<td>ASTM class 1 stainless steel weight, 1000g</td>
</tr>
<tr>
<td>1</td>
<td>H-3371</td>
<td>Specific gravity wire basket</td>
</tr>
<tr>
<td>1</td>
<td>H-3372</td>
<td>Water container (utility bucket)</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS4</td>
<td>8” dia. brass frame sieve, #4 ss mesh</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Sample drying oven.

#### (Option B)

<table>
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<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2713B</td>
<td>Specific gravity bench; tank; heater, circulator, 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-2713B.4F</td>
<td>Specific gravity bench; tank; heater, circulator, 220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HB-3535</td>
<td>Ohaus ranger balance, 15,000g x 0.1g, 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HB-3535.4F</td>
<td>Ohaus ranger balance, 15,000g x 0.1g, 220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3371</td>
<td>Specific gravity wire basket</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS4</td>
<td>8” dia. brass frame sieve, #4 ss mesh</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Sample drying oven.
### ASTM C128

**Specific Gravity and Absorption of Fine Aggregate**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one: HB-4533A</td>
<td>Choose one: Adam Core balance 2600g x 0.1g, 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td>Choose one: HB-4533A.4F</td>
<td>Adam Core balance 2600g x 0.1g, 220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3381</td>
<td>Pycnometer top and jar</td>
</tr>
<tr>
<td>1</td>
<td>H-3360</td>
<td>Conical mold and tamper</td>
</tr>
<tr>
<td>1</td>
<td>Choose one: H-30120</td>
<td>Laboratory bench oven, 2 cu.ft. (56L), 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>Choose one: H-30120.4F</td>
<td>Laboratory bench oven, 7 cu.ft. (56L), 230V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3966</td>
<td>Sample splitter, 3/4&quot;</td>
</tr>
</tbody>
</table>

**Note:** For alternative Le Chatelier test procedure, request Humboldt model H-3400 Le Chatelier Flask.
# ASTM C131

Related Standards: ASTM C125, C136, C535, C670, C702, D75, E11

## Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3860B</td>
<td>Los angeles abrasion machine with charges, 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3860B.2F</td>
<td>Los angeles abrasion machine with charges, 220V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3860B.5F</td>
<td>Los angeles abrasion machine with charges, 220V 60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3920CS1.500</td>
<td>8&quot; dia. brass frame sieve, 1.5&quot; ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920CS1.000</td>
<td>8&quot; dia. brass frame sieve, 1&quot; ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920CS.750</td>
<td>8&quot; dia. brass frame sieve, 3/4&quot; ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920CS.500</td>
<td>8&quot; dia. brass frame sieve, 1/2&quot; ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920CS.375</td>
<td>8&quot; dia. brass frame sieve, 3/8&quot; ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920CS.250</td>
<td>8&quot; dia. brass frame sieve, 1/4&quot; ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS4</td>
<td>8&quot; dia. brass frame sieve, #4 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS8</td>
<td>8&quot; dia. brass frame sieve, #8 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920P</td>
<td>8&quot; dia. brass pan</td>
</tr>
<tr>
<td>1</td>
<td>H-3930BC</td>
<td>8&quot; dia. brass cover</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-4325</td>
<td>Humboldt economy sieve shaker for 8&quot; sieves, 120v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-4325.2F</td>
<td>Humboldt economy sieve shaker for 8&quot; sieves, 220v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-4325.5F</td>
<td>Humboldt economy sieve shaker for 8&quot; sieves, 220v 50Hz</td>
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<tr>
<td>1</td>
<td>H-4785</td>
<td>Heavy-duty solution balance, 20kg x 1g cap.</td>
</tr>
<tr>
<td>1</td>
<td>H-4615S</td>
<td>Scoop and counterweight for solution balance</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-30140</td>
<td>Laboratory bench oven, 7 cu.ft. (198 liter) cap. 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-30140.4F</td>
<td>Laboratory bench oven, 7 cu.ft. (198 liter) cap. 230V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3705</td>
<td>Sample drying pans, 18&quot; x 18&quot; x 3&quot; (457 x 457 x 76mm)</td>
</tr>
</tbody>
</table>
## Sieve Analysis of Fine and Course Aggregates

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Choose one:</td>
</tr>
<tr>
<td></td>
<td>HB-4508A</td>
<td>Ohaus explorer balance, 24,000g x 0.1g cap., 115V 60Hz</td>
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<tr>
<td></td>
<td>HB-4508A.4F</td>
<td>Ohaus explorer balance, 24,000g x 0.1g cap., 220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS4</td>
<td>8” dia. brass frame sieve, #4 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS8</td>
<td>8” dia. brass frame sieve, #8 ss mesh</td>
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<td>H-3920FS30</td>
<td>8” dia. brass frame sieve, #30 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS50</td>
<td>8” dia. brass frame sieve, #50 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS100</td>
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<td>H-3920FS200</td>
<td>8” dia. brass frame sieve, #200 ss mesh</td>
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<tr>
<td>1</td>
<td>H-3920P</td>
<td>8” dia. brass pan</td>
</tr>
<tr>
<td>1</td>
<td>H-3930BC</td>
<td>8” dia. brass cover</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Humboldt economy sieve shaker for 8” sieves, 120v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-4325</td>
<td>Humboldt economy sieve shaker for 8” sieves, 220v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-4325.2F</td>
<td>Humboldt economy sieve shaker for 8” sieves, 220v 50hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3770</td>
<td>Sieve brush, fine mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3772</td>
<td>Sieve brush, coarse mesh</td>
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</tbody>
</table>

*contd. next page*
### Sieve Analysis of Fine and Course Aggregates

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one: H-4276A</td>
<td>Testing screen, aggregate shaker, 120V 60Hz</td>
</tr>
<tr>
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<td>H-4276A.5F</td>
<td>Testing screen, aggregate shaker, 220V 50Hz</td>
</tr>
<tr>
<td></td>
<td>H-4283A</td>
<td>Testing screen, aggregate shaker, hydraulic 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-4283A.5F</td>
<td>Testing screen, aggregate shaker, hydraulic 220V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-4278F4</td>
<td>Aggregate screen tray, #4 wire mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278C.375</td>
<td>Aggregate screen tray, 3/8” wire mesh</td>
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<td>1</td>
<td>H-4278C.500</td>
<td>Aggregate screen tray, 1/2” wire mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278C.750</td>
<td>Aggregate screen tray, 3/4” wire mesh</td>
</tr>
<tr>
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<td>H-4278C1.000</td>
<td>Aggregate screen tray, 1” wire mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278C1.500</td>
<td>Aggregate screen tray, 1-1/2” wire mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278C2.000</td>
<td>Aggregate screen tray, 2” wire mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278C2.500</td>
<td>Aggregate screen tray, 2-1/2” wire mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278C3.000</td>
<td>Aggregate screen tray, 3” wire mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4283P</td>
<td>Dustpan tray</td>
</tr>
<tr>
<td>1</td>
<td>H-4308</td>
<td>Aggregate scoop</td>
</tr>
<tr>
<td>1</td>
<td>Choose one: H-30140</td>
<td>Laboratory bench oven, 7 cu.ft. (198 liter) cap. 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-30140.4F</td>
<td>Laboratory bench oven, 7 cu.ft. (198 liter) cap. 230V 50/60Hz</td>
</tr>
<tr>
<td>2</td>
<td>H-3705</td>
<td>Sample drying pans, 18” x 18” x 3” (457 x 457 x 76mm)</td>
</tr>
</tbody>
</table>

Related Standards: ASTM C117, C125, C670, C702, D75, E11
ASTM C138

Unit Weight, Yield and Air Content (gravimetric) of Concrete

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3650</td>
<td>Tamping rod, 5/8&quot;(16mm) dia. x 24&quot;(600mm) long</td>
</tr>
<tr>
<td>1</td>
<td>Choose one: H-2999A</td>
<td>Concrete vibrator, 115V 50/60 Hz</td>
</tr>
<tr>
<td></td>
<td>H-2999A.4F</td>
<td>Concrete vibrator, 230V 50/60 Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3660.1</td>
<td>Unit weight measure, 1/10 cu.ft. (3 liter)</td>
</tr>
<tr>
<td>1</td>
<td>H-3669.1P</td>
<td>Strike-off plate for 1/10 cu.ft. (3 liter) measure</td>
</tr>
<tr>
<td>1</td>
<td>H-3663.1</td>
<td>Unit weight measure, 1/3 cu.ft. (10 liter)</td>
</tr>
<tr>
<td>1</td>
<td>H-3669.4P</td>
<td>Strike-off plate for 1/3 cu.ft. (10 liter) measure</td>
</tr>
<tr>
<td>1</td>
<td>H-3661.1</td>
<td>Unit weight measure, 1/2 cu.ft. (15 liter)</td>
</tr>
<tr>
<td>1</td>
<td>H-3669.2P</td>
<td>Strike-off plate for 1/2 cu.ft. (15 liter) measure</td>
</tr>
<tr>
<td>1</td>
<td>H-3662.1</td>
<td>Unit weight measure, 1 cu.ft. (30 liter)</td>
</tr>
<tr>
<td>1</td>
<td>H-3669.3P</td>
<td>Strike-off plate for 1 cu.ft. (30 liter) measure</td>
</tr>
<tr>
<td>1</td>
<td>H-4976</td>
<td>Rubber mallet</td>
</tr>
</tbody>
</table>

Note: Also required but not part of basic set—Balance or Scale for weighing concrete in measure.
Sampling and Testing Concrete Masonry and Related Units

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HCM-0106</td>
<td>Masonry platen for HCM-2500iH</td>
</tr>
<tr>
<td>1</td>
<td>HCM-0190SP</td>
<td>Carrier bracket</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH</td>
<td>Concrete compression machine, 250,000 lb (1,112 kN) cap., iD Digital Indicator,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>platen for testing 6&quot; x 12&quot; specimens</td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH.2F</td>
<td>Concrete compression machine, 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH.5F</td>
<td>Concrete compression machine, 230V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HCM-0200</td>
<td>Machine mounting stand</td>
</tr>
</tbody>
</table>

Note: The above products represent only a small portion of items required. Please refer to ASTM C39 and this standard for a complete listing of the testing equipment required to carry out all test procedures used in the standard.
Standard Specification for Hydraulic Hydrated Lime for Structural Purposes

This specification states requirements for the acceptance of hydrated lime for structural purposes. Sand utilized is H-3820, Tensile test sand, and the remaining requirements refer to other ASTM standards, namely, C25, C109/C109M, C150, C151, C184, C187, C230/C230M, C266, C305, C778, E11.
**ASTM C143**

Related Standards: ASTM C172

---

**Slump of Hydraulic-Cement Concrete**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3640</td>
<td>Slump cone</td>
</tr>
<tr>
<td>1</td>
<td>H-3651</td>
<td>Tamping rod, graduated</td>
</tr>
<tr>
<td>1</td>
<td>H-3638</td>
<td>Slump cone funnel</td>
</tr>
<tr>
<td>1</td>
<td>H-3636</td>
<td>Slump cone base plate with handle</td>
</tr>
<tr>
<td>1</td>
<td>H-3731</td>
<td>Scoop</td>
</tr>
</tbody>
</table>

**Note:** Slump Cones are also available in plastic as well as metric equivalent versions.
# ASTM C151

Autoclave Expansion of Portland Cement

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>H-3253</td>
<td>Two-gang prism mold</td>
</tr>
<tr>
<td>1</td>
<td>H-3260</td>
<td>Replacement gauge studs, pack of 10</td>
</tr>
<tr>
<td>1</td>
<td>H-3762</td>
<td>Trowel</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3240</td>
<td>Cement autoclave, 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3240.4F</td>
<td>Cement autoclave, 220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3243B</td>
<td>Test bar holder</td>
</tr>
<tr>
<td>1</td>
<td>H-3240.21N</td>
<td>Rupture disk, nickel</td>
</tr>
<tr>
<td>1</td>
<td>H-3240.22</td>
<td>Holder for rupture disk</td>
</tr>
<tr>
<td>1</td>
<td>H-3242</td>
<td>Replacement gaskets, pack of 10</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3250D</td>
<td>Choose one:</td>
</tr>
<tr>
<td></td>
<td>H-3250D.4F</td>
<td>Digital length comparator, english/metric display, 120V 60HZ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Digital length comparator, english/metric display, 220V 50/60Hz</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weighing devices, glass graduates, molding room and moist storage facilities.
ASTM C157

Related Standards: ASTM C109, C125, C143, C172, C192, C305, C490, C511, C596, E11, E337

Length Change of Hardened Hydraulic-Cement Mortar and Concrete

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3253</td>
<td>Two-gang prism mold</td>
</tr>
<tr>
<td>1</td>
<td>H-3260</td>
<td>Replacement gauge studs, pack of 10</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3250D</td>
<td>Digital length comparator, english/metric display, 120V 60HZ</td>
</tr>
<tr>
<td></td>
<td>H-3250D.4F</td>
<td>Digital length comparator, english/metric display, 220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, hard rubber</td>
</tr>
<tr>
<td>1</td>
<td>H-2905.1</td>
<td>Tamping rod, 3/8&quot; dia. x 12&quot; long (10 x 300mm)</td>
</tr>
<tr>
<td>1</td>
<td>H-3258DD</td>
<td>Demolding device</td>
</tr>
</tbody>
</table>

Note: Also required but not part of basic set—Drying room, Atometer Assembly, and filter paper.
Sampling Freshly Mixed Concrete

This specification states procedures for sampling of fresh concrete on which tests are to be performed to determine compliance with specific test methods in ASTM standards. Related ASTM standards: E11

Note: Also required but not part of basic sets—Hand tools, Sieves, and Wet-sieving equipment as required.
**ASTM C173**

Related Standards: ASTM C29, C138, C172, C231, C670

**Air Content of Freshly Mixed Concrete by the Volumetric Method**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-2796A</td>
<td>Roll-a-meter air indicator, aluminum</td>
</tr>
<tr>
<td>1</td>
<td>H-2785.34</td>
<td>Strike-off bar</td>
</tr>
<tr>
<td>1</td>
<td>H-3734</td>
<td>Scoop</td>
</tr>
<tr>
<td>1</td>
<td>H-4976</td>
<td>Rubber mallet</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Isopropyl Alcohol for dispelling foam during test. For users wanting the new lightweight plastic air meter, please refer to model H-2795P.
Measuring Thickness of Concrete Elements Using Drilled Concrete Cores

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-2939</td>
<td>Core length measuring device</td>
</tr>
</tbody>
</table>
# ASTM C183

**Sampling and the Amount of Testing of Hydraulic Cement**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3340</td>
<td>Tube sampler for packaged cement</td>
</tr>
<tr>
<td>1</td>
<td>H-3341</td>
<td>Tube sampler for bulk cement</td>
</tr>
<tr>
<td>1</td>
<td>H-4914.16</td>
<td>Plastic jars with caps (carton of 12)</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS20</td>
<td>8&quot; dia. brass frame sieve, #20 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920P</td>
<td>8&quot; dia. brass pan</td>
</tr>
<tr>
<td>1</td>
<td>H-3770</td>
<td>Sieve brush, fine mesh</td>
</tr>
</tbody>
</table>
Air Content of Hydraulic Cement Mortar

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one: H-3624, H-3624.5F</td>
<td>Motorized flow table with counter, 110v 60hz  Motorized flow table with counter, 220v 50hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3622</td>
<td>Flow mold</td>
</tr>
<tr>
<td>1</td>
<td>H-3621</td>
<td>Flow caliper</td>
</tr>
<tr>
<td>1</td>
<td>H-3840</td>
<td>400ml measure</td>
</tr>
<tr>
<td>1</td>
<td>Choose one: H-3841, H-3841.2F, H-3841.5F</td>
<td>Mortar mixer, 5 qt. 115v 60hz  Mortar mixer, 5 qt. 220v 60hz  Mortar mixer, 5 qt. 220v 50hz</td>
</tr>
<tr>
<td>1</td>
<td>H-4144.8</td>
<td>Straight edge</td>
</tr>
<tr>
<td>1</td>
<td>Choose one: HB-4533A, HB-4533A.4F</td>
<td>Adam core balance, 2600g x 0.1g, 115v 60hz  Adam core balance, 2600g x 0.1g, 115v 60hz</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.250</td>
<td>Glass graduated cylinder, 250ml cap.</td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, hard rubber</td>
</tr>
<tr>
<td>1</td>
<td>H-3855</td>
<td>Tapping stick</td>
</tr>
<tr>
<td>1</td>
<td>H-4974</td>
<td>Spoon, stainless steel</td>
</tr>
<tr>
<td>1</td>
<td>H-3820</td>
<td>Ottawa tensile test sand (50 lb. bag)</td>
</tr>
</tbody>
</table>
**Heat of Hydration of Hydraulic Cement**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3161</td>
<td>Cement calorimeter, 115v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-3161.4F</td>
<td>Cement calorimeter, 220v 50/60hz</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-4260A</td>
<td>Dispersion mixer, 120v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-4260A.4F</td>
<td>Dispersion mixer, 220v 50/60hz</td>
</tr>
<tr>
<td>1</td>
<td>H-4257</td>
<td>Mortar</td>
</tr>
<tr>
<td>1</td>
<td>H-4258</td>
<td>Pestle</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-30100</td>
<td>Laboratory drying oven, 0.7ft³ (20L), 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-30100.4F</td>
<td>Laboratory drying oven, 0.7ft³ (20L), 220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-2260</td>
<td>Stopwatch</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS20</td>
<td>8&quot; dia. brass frame sieve, #20 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS100</td>
<td>8&quot; dia. brass frame sieve, #100 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920P</td>
<td>8&quot; dia. brass pan</td>
</tr>
<tr>
<td>1</td>
<td>H-3770</td>
<td>Sieve brush, fine mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920P</td>
<td>8&quot; x 2&quot; Sieve bottom pan</td>
</tr>
<tr>
<td>1</td>
<td>H-3930BC</td>
<td>8&quot; Sieve cover with ring handle</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-4325</td>
<td>Humboldt economy sieve shaker for 8&quot; sieves, 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-4325.2F</td>
<td>Humboldt economy sieve shaker for 8&quot; sieves, 220V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-4325.5F</td>
<td>Humboldt economy sieve shaker for 8&quot; sieves, 220V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-4922.030</td>
<td>Nickel crucible</td>
</tr>
<tr>
<td>1</td>
<td>H-4922C.030</td>
<td>Nickel crucible cover</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-30200</td>
<td>Bench-top muffle furnace, 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-30200.4F</td>
<td>Bench-top muffle furnace, 220V 50/60Hz</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Temperature controlled storage space, plastic vials, weighing bottles, analytical balance, weighing devices and various chemical reagents.
Normal Consistency of Hydraulic Cement

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-4915.250</td>
<td>Glass graduated cylinder, 250ml cap.</td>
</tr>
<tr>
<td>1</td>
<td>H-3050</td>
<td>Vicat apparatus</td>
</tr>
<tr>
<td>1</td>
<td>H-3070</td>
<td>Replacement needle</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weighing device and water bath.
**ASTM C188**

Related Standards: ASTM C114, C670. AASHTO T133

---

**Density of Hydraulic Cement**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3400</td>
<td>Density flask (LeChatelier)</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weighing device, water bath, and kerosene or naptha.
ASTM C191

Time of Setting of Hydraulic Cement by Vicat Needle

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-4915.250</td>
<td>Glass graduated cylinder, 250ml cap.</td>
</tr>
<tr>
<td>1</td>
<td>H-3050</td>
<td>Vicat apparatus</td>
</tr>
<tr>
<td>1</td>
<td>H-3070</td>
<td>Replacement needle</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weighing device and water bath.
Making and Curing Concrete Test Specimens in the Laboratory

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>H-2942</td>
<td>Steel concrete cylinder mold, 6&quot; x 12&quot;</td>
</tr>
<tr>
<td>3</td>
<td>H-3005</td>
<td>Steel concrete beam form, 6&quot; x 6&quot; x 21&quot;</td>
</tr>
<tr>
<td>1</td>
<td>H-3650</td>
<td>Tamping rod, 5/8&quot; dia. x 24&quot; long</td>
</tr>
<tr>
<td>1</td>
<td>H-4976</td>
<td>Rubber mallet</td>
</tr>
<tr>
<td>1</td>
<td>H-2999A</td>
<td>Concrete vibrator, 115V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-2999A.4F</td>
<td>Concrete vibrator, 220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3755</td>
<td>Vibrating table, 115V 60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3755.2F</td>
<td>Vibrating table, 220V 60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3755.5F</td>
<td>Vibrating table, 220V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-4982</td>
<td>Shovel, round point</td>
</tr>
<tr>
<td>1</td>
<td>H-3372</td>
<td>Utility bucket (pail)</td>
</tr>
<tr>
<td>1</td>
<td>H-3762</td>
<td>Trowel</td>
</tr>
<tr>
<td>1</td>
<td>H-4144.12</td>
<td>Straightedge</td>
</tr>
<tr>
<td>1</td>
<td>H-3731</td>
<td>Scoop</td>
</tr>
<tr>
<td>1</td>
<td>H-3740</td>
<td>Gloves, rubber</td>
</tr>
<tr>
<td>2</td>
<td>H-4939</td>
<td>Mixing bowl</td>
</tr>
<tr>
<td>1</td>
<td>H-3640</td>
<td>Slump cone</td>
</tr>
<tr>
<td>1</td>
<td>H-3638</td>
<td>Slump cone funnel</td>
</tr>
<tr>
<td>1</td>
<td>H-3636</td>
<td>Slump cone base plate</td>
</tr>
<tr>
<td>1</td>
<td>H-3651</td>
<td>Tamping rod, graduated</td>
</tr>
<tr>
<td>1</td>
<td>H-3800</td>
<td>Cleaning brush</td>
</tr>
<tr>
<td>1</td>
<td>H-3760</td>
<td>Trowel</td>
</tr>
<tr>
<td>1</td>
<td>H-3725</td>
<td>Mixing pan</td>
</tr>
<tr>
<td>1</td>
<td>H-2786</td>
<td>Air entrainment meter</td>
</tr>
</tbody>
</table>

contd. next page
### ASTM C192 (contd.)

Related Standards: ASTM C31, C70, C125, C127, C128, C138, C143, C172, C173, C231, C470, C511, C566, C567, C617

**Making and Curing Concrete Test Specimens in the Laboratory**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3847A</td>
<td>Utility mixer with steel drum, 110V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3847A.2F</td>
<td>Utility mixer with steel drum, 220V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3847A.5F</td>
<td>Utility mixer with steel drum, 220V 50Hz</td>
</tr>
<tr>
<td></td>
<td>H-3847A.G</td>
<td>Utility mixer with steel drum, 3.5hp gasoline motor</td>
</tr>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2968</td>
<td>Curing box, deluxe, 115V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>H-2967</td>
<td>Curing box, heating only, 115V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>or</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2969.8</td>
<td>Poly curing tank, 3’ x 2’ x 8’</td>
</tr>
<tr>
<td></td>
<td>H-2969.6</td>
<td>Poly curing tank, 2’ x 2’ x 6’</td>
</tr>
<tr>
<td></td>
<td>H-2969.4</td>
<td>Poly curing tank, 2’ x 2’ x 4’</td>
</tr>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2986A</td>
<td>Precision tank heater, 110V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-2986A.4F</td>
<td>Precision tank heater, 220V 50/60Hz</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weighing device.
Fineness of Hydraulic Cement by Air Permeability Apparatus

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3810</td>
<td>Blaine air permeability apparatus</td>
</tr>
<tr>
<td></td>
<td>H-3058.3F</td>
<td>Blaine air permeability apparatus, electronic, 120/220V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3059.3F</td>
<td>Blaine air permeability apparatus, computer, 120/220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3814</td>
<td>Spare bottle, manometer fluid</td>
</tr>
<tr>
<td>1</td>
<td>H-3816.1M</td>
<td>Spare package, filter paper discs</td>
</tr>
<tr>
<td>1</td>
<td>H-3817</td>
<td>SRM 114q portland calibration testing cement</td>
</tr>
<tr>
<td>1</td>
<td>H-2260</td>
<td>Stopwatch</td>
</tr>
</tbody>
</table>
Hydrated Lime for Masonry Purposes

This specification states requirements for types N, S, NA, and SA hydrated lime for use in masonry. Sand utilized is both H-3820 and H-3825; for the remaining requirements refer to referenced ASTM standards, namely, C25, C50, C110, C206, C226, C778, C1489.
**ASTM C215**

Related Standards: ASTM C31/C31M, C42/C42M, C125,C192/192M, C469, C670, E1316

**Fundamental Transverse, Longitudinal, and Torsional Resonant Frequencies of Concrete Specimens**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3177</td>
<td>Sonometer, 115V 60Hz</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—rubber specimen supports or pad.
Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method)

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3267</td>
<td>Round mortar bar container with rack, 8 bar</td>
</tr>
<tr>
<td>1</td>
<td>H-3265</td>
<td>Rectangular mortar bar container, up to 36 bars</td>
</tr>
<tr>
<td>4</td>
<td>H-3253</td>
<td>2-gang prism molds</td>
</tr>
<tr>
<td>2</td>
<td>H-3260</td>
<td>Replacement gauge studs, pack of 10</td>
</tr>
<tr>
<td>1</td>
<td>H-3250D</td>
<td>Digital length comparator</td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, rubber</td>
</tr>
<tr>
<td>1</td>
<td>H-3761</td>
<td>Trowel</td>
</tr>
</tbody>
</table>

Note: Also required but not part of basic set—Mixer and test sieves.
ASTM C230

Flow Table for Use in Tests of Hydraulic Cement

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3624</td>
<td>Motorized flow table with counter and mold, 120v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-3624.5F</td>
<td>Motorized flow table with counter and mold, 220v 50hz</td>
</tr>
<tr>
<td></td>
<td>H-3625</td>
<td>Motorized flow table with mold, 120v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-3625.5F</td>
<td>Motorized flow table with mold, 220v 50hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3621</td>
<td>Caliper</td>
</tr>
</tbody>
</table>

Note: Also required but not part of basic set—Concrete pedestal.
# ASTM C231

Air Content of Freshly Mixed Concrete by the Pressure Method

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-2783</td>
<td>Humboldt concrete air meter</td>
</tr>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2788</td>
<td>Air meter calibrator, plastic</td>
</tr>
<tr>
<td></td>
<td>H-2793</td>
<td>Air meter calibrator, aluminum</td>
</tr>
<tr>
<td></td>
<td>H-2789</td>
<td>Air meter calibrator, brass</td>
</tr>
<tr>
<td>1</td>
<td>H-2785.DB</td>
<td>Replacement pump assembly</td>
</tr>
</tbody>
</table>
ASTM C232

Related Standards: ASTM C138, C172, C192, C670

Bleeding of Concrete (Method A)

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3661.1</td>
<td>Unit weight measure, 1/2 cu. ft.</td>
</tr>
<tr>
<td>1</td>
<td>H-3650</td>
<td>Tamping rod</td>
</tr>
<tr>
<td>1</td>
<td>H-2785.36</td>
<td>Syringe</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.1M</td>
<td>Glass graduate, 1,000 ml</td>
</tr>
</tbody>
</table>

Note: Also required but not part of basic set—weighing device.
Air-Entraining Admixtures for Concrete

This test method covers requirements for air entraining admixtures in the field. For specific requirements refer to referenced ASTM standards, namely, C33, C39, C78, C136, C143, C150, C157, C172, C173, C185, C192, C231, C232, C260, C403, C666, C670, D75, D1193, E70.
Comparing Concretes on the Basis of Bond Development with Reinforcing Steel

Standard Withdrawn
Bleeding of Cement Pastes and Mortars

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3600</td>
<td>Cement bleeding apparatus</td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, rubber</td>
</tr>
</tbody>
</table>
Time of Setting of Hydraulic-Cement Paste by Gillmore Needles

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3150</td>
<td>Gillmore apparatus</td>
</tr>
<tr>
<td>1</td>
<td>H-3154</td>
<td>Gillmore test sample template</td>
</tr>
<tr>
<td>1</td>
<td>H-3761</td>
<td>Trowel</td>
</tr>
</tbody>
</table>

Note: Also required but not part of basic set—Mixer, weighing device and glass graduates.
### Method B

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one: H-4913.250</td>
<td>Erlenmeyer flask, 250ml, vented</td>
</tr>
<tr>
<td></td>
<td>choose one: H-4913.500</td>
<td>Erlenmeyer flask, 500ml, vented</td>
</tr>
<tr>
<td></td>
<td>choose one: H-4913.1M</td>
<td>Erlenmeyer flask, 1M, vented</td>
</tr>
<tr>
<td>2</td>
<td>H-2820</td>
<td>2&quot; cube mold, 3-gang</td>
</tr>
<tr>
<td>1</td>
<td>H-3760</td>
<td>Triangular trowel</td>
</tr>
<tr>
<td>1</td>
<td>H-4359A</td>
<td>Bakalon mixing pan</td>
</tr>
</tbody>
</table>

**Note:** For testing 50mm cubes, substitute H-2820, 2" Cube Molds with H-2820M, 50mm Cube Molds.

### Method C

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one: H-4913.250</td>
<td>Erlenmeyer flask, 250ml, vented</td>
</tr>
<tr>
<td></td>
<td>choose one: H-4913.500</td>
<td>Erlenmeyer flask, 500ml, vented</td>
</tr>
<tr>
<td></td>
<td>choose one: H-4913.1M</td>
<td>Erlenmeyer flask, 1M, vented</td>
</tr>
<tr>
<td>1</td>
<td>see C470</td>
<td>Cylindrical molds</td>
</tr>
<tr>
<td>1</td>
<td>H-3760</td>
<td>Triangular trowel</td>
</tr>
<tr>
<td>1</td>
<td>H-4359A</td>
<td>Bakalon mixing pan</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weighing balance, micrometer(s), glass containers (inert lined), bath oven, and compression testing machine.
# ASTM C289

Related Standards: ASTM C114, C227, C295, C1005, D1193, D1248, E11, E60

## Potential Alkali-Silica Reactivity of Aggregate (Chemical Method)

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>H-3320</td>
<td>Reaction container</td>
</tr>
<tr>
<td>1</td>
<td>choose one:</td>
<td>Constant temperature water bath, 110V 60hz</td>
</tr>
<tr>
<td></td>
<td>H-1390</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-1390.4F</td>
<td>Constant temperature water bath, 220V 50/60hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS50</td>
<td>8” dia. brass frame sieve, #50 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS100</td>
<td>8” dia. brass frame sieve, #100 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920P</td>
<td>8” dia. brass pan</td>
</tr>
<tr>
<td>1</td>
<td>H-3930BC</td>
<td>8” dia. brass cover</td>
</tr>
<tr>
<td>1</td>
<td>choose one:</td>
<td>Humboldt economy sieve shaker for 8” sieves, 120v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-4325</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-4325.2F</td>
<td>Humboldt economy sieve shaker for 8” sieves, 220v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-4325.5F</td>
<td>Humboldt economy sieve shaker for 8” sieves, 220v 50hz</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weighing scale, analytical balance, crushing and grinding equipment, spectrophotometer, glassware and various reagents.
**ASTM C293**

Related Standards: ASTM C31, C78, C192, C617, C1077, E4

**Flexural Strength of Concrete**  
*(Using Simple Beam With Center-Point Loading)*

<table>
<thead>
<tr>
<th>Qty</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH</td>
<td>Concrete compression machine, 250,000 lb (1,112 kN) cap., iD Digital Indicator, platens for testing 6&quot; x 12&quot; specimens</td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH.2F</td>
<td>Concrete compression machine, 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>HCM-2500iH.5F</td>
<td>Concrete compression machine, 230V 60Hz</td>
</tr>
<tr>
<td>1</td>
<td>HCM-0119A</td>
<td>Flexural beam test attachment</td>
</tr>
<tr>
<td>1</td>
<td>HCM-0200</td>
<td>Machine mounting stand</td>
</tr>
</tbody>
</table>

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ASTM C305

Related Standards: ASTM C778 AASHTO T162

Mechanical Mixing of Hydraulic Cement Pastes and Mortars of Plastic Consistency

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one: H-3841</td>
<td>Mortar mixer, 5 Qt. 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3841.2F</td>
<td>Mortar mixer, 5 Qt. 220V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3841.5F</td>
<td>Mortar mixer, 5 Qt. 220V 50Hz</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Balance, weights, glass graduates and other labware.
**Related Standards:** ASTM C904, E4

## Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfacings

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>H-2800</td>
<td>Briquette mold</td>
</tr>
<tr>
<td>1</td>
<td>H-2959</td>
<td>Concrete capping compound, flake-style</td>
</tr>
<tr>
<td>1</td>
<td>H-2958</td>
<td>Capping ladle</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weighing scale, mixing-melting equipment, and tensile test machine.
# ASTM C308

**Related Standards:** ASTM C279, C307, C904

## Working, Initial Setting, and Service Strength Setting Times of Chemical-Resistant Resin Mortars

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3050</td>
<td>Vicat consistency apparatus</td>
</tr>
<tr>
<td>1</td>
<td>H-3760</td>
<td>Triangular trowel</td>
</tr>
<tr>
<td>1</td>
<td>H-4359A</td>
<td>Bakalon mixing pan</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weighing scale and bricks per ASTM C279.
Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete

This specifications states requirements for the acceptance of fly ash and raw or calcined pozzolans for use in Portland-cement concrete. Sand utilized is H-3820, Tensile test sand, and the remaining requirements refer to other ASTM standards, namely, C25, C33, C109/C109M, C114, C150, C151, C157/C157M, C185, C188, C204, C226, C227, C430, C441, C618, C670, C778, C1012, C1157, C1437, CD4326.
ASTM C321

Related Standards: ASTM C279, C287, C904, E4

Bond Strength of Chemical-Resistant Mortars

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-2959</td>
<td>Concrete capping compound, flake-style</td>
</tr>
</tbody>
</table>
| 1    | Choose one:  
H-2953  
H-2953.4F | Compound melting pot, 120V 60Hz  
Compound melting pot, 220V 50/60Hz |
| 1    | H-3760  | Triangular trowel                                          |
| 1    | H-4359A | Bakalon mixing pan                                         |

Note: Also required but not part of basic set—Weighing scale, bricks per ASTM C 279, marking guide, special fixtures, and universal testing machine.
**ASTM C341**

**Length Change of Cast, Drilled, or Sawed Specimens of Hydraulic-Cement Mortar and Concrete**

### Vertical

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3260</td>
<td>Replacement gauge studs, pack of 10</td>
</tr>
<tr>
<td>1</td>
<td>choose one: H-3250D</td>
<td>Length comparator, digital indicator, 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3250D.4F</td>
<td>Length comparator, digital indicator, 220V 50/60Hz</td>
</tr>
</tbody>
</table>

### Horizontal

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one: H-3230</td>
<td>Strain gauge set</td>
</tr>
<tr>
<td></td>
<td>H-3230D</td>
<td>Strain gauge set, digital</td>
</tr>
<tr>
<td></td>
<td>H-3231</td>
<td>Strain gauge set, metric</td>
</tr>
<tr>
<td></td>
<td>H-3231D</td>
<td>Strain gauge set, metric, digital</td>
</tr>
</tbody>
</table>
**ASTM C342**

Related Standards: ASTM C109, C150, C227, C305, C490, C856, E11

---

**Potential Volume Change of Cement-Aggregate Combinations**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3264</td>
<td>Mortar bar container</td>
</tr>
<tr>
<td>4</td>
<td>H-3253</td>
<td>2-gang prism molds</td>
</tr>
<tr>
<td>2</td>
<td>H-3260</td>
<td>Replacement gauge studs, pack of 10</td>
</tr>
<tr>
<td></td>
<td>choose one:</td>
<td>Length comparator, digital indicator, 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3250D</td>
<td>Length comparator, digital indicator, 220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, rubber</td>
</tr>
<tr>
<td>1</td>
<td>H-3761</td>
<td>Trowel</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Mixer and test sieves.
Flexural Strength of Hydraulic-Cement Mortars

This test method covers test prisms and center point loading. Sand utilized is H-3825; for the remaining requirements refer to referenced ASTM standards, namely, C109/C109M, C230, C305, C349, C670, C778.

**Note:** Also required but not part of basic set—Tamper, guide, and center point loading fixture.
ASTM C359

Early Stiffening of Portland Cement (Mortar Method)

<table>
<thead>
<tr>
<th>Qty</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3050</td>
<td>Vicat apparatus</td>
</tr>
<tr>
<td>1</td>
<td>H-3070</td>
<td>Replacement needle</td>
</tr>
<tr>
<td>1</td>
<td>H-4974</td>
<td>Spoon, stainless steel</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Mortar mixer, 5 Qt. 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3841</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3841.2F</td>
<td>Mortar mixer, 5 Qt. 220V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3841.5F</td>
<td>Mortar mixer, 5 Qt. 220V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.100</td>
<td>Graduated cylinder, 100ML</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.250</td>
<td>Graduated cylinder, 250ML</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.500</td>
<td>Graduated cylinder, 500ML</td>
</tr>
<tr>
<td>1</td>
<td>H-2604.1C</td>
<td>ASTM thermometer, 150°C (non mercury)</td>
</tr>
<tr>
<td>1</td>
<td>H-3761</td>
<td>Trowel</td>
</tr>
<tr>
<td>1</td>
<td>H-3575A</td>
<td>Digital timer clock, 24-hour</td>
</tr>
<tr>
<td>1</td>
<td>H-3065</td>
<td>Mold container</td>
</tr>
<tr>
<td>1</td>
<td>H-3820</td>
<td>Ottawa 20-30 sand, 50 lb. bag</td>
</tr>
</tbody>
</table>

Note: Also required but not part of basic set—Weighing devices and mixing water.
Withdrawn Standard: Test Method for Ball Penetration in Freshly Mixed Hydraulic Cement Concrete

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3655</td>
<td>Ball penetration apparatus</td>
</tr>
<tr>
<td></td>
<td>H-3655-20</td>
<td>Ball penetration apparatus, 20 lb.</td>
</tr>
</tbody>
</table>
ASTM C386

Use of Chemical-Resistant Sulphur Mortar

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-2959</td>
<td>Concrete capping compound, flake-style</td>
</tr>
<tr>
<td>1</td>
<td>H-2958</td>
<td>Capping ladle</td>
</tr>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2948</td>
<td>Compound melting pot, 20 qt. (19L), 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-2948.4F</td>
<td>Compound melting pot, 20 qt. (19L), 220V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>H-2949</td>
<td>Compound melting pot, 28 qt. (26.5L), 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-2949.4F</td>
<td>Compound melting pot, 28 qt. (26.5L), 220V 50/60Hz</td>
</tr>
</tbody>
</table>
### ASTM C403

**Time of Setting of Concrete Mixtures by Penetration Resistance**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-4133</td>
<td>Acme penetrometer</td>
</tr>
<tr>
<td>1</td>
<td>H-4133F</td>
<td>Spare data sheets, pack of 100</td>
</tr>
<tr>
<td>2</td>
<td>H-4184A</td>
<td>Sample can</td>
</tr>
<tr>
<td>1</td>
<td>H-3650</td>
<td>Tamping rod, 5/8&quot;(16mm) dia. x 24&quot;(600mm) long</td>
</tr>
<tr>
<td>1</td>
<td>H-2785.36</td>
<td>Syringe</td>
</tr>
<tr>
<td>1</td>
<td>H-2631D</td>
<td>Dual-scale thermometer</td>
</tr>
</tbody>
</table>
**ASTM C426**

Related Standards: ASTM C490, C1093; ANSI B94.11M – 1993 Twist Drills

---

**Linear Drying Shrinkage of Concrete Masonry Units**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one:</td>
<td>Multi-Length Strain Gauge Set, Analog</td>
</tr>
<tr>
<td></td>
<td>H-3230</td>
<td>Multi-Length Strain Gauge Set, Analog, metric</td>
</tr>
<tr>
<td></td>
<td>H-3231</td>
<td>Multi-Length Strain Gauge Set, Digital</td>
</tr>
<tr>
<td></td>
<td>H-3230D</td>
<td>Multi-Length Strain Gauge Set, Digital, metric</td>
</tr>
<tr>
<td></td>
<td>H-3231D</td>
<td>Multi-Length Strain Gauge Set, Digital, metric</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weighing scale, drying oven, calcium chloride flakes, cooling chamber, immersion tank, and temperature & humidity recording equipment.
Effectiveness of Mineral Admixtures or Ground Blast-Furnace Slag in Preventing Excessive Expansion of Concrete Due to the Alkali-Silica Reaction

<table>
<thead>
<tr>
<th>Qty</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3267</td>
<td>Round mortar bar container with rack</td>
</tr>
<tr>
<td>4</td>
<td>H-3253</td>
<td>2-gang prism molds</td>
</tr>
<tr>
<td>2</td>
<td>H-3260</td>
<td>Replacement gauge studs, pack of 10</td>
</tr>
<tr>
<td>1</td>
<td>H-3250D</td>
<td>Digital length comparator</td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, rubber</td>
</tr>
<tr>
<td>1</td>
<td>H-3761</td>
<td>Trowel</td>
</tr>
</tbody>
</table>

Note: Also required but not part of basic set—Mixer and test sieves.
# ASTM C451

Related Standards: ASTM C150, C183, C187, C305, C490, C670, C1005, D1193

## Early Stiffening of Hydraulic Cement (Paste Method)

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3050</td>
<td>Vicat apparatus</td>
</tr>
<tr>
<td>1</td>
<td>H-3070</td>
<td>Replacement needle</td>
</tr>
<tr>
<td>1</td>
<td>H-3761</td>
<td>Trowel</td>
</tr>
</tbody>
</table>
| 1    | Choose one:  
H-3841  
H-3841.2F  
H-3841.5F | Mortar mixer, 5 Qt. 115V 60Hz  
Mortar mixer, 5 Qt. 220V 60Hz  
Mortar mixer, 5 Qt. 220V 50Hz |
| 1    | H-4915.100 | Graduated cylinder, 100ml              |
| 1    | H-4915.250 | Graduated cylinder, 250ml              |
| 1    | H-4915.500 | Graduated cylinder, 500ml              |

**Note:** Also required but not part of basic set—Weighing device and reference masses.
# Potential Expansion of Portland-Cement Mortars Exposed to Sulfate

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3620</td>
<td>Flow table, hand-driven</td>
</tr>
<tr>
<td></td>
<td>H-3624</td>
<td>Flow table with counter and flow mold, 110V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3624.5F</td>
<td>Flow table with counter and flow mold, 220V 50Hz</td>
</tr>
<tr>
<td></td>
<td>H-3625</td>
<td>Flow table with flow mold, 110V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3625.5F</td>
<td>Flow table with flow mold, 220V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3621</td>
<td>Caliper</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3841</td>
<td>Mortar mixer, 5 Qt. 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3841.2F</td>
<td>Mortar mixer, 5 Qt. 220V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3841.5F</td>
<td>Mortar mixer, 5 Qt. 220V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, rubber</td>
</tr>
<tr>
<td>1</td>
<td>H-3761</td>
<td>Trowel, 2-3/4&quot; x 5&quot; (70 x 127mm)</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.100</td>
<td>Graduated cylinder, 100ML</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.250</td>
<td>Graduated cylinder, 250ML</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.500</td>
<td>Graduated cylinder, 500ML</td>
</tr>
<tr>
<td>2</td>
<td>H-3253</td>
<td>2-Gang prism molds</td>
</tr>
<tr>
<td>2</td>
<td>H-3260</td>
<td>Replacement gauge gtuds, pack of 10</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3250D</td>
<td>Digital length comparator, english/metric display, 120V 60HZ</td>
</tr>
<tr>
<td></td>
<td>H-3250D.4F</td>
<td>Digital length comparator, english/metric display, 220V 50/60Hz</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weights and weighing devices.
## ASTM C469


### Static Modulus of Elasticity and Poisson’s Ratio of Concrete in Compression

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2911</td>
<td>Compressometer, 6&quot; x 12&quot; cylinders</td>
</tr>
<tr>
<td></td>
<td>H-2911D</td>
<td>Compressometer, 6&quot; x 12&quot; cylinders, digital</td>
</tr>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2916</td>
<td>Compressometer, 4&quot; x 8&quot; cylinders</td>
</tr>
<tr>
<td></td>
<td>H-2916D</td>
<td>Compressometer, 4&quot; x 8&quot; cylinders, digital</td>
</tr>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2918</td>
<td>Compressometer, 3&quot; x 6&quot; cylinders</td>
</tr>
<tr>
<td></td>
<td>H-2918D</td>
<td>Compressometer, 3&quot; x 6&quot; cylinders, digital</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Compression Testing Machine.

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2912</td>
<td>Compressometer-extensometer, 6&quot; x 12&quot; cylinders</td>
</tr>
<tr>
<td></td>
<td>H-2912D</td>
<td>Compressometer-extensometer, 6&quot; x 12&quot; cylinders, digital</td>
</tr>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2917</td>
<td>Compressometer-extensometer, 4&quot; x 8&quot; cylinders</td>
</tr>
<tr>
<td></td>
<td>H-2917D</td>
<td>Compressometer-extensometer, 4&quot; x 8&quot; cylinders, digital</td>
</tr>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2919</td>
<td>Compressometer-extensometer, 3&quot; x 6&quot; cylinders</td>
</tr>
<tr>
<td></td>
<td>H-2919D</td>
<td>Compressometer-extensometer, 3&quot; x 6&quot; cylinders, digital</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Compression Testing Machine.
**ASTM C470**

Related Standards: ASTM C31/C31M, C33, C192/C192M, D256, D570

**Molds for Forming Concrete Test Cylinders Vertically**

**Metal Molds which meet this specification are:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-2942</td>
<td>6” x 12” split, steel, 1/8” wall</td>
</tr>
<tr>
<td>H-2950</td>
<td>6” x 12” split, steel, 1/4” wall</td>
</tr>
<tr>
<td>H-2934</td>
<td>4” x 8” steel, 1/4” wall</td>
</tr>
<tr>
<td>H-2920</td>
<td>2” x 4” split, bronze, 3-cavity</td>
</tr>
</tbody>
</table>

**Single-use Molds which meet this specification are:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-3041</td>
<td>6” x 12” Plastic, (order lids separately, H-3041L)</td>
</tr>
<tr>
<td>H-3037PML</td>
<td>4” x 8” Plastic, has integral domed lid</td>
</tr>
<tr>
<td>H-3038PML</td>
<td>3” x 6” Plastic, has integral dome lid</td>
</tr>
<tr>
<td>H-3040</td>
<td>6” x 12” Waxed cardboard, metal bottom</td>
</tr>
<tr>
<td>H-3037</td>
<td>4” x 8” Waxed cardboard, metal bottom</td>
</tr>
<tr>
<td>H-3038</td>
<td>3” x 6” Waxed cardboard, metal bottom</td>
</tr>
<tr>
<td>H-3039</td>
<td>2” x 4” Waxed cardboard, metal bottom</td>
</tr>
</tbody>
</table>

**Reusable Plastic Molds which meet this specification are:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-3043.4</td>
<td>4” x 8” Light, impact resistant, up to 100 uses</td>
</tr>
<tr>
<td>H-3043.6</td>
<td>6” x 12” Light, impact resistant, up to 100 uses</td>
</tr>
</tbody>
</table>

**Strippers (Optional)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-3041S</td>
<td>T-handle style</td>
</tr>
<tr>
<td>H-3041SMA</td>
<td>Screwdriver style</td>
</tr>
</tbody>
</table>
**ASTM C472**

Related Standards: ASTM C11, C778, E11

**Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3820</td>
<td>Tensile test (20-30) Sand</td>
</tr>
<tr>
<td>1</td>
<td>H-3137</td>
<td>Modified vicat apparatus</td>
</tr>
<tr>
<td>1</td>
<td>H-3050</td>
<td>Vicat consistency apparatus</td>
</tr>
<tr>
<td>1</td>
<td>H-4915 Series</td>
<td>Graduated cylinder</td>
</tr>
<tr>
<td>1</td>
<td>choose one: H-4962 H-4960/61</td>
<td>Desiccab desiccator Desiccator jar(s)</td>
</tr>
<tr>
<td>1</td>
<td>H-4929</td>
<td>Aluminum moisture box</td>
</tr>
<tr>
<td>2</td>
<td>H-2820</td>
<td>2&quot; Cube mold, 3-gang</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Distilled water, weighing devices, stopwatch, mixer, curing room/insulated container, drying oven, compression test machine, and temperature & humidity recording equipment. For testing 50mm cubes, substitute H-2820, 2" Cube molds with H-2820M, 50mm Cube molds.
Use of Apparatus for the Determination of Length Change of Hardened Cement Paste, Mortar, and Concrete

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3253</td>
<td>Two-gang prism mold</td>
</tr>
<tr>
<td>1</td>
<td>H-3260</td>
<td>Replacement gauge studs, pack of 10</td>
</tr>
<tr>
<td>1</td>
<td>Choose one: H-3250D</td>
<td>Choose one: Digital length comparator, english/metric display, 120V 60HZ</td>
</tr>
<tr>
<td></td>
<td>H-3250D.4F</td>
<td>Digital length comparator, english/metric display, 220V 50/60Hz</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weight and weighing devices.
**ASTM C496**


---

**Splitting Tensile Strength of Cylindrical Concrete Specimens**

Cylinder Molds used comply with ASTM C470
Compression Machine used complies with ASTM C39/C39M

**Note:** Also required but not part of basic set—Supplementary Bearing Bar or Plate and Bearing Strips.
Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1    | choose one:  
H-2967  
H-2968 | Concrete curing box, heat only, 110V 50/60Hz  
Concrete curing box, heat & cool, 110V 50/60Hz |
| 1    | H-2607.63C | Certified standard thermometer, -8 to 32°C |
| 1    | choose one:  
H-2735F  
H-2735F.4F  
H-2735C  
H-2735C.4F | Chart recorder w/ sensor, °F, 120V 60Hz  
Chart recorder w/ sensor, °F, 220V 50/60Hz  
Chart recorder w/ sensor, °C, 120V 60Hz  
Chart recorder w/ sensor, °C, 220V 50/60Hz |
| 1    | choose one:  
H-2969.8  
H-2969.6  
H-2969.4 | Poly curing tank, 3' x 2' x 8'  
Poly curing tank, 2' x 2' x 6'  
Poly curing tank, 2' x 2' x 4' |
| 1    | choose one:  
H-2985  
H-2985.4F | choose one:  
Curing tank circulator, 120V 60Hz  
Curing tank circulator, 220V 50/60Hz |
| choose one combination below: | | |
| 1    | H-2914B | HumiDisk humidifier, 120/220 50/60Hz |
| or | | |
| 1    | H-2737  | Fogging fan, 120V 60Hz |
| 1    | H-2737.3 | Cycle timer, programmable |

**Note:** Also optionally required but not part of basic set—a moist room with durable walls and tight fitting doors (and windows).

H-2737 Fogging fan is not available in a 220V configuration.
ASTM C535

Related Standards: ASTM C125, C131, C136, C670, C702, D75, E11

**Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Choose one: H-3860B H-3860B.2F H-3860B.5F</td>
<td>Los Angeles abrasion machine with charges, 115V 60Hz Los Angeles abrasion machine with charges, 220V 60Hz Los Angeles abrasion machine with charges, 220V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>Choose one: H-3880 H-3880.4F</td>
<td>Table-top aggregate washer, 115V 60 Hz Table-top aggregate washer, 220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-4278F12</td>
<td>Aggregate screen tray, #12 Wire Mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278F8</td>
<td>Aggregate screen tray, #8 Wire Mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278F4</td>
<td>Aggregate screen tray, #4 Wire Mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278C.375</td>
<td>Aggregate screen tray, 3/8&quot; Wire Mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278C.500</td>
<td>Aggregate screen tray, 1/2&quot; Wire Mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278C.750</td>
<td>Aggregate screen tray, 3/4&quot; Wire Mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278C1.000</td>
<td>Aggregate screen tray, 1&quot; Wire Mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278C1.500</td>
<td>Aggregate screen tray, 1.5&quot; Wire Mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278C2.000</td>
<td>Aggregate screen tray, 2&quot; Wire Mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278C2.500</td>
<td>Aggregate screen tray, 2.5&quot; Wire Mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-4278C3.000</td>
<td>Aggregate screen tray, 3&quot; Wire Mesh</td>
</tr>
</tbody>
</table>

*contd. next page*
<table>
<thead>
<tr>
<th>Qty</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-4283P</td>
<td>Dustpan tray</td>
</tr>
<tr>
<td>1</td>
<td>H-4308</td>
<td>Aggregate scoop</td>
</tr>
</tbody>
</table>
| 1   | Choose one: HB-4964, HB-4964.4F | Ohaus navigator xl balance, 20kg x 1g, 120V 60Hz  
Ohaus navigator xl balance, 20kg x 1g, 220V 50/60Hz |
| 1   | Choose one: H-30140, H-30140.4F | Laboratory bench oven, 7 cu.ft. (198 liter), 115V 60Hz  
Laboratory bench oven, 7 cu.ft. (198 liter), 230V 50/60Hz |
| 2   | H-3705    | Sample drying pans, 18" x 18" x 3" (457 x 457 x 76mm)                        |
## ASTM C579

**Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes**

### Method B

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>H-2820</td>
<td>2&quot; cube mold, 3-gang</td>
</tr>
<tr>
<td>1</td>
<td>H-2959</td>
<td>Concrete capping compound, flake-style</td>
</tr>
<tr>
<td>1</td>
<td>Choose one: H-2953</td>
<td>Compound melting pot, 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H-2953.4F</td>
</tr>
</tbody>
</table>

### Method C

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-2959</td>
<td>Concrete capping compound, flake-style</td>
</tr>
<tr>
<td>1</td>
<td>Choose one: H-2953</td>
<td>Compound melting pot, 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H-2953.4F</td>
</tr>
<tr>
<td>1</td>
<td>see C470</td>
<td>Cylindrical molds</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Temperature controlled storage space. For testing 50mm cubes, substitute H-2820, 2" Cube Molds with H-2820M, 50mm Cube Molds.
Fly Ash and Other Pozzolans for Use With Lime

This specification states requirements for fly ash and other pozzolans for use with mixtures that affect lime pozzolanic reaction. Sand utilized is H-3825, Cube test sand, and the remaining requirements refer to other ASTM standards, namely, C25, C39, C50, C51, C109/C109M, C110, C305, C311, C670, C821, D1557.
## Dry Shrinkage of Mortar Containing Hydraulic Cement

### ASTM C596


<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-4915.100</td>
<td>Graduated cylinder, 100ML</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.250</td>
<td>Graduated cylinder, 250ML</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.500</td>
<td>Graduated cylinder, 500ML</td>
</tr>
<tr>
<td>1</td>
<td>H-3253</td>
<td>Two-gang prism mold</td>
</tr>
<tr>
<td>1</td>
<td>H-3260</td>
<td>Replacement gauge studs, pack of 10</td>
</tr>
<tr>
<td>1</td>
<td>H-3250D</td>
<td>Length comparator, 10&quot; effective length, 120V 60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3250D.4F</td>
<td>Length comparator, 10&quot; effective length, 220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3258DD</td>
<td>Demolding device</td>
</tr>
<tr>
<td>1</td>
<td>H-3825</td>
<td>Cube test ottawa sand (graded)</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weight and weighing devices, mechanical mixer, curing room/container and temperature & humidity recording equipment.
ASTM C597

Related Standards: ASTM C125, C215, C823, E1316

Pulse Velocity through Concrete

<table>
<thead>
<tr>
<th>Qty</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-2983</td>
<td>Pundit plus ultrasonic pulse velocity test system</td>
</tr>
</tbody>
</table>
Capping Cylindrical Concrete Specimens (6" x 12" Cylinders)

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-2952</td>
<td>Vertical cylinder capper</td>
</tr>
<tr>
<td>1</td>
<td>H-2945</td>
<td>Cylinder carrier</td>
</tr>
<tr>
<td>1</td>
<td>H-2958</td>
<td>Capping ladle</td>
</tr>
<tr>
<td>1</td>
<td>H-2959</td>
<td>Concrete capping compound, flake-style</td>
</tr>
<tr>
<td>1</td>
<td>Choose one: H-2953, H-2953.4F</td>
<td>Compound melting pot, 120V 60Hz, Compound melting pot, 220V 50/60Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-2822</td>
<td>Cover plate</td>
</tr>
</tbody>
</table>

**Note:** Also recommended but not part of basic set—Exhaust fume hood and suitable alignment device(s).

**For 220V-50/60Hz applications,** substitute:
H-2953 with H-2953.4F 4-QT (3.8L) Compound Melting Pot, 220V-50/60Hz
Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

This specification states requirements for classes N, F, and C product. Sieve used is No. 325; for the remaining requirements refer to ASTM standard C311.
Related Standards: ASTM C157, C192, C215, C233, C295, C341, C490, C494, C670, C823

**Resistance of Concrete to Rapid Freezing and Thawing (Procedure A)**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HC-3186S.4F</td>
<td>Rapid freeze-thaw apparatus, 220v 50/60hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3185.1</td>
<td>Spare recording chart paper, pack of 100</td>
</tr>
<tr>
<td>1</td>
<td>H-3185.3A</td>
<td>Pen arm replacement kit, pack of 2</td>
</tr>
<tr>
<td>1</td>
<td>H-TA</td>
<td>Spare stainless steel sample positioning tray</td>
</tr>
<tr>
<td>16</td>
<td>H-3195</td>
<td>Freeze-thaw mold</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set(s)—rubber specimen supports or pad.
ASTM C702

Reducing Samples of Aggregate to Testing Size

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3964</td>
<td>Sample splitter, 14 chutes, 1/2&quot; chute width</td>
</tr>
<tr>
<td>1</td>
<td>H-3966</td>
<td>Sample splitter, 14 chutes, 3/4&quot; chute width</td>
</tr>
<tr>
<td>1</td>
<td>H-3987</td>
<td>Sample splitter, 16 chutes, 1&quot; chute width</td>
</tr>
<tr>
<td>1</td>
<td>H-3990</td>
<td>Sample splitter, 10 chutes, 1-1/2&quot; chute width</td>
</tr>
<tr>
<td>1</td>
<td>H-3992</td>
<td>Sample splitter, 8 chutes, 2-1/2&quot; chute width</td>
</tr>
<tr>
<td>1</td>
<td>H-4136</td>
<td>Quartering canvas, 6' x 8'. (2 x 2.5m)</td>
</tr>
<tr>
<td>1</td>
<td>H-4983</td>
<td>Square-point shovel</td>
</tr>
</tbody>
</table>
Standard Specification for Standard Sand

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3820</td>
<td>Tensile test ottawa sand c190</td>
</tr>
<tr>
<td>1</td>
<td>H-3825</td>
<td>Cube test ottawa sand c109</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS16</td>
<td>8&quot; dia. brass frame sieve, #16 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS20</td>
<td>8&quot; dia. brass frame sieve, #20 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS30</td>
<td>8&quot; dia. brass frame sieve, #30 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS40</td>
<td>8&quot; dia. brass frame sieve, #40 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS50</td>
<td>8&quot; dia. brass frame sieve, #50 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920FS100</td>
<td>8&quot; dia. brass frame sieve, #100 ss mesh</td>
</tr>
<tr>
<td>1</td>
<td>H-3920P</td>
<td>8&quot; x 2&quot; Sieve bottom pan</td>
</tr>
<tr>
<td>1</td>
<td>H-3930BC</td>
<td>8&quot; Sieve cover with ring handle</td>
</tr>
<tr>
<td>1</td>
<td>Choose one: H-4325</td>
<td>Humboldt economy sieve shaker for 8&quot; sieves, 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Choose one: Humboldt economy sieve shaker for 8&quot; sieves, 220V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-4325.2F</td>
<td>Humboldt economy sieve shaker for 8&quot; sieves, 220V 50Hz</td>
</tr>
<tr>
<td></td>
<td>H-4325.5F</td>
<td>Humboldt economy sieve shaker for 8&quot; sieves, 220V 50Hz</td>
</tr>
<tr>
<td>1</td>
<td>H-3962</td>
<td>Sample splitter, 14 chutes-10 mm chute width</td>
</tr>
</tbody>
</table>

Note: Also required but not part of basic set—Weight and weighing devices.
### Annex 1

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3133</td>
<td>Modified vicat cone penetrometer (includes h-3840 400 ml measure)</td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, rubber</td>
</tr>
<tr>
<td>1</td>
<td>H-4144.8</td>
<td>Straightedge</td>
</tr>
<tr>
<td>1</td>
<td>H-4974</td>
<td>Spoon</td>
</tr>
<tr>
<td>1</td>
<td>H-3855</td>
<td>Tapping stick</td>
</tr>
</tbody>
</table>

**Note:** The above applies only to Annex 1. Consistency by Cone Penetration Test Method.

### Annex 3

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one: H-4134 H-4132</td>
<td>Concrete pocket penetrometer Concrete pocket penetrometer, dial</td>
</tr>
<tr>
<td>1</td>
<td>H-4134F</td>
<td>Foot for pocket penetrometer</td>
</tr>
</tbody>
</table>

**Note:** The above applies only to Annex 3. Initial Consistency and Consistency Retention or Board Life of Masonry Mortars Using a Modified Concrete Penetrometer.

### Annex 7

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3372</td>
<td>Utility bucket</td>
</tr>
<tr>
<td>1</td>
<td>see C470</td>
<td>2&quot; x 4&quot; or 3&quot; x 6&quot; cylindrical molds</td>
</tr>
<tr>
<td>or</td>
<td>2</td>
<td>H-2820</td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, rubber</td>
</tr>
<tr>
<td>1</td>
<td>H-4974</td>
<td>Spoon</td>
</tr>
<tr>
<td>1</td>
<td>H-4906</td>
<td>Straight edge spatula (trowel)</td>
</tr>
</tbody>
</table>

**Note:** The above applies only to Annex 7. Compressive Strength of Molded Masonry Mortar Cylinders and Cubes. Also required but not included in basic set—max-min thermometer and compression testing machine.
ASTM C803

Penetration Resistance of Hardened Concrete

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-2978</td>
<td>Windsor hp probe system</td>
</tr>
<tr>
<td>1</td>
<td>H-2978.01</td>
<td>Silver probe kit (for up to 17,000 psi)</td>
</tr>
<tr>
<td>1</td>
<td>H-2978.03</td>
<td>Gold probe kit (for 3,000 psi and below)</td>
</tr>
</tbody>
</table>
### ASTM C805

Rebound Number of Hardened Concrete

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one: H-2987H</td>
<td>Humboldt concrete rebound hammer</td>
</tr>
<tr>
<td></td>
<td>H-2975</td>
<td>Standard concrete test hammer, type n</td>
</tr>
<tr>
<td></td>
<td>H-2975LM</td>
<td>Light weight test hammer</td>
</tr>
<tr>
<td></td>
<td>H-2976</td>
<td>Digi-schmidt concrete test hammer with data logger/display</td>
</tr>
<tr>
<td>1</td>
<td>H-2972</td>
<td>Calibration anvil</td>
</tr>
</tbody>
</table>
### ASTM C806

**Restrained Expansion of Expansive Cement Mortar**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3251</td>
<td>2-gang prism mold, 2&quot; x 2&quot; x 10&quot;</td>
</tr>
<tr>
<td>2</td>
<td>H-3251RC</td>
<td>Retaining cage</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Digital length comparator, english/metric display, 120V 60HZ, 220V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3250D</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3250D.4F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, hard rubber</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Mortar mixer, 5 qt., 115v 60hz, 220v 60hz, 220v 50hz</td>
</tr>
<tr>
<td></td>
<td>H-3841</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3841.2F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3841.5F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>H-3761</td>
<td>Trowel</td>
</tr>
<tr>
<td>1</td>
<td>H-3825</td>
<td>Ottawa test sand, 50lb (22.5kg) bag</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.250</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>H-4915.500</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weight and weighing devices.
### ASTM C807

Related Standards: ASTM C109, C183, C187

**Time of Setting of Hydraulic Cement Mortar by Modified Vicat Needle**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3085</td>
<td>Time of set and consistency vicat needle apparatus</td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, rubber</td>
</tr>
<tr>
<td>1</td>
<td>H-3761</td>
<td>Trowel, 2.75&quot; x 5&quot; (70 x 127mm)</td>
</tr>
<tr>
<td>1</td>
<td>Choose one: H-3841</td>
<td>Mortar mixer, 5 qt., 115v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-3841.2F</td>
<td>Mortar mixer, 5 qt., 220v 60hz</td>
</tr>
<tr>
<td></td>
<td>H-3841.5F</td>
<td>Mortar mixer, 5 qt., 220v 50hz</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.100</td>
<td>Graduated cylinder, 100ml</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.250</td>
<td>Graduated cylinder, 250ml</td>
</tr>
<tr>
<td>1</td>
<td>H-4915.500</td>
<td>Graduated cylinder, 500ml</td>
</tr>
<tr>
<td>1</td>
<td>H-3825</td>
<td>Ottawa test sand, 50lb (22.5kg) bag</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Weight and weighing devices.
Withdrawn Standard: Recommended Practice for Estimating Scratch Hardness of Aggregate Particles

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3420</td>
<td>Scratch hardness tester</td>
</tr>
</tbody>
</table>
### ASTM C876

**Related Standards:** ASTM G3

**Half-Cell Potentials of Uncoated Reinforcing Steel in Concrete**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-2872</td>
<td>CorMap rebar corrosion mapping system</td>
</tr>
</tbody>
</table>
### ASTM C878

Related Standards: ASTM C125, C157, C192, C219, C403, C490, C670, C806, C845

**Restrained Expansion of Shrinkage-Compensating Concrete**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>H-3254</td>
<td>Prism mold, 3&quot; x 3&quot; x 10&quot;</td>
</tr>
<tr>
<td>3</td>
<td>H-3257</td>
<td>retaining cage</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Digital length comparator, english/metric display, 120V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3250D</td>
<td>Digital length comparator, english/metric display, 220V 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3250D.4F</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>H-2905.1</td>
<td>Tamping rod</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td>Concrete vibrator, 115V 60hz</td>
</tr>
<tr>
<td></td>
<td>H-2999A</td>
<td>Concrete vibrator, 220V 50/60hz</td>
</tr>
<tr>
<td></td>
<td>H-2999A.4F</td>
<td></td>
</tr>
</tbody>
</table>
Flow of Grout for Preplaced-Aggregate Concrete
(Flow Cone Method)

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1    | choose one:  
H-2834  
H-2835 | Grout flow cone, ½" orifice with ¾" option & point gage assy.  
Grout flow cone, ¾" orifice with ½" option & point gage assy. |
| 1    | H-2833 | Flow cone stand                                                             |

Note: Also required but not part of basic set—Grout mixer, level, stopwatch, No. 8 sieve and other labware.
## ASTM C1073

### Hydraulic Activity of Ground Slag by Reaction with Alkali

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>H-2820</td>
<td>2&quot; Cube Mold, 3-Gang</td>
</tr>
</tbody>
</table>
| 1    | Choose one:
|      | H-3841    | Mortar mixer, 5 Qt. 115V 60Hz                                                |
|      | H-3841.2F | Mortar mixer, 5 Qt. 220V 60Hz                                                |
|      | H-3841.5F | Mortar mixer, 5 Qt. 220V 50Hz                                                |
| 1    | Choose one:
|      | HCM-2500iH| Concrete compression machine, 250,000 lb (1,112 kN) cap., ID Digital Indicator, platens for testing 6" x 12" specimens |
|      | HCM-2500iH.2F | Concrete compression machine, 115V 60Hz                                      |
|      | HCM-2500iH.5F | Concrete compression machine, 230V 60Hz                                      |
| 1    | HCM-0200  | Machine mounting stand                                                       |
| 1    | HCM-0112A | 2" (50mm) cube platen set                                                   |

**Note:** Also required but not part of basic set—Curing room/container, temperature recording equipment and other labware. For testing 50mm cubes, substitute H-2820, 2" Cube Molds with H-2820M, 50mm Cube Molds.
**ASTM C1074**


### Estimating Concrete Strength by the Maturity Method

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one:</td>
<td>Multi-channel maturity meter set</td>
</tr>
<tr>
<td></td>
<td>H-2680</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2682</td>
<td>Rechargeable multi-channel maturity meter set</td>
</tr>
</tbody>
</table>
ASTM C1090

Measuring Changes in Height of Cylindrical Specimens of Hydraulic-Cement Grout

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-2903</td>
<td>Micrometer bridge set</td>
</tr>
</tbody>
</table>

Contains:

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-2904</td>
<td>Tapered cylinder mold</td>
</tr>
<tr>
<td>1</td>
<td>H-2902</td>
<td>Micrometer depth gauge</td>
</tr>
<tr>
<td>1</td>
<td>H-2901</td>
<td>Micrometer bridge</td>
</tr>
<tr>
<td>1</td>
<td>H-2905.2</td>
<td>Glass plate, 100mm sq. x 6mm thick</td>
</tr>
<tr>
<td>1</td>
<td>H-2905.3</td>
<td>Weight, 1.5 kg</td>
</tr>
<tr>
<td>1</td>
<td>H-2905.1</td>
<td>Tamping rod</td>
</tr>
</tbody>
</table>

Note: Also required but not part of basic set—Mixer with clearance adjustment and Outside Micrometer/Caliper with 50 m throat depth.
Use of Unbonded Caps in Determination of Compressive Strength of Hardened Concrete Cylinders

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2946D</td>
<td>Econ-o-cap set, (2) rings, (2) 60 duro pads for 6&quot; x 12&quot; specimens</td>
</tr>
<tr>
<td></td>
<td>H-2946B</td>
<td>Econ-o-cap set, (2) rings, (2) 60 duro pads for 3&quot; x 6&quot; specimens</td>
</tr>
<tr>
<td></td>
<td>H-2946C</td>
<td>Econ-o-cap set, (2) rings, (2) 60 duro pads for 4&quot; x 8&quot; specimens</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Materials & equipment to produce ends of cylinders per ASTM C39 & C617.
### Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3265</td>
<td>Rectangular mortar bar container, up to 36 bars</td>
</tr>
<tr>
<td>4</td>
<td>H-3253</td>
<td>2-gang prism molds</td>
</tr>
<tr>
<td>2</td>
<td>H-3260</td>
<td>Replacement gauge studs, pack of 10</td>
</tr>
<tr>
<td>1</td>
<td>H-3250D</td>
<td>Digital length comparator</td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, rubber</td>
</tr>
<tr>
<td>1</td>
<td>H-3761</td>
<td>Trowel</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Mixer, test sieves, and water bath or oven.
Flow of Freshly Mixed Hydraulic-Cement Concrete

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3643</td>
<td>K slump tester</td>
</tr>
</tbody>
</table>

Related Standards: ASTM C172, C670
Measuring the P-Wave Speed and the Thickness of Concrete Plates Using the Impact Echo Method

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-2851</td>
<td>Impact echo system</td>
</tr>
</tbody>
</table>

Related Standards: ASTM C597, E1316
**ASTM C1506**


# Water Retention of Hydraulic Cement-Based Mortars and Plasters

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3630A</td>
<td>Water retention apparatus</td>
</tr>
<tr>
<td>1</td>
<td>H-2860</td>
<td>Tamper, rubber</td>
</tr>
<tr>
<td>1</td>
<td>H-4144.8</td>
<td>Straight edge</td>
</tr>
<tr>
<td>1</td>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-3841</td>
<td>Mortar mixer, 5 qt., 115V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3841.2F</td>
<td>Mortar mixer, 5 qt., 220V 60Hz</td>
</tr>
<tr>
<td></td>
<td>H-3841.5F</td>
<td>Mortar mixer, 5 qt., 220V 50Hz</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Balance, weights, glass graduates and other labware.
Standard Test Method for Static Segregation of Self-Consolidating Concrete Using Column Technique

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HC-3666</td>
<td>Static segregation column mold</td>
</tr>
<tr>
<td>1</td>
<td>H-2785.34</td>
<td>Strike-off bar</td>
</tr>
</tbody>
</table>
### ASTM C1611

Related Standards: ASTM C143/C143M, C172, C173/C173M, C670

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**Slump Flow of Self-Consolidating Concrete**

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>choose one:</td>
<td>Slump cone, steel</td>
</tr>
<tr>
<td></td>
<td>H-3640</td>
<td>Slump cone, plastic</td>
</tr>
<tr>
<td></td>
<td>H-3640P</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>H-2785.34</td>
<td>Strike-off bar</td>
</tr>
<tr>
<td>1</td>
<td>H-3650</td>
<td>Tamping (puddling) rod</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Base plate, 36 in. min. dia.
# Standard Test Method for Passing Ability for Self-Consolidating Concrete by J-Ring

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>H-3652</td>
<td>J-ring test set, smooth rods</td>
</tr>
<tr>
<td>1</td>
<td>H-2785.34</td>
<td>Strike-off bar</td>
</tr>
</tbody>
</table>
ASTM C1712

Standard Test Method for Rapid Assessment of Static Segregation Resistance of Self-Consolidating Concrete Using Penetration Test

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HC-3668</td>
<td>Penetration apparatus for self-consolidating concrete</td>
</tr>
<tr>
<td>1</td>
<td>H-3653</td>
<td>Stainless steel base plate (optional)</td>
</tr>
<tr>
<td>1</td>
<td>H-2785.34</td>
<td>Strike-off bar</td>
</tr>
</tbody>
</table>
ASTM E1907

Standard Guide to Methods of Evaluating Moisture Conditions of Concreted Floors to Receive Resilient Floor Coverings

See ASTM F1869 and ASTM F2170.
## ASTM F1869

### Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Carbide

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1    | choose one: HC-2993A
      | Vapor Emission Test Kit, 3 kits, for 1000 sq. ft.             |
|      | HC-2993B  | Vapor Emission Test Kit, 12 kits, for 10,000 sq. ft.         |
| 1    | choose one: HB-4720A
      | Ohaus portable balance, 200g x 0.01g, 120V 60Hz               |
|      | HB-4720A.4F | Ohaus portable balance, 200g x 0.01g, 220V 50/60Hz         |

**Note:** Also required but not part of basic set—Concrete surface cleaner or light grinder.
Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes

<table>
<thead>
<tr>
<th>Qty.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HC-3000</td>
<td>Concrete RH/Moisture meter kit</td>
</tr>
</tbody>
</table>

**Note:** Also required but not part of basic set—Concrete drill bit approximately 15 mm diameter.