

# 34 Concrete - Fresh and Hardened Concrete Testing

## Capping of Cylinders

When conducting a compressive strength test on a concrete cylinder it is important that the ends of the specimen are flat and parallel to each other. The trowelled face of a prepared concrete cylinder, or both ends of a concrete core, will require treatment to obtain these conditions.

## Sulphur Compound Method

EN 12390-3

The sulphur compound method is a hot process and offers a considerable saving in time and labour over the mortar capping method. The method is virtually instant and the compound can often be recovered for further use.

**Warning:** The sulphur compound, when hot, will give off sulphur fumes, and therefore it is important that good ventilation, or preferably a fume cupboard, is available in the laboratory.

## Ordering Information

**EL34-6031 Cylinder Capping Frame** comprising a vertical support, mounted on a steel base designed to accommodate both sizes of capping plates. Supplied complete with 100 mm and 150 mm capping plates. Weight 10 kg.

## Accessories

**EL34-6100 Flake Capping Compound** supplied in 22 kg box.



EL34-6031 Cylinder Capping Frame



EL34-6122/01 Melting Pot

## Melting Pot

This unit is suitable for melting wax and capping compound and comprises a metal container in a well-lagged steel jacket. A thermostatic control and stand-by heat switch are fitted. Supplied complete with lift-off cover.

Specification	
Dimensions (diameter x depth)	Internal 140 x 150 mm External 250 x 165 mm
Capacity	4.0 litres
Rated power	300 watt
Temperature range	50 to 300°C
Weight	7 kg

## Ordering Information

**EL34-6122/01 Melting Pot** for 220 – 240 V AC, 50 - 60 Hz, 1 ph.

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## Density of Fresh and Hardened Concrete

*The density of both fresh and hardened concrete is of interest to the engineer for numerous reasons including its effect on durability, strength and resistance to permeability.*

Hardened concrete density is determined either by simple dimensional checks, followed by weighing and calculation, or by weight in air/water buoyancy methods.

## Density of Hardened Concrete

EN 12390-7, 1097-6

The density of hardened concrete specimens such as cubes and cylinders can be quickly and accurately determined using a Buoyancy Balance.

## Buoyancy Balance

The buoyancy balance system developed by ELE consists of a rigid support frame, incorporating a water tank mounted on a platform. The water tank has internal dimensions of 380 x 240 x 280 mm (l x w x h).

A mechanical lifting device is used to raise the water tank through the frame height immersing the specimen suspended below the balance. The balance supplied calculates the specific gravity of the sample automatically.

The balance may also be used as a standard weighing device, thus providing a versatile and comprehensive weighing system in the laboratory.

## Ordering Information

**EL34-8100/09 Buoyancy Balance.** 15 kg x 0.5 g.  
Supplied with frame, water tank and suspension hook.  
For 110 – 240 V AC, 50 – 60 Hz, 1 ph.

## Accessory

**EL34-8105 Cradle** for supporting cube and cylinders.



EL34-8105 Cradle

## Density of Compacted Fresh Concrete

BS 812; EN 1097-3, 12350-6; ASTM C138

## Bulk Density Measures

Manufactured from heavy gauge steel these bulk density measures comply with the requirements of either BS 812, EN 1097-3, 12350-6 or ASTM C138. All measures incorporate carrying handles as standard.

## Ordering Information

**EL34-2800 Set of 3 Bulk Density Measures** comprising, 1 x 30 litre, 1 x 15 litre and 1 x 10 litre.

*For other bulk density measures see Section 42.*

## Accessories

**Compacting Bar for BS/EN tests** see EL34-2910

**Tamping Rod for ASTM tests** see EL34-0130



EL34-8100/09 Buoyancy Balance

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## Drying, Shrinkage and Moisture Movement

The apparatus has been designed and manufactured to the recommendations laid down in BS, EN and ASTM standards where tests are required on laboratory specimens, or on specimens taken from existing structures. The test procedure specifies a method for determining the change in length of a concrete or mortar sample brought about by a change in moisture content.

- 1 **Initial drying shrinkage:** the difference between the length of a moulded and cured specimen (under specified conditions), and its final (constant) length when dried.
- 2 **Drying shrinkage:** the difference between the length of a matured specimen cut from concrete and saturated, and its final (constant) length when dried.
- 3 **Moisture movement:** the difference between the constant length of a specimen when dried, and its length when subsequently saturated with water.

## Measuring Equipment

EN 1367-4; ASTM C490

### Ordering Information

EL34-8500 Drying, Shrinkage and Moisture Movement Apparatus conforming to the requirements of EN 1367-4 and ASTM C490 comprising a steel frame with an adjustable-height beam and a dial gauge with 0.002 mm divisions. Supplied with two calibration rods EN and ASTM. Weight 4.5 kg.

### Spare

EL34-8505/10 Calibration Rod. 115/8 inch total length.



EL34-8500 Drying, Shrinkage and Moisture Movement Apparatus

## Prism Moulds and Inserts

### Ordering Information

EL34-8538 Prism Mould for producing specimens 75 mm square x 254 mm gauge length to BS 812-123. The mould is made of steel and constructed so that the gauge length can be set within  $\pm 2.54$  mm limits. The overall length of the manufactured prism with steel inserts is 292 mm. Weight 6.5 kg.

EL34-8541 Steel Inserts for use with prism mould EL34-8538. Supplied in pack of 10. Weight 500 g.

EL34-8544 Two-gang Prism Mould to produce specimens 1 inch square x 11¼ inches long to ASTM C490. The mould is constructed so that the gauge length can be set within  $\pm 0.1$  inch limits. Weight 3 kg.

EL34-8547 Inserts for use with prism mould EL34-8544. Supplied in pack of 10. Weight 700 g.

Humidity Oven see EL39-1300/01



Prism Mould



EL34-8544 Two-gang Prism Mould