

## SOUNDNESS

### ●● HC38.05

**Le Chatelier Mould,**  
conforming IS : 5514-1969

Used for determination of soundness of cement, and class-A and class-B limes.

The apparatus consists of the following :-

- i) One split cylinder 30 mm dia x 30 mm high made of spring brass with two indicator arms.
- ii) Two glass plates.
- iii) One lead weight approximately 100 gms.



HC38.05

#### ACCESSORIES :

**HC38.05.1** Le Chatelier Water Bath.

It is a double walled water bath made from heavy gauge copper sheet for maintaining the temperature of water at  $27 \pm 2^\circ$  C. Glass wool insulation is provided between the walls. An immersion type heater, with thermostat and a Sunvic energy regulator are provided for controlling the temperature. A removable rack to hold twelve standard Le-Chatelier Moulds, is also supplied.

Suitable for operation on 220/230 V, 50 Hz, single phase supply.



HC38.05.1

### ●● HC38.10

**Ring Mould IS : 712-1984, 6932**  
(part X) - 1973, BS : 890 & 1191.

Used for conducting popping and pitting tests on limes. It consists of :

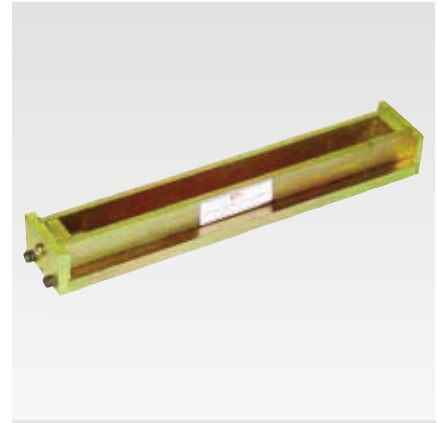
- 1 One ring mould of brass 100 mm I.D. X 5 mm, deep.
- 2 One glass base plate.

### ●● HC38.15

**Shrinkage Bar Mould (Single)**  
IS : 4031-1968, 2386 (Part VII) 1963,  
IS : 10086-1982, ASTM C-151

For preparing specimens of 25 mm x 25 mm x 250 mm effective gauge length with inserted stainless steel reference studs for determining the soundness of Portland Cement by the autoclave test and potential alkali reactivity of cement-aggregate combination by mortar bar method.

The mould consists of two side plates and two end plates assembled on a common base plate with screws and dowel pins. Two reference stud holders snugly fit into the mould and are held by screws through the end plates. Two knurled and threaded reference studs are fitted into these stud holders.



HC38.15

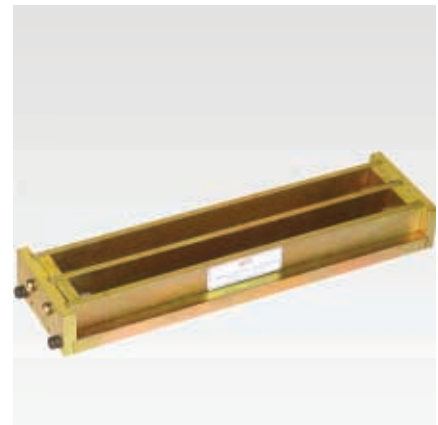
#### ACCESSORIES :

**HC38.15.1** Stainless steel reference points knurled and threaded. Pack of 10, suitable for use with all types of shrinkage bar moulds.

### ●● HC38.20

**Shrinkage Bar Mould (Double)**

Similar to HC38.15 but with two mould compartments assembled on a common base plate for preparing two specimens at a time.



HC38.20

### ●● HC38.25

#### Shrinkage Bar Mould (Triple)

Similar to HC38.15 but with three mould compartments assembled on a common base plate for preparing three specimens at a time.



HC38.25

### ●● HC38.30

#### Shrinkage Bar Mould (Quadruple)

Similar to HC38.15 but with four mould compartments assembled on a common base plate for preparing four specimens at a time.

### ●● HC38.35

#### Length Comparator IS:4031-1968, IS : 9459-1980

Used for measuring the length change of hardened cement paste, concrete and mortar and also due to potential alkali reactivity of cement aggregate combination in course of time.

The apparatus comprises the following :-

- i) One frame consisting of one base plate, two pillars and a cross-bar. The cross bar is adjustable up and down on the threaded pillars.
- ii) One dial gauge, least count 0.002 mm, travel 5 mm which can be fixed to the cross bar.

The plunger of the dial gauge has a concave spherical seating which sits over the reference studs of specimen bars while taking observation.

- iii) One reference bar of stainless steel with insulated handle.



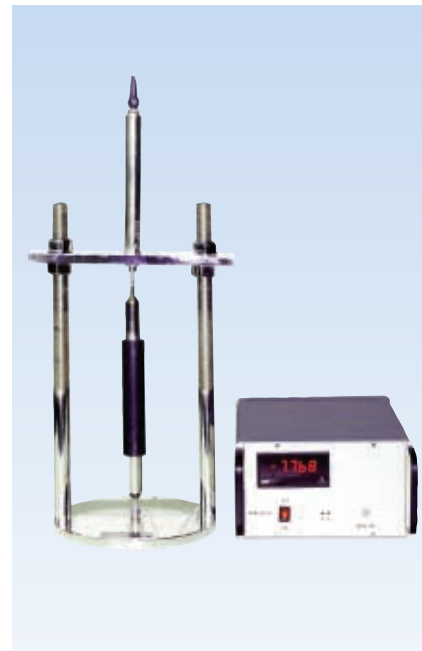
HC38.35

### ●● HC38.535

#### Length Comparator (Electronic) IS:4031-1968, IS : 9459-1980

Length Comparator with displacement sensor and read out unit.

Same as HC38.35 except that it has a displacement sensor or digital gauge of  $\pm 5$ mm travel and a read out unit with sensitivity of 0.001mm.



HC38.535

### ●● HC38.40

#### Volume Change Apparatus ASTM C-157

It is used for determination of volume change of set cement concrete.

The apparatus comprises the following :-

- i) One frame consisting of a base, two pillars and a cross bar.
- ii) One dial gauge 0.002 mm x 5 mm travel.
- iii) One specimen mould for 100 mm x 100 mm x 250 mm effective gauge length with four stainless steel studs.
- iv) One stainless steel reference bar.



HC38.40

●● **HC38.47**

**Cement Autoclave IS : 4031-1968**

Used for accelerated soundness tests on cement. It can also be used for other accelerated testing requiring constant steam pressure up to 21/kg. Sq. cm.

The equipment comprises :-

- i) One high pressure steam chamber approximately 150 mm ID x 400 mm long, made of seamless stainless steel tube with bolted steel cover, which is enclosed in heat insulated metal housing.
- ii) Strip heaters with thermostat regulator and two toggle-switches to regulate rate of heating.
- iii) Preset pressure switch to control and maintain preset steam pressure in the chamber.
- iv) Spring loaded safety valve incorporated in the unit with valve adjusted to work at 23 kg/sq. cm pressure approximately.
- v) Steam Pressure Gauge with maximum capacity of 42 kg/sq. cm.
- vii) A blower for accelerated cooling of the unit at the end of a test.
- viii) One test bar holder for holding eight test specimens inside the steam chamber in vertical position.



HC38.47

●● **HC38.547**

**Cement Autoclave IS : 4031-1968**

Same as HC 38.47 except that the display of pressure is on the digital indicator.

●● **HC38.50**

**Heat of Hydration Apparatus IS:11262-1985**

Required for determining the heat of hydration of cement as expressed in calories per gram.

The equipment comprises the following :-

- i) A wide mouthed double walled vacuum flask with a cork stopper 38 mm thick and an insulated container for flask.
- ii) A beckman thermometer (Range 5<sup>0</sup> C) held tightly by the cork stopper in such a way as to avoid accidental contact with stirrer blades and a reading lens. To facilitate easy removal, cork stopper is divided into two halves.
- iii) A constant speed stirrer (Double-bladed propeller type) extending to within 38 mm from the bottom of the flask.
- iv) A funnel (Gooch Type) with a stem of 6 mm inner dia and a body approx 25 mm long and 25 mm dia is fitted to the cork stopper for introducing the sample.



HC38.50

All the above combine to form the calorimeter for determination of heat of hydration of cement.

Suitable for operation on 220 V, 50 Hz, single phase supply.

●● **HC38.550**

**Heat of Hydration Apparatus IS:11262-1985**

The unit is same as HC 38.50 except that it is provided with digital thermometer with a sensitivity of 0.01<sup>0</sup>C

●● **HC38.55**

**Apparatus for Analysis of Freshly Mixed Concrete IS : 7325-1974**

Used for determining proportions of the constituents of freshly mixed concrete with 40 mm maximum sized aggregate.

The apparatus comprises the following:-

- i) A semi-automatic balance of 5 kg capacity and having a sensitivity of 0.5 gms including set of weights.
- ii) Eight containers made of copper.
- iii) Two tanks of 300 mm internal dia x 300 mm deep and 150 mm dia x 225 mm deep respectively interconnected by a flexible hose.
- iv) Two nesting sieves 450 mm dia (IS Sieve 4.75 mm, 100 mm deep and IS Sieve 150 micron 300 mm deep.)