STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
METHODS OF TESTING PORTLAND AND BLENDED CEMENTS

AS 2350.6
COMPRESSIVE STRENGTH OF PORTLAND AND BLENDED CEMENTS

1 SCOPE. This standard sets out the determination of the compressive strength of portland and blended cements.

2 PRINCIPLE. Sand-cement mortar cube specimens are made and tested to failure.

3 APPARATUS. The following apparatus shall be used:

(a) *Boehme hammer.* The Boehme hammer shall conform to Fig. 4 and the tolerances shown thereon.

(b) *Compression testing machine.* The compression testing machine shall be of adequate capacity and capable of applying the test force at the rate specified in Clause 5.2. It shall comply as regards accuracy with the requirements of AS 2193 for Grade A machines.

The upper bearing block of the machine shall have a spherical seat, the centre of curvature being situated on the vertical axis of the machine and in the plane of contact between the head and the specimen. A suitable form is shown in Fig. 5. The radius of curvature shall be not less than 50 mm.

The lower bearing block of the machine shall not have a spherical seat but shall have a plane surface normal to the axis of the machine. The bearing surfaces shall be maintained plane within a tolerance of 0.05 mm within the width of the specimen.

(c) *Cube mould.* The form, dimensions and tolerances on dimensions of the cube mould, cube mould cramp and cube mould depth gauge shall be those shown in Figs 1, 2 and 3, respectively.

(d) *Laboratory.* The air within the laboratory in which the specimens are made and tested shall be maintained at a temperature of 23 ± 2°C.

(e) *Mixer unit.* The mixer shall be an electrically-driven mechanical mixer which imparts both a planetary and a revolving motion about vertical axes to the mixer paddle. The paddle shall revolve at a rate of 140 ± 5 r/min. The planetary motion shall be 60 ± 5 r/min. The electric motor shall be at least 125 W. The mixer shall be capable of adjustment so that when the bowl is in the mixing position, the clearance between the lower end of the paddle and the bottom of the bowl will be approximately 1.5 mm but not less than 1 mm and not greater than 2.5 mm. The paddle shall be readily removable, approximately symmetrical about its central axis, made of stainless steel, and of such shape as to impart planetary motion to the mortar. The dimensions of the paddle shall be such that when in the mixing position the paddle outline conforms to the contour of the bowl used with the mixer, and the minimum clearance between paddle and bowl shall be approximately 1.5 mm but not less than 1 mm. The removable mixing bowl shall have a nominal capacity of 4.5 L and shall be made of stainless steel. The bowl shall be so equipped that it will be positively held in the mixing apparatus in a fixed position during the mixing procedure.

NOTE: The 'Hobart' CM10 or N50 food mixers (manufactured by Hobart Manufacturing Co. Pty Ltd) fitted with 4.5 L bowl, with paddle and bowl each of stainless steel, comply with these specifications. Mixers of other manufacture may be used provided that they are approved by the SAA Committee on Cement.

(f) *Moist cupboard.* The atmosphere within the moist cupboard shall be maintained at a temperature of 23 ± 2°C and shall have a relative humidity of not less than 90 percent.

(g) *Scraper.* The scraper for use with the mixer unit shall consist of a semi-rigid rubber or suitable plastics blade attached to a handle about 150 mm long. The blade shall be about 75 mm long, 50 mm wide, and tapered to a thin edge about 1.5 mm.