STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS OF SAMPLING AND TESTING MORTAR FOR MASONRY CONSTRUCTION

AS 2701.4
METHOD FOR DETERMINATION OF COMPRESSIVE STRENGTH

1 SCOPE. This standard sets out the method for determination of compressive strength of mortar using prismatic test pieces made in a standard mould.

NOTE: Methods using other moulds may be used—see BS 4551.

2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 2193 Methods for Calibration and Grading of Force-measuring Systems of Testing Machines

AS 2701 Mortar for Masonry Construction—Methods of Sampling and Testing
Part 2—Methods of Sampling
Part 3—Method of Preparation of Fresh Mortar for Testing
Part 7—Method for Determination of Water Retention

BS 4551 Methods for Testing Mortars and Specification for Mortar Testing Sand.

3 PRINCIPLE. A moulded specimen of mortar is compressed at a specified rate and the force required to achieve failure is measured.

4 DEFINITION. For the purpose of this standard, the following definition applies:

Age-group—a number of specimens of mortar that are aged for the same time.

5 APPARATUS. The following apparatus is required:

(a) *Mould*. A six-compartment metal mould for making specimens 50±3 mm × 25±0.1 mm × 25±0.1 mm (see Fig. 1). The internal faces of the mould sides shall be maintained plane to 0.2 mm over the length of any single 50 mm specimen.

(b) *Straightedge.* A steel tool having a straight edge long enough to span the mould, approximately 25 mm wide and between 1.5 mm and 3 mm thick.

(c) *Tamper*. A metal bar about 180 mm long and 10 mm square in cross-section.

(d) *Flow table (if available).* As specified in AS 2701.7, Clause 4(b).

(e) *Compression jig* (see Fig. 2). The jig shall include a pair of hardened and tempered tool steel bearing plates. The 45 mm × 25 mm faces shall be plane to 0.01 mm and be hardened and tempered. The top of the base plate shall be marked with an arrow in the direction parallel to the greater distance between the pillars to indicate the direction of the long axis of the bearing plates.

A suitable means shall be provided for centring the apparatus on the testing machine.

(f) *Testing machine.* Capable of applying load at the rate specified, through a ball-joint, and complying with the requirements for accuracy of Grade A or Grade B machines given in AS 2193.

6 NUMBER OF SPECIMENS. At least six specimens shall be prepared, of which at least three shall be tested at each specified age (normally 7 days and 28 days).

7 PREPARATION OF SPECIMENS.

7.1 Preparation of mould. The mould shall be properly assembled, cleaned and thinly coated with a suitable release agent.

7.2 Sampling and preparation of mortar. Mortar or materials shall be sampled in accordance with AS 2701.2, and prepared in accordance with AS 2701.3.

7.3 Filling and mechanical compaction (preferred method). Each compartment or mould shall be filled to half-height with mortar from the sample. If a flow table is available, compaction shall be achieved by holding the mould by hand on the centre of the