STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

METHODS OF SAMPLING AND TESTING MORTAR FOR MASONRY CONSTRUCTION

AS 2701.7
METHOD FOR DETERMINATION OF WATER RETENTION

1 SCOPE. This standard sets out the method for determining the water retention of mortar using a flow table.

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

AS 2701	Methods of Sampling and Testing Mortar for Masonry Construction Part 3—Method for Preparation of Fresh Mortar for Testing
ASTM C 91	Specification for Masonry Cement
ASTM C 230	Flow Tables for Use in Tests of Hydraulic Cement.

3 PRINCIPLE. The sample mortar is mixed to a specified consistency as measured by the flow table and subjected to a specified suction force. The flow is then determined and compared with the initial flow.

4 APPARATUS. The following apparatus is required:

(a) *Water retention apparatus* (see Fig. 1). The apparatus consists of a water aspirator or other source of vacuum) controlled by a mercury-relief column and connected by way of a three-way stopcock to a funnel upon which rests a perforated dish.

The perforated dish shall be made of metal not susceptible to attack by masonry mortar. The metal in the base of the dish shall have a thickness of 1.7 mm to 1.9 mm and shall comply with the requirements given in Fig. 1. The bore of the stopcock shall have a diameter of 4 ±0.5 mm, and the connecting glass tubing shall have a minimum inside diameter of 4 mm.

A mercury manometer, connected as shown in Fig. 1, indicates the vacuum. A synthetic rubber gasket shall be permanently sealed to the top of the funnel and shall be lightly coated with petroleum or light cup-grease during a test to ensure a seal between the funnel and dish. Care should be taken to ensure that none of the holes in the perforated dish are clogged from the grease used on the rubber gasket. Hardened, very smooth, non-rapid filter paper such as Whatman No 50 shall be used. It shall be of such diameter that it will lie flat and completely cover the bottom of the dish.

(b) *Flow table and frame* (see Fig. 2).

(i) The apparatus shall consist of an integral, cast, rigid iron frame and a circular, rigid table top 254 ±2.5 mm in diameter with a shaft attached perpendicular to the table top by means of a screw thread. The table top, to which the shaft with its integral contact shoulder is attached, shall be mounted on a frame in such a manner that it can be raised and dropped vertically through the specified height by means of a rotated cam with a tolerance in height of—

(a) for new tables . . . . . ±0.13 mm; or
(b) for tables in use . . . . . ±0.39 mm.

The table top shall have a fine-machined plane surface, free of blow-holes and surface defects, and shall be scribed as shown in Fig. 2. The table top shall be of cast brass or bronze, having a Rockwell hardness number not less than B25 with an edge thickness of 8 mm, and shall have six integral radial stiffening ribs. The table top and attached shaft shall have a mass of 4 ±0.05 kg and shall be symmetrical about the axis of the shaft.

NOTE: A table top and attached shaft having a mass of 9 ±0.1 lbs should be suitable for this test method.

(ii) The cam and vertical shaft shall be of medium-carbon machinery steel, hardened. The shaft shall be straight and the difference between the diameter of the shaft and the diameter of the bore of the frame shall be—