

## AUSTRALIAN STANDARD

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# COMPRESSION RESISTANCE OF FIBREBOARD BOXES (CASES)

This Standard prescribes the apparatus and test procedure to be followed when assessing the compression resistance of unfilled fibreboard boxes (Note 5.1) in any desired direction. The testing of filled boxes is prescribed in Australian Standard AS 2582.3-1983.

The principle of the method is that the box to be tested, with internal fitments as specified, is placed between the platens of a compression tester and is subjected to compressive force until a specified value for load or deformation is obtained, or until failure occurs, whichever is required.

## 1. APPARATUS

**1.1 Compression tester.** A motor-driven, mechanical or hydraulic, platen type compression tester equipped with zero setting adjustment (Note 5.2).

The bearing surfaces of the platens shall be flat and of greater length and width than the box to be tested. They shall be sufficiently rigid to withstand the testing stress without perceptible displacement. The lower platen shall be permanently marked with a suitable geometric pattern to facilitate central positioning of the boxes, thus avoiding eccentric loading. One platen shall be rigidly mounted (restrained from tilting) in the horizontal plane at right angles to the direction of loading with an accuracy of 2 in 1000. The other platen shall be either rigidly mounted so that the two remain parallel within 2 parts per 1000 at all times during the test, or be held by a universal joint at its centre and so be free to tilt in any direction.

Load shall be applied through uniform movement of one or both platens at a relative speed of  $10 \pm 3$  mm/min.

**1.2 Recording device** with a percentage error for loads not exceeding  $\pm 2$  percent of the load and an accuracy of platen displacement of  $\pm 1$  mm (Note 5.2).

**1.3 Calibration of compression tester and recording device.** The rate of loading shall be maintained within the specified limits and checked by direct measurement of the relative movement of the platens in a measured period of time. No load should be applied between the platens during measurement of the rate of loading.

The recording of load shall be accurate to within 2 percent and checked by applying deadweight, or with an accurately calibrated load cell.

The recording of deformation shall be accurate to within 1 mm or 5 percent, whichever is the lesser, and checked against direct measurement between the platens.

## 2. PREPARATION OF BOXES FOR TESTING

**2.1 Conditioning of sample.** Condition the sample in accordance with Appita 414 in the standard atmosphere prescribed in Appita 415 (Note 5.3).

**2.2 Test box preparation.** Prepare each box for testing (Note 5.4) as follows:

(a) *Slotted boxes* (Type 02 series as described in Australian Standard 1048-1982).

Square up the box blank bending each flap in turn backward through  $180^\circ$  on the score line until it touches the side of the box, and then forward  $270^\circ$  to the normal closure position. Close the short or inner flaps first. Seal the outer flaps to the inner flaps, thus preventing the inner flaps from folding inwards. The flaps may be sealed by taping, gluing, stitching or self-locking.

(b) *Telescopic boxes* (Type 03 series as described in Australian Standard 1048-1982), such as:

(i) Type 0301—seal the side or end flaps by taping, gluing, or stitching; place the outer section over the inner section.

(ii) Type 0320—fold and seal the flaps of both sections as in 2.2(a); place the outer section over the inner section.

(c) *Folders* (Type 04 series as described in Australian Standard 1048-1982).

Many boxes of this type are not suitable for testing. Those which are may be prepared as in 2.2(a), ensuring that all locking tabs are in place (Note 5.5).

(d) *Other styles* Fold as in 2.2(a). Seal as specified by self-locking, taping, stitching, gluing or wire or plastic banding (Notes 5.5 and 5.6).