



Designation: D 2658 – 94 (Reapproved 1999)

Standard Test Method for Determining Interior Dimensions of Fiberboard Boxes (Box Gage Method)¹

This standard is issued under the fixed designation D 2658; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers the determination of the interior dimensions of regular slotted or special slotted styles of single-wall corrugated, double-wall corrugated, and solid fiberboard boxes.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

D 685 Practice for Conditioning Paper and Paper Products for Testing²

D 996 Terminology of Packaging and Distribution Environments²

D 4332 Practice for Conditioning Containers, Packages, or Packaging Components for Testing²

E 691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method³

2.2 ANSI Standard:

B46.1 Surface Texture Surface Roughness, Waviness and Lay⁴

3. Terminology

3.1 *Definitions*—General terms in this test method are defined in Terminology D 996.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *depth*—the distance between the innermost surfaces of the box measured perpendicular to the length and width.

3.2.2 *interior dimensions*—the shortest distances between opposite walls.

3.2.3 *length*—the larger of the two dimensions of the open face.

3.2.4 *regular slotted*—one-piece box with all flaps the same length and outer flaps meeting. Inner flaps may or may not meet, but do not overlap.

3.2.5 *special slotted*—one-piece box with all flaps meeting or not meeting but not overlapping.

3.2.6 *width*—the lesser of the two dimensions of the open face.

4. Significance and Use

4.1 The interior dimensions are important properties in the general construction of a box, and accurate methods of measurement are required for research work, routine control, and acceptance testing for conformance to specifications. For containers to carry and protect their contents effectively and efficiently, the containers must be of proper and uniform size. This method involves a degree of human judgment and assumes careful and accurate placement and reading of specified apparatus.

5. Apparatus

5.1 *Measuring Equipment*, consisting of two flat metal plates mounted on each end and at right angles to a telescoping spacing bar (Fig. 1).

5.1.1 *Metal Plates*—The metal plates shall be not less than $\frac{3}{16}$ in. (4.76 mm) thick and shall have length and width dimensions of 4 by 3 in. (102 by 76 mm) with a maximum surface roughness height of 64 μm . (1.63 μm), in accordance with ANSI B46.1. All sharp edges shall be relieved and corners shall be rounded with approximately $\frac{1}{4}$ -in. (6.35-mm) radius. The plates shall be mounted firmly at each end of the telescoping bar and must be parallel to each other within 0.02 in. (0.5 mm).

5.1.2 *Spacing Bar*—Provision shall be made for adjusting and locking the spacing bar at the linear distance between the two plane surfaces. If the spacing bar incorporates a built-in scale for convenience in reading measurements, it shall be accurate to one half of the minimum measurement unit; that is,

¹ This test method is under the jurisdiction of ASTM Committee D-10 on Packaging and is the direct responsibility of Subcommittee D10.27 on Paper and Paperboard.

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² *Annual Book of ASTM Standards*, Vol 15.09.

³ *Annual Book of ASTM Standards*, Vol 14.02.

⁴ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.