



# Standard Test Method for Compression-Displacement of Baseballs and Softballs<sup>1</sup>

This standard is issued under the fixed designation F 1888; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This test method describes a comparative measurement method for baseballs and softballs as defined by a static compression displacement test.

1.2 This test method is based on a slow rate force-displacement measurement.

1.3 This procedure is for baseballs and softballs meeting standards established by the sports' governing bodies.

NOTE 1—Since the compression-displacement of baseballs and softballs can influence the performance characteristics, this test provides a simple method to compare and categorize such balls based on force levels in a standardized compression-displacement test.

1.4 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.5 *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:*<sup>2</sup>

E 177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

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

## 3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee F08 on Sports Equipment and Facilities and is the direct responsibility of Subcommittee F08.26 on Baseball and Softball Equipment.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

3.1.1 *baseballs and softballs, n*—any such ball defined by the rules of the game as published by the sports' governing bodies.

3.1.2 *compression-displacement, n*—the reduction in ball diameter under a specified compressive load between two flat plates. Synonymous with *compression-deflection*.

3.1.3 *force, n*—the resistance to displacement. The interaction between test machine and ball during compression.

3.1.4 *four seams, n*—plane passing through the middle of the ball intersecting four stitch lines.

3.1.5 *two seams, n*—plane passing through the middle of the ball intersecting two stitch lines.

## 4. Summary of Test Method

4.1 The baseball or softball is placed between two flat-plate surfaces of a compression machine and then compressed to a standard displacement of 6.35-mm (0.25-in.). The compression load (force) applied at the standard displacement is recorded.

## 5. Significance and Use

5.1 The static compression-displacement of a baseball or softball is a mechanical property which can correlate to dynamic properties.

5.2 This test method is suitable for obtaining data in research and development, quality control, and classifying balls by the compression-displacement.

5.3 Sports associations can use compression-displacement standards in specifications for official baseballs and softballs standards in specifications for official baseballs and softballs for purposes of consistency of performance.

5.4 This same test procedure can be utilized with other compressive forces and the specified force is not necessarily the same as experienced in actual use.

## 6. Apparatus

6.1 *Compression Device*, to compress the test ball between two flat plates to 0.25 in. (6.35 mm) displacement. Compressive force to 800 lb (3560 N) is sufficient. A means of centering the test ball so that the vertical axis of the ball aligns with the vertical axis of the compression device piston.