

**STANDARD PERFORMANCE
SPECIFICATION FOR NEWLY
MANUFACTURED
FIELD HOCKEY BALLS**

NOCSAE DOC (ND) 069-14m16

Prepared By



**NATIONAL OPERATING COMMITTEE
ON STANDARDS FOR ATHLETIC EQUIPMENT**

Effective January 2017

TABLE OF CONTENTS

Scope 1

Referenced Documents 1

Test Sample Size 1

Test Procedures 1

Ball Mass 1

Ball Circumference 2

Ball Compression (C-D) 2

Ball COR 2

Performance Requirements 2

Labels and Warnings 3

MAY 2016 MODIFICATIONS/REVISIONS 4

1. Scope

- 1.1. This standard specification establishes performance requirements in the weight, compression deflection load, circumference, and coefficient of restitution for new field hockey balls as supplied by manufacturers. The requirements of this standard shall be subject to Level 3 compliance criteria unless otherwise stated herein.
- 1.2. This standard does not purport to address all of the safety problems 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. STANDARD TEST METHOD AND EQUIPMENT USED IN EVALUATING THE PERFORMANCE CHARACTERISTICS OF HEADGEAR/EQUIPMENT, NOCSAE DOC.001
- 2.2. STANDARD PROJECTILE IMPACT TEST METHOD AND EQUIPMENT USED IN EVALUATING THE PERFORMANCE CHARACTERISTICS OF PROTECTIVE HEADGEAR/PROJECTILES, NOCSAE DOC.021
- 2.3. ASTM F 1888 TEST METHOD FOR COMPRESSION-DISPLACEMENT OF BASEBALLS AND SOFTBALLS
- 2.4. ASTM F 1887 STANDARD TEST METHOD FOR MEASURING THE COEFFICIENT OF RESTITUTION (COR) OF BASEBALLS AND SOFTBALLS

3. Test Sample Size

- 3.1. See Sections 6 and 11, NOCSAE DOC.001, for QC/QA protocol testing.
- 3.2. For any standalone test report; At least one dozen (12) balls of each model must be tested.

4. Conditioning

- 4.1 Prior to testing, condition each ball for a period of not less than 24 hrs. at laboratory conditions which shall be at a temperature of 72 ± 4 °F and a relative humidity of 50 ± 20 %. Record the temperature to the nearest degree and the relative humidity to the nearest percent at the time of testing on the report form for each test series.

5. Test Procedures

5.1 Ball Mass

- 5.1.1 Place the ball on the center of the scale with a minimum resolution of 0.005 oz. and record its weight.

5.2 Ball Circumference

- 5.2.1 Measure the diameter of each ball twice. The readings must be taken $90^\circ \pm 5^\circ$ apart.
- 5.2.2 Compute the circumference of each ball at each diameter, add them together, and divide by two; the result is the ball's average circumference.

5.3 Ball Compression (C-D)

- 5.3.1 Ball compression testing is to be conducted following the procedures in ASTM F1888 with the following exceptions.
- 5.3.2 Ball conditioning and laboratory (test room) conditions are to be per section 4.
- 5.3.3 Place the ball in the compression device to compress the ball with its parting line (if any) approximately parallel to the compression platens.
- 5.3.4 Activate the compression press until the upper plate is in contact with the ball with less than 0.05 lbs. load applied to the ball.
- 5.3.5 Compress the ball to 0.25 ± 0.01 inch at a constant rate of 1 in. per minute $\pm 3\%$ and record the load force applied.

5.4 Ball COR

- 5.4.1 Ball COR testing is to be conducted following the procedures in ASTM F1887 with the following exceptions.
- 5.4.2 Ball conditioning and laboratory (test room) conditions are to be per section 4.
- 5.4.3 The ball-throwing device shall be set to deliver the ball at $60.0 \pm 3\%$ mph to the strike plate.
- 5.4.4 A suitable method for determining the trajectory of the ball while it travels through the light gates before and after impact with the strike plate shall be utilized. Any trajectory deviation determined to be greater than 6 inches shall be invalid.

6. Performance Requirements

- 6.1 The weight value must be within 5.5 to 5.75 oz.
- 6.2 The circumference value must be within 8.75 to 9.25 in.
- 6.3 The C-D at 0.25 ± 0.01 inch displacement must be within 150 lbs. ± 40 lbs.
- 6.4 The COR values must be within 0.25 to 0.45.

7. Labels and Warnings

7.1 In addition to the requirements of the section in NOCSAE DOC.021 for Projectile Labeling; a permanent replica of the NOCSAE seal must appear legibly on the exterior of the packaging.



NOTE: You must have an executed, valid license agreement with NOCSAE to use any of the NOCSAE logos at any time. NOCSAE, the NOCSAE seals/logos, and the National Operating Committee on Standards for Athletic Equipment are registered marks and the exclusive property of the Committee. Use of the marks in any manner is prohibited without prior written permission of the NOCSAE Board of Directors.

This standard is subject to revision at any time by the responsible technical authority and must be reviewed every five years and if not revised either reapproved or withdrawn. Your comments are invited either for revision, modification or creation of additional standards and should be addressed to NOCSAE's Executive Director. Check the web at www.nocsa.org to obtain the latest version of a standard.

This standard is copyrighted by NOCSAE 11020 King Street, Suite 215 Overland Park, Kansas 66210 USA. Copies may be obtained from the NOCSAE web site at www.nocsa.org

MAY 2016 MODIFICATIONS/REVISIONS

- Removed ball physical characteristics requirement