

Footwear — Test methods for stiffeners and toepuffs — Mechanical characteristics

The European Standard EN ISO 20864:2004 has the status of a
British Standard

ICS 61.060

National foreword

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The UK participation in its preparation was entrusted to Technical Committee TCI/69, Footwear and leather, which has the responsibility to:

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 21 December 2004

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 19 and a back cover.

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Amendments issued since publication

Amd. No.	Date	Comments

© BSI 21 December 2004

ISBN 0 580 45128 3

English version

Footwear - Test methods for stiffeners and toepuffs -
Mechanical characteristics (ISO 20864:2004)

Chaussures - Méthodes d'essai des contreforts et des
bouts durs - Caractéristiques mécaniques (ISO
20864:2004)

Schuhe - Prüfverfahren für Hinterkappen und Vorderkappen
- Mechanische Kenngrößen (ISO 20864:2004)

This European Standard was approved by CEN on 23 August 2004.

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Foreword

This document (EN ISO 20864:2004) has been prepared by Technical Committee CEN/TC 309 "Footwear", the secretariat of which is held by AENOR, in collaboration with Technical Committee ISO/TC 216 "Footwear".

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2005, and conflicting national standards shall be withdrawn at the latest by June 2005.

This document includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This document specifies three methods for determining the shape retention properties and compression strength of a domed test specimen. These methods are the following and they are applicable to footwear toepuff and stiffener:

Method 1: Applicable to heat activated materials

Method 2: Applicable to solvent activated materials

Method 3: Applicable to non-thermoplastic fibreboard

NOTE Although it is usual to determine both the shape retention properties and the compression strength of a domed test specimen, either can be determined alone by carrying out the procedures relating to the respective property.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12222, *Footwear - Standard atmospheres for conditioning and testing of footwear and components for footwear*.

EN ISO 7500-1, *Metallic materials - Verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Verification and calibration of the force-measuring system (ISO 7500-1:2004)*.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

shape retention

aptitude of the material to maintain the original shape (dome) after loading the test piece several times

3.2

compression strength

force required to deform the test piece in determined extent

4 Apparatus and material

4.1 General

The following apparatus and material shall be used.

4.2 Methods 1 and 2

4.2.1 A dome forming tool made of a rigid heat and solvent resistant material and consisting of:

4.2.1.1 A dome capped piston of diameter $47,5 \text{ mm} \pm 0,5 \text{ mm}$ and dome of curvature radius $35,0 \text{ mm} \pm 0,5 \text{ mm}$. This will produce a dome of height $9,3 \text{ mm} \pm 0,2 \text{ mm}$.

4.2.1.2 A metal cylinder with:

- an internal diameter less than 48 mm but large enough to allow the piston (4.2.1.1) to move freely within it;
- a length of at least 25 mm;
- a clamping ring flange on one end to take the clamping ring as specified (4.2.1.4).

4.2.1.3 Means of holding the piston to the cylinder in a position such that the edge of the domed cap is aligned with the outer surface of the clamping ring flange.

4.2.1.4 A clamping ring with:

- an internal diameter of less than 48 mm but large enough to allow the piston (4.2.1.1) to move freely within it;
- an external diameter and design of any surface pattern that should ensure that the test specimen does not slip during the test, and should neither stretch nor compress the central area of the test specimen as it is clamped;
- a method of tightening the clamping ring to the clamping flange on the end of the cylinder (4.2.1.2).

A diagram of the apparatus is given in Figure 1.