



Technical Specification

ISO/TS 20995

Footwear — Performance requirements for components for footwear — Stiffeners and toe puffs

*Chaussures — Exigences de performance pour les composants des
chaussures — Contreforts et bouts*

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 216, *Footwear*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Footwear — Performance requirements for components for footwear — Stiffeners and toe puffs

1 Scope

This document establishes the performance requirements for stiffener and toe puff components for footwear, in order to assess the suitability for the end use and/or fitness for purpose. It also establishes the test methods to be used to evaluate the compliance with the requirements.

This document applies to stiffeners and toe puffs for all kinds of footwear as defined in [Table 1](#).

This document can be used as a reference by the manufacturer and the supplier.

This document does not establish the degrees of hardness, that are to be chosen by the manufacturer.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 48-4, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 4: Indentation hardness by durometer method (Shore hardness)*

ISO 17709, *Footwear — Sampling location, preparation and duration of conditioning of samples and test pieces*

ISO 19952, *Footwear — Vocabulary*

ISO 20863, *Footwear — Test methods for stiffeners and toepuffs — Bondability*

ISO 20864, *Footwear — Test methods for stiffeners and toepuffs — Mechanical characteristics*

ISO 80000-1, *Quantities and units — Part 1: General*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19952 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

4 Classification

The footwear shall be classified according to [Table 1](#).

Table 1 — Classification

Class	Exposure	Shoe type
A	slight	infant shoes, slippers, indoor shoes, fashion shoes
B	medium	casual shoes (adult and children shoes)
C	high	children school shoes, adult work shoes (not PPE) and general sport shoes
D	heavy	heavy work shoes (not PPE), trekking, hiking or similar purpose sports shoes

5 Requirements

5.1 General

This document establishes essential performance requirements, all of which shall be fulfilled.

The results of each determination, as well as the average values, shall be rounded off in accordance with ISO 80000-1.

When taken from finished footwear, samples shall be prepared in accordance with ISO 17709.

5.2 Performance requirements for stiffeners and toe puffs for footwear

The requirements in [Table 2](#) shall apply.

Table 2 — Test methods and requirements

Test method	Test name	Requirements			
		Class A	Class B	Class C	Class D
ISO 20863	Bondability	With lining: — Dry: $\geq 0,5$ N/mm — Wet: $\geq 0,3$ N/mm			
		Without lining: — Dry: $\geq 1,0$ N/mm — Wet: $\geq 0,6$ N/mm			
ISO 20864	Mechanical characteristics	Shape retention: > 70 % after 1 deformation > 50 % after 10 deformations			
		Collapsing load resilience: > 50 % after 10 deformations			
ISO 48-4	Hardness	≤ 30 N	30 N to 80 N	80 N to 130 N	≥ 130 N
ISO 20864	Resilience	70 % minimum	50 % minimum	40 % minimum	30 % minimum
ISO 20864	Moisture resistance	40 % minimum	60 % minimum	80 % minimum	

6 Marking and labelling

Marking and labelling are optional.

If reference to this document is made, only stiffeners and toe puffs complying with all the requirements may be marked. In this case, this shall be clearly marked by the manufacturer either directly on the product or by a label with the following additional information:

- the manufacturer's name, trade mark or identification mark;
- the class of footwear for which the accessories are intended to be used, as indicated in [Table 1](#);
- reference to this document.

Any reference to compliance with this document shall not be put in a part of the stiffener or toe puff that can be visible when the footwear is finished.