

Rubber footwear - Lined industrial vulcanized-rubber boots - Specification

ICS 13.340.50

National foreword

This British Standard is the UK implementation of ISO 2023:1994, incorporating corrigendum December 2001.

The start and finish of text introduced or altered by corrigendum is indicated in the text by tags. Text altered by ISO corrigendum December 2001 is indicated by ^ % .

The UK participation in its preparation was entrusted to Technical Committee PH/1, Safety, protective and occupational footwear.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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Rubber footwear — Lined industrial vulcanized-rubber boots — Specification

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 2023 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*.

This second edition cancels and replaces the first edition (ISO 2023:1973), which has been technically revised.

^ The responsibility for ISO 2023 has since been transferred from ISO/TC45, *Rubber and rubber products*, to ISO/TC 94, *Personal safety — Protective clothing and equipment*, SC 3, *Foot Protection*. %

Annexes A, B, C, D and E form an integral part of this International Standard. Annex F is for information only.

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Rubber footwear — Lined industrial vulcanized-rubber boots — Specification

1 Scope

This International Standard specifies requirements for lined industrial vulcanized-rubber ankle, half-knee, short-knee and knee-height boots, for men and women, and lined rubber boots of three-quarter and full-thigh height for men.

The standard does not cover the style of boot.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 37:1994, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*.

ISO 132:1983, *Rubber, vulcanized — Determination of flex cracking (De Mattia)*.

ISO 188:1982, *Rubber, vulcanized — Accelerated ageing or heat-resistance tests*.

ISO 815:1991, *Rubber, vulcanized or thermoplastic — Determination of compression set at ambient, elevated or low temperatures*.

ISO 10335:1990, *Rubber and plastics footwear — Nomenclature*.

3 Definitions

For definitions of footwear terms, see ISO 10335.

4 Design requirements

4.1 Boot upper

The boot upper shall consist of one or more plies of rubber and fabric.

4.2 Minimum thickness

At no point shall the thickness of the boot be less than the appropriate value given in table 1, when measured as described in annex A.

In the case of heels with internal cavities, the thickness from the outer surface of the heel to the start of the cavity, over any cleat, including pattern, shall be not less than 9,0 mm.

4.3 Materials and components

4.3.1 Mandatory requirements

4.3.1.1 Laces

When tested in accordance with the method described in annex B, laces shall have an average abrasion resistance of not less than 11 000 cycles.

When tested in accordance with the method described in annex C, laces shall have an average breaking force of not less than 500 N.

Table 1 — Minimum thickness

Dimensions in millimetres

Measurement	Thickness ‰			
		Over cleat	Between cleats	Non-cleat
Boot upper	^ 1,5 ‰			
Foxing strip at the toe	3,0			
Foxing strip at the heel	4,0			
Foxing strip in other areas	2,5			
Insole, filler and soling (men's)		13,0		9,0
Insole, filler and soling (women's)		11,0		9,0
Cleated soling (men's)		9,0	3,0	
Cleated soling (women's)		7,0	2,5	
Non-cleated soling				5,0
Cleated heel (men's)		25,0		
Cleated heel (women's)		20,0		
Non-cleated heel				20,0

4.3.1.2 Metal components

If footwear is to be used in potentially flammable or explosive atmospheres, no metal component shall be of aluminium, magnesium or titanium; neither shall any alloy containing one or more of these constituents be used unless both the total content of these three constituents does not exceed 15 % by mass, and the content of magnesium and titanium together does not exceed 6 % by mass.

NOTE 1 These limitations have been imposed to avoid the hazards of sparking due to friction between rusted steel or iron and the metals described.

4.3.2 Optional requirements

Boot heights

Suggested ranges for heights of boots are given in annex F.

5 Physical properties

5.1 Breaking force of the boot upper

When tested as described in annex D, the breaking force shall be in accordance with table 2.

Table 2 — Minimum breaking force of boot upper

	Minimum breaking force — length and breadth directions N/25 mm
Woven material	250
Knitted fabric	180

5.2 Resistance to flexing of boot upper after ageing

Four test pieces shall be cut from the boot length, two along the length and two across the breadth, and, after ageing for 168 h at 70 °C ± 1 °C in accordance with the ISO 188 air-oven method, shall be tested as described in annex E.

All four test pieces shall withstand the number of continuous flex cycles shown in table 3 without showing pinholes or cracking when viewed with the unaided eye, and shall meet the requirements of grade 1 or grade 2 of ISO 132.

For this purpose, only those parts of the test piece shall be observed which are under tension during the test, i.e. the folds which form a diamond shape. The centre fold of the test piece, pinholes or cracking associated with machine damage shall be ignored.