



SLOVENSKI STANDARD

SIST EN 344-2:1996

01-december-1996

Zaščitna, varovalna in delovna obutev za poklicno uporabo - 2. del: Dodatne zahteve in preskusne metode

Safety, protective and occupational footwear for professional use - Part 2: Additional requirements and test methods

Sicherheits-, Schutz- und Berufsschuhe für den gewerblichen Gebrauch - Teil 2: Zusätzliche Anforderungen und Prüfverfahren

Chaussures de sécurité, chaussures de protection et chaussures de travail a usage professionnel - Partie 2: Exigences additionnelles et méthodes d'essais

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Ta slovenski standard je istoveten z: **EN 344-2:1996**

ICS:

13.340.50 Varovanje nog in stopal Leg and foot protection

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EUROPEAN STANDARD

EN 344-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 1996

ICS 13.340.10

Descriptors: personal protective equipment, accident prevention, work safety, footwear, boots, specifications, characteristics, tests, water resistance

English version

**Safety, protective and occupational footwear for
professional use - Part 2: Additional requirements
and test methods**

Chaussures de sécurité, chaussures de protection et chaussures de travail à usage professionnel - Partie 2: Exigences additionnelles et méthodes d'essais (standards.iteh.ai) Sicherheits-, Schutz- und Berufsschuhe für den gewerblichen Gebrauch - Teil 2: Zusätzliche Anforderungen und Prüfverfahren

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Annex ZA (informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives

Foreword

This European Standard has been prepared by the Technical Committee CEN/TC 161 'Foot and leg protectors', the secretariat of which is held by BSI.

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 January 1997, and conflicting national standards shall be withdrawn at the latest by January 1997.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

This European Standard was originally submitted to the CEN enquiry as prEN 190. A modification to the number of the draft was required by CEN/TC 161 and consequently this European Standard is being issued as EN 344-2. Subsequent to the issue of EN 344-2, EN 344:1992 will be renumbered as EN 344-1 in order to maintain clarity in the identifier for EN 344. A similar situation exists for EN 345, EN 346 and EN 347.

For relationship with EU Directive(s), see informative Annex ZA which is an integral part of this standard.

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According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

0 Introduction

During the preparation of EN 344:1992¹⁾, it became apparent that there were a number of requirements and test methods which were needed for certain types of footwear for professional use, but which were not then at a sufficiently advanced stage for inclusion in that standard. Some of those items have now been included in this present standard, which is intended to supplement the contents of EN 344:1992¹⁾ and to be used with it in conjunction with EN 345-2, EN 346-2 or EN 347-2, as appropriate. Further work is still being undertaken with respect to slip resistance properties, protection against chemical hazards and the development of a mechanical method for the determination of water resistance. A separate European Standard for insulating footwear is also being prepared.

1 Scope

This draft European Standard specifies requirements and test methods relating to properties of footwear for professional use additional to those specified in EN 344:1992¹⁾. It covers water resistance, protection against cutting by hand held chain saws, resistance to fire fighting hazards (footwear for fire fighters), metatarsal protection and cut resistance.

This standard can only be used in conjunction with EN 345-2, EN 346-2 or EN 347-2, which specify requirements for footwear relating to specific levels of risk.

2 Normative references

SIST EN 344-2:1996

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[2925834cae80/sist-en-344-2-1996](https://standards.iteh.ai/catalog/standards/sist/5bba3522-8aff-4063-9e5c-2925834cae80/sist-en-344-2-1996)

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 345-2	Safety footwear for professional use - Part 2: Additional specifications
EN 346-2	Protective footwear for professional use - Part 2: Additional specifications
EN 347-2	Occupational footwear for professional use - Part 2: Additional specifications
EN 344 : 1992 ¹⁾	Requirements and test methods for safety, protective and occupational footwear for professional use
EN 345 : 1992 ¹⁾	Specification for safety footwear for professional use

¹⁾ Subsequent to the issue of EN 344-2, EN 345-2, EN 346-2 and EN 347-2, EN 344:1992, EN 345:1992, EN 346:1992 and EN 347:1992 will be renumbered into Parts 1.

EN 346 : 1992 ¹⁾	Specification for protective footwear for professional use
EN 347 : 1992 ¹⁾	Specification for occupational footwear for professional use
EN 366 : 1993	Protective clothing - Protection against heat and fire - Method of test : Evaluation of materials and material assemblies when exposed to a source of radiant heat
EN 381-3 : 1996	Protective clothing for users of hand held chain saws - Part 3: Test method for boots
EN 388 : 1994	Protective gloves against mechanical risks
ISO 6940 : 1984	Textile fabrics - Burning behaviour - Determination of ease of ignition of vertically oriented specimens

3 Definitions

For the purposes of this standard, the definitions given in EN 344:1992 apply.

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4 Requirements for whole footwear

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4.1 Sampling and conditioning

The minimum number of samples, i.e. separate items of footwear, to be tested in order to check compliance with the requirements specified in clause 4, together with the minimum number of test pieces taken from each sample, is given in table 1.

Wherever possible, test pieces shall be taken from the whole footwear unless otherwise stated.

NOTE: If it is not possible to obtain a large enough test piece from the footwear, then a sample of the material from which the component has been manufactured can be used instead and this should be noted in the test report.

Where samples are required from each of three sizes, these shall comprise the largest, smallest and a middle size of the footwear under test.

¹⁾ Subsequent to the issue of EN 344-2, EN 345-2, EN 346-2 and EN 347-2, EN 344:1992, EN 345:1992, EN 346:1992 and EN 347:1992 will be renumbered into Parts 1.

All test pieces shall be conditioned in a standard atmosphere of $20\text{ °C} \pm 2\text{ °C}$ and $65\% \pm 5\%$ relative humidity for a minimum of 48 h before testing, unless otherwise stated in the test method.

The maximum time which shall elapse between removal from the conditioning atmosphere and the start of testing shall be not greater than 10 min, unless otherwise stated in the test method.

Each test piece shall individually satisfy the specified requirement, unless otherwise stated in the test method.

Table 1: Minimum number of samples and test pieces

Requirements	Clause reference	Number of samples	Number of test pieces from each sample
Water resistance	4.2	3 pairs	1 pair
Resistance to chain saw cutting	4.3.3	3 pairs size 42	1 pair
Flex resistance of metal penetration resistant inserts	4.3.4 4.4.3	1 pair from each of three sizes	1 pair
Contact heat	4.4.5.1	1 pair	1 pair
Radiant heat	4.4.5.2	1 pair	1 pair
Flame	4.4.5.3	1 pair	1 pair
Impact resistance of metatarsal protective device	4.5.2	1 pair from each of three sizes	1 pair
Resistance to cutting	4.6.3	1 pair from each of three sizes	4 from each pair

4.2 Water resistance

When tested in accordance with the method described in 5.1, the total area of water penetration after 100 trough lengths shall be not greater than 3 cm².

4.3 Protection against cutting by hand held chain saw

4.3.1 Design

Only footwear of Designs C, with an upper of height greater than 195 mm, D and E, as described in 4.2.1 of EN 344 : 1992 shall be used.

4.3.2 Construction

Footwear shall have a continuous protective area, as shown in figure 1, comprising the vamp, tongue and toe area of the footwear. It includes:

- a) the safety toecap;
- b) the area immediately behind the toecap back edge up to two vertical lines 70 mm on either side of the footwear centre line, measured at points A as shown in figure 1, and vertically a maximum of 10 mm above the feather line to 195 mm above the insole, measured between the insole top edge in the middle of the seat at points A as shown in figure 1.

For class 3 footwear (see 4.3.3) there shall be no gap between the protective area and the feather edge.

NOTE: The feather line is the line of a shoe where the upper meets the bottom, the part of the bottom involved being the welt, rand, or sole, depending on the method of shoe construction.

There shall be no gaps between the toecaps and the protective material.

All chain saw protective material shall be permanently attached to the footwear. If different chain saw protective materials are used, either they shall be fixed to each other or there shall be an overlap.

If the footwear is designed to provide protection over a larger area than that specified, all parts shall have the same protective quality.

4.3.3 Resistance to chain saw cutting

When tested in accordance with the method described in EN 381-3:1996 using the test chain speed specified in table 2 for the appropriate class of footwear, no cut-through shall occur.

Table 2: Test chain speeds

Class of footwear	Test chain speed m/s
0	16
1	20
2	24
3	28

4.3.4 Flex resistance of metal penetration resistance inserts

When metal penetration resistant inserts in all types of footwear are tested in accordance with the method described in B.2.2 of EN 344:1992, they shall show no visible signs of cracking after being subjected to 10^6 flexes.

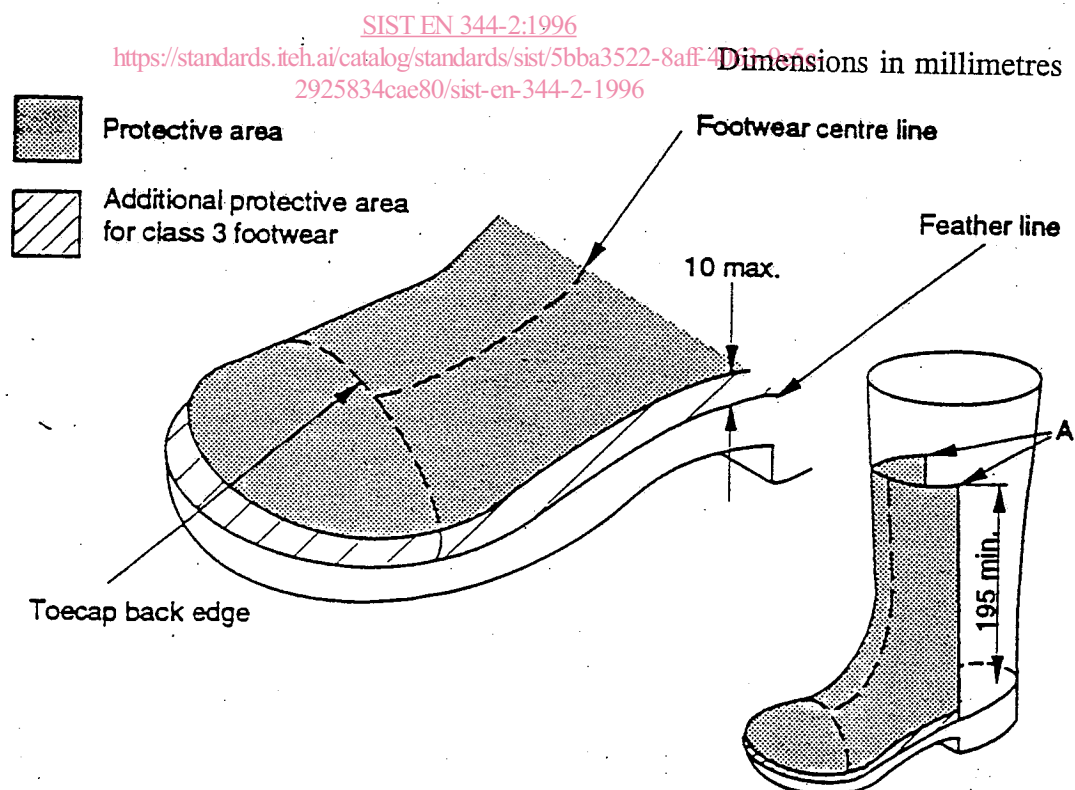


Figure 1 : Minimum protective area

4.4 Resistance to fire fighting hazards (footwear for fire fighters)

4.4.1 Design

Footwear shall not be of Design A, as described in 4.2.1 of EN 344:1992.

4.4.2 Construction

In classification I footwear (see clause 4 of EN 345:1992), the upper shall be made of grain leather.

4.4.3 Flex resistance of metal penetration resistant inserts

When metal penetration resistance inserts in all types of footwear are tested in accordance with the method described in B.2.2 of EN 344:1992, they shall show no visible signs of cracking after being subjected to 10^6 flexes.

4.4.4 Outsole

4.4.4.1 The cleating design shall be such that there are no continuous linear transverse valleys across the sole.

4.4.4.2 The outsole shall have a cleat height of at least 1,5 mm in the waist area.

4.4.4.3 The outsole shall have an inclined-breast heel. Distance a shall be at least 35 mm, angle ' α ' shall be greater than 90° and less than 120° and dimension b shall be at least 10 mm. (See figure 2).

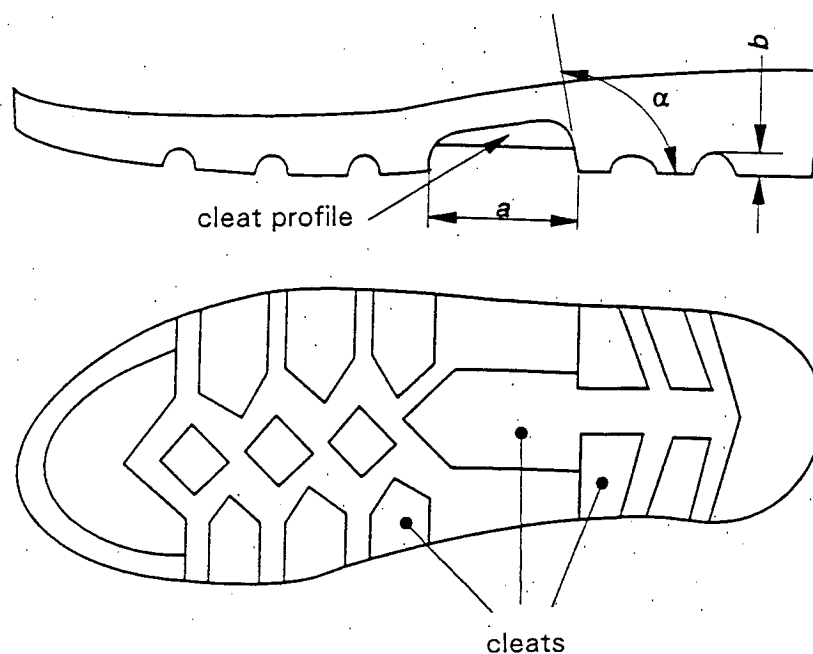


Figure 2 : Outsole dimensions