SLOVENSKI STANDARD
SIST EN ISO 20344:2012

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SIST EN ISO 20344:2004
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Osebna varovalna oprema - Metode preskušanja obutve (ISO 20344:2011)

PPersonal protective equipment - Test methods for footwear (ISO 20344:2011)

Persönliche Schutzausrüstung - Prüfverfahren für Schuhe (ISO 20344:2011)

Équipement de protection individuelle - Méthodes d'essais pour les chaussures (ISO 20344:2011)

Ta slovenski standard je istoveten z: **EN ISO 20344:2011**

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EUROPEAN STANDARD

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English Version

Personal protective equipment - Test methods for footwear (ISO 20344:2011)

Équipement de protection individuelle - Méthodes d'essai pour les chaussures (ISO 20344:2011)

Persönliche Schutzausrüstung - Prüfverfahren für Schuhe (ISO 20344:2011)

This European Standard was approved by CEN on 30 November 2011.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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 CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN ISO 20344:2011) has been prepared by Technical Committee CEN/TC 161 “Foot and leg protectors”, the secretariat of which is held by BSI, in collaboration with Technical Committee ISO/TC 94 "Personal safety - Protective clothing and equipment".

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of an identical text or by endorsement, at the latest by June 2012, and conflicting national standards shall be withdrawn at the latest by June 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 20344:2004.

This document 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.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

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

Annex ZA
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 89/686/EEC

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide one means of conforming to Essential Requirements of the EU Directive 89/686/EEC on PPE.

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one Member State, compliance with the clauses of this standard, together with the relevant requirements given in the product standards, confers within the limits of the scope of those standards, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

INTERNATIONAL STANDARD

ISO 20344

Second edition
2011-12-01

Personal protective equipment — Test methods for footwear

Équipement de protection individuelle — Méthodes d'essais pour les chaussures

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 20344 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 161, *Foot and leg protectors*, in collaboration with ISO Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 3, *Foot protection,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 20344:2004), which has been technically revised. It also incorporates the Technical Corrigendum ISO 20344:2004/Cor.1:2005 and the Amendment ISO 20344:2004/Amd.1:2007.

The main differences between this edition and the 2004 edition are:

— Annex A, inclusion of a new procedure for plasticine calibration;

— Annex C, inclusion of a new table for footwear sizing;

— 4.1, Table 1, clarification of the method for sampling;

— 5.1, clarification on testing of ergonomic features;

— 5.4 and 5.5, inclusion of a reference to EN 12568:2010;

— 5.8.3, different test methods for anti-penetration insoles;

— 5.15.2, inclusion of a new test method for water resistance;

— 6.4.2 and 6.5.2, inclusion of test methods (due to the withdrawal of ISO 2023);

— 6.11, replacement of the method for determination of chromium VI by a reference to ISO 17075;

— withdrawal of 5.11, “Determination of the electrical insulation”.

Personal protective equipment — Test methods for footwear

1 Scope

This International Standard specifies methods for testing footwear designed as personal protective equipment.

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.

ISO 34-1:2010, *Rubber, vulcanised or thermoplastic — Determination of tear strength — Part 1: Trouser, angle and crescent test pieces*

ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868:2003)*

ISO 1817:2011, *Rubber, vulcanised — Determination of the effect of liquids*

ISO 3290-1, *Rolling bearings — Balls — Dimensions and tolerances*

ISO 3376, *Leather — Physical and mechanical tests — Determination of tensile strength and percentage extension*

ISO 3377-2, *Leather — Physical and mechanical tests — Determination of tear load — Part 2: Double edge tear*

ISO 4045, *Leather — Determination of pH*

ISO 4643:1992, *Moulded plastic footwear — Lined or unlined poly (vinyl chloride) boots for general industrial use — Specification*

ISO 4649:2010, *Rubber, vulcanized or thermoplastic — Determination of abrasion resistance using a rotating cylindrical drum device*

ISO 4674-1:2003, *Rubber- or plastics-coated fabrics — Determination of tear resistance — Part 1: Constant rate of tear methods*

ISO 5423:1992, *Moulded plastic footwear — Lined or unlined polyurethane boots for general industrial use — Specification*

ISO 13287, *Personal protective equipment — Footwear — Test method for slip resistance*

ISO 17075, *Leather — Chemical analysis — Determination of chromium VI*

ISO 20345:2011, *Personal protective equipment — Safety footwear*

ISO 20347, *Personal protective equipment — Occupational footwear*

ISO 23529:2010, *Rubber — General procedures for preparing and conditioning test pieces for physical test methods*

EN 388:2003, *Protective gloves against mechanical risks*

EN 12568:2010, *Foot and leg protectors — Requirements and test methods for toecaps and penetration-resistant inserts*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20345 and ISO 20347 apply.

4 Sampling and conditioning

4.1 Sampling

The minimum number of samples to be tested in order to check compliance with the requirements specified in ISO 20345, ISO 20347 and any specific job-related footwear standards (e.g. ISO 17249, *Safety footwear with resistance to chain saw cutting*), together with the minimum number of test pieces taken from each sample, shall be in accordance with Table 1.

Wherever possible and necessary to ensure the essential safety requirements, test pieces shall be taken from the whole footwear. This paragraph is applicable to all of Table 1.

NOTE 1 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 may be used instead. This should be noted in the test report.

NOTE 2 Footwear sizes are defined in Annex C.

Where samples are required from each of three sizes, these shall comprise the smallest, middle and largest size of the footwear under test [indicated as (SML) in Table 1].

4.2 Conditioning

All test pieces shall be conditioned in a standard atmosphere of (23 ± 2) °C and (50 ± 5) % RH 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 not be greater than 10 min, unless otherwise stated in the test method.

4.3 Prerequisites on the testing procedure

When several test pieces are tested, at least the worst results per size shall to be reported.

Footwear shall be tested as it is intended to be used, unless otherwise specified in the test method. For instance, if there is a removable insock, it shall be left in place to perform the tests.

The uncertainty of measurement for each test method described in this International Standard may be assessed. One of the two following approaches should be used:

— a statistical method, e.g. that given in ISO 5725-2;

— a mathematical method, e.g. that given in ENV 13005.

Table 1 — Minimum number of samples and test pieces

	Property under test (B = basic requirement, A = additional requirement)		Test only on the final footwear	Subclause reference	Type and number of samples	Type and number of test pieces per sample
Whole footwear	Specific ergonomic features	B	yes	5.1	1 pair of shoes in 3 sizes	1 pair of shoes
	Upper/outsole and sole interlayer bond strength	B	yes	5.2	1 shoe from each of 3 sizes (SML)	1 test piece taken from the shoe
	Internal toecap length	B	yes	5.3	1 pair of shoes from each of 3 sizes (SML)	1 pair of toecaps
	Impact resistance	B	yes	5.4	1 pair of shoes from each of 3 sizes (SML)	1 pair of shoes
	Compression resistance	B	yes	5.5	1 pair of shoes from each of 3 sizes (SML)	1 pair of shoes
	Behaviour of toecaps and inserts (thermal and chemical)	B	no	5.6	See Tables 3 and 4	
	Leakproofness	B	yes	5.7	2 shoes from different sizes	1 shoe
	Dimensional conformity and penetration resistance of inserts	A	yes	5.8	1 pair of shoes from each of 3 sizes (SML)	1 pair of shoes
	Flex resistance of penetration-resistant insert	A	no	5.9	1 pair of insert from each of 3 sizes (SML)	1 pair of inserts
	Electrical resistance	A	yes	5.10	1 pair of shoes from each of 3 sizes (SML)	1 pair of shoes
	Slip resistance	B	yes	5.11	1 shoe from each of 3 sizes (SML)	1 shoe
	Insulation against heat	A	yes	5.12	2 shoes from different sizes	1 shoe
	Insulation against cold	A	yes	5.13	2 shoes from different sizes	1 shoe
	Energy absorption of seat region	A	yes	5.14	1 pair of shoes from each of 3 sizes (SML)	1 pair of shoes
	Water resistance	A	yes	5.15	3 pairs of shoes (minimum 2 different sizes)	1 pair of shoes
	Impact resistance metatarsal protective device	A	yes	5.16	1 pair of shoes from each of 3 sizes (SML)	1 pair of shoes
	Ankle protection	A	yes	5.17	1 shoe from each of 3 sizes (SML)	2 test pieces