SLOVENSKI STANDARD
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Obutev za gasilce

Footwear for firefighters

Schuhe für die Feuerwehr

Chaussures pour pompiers

Ta slovenski standard je istoveten z: EN 15090:2012

ICS:

13.220.10	Gašenje požara	Fire-fighting
13.340.50	Varovanje nog in stopal	Leg and foot protection

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Footwear for firefighters

Chaussures pour pompiers

Schuhe für die Feuerwehr

This European Standard was approved by CEN on 24 September 2011.

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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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Foreword

This document (EN 15090:2012) has been prepared by 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of an identical text or by endorsement, at the latest by July 2012, and conflicting national standards shall be withdrawn at the latest by July 2012.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 15090:2006.

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(s).

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

The main differences between this edition and EN 15090:2006 are as follows:

a) Slip resistance has been added (reference to EN ISO 20345, 5.3.5).

b) The types of footwear for firefighters (4.3) have been changed in accordance with the risks.

c) The requirements and the test method for radiant heat (6.3.2 and 7.2) have been changed.

d) The requirement for resistance to chemicals (6.5) have been slightly changed.

e) The requirements for high electrical resistance outsoles (6.6.4 in the old version) and the adequate Marking symbols in Table 9 were removed.

f) Annex B (normative) has been restructured. The criteria for the assessment of the state of footwear have been listed separately: “Insulation against heat”, “Radiant heat” and “Flame resistance”.

g) Annex D 'Testing of laces' has been deleted.

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, Turkey and the United Kingdom.

Introduction

The purpose of this standard is to provide minimum performance requirements and test methods for footwear for firefighters which is intended for use for fire fighting and associated activities. A risk assessment should be used to determine whether the footwear covered by this standard is suitable for the intended use for the expected exposure. Firefighters should be trained in the use, care and maintenance of the footwear covered by this standard, including an understanding of its limitations.

1 Scope

This European standard specifies minimum requirements and test methods for the performance of three types (see 4.3) of footwear for use by firefighters for fire suppression, general-purpose rescue, fire rescue and hazardous materials emergencies.

This European standard does not cover special personal protective equipment used in high-risk situations (for example, the conditions described in ISO 15538).

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 13832-3:2006, *Footwear protecting against chemicals — Part 3: Requirements for footwear highly resistant to chemicals under laboratory conditions*

EN 50321, *Electrically insulating footwear for working on low voltage installations*

EN ISO 6942:2002, *Protective clothing — Protection against heat and fire — Method of test: Evaluation of materials and material assemblies when exposed to a source of radiant heat (ISO 6942:2002)*

EN ISO 15025:2002, *Protective clothing — Protection against heat and flame — Method of test for limited flame spread (ISO 15025:2000)*

EN ISO 20344:2011, *Personal protective equipment — Test methods for footwear*

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

ISO 15538, *Protective clothing for firefighters — Laboratory test methods and performance requirements for protective clothing with a reflective outer surface*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 20345:2011 apply.

4 Classification, design and type

4.1 Classification

Footwear for firefighters shall be classified in accordance with Table 1.

Table 1 — Classification of footwear

Classification	Description
Class I	Footwear made from leather and other materials, excluding all-rubber or all-polymeric footwear
Class II	All-rubber (i.e. entirely vulcanized) or all-polymeric (i.e. entirely moulded) footwear

4.2 Design

Footwear shall conform to one of designs B to E of Figure 3 of EN ISO 20345:2011.

4.3 Type

The types of footwear for firefighters shall be as follows:

— Type 1: Outdoor interventions, fire and wildland firefighting; no protection against penetration, no toe protection, no protection against chemical hazards;

— Type 2: All fire suppression and rescue interventions where protection against penetration, and toe protection are needed, no protection against chemical hazards;

— Type 3: All fire suppression and rescue interventions where protection against penetration and toe protection are needed, including protection against chemical hazards.

5 Sampling and conditioning

The minimum number of samples shall be that specified in Clause 6 of EN ISO 20344:2011, together with the minimum number of test pieces taken from each sample, as given in Table 2.

Wherever possible, test pieces shall be taken from the whole footwear unless otherwise stated in this standard and in EN ISO 20344.

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 and this shall 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.

All test pieces shall be conditioned in a standard atmosphere of (23 + 2) °C and (50 + 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 specific requirement, unless otherwise stated in the test method.

NOTE The uncertainty of measurement for each test method described in the present standard may be assessed. One of the two following approaches should be used:

– a statistical method, e.g. that given in ISO 5725-2 [20];

– a mathematical method, e.g. that given in ENV 13005 [3].

Table 2 — Minimum number of samples and test specimens or test pieces

Property to be determined[a]	Reference	Number of samples	Number of test pieces from each sample	Test only on the final footwear
Radiant heat	6.3.2	1 pair	See 7.2	Yes
Flame	6.3.3	1 pair	See 7.3	Yes
Compression resistance of footwear forepart	6.4	1 pair from each of three sizes	1 pair	Yes
Zipper puller attachment strength	6.8.2	3 zippers		No
Zipper lateral strength	6.8.3	3 zippers		No
[a] Table 1 of EN ISO 20344:2011 applies.				

6 Requirements

6.1 Types and classifications

The permitted combinations of types of footwear for firefighters (see 4.3) and classes I and II (see 4.1) shall be as given in Table 3. As specified in 4.2, design A shall not be used.

Table 3 — Relationship between types of footwear and classes

Types of footwear	Class I of Table 1	Class II of Table 1
1	Possible	Possible
2	Possible	Possible
3	Not possible	Possible
NOTE Type 3 footwear for firefighters are suitable for use with chemical protective clothing in accordance with EN 943-2, where appropriate.		

6.2 General requirements

Footwear for firefighters shall conform to the requirements specified in Table 4.

Table 4 — General requirements

		Requirements	Reference		Type 1		Type 2		Type 3	Marking symbol
			EN ISO 20345:2011	EN 15090	Class		Class		Class II	
					I	II	I	II		
General	Footwear construction	Type and classifications		4.1 and 6.1	X	X	X	X	X	
		Height of upper	5.2.1		X	X	X	X	X	
		Specific ergonomic features	5.3.4		X	X	X	X	X	
		Leakproofness	5.3.3		N/A	X	N/A	X	X	
		Water resistance	6.2.5		X	N/A	X	N/A	N/A	
	Seat region	Design B Figure 3 of EN ISO 20345:2011	5.2.2		X	X	–	–	–	
		Design C and D Figure 3 of EN ISO 20345:2011	5.2.2		X	X	X	X	X	
		Design E Figure 3 of EN ISO 20345:2011	5.2.2		N/A	N/A	N/A	X	X	
Whole footwear	Sole performance	Construction	5.3.1.1		X	N/A	X	N/A	N/A	
		Upper/outsole bond strength	5.3.1.2		X	N/A	X	N/A	N/A	
		Insulation against heat		6.3.1	X At least HI_I	X At least HI_I	X At least HI_2	X At least HI_2	X At least HI_2	HI_1 or HI_2 or HI_3
		Slip resistance	5.3.5		X	X	X	X	X	SRA SRB SRC
		Energy absorption of seat region	6.2.4		X	X	X	X	X	

		Flame resistance		6.3.3	X	X	X	X	X	
		Penetration resistance	6.2.1		O	O	X	X	X	P
	Toe protection	General	5.3.2.1		O	O	X	X	X	T (only for type 1)
		Internal length of toe caps	5.3.2.2		O	O	X	X	X	
		Impact resistance	5.3.2.3		O	O	X	X	X	
		Compression resistance	5.3.2.4		O	O	X	X	X	
		Corrosion resistance of metallic toe caps	5.3.2.5.1		O	O	X	X	X	
		Non-metallic toe caps	5.3.2.5.2		O	O	X	X	X	
		Compression resistance of toe puff		6.4	*	*	N/A	N/A	N/A	R
	Electrical properties	Electrically insulating footwear▲		6.6.2	X	X	X	X	X	See EN 50321
		Antistatic footwear ▲		6.6.3						A
	Resistance to imical environment	Cold insulation of sole complex	6.2.3.2		*	*	*	*	*	CI
		Resistance to chemicals		6.5	N/A	*	N/A	*	X	CH
	Accessories	Zipper		6.8	O	N/A	O	N/A	N/A	
		Metatarsal protection	6.2.6		*	*	*	*	*	M
		Ankle protection	6.2.7		*	*	*	*	*	AN
Upper		Thickness	5.4.2		N/A	X	N/A	X	X	
		Tear strength	5.4.3		X	N/A	X	N/A	N/A	
		Tensile properties	5.4.4		X	X	X	X	X	